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GES
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2015

PROCEEDINGS REPORT
Global Economic Summit 2015
ENABLING FOOD FOR ALL

Expo Centre, World Trade Centre Mumbai



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FROM FARM
TO FORK

MODERN TECHNOLOGY

INNOVATION

ENERGY EFFICIENCY

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PREFACE

I am pleased to place before you the Proceedings of the fifth Global Economic Summit (GES) 2015 themed as, 'Enabling Food for All'.



Hunger and malnutrition have gripped the masses of the world. The World has experienced large advancements in technology and farming practises. New agricultural practises have replaced the traditional ones. These developments have aimed to eradicate hunger from its roots. However, amidst the 21st century we have been grappling with the mal effects of the modern farming methods. Technology has revolutionised seed making, pesticides and fertilizers. However, in pursuit of productivity per hectare, farmers in certain farming domains have been using the same relentlessly, leading to breaking of the ecological system and have been calling for bad ecological effects, such as, the greenhouse gases and on the other hand in some other agricultural domains. Farmers have not been able to increase their productivity due to lack of awareness in using these technologies.

The Global Economic Summit aimed to bring about awareness in these aspects of agriculture and held debates and discussions by not only academia and technical stakeholders but also involved the farmers from India and abroad, thus bringing about a healthy exchange of concepts and ideas that are mutually beneficial. This Summit provided an extensive platform for the farmer, who is self sufficient and can play an important role in the eradication of hunger.

Mr. Kamal Morarka

Chairman

World Trade Centre Mumbai

SPECIAL ADDRESS

Hunger is a social evil making life miserable for millions of masses who are struggling for a crumb of bread. On the other hand, inefficiencies in the food supply chain are responsible for food wastage. In today's era, sensitivity towards hunger and nutrition have dispersed with a shift to acquiring a better quality of life. Occurrence of disease due to deficient nutrition and diet has been a common feature among the masses accessible to food. At the same time hungry and desolate people from poor and war ridden countries are suffering from malnutrition. There has been no strong complementary activity to stop the wastage of food, increase the intake of nutrition rich food and at the same time address the challenge of food security to the poorest and desolate. Farmers who till the land to produce food are also among the most desolate ones who are subjected to food insecurity. I am happy that the GES 2015 has been themed accordingly, considering this crucial issue and has attempted to create the need to bring about implementation of a sustainable food cycle with no food wastage. The GES has discussed some success stories in India such as Varun Agro Ltd. and Annamrit Farmers as Owners Foundation which can be replicated in other areas. These examples have also served the purpose of community development. The GES is replete with the most crucial issues in the field of food security and nutrition and there is no doubt, that not only the participants but the message has reached even beyond, inspiring the human populace to be aware of world hunger, malnutrition and the plight of the farmers.



“Feel what it's like to truly starve, and I guarantee that you'll forever think twice before wasting food.” - **Criss Jami, Killosophy**

Mr. Vijay Kalantri

President

All India Association of Industries

Executive Summary

“There are people in the world so hungry, that God cannot appear to them except in the form of bread.” – **Mahatma Gandhi**

The 5th edition of the Global Economic Summit 2015 on the theme 'Enabling Food for All' was well received among the agriculture fraternity in India and abroad. The Summit was jointly organised by World Trade Center (WTC) Mumbai with All India Industries Association (AIAI) from November 19-21, 2015, at WTC Mumbai. The Summit witnessed a participation of 21 international and 21 national speakers from 28 countries. Over 650 delegates participated and over 100 exhibitors showcased products and services at the Expo Center. There were 200 Business-to-Business meetings organised. The eight-panel sessions exhaustively deliberated on all topics in agriculture and allied sectors aligning with the theme.

The two and half day Summit comprised a Conference which provided in-depth knowledge through the eight-panel discussions and a variety of other knowledge products in the form of release of two publications - A Research Study 'Enabling Food for All - Can India Realise its Food Security Dream?', a primary research study showcasing the best practices in the enforcement of agricultural practices and a Summit Handbook consisting of various articles on the theme, a farmers workshop and two international presentations one from Manitoba and the other from United Nations Procurement Division UNPD). The presentation from Manitoba showcased the best agricultural practices and the investment opportunities in all sectors of the economy, especially agriculture. The presentation by UNPD explained the various avenues of procurement and the information about the processes, which could be useful for the stakeholders in India.

This Summit also honoured progressive Farmer Producer Organisations (FPOs) by recognising them for the best practices in agriculture. In addition, interaction between international agencies and farmers was proliferated through a Post-event Tour to certain regions of Maharashtra.

The Summit also conceptualised Business-to-Business Meetings and Exhibitions enabling potential collaborative efforts to cover the trade perspective of WTC Mumbai and AIAI.

Inaugural Session started with the welcome address of Mr. Vijay Kalantri, Vice Chairman, World Trade Centre Mumbai and President, All India Association of Industries. In his speech, he stressed about the prevalent drought conditions due to scanty rainfall and the relevance of development of extensive water management initiatives to curb distress and instil better farm management practices in farmers.

Shri. Subhash Desai, Minister of Industries, Maharashtra, in his special address spoke, the greatest challenge faced by India which is the huge amount of wastage in food commodities at the post-harvest stage. He stressed that another pressing issue is the acute shortage of water being faced by some of the districts in the Marathwada Region of Maharashtra. In order to overcome this issue, experts must guide farmers on how to increase agriculture production by using limited amount of water. Some of the districts in Maharashtra have no lakes, no reservoir or any other water harvesting structures and hence the amount of water stored is only around 15% of the total rainfall. He also said experts must also guide farmers on opting for value addition of crops rather than selling raw crops in the market. For example, potato farmers stand to lose gains from value. Farmers must also be taught to pursue alternative livelihood in order to reduce their reliance on agriculture.

The inaugural session consisted of special addresses by the eminent personalities namely, Mr. Ghazi Abu Nahl, Mr. Andrey Murga, Mr. Wojciech Jankowiak who were present on the occasion.

Mr. Ghazi Abu Nahl, Chairman, World Trade Center Association, New York, Chairman, World Trade Center Holdings (Cyprus) Ltd and WTC Qatar expressed concerns on excessive water wastage in India and urged that India should tread the path of best practices followed by the international community.

Mr. Andrey Murga, Deputy Head, Stavropol Region, Russia in his special address spoke about his region's strengths in agriculture. At the same time, he also gave excellent examples of best practices in his country which could be followed by India to curb hunger and poverty.

Mr. Wojciech Jankowiak, Deputy Marshal,

Wielkopolska Region, Poland in his special address spoke of how his government builds and develops the economy of Poland by strengthening the agriculture and agro-based industries. Therefore, the subject of 'Enabling Food for All' holds immense importance to his country. Poland is one of the largest producers of food commodities in the European Union and it has witnessed growth in the export of grains, processed grains and meat products, year-after-year.

The inaugural session ended with the thematic address by Mr. Shyam Khadka, FAO Representative in India who strongly advocated the need for an integrated food and nutrition security system that incorporates past experiences and lessons with updated knowledge, technology in augmenting India's agricultural productivity, implementation of social protection programmes which will not only enable food for all but enable the right food for all, which takes care of malnutrition and obesity. He also remarked on the agro-economic growth policy which would benefit GDP growth at large. However, this alone cannot fight poverty, hunger and malnutrition.

The first Panel Discussion - Food Security and International Approaches was chaired by Mr Shyam Khadka, FAO Representative in India.

Panelist: Dr. Ashok Vishandas, Chairman, Commission For Agricultural Costs And Prices, Ministry of Agriculture, Government of India expressed that, India had a trade surplus in the agriculture sector which reflects India's competitiveness in the global agriculture market. India's 'revealed comparative advantage', as measured by the Balassa Index, in the agriculture sector is 1.6 as against 0.98 in the manufacturing sector. This reveals that India's farm sector is more competitive in the global market than the manufacturing sector.

Panelist: Mr. Samir Shah, Managing Director & Chief Executive Officer, National Commodity and Derivatives Exchange Ltd. emphasised on a holistic approach to find a sustainable solution for the post-harvest loss in food commodities. He stressed on urgent policy focus in three areas namely, reforming primary markets for agriculture commodities, reforming buffer stock management and modernising storage infrastructure.

Panelist: Ms. Manisha Dhattrak, Managing Director, Varun Agro Processing Foods Pvt Ltd spoke about her successful journey with Hindustan Unilever an

International Organisation.

Panelist: Dr. Nancy Creamer, Director of Center for Environmental Farming Systems, and Professor, North Carolina State University, USA, spoke about the alarming food insecurity and bad nutrition habits from her home state and the various initiatives taken by her organisation to curb them.

The second Panel Discussion - Food Production System: Emerging Trends and Global Challenges was chaired by Mr. V. Padmanand, Director, Grant Thornton India LLP who spoke about the various comprehensive strategies, popularly referred as 'Farm to Fork' approach, for diagnostics, policy making, field-level intervention and international branding practices which helped the export potential of commodities.

Panelist: Mr. Nandkishore Kagliwal, Chairman, Nath Bio-genes (I) Ltd. (Nath Seeds) shared his views on the production side of the food system in India. He stressed on the policy and technological interventions needed to increase farm productivity. He spoke about the fragmented land holding scenario and the need to consolidate land holding of farmers.

Panelist: Dr. Alwin Keil, Senior Agricultural Economist, International Maize and Wheat Improvement Center (CIMMYT) spoke about the great success of zero tillage method and efforts to bring up wheat cultivation in Bihar.

Panelist: Mr. Anwar Faruque, Additional Secretary, Director General (Seed Wing), Ministry of Agriculture, Government of People's Republic of Bangladesh, spoke about the success of Bangladesh amidst threats and weaknesses and its achievements in the agriculture sector.

Panelist: Dr. R. K. Gupta, Director, ICAR-Central Institute of Post Harvest Engineering and Technology, Ludhiana, India, spoke about post-harvest losses due to the handling of raw food produce which goes through several stages monitored by middlemen. The processing process is mostly controlled by urban rather than rural entrepreneurs.

Panelist: Dr. D. Rama Rao, Director, National Academy of Agricultural Research Management (NAARM) spoke about the various successfully implemented projects through Information Communication Technology (ICT) platform.

The third Panel Discussion - Agricultural & Food

Processing Policy Outlook was chaired by Dr. Hameed Nuru, Representative and Country Director, World Food Program (WFP), spoke about studies from Food and Agriculture Organization (FAO), World Bank and other UN institutions which indicated that women comprise around 60% of the agriculture labour in developing countries. Also, it is found that agriculture projects being implemented by these UN institutions delivered 30% better results if gender sensitivity and gender equality were considered. He also spoke about various progressive agriculture policy initiatives.

Panelist: Mr. Marco Marzano de Marinis, Executive Director, World Farmers' Organization (WFO), Italy, shared his experiences while working at WFO and explained how it helped in advocating policies for the farmer at the highest authorities. He advocated and promoted farming methods such as zero tillage and avoidance of GMO which is implemented in Africa.

Panelist: Mr. Wawrzyniec Czubak, Assistant Professor, Poznan University of Life Science, Poland, spoke about policymakers of the European Union (EU) who introduced a Common Agriculture Policy (CAP) to ensure food security and self-sufficiency in food commodities in early 1960s. It took 20 years to attain self-sufficiency in agriculture in the EU after the introduction of CAP. Since 2013, the focus of the policy has shifted to other imperatives like protecting ecology.

Panelist: Dr. Digvir S. Jayas, Vice-President (Research and International) and Distinguished Professor, University of Manitoba, Canada in his presentation pointed out that there is huge amount of food loss at the post harvest stage. He pointed out food wastage could be done away with if the land used could be diverted for reforestation or used for producing bio-products. He highlighted the avenues in Manitoba's agriculture sector.

Panelist: Mr. Arvind Kumar, Managing Director, Maharashtra Agro Industries Development Corporation (MAIDC) presented an overview of MAIDC and the agriculture sector in Maharashtra.

The fourth Panel Discussion - Innovative Financing for Agriculture was chaired by Mr. Raj Benahalkar, Chief Risk Officer, National Commodity & Derivatives Exchange. He informed that the real issue in agriculture finance in India is timely access to credit at reasonable interest costs. He informed farmers that through GES 2015 he would share his insights on agriculture value chain, which has developed well in India.

Panelist: Ms. Meera Mishra, Coordinator, International Fund for Agricultural Development (IFAD), India emphasised that society and policy makers must repose faith in farmers' ability to face risks. Indian farmers have the inherent capacity to face various risks like climate uncertainty, price volatility for their produce in the market etc. Therefore, the government must stop adopting a protectionist approach towards farmers and instead adopt a supportive approach.

Panelist: Dr. Dinesh, Chief Executive, National Co-operative Union of India (NCUI) stated that today, across the globe there is no model as effective as the co-operative model for growing more food commodities with limited farm resources. The co-operative model is based on aggregation of the resources of all farmers in a community to realise economies of scale.

Panelist: Mr. B. V. S. Prasad, General Manager, Department of Economic Analysis and Research, National Bank for Agriculture and Rural Development spoke about the various development activities of NABARD such as strengthening Rural Financial Institutions, operating Watershed Development Fund (WDF), Tribal Development Fund (TDF), conducting off-farm skill development, Self-Help Group (SHG) Bank Linkage Program, financial inclusion etc.

The fifth Panel Discussion - Food Standardisation and Safety, Post 2015 - The Role of International Standard Organisations was chaired by Dr. Mark Cyubahiro Bagabe, Director General, Rwanda Standards Board (RSB), Rwanda stated that the goal of 'food security with safe food' can be attained only by adopting a holistic policy approach that takes into account developments like globalisation, urbanisation, climate change etc.

Panelist: Dr. Eng. Mohamed Abdel Motaleb Etman, Head of Central Department for Standardization, Egyptian Organization for Standardization and Quality, Egypt, informed how his organisation ensures that the food sold in Egypt was safe for human consumption.

Panelist: Mr. Gevorg Nazaryan, Deputy Director, Armenian National Institute of Standards CJSC (SARM) Armenia, spoke about the challenge of food security and the international food safety standards regime.

Panelist: Dr. Asmi Raza, Professor of Economics, University of Delhi & Project Director, World Bank, began his speech by mentioning that food safety plays an important role for food security and how modern farming practices endangers food safety.

Panelist: Mr. Omkar Musale, Senior Technical Manager, Envirocare Labs Pvt Ltd, in his speech, spoke about post-2015 framework of food safety and food security for all, in a long-term sustainable manner.

Panelist: Ms. Vaneet Kaur, Research Associate, Centre for Science & Technology of the Non-Aligned and Other Developing Countries, in her speech, advocated the adoption of innovative agriculture technology to promote farm productivity and attain food security.

The sixth Panel Discussion - Agriculture Infrastructure: The Way Forward was chaired by Mr. Ashwin C. Shroff, Chairman, Excel Crop Care Ltd, listed out the challenges in the agriculture sector of India and the role played by his organisation in addressing some of these challenges.

Panelist: Mr. Anil B. Jain, Managing Director, Jain Irrigation Systems Ltd spoke about problems related to erratic power supply and electricity which farmers receive at subsidised costs and how in order to overcome this issue, Jain Irrigation supplies solar powered water pumps to farmers.

Panelist: Dr. Min-Tze Wu, Director, Plant Technology Laboratories, Agricultural Technology Research Institute (ATRI), Taiwan spoke on how Taiwan's agriculture sector is prepared to face the trend of liberalisation, create new value based cross-domain cooperation and encourage innovative thinking by the Taiwanese government.

Panelist: Dr. Hasanuddin Ibrahim, Assistant to the Minister of Agriculture for International Trade and Relation, Ministry of Agriculture of the Republic of Indonesia said that food security and farmers' welfare are among the important issues in the country, being addressed.

Panelist: Mr. Per-Stefan Gersbro, Managing Director, Pacedo AB and Founder, Packbridge AB, Sweden, explained the role of packaging in increasing the shelf life of food products, thereby enhancing marketing appeal of these products. He also talked about the sustainable practices to be followed by packaging companies.

Panelist: Mr. Venkatesh N. Hubballi, Director, The Directorate of Cashewnut & Cocoa Development (DCCD), spoke on how DCCD adopted a well diversified strategic approach to develop the cashew sector in India. Specifically, in the last few decades, it has taken various steps to increase area of cashew

cultivation and productivity of the crop in various parts of the country.

The seventh Panel Discussion - Role of Skill Development and Innovation in Enhancing Agricultural Yield was chaired by Ms. Joanna Kane-Potaka, Director-Strategic Marketing and Communications, who introduced the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and its specialisation in addressing issues faced by farmers in drylands, which have the harshest environment in the world, through three approaches namely, capacity building across value chains, inclusive capacity building and capacity building as a catalyst for empowering farmers.

Panelist: Dr. Parashuram Samal, Principal Scientist, ICAR-National Rice Research Institute, Cuttack, India, through his presentation provided a background of the impetus for rice research and development in the country.

Panelist: Mr. Mayank Sagar, Business Development Executive, Annamrit Farmers as Owners Foundation, in his speech spoke extensively about The Apple Project, implemented by a consortium of partners in five districts in the States of Uttarakhand and Himachal in 2007.

In the Valedictory Session Mr. Bhushan Gagrani, IAS, Chief Executive Officer, Maharashtra Industrial Development Corporation (MIDC) was the Guest of Honour. He proudly informed that the State of Maharashtra has skilled farmers. The only policy step needed is the orientation of the farming community to value-added products.

Mr. Vijay Kalantri also summed up the summit focusing on the achievements of the three day deliberations.

The Summit ended with the **Vote of Thanks** delivered by **Capt. Somesh Batra, Vice Chairman, World Trade Centre Mumbai**. In his vote of thanks he appreciated the presence and contribution of each and every participant who had added value to this summit.

A Proceedings Report of the Global Economic Summit 2015, to include a white paper, would be presented to stakeholders, especially Government authorities prescribing necessary initiatives to be undertaken by the later.

DIGNITARIES / EXPERTS / AGRICULTURISTS / POLICY MAKERS



650 delegates from India and Overseas



Research Study on Enabling Food for All - Can India Realise its Food Security Dream?



50 Experts deliberate on Agriculture and Food Processing



More than 28 Countries meet



5th GES 2015 Summit Handbook on 'Enabling Food for All'



Over 100 Exhibitors



Eminent Speakers from across the Globe



Post-event Tour to Food Parks



Intense Farmer-Expert Interaction



Over 200 B2B Meetings



Post-event Tour to Agriculture Research Institute



Highlights of the Global Economic Summit 2015

- Special Address by Shri. Subhash Desai, Hon'ble Minister of Industries, Government of Maharashtra.
- Active participation of 21 international speakers from eminent organizations such as :
 - Government Stavropol Region, Russia
 - Wielkopolska Region Poznan, Poland
 - Ministry of Agriculture, Government of People's Republic of Bangladesh
 - Egyptian Organization for Standardization and Quality
 - Food and Agriculture Organization (FAO)
 - International Fund for Agricultural Development (IFAD)
 - World Food Programme (WFP)
 - World Farmers' Organisation (WFO)
 - Rwanda Standards Board (RSB)
 - United Nations Procurement Division (UNPD)
 - International Maize and Wheat Improvement Center (CIMMYT)
 - International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
 - World Trade Centers Association (WTCA) New York
 - Agricultural Technology Research Institute (ATRI), Taiwan
- Supported by eminent organizations such as Ministry of Commerce and Industry-GOI, Ministry of MSME-GOI, Government of Maharashtra, CSIDC, MAIDC, NABARD, MIDC, NCDEX, Jain Irrigation Systems Ltd., Shriram Transport Finance Co. Ltd., Excel Industries Limited, ICAR, SIDBI, IFAD, FAO.
- 91 stalls at Exhibition area.
- Facilitated networking opportunity, value addition in the form of business insights, investment opportunities and latest trends in agriculture.
- Participation of 34 member delegations from Russia and Poland.
- Attended by over 300 participants from various agriculture related activities.
- Post-event Tour for interaction between Indian farmers and international experts.
- Attendance by over 50 farmers from Nasik, Pune, Satara etc. for the farmer's workshop.
- Certificate of recognition to 5 Farmer Producer Companies for their best practices in the field of agriculture.
- An in-house Research Study conducted on 'Enabling Food for All - Can India Realise its Food Security Dream?' provided an overview of the agriculture scenario in Maharashtra and best practices in the field.
- Fifth GES 2015 Summit Handbook comprising articles on agriculture, food processing, food and nutrition security provided the knowledge material for the Summit.
- Discussion on agriculture related key topics such as Food Processing Policy, Women Empowerment, Holistic Approach in Agriculture, Integrated Farming System, Role of ICT in Agriculture, Capacity Building, Alternative Livelihood Options, Food Safety Standards in Agriculture, Skill Development, Food Production, Special Workshop on Food Procurement by UNPD.
- Over 200 B2B meetings were organized during the Summit.
- Certificate of Participation' was awarded to 29 Farmer Producer Organisation (FPOs).

Inaugural Session



From L to R: Capt. Somesh Batra, Vice Chairman, World Trade Centre Mumbai, Mr. Shyam Khadka, Representative in India, Food and Agriculture Organisations of the United Nations (FAO), Mr. Sharad Upasani, Vice Chairman, World Trade Centre Mumbai, Mr. Wojciech Jankowiak, Deputy Marshal of the Wielkopolska Region, Poland, Shri. Subhash Desai, Hon'ble Minister of Industries, Government of Maharashtra, Mr. Vijay Kalantri, President, All India Association of Industries, Vice Chairman, World Trade Centre Mumbai, Mr. Ghazi Abu Nahl, Chairman, World Trade Centers Association, New York, World Trade Center Holdings (Cyprus) Ltd and WTC Qatar, Mr. Andrey Murga, Deputy Head, Stavropol Region, Russia and Mr. Y. R. Warekar, Executive Director, World Trade Centre Mumbai.

Welcome Address

Mr. Vijay Kalantri

President, All India Association of Industries (AIAI) and Vice-Chairman, World Trade Centre Mumbai

Mr. Vijay Kalantri welcomed the delegates from India and Overseas and expressed gratitude to all the dignitaries from abroad and India for supporting the event. World Trade Centre Mumbai and All India Association of Industries have chosen the subject of food security owing to various reasons and one amongst them is its contemporary relevance. In recent years, the Government of India has given enormous importance to food security and it has also passed legislation to ensure food for all people in the country. Many industry leaders have realised the importance of food security and agriculture, given its impact on the entire economy. He spoke about how agriculture and food security have a far-reaching impact on the economic development of a nation. In India, 58% of the population depends on agriculture and allied sectors for their livelihood. Today India has progressed in the agriculture sector since 1947 transforming itself from a food importing country to a food exporting country.

However, the country has to address many issues in agriculture and one of them is the issue of water scarcity. He expressed his concerns over the widely felt

views that the next world war would be fought for water. The central government is proposing various steps to ensure water security and these include linking of rivers, watershed management in dry areas, rain-water harvesting etc.

Today, many states in India suffer from drought and it has threatened the livelihood of farmers in these states. The second area of concern is the inappropriate use of farm inputs like pesticides, seeds etc. Also, many farmers in the country suffer from lack of timely access to quality seeds, which impacts agriculture production. He also expressed his concern over the inefficient method of cultivating rice, which leads to excessive wastage of water. He suggested that India must learn best practices in rice cultivation from countries like Thailand and Indonesia which have competitive advantage in the cultivation of this crop. Farmers in the country may also consider diversifying to other crops which consume less water.

There is a huge loss of food in the post-harvest stage owing to poor logistics and infrastructure system. The cost of logistics is high in India and this causes huge

divergence in the price of food at the farm-gate and at the market. The central government proposed some measures to boost infrastructure and thereby reduce the cost of logistics. These include setting up Dedicated Freight Corridors (DFCs) between Delhi and Mumbai, between Mumbai and Ahmedabad, Eastern Dedicated Freight Corridor etc.

He added that the Summit would discuss the above issues and experts would come out with innovative solutions to overcome the same. Experts and policy makers are also debating on whether to list food

commodities in market exchanges and allow derivative trading on them. The summit would deliberate on the merits and de-merits of listing essential food items in exchanges.

A white paper on the agriculture and food processing sector including recommendations on effective strategies and policy measures to address the issues plaguing the agriculture sector in India are included in the Proceeding Report - GES 2015 'Enabling Food for All'.

Inaugural Address

Shri. Subhash Desai

Hon'ble Minister of Industries, Government of Maharashtra

In his inaugural address, Shri. Subhash Desai, Hon'ble Minister of Industries, Government of Maharashtra expressed the significance of the 5th Global Economic Summit (GES) 2015 against the backdrop of global crisis of hunger. During his speech, he raised many issues in the agriculture sector of Maharashtra and requested the scientific community to offer effective solutions to them. Shri. Subhash Desai said, "The greatest challenge faced by India is the huge amount of wastage in food commodities at the post-harvest stage. While the green revolution and white revolution have ensured production of more than enough food in the country, they have not yet addressed the issue of post-harvest losses". He urged the experts who have come from different countries to present effective solutions to address this issue and also guide farmers on opting for value addition of crops rather than selling raw crops in the market. For example, potato farmers stand to lose gains from value addition by selling potatoes in the market. Potato farmers sell their produce at Rs. 10-20 per kilogram. However, food processing companies make chips out of these potatoes and sell it in the market for around Rs. 150 per 100 gram. Thus, there is a huge gain in the market price for value-added products and experts must guide farmers regarding the same.

He expressed that another pressing issue is the acute shortage of water being faced by some of the districts in the Marathwada Region of Maharashtra. In order to overcome this issue, experts must provide guidelines to farmers for increasing agriculture production by using limited amount of water. Some of the districts in Maharashtra have no lakes, no reservoir or any other water harvesting structures and hence the amount of

water stored is only around 15% of the total rainfall. Also, this year, Maharashtra faced scanty rainfall. Under this condition, farmers need to be trained on water-efficient farm practices to make agriculture sustainable.

He spoke about the importance of alternative livelihood for the farmers which they must be taught to pursue in order to reduce their reliance on agriculture and cited excellent examples of the same.

In order to tackle the problem of unemployment amongst farmer youths for the slack period in farming especially in dry areas, he expressed concerns of providing them with alternate livelihood in the form of employment in agro industries thus generating opportunities in the industrial sector so that farmers who are unable to make sustainable livelihood can be employed elsewhere. He informed that the state government is willing to provide all infrastructure facilities, including land and power for entrepreneurs who decide to invest in these regions of the state.

He affirmed that creating more jobs in the industry is the sustainable solution to address farmers' crisis in the state. By generating jobs in the industry, the number of people dependent on agriculture would decline and the farm sector would be in a position to support the fewer number of farmers.

He concluded by raising hope that the Summit would throw up some innovative solutions to address the issues in the agriculture sector of Maharashtra.

SPECIAL ADDRESSES BY INTERNATIONAL GUESTS OF HONOUR

Mr. Ghazi Abu Nahl

Chairman, World Trade Centers Association (WTCA), New York,
World Trade Center Holdings (Cyprus) Ltd. and WTC Qatar

Mr. Ghazi Abu Nahl introduced WTCA, which represents 328 World Trade Centers in over 92 countries across the globe with a membership of one million business units. Mr. Nahl expressed pleasure to address the august gathering and be part of the 5th Global Economic Summit 2015.

On behalf of World Trade Centers Association, he extended his sincere compliments to World Trade Centre Mumbai and All India Association of Industries for this brilliant initiative to organise the 5th Global Economic Summit 2015 on the theme, 'Enabling Food for All'. He expressed that he was happy to note that this summit has come to be recognised as a prestigious global platform for debates and discussions on contemporary economic issues that confront the world today and acknowledged the excellent work that World Trade Centre Mumbai and All India Association of Industries are doing in the area of trade promotion, advocacy and innovation.

In his speech he said, "The theme of the Summit 'Enabling Food for All' is extremely relevant in the context of the evolving agricultural landscape and the state of access to food across the world. The twin challenges of this century are to free the world from hunger and malnutrition as we move towards the new global goal of ending hunger by 2030. To achieve this,

the global community must work in unison to ensure better nutrition for all and transform the world's food system to ensure global food security".

He remarked that the role of agriculture cannot be overemphasised, as it nurtures life and every nation depends on agriculture to support its growth and development. The twenty-first century is witnessing huge transition in agriculture sector. Modern technology and innovation are progressively transforming the sector, resulting in new and improved methods of food production and distribution. This has ensured better access to food and helped reduce hunger and malnutrition around the world.

He expressed his deep concerns over the onslaught of climate change and depletion of earth's resources such as water and soil nutrients. There is a need to make co-ordinated efforts and adopt appropriate measures in proper time to safeguard our farm sector. The Summit would address many key issues that have gripped the attention of mankind in the present era. The participants must come together and work towards a sustainable agro and eco system to ensure a healthy and happy planet for generations to come.

Mr. Nahl concluded by wishing the Summit all the success.

Mr. Andrey Murga

Deputy Head, Stavropol Region, Russia

In his address, Mr. Andrey Murga thanked all the participants who made the Summit possible. He recalled the strong economic and political ties between Russia and India and informed that the Russian delegation from Stavropol Region was in India to strengthen economic ties.

Mr. Murga made a presentation on the geographic, climatic and economic conditions of the Stavropol Region in Russia. He noted that the Region is a

marvellous and wonderful, gifted with fertile land, unique geographical position, picturesque nature, knowledge-intensive industries, high-end technologies and education facilities, talented and hard-working people.

He expressed that the Stavropol Region is 66,500 km² in area and the region is well connected amongst its provinces with airports and roads. The Region comprises 982 km of North Caucasian Rail Network

and two international airports (Mineralnye Vody and Stavropol Shpakovskoye Airport) capable of handling all types of aircrafts.

The Gross Regional Product (GRP) of Stavropol is \$8 billion with the industrial sector contributing \$1.3 billion and agriculture sector \$1.0 billion. Stavropol witnessed a total investment of \$6.67 billion on 173 projects in recent years and of these agriculture consisted of \$1.9 billion with 60 projects and industry of \$2.9 billion with 39 projects.

Some of the highlights of the Stavropol economy are - it contributes around 33% to global production of synthetic sapphires, it produces 8.2 million tonne of food grains (3rd largest output among all regions in Russia) and is also the leading producer of colesed in Russia. He revealed that Stavropol is one the leading agricultural regions of Russia and it is popular in cultivation of wheat, maize, colza, peas, oil-flax seed, sunflower, sheep breeding and aviculture. The Region produces nine million tonne of grains, 395.3 thousand tonne of sunflower seeds, 387.4 thousand tonne of meat, 7.1 thousand tonne of wool. He urged foreign investors to invest in the regional industrial parks in Nevinnomyssk, Budennovsk, Georgievsk, Solnechniy, North-Western, Novoalexandrovsk, Alexandrovskiy and Trunovskiy Districts.

He provided details in his presentation on the various industrial parks in the Stavropol Region. He again urged that foreign and domestic investors could invest in some of the following potential projects in the Stavropol Region and gave details on some agro processing projects such as the creation of an agro-centre for growing fruit and vegetable in Budennovsk. This project involves construction of a plant for deep processing of grown fruits, berries and vegetables with a daily capacity of 300 tonne. The project requires an investment of \$32 million (which is the cost of the project) and it has a payback period of four years. The

project aims to provide livelihood for 200 people. Another potential project is the establishment of orchards for fruits and berries and setting up of storage and processing complexes (apple sauce and freshly squeezed juices production) at Krasnokumskoye village in Georgievskiy District at a total cost of \$76.5 million. The project also includes creation of a greenhouse complex for strawberries and production of some vegetables. Of the total cost, the project still needs \$62 million. It has a payback period of 8-10 years and it can create jobs for 206 people. He gave details of some animal husbandry projects such as the setting up of a modern complex for breeding, fattening and slaughter of turkey at a total cost of \$36 million in the town of Izobilniy. The turkey meat processing unit would have an annual capacity of up to 10,000 tonne. The project, which can create jobs for 438 people, still has an investment requirement of \$28.5 million and the payback period is 5 to 6 years. He expressed that investors could also participate in the \$148.5 million project to set up an intensive cultivation unit for agricultural products and reconstruction of irrigation system at Vinodelnenskiy and Ipatovskiy Districts. The project requires \$120 million capital and it has a payback period of five years. The project has the potential to create 174 jobs. Another project expressed by him was that of \$187 million initiative to construct greenhouse complex on a 47.68 hectare area for the production of vegetable (tomato and cucumber) at Solnechnodolsk Village in Zobilnenskiy District. The project, with an annual capacity of 39,000 tonne and potential to create jobs for 543 people, requires the entire cost and has a payback period of four years.

Mr. Murga concluded by suggesting foreign investors to approach the Corporation for Stavropol Region Development for assistance on starting business in the Region. Investors can also approach Stavropol Regional Fund for Innovation Development for services like engineering, technological audit, marketing and other professional services.

Mr. Wojciech Jankowiak

Deputy Marshal of the Wielkopolska Region, Poland

Mr. Wojciech Jankowiak spoke about the relevance of the theme of this Summit to the economy of Poland and shared some of the challenges in the Polish agriculture sector. He admired India and said, "My first impression about India is excellent considering the size, the available space and the climatic condition prevailing in

the country". He commented that even though he was visiting India for the first time, earlier a lot of Polish businessmen, representatives of Polish government and many other Polish organisations have visited India and the State of Maharashtra. He told the audience that Wielkopolska Region is one of the largest and

economically strongest regions in Poland.

