Mahatma Gandhi-House
Göttingen, Germany

with Student Hostel
and side wing with seminar-,
office- and clubrooms

BRIEF REPORT

12th International IFSDAA-Conference

"Ressourcenmanagement für nachhaltige Ernährung, Landwirtschaft und Gesundheit"

14. - 16. September 2022

Mahatma Gandhi House, Goettingen, Germany

organised by:

International Foundation for Sustainable Development in Africa and Asia (IFSDAA), in der AASF e.V.

African Asian Studies Promotion Association,
Goettingen, Germany

University of Applied Science and Arts,
Goettingen, Germany

Society for SustainableAgriculture and Resource Management (SSARM),
Hisar, India

The opening session of 12th IFSDAA International Conference on

Resource Management for Food, Agriculture and Health Sustainability

was scheduled on 14th September at 9.30 a.m.

At the very beginning **Dr. Kahasi Wolde-Giorgis**, President of AASF and conference convener accorded welcome to participants from ten countries including Germany, France, Turkey, Canada, India, Sudan, Ghana, Iran, Afghanistan, Nigeria. He briefly described the aims, objective and activities of

International Foundation for Sustainable Development in Africa and Asia (IFSDAA)

and its umbrella organization

Afro-Asian Studies Promotion (AASF), Göttingen, Germany

since 2007.

Prof. Dr. Achim Ibenthal,.Chair of the conference offered greetings to the participant and described the objectives of the conference. He emphasized that the linkages between science and technologies for Food, Agriculture and Health Sustainability are valuable for every country in the world. Therefore 12th IFSDAA International Conference is globally relevant.

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The Followings things were discussed

1. Management of natural resources like land, water, nutrients, crop diversification including agro-horticulture-forestry for food production and medicinal & spice plants for pharmaceuticals and health.
2. Technologies for resource conservation, resource optimization and enhanced resource use efficiency of applied and natural inputs for higher productivity and environmental sustainability.
3. Fertilizers, Nano fertilizers and use of agrochemicals for plant protections.
4. IT and AI based climate resilient precision Agriculture and management of environment and health care Technology.
5. Agri-waste and bio-resource management including bio-fertilizers, manure and composts, bio-char, bio-pesticides and herbicides etc.
6. Plant breeding and biotechnologies for development of improved crops for high yield, tolerance to biotic and abiotic stresses and better quality.
7. Food processing for higher nutritional & end use value for human health.
8. Green technologies, renewable energy sources, and their applications in energy supply chain for agriculture, food processing, allied agro-industries.
9. Future science and technology innovations to enhance resource use efficiency in agriculture and allied enterprises.
10. Women empowerment in agriculture, science and technology, environment healthcare and policy planning.
11. International cooperation's for achieving food and nutritional security, environment and health sustainability through sustainable development in Africa and Asia.

The presented papers were resolved in different technical sessions. The sessions were focused on general aspect of science and technology linking food, agriculture, environment and health sustainability. Other sessions emphasized on crop improvement strategies to get varieties with

enhanced resilience and tolerance to biotic and abiotic stresses and better seed yield. Special online session was conducted on food processing, food security and natural resource conservation. Two major sessions were organized for the resource management in agriculture, livestock as well as use of agriculture waste materials. Special session on health sciences resolved into developing models for evaluating antioxidant properties of different plant herbs on development of cancer using yeast model system.

Engineer **Dawit Bereket Ab**, Managing Director of AASF highlighted the aims, objectives and functions of AASF and relationship of IFSDAA and AASF. **Prof. R.K. Behl** International coordinator of IFSDAA and AASF proposed vote of thanks to the distinguished key note speakers, session chair, paper presenters and members of the organizing committee. An edited book entitled "Plants For Immunity" edited by Pwas released. **Er. Agnes Pagou,** vice president AASF, **Mr. Helge Tepperwien** and **Er. Peter Teriet** members of AASF-Team also graced the opening session.

After tea session **Prof. Nasir El Bassam** presented his keynote paper on Technologies and Options for Secured Sustainable Competitive Energy in the 21st- Century. He demonstrated through a video how the solar energy supplies can positively influence the human and livestock settlements, safe portable drinking water, ecosystems, livelihood generation and industry and technology development.

Dr. Gudrun B. Keding presented online her keynote paper on Fruits and Vegetables for all seasons-FruVaSe. She described food processing technologies to develop ready to eat value added products from fruits and vegetables which are nutritious and healthy. Such food products will help rural women in Africa and Asia to earn livelihood. Food processing will also minimize food wastage under storage and transportation.