He stated that the Polish government builds and develops its economy by strengthening agriculture and agro-based industries. Therefore, the subject of 'Enabling Food for All' holds immense importance to his country. Poland is one of the largest producers of food commodities in the European Union and it has witnessed growth in the export of grains, processed grains and meat products year after year. One of the major sub-sectors in the agriculture sector is the fruits and vegetable cultivation.

He heartily expressed that Poland witnessed great results in food production owing to modern technologies and advanced research in the areas of genetics and another crucial factor on which the agriculture system is based on is the healthy synergistic relationship between the natural environment and human activity.

He also expressed that the importance of natural environment for the performance of agriculture sector can be well realised with the climatic condition of the region this year. Poland witnessed a dry season with scanty rainfall this year. The rainfall was only 20% of the annual average during 2015 and this adversely affected the crop production in the Region. He pointed out that one of the lessons for the local administration is

a need to evolve effective water management solution. Poland collected and retained huge amount of water in the past. However, this is not sufficient and the government must expand this effort to conserve more water. He emphasized on the point that another area of concern for the local government of Wielkopolska is to ensure adequate investment in transport and distribution infrastructure for quick and efficient delivery of food to consumers.

He stressed on social education having immense relevance to the goal of attaining food security. Across the world, people must learn to respect food and use it in the most judicious and rational manner. There is a need to create awareness and spread education on sound practices for handling food and proper way of food distribution among people. Sound education and awareness on this aspect go hand in hand with the well being of society. A well-off society is able to spend on good quality food and therefore, it should be the aim to target a well-off society.

Mr. Jankowiak concluded by saying that he is looking forward to the discussions by all speakers and participants and hopes that the Summit would generate great inspiration and provide tailor-made solution that can be applied in his Region.



THEMATIC PRESENTATION BY

Mr. Shyam Khadka

Representative in India, Food and Agriculture Organization of the United Nations (FAO)

Mr. Shyam Khadka gave an overview of how India emerged as a food secure nation by increasing its food grain output from 52 million tonne in 1951-52 to 257 million tonne in 2014-15. He also shared some of the challenges in the agriculture sector in India and effective solutions to address them.

He said that India is a food self-sufficient, net agriculture exporting country with the potential to further multiply its agricultural productivity. Despite this, hunger levels are high due to poor access to food. Malnutrition and micronutrient deficiency is widespread, fuelled by poor sanitation and changing dietary trends.

In his view, agro-economic growth policy can benefit GDP growth however, it alone cannot fight poverty, hunger and malnutrition. Social protection programmes play a vital role in enabling food for all. Improving and checking the inefficiencies of such programmes in India by realigning and integrating them to work collaboratively is imperative. In the mission to enable food for all, both agricultural and non-agricultural interventions are essential.

He focussed on the role of agricultural interventions that require attention i.e., enhancement of agricultural production, sustainably guided by agro-climatic factors, incorporation of gender sensitive policies in a rapidly feminising sector and reduction of risks in rain-fed agriculture and policy distortions that effect fertiliser consumption, dampen local production and reduce dietary diversity. Among the necessary non-agricultural interventions are reduction of food loss, focus on skill development, value addition and non-farm employment, enhancement of access to finance and the building of nutritional awareness.

He confidently stated that an integrated food and nutrition security system, that incorporates the past experiences and lessons with updated knowledge and technology in augmenting India's agricultural productivity and in the implementation of social protection programmes, will not only enable food for all but enable the right food for all, which also takes care of another facet of malnutrition, viz. obesity.

RELEASE OF PUBLICATIONS AND AWARD OF CERTIFICATE OF RECOGNITION

The thematic address was followed by the release of the Research Study titled 'Enabling Food for All – Can India Realise its Food Security Dream?'. The book contains in-depth analysis of the challenges in India's agriculture and allied sectors and solutions to address them.

The Summit Handbook on the theme 'Enabling Food for All' was also released during the session. The Handbook is a collection of articles and interviews from experts in the agriculture and allied sectors.

After the release of publications, Shri. Subhash Desai, Hon'ble Minister for Industries, Government of Maharashtra, awarded the 'Certificate of Recognition' to Farmer Producer Companies for their best practices in sustainable agriculture and also to Ms. Manisha

Dhatrak, Managing Director, Varun Agro Processing Pvt.Ltd. for her work in improving the condition of women farmers.

The details of the Publications and Awardees are placed as Annexures.



Deliberations for the first Day

Panel Discussion I

Food Security and International Approaches



From L to R: Panelist Dr. Ashok K. Vishandass, Chairman, Commission for Agricultural Costs and Prices, Ministry of Agriculture & Farmers Welfare, Government of India, Panelist Dr. Nancy Creamer, Director of Center for Environmental Farming Systems, and Professor, North Carolina State University, USA, Panelist Mr. Samir Shah, Managing Director & Chief Executive Officer, National Commodity and Derivatives Exchange Ltd (NCDEX), Chairman of the Panel Mr. Shyam Khadka, Representative in India, Food and Agriculture Organisations of the United Nations (FAO), Panelist Ms. Manisha Dhatri, Managing Director, Varun Agro Processing Foods Pvt Ltd.

Dr. Ashok Vishandass

Chairman, Commission for Agricultural Costs and Prices Ministry of Agriculture & Farmers Welfare

Dr. Ashok Vishandass in his speech stated that, sustaining growth in agriculture sector is essential for the Indian economy. India has to produce enough food to feed its 1.27 billion people. By 2030-35, India's population is expected to exceed that of China, which is the most populous country in the world by far.

"In India, an average household still spends more than half of its income (monthly personal consumption expenditure) on food and the bottom 30% of the population spends more than 60% on food. Policy focus on agriculture is important to address the problems of poverty and malnutrition. In India, 42% of the population lives on less than US\$ 1.25 per day and 43% of children below 5 years of age are underweight". In his speech he described India's growth story in agriculture vis-a-vis its population. He remarked that India's 'revealed comparative advantage', as measured

by the Balassa Index, in the agriculture sector is 1.6 as against 0.98 in the manufacturing sector. This reveals that India's farm sector is more competitive in the global market than its manufacturing sector. However, productivity in India's farm sector is far less compared to countries like USA, China, Japan, Vietnam and Indonesia. While productivity of paddy is 8.29 tonne per hectare in the USA, 6.73 tonne in China, 6.71 tonne in Japan, 5.58 tonne in Vietnam and 5.09 tonne in Indonesia, the comparable figure in India is only 3.66 tonne. Within India, yield on paddy is the highest in Punjab at 5.85 tonne per hectare, followed by 4.93 tonne in Tamil Nadu, 4.79 tonne in Haryana, 4.59 tonne in Andhra Pradesh and 4.13 tonne in Karnataka. In conclusion, Dr. Vishandass highlighted some of the challenges in the farm sector and some policy recommendations which are presented in the white paper.

Mr. Samir Shah

MD & CEO National Commodity and Derivatives Exchange Ltd.

Mr. Shah emphasised on a holistic approach to find a sustainable solution for the post-harvest loss in food commodities. He stressed for urgent policy focus on three areas – (1) Reforming primary market for agriculture commodities (2) Reforming buffer stock management (3) Modernising storage infrastructure.

According to him, in India, the need of the hour is primary market reform in the agriculture sector. Farmers must be given the right to free competitive markets. He expressed concerns over the absence of connectivity, modern facility for grading and storage of commodities, no transparent system on price information for the 7,500 Agriculture Produce Marketing Committees (APMCs) markets or primary markets which operate in isolation forcing farmers to accept the price offered by traders in these markets.

He expressed that the success of Karnataka government in commodity market sector is due to partnering with NCDEX to implement modern marketing mechanism, electronic auction, electronic grading of farm commodities in APMC markets across this state. State

governments like Andhra Pradesh and Gujarat are also following suit. Recently, the central government is taking efforts to integrate all APMC markets in the country and the project is being implemented through Small Farmers Agribusiness Consortium (SFAC).

He also expressed concern over the huge amount of storage losses in the traditional method of buffer stock management through minimum support price, public procurement strategy and the need for strategic management of buffer stock for food commodities. He urged the government to promote private investment in the buffer stock management of food produce on basis of incentives or grants to private sector to run the same and introduce a regulatory framework for private players in buffer stock management sector. In addition to this, Government must also make efforts to increase the number of scientific storage facilities for food commodities and ensure access to farmers to these storage facilities best suited for the local conditions, instead of following the models in other countries. He affirmed that, India needs smaller and smarter storage facilities that are accessible to all farmers.

Ms. Manisha Dhatrik

Managing Director, Varun Agro Processing Foods Pvt. Ltd.

Ms. Manisha Dhatrik narrated the successful partnership between her company and farmers in Nashik District (Maharashtra) in creating a viable agriculture value chain. She spoke about her journey as a corporate and a farmer through Varun Agro Processing Foods Pvt. Ltd. a Nashik-based manufacturer of tomato paste, mango pulp, guava pulp and other value-added food products.

She spoke about the best practises by using the integrated farming approach and her innovative practise of using the passport as a record of all inputs used by the farmers. She mentioned that Yara International guided farmers on appropriate use of fertilisers, while Bayer CropScience advised on the use of pesticides. Under the guidance of these organizations, farmers could increase the yield of tomato to 35 tonne per acre from 10-20 tonne earlier. In order to use water efficiently, farmers have been

advised to adopt drip irrigation. She gave details about the agreements between the company and the farmers, mutually benefitting each other for eg. Varun Agro entered into an agreement with farmers for procuring 75% of their total output. Farmers would sell the remaining 25% in the market. Their company has set up collection centres in the village so that farmers do not need to travel outside for selling tomatoes. Today, the tomato farmers are able to earn Rs. 1 lakh per hectare of cultivation. There are around 5,000 farmers from whom Varun Agro procures tomatoes in Nashik. Ms. Dhatrik in conclusion stated that many food processing companies in India are supporting farmers by procuring their crops.

Dr. Nancy Creamer

Director of Center for Environmental Farming Systems and Professor, North Carolina State University, USA

Dr. Nancy Creamer gave an overview of the agriculture sector and the state of food security in North Carolina viz-a-viz the entire USA, noting that the number of farms in the North Carolina Region declined from 100,000 farms in 1976 to 48,000 farms in 2008, though it produces around 80 different agro-commodities and is leading in the cultivation of sweet potato and tobacco.

She expressed concerns over USA having a highly productive agriculture sector on one hand and high food insecurity and poor health outcomes on the other, also stating that around 49 million people or 14.1% of the entire US population is food insecure. In North Carolina, 17.3 percent of the population is food insecure and the Region is the 11th worst state in percentage of food insecure children, with food waste estimated at 40 percent in US, equivalent to \$165 billion and wastage occurring across the entire supply chain. Besides food insecurity, children in North Carolina also suffer from diet related health issues like obesity.

She stated that the world population would increase to 9 billion by 2050 and it is imperative to find a broad-based solution to meet the rise in demand for food which would improve food productivity, ensure environment sustainability, strengthen post-harvest infrastructure and promote social programme to improve access to food through agro-ecological approaches. Further, policy makers must create more access to healthy foods for the most vulnerable population. These strategies must be taken at all the levels of policy making, right from global to national to state to the local levels.

In her details about the Center for Environmental Farming Systems (CEFS) she said, it was set up in 1994 to develop and promote just and equitable food and farming systems that conserve natural resources, strengthen communities, improve health outcomes, provide economic opportunities in North Carolina and beyond. CEFS works across the entire value chain of the food sector, right from farm to fork. Specifically, the institution works through its three divisions - farm research, food system initiatives, education and outreach. The farm research division provides research opportunities for faculty as well as demonstration models and teaching tools for farmers, extension agents and students. The focus areas of this division include farming systems, organic research, pasture-based dairy, pasture-based beef, small farm and alternative swine production. She said that, CEFS tries to achieve better health outcomes, economic development, job creation, more farmers, higher farm profitability, more food businesses, environmental sustainability and a climate resilient and adaptive farming system.

Mr. Khadka delivered the closing remarks by summarising the lessons learnt from this session. He said the first lesson learnt is that one should not take food for granted. Another message from this session is that the transfer of knowledge system in farming is taking a different route today from what it used to be 25 years ago. Earlier, the government was the dominant agent to transfer knowledge on farming, today, private sector is taking the lead in transferring best practices in farming across India. He concluded that the private, public and the academic sectors must work in coherence to ensure sustainable farming system.



Panel Discussion II

Food Production System: Emerging Trends and Global Challenges



From L to R: Panelist Dr. R. K. Gupta, Director, ICAR-Central Institute of Post Harvest Engineering and Technology, Panelist Dr. Alwin Keil, Senior Agricultural Economist, International Maize and Wheat Improvement Center (CIMMYT), Chairman of the Panel Mr. V. Padmanand, Director, Grant Thornton India LLP-Chairman, Panelist Dr. D. Rama Rao, Director, National Academy of Agricultural Research Management (NAARM), Panelist Mr. Anwar Faruque, Additional Secretary & Director General, Seed Wing, Ministry of Agriculture, Government of People's Republic of Bangladesh, Panelist Mr. Nandkishore Kagiwal, Chairman, Nath Bio-genes (I) Ltd. (Nath Seeds)

Mr. V. Padmanand

Director, Grant Thornton India LLP

Mr. V. Padmanand shared some of his suggestions to make India a dominant player in the global value chain for food commodities and provided an overview of the emerging trends in farming and food processing sectors in India. These are characterized by the changes in strategy and roles of farmers and food processing companies and also by the increasing adoption of information and communication technologies, better post-harvest infrastructure, engineering intensification technologies and cropping patterns.

Mr. Padmanand said, "In order to strengthen the food value chain, there is a need for integrated producer-processor approach and a comprehensive strategy, known as 'Farm to Fork' approach for diagnostics, policy making and field-level intervention. Farm mechanization and technology intensification with contract or corporate farming is also an option worth pursuing. According to him, some of the pre-requisites

for India to emerge as a global leader in food value chain are cost competitiveness, product conformance and quality, traceability and safety and quality packaging and consistency. There is a need to ensure that all the stakeholders in the food value chain (farmers, food processors, traders, food retailers etc.) are equitably compensated.

In his speech, Mr. Padmanand emphasised the importance of allied agricultural sector such as agro processing, placing special emphasis on processing and export of meat and fishery related items. He described in detail the global scenario of agro processing and related exports with the prominence of countries like China, Thailand, Germany, Brazil etc. He expressed concerns over the fact that in India despite the production levels, the degree of processing is low and ranges between 2 to 35 per cent for different produce. According to him, the organized food

business in India is worth \$48 billion, of which food delivery is valued at \$15 billion, with online food delivery players like Food Panda and Zomato building scale. Foreign Direct Investment (FDI) inflows have been relatively low, but are rising and are either market seeking or efficiency seeking or resource seeking. India received around \$6,429.15 million worth of foreign investment during April 2000—June 2015 in this sector. He explained the success of agglomerations and their implementations which led to overseas exports on a large scale for eg. the pulses processing clusters in Maharashtra and sea food processing clusters in Kochi or Vishakhapatnam, Melinda Apples, Winery Agglomerations in California, Salmon farming and primary processing in Chile, sea food and spices in Kochi, cashew in Kollam and tea in Darjeeling.

The Indian government has incorporated policy initiatives to set up processing infrastructure through mega food parks and cold chains. These initiatives are expected to bring in investment of more than Rs. 10,000 crore.

Mr. Nandkishore Kagliwal

Chairman, Nath Bio-genes (I) Ltd. (Nath Seeds)

Mr. Nandkishore Kagliwal shared his views on the production side of the food system in India. He expressed that in India 60% of the population that depend on agriculture and allied activities contribute only 14-16% to the national GDP. There is a need for policy and technological interventions to increase farm productivity. While designing the appropriate policy framework, the government must keep in mind some of

He emphasised the importance and deficiency in the Indian food processing scenario with regard to maintenance of quality standards and branding. He spoke about various branding successes in the International scenario such as branding of Barbados sugar, Namibian beef 'Nature's Reserve'.

Finally, he gave details about Grant Thornton which is monitoring and facilitating implementation of food parks, cold storage infrastructure across India. It is also implementing the World Bank-promoted Maharashtra Agriculture Competitiveness Project (MACP) which envisages setting up of 1,000 enterprises in a year. IFAD and FAO have adopted an integrated perspective (or farm to fork approach) on food processing and agriculture. To create sustainable agriculture system, food production should not be looked in isolation but instead, it should be considered with an overall perspective of food processing and marketing.

the challenges like fragmented land holding and climate change. In order to tide over the fragmented land holding, there is a need to consolidate land holding of farmers. To improve water efficiency, drip and sprinkler irrigation must be introduced. Government must promote high quality seeds that are highly tolerant to biotic and abiotic stresses, Mr. Kagliwal added.

Dr. Alwin Keil

Senior Agricultural Economist, International Maize and Wheat Improvement Center (CIMMYT)

Dr. Alwin Keil in his presentation, briefed about the role of Cereal Systems Initiative for South Asia (CSISA) in promoting sustainable cultivation of cereal crops like wheat, rice and maize. He said, "CSISA aims to increase food, nutrition and income security in South Asia through sustainable intensification of cereal-based systems. CSISA is funded by USAID and Bill & Melinda Gates Foundation and CIMMYT is one of the partner organizations supporting this initiative".

Dr. Keil expressed concerns over the agriculture sector in South Asia which faces challenges like climate change, excessive use of fertilizers, depletion of ground

water and pest attacks. He cited the benefits of implementation of zero-tillage method of cultivation and how as a part of CSISA, CIMMYT is popularizing this project of cultivation of wheat using this approach in the Indo-Gangetic plain (especially in Bihar and eastern Uttar Pradesh). He gave extensive details of this project which also involves strengthening markets and enterprise development, relevant policy analysis, strategic partnerships (public + private sectors) to increase the scale and longevity of interventions, capacity development through trainings and demonstrations. In his deliberations he spoke about the transformation of Bihar which is a net importer of wheat

and has the lowest wheat yields in the Indo-Gangetic Plain (IGP), at 2.34 tonne per hectare over the period 2012-13 – 2013-14. Zero tillage (ZT) with residue retention in wheat has demonstrated considerable yield and economic benefits, while improving soil quality. Yield of wheat rose 498 kg per hectare on account of this technology. CIMMYT realized that one of the key hindrances in popularizing ZT technology is that the large number of small and marginal farmers can not afford ZT drills or don't own 4-wheel tractors. The

sample surveys indicate that only 8.3% of households own a 4-wheel tractor in Bihar. This prompted CIMMYT to develop a network of ZT service providers who provide tractors and ZT drills to small farmers on rental basis.

Dr. Keil concluded by listing out some of the suggestions to promote ZT technology in India.

Mr. Anwar Faruque

Additional Secretary, Director General (Seed Wing), Ministry of Agriculture,
Government of People's Republic of Bangladesh

Mr. Anwar Faruque spoke about the strengths and challenges in the agriculture sector of his country and about the policy measures taken to support the sector. He gave a brief economic and demographic profile of farmers in Bangladesh. He complimented his country for witnessing remarkable rise in the production of potato, which now stands at 8 million tonne per annum and achievements in export of rice and potato are latest developments in the agriculture of Bangladesh. Also, he stated that the total production of cereal rose from 10 million tonne in 1970 to 38.3 million tonne in 2013. The country produces 3.55 million tonne of fish every year. The key boosters he expressed were availability of favourable agro-climatic conditions throughout the year, existence of strong research and extension systems for technology generation and transfer, availability of experts, scientists and trained personnel for agricultural research and development, availability of appropriate technologies for production of major crops (rice, wheat, maize, potato, vegetables) and

existence of responsive, innovative and adaptive farmers agriculture sector in Bangladesh, having widespread network of agriculture input providers. At the same time he expressed concerns about the country suffering from some of the weaknesses like comparatively poor agricultural marketing management system, huge amount of post-harvest loss, poor credit support, inefficient use of farm inputs (seed, fertilizer, water, pesticides etc.), insignificant investment in research and development by private sector. He asserted the role of the Government of Bangladesh in order to protect the welfare of farmers and develop the agriculture sector, introduced farmer's input card, opened bank accounts for farmers, promoted integrated pest management (IPM), promoted new molecular science and expanded minor irrigation facilities. He concluded by stating various progressive plans from the Government of Bangladesh.

Dr. R. K. Gupta

Director, ICAR-Central Institute of Post Harvest Engineering and Technology, Ludhiana, India

Dr. R. K. Gupta briefed about the contribution of his organization to the post-harvest sector in India. According to him, the post-harvest loss happens mainly because the raw food produce is handled through many stages of middlemen and processing is mostly controlled by urban rather than rural entrepreneurs. Further, there is a lack of adequate and efficient equipment and machinery to be used in catchment areas. There is low level of entrepreneurial urge in rural areas owing to constraints of finance, assured market and proper training on technology. All these factors contribute to a fragmented and inefficient value chain,

thereby causing huge loss at the post-harvest stage. Higher value addition leads to better post harvest management and lower losses in food commodities.

He cited that ICAR-CIPHET developed several technologies and machineries for reduction of post-harvest losses and value addition of food crops. These include Guar Seed De-hulling Machine, Millet Milling, Cryogenic Grinding Machine, Composite Dhal Mill, Groundnut Pod Decorticator, Sunflower De-hulling Mill, Maize De-germe, Rotary Maize Cob Sheller etc. Along with these the institute developed some on-farm

harvesting and grading tools for fruit crops for eg. Ber Fruit Grader, Compact Fruit Grader for oblong and round fruit, Bael or Wood apple pulper etc. He said that some of the value-added products that can be produced from the machines introduced by the institute include groundnut milk, Sorghum-Soy-Blended Biscuit, nutritionally rich functional pasta, etc. He quoted the achievements of ICAR-CIPHET such as development of some technologies for storage and transportation of

fruits and vegetables in India. He opined that the future needs of the post-harvest technology industry in India are entrepreneurship and skill development initiatives, setting up of more facilities for food-testing, food safety and quality assurance. Dr. Gupta concluded by saying that post-harvest management and value addition to India's unique agricultural wealth can bring prosperity to its rural (real) sector.

Dr. D. Rama Rao

Director, National Academy of Agricultural Research Management (NAARM)

Dr. D. Rama Rao shared his views on how the adoption of information and communication technologies (ICT) can improve efficiency of farm operation. He is of the opinion that farmers require various information and advisory services for appropriate use of farm inputs like seeds, fertilizers, machinery, for weather forecasts, price situations in the market etc. Information is also required on food quality and safety, traceability of farm produce. He expressed his observation that only about 40 per cent of farmers are reached by extension services provided by the government (NSSO, 2005) and therefore there is vast scope for ICTs to reach farmers. In India, mobile phone is the most popular ICT device as 90% of farmers own it, while only 70% of them own television, 30% own radio, 20% of them read newspaper, and less than 5% have access to internet. He discussed some of the important ICT projects which were successfully implemented in India such as the Agmarknet portal with the support of National Informatics Centre (NIC) to disseminate market information about the price and arrival of various farm products by the Union Ministry of Agriculture, a digital platform to trace the origin of all the food commodities exported from India by APEDA which was developed after some foreign importers of Indian food commodities rejected the consignment alleging the excessive presence of harmful residues, the IFFCO Kisan Sanchar Ltd., which is a joint initiative of IFFCO Farmers' Co-operative, telecom player Airtel and telecom handset maker Nokia which offers value added services to farmers by collecting weather data from IMD and farm insights from other sources, another ICT project is a digital platform, Reuters Market Light, developed by news agency Reuters as part of its corporate social responsibility etc. He spoke about various other ICAR projects which have been innovations or community based services.

He also spoke about various other Indian Meteorological Department (IMD) projects which provide country-wide weather information and value added services in association with the Ministry of Agriculture.

Dr. Rao said that in every city many youngsters are coming forward with innovative ideas to link farmers with markets. ICAR-NAARM is also promoting many entrepreneurs to leverage ICTs and provide advisory services to farmers. India has a strong public system for promoting ICT projects.

He quoted that the key lesson learnt in the last two decades is that there is a strong political support for ICT projects. The governance system could be made more transparent and efficient by applying ICT because of support from the top hierarchy of the political officials. One example is the Bhoomi project in Karnataka where farmers can access land records easily because of digitization of this record. He confirmed that the administrative and governance process in the country has changed tremendously because of the adoption of ICT and the major beneficiary is the farmer.

India is well advanced in Information and Communication Technology platforms developed through public-private partnerships (PPP) compared to other countries like Brazil and China. A number of NRIs are also supporting ICT projects in education and market support. Dr. Rao concluded his presentation by expressing hope that ICTs would transform the Indian agriculture sector remarkably in the next 3-4 years.

Deliberations for the Second Day

Mr. Vijay Kalantri, Vice-Chairman, World Trade Centre Mumbai welcomed the distinguished speakers on the dais and other participants on the second day of the event.

Panel Discussion III

Agricultural & Food Processing Policy Outlook



From L to R: Mr. Vijay Kalantri, President, All India Association of Industries, Vice Chairman, World Trade Centre Mumbai, Panelist Dr. Digvir S. Jayas, Vice-President (Research and International) and Distinguished Professor, University of Manitoba, Canada, Panelist Mr. Arvind Kumar, IAS, Managing Director, Maharashtra Agro Industries Development Corporation (MAIDC), Chairman of the Panel Dr. Hameed Nuru, Representative and Country Director, World Food Programme (WFP), India, Panelist Mr. Marco Marzano de Marinis, Executive Director, World Farmers' Organisation, Italy, Panelist Mr. Wawrzyniec Czubak, Assistant Professor, Poznan University of Life Science, Poland.

Dr. Hameed Nuru

Representative and Country Director, World Food Programme (WFP)

Dr. Hameed Nuru in his opening remarks, shared his perspectives on agriculture policy and various issues that need to be addressed by policy. He mentioned that the World Food Programme as an organization, has changed its focus from facilitating international aid for food security to supporting government systems to ensure food safety and security.

Agricultural policy has a very wide scope of area and it includes, among others, farmers, farmer involvement, research, academia and agro-processing industries. The main aim of this session is to deliberate on the role of policy and the policy framework in enabling food for all. Policy also includes production, price protection, insurance, subsidy, gender equality, encouraging youth in agriculture and many other issues. The session would discuss the impact of policy on agriculture and

food security. He stressed that agriculture projects being implemented by UN institutions deliver 30% better results if gender sensitivity and gender equality are considered.

He asserted that policy is not only the activity of government but is more about inclusiveness (it includes the combined activities of all stakeholders in the system) which should be dynamic and hence it should be flexible and must change with changing times to be more effective. He stated that the world is moving towards Sustainable Development Goal (SDG) from Millennium Development Goals (MDG). SDG being broader and having a more comprehensive framework involving 169 indicators of economic and social development, particularly, the responsibility for attaining the targets under SDG rests on countries

rather than on institutions. He expressed that this panel session would throw light on who is the policy maker and what is the role of the policy maker. In Africa, policy maker is one who is trained to implement policy.

Mr. Marco Marzano de Marinis
Executive Director, World Farmers' Organisation, Italy

Mr. Marco Marzano de Marinis shared the activities of World Farmers' Organisation (WFO) and highlighted the challenges faced by farmers. In his presentation, he spoke extensively about WFO saying, "World Farmers Organisation (WFO) is a non-governmental organization and political body that advocates and promotes policies for agriculture and defends the interests of farmers. It is an association of 80 farmer organisations from 60 countries across different continents in the world. The Secretary General of this organization appoints one representative from every continent. The general secretariat of WFO is in Rome, Italy. Apart from this he said, WFO is a horizontal and democratic organization working on promoting adequate nutrition, as it strongly believes that, appropriate nourishment enables human beings to make positive contribution to the society and is working on policy development at the international level for the attainment of the Millennium Development Goals and the proposed Sustainable Development Goals (SDG). He revealed that, across the world a little more than 800 million people do not have enough food in order to sustain life and work. Majority of these people live in rural areas and most of them are farmers who face several challenges including lack of access to markets, finance, education, innovation etc. The dramatic rise in food prices during 2008 could have been a huge opportunity for farmers to improve their livelihoods and incomes. Yet, evidence shows that these high prices did not benefit farmers owing to their lack of access to markets. Farmers are entrepreneurs, economic actors who invest in agriculture and are entitled to reasonable returns, he said.

He expressed distress saying, often small and marginal farmers are denied credit by institutional sources owing to lack of clear land title and this is especially true for women farmers, given the land inheritance laws of many countries around the world. He urged that financial institutions must increase the supply of financial services and products for farmers and that in West Africa and some other parts of the world, policymakers have introduced innovative financing mechanisms connected to warehouse receipts. Under this system, farmers can store their goods in the

The session would also discuss lessons learnt on policy issues in the agriculture sector across different countries.

warehouses and avail loan from financial institutions against the warehouse receipt.

Mr. Marzano de Marinis opined that, government and agriculture research institutions must facilitate farmer's access to innovation either directly or through the transfer of technology. Especially, farmers must be involved in research and innovation processes and there must be a dialogue between farmers and extensionists. Farmers must be involved in all the layers of decision making – right from the local level to the international level. Further, government must promote investments in infrastructure to link farms with food processing companies and to markets.

He stressed that, in order to reduce the adverse impact of agriculture on environment, appropriate practices need to be adopted to reduce greenhouse gases from farming. One such practice is no-tillage farming method adopted widely in America, Brazil and Argentina for growing cereal crops. Under this method, crop output can be increased without causing stress on environment. Organic waste matter that is generated from the previous cultivation is left in the soil for the next round of sowing. The organic matter enriches soil, prevents soil erosion and improves farm productivity by multiple times. Another eco-friendly practice, he said, is the Evergreen Agriculture (EA) being followed in Zambia, Malawi and Kenya. EA is an ambitious project implemented in partnership with CGIAR, World Bank and local farmers. The project includes plantation of about 100 Acacia Trees (*Faidherbia albida*) per hectare in an environment-friendly manner. This technology enables soil to retain carbon, water and prevents the release of carbon dioxide in the atmosphere. Acacia tree absorbs nitrogen in the atmosphere and releases it in the ground, thereby increasing soil fertility. This has increased farm productivity by up to two or three times in Zambia.

The social role of farming includes providing livelihood to rural communities. In this regard, it is worth mentioning about the sustainable cultivation of mangoes which provides employment to several women in Zambia. Mr. Marco ended his speech by remarking that farmers have a prominent role in creating a sustainable planet in the days ahead.

Mr. Wawrzyniec Czubak

Assistant Professor, Poznan University of Life Science, Poland

Mr. Wawrzyniec Czubak started his presentation by listing the two goals of modern agriculture - fulfilling current food needs, maintaining and improving the condition of agricultural and global environment. He stressed that the only method to attain food security in a sustainable way in the long-run is to combine the traditional agricultural methods and modern agriculture technologies.

He expressed concerns over the rise in the world population which means that the cropland available per person is diminishing and gave details of the Common Agricultural Policy (CAP) introduced by EU.

In 1950, cropland available per person was 0.5 hectare, which fell to 0.3 hectare in 2000 and it is expected to shrink further to 0.2 hectare by 2050. Thus, the declining farm land per person calls for increasing agriculture productivity to meet the rising demand for food in future.

He spoke about the percentage of fund allocation differing from country to country according to its level of development and clarified that the countries in the EU are divided into three clusters based on their level of development. The first cluster includes the developed countries of Denmark, Ireland, Sweden and United Kingdom. The second cluster includes countries like Greece, Cyprus, Latvia, Lithuania, Portugal, Slovenia, Slovakia, Bulgaria, Poland, Romania and Spain. The third cluster includes Belgium, France, Luxembourg, Finland, Czech Republic, Germany, Estonia, Italy, Hungary, Netherlands and Austria. Countries in the first cluster allocate around 60.8% of the total funds under CAP for improving environment preservation measures like afforestation.

Mr. Czubak concluded by raising hope that the CAP would facilitate the 28 countries of the European Union to improve agriculture sustainability by pursuing economic, environment and social goals.

Dr. Digvir S. Jayas

Vice-President (Research and International) and Distinguished Professor, University of Manitoba, Canada

Dr. Digvir S. Jayas gave an overview of the Province of Manitoba in Canada and later explained how wastage of food grains can be minimized through efficient storage practices. He said that agriculture is one of the important sectors in Manitoba. Abundant supply of hydro electric power and availability of high quality raw materials for food industry (especially for ready-to-eat food sector) are some of the advantages of Manitoba. Later he gave the economic and industrial profile of Manitoba.

He spoke about the major challenges in attaining food security in the world such as the huge amount of food loss that happens at the post-harvest stage.

He pointed out that if the food grain that is wasted is not produced, that land could be used for reforestation or for producing other bio-products (fuel and other derived products). A well-managed post-harvest handling system can minimize the wastage of grains (cereals and pulses) to 2% of the total produce. On the other hand, a poorly managed system could cause wastage up to 50%.

He stated that, scientists have developed various technologies for safe storage and preservation of grains. One such technology is the use of a flat-bottom bin based system to force air through bulk grain for cooling or drying grain. Other technologies are Silobag (technology developed in Argentina), DryloBag etc. Silobag is also called grain bag or harvest bag or grain sausage. It is a laminated 3-layered, UV protected Polyethylene (PE) which can last up to 1.5 years. This is a sealed air-tight bag which prevents fungi and insects. Silobags are used generally for short term storage purposes with the storage time ranging from 6 weeks to 10 months depending on the type of food commodity stored.

He spoke about some of the precautionary measures to avoid storage losses include cleaning the structure, surroundings, reducing the moisture content, keeping the surrounding cool, inspecting regularly, avoiding infestation and taking remedial actions, adopting use of insect repellent bags, using insect attracting probes, conducting inter-disciplinary education of grain storage experts or operators, creating awareness among farmers etc.

In future, grain storage system must be equipped with sensors to gauge the level of atmospheric gases, odour, temperature, humidity, pressure etc. The storage

system must also have automation technologies to control temperature, moisture and insect attack.

Mr. Arvind Kumar

Managing Director, Maharashtra Agro Industries Development Corporation (MAIDC)

Mr. Arvind Kumar in his presentation provided an overview of his organization and the agriculture sector in Maharashtra stating, "MAIDC has five key divisions – pesticides, fertilizers, animal feed, agriculture engineering division and food processing. In 1972, MAIDC took control of Nagpur Orange Growers Association (a private company manufacturing and supplying fruit juice) as it had started making losses. MAIDC invites private companies to partner with it in the field of food processing".

He proposed that private companies must identify and invest in those sectors, where there is a scope to make profitable venture, instead of selecting the sector, based on whether there is a provision of government subsidy or not. Officials of MAIDC are result-oriented and innovative, despite being subjected to various government regulations.

He informed that earlier the Government of India was operating two schemes under food processing and MAIDC was the nodal agency for these schemes in Maharashtra. However, from the current financial year, the central government delinked these schemes from its support. Under these schemes, the central government used to provide subsidies for setting up infrastructure and processing facilities in the food sector.

He proposed that the international policy on this sector

must address key issues like technology transfer from advanced western countries to developing and under-developed countries, controlling world population, promoting interest-free loans to farmers and streamlining subsidies in the farm sector.

He spoke about India's progress in agriculture in the last 50 years. India made great progress in the agriculture sector and has graduated from food deficit country to food surplus country. His other propositions were that the developing countries should take lead from the Western countries in developing strong political institutions, economic institutions etc. Besides, the international policy on agriculture must address how western countries can effectively share their technologies with the developing countries. He also proposed that the financial institutions must offer interest-free loan to farmers. He said that the high cost of farm credit increases the indebtedness of farmers, who already face risks like crop loss, price uncertainty etc. India has many agriculture credit institutions owned by the public sector and this facilitates offering farm loans at a reasonable cost.

He proposed that just as the developed countries like France and Germany offer enormous amount of subsidies to farmers, there is a need, especially in India, to streamline subsidy disbursement in such a way that does not promote corruption.



Panel Discussion IV

Innovative Financing for Agriculture



From L to R: Panelist Dr. Dinesh, Chief Executive, National Co-operative Union of India (NCU), Panelist Mr. B.V.S. Prasad, General Manager, Department of Economic Analysis and Research, National Bank for Agriculture and Rural Development (Representative), Chairman of the Panel Mr. Raj Benahalkar, Chief Risk Officer, National Commodity & Derivatives Exchange, Panelist Ms. Meera Mishra, Co-ordinator, International Fund for Agricultural Development, India, Mr. Vijay Kalantri, President, All India Association of Industries, Vice Chairman, World Trade Centre Mumbai.

Mr. Raj Benahalkar

Chief Risk Officer, National Commodity & Derivatives Exchange

Mr. Raj Benahalkar in his speech, informed that the real issue in agriculture finance in India is, timely access to credit at reasonable interest cost. He informed the farmers that he would use this Summit to share his insights on agriculture value chain, which has developed well in India. He quoted, "Demand for agriculture commodities varies in the entire value chain (which includes farmers, traders, processors and end consumers). There is a need to bring equilibrium in this demand, so that farmers get fair remuneration for their investment and consumers get the goods at a reasonable price. A farmer has two basic requirements – to get fair price for his produce and a status in the society to live with dignity. In the last three decades, supply chain in the agriculture sector evolved considerably. The supply chain in 1980s was product driven and the parameter was quality. In early 1990s, the supply chain was volume driven and the parameter was cost and product availability. In the later part of 1990s, there was a shift towards a customer-driven

model. In the 21st century, the supply chain is knowledge driven where availability of information is critical.

He spoke discreetly about NCDEX as the largest agriculture commodities exchange in India and that it has implemented pioneering projects in Karnataka and Andhra Pradesh. One of the projects done by NCDEX in Maharashtra is the capacity building for 15,000 farmers growing soyabean in Latur, Maharashtra. As a result of this project, soyabean farmers in Latur can access real-time information on market price for their crop. NCDEX implemented this project because it found that farmers were getting only 40% of the market price paid by end consumers for their crops. Through this project, 200 farmers participated and benefitted by getting far higher price than what they would have got in the mandi. Specifically, farmers realized 16% more price than what they would have got had they sold soyabean in mandi.

Ms. Meera Mishra

Co-ordinator, International Fund for Agricultural Development (IFAD), India

Ms. Meera Mishra in her speech, described the activities of IFAD and explained how microfinance serves as a link between farmers and banks. She described IFAD's activities saying, "IFAD is a financing body of the United Nations and it provides loans to the Government of India for implementing various agriculture projects through different state governments. In Maharashtra, IFAD is running two projects – one in Vidharbha District and the other project (known as Tejaswini) across Maharashtra.

She opined that society and policy makers must repose faith in farmers' ability to face risks. Indian farmers have the inherent capacity to face various risks like climate uncertainty, price volatility for their produce in the market etc. Therefore, the government must stop adopting a protectionist approach towards farmers and instead adopt a supportive approach.

She said that farmers need various kinds of support from the government. One of them is the development of farmer-friendly financial products. These include venture capital funds, crop insurance, animal insurance etc. We must realize that the long term solution to enhance access to finance in the agriculture is to make farmers bankable so that there will be a long lasting relationship between farmers and banks.

She spoke about the advantageous and significant role of microfinance in meeting the financial needs or short-term risks of farmers arising from pest infestation, animal death, weather, price uncertainty in markets and natural calamities. Microfinance is also a stepping stone to build financial discipline or credit discipline within the poor communities amongst the farmers.

Maharashtra Arthik Vikas Mahamandal, a non-government organization, has successfully implemented a microfinance model in around 32 districts of Maharashtra, covering 933,000 households and spanning 65,000 self-help groups. Owing to their sound financial practice, these self-help groups could garner around Rs. 450 crore as a loan from various banks in the last two-three years. Out of this Rs. 450 crore, Rs. 250 crore came from the private sector lender namely, ICICI Bank. The Bank lends large amounts to self-help groups demonstrating the highest level of credit discipline. Under this model, a non-government organization (NGO) with the help of a software can generate reports on the financial transaction of women farmers.

She further stated that the objective of IFAD is to build resilience among farmers and to create options for them to draw farm credit from the mainstream sources of finance (institutional sources of finance).

On Mr. Benahalkar's question, whether the microfinance system can evolve an insurance system to protect farmers from price risks, Ms. Mishra replied saying "IFAD has not worked on evolving an insurance system through microfinance model so far". She further said that farmers have the in-built ability to face price risks. In order to manage price risks better, the government must encourage farmers to grow a variety of crops instead of depending on only one crop.

At the same time, Mr. Benahalkar pointed out that India has developed a strong system of co-operatives for financial intermediation in rural areas. He said the country has around six lakh co-operatives with 24 crore members.

Dr. Dinesh

Chief Executive, National Co-operative Union of India (NCUI)

Dr. Dinesh in his speech, emphasised the importance of the co-operative model in the current scenario of the agriculture sector. He said, "India has only 2% of the global land and 4% of the global water resources, but it supports 18% of the world population. India has attained food security in all these years owing to the efforts of the farmers in the country. However, the country's population, which stands around 1.2 billion

today, is expected to rise to 1.65 billion after some years and there is a need to increase agriculture production to meet the higher food needs of the country.

He stressed on the need to diversify the cropping pattern in the country as today farmers largely grow paddy and wheat. In order to attain nutrition security

and ensure balanced diet for the people, farmers must also grow crops other than wheat and rice.

He expressed that, today, the average size of individual farm holding in India is around 1 hectare and many farmers do not have adequate access to irrigation, quality seeds, organic manure and other farm inputs. Hence in order to overcome this situation, farmers must adopt the co-operative model, under which a group of farmers pool their land, capital, labour and other farm inputs. The co-operative model is based on aggregation of the resources of all the farmers in a community to realize economies of scale. The country has many research institutions including the wide network of institutes functioning under ICAR. It is said that India has the third largest pool of scientists among all countries in the world.

He stressed that efforts must be taken to make farming a profitable venture. According to a survey conducted by the National Sample Survey Organisation (NSSO), an average farming household in India earns less than Rs. 6,500 per month. This indicates that agriculture is not a profitable business in India and therefore farmers do not encourage their children to pursue farming. This situation should not continue, especially at a time when the government wants youths to make a career in

farming or agriculture research. The social status of farmers must improve and they must be treated with dignity. Farming is not considered a socially dignified profession. Therefore, we must endeavour to make farming profitable and elevate the status of farmers in the society.

He briefly described that National Co-operative Union of India (NCUI) is promoting research and extension services in farming, enabling farmers access to latest technologies and empowering women farmers. NCUI has tie-up with six banks that have branches across all districts in the country. In India, there are thousands of co-operative societies that work with farmers and guide them on what to produce, when to produce, how to produce and how much to produce. Of all the primary agriculture co-operative societies (PACS) functioning in the country, around 50% have become financially unviable. He also spoke about the government and farmers who must strengthen the financial positions of these co-operatives and make them economically sustainable.

In conclusion, he said that farmers produce food which is needed for the survival of people; therefore, it is necessary to enable farmers live a better life so that rest of the people can survive.

Mr. B. V. S. Prasad

General Manager, Department of Economic Analysis and Research,
National Bank for Agriculture and Rural Development (Representative)

Mr. B. V. S. Prasad in his speech, explained that the objective of NABARD is to promote sustainable and equitable agriculture and rural prosperity through effective credit support, institutional development and other innovative initiatives. In his presentation, Mr. Prasad spoke about NABARD's role in providing leadership to Rural Financial System through Credit Support, Developmental and Supervisory Support and other initiatives which facilitates flow of credit to agriculture, credit planning, monitoring, co-ordination etc.

He spoke about various NABARD's activities in refinance to rural finance institutions (RFIs), production credit and investment credit, loans to state governments and contribution of share capital to Co-operative Credit Institutions and Rural Infrastructure Development (RIDF) offering financial assistance under Warehouse Infrastructure Fund 2011-12 and NABARD Infrastructure Development Assistance

(NIDA) (2010-11). The Bank also provides direct credit to Producers' Organizations, Central Cooperative Banks, Federations, Agro-Processing Units etc. He stated that besides offering credit, the Bank is also involved in various development initiatives such as strengthening Rural Financial Institutions, operating Watershed Development Fund (WDF), Tribal Development Fund (TDF), conducting off-farm skill development, Self-Help Group (SHG) Bank Linkage (BL) Programme, financial inclusion etc. assisting around 79.63 lakh SHGs and it has linked 42 lakh SHGs (52%) with banks under SHG BL Programme. The Bank has been implementing Natural Resource Management Projects (Watershed Development and Wadi Development Programmes) for the past 20 years on a grant basis. Under forestry development, the bank supports rehabilitation and management, community forest management, biodiversity conservation etc. The Bank is also undertaking farming systems management programme to develop livestock and aquaculture

resources.

He explained in detail NABARD's role in implementation and processes of various programs such as Umbrella Programme on Natural Resource Management (UPNRM), Producers Organization Development Fund, Agriculture Co-operative Societies (PACS) and NABKISAN Finance Ltd. He also said that henceforth support to these programmes would be given on Loan-based Model rather than on Grant-based model.

Mr. Benahalkar concluded the session by sharing

information on the central government's ambitious Unified National Agriculture Market (UNAM) project. Under this project, the central government plans to integrate all the wholesale agriculture markets or APMC markets in the country, which are currently functioning independently.

This session was followed by a Presentation on Promoting Make in Manitoba and the Workshop on Food Procurement by United Nations Procurement Division (UNPD) whose details are attached as Annexure 5 and 6.

Panel Discussion V

Food Standardization and Safety, Post 2015 - The Role of International Standard Organisations



From L to R: Panelist Mr. Omkar Musale, Senior Technical Manager, Envirocare Labs Pvt Ltd, Panelist Mr. Gevorg Nazaryan, Deputy Director, Armenian National Institute of Standards CJSC (SARM) Armenia, Chairman of the Panel Dr. Mark Cyubahiro Bagabe, Director General, Rwanda Standards Board (RSB), Rwanda, Panelist Dr. Eng. Mohamed Abdel Motaleb Etman, Head of Central Department for Standardisation, Egyptian Organisation for Standardisation and Quality, Egypt, Panelist Dr. Asmi Raza, Professor of Economics, University of Delhi & Project Director, World Bank, Panelist Ms. Vaneet Kaur, Research Associate, Centre for Science & Technology of the Non-Aligned and Other Developing Countries.

Dr. Eng. Mohamed Abdel Motaleb Etman

Head of Central Department for Standardisation, Egyptian Organisation for Standardisation and Quality (EOS), Egypt

Dr. Eng. Mohamed Abdel Motaleb Etman informed how his organization ensures that the food sold in Egypt is safe for human consumption and provided details on how EOS is responsible for standardisation of quality and industrial metrology. It is a member of the International Organisation for Standardisation (ISO)

and aims to raise the competitiveness of Egyptian products in the international market. He spoke about the various activities of EOS such as, provides information for the concerned bodies in the field of standards, quality, measurements and metrology, provides training courses for technicians in competent

authorities and other concerned bodies and also participates in the work of CODEX Ameritus. He quoted that some of the key functions of EOS are setting up standards, developing a plan specification, conducting initial study, preparation of draft etc. Some of the other tasks of EOS are developing the unified Arab standards as per membership in the Arab Industrial, Development and Mining Organization (AIDMO), participating in the activities of African Regional Organization for Standardization (ARSO) as a board member. EOS is also responsible for licensing production companies to use Halal mark on commodities based on the Egyptian standards issued in this connection.

He remarked that high population rates, increasing per capita income and urbanization are fuelling the rising demand for food, especially cereals. The Egyptian government is taking various measures to attain food security in the country. Some of them include providing support to ensure that relevant institutions deliver evidence-based policies and sustainable elements on food security in a coordinated manner, ensuring analysis of key national surveys and surveillance systems, developing early warning systems and contingency planning, ensuring that its food subsidy system and food-based safety nets deliver quality food packages efficiently to vulnerable and poor families as well as targeted high-risk populations.

He stated that Egypt has developed a national economic plan for the health sector through the involvement of relevant ministries in the government and research institutions. A sound food safety standards

framework plays an important role in attaining some of the food security challenges like enabling vulnerable people, especially women and children, to consume adequate, healthy and nutritious food, achieving efficient supply chains in food production, including adoption of good agricultural practices, reduction of post-harvest losses and development of local markets and food distribution systems.

He informed that EOS develops standards with the support of technical committees that include representatives from control authorities, industry representatives, consumer protection authorities and academic institutions as members and has issued around 4,000 standards in the food sector through 30 specialized technical committees. EOS has separate technical committees for different food products like fish and fishery products, milk and milk products, meat and meat products, cereals and pulses and its products, Halal food, food hygiene and special foods. EOS hosts international mirror technical committees and national technical committees. These committees study the problems that are related to national industry and setting the ways for solving these problems. These committees also issue guidelines and recommendations to ensure food safety according to International Codex guidelines and Code of Hygienic Practices.

He also informed that EOS developed Halal standards for foods, cosmetics and personal care and pharmaceutical products. The Halal certification standards ensure that food does not contain anything that is prohibited under Islamic Sharia.

Mr. Gevorg Nazaryan

Deputy Director, Armenian National Institute of Standards CJSC (SARM) Armenia

Mr. Gevorg Nazaryan spoke about the challenge of food security in reference to the international food safety standards regime.

He remarked that the food and feed safety standards must keep in tune with the rapidly changing global food industry, for example, the absence of a microorganism or the maximum tolerated number of micro-organisms per quantity of product. A major recent innovation in the food and feed sectors is the increased use of transgenic materials which require detection and identification of genetically modified (GM) materials. The increase in global trade is impossible without removing the technical barriers to trade such as product

specifications that differ nationally from international standards, presentation or labelling requirements, lack of standardized methods of analysis for certain parameters, sampling plans that are resulting in long and costly product certification. The world needs a harmonized and widely accepted International Standards, he clarified.

He informed that at the global level, the International Organisation for Standardisation (ISO) develops and publishes standards for its 162 member countries which was set up in 1947 and has 34 technical committees. ISO has published 836 standards and has 105 projects under development, 77 participating

countries and 58 observer countries. The organization has developed standards for all food and feed commodities including cereals and pulses, fruits and vegetables, milk and milk products, meat, poultry, eggs, spices, herbs, condiments, tea etc. For example, one committee focuses on standardisation of cereals, another focuses on standardisation of methods for analysis and sampling for milk, yet another committee focuses on standardisation of microbiological analysis of the food chain. The technical committee on cereals and pulses as well as their products develops terminology, sampling, methods of test and analysis, product specifications and requirements for packaging, storage and transportation.

Nearly all ISO-IDF International Standards are adopted by the Codex Committee on Milk and Milk Products

(CCMMP) and, thereafter, are also endorsed by the Codex Committee on Methods of Analysis and Sampling (CCMAS).

He informed that the ISO 22000 series developed by the ISO provides standardization in the field of food safety management systems, covering the food supply chain from primary production to consumption, human and animal foodstuffs as well as animal and vegetable propagation materials.

Mr. Nazaryan concluded by mentioning that the remarkable benefit of food safety and standards regulation is that it inspires confidence among the different stakeholders operating in feed and food sectors by ensuring that foods are safe at the time of consumption.

Dr. Asmi Raza

Professor of Economics, University of Delhi & Project Director, World Bank

Dr. Asmi Raza spoke about food safety which plays an important role for food security and that modern farming practices endangers food safety. In pursuit of high agriculture production, farmers use considerable amount of pesticide and other chemicals which have adverse effect on human and animal health. He

emphasised the role of organic farming in addressing this issue and ensuring food safety. Even though organic farming may be expensive in the short run, in the long run it ensures higher productivity. The government and civil societies must create awareness about food safety among consumers, Dr. Raza insisted.

Mr. Omkar Musale

Senior Technical Manager, Envirocare Labs Pvt. Ltd.

Mr. Omkar Musale in his speech stated that the discussion on food security is highly relevant at a time when the Millennium Development Goals are about to expire and the international community pursuing a new set of targets (Sustainable Development Goals). We must create a world without hunger by ensuring food safety and security for all in a long term sustainable manner.

He remarked that the food safety standards aim to ensure the highest level of food safety along with plant health, animal health and animal welfare. The implementation of ISO's food safety management standards is highly relevant to attain sustainable, fair and adequate global food system. These standards, among other things, also address environmental contaminants in food chain such as pesticides and heavy metals that undermine food safety.

He suggested that policymakers and regulators of food safety standards must adopt farm-to-fork approach or

whole chain approach to find a sustainable solution to food security and food safety instead of adopting the end of pipeline approach. Globalisation, climate change and urbanization have created many challenges for the food safety regulation systems.

One of the challenges for food safety, he said arises from the fact that more people expect a wider variety of foods than in the past; they want foods that are not available during the season. This leads to changing of food production, distribution and consumption pattern. This in combination with Climate Change may contribute to increased incidence of food borne diseases and toxins in food.

Other challenges are increasing antimicrobial resistant in foodborne pathogen, evaluation of the safety impact of technologies like nanotechnology and genetic engineering, and environmental contaminants in food chain such as pesticides and heavy metals.

He said that a sound food testing procedure must measure the presence of biological contaminants, physical contaminants, food adulterants, chemical contaminants, food additives, nutrients etc. in food stuffs. Food testing laboratories use many state-of-the-art instrumentation and testing systems for detecting pesticides, profiling impurities, fatty acids, sugars, vitamins, toxic heavy metals, minerals, colour dyes, drug residues etc.

He informed that every country prescribes the list of pesticides banned and the maximum residue level (MRL) permissible in food items. These prescriptions differ from country to country and it is one of the barriers to international trade. For example, India's

Food Safety and Standards Authority of India (FSSAI) listed total 149 pesticides for all types of food produce. However, EU has a list of more than 450 pesticides per crop. The pesticide control regime of the European Union is more scientific and needs to be standardized across the globe. To guide on pesticide usage and sustainable farm practices, a strong technical assistance is required including effective food inspection and enforcement services like laboratories and inspecting services.

He concluded by listing out some of the features of an effective global food safety regulation system to address pesticides and heavy metals.

Ms. Vaneet Kaur

Research Associate, Centre for Science & Technology of the Non-Aligned and Other Developing Countries

Ms. Vaneet Kaur in her speech talked about the adoption of innovative agriculture technology to promote farm productivity and attain food security. She quoted that the widespread application of science and technology by all farmers across the country would enable India to attain the zero hunger target in a time-bound manner. Farmers should adopt Integrated Pest Management, conservation agriculture methods like 'zero tillage' with minimum disturbance to environment and soil quality. Adoption of precision agriculture or satellite farming – a concept based on information technologies - must also be promoted to improve farm productivity and ensure efficient use of farm inputs, she said.

Agriculture science has advanced considerably especially in the areas of genetic improvement, market-assisted breeding, allele mining, genome sequencing and functional genomics. India needs a second green revolution that focuses on increase in productivity with minimum adverse impact on environment or ecology. At the same time she suggested that, it must also focus on equity i.e. making sure that the benefits of research spread to the poor. Another element of the second green revolution should be focus on trans-disciplinary approach to research. Such an approach transgresses boundaries among disciplines and actors leading to a 'fusion' among disciplines and partnerships. The future research needs to support a profitable, more productive and sustainable agriculture with emphasis on food and farm technologies that mitigate climate change impact and adapt to a low-carbon and low-water regimes

giving rise to highly modified biological responses to climate changes.

She suggested that yet another element of the second green revolution which should emphasise on green biotechnologies (concerning plants and their growing) as well as on the white biotechnologies (primarily focusing on use of biological organisms to produce or manipulate things). Also, technological innovations must be encouraged to address challenges like water scarcity and climate change.

She also informed that at the global level, the world leaders adopted the 17 Sustainable Development Goals (SDGs) at the United Nations Sustainable Development Summit on 25 September 2015. These goals must be attained by 2030. The post-2015 development agenda should pick up where the Millennium Development Goals (MDGs), which expires in 2015, left off and should focus on the new SDGs adopted. The SDGs framework envisages ending hunger and ensuring access to food for all by 2030. The SDGs framework also envisages ending all forms of malnutrition and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons. Some other targets of the SDGs framework are doubling the agricultural productivity and incomes of small-scale food producers, creating sustainable food production systems, resilient agricultural practices, maintaining the genetic diversity of seeds, cultivated plants and farmed and domesticated animals.

Dr. Mark Cyubahiro Bagabe

Director General, Rwanda Standards Board (RSB), Rwanda

In his opening remarks, Dr. Mark Cyubahiro Bagabe congratulated All India Association of Industries (AII) for inviting him to the Summit. He said, “The Global Economic Summit 2015 featured various sessions where speakers discussed subjects like agriculture financing, policies on improving farm productivity, policies on agriculture technologies, policies on food security etc. The panel session that he was chairing would discuss the role of food safety in ensuring food security. Food security not only means producing enough quantity of food to feed the population, but it also meant supplying good quality food to the people. This is where safety standards come into play. By 2050, the world population is expected to rise to more than 9 billion from 7 billion today”.

He suggested that policymakers across the world must evolve strategies to supply good quality food to people. Also, the increasing level of urbanization has created the challenge of safely transporting food from farm to cities. Food safety also depends on how food is transported from the farms to the point of consumption. In this regard, the International Organization for Standardization has developed the safety standards ISO 22000 that can be applied to any organization in the food chain, from farm to fork.

Dr. Bagabe summarised the session by stating that the goal of 'food security with safe food' can be attained only by adopting a holistic policy approach that takes into account developments like globalisation, urbanisation, climate change etc.

Panel Discussion VI

Agriculture Infrastructure: The Way Forward



From L to R: Panelist Dr. Min-Tze Wu, Director of Plant Technology Laboratories, Agricultural Technology Research Institute (ATRI), Taiwan, Panelist Mr. Venkatesh N. Hubballi, Director, The Directorate of Cashewnut & Cocoa Development (DCCD), Panelist Mr. Per-Stefan Gersbro, Managing Director, Paccedo AB and Founder, Packbridge AB, Sweden, Chairman of the Panel Mr. Ashwin C. Shroff, Chairman, Excel Crop Care Ltd, Panelist Mr. Anil B. Jain, Managing Director, Jain Irrigation Systems Ltd, Panelist Dr. Hasanuddin Ibrahim, Assistant to the Minister of Agriculture for International Trade and Relation, Ministry of Agriculture of the Republic of Indonesia.

Mr. Ashwin C. Shroff

Chairman, Excel Crop Care Ltd.

In his introductory remarks Mr. Ashwin C. Shroff listed out the challenges in the agriculture sector of India and the role played by his organization in addressing some of these challenges. He said “Indian agriculture sector

faces many challenges, which are typical for any other developing country. These challenges include existence of small farms, water scarcity, climate change, inappropriate use of farm inputs, inadequate

storage facility, lack of grading and other post-harvest infrastructure, unremunerative price for farmers etc”.

He remarked that, in the last 50-60 years, Indian government has taken various steps to strengthen farm infrastructure, including setting up of research and extension facilities. However, these policy steps adopted mega, centralized, one-size-fits-all approach and hence they did not address the local issues of farmers. The future policy steps should be farmer-centric, community-driven and also must be small, de-centralised, easy to execute and environmentally sustainable. The future policy measures need to be implemented with the active participation of private sector and non-profit organizations.

He spoke about the Excel Group of Companies, which is a 75 year old group and has around seven companies that manufacture and supply various kinds of chemicals and equal number of voluntary organizations working

in the area of rural development. He said, “Some of our group companies are working on developing water storage, water harvesting infrastructure, offering water recycling technologies, drip irrigation technologies etc. The group is also active in providing various soil health services; these include producing compost out of urban and rural waste so that it can be used as farm manure in the soil. Application of compost in the soil increases its fertility and capacity to retain water. One of our group companies also offer soil testing service through its mobile and stationary soil testing laboratories. Another group company offers weather advisory services to farmers through its centralized weather centres and automatic weather station networks in India. The group is also involved in providing de-centralised food storage facilities at the village level. Lastly, one of the group companies offers farm mechanization solution in order to reduce drudgery or manual labour in the farm”.

Mr. Anil B. Jain

Managing Director, Jain Irrigation Systems Ltd.

In his address, Mr. Anil B. Jain explained how small farmers can improve productivity and income by adopting right farm infrastructure and technology. He quoted that sustainable agriculture requires key infrastructure facilities like irrigation, supply of energy, storage and evacuation facilities. Besides these, there is a need for micro-level infrastructure like soil testing labs which assess the water, nutrient and fertilizer requirement of the soil and advice for the farmers accordingly.

He informed that, Jain Irrigation provides various kinds of infrastructure and knowledge services to farmers in the country. The company is a pioneer in promoting drip irrigation in India and it is the second largest drip irrigation provider across the world. Through drip irrigation, farmers can save water, fertilizer and at the same time improve productivity. Jain Irrigation is also a supplier of solar pumps, planting materials (like tissue culture), knowledge services etc. The company is also the largest banana tissue culture provider in the world. It provides tissue culture for other fruit crops like pomegranate. The company also provides various kinds of knowledge services to farmers.

He urged that there is a need to conserve water and adopt technologies for judicious use of water in agriculture, as 67% of the water in India is lost in storage, conveyance and distribution. He spoke about the various deficiencies in water management in India, along with the issues in erratic power supply to farmers. In order to overcome the power supply issue, he informed that Jain Irrigation supplies solar powered

water pumps to farmers. These pumps are operated through electricity generated from solar energy which is freely available.

He informed that by using right infrastructure and appropriate technology, small farmers, holding less than 2 hectare land, in Sangli District of Maharashtra are growing 130 tonnes of sugarcane per acre, which is far higher than productivity of large sugarcane farms in Brazil.

Mr. Jain said that farmers have to face weather-related uncertainties like erratic rainfall, high temperature, excessive wind etc. by adopting right infrastructure and appropriate technologies like polyhouse farming and greenhouse structures, whereby farmers can eliminate the impact of adverse weather conditions on farming.

Lastly, he suggested that, post-harvest infrastructure like cold storage systems, warehouses are required to reduce the wastage of food products. On an average, at the cost of Rs. 8 lakhs per hectare, a farmer can set up irrigation infrastructure, renewable energy infrastructure and evacuation infrastructure (including cold storage). With this investment, the farmer can increase crop productivity, use farm inputs efficiently and gain handsome returns.

Mr. Jain concluded by saying that appropriate farm infrastructure cannot only increase productivity and farmers income, but also ensure sustainable use of natural resources like water, solar energy etc.

Dr. Min-Tze Wu

Director of Plant Technology Laboratories, Agricultural Technology Research Institute (ATRI), Taiwan

In his presentation Dr. Min-Tze Wu, outlined the agriculture sector in Taiwan and invited foreign companies to invest in his country.

He informed that Taiwan seeks to integrate traditional technology and advanced biotechnology in agriculture, as the R&D expense in agriculture is less than 3.7% of the annual research budget, though the country has excellent scientific and research talent and the Taiwanese government plans to build agricultural scientific R&D system with international competitiveness. He noted that Taiwanese scientists developed new species of minipig as a model animal for regenerative medicine researches. Scientists use pigs as bioreactor to produce transgenic recombinant human factor IX. Scientists are also producing new crop varieties for exports.

He informed the achievements of the Academia Sinica and Jy-Lin Trading Co. in fish breeding and exports who jointly developed the world's first medium-sized fluorescent fish in 2010. Also the Council of Agriculture (CoA), which is the authority on agriculture and allied sectors in Taiwan, has transferred around 127 technologies in 2013 and has earned an income of \$2.55 million through this. The number of technologies transferred has increased gradually from three in 2002 to 85 in 2007 and further to 127 in 2013.

The CoA adds value chain right from R&D to export market for various food crops and gave examples of the same and spoke about their achievements. He remarked that the licensed companies would distribute these varieties to contract farmers for large scale cultivation of this crop. These licensed companies procure the vegetable soybean from the contract farmers and export it to Japan. These companies are exporting US\$ 557 million worth of soybean to Japan, where they have a market share of over 40%. The contract farmers and the licensed companies agree on a profit sharing model in this venture. Typically, the value of the contract is \$253 million.

He also informed that Taiwanese government has devised some strategies to accelerate industrialization of agricultural science and technology. The first strategy in this direction is the focus on 10 potential areas – 1) Animal vaccines, 2) feed additives, 3) bio-pesticides, 4) diagnosis and testing, 5) new plant varieties and seedlings, 6) mushroom cultivation, 7) grouper culture system, 8) agricultural machines, 9) ornamental fishes and accessories and 10) pet foods and products. The second strategy is the establishment of Agriculture Technology Research Institutes (ATRI). This strategy includes supporting universities, private research institutes and research institutes of the Council of Agriculture. Some of the focus areas of agriculture research are feed additives, animal vaccine and bio-pesticides. The third strategy is the establishment of agricultural biotechnology industry cluster. The aim of this strategy is to transform traditional agriculture into agri-bio industry. Currently, Ping-tung Agricultural Biotechnology Park (PABP) is the only science park focused on agriculture.

Further, he gave information about PABP, such as it houses 38 companies that produce natural products for health and beauty, 12 aqua breeding companies, 10 agro-bio material manufacturers, 10 companies that produce husbandry materials and animal health products, six bio-technical service providers, six companies that offer energy saving and ecological agro-production system.

Dr. Wu concluded by inviting foreign companies in the agriculture sector to explore mutually beneficial partnership with their counterparts in Taiwan. Taiwanese companies in the agricultural machinery, plant seedling, bio-pesticide, bio-fertilizer and other agriculture-based sectors are looking for overseas partners. The Taiwanese government welcomes international cooperation, partnership and investment in the agriculture sector.

Dr. Hasanuddin Ibrahim

Assistant to the Minister of Agriculture for International Trade and Relation,
Ministry of Agriculture of the Republic of Indonesia

Dr. Hasanuddin Ibrahim, started his presentation by highlighting the importance of agriculture in attaining food security in Indonesia, where the population is expected to rise to around 285 million in 2030 from the present 256 million.

Dr. Ibrahim spoke about the various issues affecting agriculture and discussed some of the issues in the Indonesian agriculture that include uncontrolled land conversion, narrow land ownership, declining land quality etc. Thus, there is a need to adopt sustainable agriculture practices that are clean, eliminates wastage, saves energy etc.