After lunch **Dr. Manfred Kern** presented his keynote paper, Energy and Food Perspective in view of Ukraine war. He demonstrated the energy and food supply chain worldwide in present day scenario and projected food and energy demands by 2050. He made particular reference to Ukraine crisis and its adverse effects on food and energy supply chain. He suggested to send a Göttingen declaration on the pattern of a letter written by Mahatma Gandhi to Adolf Hitler before the start of the Second World War for peace and progress.

Prof. Adesh K. Saini from India presented a keynote paper on Yeast Models for Detecting Redox Stress by Heavy Metal Toxicity and Pesticides. In his paper he demonstrated strong relationship between antioxidant activities of various protein molecules and cancer. He demonstrated an yeast based model to evaluate antioxidants and immunity building properties of food products in relation to resistance/susceptibility to cancer. This session was chaired by **Prof. Arthur Riedacker**, France.

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On 15th September **Prof. Dr. Ravindra Chibbar** from Canada presented his keynote paper on Pulse Crops: A key to Sustainable Agriculture, Food and Nutritional Security. He explained in details the role of pulse crops for Food and Nutritional Security due to their unique composition of their high protein, minerals, amino-acids, vitamins, bio-active compound and carbohydrates. He also emphasized inclusion of pulse crops in crop rotation due to their nitrogen fixing ability. He suggested that pulse crops are important component of agro-ecosystem to provide food and feed.

Prof. S. Ahmet Bağci from Turkey presented his keynote paper on Environmental Effect on Yield and Quality Parameters in Bread Wheat (Triticumaestivum L.) Cultivars at Various Growth Phase under Rain fed Conditions. During his lecture he showed strong relationship between environment and grain yield potential of different wheat varieties. He suggested that the proper environment can be created by optimizing fertilizer, irrigation, site selection for wheat production, which would differ from variety to variety in wheat. Also the environment has influence on end use quality of wheat.

Prof. R. K. Behl presented a paper of **Dr. Pooja Malik** on Molecular analysis of Yr genes in wheat (Triticumaestivum L. Em.Thell). **Prof. R.K. Behl** elaborated that yellow rust in wheat is a serious disease of wheat in cool and humid ecology which resulting into 15 to 20 percent yield losses. He further demonstrated that DNA marker analysis can be used to identify yellow rust genes for breeding rust resistance variety.

Mr. Adjei Seth from Ghana presented a paper on Tissue Manipulation for Mass Production of Plantain Seedlings. He demonstrated that disease free banana seedling can be produced from tissue culture using meristems from banana suckers. He suggested that this low cost technology can be used for seedling multiplication in developing countries.

Dr. Tina D. Beuchelt from Germany presented online her keynote paper on Addressing Food Security and Social Human Rights Through Sustainability Standards: Lessons Learned from Asia, Africa and Latin-America. She highlighted relationship between food security and sustainable development in developing countries in Africa and Asia. She suggested that policy framework should be created by each government to produce and distribute adequate food at affordable prices to meet the nutritional requirement of the people. She also highlighted the importance of international collaboration.

Dr. Rajesh Arya from India presented a paper on Screening of Aloe (*Aloe barbadensis*) promising genotype for leaf yield and gel. He suggested that this plant of arid ecology can be grown on low fertility, desertic and saline soil being low water requiring. Aloe Vera has immense medicinal properties and can be consumed in various forms like vegetable, jelly and juice. It prevents cardiovascular, lever, kidney diseases and cancer.

Dr. Pravin Kumar Sharma from India presented a paper on Identification and maintenance of male sterility in onion. He showed the technology for development and isolation of male sterile and maintainer lines by morphological and macroscopic examination. He further demonstrated hybrid seed production technology onion to enhance its production, productivity and quality.

Prof. Arthur Riedacker, Co-Noble prize winner IPCC-2007, Dir. Res. INRA, France presented a keynote paper on Policies in Land Use to Achieve Carbon Neutrality By 2050: Why IPCC Summaries for Policy Maker and the Paris Agreement on Climate Change should now be completed. He presented the detailed account of inter-governmental negotiations to reduce green-house gas emissions. He made particular reference to Kyoto protocol, IPCC meeting in Denmark. France and Morocco. He also established relationship between fertilizer used and gas emission and suggested that fertilizer be formulated to increase its use efficiency and reduce gas emissions.