He informed that the Ministry of Agriculture in Indonesia has chalked out a strategic plan for the period 2015-2019. This plan aims to create a sustainable agricultural bio-industry system that produces a variety of healthy foods and high value added products based on local resources for food security and farmers welfare. The plan aims to achieve food security and farmers welfare, reform bureaucracy, improve the competitiveness of food industry, increase the value addition, increase the supply of raw material for bio-industry etc. The government plans to achieve these goals through a set of policy measures which include improving farm infrastructure, increasing supply of high quality seeds, strengthening the institutions of the agriculture sector, strengthening agriculture finance,

strengthening capacity building, adoption of information technology etc. specifically in the cattle industry. The Indonesian government is increasing the number of cattle breeding centers, execute technology transfer, provide mentoring, take animal welfare measures, promote vaccination etc., he said.

He spoke about a number of progressive steps taken by the government towards expansion of new wetland areas, expansion of dry land areas, rehabilitation of irrigation networks, construction of farm shops, control of land conversion, recovery of degraded land, promoting self-seed development in villages, construction of warehouses with post-harvest processing facilities in the production center, control of food imports etc.

Dr. Ibrahim concluded by highlighting the key concerns in the agriculture sector of Indonesia. He said food security and farmers welfare are amongst the important issues in this country. There is a need to modernize agricultural production systems through bio-industry approaches and rehabilitation of farm infrastructure like irrigation facilities. Indonesia aims to develop an agriculture sector which is characterized by zero waste, clean and environmental friendly practices, local wisdom, processed products and effective supply-chains.

Mr. Per-Stefan Gersbro

Managing Director, Pacedo AB and Founder, Packbridge AB, Sweden

Mr. Per-Stefan Gersbro explained the role of packaging in increasing the shelf life of food products, enhancing the marketing appeal of these products. He also talked about the sustainable practices to be followed by packaging companies.

He specifically said, "The nature discovered packaging well before man. For eg. banana's outer peel acts as a packaging material to protect the fruit. Different things like grasses, reeds, tins, plastics and papers were used as packaging materials at different points in time of human history".

He spoke about the role of packaging and its

importance in this era of globalization and urbanization where food products are transported through long distance from farms in villages to consumption points in cities and towns. He informed about a third of all food produced globally for human consumption which is lost or wasted and the huge wastage is often due to lack of good packaging and distribution solutions.

He noted that in developing countries, food wastage can be as high as 50% before it reaches consumers, owing to lack of good packaging and distribution solutions. In developed countries, consumers typically waste as much as 30% of the food that they buy.

Packaging enhances the shelf life of food products by protecting them from light, oxygen and water vapour from outside and aroma and gas from inside and protection from bacterial and fungal contamination. Packaging also reduces the likelihood of undesirable chemical changes that can change the colour, flavour and taste of food products. Sound packaging eliminates loss of vitamins and other nutrients in food products, he said.

He spoke extensively about packaging and called it as a silent salesman who helps in carrying mandatory product information like key ingredients, price, manufacturer's address etc. and said that packaging thus helps branding strategy which motivates consumers to buy a product.

Packaging carries essential information about the quality, safety and originality of the food products. In order to mention this information on the packaging material, food processing companies are adopting new sensor technologies and printed electronics that are based on bio and nanotechnology. Temperature or time sensors have been commercially available as indicators of product quality for several years.

He pointed out that sustainable packaging practices include the use of environment-friendly packaging materials and recycling of used packaging materials. Sustainable packaging practice seeks to reduce the adverse impact of packaging on environment. If a packaging system fails to provide adequate protection to the goods it contains, it is not really sustainable at all, as in this case both package and product will be wasted.

Mr. Venkatesh N. Hubballi

Director, The Directorate of Cashewnut & Cocoa Development (DCCD)

Mr. Venkatesh N. Hubballi initiated his speech by introducing the roles and responsibilities of DCCD.

DCCD adopted a well diversified strategic approach to develop the cashew sector in India. Specifically, in the last few decades it has taken various steps to increase area of cashew cultivation and productivity of the crop in various parts of the country.

He noted that the central government allotted Rs. 500 million for integrated approach to improve the production of cashew during the 8th five year plan (1992-1997) and has also set up All India Coordinated Research Project on Cashew in different states to strengthen research. Also, the standardised soft wood grafting techniques and comprehensive package of practices were developed for cashew.

The government banned planting seeds or seedlings of cashew and popularized grafts of high yielding varieties and created awareness among growers on advantage of using grafts. It also promoted scientific nursing of cashew to gain remunerative income from marginal lands. During the 8th five year plan, the country achieved 100% plantation with cashew grafts.

The country developed 37 high yielding varieties of cashew suited to different agro climatic tracts and conforming to export requirements.

He noted that the above initiatives and awareness resulted in increasing area, production and exports of cashew. At the same time he spoke extensively about the status of cashew cultivation in India and gave details of the same.

He informed that Cashewnut shell liquid (CNSL) is a by-product of the cashew industry. This liquid is used in several industries including in chemicals, paints, insecticides and fungicides, electrical conductors, wood, fuel etc. Cashew apple which is high in vitamin C and fibre is used in pickle, jam, candy, syrup and other processed products. Cashew is the potential crop of the future, considering its importance in supporting the livelihood of small and marginal farmers.

Mr. Hubballi concluded by pointing out that the government may consider, including cashew in the midday meal for the large mass of school children, considering its rich nutritional value.

Deliberation for the Third Day

Panel Discussion VII

Role of Skill Development and Innovation in Enhancing Agricultural Yield



From L to R: Panelist Mr. Mayank Sagar, Business Development Executive, Annamrit Farmers as Owners Foundation, Panelist Dr. Parashuram Samal, Principal Scientist, ICAR-National Rice Research Institute, Mr. Vijay Kalantri, President, All India Association of Industries, Vice Chairman, World Trade Centre Mumbai, Chairman of the Panel Ms. Joanna Kane-Potaka, Director-Strategic Marketing and Communications, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

Ms. Joanna Kane-Potaka

Director-Strategic Marketing and Communications,
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Ms. Joanna Kane-Potaka spoke about the importance of capacity building amongst farming community to create a sustainable agriculture system. She gave a brief overview of ICRISAT and its activities and spoke about its specialisation addressing the issues faced by farmers in dry land farming.

She spoke about the three approaches to capacity building – 1) capacity building across value chain, 2) inclusive capacity building and 3) capacity building as a catalyst for empowering farmers.

In addressing the challenge in capacity building, she cited as an example, the story of how farmers in the North Eastern part of Thailand were trained to improve the soil quality.

Several years ago, the productivity of farmlands in

Northeast Thailand declined because of low clay content in the soil. Presence of clay and organic matter enhances the water retention capacity of soil. In order to enrich the clay content, farmers used to apply termite mounds in the soil. However, owing to scarcity of termite mounds, farmers struggled to find out alternative solution to improve the clay content in their soil. In mid 2000s, bentonite a type of clay which increases water retention capacity of the soil, enriches soil nutrients thereby increasing the average yield of rice by 73%, was found by scientists from abroad. This also reduced the risk of crop failure during drought years. However this concept was not well taken by the farmers, as they do not consider scientists to be having solutions that suit local environment and local dynamics of farming, thus foreign scientists used the local government and local research partners to convince farmers about the benefit of bentonite. In

order to promote the use of bentonite, the local scientists also convinced an innovative group of farmers.

Ms. Potaka mentioned that capacity building is not just about training or knowledge sharing (KS), it requires understanding the whole social dynamics and it is multi-dimensional.

She further cited the examples of Kenya, Gujarat and Rajasthan. She explained how in Kenya, sorghum which is a traditional diet is best suited to the climatic conditions was revived through capacity building which had been lost due to the UN aid to cultivation of maize. In Gujarat women were encouraged to participate in capacity building workshops and in Rajasthan integrated approach to farming was promoted through capacity building.

Ms. Potaka informed that ICRISAT improvised the traditional taankas for collecting rainwater following the request from the women self-help groups. Women in the north western parts of Rajasthan are working with the scientists of ICRISAT to help reduce adversities and provide hope for the community. She said ICRISAT is of the opinion that by preventing women from participating in agriculture, we are wasting 50% of the available labour force.

She noted that it was through capacity building, ICRISAT trained 10,000 farmer facilitators, equipped them with tablets and facilitated their access to customized information in Karnataka. The project was a grand success in its first three years of implementation and farmers realized 20-60% growth in yield. Owing to

the use of efficient technologies, farmers could reduce cost and maximize returns. For every one dollar invested, farmers could earn \$3-\$4. Thus, scientists from ICRISAT were acting as catalysts to empower farmers with efficient technologies.

ICRISAT follows a holistic approach to capacity building across the entire value chain of the food sector. Under this approach, capacity building activities are conducted to manage soil and water, enhance access to high quality seeds, diversify farming activity, develop on-farm practices and technologies, introduce processing, facilitate market access, drive market development and analyse key problems and opportunities. ICRISAT has introduced rainwater harvesting, watershed development projects in Ethiopia and India through capacity building of farmers.

ICRISAT is also involved in setting up agribusiness incubators. ICAR (Indian Council of Agricultural Research) with the support of ICRISAT, has set up 23 agribusiness incubators across India. These incubators train budding entrepreneurs in the agri-business sector. This is another example of how capacity building acts as a catalyst in empowering agri-business entrepreneurs. Also, ICRISAT, along with Forum for Agricultural Research in Africa (FARA), has set up five agribusiness incubators in Africa - Zambia, Kenya, Ghana, Mali and Uganda. These incubators are often set up at universities and provide advice, technology, space and a learning environment for start ups in agriculture. These incubators support the agri-business sector by attracting youth to agriculture.

Dr. Parashuram Samal

Principal Scientist, ICAR-National Rice Research Institute, Cuttack, India

Dr. Parashuram Samal gave details of the rice sector in India and talked about the role played by the National Rice Research Institute (NRRI) in the development of sustainable rice cultivation system in the country and its goal to ensure food and nutrition security of the present and future generations of the rice consumers. As for the mission of the Institute, NRRI seeks to develop and disseminate eco-friendly technologies to enhance productivity, profitability and sustainability of rice cultivation.

Explaining the research initiatives of the Institute, he

mentioned NRRI's research activities which are undertaken in 41 defined projects and are grouped under five well-structured programmes, as follows : 1) Genetic improvement of rice (15 projects), 2) Enhancement of productivity, sustainability and resilience of rice-based production system (12 projects), 3) Rice pests and diseases-emerging problems and their management (7 projects), 4) Biochemistry and physiology of rice in relation to grain and nutritional quality, photosynthetic efficiency and abiotic stress tolerance (4 projects) and 5) Socio-economic research and extension for rice in

development (3 projects). He spoke about various other activities of the Institute such as a five-panel customized leaf colour chart (CLCC) - in order to guide farmers on the appropriate application of nitrogenous fertilizer, the multitier rice-fish-horticulture-birds based farming system introduced by the Institute for deep water condition. Under this system, a farmer can produce food crops, fish, prawn, meat, egg, animal feed and fibre and fuel wood. The institute received various awards towards its contribution to agriculture, he mentioned.

He spoke about the various rice varieties developed by the Institute and noted that NRRI was the first Institute to report the role of cytoplasm in causing male sterility in rice in 1954. In another achievement, the Institute identified *Oryza longistaminata* as a source of bacterial blight resistance, which was subsequently used elsewhere to isolate Xa21 gene. Also, NRRI integrated marker assisted selection to transfer three bacterial blight resistance genes to the popular varieties Lalat and Tapaswini and developed and released their improved versions as new varieties.

He noted that the Institute developed improved agricultural implements suiting labor and cost conditions such as manual 4-row rice transplanter, drum seeder and rice varieties suiting to different eco systems of other countries such as Afghanistan, Burkina Faso, Burundi, Malawi, Mali, Nepal, Tanzania, Sri Lanka and introduced three hybrid varieties namely Ajay, Rajalaxmi and CR Dhan 701 etc.

He noted that the NRRI also has strong linkages and collaborations with several institutes or universities of The National Agricultural Research System (NARS). The Institute has partnered with more than ten private companies for commercialization of its products and technologies. Partnership with farmer organizations are also established for participatory seed production and commercial production of high-quality rice varieties through rice value chains, he mentioned.

He noted that NRRI has many facilities such as salinity screening facility, submergence screening facility, rainout shelters for drought tolerance screening, open top chambers for CO₂ enrichment study, climate controlled rapid generation advance facility, farm-operation and seed processing units, equipments used

included GLC, HPLC, ICP, Amylose and Auto-analyzer, Eddy-Covariance system etc.

He briefly shared information on the outreach programmes of NRRI with other institutes like IRRI and NICRA. Pointing out to the facilities available with NRRI, he said the institute has *Oryza* museum, Gene Bank (medium-term storage), transgenic glass house, biotechnology laboratory with mechanized DNA extraction system, real time PCR, fragment analyser and other equipment.

Speaking about the broad focus areas of the Institute, he informed about their plans to intensify its work on five Ps - Product development, Publications, Patenting, Partnership and Popularization of NRRI technologies and also plans to strengthen efforts in basic and strategic rice research, establish and promote rice value chains, expand the concept of 'participatory seed production' for a 'self-sufficient and sustainable seed system for rice (4S4R)'.

Later, he explained some of the resource conserving farm practices introduced by NRRI. These practices include primary land preparation with mould board plough followed by soil pulverization by cultivator and puddling by power tiller. He also explained the paired row dry direct seeding of rice and other practices introduced by the institute, development of rice value chain through five-partite agreement based on public private partnership model. The Institute also works on managing acidic soils, management of biotic stresses besides working on low cost technologies for controlling insect control and ITK-based pesticides in tribal areas.

Dr. Samal listed out the challenges in rice cultivation. The challenges mentioned by him are declining profitability, water shortage, climate change, drudgery, infrastructural bottlenecks, constraints in input delivery and ineffectiveness of support price.

Some of the thrust areas of future research for the Institute include development of super rice, enhancing input use efficiency, development of climate resilient varieties tolerant to multiple abiotic stresses, breeding high quality rice, development of machineries and implements for farm mechanisation, Dr. Samal said.

Mr. Mayank Sagar

Business Development Executive, Annamrit Farmers as Owners Foundation

Mr. Mayank Sagar in his speech spoke extensively about the implementation of the Apple Project by a consortium of partners in five districts of Uttarakhand and Himachal in 2007 and provided details on the project. One of the partners, Stichting Het Groene Woudt (SHGW) is a Dutch Family Foundation that has been investing in viable businesses in agri-value chains across emerging countries since 2001 and it has offered seed-funding of Rs. 15 crore to the Apple Project. The aim of this project was to create a strong agriculture value chain and free the poor apple farmers in these districts from the clutches of the middlemen. Under this project, one of the partners Shri. Jagdamba Samiti organized apple growers in these districts and aggregated their produce to improve bargaining power. The partners set up nine joint venture companies with the involvement of these farmer organizations (or collectives). These companies produce value-added products like beverages from apples. The partners in this project also set up a marketing platform that ensures access to distant and more profitable markets for farmers. The apple juice branded as Mountain Love is sold across Delhi-NCR, Dehradun and Lucknow. They sell 100% pure apple juice which are not reconstituted from concentrate and have no added sugar or preservatives with a shelf life of one year. The companies use sophisticated vacuum technology to pack the juice, Mr. Sagar explained.

One of the key enabler of this project is the import of Dutch technologies for post-harvest processing, storage and transportation of apples and also setting up of pre-cooling, sorting and grading facilities and storage infrastructure at the collection centres. The automated grading and sorting facilities and efficient post-harvest landing at the collection point ensures minimal damage to apples and increases the volume of apples sent to the market.

He further provided details of the project and said that the project has impacted the lives of over 5,000 marginal apple growers (who include both men and women) across three districts in Uttarakhand and Himachal, bringing them together under one unified cooperative-like structure.

Explaining further about this project, Mr. Sagar said the project consists of ten farmer trusts, joint venture companies and value chain infrastructure such as long term storage facility that created a paradigm shift in the value chain by strengthening pre-production,

production and post-production stages. The company has also empowered women by encouraging them to cultivate apples in these districts.

Women are 10% stake owners in this project and by 2020 their stake would rise to 100%, he informed. Women contribute to the bulk of the hardwork during the 9-months of growing apples. However, they are never allowed to be involved in any of the financial transactions i.e. sale of apples. Now, the project involved women at each step of the value chain, he pointed out. Under this project, farmers get assured pricing and more bargaining power owing to collective action.

He quoted that owing to shared resources, marketing costs have reduced, emphasized on building an enduring brand of apple juice by focusing on quality. Market risks are shared with social investors in this venture thus achieving economy of scale.

The key objectives of this partnership model are rural prosperity with business rigour, connecting farmers with end consumers etc.

About the horticulture sector, Mr. Sagar said the country is the second largest producer of fruits but there is a wastage of fresh fruits and vegetables worth Rs 13,300 crore every year owing to lack of adequate cold storage facilities and refrigerated transport as per a new report by Emerson Climate Technologies India.

Speaking about his organization, Mr. Sagar said Annamrit Farmers as Owners Foundation is a social investment fund set up in 2015 to support business-driven social enterprises that facilitate the transformation of marginal farmers or producers into owners of their respective value chains.

Mr. Sagar said the only sustainable and effective mode of farm intervention is partnership model. He further pointed out that the partnership model adopted by his organization tries to exploit the synergy between farmers, businesses, investors and knowledge institutions. Under this model, farmers are the owners of the agriculture value chain, he added. The partnership model aims at profit maximization for farmers through business development across the agro product value chain for rural prosperity.

He concluded by informing that the organisation aims to replicate the apple project in other crops and across the country.

Valedictory Session

The World Trade Centre Mumbai was honour to have Mr. Bhushan Gagrani, IAS, Chief Executive Officer, Maharashtra Industrial Development Corporation (MIDC) as the Guest of Honour. He was felicitated by Mr. Sharad Upasani, Vice Chairman, World Trade Centre Mumbai. In his speech, Mr. Gagrani informed about the role of MIDC in assisting farmers and agri-business entrepreneurs in the value addition of farm commodities. He remarked that a conscious effort is being made to promote the agriculture and food processing industries in Maharashtra, which is the largest producer of fruits in India. However, there is a lag between production and processing of fruits. He pointed out the recent instance of huge wastage of oranges in Maharashtra due to lack of significant post-harvest processing infrastructure.

Mr. Gagrani proudly informed that Maharashtra has skilled farmers. The only policy step needed is the orientation of the farming community to value added products.

He highlighted that, so far, seven food processing special industrial areas have been set up in Maharashtra, besides wine parks, floriculture parks and parks for fruit-oriented food processing. He also suggested to the participants to explore the scope in food processing and to support the farmers in value addition.

He thanked all the participants who attended the Summit from India and abroad. Noting that Indian economy is growing at 7% currently which is expected to grow by 10% in the coming years, he said there is immense opportunity for conducting business in India.

Mr. Vijay Kalantri, Vice Chairman, World Trade Centre Mumbai, in addition, informed that the delegation from Poland had inked a memorandum of understanding with the Karnataka government and was planning to sign one with the government of Maharashtra. He expressed that he was happy to mention that the trade volume between India and Poland has risen in recent years and India is seriously looking to strengthen economic ties with Poland. Wielkopolska, a region in Poland has a sound science and technology centre. The Russian delegation would



like to strengthen ties with India in science and technology, oil and gas and other sectors.

He acknowledged the receipt of comments and suggestions on strategies to attain food security from participants. The research department of the

World Trade Centre Mumbai would consolidate the suggestions and recommendations of the Summit in a white paper.

Mr. Kalantri concluded his address by thanking Mr. Gagrani and other guests, distinguished speakers and participants from India and abroad for making the Summit successful.

The Summit concluded with the vote of thanks delivered by **Capt. Somesh Batra, Vice Chairman, World Trade Centre Mumbai**.

Capt. Batra, in his vote of thanks, mentioned that the presence and contribution of each and every participant has added value to this Summit. He specifically thanked the team led by Deputy Marshall from Poland and also the delegation from Russia for attending the event. He appreciated the World Farmers' Organisation for taking the initiative to participate in this global summit.

He said that all the administrative departments, both in the central and state governments, have been very helpful. Captain Batra expressed hope that the participants had gained valuable insights on the best practices in farming and food processing.

A special mention was made of the state governments of Chhattisgarh, Odisha, Jharkhand and sponsors like MAIDC and Jain Irrigation for supporting the event. He also acknowledged the support of World Trade Centre Bhubaneswar and World Trade Centre Goa.

Capt. Batra congratulated the entire team of World Trade Centre Mumbai (WTC) and All India Association of Industries (AIAI) for working tirelessly to make the event successful. He ended by highlighting the valuable support of the media organizations, food contractors and others.

Question and Answer Session with the Audience

Panel Discussion I-Food Security and International Approaches

Q. Ms. Debjani Chowdhury from the World Trade Centre Mumbai sought the reasons for the huge wastage of food commodities in USA (40% of the food produced in the country is wasted).

A. Dr. Creamer replied that food wastage happens due to many reasons in the USA. One of the causes of food loss is the tendency of farmers to leave the food crops to rot in the field when they do not get remunerative prices, she explained.

Q. Another question was raised on the adoption of cutting-edge agriculture technology and concerns about the adverse impact of these technologies on human beings.

A. Dr. Creamer responded to this question by informing that CEFS works towards protecting environment, public health, small farmers and community.

Q. Another question was raised on strategies to create awareness among farmers about best farming practices.

A. Responding to this question, Mr. Shah from NCDEX said his organization partnered with Prasar Bharati to telecast programs beneficial for farmers in the newly introduced Doordarshan Kisan Channel.

Ms. Nagalaxmi from Amity University shared information about her university's promotion of best practices on storage of fruits and vegetables in certain states.

Q. How can marketing infrastructure be improved in India was asked by one of the participants.

A. Mr. Shah from NCDEX said his organization is involved in connecting all the APMC markets in Karnataka through web-based platform to improve marketing efficiency. He informed that Indian Institute of Management (IIM) Bangalore is studying the impact of this project on farmers and consumers in Karnataka.

Panel Discussion II-Food Production System: Emerging Trends and Global Challenges

Q . How can promotion of Ayurvedic and herbal products be carried out, was asked by a participant.

A. Responding to this query, Mr. Padmanand said the central government is implementing the AYUSH project by encouraging clusters to produce ayurvedic and herbal products. Mr. Padmanand further informed that he prepared the detailed project report (DPR) for the first AYUSH project implemented in Cochin, Kerala some years ago. Under this project, a common facility was set up for processing various ayurvedic products. The central government has given a grant of Rs. 15 crore under this scheme and the Cochin project is being replicated in eight other areas of the country, he said.

Panel Discussion III-Agricultural & Food Processing Policy Outlook

Q. Dr. Nagalaxmi from Amity University pointed out that in India there is Panchayat Raj system that involves villagers and farmers in the policy making process. She asked a question to Mr. Czubak as to how policymakers in Europe ensure that villagers and farmers are included in the policy making process.

A. Answering this question, Mr. Czubak said in Europe, farmers and villagers are linked to the policy making process through various agencies like local advisory centers, research institutions, farmers' lobby etc. Also, surveys are conducted to know the grievances and reaction of farmers to various policies.

Q. A participant made a query on promoting organic farming in India.

A. Reacting to this comment, Mr. Arvind Kumar said: "Today, even experts in the western countries have realized the harmful effect of chemical fertilizers and they are suggesting organic methods for growing food crops. This is a welcome development."

Q. Another participant from the Bureau of Indian Standards pointed out that India has around 2,000 quality standards for processed foods, agri-machineries, farm machineries, and other farm inputs, food testing methods etc. What is the role of policy in effective implementation of these standards, he asked the panelists.

A. Answering this question, Dr. Jayas remarked that policy has a key role to play in effective implementation of food safety standards. He informed that the Standards Council of Canada is conducting research on food safety standards and suggesting appropriate policies to implement them.

Q. The participant also made a comment that India must encourage local talents to develop innovation in the agriculture and food processing sector instead of depending on western countries for latest technologies. He said the government must nurture local talent to develop sound technologies in the food sector.

A. Reacting to this comment, Mr. Kumar said every nation must encourage research and development, but it should be within the international policy framework. Also, India must make use of the readily available technologies in the western countries instead of reinventing the wheel. Developing countries do not have much resource to invest in research, he remarked.

Q. Another participant remarked that the cow is important to farmers as it provides matter like dung, urine, milk etc. He raised a question on the policies needed to preserve cows.

A. Answering this question, Mr. Kumar said many state governments in India have become conscious of protecting cows and they are implementing policies to this effect.

Panel Discussion IV-Innovative Financing for Agriculture

Q. Mr. Benahalkar asked a question to Mr. Prasad on access to post-harvest credit facilities for farmers. He pointed out that the government has introduced negotiable warehousing system to enable farmers access post-harvest finance at a reasonable interest rate. However, not much lending is happening under this system. In view of this, he asked how farmers can access funds under this system.

A. Replying to this question, Mr. Prasad said farmers require finance not only before cultivation, but also after it. In order to meet the post-harvest finance requirement of farmers, government introduced warehouse receipt financing system. Many a times, farmers may not want to dispose their crops in the market immediately after harvest as they expect price situation to improve in the course of time. Also, in order to meet the cash requirement of farmers during this time, the government introduced warehouse receipt system. Under this system, farmers can store their produce at accredited warehouses and avail bank credit against the warehouse receipt, Mr. Prasad said. In reality, there are very few accredited godowns or warehouses in India and these are not easily accessible

to small farmers as they are mostly controlled by large traders. Warehouse receipts issued by non-accredited warehouses are not negotiable. Therefore, NABARD is taking the initiative to increase the number of accredited godowns in the country, Mr. Prasad explained.

Q. One participant in the audience pointed to the rising incidence of farmer suicides in the country. He said farmers are not in a position to repay the loan taken from co-operative banks or commercial banks due to crop failure and other factors. This, not only creates the problem of non-performing assets (NPAs) in the banking system, but also leads to indebtedness among farmers. He asked the panelists about the measures to be taken to address the concerns of farmers.

A. Reacting to this comment, Ms. Mishra said repayment of loan and recovery of loan are two different concepts and we must understand the difference between them. Repayment means the farmer is voluntarily returning the loan amount to the creditor without any coercion. She said timely repayment habits can be cultivated among farmers through microfinance model, which develops credit discipline. She emphasized that farmers must develop this discipline of their own. Further, Ms. Mishra pointed out that small efforts are being taken in different parts of the country to address the problem of NPAs. For example, a branch manager in a public sector bank helped a group of farmers in borrowing and timely repayment of credit. The branch manager created a debt redemption fund and aggregated a group of farmers. The individual farmers in this group were asked to contribute a specific amount of money to this fund. Whenever any farmer in this group faces financial distress, he gets assistance from this fund, Ms. Mishra explained. Talking about farmer suicides, Ms. Mishra said there are many reasons for the same and crop failure is one of them.

Q. Another participant asked Mr. Prasad about the projects being implemented by NABARD under Corporate Social Responsibility (CSR).

A. Responding to this question, Mr. Prasad said companies spend a part of their profits on CSR projects. NABARD has taken various CSR initiatives in rural areas, community development areas etc. As part of its CSR initiative, NABARD disbursed Rs 1,500 crore for water shed management projects in the last 10 years. Watershed Development Fund was set up with a

Question and Answer Session with the Audience

corpus of Rs. 2,000 crore, he informed.

Q. Participants, who included representatives from farming community, food processing companies, asked questions to the speakers on topics like farm loan, credit against warehouse receipts and various schemes of NABARD etc. One participant pointed out that farmers are not benefitting from the financial assistance that NABARD gets at a concessional rate from international financial institutions. He explained that IMF and World Bank offer loans to NABARD at 1% interest rate; NABARD, in turn, offers the fund to Regional Rural Banks (RRBs) at a higher interest rate; RRBs lend this fund to co-operative banks at still higher interest rate. Ultimately, when farmers borrow this fund from local co-operative banks, they have to pay 15% interest. So, farmers have to pay high interest rate to borrow the funds that IMF and World Bank provide to NABARD at nominal rates, the participant complained.

A. Replying to this question, Mr. Prasad denied the allegation that NABARD gets funds at a concessional rate from IMF and other international institutions. He further informed that NABARD gets only 0.2% margin on financial assistance provided for crop loans. With this margin, the institution is hardly able to meet its expenditure, Mr. Prasad informed. Mr. Prasad also denied the claim that farmers have to pay 15% interest rate on loans by pointing out that under the Government of India's farm loan scheme, credit is disbursed at 7% interest rate to farmers.

One farmer from Nashik shared the plight of farmers in his district. He said he represents a Farmer Producer Company which has 1,089 members in Nashik. Farmers in his district spend Rs. 40,000 to 50,000 per acre for cultivating onion. After spending so much, farmers suffered crop failure owing to adverse weather condition. Of the Rs. 50,000, the district co-operative bank offered a loan of Rs. 12,000 and the remaining amount had to be spent by farmers from their own pocket. Owing to crop failure, farmers were unable to repay the loan to banks, thereby causing the problem of NPA in the banking system. He suggested that policymakers must come out with effective solutions to address the problems faced by farmers and the banking sector.

Panel Discussion VI-Agriculture Infrastructure: The Way Forward

Q. One of the participants asked a question on the ways to raise efficiency of public irrigation system in India.

A. Mr. Jain said public irrigation system is being implemented by Jain Irrigation in some places where water required for the farmers in an area is stored in a reservoir. The stored water is then irrigated in the fields of a group of farmers using drip irrigation. This project increased water efficiency to 88-90% compared to the usual water efficiency of 25-35% in other parts of the country, Mr. Jain informed.

Panel Discussion VII-Role of skill development and innovation in enhancing Agricultural yield

Q. One of the participants asked why India is not self-sufficient in apple production and why it has to import large amount of apple.

A. Mr. Sagar informed that India produces only 5-10% of the world apple output. Of the total apple output in India, Uttarakhand contributes only 7%. Further, apple produced in India is of lower quality compared to the apples grown abroad. In India, apple is mainly cultivated in old orchards. He, however, informed that his organization is working to improve the variety of apple produced in India.

Ms. Nagalaxmi shared her experience of the work of Amity University in supporting farmers in Uttarakhand. She explained how the university encouraged women to participate in farming.

Q. Ms. Debjani Chowdhury from World Trade Centre Mumbai asked about the rice fish farming system to Dr. Samal.

A. Dr. Samal replied that under this system, farmers practice aquaculture, agriculture, horticulture and poultry in the same farming area. He further explained that in a given farm area, a pond is constructed (on 20-30% of the farming area) to harvest fish. There is a ditch on both sides of the farming area. Farmers also cultivate vegetables, rice and other crops on a part of the farming area. On the other side, poultry farming is also practiced. This creates a synergistic relationship among crop cultivation, aquaculture and poultry, Dr. Samal said.

White Paper

The 5th edition of Global Economic Summit 2015 was attended by academia and industry experts who were present at the Summit as speakers as well as participants. Topics related to issues in agriculture and its allied sectors were deliberated upon and there was a rich exchange of ideas and strategies which were either implemented or were successes in their own space. At the same time a comprehensive Research Study on the theme 'Enabling Food for All', has been compiled for the Summit based on primary research. Considering the views and the recommendations made by this Research Study and participants, World Trade Centre Mumbai and AIAI, presents this white paper which can be useful source of guidance to all the authorities involved in the agriculture sector to understand the lacunae before taking a policy decision.

The objective of this white paper is to focus on the urgency to strengthen the farmer in order to ensure 100% food security and proper nutrition to the Indian masses.

India has a diverse climatic condition right from the highlands in the north and north east, the rich fertile Gangetic basin and the deccan plateau, the deserts of western India, the dense forests of the Konkan belt and eastern India and the semi-arid area down south. Each region is actively involved in agriculture which is practiced even in the deserts of Rajasthan. Agriculture plays a vital role in India's economy. 60% of the population lives in the rural areas. Over 58 per cent of the rural households depend on agriculture as their principal means of livelihood. As per estimates by the Central Statistics Office (CSO), the share of agriculture and allied sectors (including agriculture, livestock, forestry and fishery) was 16.1 per cent of the Gross Value Added (GVA) during 2014–15 at 2011–12 prices. Also agriculture sector contributes 10% to the total export earning of the country. India ranks third in farm and agriculture outputs. Agricultural produce is the fourth largest exported principal commodity.

However, it is observed that though domestically agriculture is a good performer vis-a-vis other sectors, when compared internationally it is weaker than its counterpart as far as yield per hectare, usage of modern technologies, usage of sustainable practices and cooperative approach in case of small land holdings and the most important being the marketing and processing of farm produce. The deliberations held during the Summit and the outcome of the Research

Study have clearly indicated these inefficiencies of Indian agriculture sector. We present below some of the special suggestions of the eminent speakers alongwith summary of the suggestions made and finally the recommendations of the Research Study so as to provide the assistive road map in policy frameworks.

Dr. Ashok Vishandass

India's farm sector is predominantly rainfed and hence it suffers from high probability of exogenous shocks. In the year 2014-15, the country witnessed crop damage to the tune of \$10 billion owing to aberrant weather conditions.

Another challenge is the inefficient farm practices induced by some of the government policies like fertilizer subsidies, power subsidies etc. While subsidy for electricity encourages heavy draw down of ground water through electric pumps, subsidy to fertilisers lead to their inappropriate usage, thereby damaging soil and environment.

Some of the other challenges include raising farmers' incomes, strengthening resilience to climate change, adaptation and mitigation.

Policy Recommendations:

The Government policy must focus on raising labor productivity in the sector. 49% of India's work-force (which is employed in agriculture) contributes only 14% to the overall GDP of the country.

European Union (EU) is the second biggest destination for India's agricultural exports and both India and EU must strengthen trade in high value agriculture commodities like cheese, olive oil, apples, pears and wine production.

India adopted the top-down policy approach, which is less effective compared to the bottom-up approach followed by China. In its reform process, China first streamlined its agriculture sector, followed by the manufacturing sector and then the services sector. However, India reformed its service sector first before focusing on agriculture sector. Chinese policy approach enabled the country to halve poverty ratio from 30 to 15% in six years (1978-84), while India took 18 years to halve its poverty ratio from 45 to 22% (1993-2011; Tendulkar poverty line).

Mr. V. Padmanand

Mr. Padmanand highlighted some of the challenges in the food processing sector and how to address them.

Availability of real time data base is a key challenge which can be addressed by using software technologies. He suggested the setting up of village level kiosks for updating data on crops grown by farmers in every season.

In the area of soil testing, he suggested that the government must allow private sector to come forward and establish soil testing labs (accredited ones and validate their testing reports similar to government labs). At present, soil testing is carried out for subsidy purposes only.

In order to strengthen post-harvest sector, government must set up pack house, cleaning or grading, packaging, pre-cooling facilities for farm produce at village level using farmer producer organizations (FPO) model.

The Government must also encourage private sector to enter agriculture produce marketing by giving them direct marketing licenses. This would ensure that farmers get remunerative prices for their produce, he said.

Recommendations:

A policy on global sourcing of inputs is needed to promote value-addition of inputs which are imported. India is a leader in exporting of fisheries, cashews etc. Pointing out the example of Thailand, while the country exports \$5 million worth of processed fish every year, it also imports \$2.5 million worth of inputs to process the fish. Similarly, the Indian government must introduce a policy for global sourcing of inputs to promote value-addition and re-export to other countries.

Another important policy recommendation, based on the success of Brazil, Thailand and China is promotion of foreign direct investment (FDI) that is resource-seeking or efficiency-seeking. Such kinds of FDIs would invest in manufacturing facility to process farm produce and export the same to foreign countries.

The Government must promote formation of food clusters in places where there are farmer co-operatives or where there exist food processing industries. If food

clusters are set up in places where there are no food processing industries or farmer co-operatives, it would not benefit farmers.

The Government must allow farm producers to sell their produce directly to processors by reforming the APMC Acts of the state governments. This would eliminate middlemen who create inefficiency in the marketing chain.

India must learn from Bangladesh, Thailand and China about how strengthening traceability and quality standards would ensure success of the agriculture value chain.

The Government must promote use of geographical indicator for food products produced in the country. The geographical indicator like Jamaican Blue Mountain Coffee, Champagne, Barbados Sugar became famous across the world and producers of these brands command premium price. The only geographical indicator registered in India is the Darjeeling Tea. The Government must encourage small farmers and agri-business entrepreneurs to adopt appropriate geographical indicator for their produce and maintain stringent quality standards. By doing so, they get several times more price than what they realize otherwise.

The food processing sector in India is largely unorganized. In order to make the industry more organized, there is a need to promote cluster development through public private partnership model. Under this model, common value addition facilities are created by special purpose vehicles in every cluster. These facilities are used by all the food processing units operating in that particular cluster. The model example is the dal mill cluster in Nagpur where a common processing facility is created and this is used by all the pulse processing units. The value-added pulses is supplied to organized retail outlets of Reliance, Future Group etc.

The Government must provide business development support (BDS)-related interventions to food processing companies. Such support include: leveraging existing schemes, financial institutions and instruments for appropriate credit, technology support, market development support, guidance on product and packaging quality and support in compliance. These supports may be public or private in nature.

The Government must also set up enterprise agglomeration coordination committees and national value chain coordination committees to evolve a joint vision and action plan.

Dr. Alwin Keil

Dr. Keil listed out some of the suggestions to promote Zero Tillage (ZT) technology in India.

There is a need to intensify awareness raising activities for ZT technology and ensure that the poorer farmers are also covered. The number of ZT Service Providers (SPs) must be increased, especially in districts poorly covered thus far. He also mentioned the need to provide purchase subsidies for ZT seed drills and business development training especially to the smaller tractor owners.

Dr. R. K. Gupta

The Government must promote value addition technologies among upcoming small entrepreneurs including women entrepreneurs in terms of primary processing, intermediate processing and fortified foods development using food grains. Also, it must guide entrepreneurs on converting traditional food products into health promoting food products through processing interventions.

Mr. Omkar Musale

One of the features is the existence of a technical assistance team to guide on pesticide usages and sustainable agricultural practices including effective food inspection and enforcement services such as laboratories and inspecting services. Another feature is the standardization of food safety norms across the world.

Summing the suggestions and recommendations of all the speakers and participants of the Summit, it was suggested that Holistic 'Farm to Fork' approach is needed to increase agriculture productivity, reduce post-harvest losses of food commodities, strengthen agriculture marketing system etc. Landless farmers are often denied finance individually and hence microfinance model should be promoted by government and stakeholders in the agriculture sector so that a cluster of farmers receives finance. Farmers subsidies should be AADHAR linked so as to receive subsidy in the form of interest-free loans. At the same time there is an urgent need to resurrect the crop

insurance system in terms of time required for disbursement and proper adjudgment to claims and link the same to AADHAR so that the farmers receive credit well in time for the next sowing season. Empowerment of women by enhancing their access to farm inputs, including credit facilities, skill development and training on farms and starting agro-enterprises is a prime necessity, so as to provide for the necessary farm labor. Promoting efficient water conservation practices in dryland areas such as micro-irrigation and drip irrigation techniques. Promotion of Integrated Farming System which includes simultaneous practice of agriculture and allied activities like dairy, aquaculture, poultry etc. by creating symbiotic relationship among them and minimizing their impact on environment. Promotion of climate-resilient farm practice such as Zero Tillage. Integration of Agricultural Produce Market Committee (APMC) markets across all states of India is important. Promotion of alternative livelihood options required for farming households to ensure a steady flow of income in times of poor agriculture performance. Develop Capacity Building practice for farmers who should be educated on best practices in pre- and post-harvest techniques, water conservation and managing price risks. Inter linkage of canals, small rivers and streams need to be promoted wherever possible at the village level for an effective water management for agriculture practises. Siltation management policy needs to be readdressed with de-siltation to be carried out at strict intervals so as to maintain the depth of water storage in water reservoirs. Farms to be equipped with post-harvest infrastructure like logistics, warehousing (including cold storage facilities). Genetically Modified Crops (GMCs) - sound policy and regulatory framework on GMCs to inspire confidence among civil society on the safety of genetically modified crops. Universal introduction of soil health cards which will help in judicious use of soil nutrients. Organic Farming should be promoted in order to reduce the use of pesticides and ensure food safety. Due to inefficient prediction systems farmers purchase seeds in normal course expecting good rainfall, however when drought strikes the purchased input like the seed, becomes unviable for use, thus the farmer has to accept a monetary setback. In the ensuing year inspite of good rainfall, the farmers use old seeds which do not give the necessary productivity, leading to a setback in yield and further enhancing loss to the farmer. Thus it is suggested that the government should take a note of the situation and replace the old seeds with a new consignment. This ever increasing vicious debt cycle leads to farmers'

suicides. All food articles should be brought under food safety and standards regulation, should be mandatory. Promotion and adoption of Information and Communication Technology (ICT) should be across the entire value chain from farm to consumer.

Conclusions and Recommendations prepared by Dr Yadnya Pitale in association with operational partner BIG SMC.

Conclusions

Something as fundamental as food may often come with the risk of being taken for granted. Topics such as food security, food for all seldom find a mention in mainstream discussions, especially in a seemingly well-off country like India. This is because technically, India produces enough amount of food to feed its growing population, at times even exporting some of it. However, this is a very myopic and juvenile notion, to say the least. Long term policies never rely on such uni-dimensional considerations. The recent uproar over the National Food Security Act, its reach and its implementation coupled with recently released data – stating that nearly 194 million people in India go hungry everyday – has once again put the focus on the issue of how much is really needed to guarantee one of the basic necessities of life in India. A holistic view of India's food production and food demand dynamics and whether the country realises the meaning of 'Food Security' in its entirety reveals a worrying picture. Worrying because internationally, food insecure nations are taking drastically bold and visionary steps to safeguard their inhabitants' right to food. The United Arab Emirates (UAE) is a fitting example. UAE is characteristically unsuitable for agriculture due to having dry and hot climate, limited water resources and barren desert soil. To mitigate these constraints, UAE along with other measures has undertaken massive international agricultural investment. This strategy secures import sources by engaging in offshore agricultural contracts. Investment in overseas agriculture by the way of buying thousands of acres of cheap farmlands in other countries, has given UAE a guaranteed and direct access to massive food production bases. Australian government has formed several partnerships with other countries which facilitate improvements in productivity, sustainability and competitiveness in the food sector. Singapore, world's second most food secure country imports 90% of its food requirements. However, its food security roadmap depicts diversified sources of food and

optimisation of local production. The common factor in all the above examples is the active involvement of their governments in taking definitive and robust measures for achieving lasting results.

India is also getting closer to realising its food security constraints but the country still has a long way to go. Assessment of India's agriculture and food demand exposes two major gaps – decreasing agriculture and increasing wastage and both are detrimental to India's efforts for achieving self sustenance in terms of food.

Indian agriculture is plagued by unpredictability of climate, incompetence of authorities, notion of being unattractive as a potential source of income and so on. Agriculture's contribution in the country's overall output is steadily declining, mechanisation levels remain very low. However, the biggest problems are:

- a) Small and fragmented land holdings
- b) Over dependence on climate
- c) Relatively low yields

The first problem restricts implementation of any modern solutions. Average size of operational holdings has decreased and is just 1.08 ha. Farmers are unable to benefit from economies of scale, level of efforts put for cultivation are not matched by the final output, simply because of the inadequacy of its size.

The second problem is probably the severest. Almost 60% of Indian agriculture is dependent on rain. There is enough proof to conclude that globally, rainfall and climatic patterns are gradually undergoing a paradigm shift and India is already lagging behind in identifying the pattern. Unless addressed immediately, this will have a catastrophic effect on farming, sooner or later. There is an urgent need to modify farming practices to suit changing climate, rather than going for a curative overdrive year after year.

Indian agriculture needs a massive transformation

Third problem is probably the closest that exposes the actual situation of food production in India. The country may have ample amounts of food grains at the moment, and even in near future; but low yields suggest that the potential is certainly not being optimally realised. Low yields also mean lower output and failure of correcting this might lead to long term damage to production capabilities.

All in all, India's agriculture is seriously distressed to withhold the ever increasing burden of feeding a billion mouths. A robust agriculture is the backbone of food security and India's backbone currently looks shaky.

Agriculture-allied sectors are improving, but need more attention

India scores high in terms of growth in animal husbandry, poultry and fisheries segment. Milk production always has been and continues to be the stronghold. It is imperative to realise the significance of these sectors to agriculture. Depending singularly on agriculture for sustenance should not be the attitude and allied sectors must be developed in order to seem lucrative for the agrarian population. The government is taking many monetary and policy level initiatives to boost these activities.

However there are a few niggling issues, such as rising infeasibility to nurture animals, conflicts in milk pricing policies, lack of authority and reach of government departments, etc., which need to be ironed out at the earliest.

Food security is viewed with a very narrow perspective

Calorie intake of Indians is falling day by day. Distribution of food is not uniform and does not cover the entire population. This is evident from the fact that 15.2% of India's population is undernourished, 48% of women in reproductive age are anaemic, 57% of the country's households have a calorie intake below the stipulated levels. There is a grave need to educate the masses about the true meaning of food security and more importantly, food-related policies still lack the ability to bring in an all inclusive change. Availability has never been the problem, but accessibility, affordability and quality remain unachieved. The country's subsidised food distribution schemes continue to be filled with loopholes. Corruption, malpractices and unaccountability on various levels restricts free access to all stakeholders in the society. Harmful cultivation practices result in severe deterioration of the nutritional value of food that everyone consumes. Food security, in its purest form, still remains a distant dream.

Complete failure of the Agricultural Value Chain (AVC)

AVC failure causes two major problems – food wastage and crumbling of the farming sector. Majority of the food wastage in India is caused due to post-harvest losses. Around 30-35% of the perishable commodities produced are considered unfit for consumption due to spoilage after harvesting. These losses occur mainly because of lack of on-farm processing facilities, ill-developed storage infrastructure, fraudulent practices and inefficient transportation system. West Bengal ranks first in terms of fruits and vegetable losses, followed by Gujarat, Bihar, Uttar Pradesh and Maharashtra. Collectively, these five states account for nearly INR 56,100 crore worth of food wastage. Wastage is not confined to only perishable commodities. Foodgrains are also subject to various forms of losses, due to improper handling, rodents, other such attacks, etc.

Other result of failed AVC is that food does not reach consumers equitably. The quantity of food delivered at the first node in the value chain and the quantity received at the final node can have massive discrepancies. Food seeps through the chain and diminishes at each level because of manmade reasons such as manipulative and unfair distribution. The larger and more layered the chain, greater is the amount lost.

Inept value chain also results in extensive price rises. Each stakeholder in the chain tries to extract as much benefit as possible, passing the monetary burden to next levels. Interestingly, farmers and consumers are at the two extreme ends of AVC. This means that the farmer, who is supposed to get maximum returns for undertaking cultivation, settles at the least price, whereas consumers end up paying the highest. Neither is satisfied with this outcome. Farmers ultimately prefer moving away to other professions or end up accepting and becoming a part of the wrongdoings. Consumers, on the other hand, feel agitated, get diverted to more competitively priced alternatives. Both these reactions are paving way for a complete crumble of agriculture and food security.

Inefficiency in the AVC perturbs farmers deeply. Many feel trapped in the hands of the mighty traders and commission agents lobbies and middlemen. This turns farming into an extremely difficult and unattractive profession.

India has plenty of institutional and physical infrastructure for the betterment of the farmers. However, it is too spread out and there is absolutely no lucidity in it and then there is serious lack of support infrastructure; like availability of basic utilities which brings the sector further down. Gaps in agricultural value chain are therefore the biggest obstacle in India's quest of developing its agriculture and attaining long-term food security.

Food processing – A ray of hope

Although in the nascent stages when compared to global counterparts, food processing in India is slowly but assuredly finding its feet in the local markets. Agriculture can benefit greatly from processing and make value added agro-based or any food items. This will help agriculture in two chief ways - Firstly, marketing of agricultural products could get more organised and sophisticated. Secondly, farmers can minimize post harvest losses as they would not have to depend on single, conventional method of selling.

Food processing can bring additional nutritional value to food, by using modern, scientifically proven techniques.

Food processing also increases overall shelf life of the produce, making possible for it to reach the last customer in the value chain.

Resource management is underdeveloped and is a cause of concern

Labor force is perhaps the most neglected aspect of Indian agriculture. Despite contributing less than 1/5th of the country's GDP, agriculture employs 55% of the total workforce. Even then, agriculture is not considered a feasible and lucrative profession in the country. Over the past few years, number of cultivators has declined drastically, whereas amount of agricultural laborers is slowly increasing. This does not reflect a very healthy trend. More and more people are turning away to better paying jobs. However, those who are still practicing farming are living in very poor conditions. 41.3% of agricultural households are below poverty line. The labourers have no social security, very limited access to formal credit facilities and absolute lack of awareness regarding government policies and agriculture in general.

Farmer suicides in India needs no special mention. If

any industry's workforce is so unhappy, what are the chances of that industry's success and sustainable development is also a matter of concern.

Agriculture is still not considered as a business

The blame for this rests with everybody involved. Agriculture has always been looked at with a social, welfare perspective and this has contributed to its current status. The notions of profitability, risk assessment and strategic thinking are still not completely assimilated in the fabric of the sector. This often results in overestimation, impractical decisions and ultimate losses. The biggest change needed is to start looking at agriculture as any other business activity.

Recommendations:

Efforts to ensure food for all must be based on two backdrops – increasing agriculture and reducing wastage.

Increasing resources

Land is a finite resource. However, cropping should not be confined to such limits. Innovations and technology, coupled with thorough understanding of soil, crops and cultivation can multiply cropping to a large extent. A balanced mix of innovation, mobilisation and capacity building can yield desired results. Judicious use of fertilisers and pesticides needs to be promoted more vigorously and effectively. Focus should be on sustainable agricultural practices rather than short-term windfall gains. Newer techniques like soil-less farming, vertical farming, integrated cultivation, high density farming, hydroponics and the likes should be studied and adapted astutely.

Financial viability of farming should be thoroughly understood and applied as any regular business activity. Integration of government level efforts in terms of pricing and financial assistance is a must.

Farmers are entrepreneurs

Socio-economic status of farmers should be uplifted to being entrepreneurs. Once farming is proved to be a financially feasible occupation, more and more people should be incentivised to take up farming. There are a lot of hurdles if a person today tries to become a farmer with no cultivation background. This entry barrier is

futile. Maximum people should be encouraged to join the sector. Regulatory support must be extended to curb discriminatory situations arising out of new entries. However, farming should be a more accessible choice.

Incentives for technology

Greater number of government subsidies should be extended to introduction of innovative technological solutions to farming. Especially in order to cover initial capital expenses, which is always the biggest deterrent. Farmers should be encouraged to come together and pool their resources, to implement technology-intensive funds.

If each interested corporate entity is given the responsibility of providing financial assistance to at least one Krishi Vigyan Kendra (KVK) of their choice, for a stipulated timespan, there could be great results. This arrangement can be replicated for any other agriculture related government institute. Activating the support infrastructure created by governments can be a massive boost to Indian agriculture.

Other suggestions

A branded retail chain for marketing quality vegetable produce by farmers ensuring price stability.

There are about 112 government warehouses in Maharashtra alone which are being rented out to traders. If the same was made available to the FPOs at a subsidized rate it would add to the farmer's financial health leading to his prosperity.

International export is essential and is in demand too. The value chain consists of packager, transporter and trader, however this has only benefitted a few traders. Instead if FPOs were again directly involved in this value chain, the benefit would reach the farmers directly.

Finally, there is an urgent need to revisit agricultural practice in India to make it more sustainable and high yielding. This is only possible by focusing on the needs of the farmer and strengthening him, especially the landless and the marginal farmer, thus food security and nutrition in the Indian and global communities, in this way will not be a distant dream.



Media Coverage

World Trade Centre Mumbai (WTC) and All India Association of Industries (AIAI) promoted the 5th Global Economic Summit 2015 through various ways like advertising the event in the media, posting the event updates in social media, showcasing the GES film at different events etc. A series of pre-event and post-event advertisements featured in the various editions of the print media both in English and Marathi (local language of Maharashtra, India). Some of the print media that carried the advertisements included Business Standard, Hindustan Times, The Economic Times, Maharashtra Times, The Asian Age, Loksatta, Afternoon Despatch & Courier and The Indian Express.

Besides, the Summit event and details were displayed on standees at both WTC Mumbai's in-house events and its outreach events. Promotional material was also displayed on bus hoardings across the State of Maharashtra at prominent locations. Social media like Facebook, LinkedIn, Twitter, and blog sites catering to

agriculture and food processing sectors posted updates of the Summit. The Summit was also promoted by word-of-mouth.

The World Trade Centre Mumbai had prepared a film on the subject which was shown at various events. The dedicated YouTube channel featured interviews of leading experts and specialists in the field of food and nutrition security across the world, to discuss the various issues and the potential for growth of the sectors. An exclusive coverage can be viewed on the Global Economic Summit website <http://www.ges2015.in>

The Sessions of the Summit received wide coverage and publicity in newspapers, magazines, radio and television channels such as DD Sahyadri News, DD News, IBN Lokmat News, online media and regional dailies.

5th Global Economic Summit - ENABLING FOOD FOR ALL

World Trade Centre Mumbai and All India Association of Industries (AIAI) organized the 5th Global Economic Summit (GES) on 'Enabling Food for All'. Mr. Subhash Desai, Hon'ble Minister of Industries, Government of Maharashtra in his keynote address outlined the challenges confronting the agriculture sector. "We need to minimise post-harvest losses and improve irrigation, *"The need of the hour is to add value through effective food supply chains and empower the farmers"*, he said.



Subhash Desai
Hon'ble Minister of Industries, Govt

Mr. Kamal M. Morarka, Chairman, MVIRDC WTC Mumbai expressed that the 3-day Summit highlighted the need for support to small and marginal farmers, promoting climate resilient farm practices, sustaining dry-land agriculture systems, empowering women farmers and most importantly creating a strong value chain.



Kamal M. Morarka
Chairman, WTC Mumbai

Mr. Andrey Murga, Deputy Head, Stavropol Region, Russia, presented the agro sector as Russia's bread basket and a major exporter of grains. Mr. Wojciech Jankowiak, Deputy Marshal of the Wielkopolska Region, Poland said, "The Region excels in agriculture. We have highly advanced processing technologies to minimise food wastage." He was hopeful that the Summit would open up opportunities for cooperation with Maharashtra. Mr. Shyam Khadka, Representative in India, Food and Agriculture Organization of the United Nations (FAO) in his theme address said, "I am concerned that government spending on food security programmes is not trickling down to the intended beneficiary. Women in agriculture should be brought under policy focus". Emphasising on the importance of financial discipline by farmers through microfinancing, to mitigate financial risks, Ms. Meera Mishra, Co-



Shyam Khadka
India Representative
FAO, UN

ordinator, International Fund for Agricultural Development, India called for innovative schemes in microfinancing. Mr. B. V. S. Prasad, General Manager, NABARD said, "Our bank is the only national bank to have a climate change fund". According to an ICAR study, better post-harvest management practices would reduce food loss by over Rs 6,000 crore. "ICAR-CIPHET has generated employment opportunities for 4 lakh people and set up small scale industries", said, Dr. R. K. Gupta, Director, ICAR-CIPHET. Mr. Marco Marzano de Marinis, Executive Director, World Farmers' Organisation, Italy said, "The farmer is an agripreneur who is directly responsible to provide food for all. Farmers have a prominent role in creating a sustainable planet and cited various examples of successful farming and harvesting techniques. Mr. Arvind Kumar, MD, Maharashtra Agro industries Development Corporation (MAIDC) said, "It is important to enhance access to institutional credit to farmers especially the provision of interest-free loans to farmers." Mr. Bhushan Gagrani, CEO, Maharashtra Industrial Development Corporation (MIDC) said, "Maharashtra is the largest producer of fruits in India and conscious effort is being made to promote both agriculture and food processing industries in the

Hindustan Times Media Marketing Initiative

State. The policy step needed is to encourage the agripreneur community to move towards 'value-added' products. During an interactive session, farmers expressed the challenges and difficulties they face. The experts endorsed that farmers across the world face similar situations. The farmers need to work in unison to make agriculture more productive and sustainable. Mr. Samir Shah, MD & CEO, NCDEX, stressed on the holistic approach for sustainable solutions to prevent post-harvest loss. He urged state governments to follow the Central Government's APMC model. Dr. Min-Tze Wu, Director of Plant Technology Laboratories, Agricultural Technology Research Institute (ATRI), Taiwan stated that their Government provides financial assistance to farm companies for research & development. Dr. Hasanuddin Ibrahim, from the Ministry of Agriculture of the Republic of Indonesia emphasised that in order to achieve food security, "The economical, social and political welfare of farmers are important." Dr. Nancy Creamer, Director of Center for Environmental Farming Systems, and Professor, North Carolina State University, USA said, "It is important to develop local supply chain for agro-commodities to ensure food security in the state."

EXPERTS DELIBERATE ON FOOD AND NUTRITION SECURITY
19-20-21 November 2015



Wojciech Jankowiak
Deputy Marshal of the Wielkopolska Region
Poland



Andrey Murga
Deputy Head, Ministry Economic Dev., Stavropol Region,
Russia



Marco Marzano
Secretary General
World Farmers' Organisation, Italy



Arvind Kumar
Managing Director,
Maharashtra Agriculture Industrial Development Corporation



Anil B. Jain
Managing Director,
Jain Irrigation Systems Ltd



Laura Secher
UNPD, USA



Bhushan Gagrani
CEO, MIDC



Sharad Upasani
Vice Chair,
WTC Mumbai



Vijay Kalantri
Vice Chair,
WTC Mumbai



Capt. Batra
Vice Chair,
WTC Mumbai

Press Clippings

THE ASIAN AGE



Food theme at GES this year

Mumbai: The Global Economic Summit (GES 2015) was inaugurated at the World Trade Centre's (WTC) Expo Centre on Thursday. The summit centered on the pertinent theme 'Enabling Food For All' brought together key representatives from 28 countries. Subhash Desai, minister of industries, presented a keynote address and emphasized on the need for value addition in the sector and an enhanced role of global partnerships to make India's agriculture more effective. Vijay Kalantri, vice-chairman, World Trade Centre Mumbai brought the focus to reassessing the listing of 23 key food items on the commodity exchange.

The Asian Age



The 5th Global Economic Summit 2015 (Food for All) 19 Nov 2015

The 5th Global Economic Summit 2015 is scheduled for Nov 19-21, at the Expo Center, WTC Mumbai, Cuffe Parade. The theme Enabling Food for All is in keeping with the Sustainable Development Goals and International Year of Soils by the United Nations. The WTC Mumbai Summit has got support from Ministry of Commerce and Industries and Ministry of MSME and Government of India. Also, prominent international organisations, Food and Agriculture Organisation (FAO), International Fund for Agricultural Development (IFAD) have supported the GES2015.

Location: Expo Center, WTC Mumbai, Cuffe Parade

2015 International Year of Soil

Afternoon

Friday, November 20, 2015

'Creating Higher Value in Food Sector' need of the hour'



At the World Trade Centre's (WTC) Expo Centre on Thursday, the vice was unanimous, tempering and forward looking when the who's who of the global agriculture, farming and food processing (frequently gathered under one roof and inaugurated the Global Economic Summit 2015). The summit centered on the pertinent theme 'Enabling Food for All' brought together key representatives from 28 countries. Present at the momentous occasion was Mr Subhash Desai, Hon'ble Minister of Industries, who presented a keynote address and emphasized on the need for value addition in the sector and an enhanced role of global partnerships to make India's agriculture more effective.

Vijay Kalantri, Vice Chairman, World Trade Centre Mumbai and President, All India Association of Industries welcomed the key dignitaries and also set the day in action while highlighting the key challenges faced by agriculture sector in India, including droughts, water linkages, need for cold storage, food parks, optimal use of pesticides and fertilizers among others. He also brought the focus to reassessing the listing of 23 key food items on the commodity exchange.

The opening session was an eclectic combination of views from international speakers including Chief Executive, World Trade Centre, Association, N.Y. and Chairman, WTC (Europe), Western Indonesia, Deputy Minister of the Westpapua Region, Papua and Vietnam, Industries Governor of Vietnam region, Hanoi. The international speakers brought the spotlight on to the relevance of the theme, 'Enabling Food for All' and presented best practices from their respective regions. Each of these voices from different corners of the world, but one thing is common - their consensus to collaborate and bring together best practices to ensure food security and resilience of science and technology towards enhanced and ecological approach for value addition in the sector.

Shyam Khadke, Representative in India, Food and Agriculture Organization of the United Nations (FAO) in his keynote address emphasized on the need for public and private sector to collaborate towards ensuring food security.

Subhash Desai, Minister of Industries, Government of Maharashtra in his keynote address

Afternoon

FnBnews.com

Friday, 20 November 2015, 01:36:00 (IST)

Keynote highlights need for integrated approach to agri, food processing

Striving to have from a rich and varied food resources India turned into a country of food exporters, Vijay Kalantri, president, All India Association of Industries, kickstarted the three-day 5th Global Economic Summit here on Thursday.

With 'Enabling Food for All' as its theme, the summit highlighted the need for integrated approach to agriculture and food processing. Even the agriculture sector's conversion was highlighted.

The summit resonated with the inaugural speech by Kalantri. He said, "Today, 50% of population is still dependent on agriculture. When we get independence in 1947, we were importers of food grains and today we export them. The growth is visible but it is not sustainable. There is a need to have many more self-reliant units."

He stated, "Around 80% of the produced food doesn't reaches the market due to losses in logistics and slow supply chains. This is a result of lack of availability of cold storage mechanisms."

The other contributors to the welcome session were Subhash Desai, Minister of Industries, Maharashtra, who invited foreign players to start business in Maharashtra. He assured full support from the state government. Desai was followed by Chief Executive, Chairman, World Trade Centre Association, New York.

Later, addressing the afternoon session, Shyam Khadke, representative in India, Food and Agriculture Organization of United Nations (FAO), stated, "India is struggling from infrastructure deficiency to a larger extent. For example, many farmers in Tamil Nadu were suffering from droughts which led them to being farmers."

"India is involved in agriculture without proper study. The agricultural activity should be augmented to make it sustainable. For example, crop like sugarcane which require excessive water are cultivated in the areas where there is lack of water. In Maharashtra, the areas of Maharashtra has cultivated, rather it should be in Gujarat, Karnataka, where there is ample water," Khadke added.

The afternoon session was followed by a panel discussion on food security and international approaches. The discussion centered had Henry Cranmer, director, Center for International Farming Systems, USA, who spoke on a study of North Carolina. She stressed on the need to impact the food we eat.

"The state of North Carolina is now being to area under cultivation and in 2008 it was 40%, now only 17% left." She highlighted the necessity of being agriculture hold creating more pressure on global agriculture land which is presently under cultivation. Global growth should be led by agriculture to sustain the world."

While speaking on policies, Khadke said, "There are policies in place but they are planned vertically without taking into consideration to horizontal context. Here for example, if food processing policy is being drafted then its horizontal approach, where also has to be considered while the policy is drafted. Rural has always and planned its policy framed horizontally which is interconnected."

Bright News

"Creating Higher Value in Food Sector" need of the hour'

- Subhash Desai, Min. of Industries, GOI

Mumbai 2015 Nov XIX: Present at the 5th Global Economic Summit 2015 here, Mr Subhash Desai, Hon'ble Minister of Industries, who presented a keynote address and emphasized on the need for value addition in the sector and an enhanced role of global partnerships to make India's agriculture more effective.



Mr Subhash Desai, Hon'ble Minister of Industries, Government of Maharashtra in his keynote address brought to surface the need for global partners and experts to support the Indian initiative to bring more agricultural production from exporting waste.

He shared his vision to create more jobs in Maharashtra especially by diverting people engaged in agriculture to the industry sector.



Mr. Vijay Kalantri, Vice Chairman, World Trade Centre Mumbai and President, All India Association of Industries welcomed the key dignitaries and also set the day in action while highlighting the key challenges faced by agriculture sector in India, including droughts, water linkages, need for cold storage, food parks, optimal use of pesticides and fertilizers among others.

He also brought the focus to reassessing the listing of 23 key food items on the commodity exchange.



Mr. Subhash Desai, Hon'ble Minister of Industries, Government of Maharashtra being introduced by Vijay Kalantri, Vice-Chairman, WTC Mumbai & President, All India Association of Industries.

A research based strategy paper titled "Enabling Food for All" and a handbook which will serve as a reference guide on agriculture, food and technology, were released to set the context for the summit.

The inaugural session gave away to thought provoking panel discussions on issues such as Food Security and International Approaches, and Trends and Challenges faced in Food Production Systems.

Trending Now

newKerala.com

Global Economic Summit 2015 to begin on Nov 19

Mumbai, Sept 2 - World Trade Centre (WTC) Mumbai and All India Association of Industries (AIIA) have embarked on organising their annual flagship event 'Global Economic Summit (GES)' which is now to be 5th edition (GES 2015) with the theme 'Enabling Food for All'.

The 5th Global Economic Summit 2015 is scheduled for Nov 19-21, at the Expo Center, WTC Mumbai, Cuffe Parade. The theme Enabling Food for All is in keeping with the Sustainable Development Goals and International Year of Soils by the United Nations.

The WTC Mumbai Summit has got support from Ministry of Commerce and Industries and Ministry of MSME and Government of India. Also, prominent international organisations, Food and Agriculture Organisation (FAO), International Fund for Agricultural Development (IFAD) have supported the GES2015.

The Summit has received overwhelming response from internationally renowned organisations and will have speakers and participants from: World Farmers Organisation (WFO), World Bank (WB), United Nations Procurement Division (UNPD), Global Research Alliance on Agricultural Greenhouse Gases (GRA) and the World Trade Centre's Association (WTCA), New York. WTC Mumbai is a member of the WTCA, New York, which is an unparalleled network of 320 WTCs from across 92 countries world over.

A number of Memorandums of Understanding (MOU) will be signed at the GES2015 during the course of these three days.

The purpose is to bring all the stakeholders face-to-face, mainly farmers who can directly interact with farmers from across the world, especially think of policies to increase women involvement in agriculture and schemes to attract youth in this sector, to eventually achieve rural development.

Newkerala.com



Friday, 20 November 2015, 01:36:00 (IST)

Friday, 20 Nov

Keynote highlights need for integrated approach to agri, food processing

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He stated, "Around 80% of the produced food doesn't reaches the market due to losses in logistics and slow supply chains. This is a result of lack of availability of cold storage mechanisms."