Dr. Reena Saini from India presented a paper on PinusRoxburghiiCconstituents Immuno-Enhacing Potential and Anti-Tumor Effects of Bio-Fabricated Silver Nanoparticles. She demonstrated that PinusRoxburghii has high antioxidant activity due to its redox potential to

minimize the risk of cancer. She explained that nano particle formulation of this plant extract are more useful.

Dr. Elhadi Morzog from Germany presented a paper on Efficacy of Endophytic (MetarhiziumBrunneum) Strain 6c1 in the Control of Old-World Bollworm (HelicoverpaArmigera) in Okra. He presented that endophytic strain of this entomopathogenic fungi can be used against Bollworm in Okra, and therefore use of chemicals can be avoided.

Dr. Manpreet from India presented a paper on Analysis of uranium concentration in the groundwater of Punjab. She explained the sources of Uranium in underground water, its detection and removal from underground water. She also explained the safe limit of Uranium in underground water and its distribution in different state in India.

Mr. Sahil Mittan from India presented a paper on Response of different varieties green gram (Vignaradiata L.) to different sources of manures and fertilizers. He presented his results on performance of four Mung bean varieties under nutrients supply from fertilizer and organic manures. He found that MH421 variety of mung bean gave best yield under nutrient supply from fertilizer plus vermi compost.

Dr. Ishwar Singh from India presented a paper on Climate-Smart Agriculture: An Option for Increasing Crop Productivity and Mitigation of Greenhouse Gas in a Rice-Wheat System-A Case Study from India. He presented results of his field experiments on Rice and wheat crops under semiarid subtropical condition of India. He demonstrated the relationship between use of fertilizer, manures, irrigation and green-house gas emission. He estimated climate change potential of such green-house gases and suggested that agronomic practices in rice and wheat production systems should be optimized for low gas emission, higher production and better environmental sustainability to mitigate climate change.

Dr. H.K. Porika from India presented a paper on Studies on Graft Compatibility of Red Globe on Different Dogridge Rootstocks. He showed that scion and root stock graft compatibility is deterministic factor for production of healthy seedlings for multiplication of red globe therefore selection of root stock should be done carefully with the help of proper morphological and microscopic examination for annealing of scion to stock.

Dr. Elhady A. M. Omer from Sudan presented a paper on An Evaluation of Alternative Cooperative Breeding Program Designs for Smallholder Dairy Cattle Farmers. He showed that appropriate breed selection and feed content and quantity have strong effects on milk yield, lactation period. The animal husbandry management therefore should be in practice increase milk and meat production.

Er. G.S. Bahl and **SimranSaluja** present a paper on women empowerment in India. They suggested that women should be given more freedom and opportunity in education, skills developments, employment and political frame work to empower them to live with dignity.

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On the 16th September **Prof. Achim Ibenthal** from Germany presented a paper on Sustainability Impact Evaluation of Artificial Intelligence Research. He demonstrated that bio-sensor based Artificial Intelligence can be successfully used in the detection of disease like Malaria, Cancer, Tuberculosis etc with greater assurance. However narrow escapes may jeopardize the results leading to unsustainability. Hence AI should be validated by other test procedure.

Prof. P.B.S Bhadoria from India presented a paper on Technological Interventions for Sustainable Development :A Case Study. He presented case study of 16 farmer who adopted improved technologies for rice production and processing. These farmers earned more money from agriculture and allied enterprises than other farmers in the same village. He suggested that innovative technologies should be developed to double the income of farmer.

Dr. Kahsai Wolde-Giorgis from Germany presented a paper on Understanding the Nile Issue Under Historical, Economical and Climate Change Impact Perspectives. He demonstrated how the international treaties influenced the Nile water distribution among Egypt, Sudan, Ethiopia and other countries in the region. Nile is the base and life line of agriculture, power generation and trade in these countries. Therefore a clear cut understanding among these nations and political will to share Nile water is important for sustainable developments.

Er. Dawit Bereket-Ab from Ethiopia/Germany presented a paper on Water Management, Response to Climate Change (Drought/Flooding). He presented strategies for water management for domestic, agriculture, industrial and municipality applications. He also suggested appropriate technology for water management in relation to health.

Mr. Dev Behalfrom India presented a paper on the Role of Drone Technology in Smart Agriculture. He explained different kinds of drone and their application in agriculture including precision farming, fertilizer application, stress management and grain yield assessment in large areas.