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"India is involved in agriculture without proper study. The agricultural activity should be augmented to make it sustainable. For example, crop like sugarcane which require excessive water are cultivated in the areas where there is lack of water. In Maharashtra, the areas of Maharashtra has cultivated, rather it should be in Gujarat, Karnataka, where there is ample water," Khadke added.

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Creating Higher Value in Food Sector need of the hour'

- Mr. Subhash Desai, Hon'ble Minister of Industries, Maharashtra at the 5th Global Economic Summit 2015



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Acknowledgements

We extend our sincere thanks and gratitude to all the speakers and participants of this Summit, who have made it a great practical success. We are also highly indebted to all the organizations like Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), World Food Programme (WFP), United Nations Procurement Division (UNPD), World Farmers' Organisation (WFO) who have provided the knowledge support which enabled to make this Summit highly informative and structured in its content. We are extremely grateful to our sponsoring agencies namely, Ministry of Micro, Small and Medium Enterprises, Government of India, Chhattisgarh State Industrial Development Corporation Ltd. (CSIDC), Maharashtra Agro Industries Development Corporation Ltd. (MAIDC), National Bank For Agriculture and Rural Development (NABARD), Maharashtra Industrial Development Corporation (MIDC), National Commodity & Derivatives Exchange Limited (NCDEX), Jain Irrigation Systems Ltd., Shriram Transport Finance Co. Ltd., Excel Industries Limited, Indian Council of Agricultural Research (ICAR), Small Industries Development Bank of India (SIDBI), North Canara GSB Bank Ltd. for their financial support. It was due to the undaunted support of the sponsoring agencies, many meaningful activities such as Certificates of Recognition, travel of certain important knowledgeable personalities, Farmers Workshop, Post-event Tour could be organized. We also thank our knowledge partners for the Research Study BIG SMC for supporting the operations to be accomplished within time. We also thank the efforts of all contributors to the 5th Global Economic Summit 2015 Handbook for making it so rich in content. We are very grateful for the media Deshdoot, Janmabhoomi, Media Today Group, Agrolook E-Magazine, Udyog Prerana, Spicos, Food & Hospitality Asia, Afro India and Seed Buzz who have all done excellent promotion and managed the event successfully. At the same time we thank all the stakeholders and express our gratitude for their cooperation and support.

Annexure - 1

Introduction of the Research Study

This research based white paper 'Enabling Food for All' is a bird's eye view of some of the best practices in agriculture, practiced by the small farmers using science, technology and business approach towards agriculture. This white paper 'Enabling Food for All' has rightly focused on the gaps related to the stakeholders in the agricultural value chain and has brought into focus the various strategies to curb the same vis-a-vis the international scenario. Innovative and sustainable farming methods discussed in the Study will provide the reader with information at one go with all discussions at one place. The Study has strongly pointed out the lack of awareness among many of the farmers about best practices which can be used to make farming a more lucrative profession. Food security in terms of cost of procurement is a very essential point which needs to be addressed at the local level, be it the farmer who produces the food or the urban consumer and is the main topic of discussion in this strategic Research Study.

Certificate of Recognition for Woman Entrepreneur in Agri Business - Ms. Manisha Dhatrik



Ms. Dhatrik is the recipient of 3 awards as a woman entrepreneur in agri business at the State level. Leadership Award for Industrial Development, Best Sustainable Manufacturing from Unilever and ABP Maza award. She is a progressive woman entrepreneur with exuberant spirit of community development resulting in promotion of woman farmer's role central to agriculture. In this field one of her notable practice is establishment of direct payment to the woman head of the farmer family thus accomplishing her achievement towards this goal. She has a humble farmer family

background and has risen from the masses due to her best educational and entrepreneurial abilities.

Certificate of Recognition for Sustainable Agri Practises

This certificate was given to Farmer Producer organizations in recognition of their sustainable agricultural practices. Five FPOs encountered during the course of the Research Study were considered and recognized. The details of them are given below.

1. Devnadi Valley Agricultural Producer Company Ltd. & Green Vision Farmers Producer Co., Nashik-Supported by Yuva Mitra(NGO) - Shri Sunil Pote



This FPO along with the efforts of Yuva Mitra Devnadi Valley Farmers Producers Co. Ltd. has established Maharashtra's first Agri Mall (Agri input - One stop shop) in Lonarwadi Village of Sinnar. Yuva Mitra has been appointed as a Resource Support Agency (RSA) for Maharashtra by NABARD under PRODUCE fund. With the support of NABARD they implemented the, 'Pilot Project on Value Chain Management of Onion' in Sinnar block of Nashik District. Through this project Yuva Mitra has formed Green Vision Farmers Producers Company in Wadangali village, which is working for onion marketing. With the active participation of FPOs, Yuva Mitra has started value chains of onion and pomegranate in which these two commodities are directly marketed to institutional buyers and consumers. Yuva Mitra is working for pomegranate cluster development in Sinnar block. It has also collaborated with APEDA, Tata Trust, Mumbai, NABARD and GIZ. Yuva Mitra has registered one Special Purpose Vehicle which will work towards providing marketing support to FPOs.

2. Nisarg Vikas Producer Company Ltd. Beed - Shri Prabhakar Waghmare



This FPO established own processing unit i.e. Oil mill, Dal Mill, Grading, Sorting & Seed Production. It provides market facility without any deduction i.e. Aadat, Hamali, Tolai & Commission with payments transferred to the farmer's account on the same day. Direct collection of farm produce from the farm itself, saves transportation cost of the farmer. Company owned processing unit helps increase farmer's profit margin. Supply of entire farm Inputs by one time and one season payment through Krishi Seva Kendra helps farmers get own seeds and fertilizers on time. Organic compost is supplied for vegetable and horticultural purpose. Periodic training and exposure to innovative agricultural practices are conducted for encouragement of farmers, increasing the productivity of produce. Along with agriculture, the company encourages and supplies the Farmers, poultry, drip irrigation and dairy unit incentivizing profits.

3. Tapola Agro Tourism Producer Company Limited, Mahabaleshwar - Shri Ganesh Utekar



This FPO created revolution by establishing an agro tourism FPO incentivizing the farmer's profit by 10 fold as the area consisted of utterly poor marginal and small farmers thus providing employment and incentivizing the farmer's profit. This is the First Agri tourism Producer Organisation (PO) to be funded by NABARD. They have established a resort in the farming zone and receive at least 4000 tourists per season. Innovatively these farmers have marketed concept using ICT platform and created word-of-mouth linkages for marketing. They have also established their own logistics services and tie up with Mapro and have achieved 100% success in marketing of farm produce with near zero wastage rates. Farm produce gets nearly sold out due to agro tourism. This FPO further incentivized farmers with promotion of fish farming by building small bund across mountain streams and also promoting organic farming.

4. Krushi Deep Agricultural Produce Company, Vashind - Shri Vasant Landkar



This FPO has indigenous seed production, processing and marketing division. One of the remarkable fact is, 450 quintals of seeds were produced in the year 2015-16 which is to be sold at Rs. 1250 less than the market price. The company owned 250 tonne strength warehouse which is being built in rural area, saving transportation cost to the farmers. NABARD has funded Rs. 1.17 crore for this project as a loan and an additional support of Rs. 12.5 lakhs has been given by the Government of Maharashtra. Future projects are assaying of grain, production of high yielding seeds for crop production to the tune of 10000 quintals, leading to generation of employment in agriculture.

5. Kadava Green Futures, Nashik - Shri Yogesh Palkhede

This FPO formed a closed unit of small grape farmers and strengthened them by teaching them agricultural practices such as spraying, plastic covering of grapes etc. to produce export quality grapes. The Company has certified all member farmers with Global GAP certification enabling them to be competitive in the global export market. Agricultural inputs are collectively purchased by the company at bulk rates leading to minimization of cost and increase in profits to the farmers. It promotes organic farming and cultivation of vegetables for exports. This company is an exporter of grapes and vegetables to UK, Germany and Russia through tie up with Monsoon Foods Ltd.



Annexure - 2

GES 2015: Post-event Tour - Nagpur

As a part of the 5th Global Economic Summit, World Trade Centre Mumbai in association with Maharashtra Agro Industries Development Corporation Ltd (MAIDC) organized a two-day visit to Nagpur from November 21-22, 2015 to facilitate international delegates understand the state of farming and food processing sector in Nagpur. The delegation comprised 21 delegates including High Commissioners of Fiji and Rwanda.

Why Nagpur?

Nagpur is the second capital and the third largest city of the Indian state of Maharashtra. It is the 9th largest urban agglomeration in India and the largest city in Vidarbha Region. Nagpur has been identified as the best city in India in terms of livability, greenery, public transport, and health care facilities. Nagpur is known as the 'Orange City' for being a major trade centre of oranges cultivated in the region. The Multi-modal International Cargo Hub and Airport at Nagpur (MIHAN) is the biggest project currently underway in India in terms of investments.

Nagpur is well-known for its food processing industry and has well established food processing companies such as Dinshaw's Dairy Food (P) Ltd. (ice-cream

manufacturer) and Haldiram Manufacturing Co. Pvt. Ltd. (sweet manufacturer) and ayurvedic product company Vicco. In addition, orange, lemon, sweet lime, pineapples and tomato processing units are set up in the first food park of Maharashtra located in Butibori MIDC area having common facilities for cold storage, warehousing, advanced packaging and tetra packaging along with a food testing laboratory.

During the Tour, the delegates interacted with the officials of Vidarbha Industries Association (VIA) and Vasantrao Naik State Agricultural Extension Management Training Institute (VANAMATI). The Tour also included visit to three food processing units – 1) Haldiram, 2) Nagpur Sortex and 3) Suruchi Spices.

Meeting at Vidarbha Industries Association (VIA)

VIA is a premier organization for the promotion and development of the industry in the region of Vidarbha. Formed in the year 1964, with the sole objective of achieving rapid industrialization, VIA is recognized by the government as a pioneer regional industries association.

An interactive meeting was arranged for the delegates at 'Vidarbha Industries Association' with their committee members, joint director of industries and other invitees from the farm sector. Mr. Atul Pande,



President, VIA welcomed the delegates and made a presentation on the agriculture, infrastructure and other sectors of the economy in Nagpur. Mr. Pande also explained the facilities available for investment such as an agriculture university, adequate man power and all utilities required for industry.

H. E. Yogesh Karan, High commissioner of Fiji in India, while addressing the meeting, expressed his satisfaction on participating in such events in India which he feels eventually will enhance the international relationships. Fiji is closely monitoring India in terms of its technology developments and innovations. While elaborating the strengths of Fiji he said that Fiji offers best drinking water in the World. Fiji's sugar is the best in the world as well as Fiji Rum, considered as the first brand in the world, he remarked.

H. E. Ernest Rwamucyo, High Commissioner of Rwanda said that Rwanda is interested to explore business opportunities in Nagpur. Recently concluded BRICS Summit offered lines of credit to Africa and would like to explore this opportunity for farm products.

The participants interacted with the delegation on issues of packaging of products, trust building, realization of value of products, advantages of cluster approach, etc. It also highlighted the need to brand the Nagpur products which are highly organic and have medicinal properties. A member of the Russia delegation presented a video on the UGRA Region to highlight the business and investment opportunities of the Region.

Meeting at Vasantnao Naik State Agricultural Extension Management Training Institute (VANAMATI)

VANAMATI is an agricultural training Institute which imparts Agricultural Extension and builds the capacity of Agripreneurs. The Institute is also entrusted with the responsibilities of carrying out training and development activities under World Bank assisted projects such as Maharashtra Water Sector Improvement Project (MWSIP), Maharashtra Agricultural Competitiveness Project (MACP) etc. The principal line of activities for the Institute revolves around training and development and as such, the thrust areas for the organization are agriculture extension management, human resource development & information and communication technology.



World Trade Centre Mumbai organized the visit to VANAMATI to know the efforts made by state government in capacity building of agricultural staff and farmers in the areas of agricultural extension management.

The interactive session at the Institute provided insights to the delegates on the various training programmes conducted by the Institute to address the issues in the agriculture sector. Mr. Nawin Sona, IAS, Director welcomed the delegates and made an overview of Nagpur Region and presented the various training facilities offered by the Institute. Being an umbrella organization of 7 institutes, it trains officials in efficient use of water, irrigation facilities, post harvest and value addition in agriculture sector. They also detailed future plans to establish Geographical Information Sciences (GIS) Centre and Innovation Centre. Representatives from agriculture department and agriculture marketing board also shared their thoughts about the sector.

H. E. Yogesh Karan commended the efforts of VANAMATI and said institutional development and training are essential to improve the productivity in the farm sector. H. E. Ernest Rwamucyo mentioned about

sharing knowledge to empower farmers, improving technology, training and capacity building. It will reduce inefficiency, increase productivity, value addition and better prices. Mr. Per-Stefan Gersbro, Managing Director, Packbridge expressed his desire to support training efforts on packaging with an objective to protect food and attract products in retail.

Visit to the factory of Haldiram

Haldiram, which began as a small town enterprise in India, is today a global phenomenon. Employing state-of-the-art technology, Haldiram is producing high quality, ready-to-eat snacks, savories and sweets.



Haldiram's Food International Limited is recognized as a Star Export House, exporting products to several countries worldwide, including Sri Lanka, United Kingdom, United States, Canada, United Arab Emirates, Australia, New Zealand, Japan, Thailand and others.

Mr. D. V. Tyagi, Work Manager and his team members showed all the facilities of the plant at Nagpur and explained in detail all the processes involved in the production line. Haldiram employs state-of-the-art technology, producing high quality, ready-to-eat snacks, savories and sweets. From sourcing raw materials to their conversion into finished products, every process conforms to the International norms HACCP of Quality & Safety. They have avoided human touch to ensure superior hygiene. They also take every care to ensure that products retain freshness and

flavors. The product lines were expanded to match the taste of various segments of the society. Haldiram has Branch Offices in commercial capitals like Mumbai, Bangalore and Chennai. It employs around 1000 workers at its plants in Nagpur. The delegates were highly impressed by seeing the production line and products supplied by Haldiram. The delegates took immense interest in understanding the manufacturing activities, quality standards maintained and high quality packaging systems. Mr. Tyagi showed interest in establishing business relations with countries representing the delegation.

Visit to the factory of Nagpur Sortex

Nagpur Sortex is the only plant in the entire region to use high state-of-the-art machinery and complete automated plant with SCADA system installed for processing paddy. Over the years, Nagpur Sortex has expanded its operation from single unit of 8 ton per hour to 20 tonne per hour under the name Sharda Rice Mill. This company is engaged in manufacturing Non Basmati Rice. Most of the machineries are imported from Germany and Europe.

Mr. Mayur Ghelanis, Director, Nagpur Sortex along with his team explained the procurement of paddy, cleaning, boiling, processing, sorting and packaging of



rice in their plant. It uses the high state-of-the-art machinery and complete automated plant with SCADA system. The daily production now reached to 200 tonne with storage capacity of 20,000 tonne. They have 4 units in Nagpur and 3 units in Chandrapur. Nagpur

Sortex is now number one in domestic market for Colum Rice having 50% market share. Nagpur Sortex products are exported to Turkey and Malaysia. They are also importing pulses from countries like Brazil, Canada and Argentina to process and supply in consumer pack.

The unit is run with automated imported machineries with few technical supervisors for production of high quality HMT variety rice. The labour was employed only for uploading and loading of raw material and finished product. It was a matter of pride for the unit to get ISO certification with a market share of 20% in sales of 3 quality rice varieties. The final product is also exported to a number of countries through merchant exporters. The interactions thereafter, with the delegates were very interesting and thought-provoking.

Visit to the factory of Suruchi Spices



Established in 1979, Suruchi Spices has become a big brand not just in terms of sales but also in terms of consumer loyalty towards their product. The company procures raw material from farmers at a fair price so that farmers get benefitted. It also provides them financial services.

Mr. Mayank Jain, Technical Director, Suruchi Spices and his team received the delegates and escorted them to their factory. The company mainly caters to B-sector of Consumer segment. It has its own laboratory for testing. The company also tests its products in parallel laboratories, and has SGS testing for export. Currently, it is exporting to USA, Canada and Russia. Suruchi manufactures 75 different products. At present, the production is to the tune of 50 tonne.

The unit is engaged in production of more than 100 products of spices, ketchups, papad and allied ready-to-eat food products. This unit has also in a short period expanded its business manifold and acquired a reputation in short period with ISO certification. The factory has provided employment to more than 300 workers, majority of them being women from nearby rural areas. The packaging technologies adopted are of high international standards. After establishing its name in the Indian market, it has now started entering export market.

All the three companies, Haldirams, Nagpur Sortex and Suruchi Spices expressed happiness about the visit of the delegation and felt that this would lead to fruitful opportunities for them in future. The entire delegation expressed their appreciation to the organizers for planning such an informative tour, which gave them lot of food-for-thought about India and the products India manufactures and markets.

Mr. Dinesh Jain, Co-founder and President, Nagpur First, invited the delegation to join the evening award function and reception arranged in connection with the 2nd edition of Annual Global Nagpur Summit 2015. H. E. Yogesh Karan, High commissioner of Fiji and H. E. Ernest Rwamucyo, High Commissioner of Rwanda were honored at the function and the delegation received an opportunity to meet the business leaders of Nagpur who were present at the function.

Annexure - 3

Farmers Workshop



As part of the 5th Global Economic Summit 2015, World Trade Centre Mumbai organized a 'Farmers Workshop' for the benefit of 50-60 farmers on November 20, 2015. The farmers who attended this workshop included 41 Farmer Directors of 29 Farmers Producer Companies from Pune and Nashik districts. **Mr. V. N. Athawale**, Vipra Agriculture Business Development Services, Pune and Consultant to Small Farmers Agribusiness Consortium (SFAC), New Delhi, who arranged to bring these directors to the workshop.

In his introductory remarks, **Mr. J. P. Ghate**, Advisor, WTC Mumbai, gave an overview of the World Trade Centre Mumbai to the farmers and encouraged them to interact with experts. Mr. Athawale pointed out that the purpose of this workshop was to create a platform for farmers to interact with experts from across the world and seek their guidance on farming. All the speakers were presented with mementos by Mr. Y. R. Warekar, Executive Director, WTC Mumbai.

Following experts made presentations in the workshop:

- Mr. Marco Marzano de Marinis, Executive Director, World Farmers' Organization, Rome & his Assistant Ms. Luisa Volpe
- Mr. Per-Stefan Gersbro, Managing Director,

Paccedo AB and Founder, Packbridge AB, Sweden

- Dr. Alwin Keil, Senior Agricultural Economist, International Maize & Wheat Improvement Center (CIMMYT)
- Ms. Joanna Kane-Potaka, Director-Strategic Marketing & Communications, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad
- Mr. Anwar Faruque, Additional Secretary-Ministry of Agriculture, Government of the People's Republic of Bangladesh

Mr. Marco Marzano de Marinis, Executive Director-World Farmers' Organisation (WFO) started his presentation by mentioning that his organisation was a Non-government body having 80 members in 50 countries. The members of WFO could be non-affiliated, affiliated and associate. WFO links the poorest farmer with the richest farmer and aggregates the produce of all farmers, so that it can be sold in the international market. Farming must be treated as a business and farmers have the right to reap profit.

Mr. Marco guided the farmers on how to be more productive and more sustainable. Regional, national and international farmers should all come and work together. Farmers from France, Zambia and other

places across the world face the same challenges as the Indian farmers.

A few of the challenges faced by farmers are access to credit, innovative technologies and marketing. WFO is working with the World Bank to enable farmers access finance. Joining WFO would help interaction with farmers and other stakeholders in the agriculture sector across the world. Farmers from all over the world would be able to exchange information and face challenges together. There is a need to create linkages in the agriculture value chain in a way that the farmers could earn more money from their produce, Mr. Marco remarked.

Mr. Anwar Faruque, Additional Secretary - Ministry of Agriculture, Government of the People's Republic of Bangladesh informed the farmers that although he was working for the government, he was also a farmer and therefore could identify with the suffering of the farming community.

Following is the excerpts of Mr. Faruque's speech:

"Bangladesh is a small country with 160 lakh farmers out of a total population of 16 crore. The country has graduated from a food-deficit country to a food-surplus one and it has now started exporting rice. It started with two things - good management of seed distribution and good fertilizers available at a cheap price. Farmers face various challenges like adverse climatic condition,

crop damage due to pest attack, adverse movement in price of farm commodities etc.

Farmers must help themselves overcome these challenges without depending on others. All farmers are best economists and also best scientists. Farmers must be strong, united and also more organized. I am proud to be a farmer and after retirement I want to be a full time farmer. Farmers must learn to grow the right crop at the right time and must also know how to market their produce.

In Bangladesh, there are Integrated Clubs that work with grassroot people to decide which technology is appropriate. As scientists work in the laboratory, they do not know what is good for the farmers. Scientists should consult farmers while developing farm technology so that it becomes farmer driven technology".

Mr. Per-Stefan Gersbro, Managing Director, Pacedo AB and Founder, Packbridge AB, Sweden, has been working in the packaging sector for the last 35 years. He highlighted how important good packaging is to reach out to customers. Packbridge provides packaging solutions to different businesses across various countries. Packbridge had 250 members with offices in countries like China, Japan, Korea. The firm does not have presence in India yet.

There are five key elements associated with good packaging. These are - protective packaging (should



keep quality safe), attractiveness (printed design, shape to convince the customer), environment friendliness, functionality and cost-saving. Mr. Gersbro expressed willingness to help farmer producer organizations in India by providing cost-effective packaging solutions.

Ms. Joanna Kane-Potaka, Director-Strategic Marketing and Communications, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) said ICRISAT works across the entire agricultural value chain ranging from farming to agribusiness. It also works with the Government of Karnataka to develop the farm sector in the state. Making agriculture profitable, breeding improved varieties of crops and focusing on developing entire agriculture value chain are some of the main functions of ICRISAT. Farmers could use ICRISAT practices at every stage to increase crop yield. ICRISAT worked with the government to train 10,000 farmers in India. Staff in ICRISAT are mainly scientists and they play the role of a catalyst. 13 years ago, ICRISAT worked with ICAR to set up 23 agribusiness incubators. These incubators guide farmers on how to start an agriculture-based business activity.

Ms. Potaka informed that the main focus of ICRISAT was dryland agriculture. 64 percent of the world is agriculture land. In future, land will become hard and dry and the incidence of droughts is expected to be higher. Some of the food crops like millets, bajra, ragi, jowar can grow even under drought conditions and hence they are the food of the future. These crops have substantial nutritive value. For example, bajra has iron, zinc and folic acid. Millets are good source of iron.

A study conducted by experts in Mysore University shows that human beings can absorb more calcium from ragi than from milk. The disadvantage with millets and legumes is that their value chain is not established and developed like other crops. There is a huge potential for these crops of the future as it is an untapped market globally, not only in India. Farmers could participate in training programmes organized by ICRISAT, Hyderabad at subsidized costs, Ms. Potaka informed.

Dr. Alwin Keil, Senior Agricultural Economist, International Maize and Wheat Improvement Center (CIMMYT) showed a presentation to the farmers. CIMMYT helped to bring about the green revolution during 1960-70 and played an important role in it. CIMMYT has worked towards sustainability of cropping systems based on wheat and maize. CIMMYT best practices are sustainable, good for environment

and do not over exploit natural resources, especially water. CIMMYT introduced zero tillage method for cultivating wheat in Bihar and this led to the growth in the farmer's total annual income by 6% on average.

"To feed a growing wheat-consuming population, Bihar currently imports wheat largely from the northwestern state of Punjab, where yields have stagnated over the last five years due to over-exploitation of resources, especially water," said Dr. Keil. "It is important to enhance the productivity of the rice-wheat cropping systems in the Indo-Gangetic Plains for ensuring food security for more than 20% of the global population," highlighted Dr. Keil.

Dr. Keil concluded by pointing out that if farmers in Maharashtra come together, they would be able to use the zero tillage technology and benefit from it.

This was followed by question and answer session and informal knowledge sharing by other experts present in the workshop. Farmers sought clarification on the procedure to be a member in WFO, benefits of taking its membership etc. Farmers also raised queries on the suitability of zero tillage farming method of CIMMYT and dryland farm practices of ICRISAT in Maharashtra.

Ms. Bhami Vora, a nutritionist from the NGO 'Fight Hunger Organization' explained how her organization conducts nutrition programme for farmers. Her organization worked in Maharashtra, Palghar, Amravati and Govandi in Mumbai. She suggested the farmers to practice poultry and integrated farming in order to increase their income.

Ms. Nagalakshmi Raman from Amity University informed the farmers of the training in post-harvest technology with subjects like Pashu Palan Avam Prasaran and Jai Nirantran. The University trained 1,800 farmers, who in turn trained several other farmers. She also spoke about the zero energy cool chamber, which is an effective storage structure that can be made by even a layman. In Uttar Pradesh, it is called desi fridge. In Manipur, 600 women farmers and 30 entrepreneurs have benefitted from this, Ms. Raman informed.

The workshop ended with the issuance of certificates to all the farmer participants.

Farmers visited the GES 2015 Exhibition after the Workshop and had useful Business-to-Business meeting and interaction with the Exhibitors.

Annexure - 4

Promoting Make in Manitoba

This presentation was made by Ms. Mariette Mulaire, President & CEO, World Trade Centre Winnipeg, Canada.



Following is the summary of Ms. Mulaire's presentation:

“Manitoba is the fifth most populous province in Canada. It is bordered by the Provinces of Ontario to the east and Saskatchewan to the west. In the south, the Province is bordered by the US states of North Dakota and Minnesota.

Manitoba has four distinct seasons where different crops are grown. The winter can be harsh and temperatures could fall below -30 degree celsius. There is tremendous opportunity for agriculture and food processing industries in this Province. Manitoba produces different agriculture crops including wheat, oats which are exported to many countries.

Manitoba is a multi-culture society where people from different countries and different ethnic backgrounds live together. Many Indians have also settled in the region. Availability of diverse natural resources, skilled human resource, central location, availability of hydro-power, cold weather are some of the strengths of Manitoba. The Province uses its vast water resource to generate hydro-electric power at low cost and supplies it to various industries.

Manitoba was unaffected by the economic crisis in 2008 because it has diverse economic activities. The main industries in Manitoba are transportation, logistics, manufacturing, agriculture and food processing, among others. Food processing industries

in Manitoba witnessed 30% growth in revenue between 2006 and 2011.

Manitoba has a food development centre, Richardson Centre for Functional Foods, and other institutes in the food and agriculture sector. Canada has recently elected its Prime Minister, Justin Pierre James Trudeau, who is young, open and ambitious to support the business sector in the country. World Trade Centre Winnipeg is closely working with many World Trade Centres across the world including World Trade Centre Delhi and World Trade Centre Dubai. World Trade Centre Winnipeg signed an agreement with WTC Mumbai for mutually promoting the businesses of both countries, two years ago.

I invite the people assembled here to the business forum 'Centralia' which would be held during May 25-27, 2016. Centralia is a business forum that offers unique opportunity for traders, exporters, manufacturers from different countries to explore business opportunities with their counterparts in Canada”.

This was followed by a short film on Centralia. The film showcased the excellence of Canada in trade and commerce and its prominent industries like minerals, energy and transportation. The film explained how Centralia is an ideal forum for business leaders across different countries to engage in face-to-face meetings to identify right partners and strengthen their business network across borders.

Annexure - 5

United Nations Procurement Division (UNPD)

Ms. Laura Secher, Procurement Officer, Field Supply Team in the Peacekeeping Procurement Section, United Nations Procurement Division (UNPD), USA made the presentation.



The United Nations Procurement Division (UNPD) spends hundreds of millions of dollars annually on services related to the procurement, storage and final distribution of food rations for the consumption of troops in its 16 Peacekeeping Missions around the world.

This will be an excellent platform to disseminate information about the procurement process of the United Nations, including registration of vendors, which will be of great advantage for those interested suppliers of food rations that are capable of not only managing an integrated, complex supply chain of food, but also providing warehousing and distribution services to the final consumption point in host countries where the Peacekeeping Missions of the UN are located.

There are 91,000 troops in 16 Peacekeeping Missions of the United Nations across the world and these missions together process, cook and consume over 50 ton of food products daily.

The United Nation System includes UNICEF, UNPD, World Food Programme (WFP), United Nations High

Commissioner for Refugees (UNHCR), World Health Organisation (WHO) and other UN agencies and their procurement divisions. All these agencies procured goods and services worth \$17.24 billion during 2014, up from \$13.79 billion in 2009. Of the \$17.24 billion, UNICEF procured \$3.38 billion worth of goods and services, UNPD procured \$3.21 billion, WFP procured \$2.75 billion worth of goods and services in 2014.

The top ten countries that supplied goods and services to the UN system include USA (8.74% of total supply), India (7.09%), Afghanistan (4.74%), Belgium (4.11%), Switzerland (3.60%), United Kingdom of Great Britain and Northern Ireland (3.44%), UAE (3.33%), France (2.78%), Russian Federation (2.44%) and Denmark (2.38%). Among the developing countries that supply goods and services to the UN are India, Afghanistan, UAE, Russian Federation, Kenya, Turkey, Ethiopia, Sudan, Syrian Arab Republic and South Sudan.

Major goods procured by the UN System include food, pharmaceutical supplies, vehicles, computers and software, shelter and housing, telecommunications equipment, laboratory equipment, petroleum, oils and

lubricants, building materials and security equipment. Major services procured by the UN System include air charter services, security services, engineering services, construction, freight services, consultancy services and telecommunication services.

The procurement activities of the UN are based on several principles including the objectives or needs of the UN Organization, fairness, integrity and transparency, effective international competition and best value for money. These principles cover procurement stages from sourcing to execution of a procurement contract.

Food rations constituted nearly 8% of all the UNPD procurement volume in 2012 and it increased to around 11% in 2014. Food rations contract of the UNPD includes turnkey service contracts for sourcing of food rations, establishing and managing warehouses, logistic and delivery services.

The UNPD procures over 450 food items for its peacekeeping forces. The contractor is responsible for stable, continuous and reliable supply of food rations. The contractor must meet the labelling and food specification requirements provided by the UN Rations Scale (UNRS) which is the UN's Requirements for Food Rations.

The contractor would be responsible for construction of warehouses in remote areas where UN Missions operate. If the option is available in the market, the contractor may lease commercial warehouses.

Further, the contractor would be responsible for management of warehouse, ensuring the expertise of Contractor Personnel. The contractor would also be responsible for stock management including the management of operational stocks, reserve stock etc. The contractor must provide mechanical equipments, cold rooms for chilled or frozen goods. Besides, the usual food items, the UNPD may also procure food articles like bakery, fresh bread, bottled water etc.

The contractor is required to have food safety management certification, quality management system, control processes and he would be responsible for quality control throughout the entire supply chain, from food source to final delivery point.

The contractor would also be subject to documentary evidence of quality control, internal and external audit and regular risk based inspections. The contractor must take care of customs clearance, delivery of food from source to the contingents and leasing of containers for

storage of food at contingent location. The UN would provide security to the contractor while delivering the food.

In order to get involved in procurement activities of the United Nations, the contractor must register as a vendor in the UN Global Marketplace (UNGM), must respond to business opportunities and must be open to forge partnership with other suppliers. UNGM is the registration platform for 26 different UN organisations.

Registration for food contractors is available at three levels - basic level – for awards up to \$40,000, level 1 – for awards of up to \$500,000 and level 2 - for awards exceeding \$500,000. UNGM also has other functionalities like free access to procurement notices, knowledge centre (which provides statistical report on procurement activities, business guide for supplying the UN, tools for suppliers on sustainability) and contract award information.

The procurement process followed by the United Nation is based on ten principles. Some of these principles are: 1) business should support and respect the protection of internationally proclaimed human right; 2) Business should uphold the freedom of association and the effective recognition of the right to collective bargaining; 3) Business should support a precautionary approach to environmental challenges; 4) Business should work against all forms of corruption, including extortion and bribery.

UN Tender process includes the following stages:

The first step in the contract award process is the advertisement of the business opportunity on the website of the United Nation. The United Nation gives time for the interested contractors to respond to the business opportunity.

The next step is the receiving of request for proposal (RfP) for high value contracts.

This is followed by bidders conference, question and answer session, where the contractors are briefed about the contract procedure, bid evaluation criteria, contractual obligations and other details. The UNPD may also take the interested contractors to the site where the food ration must be supplied.

After this, the UNPD opens the bids submitted by interested contractors and passes it through evaluation. Bids are first subjected to technical evaluations, followed by commercial evaluations. Those bids which fail the technical evaluations are not considered for commercial evaluations.

The Headquarters Committee on Contract review recommends one contractor based on the technical and commercial evaluations. After internal discussion, the contract would be signed with the selected contractor.

Unsuccessful contractor would be notified accordingly and would be given an opportunity to get debriefed. Debrief is a brief comment on the strengths and weaknesses in the proposal of the unsuccessful contractor in order to facilitate him to make changes and improve his submission next time. In case the unsuccessful contractor is not satisfied with the debrief, an external body would be asked to review the entire contract process and make recommendation, if necessary.

Ms. Secher ended by thanking World Trade Centre Mumbai for giving UNPD an opportunity to participate in the Summit.

This was followed by the question and answer session with the audience.

Q. One of the participants asked a question on the procedure to register with the United Nations Procurement Division.

A. Ms. Secher answered that contractors can register with the UNPD through the United Nations Global Marketplace (UNGM) at www.ungm.org. Currently, 26 entities of the UN System source goods and service from contractors registered on this website. Soon, one more entity is going to be added, she said.

Q. Ms. Debjani Chowdhury from World Trade Centre Mumbai asked the time lag between the placing of tender and opening of bid.

A. Ms. Secher replied by saying that typically it takes 8-12 weeks between placing the tender and opening the bid as sufficient time must be given to contractors to prepare the proposal. During this time, the UNPD would conduct site visits for the bidders.

Q. One of the participants asked a question on whether a group of contractors can participate in the bidding process by forming a consortium.

A. Ms. Secher said a group of contractors can participate in the bidding process. However, the final contract would be given to the main contractor in the group. Others in the group can participate in the procurement as sub-contractors, she said.

Q. Another participant asked a question as to why the business placed by the UN Secretariat with the Indian suppliers declined drastically from \$10.2 million in 2013 to \$2 million in 2014.

A. Replying to this question, Ms. Secher said the exact reason for the decline in business of Indian contractors during 2014 is not clear. One reason could be that the Indian contractors would have failed to meet the selection criteria for UN contracts. However, the sharp fall in the business during 2014 could be viewed as an opportunity to increase sourcing from Indian contractors in the coming years, Ms. Secher remarked.



Annexure - 6

Event Schedule

The objective of the Global Economic Summit is to provide an effective platform to deliberate on the issues of food and nutrition security and how they can be achieved through sustainable farming, food processing and distribution.

Highlights:

Conference, Exhibition, B2B meetings, Release of GES Handbook, Research Study, Post-event Tour to farms and food parks and Presentation of Awards

Day 1: Thursday, 19th November, 2015

Time	Agenda	Venue
8.00 am onwards	Registration	Crush Hall, Expo Centre
10.00 am -12.00 noon	<p>Chief Guest Shri Devendra Fadnavis, Hon'ble Chief Minister, Government of Maharashtra</p> <p>Welcome address by Mr. Vijay Kalantri, Vice Chairman, MVIRDC World Trade Centre Mumbai and President, All India Association of Industries</p> <p>Felicitation of Hon'ble Guests</p> <p>Special Address by International Guests of Honour:</p> <ul style="list-style-type: none"> · Mr. Ghazi Abu Nahl, Chairman, World Trade Centers Association, New York and Chairman, World Trade Center Holdings (Cyprus) Ltd and WTC Qatar · Mr. Vladimir Vladimirov, Governor of Stavropol Region, Russia · Mr. Wojciech Jankowiak, Deputy Marshal of the Wielkopolska Region, Poland <p>Thematic Presentation on 'Enabling Food for All'</p> <ul style="list-style-type: none"> · Mr. Shyam Khadka, Representative in India, Food and Agriculture Organization of the United Nations (FAO) <p>Special Address by :</p> <ul style="list-style-type: none"> · Prof. Ram Shankar Shinde, Hon'ble Ministers of State for Home (Rural), Marketing, Public Health, Tourism, Agriculture and Horticulture, Government of Maharashtra · Smt. Pankaja Gopinath Munde, Hon'ble Minister, Rural Development and Water Conservation, Employment Guarantee Scheme, Women and Child Development, Government of Maharashtra · Shri Subhash Desai, Hon'ble Minister of Industries, Government of Maharashtra · Shri Eknathrao Khadse, Hon'ble Minister- Revenue, Relief and Rehabilitation, Wakf, Agriculture and Horticulture, Animal Husbandry, Dairy Development and Fisheries, State Excise Government of Maharashtra <p>Keynote Address by Chief Guest: Shri Devendra Fadnavis, Hon'ble Chief Minister, Government of Maharashtra</p> <p>Release of Research Study & Handbook On 'Enabling Food For All'</p> <p>Vote of Thanks: Capt. Somesh Batra, Vice Chairman, MVIRDC World Trade Centre Mumbai</p>	

Time	Agenda	Venue
12.00noon– 1.30 pm	<p>Panel Discussion: Food Security and International Approaches Food and nutrition security is the core concern grappling the world today. International approaches are supported by the shared experiences of countries representing the developed, developing and the least developed economies.</p> <p>Dimensions for discussion:</p> <ul style="list-style-type: none"> • Food security challenge including the imperatives of climate-smart farming strategy • Optimal price incentive structure for farmers • Efficient logistics and other post-harvest infrastructure • Sound public distribution policy framework • Vibrant food processing industry • <p>SESSION CHAIR Mr. Shyam Khadka, Representative in India, Food and Agriculture Organization of the United Nations</p> <p>SPEAKERS</p> <ul style="list-style-type: none"> • Dr. Ashok K. Vishandass, Chairman, Commission for Agricultural Costs and Prices, Ministry of Agriculture & Farmers Welfare, Government of India • Mr. Samir Shah, MD & CEO, National Commodity and Derivatives Exchange Limited (NCDEX) • Mrs. Manisha Dhattrak, Managing Director, Varun Agro Processing Foods Pvt. Ltd. • Dr. Nancy Creamer, Director of Center for Environmental Farming Systems, and Professor, North Carolina State University, USA 	Expo Centre Arcade
1.30 pm – 2.30 pm	Networking Lunch	Expo Centre Arcade
2.30 pm – 4.00 pm	<p>Panel Discussion: Food Production System : Emerging Trends and Global Challenges If agriculture and allied industry has to succeed, farmers and stakeholders need to find ways to rapidly, radically and measurably change their strategy, processes and roles. The key issues are what to produce with effective production system to make agriculture and allied sector sustainable and profitable.</p> <p>Dimensions for discussion:</p> <ul style="list-style-type: none"> • Ways to improve the sustainability of the food system through effective adoption of information and communication technologies. • Latest trends in agro-biotechnology and post-harvest food process engineering. • Small farmers access to sustainable intensification technologies • Post-harvest engineering for agro & food processing <p>SESSION CHAIR Prof. V. Padmanand, Director, Grant Thornton LLP</p> <p>SPEAKERS</p> <ul style="list-style-type: none"> • Mr. Nandkishor Kagliwal, Chairman, Nath Bio-genes (I) Ltd. (Nath Seeds) • Dr. Alwin Keil, Senior Agricultural Economist, International Maize and Wheat Improvement Center (CIMMYT) • Mr. Anwar Faruque, Additional Secretary & Director General, Seed Wing, Ministry of Agriculture, Government of People's Republic of Bangladesh Dr. R.K. Gupta, Director, ICAR-Central Institute of Post-Harvest Engineering and Technology (CIPHET) • Mr. Andrey Murga, Deputy Head of Stavropol Region's Government, Russia • Dr. D Rama Rao, Director, National Academy of Agricultural Research Management (NAARM) 	

Time	Agenda	Venue
4.00 pm -6.00 pm	B2B Meetings, Visit to Exhibition	Expo Centre Arcade
6.30 pm onwards	Evening Welcome Reception	Expo Centre Arcade

Day 2: Friday, 20th November, 2015

Time	Agenda	Venue
10.00 am -12.00 noon	<p>Panel Discussion: Agricultural & Food Processing Policy Outlook The role of a sound policy framework on food production, price protection, crop insurance, food subsidy, food distribution, food processing etc. in ensuring sustainable food system cannot be over-emphasized. The importance of attracting the youth towards the agri sector and recognizing the role of women in this sector deserves the attention of policy makers. The session would touch upon government policy in agriculture sector, the role of multilateral organizations, industry bodies and Corporation in promoting sound public policy and the significance of cross-country policy co-operation in ensuring global food security</p> <p>SESSION CHAIR Dr. Hameed Nuru, Representative and Country Director, World Food Programme (WFP), India</p> <p>SPEAKERS</p> <ul style="list-style-type: none"> • Mr. Marco Marzano de Marinis, Executive Director, World Farmers' Organisation, Italy • Shri Sunil Mishra, IFS, Managing Director, Chhattisgarh State Industrial Development Corporation Ltd. (CSIDC) • Ms. Yasmita Yahya, Head of Industrial Investment and Cooperation Planning Division, Bureau of Planning, Ministry of Industry, Indonesia • Mr. Wawrzyniec Czubak, Assistant Professor, Poznan University of Life Science, Poland • Dr. Digvir S. Jayas, Vice-President (Research and International) and Distinguished Professor, University of Manitoba, Canada 	Expo Centre Arcade
12.00noon – 1.30pm	<p>Panel Discussion: Innovative Financing for Agriculture According to the Food and Agriculture Organization of the United Nations (FAO), developing countries will need to invest around US\$209 billion per year to meet the demand for food supply as compared to the current level of investment of US\$142 billion. There is a need to evolve innovative financing instruments such as warehouse receipts, structured finance, innovative crop insurance products, microfinance, risk capital like private equity, venture capital funding etc.</p> <p>SESSION CHAIR Mr. Raj Benahalkar, Chief Strategy & Risk, National Commodity & Derivatives Exchange Limited (NCDEX)</p> <p>SPEAKERS</p> <ul style="list-style-type: none"> • Mr. D. K. Jain, IAS, Additional Chief Secretary (Agriculture & Marketing), Government of Maharashtra • Ms. Meera Mishra, Coordinator, International Fund for Agricultural Development • Shri B V S Prasad, General Manager, National Bank for Agriculture and Rural Development Mr. Umesh Revankar, Managing Director & CEO, Shriram Transport Finance Co. Ltd. • Dr. Dinesh, Chief Executive, National Cooperative Union of India (NCUI) 	Expo Centre Arcade

Time	Agenda	Venue
1.30 pm – 1.45 pm	<p>Presentation on Promoting Make in Manitoba</p> <p>SPEAKERS Ms. Mariette Mulaire, President & CEO, World Trade Centre Winnipeg, Canada</p>	Expo Centre Arcade
1.45 pm – 2.30 pm	<p>Networking Lunch</p>	Expo Centre Arcade
2.30 pm – 3.00 pm	<p>Panel Discussion: Food Standardization and Safety, Post 2015 -The Role of International Standard Organisations</p> <p>Dimensions for discussion:</p> <ul style="list-style-type: none"> • Food Standards perspectives • International Standard Organisations <p>SESSION CHAIR Dr. Mark Cyubahiro Bagabe, Director General, Rwanda Standards Board (RSB), Rwanda</p> <p>SPEAKERS</p> <ul style="list-style-type: none"> • Dr. Eng. Mohamed Abdel Motaleb Etman , Head of Central Department For Standardization, Egyptian Organization for Standardization and Quality, Egypt • Mr. Gevorg Nazaryan, Deputy Director, Armenian National Institute of Standards CJSC (SARM), Armenia • Dr. Asmi Raza, Professor of Economics, University of Delhi & Project Director, World Bank • Mr. Omkar Musale, Senior Technical Manager, Envirocare Labs Pvt Ltd. • Ms. Vaneet Kaur, Research Associate, Centre for Science & Technology of the Non-Aligned and Other Developing Countries 	Expo Centre Arcade
4.30 pm – 6.00 pm	<p>Panel Discussion : Agriculture Infrastructure : The Way forward</p> <p>Sustainable food system cannot be achieved without improving the competitiveness of the food industry. Development of crucial infrastructure facilities reduces costs and enhances the competitiveness of players in any industry. Infrastructure in food industry encompasses a whole gamut of facilities including road connectivity, on-farm facilities like irrigation, power, sustainable agro-waste management facilities, trading and exchange infrastructure like commodity exchanges, market regulatory institutions, logistics, packaging and distribution apparatus like warehouses, cold storage facilities, food processing infrastructure like food parks, export and import facilities like ports, shipping, container depots etc. The session would deliberate on efficient provision of these infrastructures through optimal partnership between government, private sector and civil society.</p> <p>SESSION CHAIR Mr. Ashwin Shroff, Chairman, Excel Crop Care Limited</p> <p>SPEAKERS</p> <ul style="list-style-type: none"> • Mr. Anil B. Jain, Managing Director, Jain Irrigation Systems Ltd • Dr. Min-Tze Wu, Director of Plant Technology Laboratories, Agricultural Technology Research Institute (ATRI), Taiwan • Dr. Hasanuddin Ibrahim, Assistant to the Minister of Agriculture for International Trade and Relation, Ministry of Agriculture of The Republic of Indonesia • Mr. Per-Stefan Gersbro, Managing Director, Pacedo AB and Founder, Packbridge AB, Sweden • Mr. Venkatesh N. Hubballi, Director, The Directorate of Cashewnut & Cocoa Development (DCCD) 	Expo Centre Arcade
6.30 pm onwards	<p>Gala Evening & Presentation of Awards</p>	South Lounge Centre 1 Bldg

Day 3: Saturday, 21st November, 2015

Time	Agenda	Venue
10.00 am–12.00 noon	<p>Panel Discussion: Role of skill development and innovation in enhancing Agricultural yield</p> <p>Skill development is an essential component in the overall strategy to improve agriculture productivity and reduce post-harvest loss of food. There is a need for imparting education and training to improve farm productivity, promote organic and environment friendly agriculture practices, efficient post-harvest handling practices and develop skills in food processing, food testing, food packaging and distribution etc. The session would emphasise the role of skill development in improving farm productivity, enhancing livelihood opportunities for workers in the agriculture and allied sectors and empowering women in the sector.</p> <p>SPEAKERS</p> <ul style="list-style-type: none"> • Ms. Joanna Kane-Potaka, Director-Strategic Marketing and Communications, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) • Dr. Jeet Singh Sandhu, Deputy Director General (Crop Science), Indian Council of Agricultural Research • Dr. Parshuram Samal, Principal Scientist, ICAR-National Rice Research Institute • Mr. Mayank Sagar, Business Development Executive, Annamrit Farmers as Owners Foundation 	Expo Centre Arcade
12.00noon –12.30pm	<p>Valedictory Session</p> <p>Guest of Honour Guest of Honour Mr. Bhushan Gagrani, I.A.S., Chief Executive Officer, Maharashtra Industrial Development Corporation (MIDC)</p>	Expo Centre Arcade
1.00 pm onwards	Lunch	Expo Centre Arcade



Annexure - 7

Photo Feature



Photo Feature



The Team that Sowed the Seeds



Business-to-Business Meetings

On November 19, 2015, as part of the Global Economic Summit (GES) 2015, Business-to-Business Meetings (B2B) were organised to provide a networking platform for the delegates from India and overseas and thereby facilitate them to establish business relationships among themselves.

Requests from around 27 International Delegates from Russia, Canada, Bangladesh, Cameroon, Sweden, Kenya, Ghana and Pakistan were processed for the B2B session. From India, over 50 delegates from different sectors like farming, food processing, beverages, logistics, information technology, trading, ayurvedic and herbal, packaging had signed up for the session. In total, 150 B2B Meetings were scheduled between the International and Indian Delegates, each lasting for about 15 Minutes.

In all, 17 International Delegates and 35 Indian Delegates were present for the B2B session on the



November 19, 2015 between 4pm-6pm. Around 100 B2B Meetings were arranged.

In addition, the overseas delegates had specific meetings at the exhibition area with the Indian delegates exhibiting their product ranges from spices, jaggery, turmeric, honey, rice, cashew, mango and processed marine products. They also interacted with tour operators and officials from organizations like

Agricultural and Processed Food Products Export Development Authority (APEDA), Maharashtra Agro Industries Development Corporation Ltd. (MAIDC), Vidarbha Industries Association, NCDEX, Council of Scientific & Industrial Research (CSIR), Coconut Development Board, etc.



The participants (Indian and International) were really happy post B2B meetings and even suggested additional B2B meetings to be organized. Some of the participants even signed up for the membership at World Trade Centre Mumbai.

Profile of Speakers

Subhash Desai

Mr. Subhash Desai is a leader of Shiv Sena from Maharashtra. He is a member of the Maharashtra Legislative Council. He had represented Goregaon (Vidhan Sabha Constituency in 1990, 2004 and 2009). On December 5, 2014, Mr. Subhash Desai took charge as the Cabinet Minister of Industries Maharashtra State Government after the Shiv Sena B.J.P. alliance. He is also guardian minister of the city of Mumbai. He hails from a Maratha family.

Ghazi Abu Nahl

Mr. Ghazi Abu Nahl was born in Barbara, Palestine in 1946. He started his career in insurance with an Insurance Agency (Arab Commercial Enterprises) in Qatar in 1960. He started Qatar General Insurance & Reinsurance Company as a domestic Insurance company in Qatar. In 1989, he established Trust International Insurance Company BSC (c) Bahrain, Trust Re, as one of the then few Reinsurance Companies in the region. 1989 was truly a year brimming with achievements with the establishment of Nest Investments (Holdings) Ltd. of which he is the Chairman and 100% Shareholder. 1989 also came to crystallise the aspiration of creating a direct insurance arm of the group with the establishment of Trust International Insurance Company (Cyprus) Ltd. Mr. Ghazi Abu Nahl is also a Board Member of the World Trade Centre Association, New York since April 2004 and President of the World Trade Centre Association - New York Foundation for 'Peace and Stability through Trade'. He is the Chairman of World Trade Centre Holdings (Cyprus) Ltd.

Andrey Murga

Mr. Andrey Murga was born on of October 7, 1969. In 1991 graduated Stavropol higher military aviation school for pilots and navigators. From 1993 he became an entrepreneur. In 2006 he received a PhD. in Economics. In 2007 he became a Deputy of the Duma of Stavropol Region, in 2010 the President of the Chamber of Commerce of the Stavropol Region, in 2011 the Deputy of the State Duma of the Russian Federation. In 2013 Andrey Murga became a deputy head of the Government of Stavropol Region. From 2015 till present time - a deputy head of Stavropol region's Government and Minister of Economic Development of Stavropol Region. He is married and has 4 children.

Wojciech Jankowiak

Born in 1956. An alumnus of the Adam Mickiewicz University Faculty of Law and Administration in Poznań and is a post-graduate of the Warsaw School of Economics.

In the years 1989–1990 - Deputy Mayor of Poznań. Between 1990 and 1993 - Deputy Head of the District Office in Poznań.

In the years 1993–1996 - Director of the Department for the Reform of Public Administration at the Prime Minister's Office in Warsaw. From 1996 to 1998 - Deputy Voivod of Poznań. A Member of the Board of the Wielkopolska Region during the first term of office and then between 2001 and 2003 - First Deputy Voivod of Wielkopolska.

He is associated with the Self-Government of the Wielkopolska Region since its establishment. Between 2003 and 2006 Director of the Department for Regional Development of the Marshal Office of the Wielkopolska Region, in charge of advancing a comprehensive policy of socio-economic development of Wielkopolska. He then co-created the Strategy for the Development of the Wielkopolska Region, the system of EU funds absorption and the Wielkopolska Regional Operational Program for the years 2007–2014.

In 2006 self-government elections - elected to the Assembly of the Wielkopolska Region from the list of the Polish People's Party and appointed Deputy Marshal of the Wielkopolska Region. Ever since, he has successfully performed the function of Deputy Marshal of the Wielkopolska Region, re-elected in 2010 and 2014 to the Regional Assembly.

As Deputy Marshal, he is in charge of expanding the regional transportation infrastructure and of processes related to enterprise support and employment enhancing, e.g. through monitoring the situation on the labour market and attracting foreign investors. As Deputy Marshal he supervises the following departments of the Marshal Office of the Wielkopolska Region: Department of Transport, Department of Infrastructure, Department for the Implementation of the European Social Fund, the Chancellery of the Regional Assembly and Investor Supervision Office. He is also responsible for the operation of the Wielkopolska Region for Spatial Planning and the Wielkopolska Region Labour Office in Poznań.

Internationally, on behalf of the Union of Regions of the Republic of Poland, Deputy Marshal Wojciech Jankowiak represents the Region in the Chamber of Regions, being the Chairman of the Polish Delegation to the Congress of Local and Regional Authorities of the Council of Europe (CLRAE) in Strasbourg. He is moreover a member of the Peri-Urban Regions Platform Europe PURPLE and since 2014 a Member of the Board – Vice Chairman of the Platform.

Apart from his experience in public administration he has ample expertise in the economy. Former Vice President of the Board of Poznań-Ławica Airport Spółka z o. o. and for many years a member of the Company's Supervisory Board. For two terms a member of the Supervisory Board of Polish Television in Warsaw. Former member of the Curators Council of the re-established Zakłady Kórnickie Foundation.

In the Polish People's Party he is a member of the General Council, Deputy Chairman of the Regional Board and President of the Poznań City Board. A founding member and incumbent President of the General Board of the Stanisław Mikołajczyk Society.

As of 2013 President of the Board of the Adam Mickiewicz University Alumni Association. The President of the Republic of Poland conferred on him - the Knight's Cross of the Order of Poland's Restitution.

Shyam Khadka

Mr Khadka, a national of Nepal, holds a Bachelor in Commerce, a Bachelor in Law and a Master's degree in Business Administration and Commerce from the Tribhuvan University, Kathmandu, Nepal, as well as a Master's Degree in Agribusiness Management from the University of the Philippines, Los Baños, Philippines.

He started his career in 1977 in the Agricultural Development Bank, Kathmandu, Nepal and held several positions such as Chief of the Loan Policy and Procedure Section from 1977 to 1985; Chief of the Computer and Data Processing Section from 1985 to 1988; Special Assistant to the Chairman and CEO from 1988 to 1990; Chief of the Projects Development Section from 1990 to 1992; and Chief of the Corporate Planning Division, concurrently with the Monitoring and Evaluation Division from 1992 to 1993. He joined the United Nations in 1993, as Senior Project Management Officer in the United Nations Office for Project Services (UNOPS), in Bangkok, Thailand and Kuala Lumpur, Malaysia with responsibilities for the

countries in East, South-east and South Asian countries. From 1997 to 2004, he was Country Programme Manager for India and periodically and concurrently for Bangladesh and Nepal in the International Fund for Agricultural Development (IFAD), Rome, Italy. From 2004 to 2014, he worked as Senior Portfolio Manager in IFAD, Rome, Italy, and was responsible for leading IFAD's self-evaluation, including the review and report on the development effectiveness of IFAD's global portfolio of loans and grants and for developing corporate level operational policies and strategies. In September 2014, he was appointed Chief of the Asia and Pacific Service in the Investment Centre Division (TCI) in FAO, Rome, Italy.

Mr Khadka took over as the FAO Representative in India on May 31, 2015.

Ashok Vishandass

Dr. Ashok Vishandass, assumed the Office of the Chairman (CACP), Ministry of Agriculture & Farmers Welfare, Government of India on March 26, 2014. His current assignment involves preparation of price policy of 23 important agriculture commodities based on analysis of cost of production after having due regard to profitability, demand-supply situation, inter-crop price parity, terms of trade between agriculture and non-agriculture sectors and optimal use of scarce natural resources like land and water.

He is a multi-disciplinary person, having keen interest in economics, mathematical statistics and financial management. He holds M. Stat. (Master of Statistics, Gold Medallist), MA (Economics) from University of Manchester, MBA (Financial Management) and Ph.D. (Agricultural Economics).

Dr. Vishandass has diversified experience of serving for over 34 years in various Ministries of Government of India such as the Ministry of Agriculture, the Ministry of Chemicals and Fertilisers, the Ministry of Rural Development and the Ministry of Health and Family Welfare etc.

Samir Shah

Mr. Shah joined NCDEX on March 1, 2013, initially as the Deputy CEO and has been designated as the Managing Director & CEO.

Shah has two decades of experience in building institutions and market infrastructure. Prior to joining

NCDEX, Mr. Shah was the Chief Business Officer of the Dubai Gold and Commodities Exchange (DGCX). At DGCX he led the growth of the exchange to make it the one of fastest growing exchange in the world, winning several awards, amongst them were Contract of the Year and the Best Commodity Exchange in 2012. Prior to this posting, he was the CEO of Mumbai-based Universal Commodities Exchange (UCX). Mr. Shah also worked at global information company Thomson Reuters for 17 years in various capacities.

Mr. Shah is an MBA in Finance, a Mechanical Engineer and has completed an Advanced Management Program from Wharton. He began his career as an investment banker in Mumbai helping companies unlock value through public offerings and buy-out deals.

Manisha Dhatriak

Ms. Manisha Dhatriak has 15 years experience in manufacturing tomato ketchup processing unit near Nashik. As Managing Director of Varun Agro Processing Foods Pvt. Ltd., she is responsible for the day-to-day running of the business with a particular emphasis on sales and business development. Making sure that the business continues to grow by way of developing new clients whilst maintaining its existing customer base.

Nancy Creamer

Dr. Nancy Creamer is a Distinguished Professor of Sustainable Agriculture and Community Based Food Systems at NC State University and Director of the Center for Environmental Farming Systems (CEFS). CEFS includes a 2000 acre sustainable and organic agriculture research, outreach, and teaching facility, and also has programs statewide in local food systems development. She was a founding member of the International Society of Organic Agriculture Research and also a member of the Scientific Congress of Organic Agriculture Research, established by the Organic Farming Research Foundation. In 2009, she provided leadership for a statewide North Carolina (NC) initiative engaging many diverse sectors and partners resulting in a statewide action plan: From Farm to Fork, a Guide to Building North Carolina's Sustainable Local Food Economy and has spearheaded the development of many of the strategic initiatives identified in the report, including the NC 10 percent campaign, and a current USDA AFRI-funded project focused scaling up local food supply chains into

mainstream markets. Dr. Creamer was a member of the USDA Specialty Crops Advisory Committee and has served as a consultant to the European Commission on funding and evaluation of European-wide organic agriculture research activities. She was appointed by the North Carolina Governor to the legislated NC Sustainable Local Foods Advisory Council in 2010 and was Vice Chair of the Council through 2013. The CEFS team was awarded the Southern Region's C. Peter Macgrath Community Engagement Award, a national distinction which recognizes outreach and engagement partnership efforts of four-year public universities. In 2012, CEFS received one of the highest awards that USDA gives: the USDA Secretary's Honor Award for 'Assisting rural communities in creating prosperity in order to become self-sustaining, repopulating, and economically thriving'. Dr. Creamer was recently appointed as a founding Board member for the Foundation for Food and Agriculture Research which was allocated \$200 million in the 2014 Farm Bill, to support agricultural research. In 2015, she became a newly appointed advisory team member to the Organic Farming Research Foundation.

V. Padmanand

A reputed International Expert on Private Sector and Small and Medium Enterprise Development with expertise in the areas of conduct of cluster and value-chain studies, evolution and implementation of action plans including public-private partnership based projects across all sectors, entrepreneurship development, evolving industrial policies and schemes and implementation of development programmes as International Expert and Team Leader for: Governments; United Nations (UN) organizations such as the United Nations Industrial Development Organisation (Vienna), the United Nations Development Programme, International Fund for Agricultural Development (Rome), International Labour Organisation (Geneva), World Bank, Asian Development Bank (Manila), German Technical Co-operation (GiZ), Commonwealth Secretariat (U.K.) and Department for International Development (DFID, U.K.); MNC consulting firms and developmental institutions. He is currently serving as Director, Grant Thornton LLP.

He was invited to serve as Member of the Planning Commission, Government of India (several working groups). Also, served on the Advisory Board / Committees of development institutions. Possess several related publications including (8 published)

books. Field-level cluster development related initiatives are covered by the business press/media frequently. Four books elaborating on interventions assisted/led by self and intervention tools vis-à-vis entrepreneurship, cluster and industry value-chain development as well as business plan preparation have been sponsored and published by the Government of India. Some of them have been formally endorsed by global management and cluster value-chain development 'Gurus'. These have been deployed for training 1000s of cluster development agents and entrepreneurship facilitators.

He has extensively provided field-level Technical Assistance (TA) for industrial development and been in charge of projects involving development across hundreds of locations and industrial districts in India and other developing countries.

Nandkishore Kagliwal

Mr. Nandkishore Kagliwal established an Agricultural Research Foundation for Development of Improved Seeds, through research work in genetics plant breeding. He established a pioneering agri-biotech centre for transgenic research in food, vegetables and medicinal crops.

He founded one of India's largest seed companies; organising seed production on 20000 acres of land annually, through co-operation of over 7000 farmers providing seeds for nearly 3 million acres of land.

He established a large agro-based paper mill. The company is a recipient of National Productivity Award for Excellence in Performance consecutively for five years.

He helped set up a mega food park near Aurangabad to provide integrated facilities for food processing industries. The park shall connect 5000 farmers for value added agriculture and shall provide direct employment to 2500 persons. The park has potential to transform the rural economy of the region.

Alwin Keil

Alwin Keil is a Senior Agricultural Economist with the International Maize and Wheat Improvement Center (CIMMYT), working in the Cereal Systems Initiative for South Asia (CSISA) and being based in New Delhi, India. Before joining CIMMYT in January 2013, Dr. Keil

held a position as an assistant professor at the Department of Agricultural Economics and Social Sciences in the Tropics and Subtropics at the University of Hohenheim, Germany. From 2006 to 2012 he led a research project investigating poverty dynamics, farm households' risk management and technology adoption in a marginal maize-based upland area of Vietnam and prior to this he led an interdisciplinary climate impact research project in Indonesia. Dr. Keil has extensive experience in conducting quantitative research in rural areas of developing countries (Indonesia, Philippines, Vietnam, Zambia, Ethiopia) based on representative household surveys. While his methodological focus is on ex-post econometric analyses, he also has experience in applying qualitative research methods. Dr. Keil holds a PhD in Agricultural Economics and an MSc in Agricultural Sciences from Georg-August University of Goettingen, Germany. He also holds a diploma in Tropical Agriculture from University of Kassel, Germany.

Anwar Faruque

Mr. Anwar Faruque is currently the Additional Secretary & Director General, Seed Wing, MoA. Prior to this posting he held several other important positions in Public Administration, Parliamentary Affairs, Agricultural Policy and Legislation, Seed Industry Development, Agricultural Research & Development, Climate Change, SAARC Charter & Seed Industry Development, NGO Affairs, Finance & Banking..

He holds a Masters in Public Administration from Harvard University, USA, besides, an M. Com in Finance from the University of Dhaka.

R. K. Gupta

Dr. R.K. Gupta has obtained his bachelor degree in Agricultural Engineering from Allahabad University and M. Tech. Degree in Post Harvest Engineering from Indian Institute of Technology, Kharagpur. Further, Dr. Gupta had also obtained Post Graduate Diploma in Food Processing Management from International Institute of Management, Masstricht, The Netherlands and Ph.D. from IIT Kharagpur in the area of Agricultural and Food Engineering. More than 30 years, he is engaged in research and development and training in the area of post-harvest processing and value addition of Food Crops. His areas of expertise are horticultural crop processing, oilseeds processing, coarse cereals including minor millets processing and value addition,

novel products development. Dr. Gupta is having proven record of scientific contribution with sufficient published work to his credit. He is also one of the authors of five books and has authored many research bulletins, technical reports and extension leaflets. He is also life member of professional societies like ISAE, AFST (I), Bioved Research Society, Oilseeds Research Society and Research Association of Gender in Agriculture. He is also a Fellow of Indian Society of Agricultural Engineers, Institutions of Engineers (India), Bioved Research Society, Hi-Tech Horticultural Society and other awards. He had opportunity to chair sessions as Chairman/Co-chairman of many National as well as International Conferences/ Symposia. He also visited Netherlands, England, Thailand and Singapore for study and scientific meetings. He is member of Board of Management of prestigious institutions namely NIFTEM, Kundali and Punjab Agricultural University, Ludhiana. Besides, Chairman of Specialized Products Sectional Committee, FAD 24 of BIS, New Delhi and Task Force member of one committee of MoFPI, New Delhi. He was also member of Indian delegation of Subcommittee on FST to ASEAN countries and visited Thailand and Singapore for developing Research Proposals on Food Science and Technology.

Dr. Gupta is presently holding the post of Director of ICAR-Central Institute of Post-Harvest Engineering and Technology (CIPHET) located at Ludhiana. ICAR-Central Institute of Post-harvest Engineering and Technology is the nodal institute for lead research and advisory in the area of Post-harvest Engineering and Technology appropriate to the Agricultural and Food Processing Industries, setting up pilot plants, industrial liaison, technology transfer and national and international cooperation to meet the national needs.

D. Rama Rao

Dr Rama Rao has a Ph.D from IIT, New Delhi. He is in the agricultural research service of ICAR from 1978 till date. In 2013, he joined World Bank supported National Agricultural Innovation Project as National Director and also functioned as Deputy Director General (Engg) at ICAR, New Delhi. From July 2014 till date, he is at National Academy of Agricultural Research Management (ICAR-NAARM) as Director.

His areas of expertise are on strategic initiatives in agricultural research and education, capacity development, public-private partnerships and knowledge and innovation management.

He has extensively worked on Information System in Agriculture and is closely associated with knowledge and innovation management initiatives in the ICAR system. In 1996, he received Hari Om Ashram Trust Award for Database Management. He was instrumental in implementation of Open Access Policy in ICAR and digital initiatives like e-learning and digital access to journals, thesis, etc. in the Indian Agricultural Research and Education System.

Hameed Nuru

Dr. Hameed Nuru is the Representative and Country Director of the World Food Programme in India. He assumed his duties in July 2015.