Prof. Dr. V. S. Pahil from India presented a paper on Mushroom for nutrition and livelihood. He elaborated the role of mushroom in human nutrition, types of mushroom, their food and medicinal values, technology for their production and their further improvement through breeding. He also emphasized on ecological fitness of different types of mushroom and their values in international trade as nutrition rich commodities.

Dr. Zohreh Azizabadi from Iran presented a paper on double emotion work Women's experience in forced marriage. She explained reasons and consequences of forced marriages of girls child in Iran. She stressed that girls should go for higher education and employment to be economically and emotionally independent.

Dr. Bakhtiar Rahmani from Afghanistan presented a paper on The Impact of Remittances on Poverty - Empirical Evidence from Afghanistan. He suggested that remittances from foreign countries by Afghani diaspora is important for food, feed, fibers, fuels and sustainable development in Afghanistan.

Prof. R. K. Behl presented a paper on the Response of wheat varieties to Hairamine obtained from waste human hair. He presented the technology of hairamine production from human hair as hydrolyzate. This is potential bio-stimulant and rich source of organic carbon and nitrogen, which can enhance crop production. He presented interesting results on the response of winter cereal varieties to hairamines for increases in grain yield and its attributes. Dr. Anwar from Sudan presented a paper on resource mapping and forest conservation in Africa using remote sensing techniques like GIS and GPS. She suggested that use of such technologies are important for in-situ conservation of forest species for environmental sustainability.

Dr. Noubactep Chicgoua from Germany/Cameroon presented a lead paper on Rain water harvesting. It presented a case history of rain water harvesting and watershed management in

Africa. He exhibited various designs, structures and application of rain water harvesting in agriculture and domestic uses.

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In plenary session **Prof. R.K. Behl** summarized recommendation of the conference which are as follows:

The Ukrainian war has influenced negatively the food and energy flow which needs to be balanced by International cooperation and free trades without sanctions. The world population is expected to be about 10 billion people by 2050. Currently around 1 billion people suffer from hunger and 2 billion children are malnourished due to deficiency of minerals and vitamins. Therefore, Thus, genetic options and management approaches like development and use of agro & biotechnologies, resource management for increased input use efficiency, digital crop management, logistics artificial intelligence, food processing, value addition, nutrition and agriculture, environment and health sustainability could meet the challenge. Science and technology should be developed to harness synergy between food, agriculture, environment and health sustainability. Agriculture practices should restrict emissions to mitigate climate change problems.

Food processing should be emphasized to make use of food and feed resources and to avoid colossal food wastage. Water management for potable and irrigation water should be observed for removing heavy metals to different physico-chemical and microbial methods. Rain water harvesting and watershed management should be intensified in water deficit arid areas were canal irrigation is not feasible to support agriculture. It was strongly recommended that science and technology being developed, agricultural practices being adopted and environment and health practices being observed should be juxtaposed on socio-economic and cultural interests of the people so that technology can be easily transferred to the interested groups and be adopted.

This possible impact of the present conference on Afro-Asian countries include embarking on developing inter linkages between four major elements of life support systems. For food security production of crops and livestock, fishery and poultry should be continuously enhanced to meet the requirement of growing population. The production practices should be less energy consuming resulting into lower emissions for environmental sustainability and food safety should be valued in sustaining the eco-systems. The worldwide huge quantities of food is wasted and the same could be saved by food processing which in Afro-Asian countries despite serious efforts is still far below. Food production should be diversified and emphasis should be given to unconventional food crops, horticultural and vegetable crops for nutritional security. Though, Many Afro-Asian countries like India have achieved food security in terms of production of food grains but its access is a big question. Therefore, food flows should be optimized by appropriate policy framework. The quality of underground water, water streams like rivers, ponds, village water reservoirs, sewage sludge should be improved before using such resources to thwart the risk of their entry into the food chain. The transfer of technology should be speeded up for transformation of rural folks for sustainable development and socio-economic upliftment.

He also elaborated the future activity of IFSDAA, AASF including innovative idea competition, international webinars, international conferences and international modular teaching. He briefed the already submitted projects on solar drier, fly ash bricks, electrolyzed water, hybrid

seed production in onion and cow pea milk from India more such projects are expected from African countries and decisions about fund raising will be made in future. The next IFSDAA conference will be organized in Turkey 2023 in association with Bisab Turkey.

Dr. Kahsai Wolde-Giorgis
Convener, 12th IFSDAA-AASF Int. Conference
1. Vorsitzender, AASF

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