Prior to his current appointment, Dr. Nuru was with Global Alliance Livestock Veterinary Medicines (GALVmed) from 2009 - 2014. As the Senior Director Policy & External Affairs, he has vast experience in the areas of policy, advocacy, partnerships and communications. Overseeing a global portfolio as the spokesperson of GALVmed, he also managed the Africa and India offices. Dr. Nuru was responsible for driving the overall GALVmed strategy and positioning the organization globally.

From 2006 – 2008, he worked with the African Union - Interafrican Bureau for Animal Resources (IBAR) based out of Nairobi, Kenya. As the Senior Policy Officer Livestock & Fisheries, he was responsible for policy and strategy formulation and follow up for livestock and fisheries at the continental level with contributions towards the Comprehensive Africa Agriculture Development Program (CAADP).

A veterinarian by training, he has also worked as the Principal Veterinary Officer for the Government of Botswana, Department of Veterinary Services, on livestock disease control. He however started his work life as a university academic in Africa and the U.K.

Dr. Nuru is a citizen of Botswana, and has a passion for advocacy towards poverty alleviation and livelihood enhancement linked to food and nutritional security.

Marco Marzano de Marinis

WFO, the World Farmers Organisation, is an International Organisation of Farmers for Farmers, which aims to bring together all the national producer and farm cooperative organisations with the objective of developing policies which favor and support

farmers' causes in developed and developing countries around the world.

WFO is an organisation of agricultural producers that aims to strengthen farmers' positions within value chains, with a particular focus on smallholder farmers. By advocating on behalf of farmers and representing their interests in international policy forums, WFO supports farmers in better managing extreme price volatility, leveraging market opportunities and timely access to market information.

WFO's work covers all agriculture related thematic areas including forestry, aquaculture and fisheries, environment, trade, extension, research and education. WFO encourages farmers' involvement in sustainable rural development, the protection of the environment and facing other emerging challenges, such as climate change, generational renewal, and gender equality.

Wawrzyniec Czubak

Mr. Wawrzyniec Czubak is currently an Assistant Professor at Poznan University of Life Sciences, Faculty of Economics and Social Sciences, Department Economics and Economic Policy in Agribusiness.

He holds a number of memberships with prestigious bodies such as The Polish Association of Agricultural and Agribusiness of Economists and Students in Free Enterprise SIFE Poland. He is the member of the advisory team at the Economic consequences of implementation of the Common Agricultural Policy after 2013; Polish Ministry of Agriculture and Rural Development, Warsaw. He is the theme editor and reviewer in the Progress in Economic Sciences, a scientific journal of the Institute of Economics in Stanisław Staszic, University of Applied Sciences in Piła, Poland. He is the team chairman for Quality of education for the faculty of Economics at Poznan University of Life Sciences and the member of the supervisory board of the Centre for Innovation and Technology Transfer at Poznan University of Life Sciences

Digvir S. Jayas

Professor Dr. Digvir Jayas was educated at the G.B. Pant University of Agriculture and Technology in Pantnagar, India; the University of Manitoba and the University of Saskatchewan. Before assuming the position of Vice-

President (Research and International), he held the position of Vice-President (Research) for two years and Associate Vice-President (Research) for eight years. Prior to his appointment as Associate Vice-President (Research), he was Associate Dean (Research) in the Faculty of Agricultural and Food Sciences, Department Head of Biosystems Engineering and Interim Director of the Richardson Centre for Functional Foods and Nutraceuticals. He is a Registered Professional Engineer and a Registered Professional Agrologist.

Dr. Jayas held a Canada Research Chair in Stored-Grain Ecosystems for seven years. He conducts research related to drying, handling and storing grains and oilseeds and digital image processing for grading and processing operations in the Agri-Food industry. He has authored and co-authored over 800 technical articles in scientific journals, conference proceedings and books dealing with issues of storing, drying, handling and quality monitoring of grains. He has collaborated with researchers in several countries but has had significant impact on development of efficient grain storage, handling and drying systems in Canada, China, India, Ukraine and USA.

Dr. Jayas has received awards from several organizations in recognition of his research and professional contributions. He is the recipient of the 2008 Dr. John M. Bowman Memorial Winnipeg Rh Institute Foundation Award, as well as the 2008 Natural Sciences and Engineering Research Council (NSERC) Brockhouse Canada Prize. In 2009, he was inducted as a Fellow of the Royal Society of Canada. He has received professional awards from Agriculture Institute of Canada, Applied Zoologists Research Association (India), American Society of Agricultural and Biological Engineers, Association of Professional Engineers and Geoscientists of Manitoba, Canadian Institute of Food Science and Technology, Canadian Academy of Engineering, Canadian Society for Bioengineering, Engineers Canada, Engineering Institute of Canada, Indian Society of Agricultural Engineers, Manitoba Institute of Agrologists, National Academy of Agricultural Sciences (India), National Academy of Sciences (India) and Sigma Xi.

Dr. Jayas serves on the boards of many organizations including: NSERC, ArcticNet, Composite Innovation Centre, Engineers Canada, ISIS Resource Centre, Genome Prairie, International Centre for Infectious Diseases (ICID), MabNet, Research Manitoba, Cancer Care Manitoba Projects Grants and Awards Committee,

TRIUMF, and TRTech. He is also chair of the board of directors of RESOLVE, a prairie research network on family violence and of the advisory board of the Richardson Centre for Functional Foods and Nutraceuticals, a research centre dedicated to the discussion, discovery, and development of functional foods. He has served as President of Agriculture Institute of Canada, Association of Professional Engineers and Geoscientists of Manitoba, Canadian Institute of Food Science and Technology, Canadian Society for Bioengineering and Manitoba Institute of Agrologists.

Arvind Kumar

Mr. Arvind Kumar, Managing Director, The Maharashtra Agro Industries Development Corporation Ltd. (MAIDC), Government of Maharashtra. Prior to this assignment, he held several other positions in the Government of Maharashtra.

Raj Benahalkar

Mr. Raj Benahalkar is presently working as Chief Strategy & Risk Officer at National Commodity & Derivative Exchange Ltd (NCDEX). At NCDEX he is responsible for the overall Risk Management Policy framework both at financial and physical side of the business and new product development (financial products) and is part of the Executive Committee at NCDEX. He has been the Co-Regional Director of Professional Risk Managers' International Association (PRMIA) at its Mumbai Chapter.

Prior to joining NCDEX he held the position of Head - Market Risk at YES Bank and similar role at IDBI Bank. Academically he is a B.E. (industrial Electronics), MBA (Finance) and Diploma in Marketing Management. He has undergone various strategy and leadership programmes from reputed organizations such as IIM, Ahmedabad and Wharton.

He has vast experience of over 20 years in areas of risk management, commodities, treasury, structured finance, investment analysis and project finance and has spoken at various domestic and International forums.

Meera Mishra

Ms. Meera Mishra is the Country Coordinator of the International Fund for Agricultural Development

(IFAD) since August 2010. She has over 21 years of experience of working with national and international organizations, including the United Nations. She has largely worked in the area of public health, poverty, migration, displacement and resettlement issues across more than 20 countries with organisations such as UNDP (Regional), Futures Group and CEDPA among others. She also serves as the CSR Advisor (Honorary) to the Airports Authority of India. Prior to joining IFAD, Meera worked as a freelance Consultant since January 2010 during which time she worked closely with the UN system and government in India, Ukraine, Russia, Uzbekistan, Macedonia, Afghanistan and Zimbabwe in the area of policy development and strategic planning.

Dinesh

Dr. Dinesh, Chief Executive of National Cooperative Union of India (NCUI), an apex organisation of Indian Cooperative Movement, holds M.Sc. and Ph.D. degrees from Indian Agricultural Research Institute, New Delhi, and MBA from the Faculty of Management Studies, University of Delhi.

He has acquired rich experience of working for more than 33 years in all gamuts of administration, human resource management, training & development, institution building, academic administration, accreditation and foreign collaborations, across Steel Authority of India Ltd., (A Navratana Company under Government of India), SLBS National Sanskrit University under Ministry of Human Resource Development, Government of India, United States Educational Foundation in India (USEFI) and All India Council of Technical Education (under Ministry of Human Resource Development, Government of India) at senior positions. He is a certified trainer and is credited with development of training and management development programmes in collaboration with consultants from UK, Germany and Australia for different levels of professionalism in various organizations. For the countries of the SAARC Region, he has conducted various training / management development programmes for the development and upscaling of cooperative leaders, managers and employees in the area of agricultural and rural financing.

He is keenly interested in the socio-economic upliftment of farmers, youth and women in India and has started various programmes and schemes to empower these groups through HRD intervention

strategies. Widely travelled across many countries. Dr. Dinesh has facilitated networking of cooperatives and farmers' organizations particularly in the region of South East Asia and has been collaborating with various training institutions / cooperatives in this region for the development and capacity building of cooperators.

He is on the board of many HRD Institutions / Cooperative organizations in India and is also associated as resource person with the organizations of eminence in the field of Management Education and Training.

B. V. S. Prasad

Mr. B. V. S. Prasad is the General Manager of National Bank for Agriculture and Rural Development (NABARD).

Marietta Mulaire

Marietta Mulaire is the President and CEO of the World Trade Centre Winnipeg since its official opening in April 2013. In addition, she serves as member of the board of the World Trade Centers Association. Prior to that, she was the President and CEO of ANIM since its inception in 2007, where she was involved in numerous economic development initiatives on behalf of Manitoba including helping to spearhead the creation and hosting of Centrallia, the first international B2B forum of its kind in Western Canada. Her previous economic development experience includes holding the position of Executive Director for the Economic Development Council for Manitoba Bilingual Municipalities for ten years and employment with both the Department of Western Economic Diversification Canada as well as the Department of Canadian Heritage.

Marietta Mulaire represents the World Trade Centre Winnipeg internationally, which is on several global boards of directors, including the Canada-Israel Industrial Research Development Foundation (CIIRDF) and the Canadian-Turkish Business Council.

In addition to these responsibilities, Marietta Mulaire readily volunteers as an active member on several boards and organizations within Manitoba, including the Manitoba Premier's Economic Advisory Committee (PEAC). She is also member of the Manitoba Film and Music Board and co-chair of the Canada Summer Games 2017 Host Society.

She was awarded the Ordre des francophones d'Amérique in 2010, was the May 2011 recipient of the YMCA-YWCA Women of Distinction award under the 'Leadership' category and received the Queen Elizabeth II Diamond Jubilee Medal in 2012. She is the 2015 recipient of the Award of Excellence – Promotion of Linguistic Duality from the Commissioner of Official languages. Marietta Mulaire holds a national designation with the Canadian Institute of Management (CIM) as a Professional Manager, in management and administration as well as holds the Certified International Trade Professional (CITP) designation from the Forum for International Trade Training (FITT).

Laura Secher

Ms. Laura Secher is a Procurement Officer in the United Nations Procurement Division (UNPD), working on the Field Supply Team, which handles the procurement of goods and services in support of the United Nations (UN) Peacekeeping Missions worldwide.

In 2007, after achieving a Master of Arts degree from Columbia University, Ms. Secher started working in UNPD and has gained substantial experience in procurement in the international market. Ms. Secher's expertise includes a broad procurement portfolio in support of the UN's global Peacekeeping Missions. Ms. Secher has extensive experience in the establishment of complex and high value contracts for turnkey fuel and food ration requirements for UN Missions in challenging operational environments. In addition, Ms. Secher is responsible for the procurement of life critical goods and services, such as blood, medical equipment and security requirements. Ms. Secher has played a key role in emergency response procurement activities, and was involved in the acquisition of fuel and medical supplies for the UN Mission for Ebola Emergency Response (UNMEER) and in the procurement of urgent engineering requirements during the earthquake in Haiti in 2010.

Mark Cyubahiro Bagabe

Mr. Mark Bagabe holds a PhD (2004) and an MSc (1989) from the University of Reading, UK, in Plant Pathology and a BSc (Hons) in Applied Biological Sciences from Luton College of Higher Education (The University of Bedford, UK, 1988). Bagabe has been the Director General of Rwanda Standards Board (former Rwanda Bureau of Standards) since 2009. Over the past five years, he has spearheaded National Quality

Infrastructure (NQI) reform to enhance efficiency and compliance with international best practice by separating regulatory from non-regulatory functions. He has proactively promoted competitiveness of Rwanda products through upgrade of quality testing capabilities and certifications from two (2) products in 2010 to over 250 in 2014. He has successfully been able to introduce standards education in Rwanda public secondary schools curriculum in order to promote standardisation culture among the Rwanda youth as they are the future standardisers and entrepreneurs. Bagabe has been able to leverage and foster partnerships with international Standard Bodies including admission of Rwanda to Full Membership of ISO in 2013. Before taking up his current position in 2009, he was the Director General of the Rwanda Agricultural Research Institute (ISAR, 2005-2009). He had earlier served as a Research Associate at the International Institute of Tropical Agriculture (IITA, 1991-1994).

Prior to this, he was an Assistant Scientific Officer at the Ministry of Agriculture, Fisheries & Food (MAFF, UK) from 1989 to 1990. While in MAFF, he established the existence of different penicillium oxalicum isolates that cause stem rot of glass-house grown cucumber and how manipulating crop environment can lead to the management of the crop disease. He extended similar principles to the management of the host plant genome integrated banana streak virus (BSV), a badnavirus, by controlling the nutritional status and ambient environments. Bagabe's research interest has been in plant disease management by manipulating the physiological interactions between the disease and the host.

Bagabe has attracted many competitive grants for the institutions he has served during the past 20 years of service through the development of grant winning proposals. He has authored and co-authored many scientific papers, supervised a number undergraduate dissertations and PhD studies.

He is currently a member of the Board of Directors of the University of Rwanda (UR) and has served as a member or a chair of Boards of Directors of several institutions of higher learning and research including the Institute of Policy Analysis and Research (IPAR, 2008-2014), the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA, 2007-2009). He was the Chair of the ASARECA Competitive Grants System (CGS) Committee of the Board of Directors; a basket fund for

supporting research in Eastern and Central Africa region. Bagabe served as a technical advisor on Resource Mobilisation, Advocacy and Policy on the Forum for Agricultural Research in Africa (FARA); the research arm of African Union (AU). Bagabe's experience in scientific research, standardisation and conformity assessment (quality assurance, testing and certification) has enhanced his capacity to translate scientific outputs into commercial opportunities.

Mohamed Abdel Motaleb Etman

Mr. Mohamed Abdel Motaleb Etman is the Head of Central Department for Standardization, Egyptian Organization Standardization & quality Control (EOS). In addition to this, he is also Editor-in-chief of Codex, an Egyptian magazine. He is a Member of 3 prestigious organizations namely, The American Nano Society (ANS), The American Bank of Nanotechnology and Egyptian Society Green and Sustainable Building. He is also Head of the Egyptian delegation at the meeting of the UN Economic Commission for regulations on vehicles.

He holds a Ph.D. in Mechanical Design and Production Engineering and is a Faculty of Engineering, Cairo University, Egypt. He has vast research and teaching experience in his field and has attended several conferences, seminars and workshops both in Egypt and internationally.

Gevorg Nazaryan

Mr. Gevorg Nazaryan has more than 7 year experience in leading technical regulation, standardization and conformity assessment activities in Armenia in the field of quality infrastructure. He has more than 10 year experience in state government bodies. He has experience within various international development organizations in project management. He is a skilled researcher in environmental economics and water resources management: institutional development, related policy and legislation, cost-benefit analysis of projects.

He holds a Doctorate in Economics. He is currently holding the position of Deputy Director at the Armenian National Institute of Standards CJSC (SARM).

Asmi Raza

He is a professor of Economics at the University of Delhi. He has extensively worked in the area of food

security, international trade and finance, regional economic integration with a special focus on South Asia/Asia, gravity model, trade and conflict, time series modeling and indo-gulf economic and trade relationship. He has done research on food security and international trading food grains particularly in rice. He is working as an honorary economic advisor / Director for ASSOCHAM, FICCI, CII and International Research Institutes and Agencies.

He has to his credit several publications and papers. He has also presented papers at national and international conferences.

Omkar Musale

Mr. Omkar Musale has done MSc in Environmental Science from University of Mumbai with 10 years of experience in environment & food testing in India & overseas. He is being associated with Envirocare Labs Pvt. Ltd. for last 8 years. Envirocare Labs over past 36 years has been at the forefront of monitoring, analysis, research and training and has grown into a world class laboratory spread across 15000+ square feet of state-of-the-art instrumentation with 125+ people working in the field of environment, food and consumer product testing services. The lab is accredited under ISO 17025 by NABL and is recognised by MoEF, MoFPI, FSSAI, BIS, APEDA, AGMARK. The lab is also certified for QMS, EMS and OSHAS and is empanelled with World Bank and as 3P Lab with many multinationals.

Mr. Omkar Musale has gained a robust experience in India and Overseas and has specialized in management & execution of various testing assignments including, pesticide residue monitoring, onshore & offshore environmental monitoring, due diligence, environmental compliance audits, solid waste assessment etc. He has also done advance PG Diploma in Energy Management & Audit.

Vaneet Kaur

Ms. Vaneet Kaur is a Masters in Biotechnology and has been affiliated with the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) in the capacity of Research Associate.

She has been involved in the planning and implementation of multifarious scientific programmes of the Centre, coordination of fellowship schemes at centers of excellence in various countries; organizing

workshops, roundtables and training programmes on various scientific and technological topics.

Specifically, Ms. Kaur has significantly played a major role in the organisation of the 'International Training Workshop on Herbal Medicine: Drug Discovery from Herbs - Approaches, Innovations and Applications in Mysore/Ooty, India held on March 30-April 3, 2015'. She is also working on the implementation of several International Fellowship schemes of the Centre and drafting MoUs of technical cooperation and S&T Partnerships and is also coordinating the work on the Centre's publications. She has presented three international and national scientific papers and has participated in workshops and conferences organised by the Indian and foreign agencies on behalf of the NAMS&T Centre.

Ashwin C. Shroff

As Chairman of Excel Crop Care Limited, Mr. Shroff is engaged in the business of manufacturing and marketing of wide range of agrochemicals (pesticides – seed protectants, insecticides, weedicides, fungicides, miticides, rodenticides and fumigants). In addition to manufacturing of pesticides, the company also manufactures and markets plant hormones, growth promoters and biopesticides. He is also Chairman and Managing Director of Excel Industries Limited as also Chairman of Transpek Industry Limited and Transpek-Silox Industry Limited. Over the years, he has been associated with various associations in various capacities - President – Indian Chemical Council, Chairman – FICCI Environment Committee, Co-Chairman – CII Biotechnology Committee, Member – Research Council, CSIR, NIIST, Thiruvananthapuram, Chairman - Uttan Krishi Sanshodhan Sanstha, Keshav Srushti, Mumbai to name a few. Indian Chemical Council (ICC), Mumbai conferred the Life Time Achievement Award for the year 2012.

Anil B. Jain

Mr. Anil Jain has served as Managing Director and CEO of Jain Irrigation Systems Limited since 1992. He joined the company's management team in 1984 and worked in the New York office between 1987 and 1991, steering its international marketing from there. Since then he has operated from India.

Mr Jain is a veteran professional with over 30 years of experience in core strategic areas such as finance and banking, domestic and international marketing,

strategic planning, horizontal and vertical expansion and change management. Due to these efforts over the past 30 years, Jain Irrigation has evolved as the only Indian agricultural multinational corporation with a richly integrated product and services basket that benefits the entire value chain of stakeholders, with the small farmer at the fulcrum of all objectives and activities. He is an advocate for the small and marginal farmers cause across the world and works zealously for the issues of food security, water security and energy security in the under-developed and developing world. Innovative entrepreneurship is his chosen tool for creating sustainable impact on agriculture, water management, surface and subsoil micro-irrigation, food processing, customised community farming, global natural-resource management, renewable energy in agriculture and related areas.

Mr. Jain has represented Indian Agriculture and Agriculturist at various National & International Forums such as G-8, G-20, IFC-World Bank, WEF, Grow Africa, FAO etc. Currently, Mr. Jain is also acting as Chairman, Council on Agriculture & Food Security - ASSOCHAM, Chairman, Committee on Agriculture, Bombay Chamber of Commerce & Industry, Chairman, Steering Committee To Create Shared Value in Agribusiness - ACTION PLATFORM, Director, PAPSAC-HBS (Private & Public Scientific, Academic & Consumer Food Policy Group-Harvard Business School), U.S.A., Member, Food Processing Education Committee (FPEC), Government of India.

Mr. Jain has a degree in commerce from Pune University (1984) and a degree in law from the Mumbai University (1986).

Min-Tze Wu

Dr. Min-Tze Wu is Director, Plant Technology Laboratories, Agricultural Technology Research Institute (ATRI, Taiwan. He received his B. Sc. in Horticulture from National Taiwan University (NTU) in 1976 and his Ph.D. in Plant Physiology from Colorado State University in 1984. From 1984 to 1987, he worked as an associate researcher at Horticulture Division, Taiwan Agricultural Research Institute. He then moved his job to Council of Agriculture as a senior specialist. After working on administration for 19 years, he switched his job back to Taiwan Agricultural Research Institute as Director of Biotechnology in 2006. His researches were focused on risk assessment of transgenic plants, marker assisted breeding. In July 2015, he starts his present position and works on

several platforms for the commercialization and industrialization of agricultural science and technology.

Hasanuddin Ibrahim

Currently, Dr. Hasanuddin Ibrahim is Assistant to the Minister of Agriculture for International Trade and Relation, Ministry of Agriculture of the Republic of Indonesia. He has extensively worked in the field of agriculture.

Per-stefan Gersbro

Mr. Per-Stefan Gersbro is presently Managing Director at Pacedo AB, a company he founded in 2004. Pacedo offers extensive services to specific needs within packaging around growth, present, and emerging packaging solutions and technologies, competitive issues in the market place and innovation. The consulting draws upon years of direct, frontline experience in the fast moving consumer goods industry.

He has 30 years of experience in the international packaging market, with executive positions in marketing and product development in major packaging companies, such as Amcor, StarAsept and Åkerlund & Rausing as well as at the International Packaging Institute. He has held positions in Belgium, England, Sweden and Switzerland.

In 2010 he founded Packbridge, an international packaging and logistics cluster, a growing network for the packaging industry and all its stakeholders – customers, suppliers, researchers and innovators. The purpose is to create a platform, naturally linking industry and academy, research with commercial application and – perhaps most importantly – people with people. Packbridge has today well over 200 member companies.

He has been engaged in several cutting-edge packaging developments and launches on a global base and runs tailor-made training programmes for multinational customers in FMCG businesses all over the world. He is a regular columnist in European packaging magazines and an esteemed speaker and moderator in international conferences and seminars.

He has a Master of Science degree in Chemical Engineering from the Institute of Technology, Lund University, Sweden.

Venkatesh N. Hubballi

Mr. Venkatesh N. Hubballi - a professional agro technocrat joined Government of India as Deputy Director (Development) in the Directorate of Cashewnut and Cocoa Development, Cochin in 1996 after his brief teaching stint at the University of Agricultural Sciences, Bangalore. In 2007, he headed the Directorate as Director and actively involved in the implementation of cashew and cocoa development programmes under National Horticulture Mission (NHM) throughout India. He is one of the technical advisers to the Union Ministry of Agriculture in all policy matters relating to cashewnut and cocoa development. He heads several committees and has authored numerous technical literatures on cashew and cocoa. His contributions in replacing senile cashew gardens with clones of high yielding varieties and in its scientific management, across west coast region are widely recognized by the farming community. Mr. Hubballi was also instrumental in expanding the cashew cultivation to non traditional tracts, particularly in North East States under NHM Programmes.

Mr. Hubballi has undertaken overseas assignments and also is a Government of India nominee on the Board of Directors of various Cashew Corporations / Councils.

Joanna Kane-Potaka

Ms. Joanna Kane-Potaka is an Australian national and has a Master of Science degree in Global Marketing.

Prior to joining ICRISAT she was Director, Communications and Marketing Information and Knowledge Group, International Water Management Institute, where she was responsible for science marketing, corporate communications, uptake approach of research findings, private industry fund raising, internal communications and information management. She was also Head, Information Management and Marketing, Bioversity International and Information and Communications Leader, WorldFish Center.

She began her career as an agricultural economist with the Australian Bureau of Agricultural and Resource Economics (BAE at the time) and later moved into market research in the agribusiness area of the Queensland Department of Primary Industries. Since then she has worked in a wide variety of marketing-

related areas including strategic marketing, communications, fundraising, knowledge management and uptake of scientific research.

Parashuram Samal

Dr. Parashuram Samal has been with National Rice Research Institute, Cuttack for 24 years. He has been with the Indian Institute of Oilseeds Research, Hyderabad for 7 years and 3 years at the Department of Agriculture, Government of Odisha.

His areas of specialisation have been in impact assessment, rice economics, international trade in rice, public-private partnership in farm mechanisation, farmer participatory plant breeding, risk analysis, frontline demonstrations and technology evaluation.

He has handled twenty one research projects and has eighty five national and international publications to his credit. He has made over 60 presentations in national and international conferences and workshops.

Mayank Sagar

Currently, Mr. Mayank Sagar, Business Development Executive, Annamrit Farmers as Owners Foundation has extensively studied and worked in the area of apple cultivation in Uttarakhand.

Bhushan Gagrani

Mr. Bhushan Gagrani is a civil servant and is the Chief Executive Officer, Maharashtra Industrial Development Corporation. Prior to this, he has held several important positions in the government.

Profile



**WORLD TRADE CENTRE™
MUMBAI**

Promoted by MVIRDC 
M. Visvesvaraya Industrial Research and Development Centre



The concept of a World Trade Centre in Mumbai was born of a vision of Sir M. Visvesvaraya, on June 26, 1970, epitomizing a strong conviction that India's future prosperity lay in trade, industrial research and development. He anticipated the need for India's industrial development through research and development in the fields of education, trade, investment and the economy as a whole, with the motto clearly being, 'Prosperity through trade'.

WTC Mumbai serves as a corollary to India's challenges in the areas of economy and trade, virtually growing beyond the ambit or scope of the government and trade promotion organizations. At the time, there was felt the need of a concept of World

Trade Centre at a global level which could create the necessary linkages in various sectors of the economy across countries of the world.

The World Trade Centre addresses the key issues of International Development through educational programmes, research & publications, tenant facilities and an array of trade activities.

The promoters of WTC Mumbai developed the idea and concept of the Centre in a unique tripartite partnership of state, government and the private sector. In due course, WTC Mumbai was registered under the Indian Companies Act, 1956 as a Section 25 not-for-profit company named M. Visvesvaraya Industrial Research and Development Centre (MVIRDC). MVIRDC's prime objective is to conduct research and development and its ancillary objective is establishment of WTCs in India and abroad.

From there on WTC Mumbai continues to be a living testimony with a promise to excel and go beyond in every field and to take on the challenges of the future.



All India Association of Industries

All India Association of Industries (AIAI) is a renowned trade body that aims to promote entrepreneurship and facilitate industrial growth as trade and industry form an integral part of economic development of the country.

Under the dynamic leadership of Late Shri Babubhai M. Chinai (M.P), AIAI was established in 1956, which is today the leading association of industries in India's commercial capital.

AIAI membership spans across a wide spectrum of industries with a strength of over 1400 direct membership and over 60 affiliated regional Chambers and trade bodies with an indirect membership of over 50,000.

Over 70% of the memberships represent the SME Sector. As SMEs are a vital component of every economy, AIAI endeavours to assist SMEs to accelerate

their business network globally by identifying reliable business partners through its network in over 50 countries.

AIAI's activities are directed towards facilitating and fostering business growth through seminars, workshops, trade fairs, business meetings, trade delegations from overseas and also mounting delegations from amongst its members to other countries. AIAI provides information on domestic and international trade, investment, technology and innovation.

AIAI has signed over 240 agreements for co-operation with International Trade Promotion bodies and Chambers of Commerce across the world to promote trade, enhance exchange of trade-related information, foster joint ventures thus contributing towards the process of globalization.

Past Glimpses of Global Economic Summits jointly organized by World Trade Centre Mumbai and All India Association of Industries

GES 2010 - The Global Economic Summit 2010 on 'Trade and Investment Opportunities' was held from **January 20-22, 2010**. The high-level foreign dignitaries at the Summit included HRH Prince Michael of Kent, Ms. Suvi Linden, Minister of Communications & Transport, Government of Finland, Dr. Ramakrishna Sithanen, GCSK, Vice Prime Minister of Mauritius, Mr.



Donald Oliver, Q. C. - Senator - Canada, Mr. Ron W. MacKinley, Hon'ble Minister for Transportation & Public Works, Province of Prince Edward Island, Canada, Mr. Leszek Wojtasiak, Vice-Marshall of Poland, besides various regional heads, investment practitioners and Special Envoys to India.

GES 2011- The Global Economic Summit 2011 emphasised on 'Small and Medium Enterprises' was held from **January 27-29, 2011**. The occasion was graced by Hon'ble Mr. Chhagan C. Bhujbal, Hon'ble Minister of Public Works and Tourism, Government of Maharashtra, Mr. Salman Khursheed, Hon'ble Minister of Water Resources & Minority Affairs and Mr. Subodh Kant Sahay, Hon'ble Minister of Tourism, Government of India.

GES 2013 – The 3rd edition of Global Economic Summit themed 'Clusters in One World: Perspectives from Many Nations' was held from **September 23-25, 2013**. With a focus on cluster collaborations and strategic partnerships, the Summit provided updates on clusters in India. The Summit had participation from over 23



countries, Latin America, Canada, UK, USA, Europe, Asia, Middle East, Africa, Australia and New Zealand.

GES 2014 –The theme of Global Economic Summit 2014 was 'Asia: Powering Global Markets' held from **September 11-13, 2014**. Key participation from organizations included WTO, OECD, ADB, UNCTAD and UNPD. An important feature of the Summit was the **General Assembly of World Trade Point Federation (WTPF)** which was held concurrently with GES 2014 at the World Trade Centre Mumbai.



Global Economic Summit 2015

Testimonials

Ms. Laura Secher,

Field Supply Team, Peacekeeping Procurement Section,
United Nations Procurement Division, New York, USA.

"I had the opportunity to meet over 20 vendors in food commodities, besides, officials from Chambers of Commerce at the 5th Global Economic Summit 2015. I have individually guided all these vendors on the procedure to register in the United Nations Global Marketplace".

Mr. Andrey Murga,

Deputy Head of Governor of Stavropol Region,
Minister of Economic Development of Stavropol Region,
Russia.

"The Governor's office of Stavropol Region expresses gratitude to the World Trade Center Mumbai for the excellent organisation of Stavropol Delegation visit to the 5th Global Economic Summit 2015.

We were happy to make the presentation on the Stavropol Territory and participate in Business-to-Business meetings at the Summit. We hope that this would be a successful beginning of a productive cooperation between India and the Stavropol Region".

Mr. Per-Stefan Gersbro,

Managing Director, Pacedo AB
& Founder, Packbridge AB, Sweden.

"World Trade Centre Mumbai has once again delivered an excellent package of speakers, exhibition, business-to-business meetings, farmers workshop, post-event tour to Nagpur having tremendous networking opportunities both during and after the Summit. Global Economic Summit 2015 was really successful and we look forward to participating in the next Summit".

Ms. Vireshika Bandara,

Third Secretary (Commercial),
Consulate General of Sri Lanka in Mumbai, India.

"We thank you for inviting us to the 5th Global Economic Summit, which was very successful and useful to us. I was impressed with the presentation of Mr. Shyam Khadka, Representative in India, Food and Agriculture Organisation of the UN".

Mr. Oby George,

Head Business Development,
Envirocare Labs Pvt Ltd, Mumbai, India.

"All the events in the 5th Global Economic Summit were well co-ordinated and systematic. I come from a conference background and I understand the pain and hours of planning it takes to put such a show together. The line-up of speakers from across the globe was excellent.

Thank you for giving us the opportunity to exhibit our services at the Summit. We received a good response in the conference after our speaking session".

Mr. Rachmat Bagus Suharyo,

Head of UN Sub Division, International Cooperation
Center, Ministry of Agriculture, Government of
Indonesia.

"We thank you once again for your valuable help and assistance during our visit to the 5th Global Economic Summit 2015. The event was well organised. Our Minister has been apprised about the event and we would follow-up with some participants who we interacted, in the near future".

**National Agriculture & Food Analysis & Research
Institute (NAFARI),**

Pune, Maharashtra, India.

"World Trade Centre Mumbai made satisfactory arrangements and provided excellent hospitality at the 5th Global Economic Summit 2015. NAFARI would be happy to participate in future events of World Trade Centre Mumbai".

Dr. Nancy Creamer,

Professor and Director of Center for Environmental
Farming Systems, North Carolina State University, USA.

"The 5th Global Economic Summit 2015 was of great value to me, and I am glad I was able to attend and contribute. I thank you for giving me an opportunity to make a presentation at the Summit".

World Trade Centre Mumbai

Vision

Committed to excellence in trade and investment facilitation through global linkages.

Mission

- To foster trade and industrial growth through effective and innovative trade services and by offering world-class business facilities.
- To promote and strengthen business and India's international trade through global collaborations and connections.
- To create an enabling platform for trade research, education, training and trade facilitation.

WE PROMOTE
SHOWCASE
RESEARCH
TEACH
FACILITATE **TRADE**

ULTIMATE TRADE RESOURCE

Organizers



Supported by



State Partner



Associate Partners



FAO is an active partner

Support Partners



Outreach Partners

