



Generating Global  
Environmental Benefits - GEB

# ENVIRONMENTAL INFORMATION & MANAGEMENT: THE CASE OF PUNJAB, PAKISTAN

28<sup>TH</sup> NOVEMBER 2019  
FAISALABAD

Report of a "Lecture" organized by  
Generating Global Environmental  
Benefits (GEB) in collaboration with  
University of Agriculture, Faisalabad

*GEB - A Joint Initiative of United Nations Development Programme (UNDP)  
& Ministry of Climate Change (MoCC)*





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## Executive Summary:

In the era of devastating impacts of Climate Change, Management of the Environmental Data as well its usage for policy making is extremely important. With this regard, Generating Global Environmental Benefits (GEB), Ministry of Climate Change funded by United Nations Development Program (UNDP) is striving to develop the Environment Information and Management system (EIMS) and is organizing the different programs at national and provincial levels (Punjab and KP). Meanwhile, the involvement of all stakeholders from different government organizations and academia, industries and public organizations in this project make it more potent and constructive. The University of Agriculture Faisalabad (UAF), as an academic institute is prominent due to its proficient work for the enhancement of agriculture and prosperity of the farmers of Pakistan. Ministry of Climate Change (MoCC) with the kind funding from UNDP under GEB organized the lecture on November, 28 2019, at University of Agriculture Faisalabad titled “**Environmental Information & Management – The Case of Punjab, Pakistan**”. The Program fulfilled its key objectives; Environment Information and Management System, Conservation of Biodiversity and Constraint the Land Degradation and was well appreciated by stakeholders.

## Background:

Generating Global Environmental Benefits (GEB) project, funded by the UNDP/GEF, is being implemented by the Ministry of Climate Change that aims to remove barriers to environmental information management and mainstreams global environment concerns into the economic decision- making in Pakistan. The objective of the GEB project is two-fold in its focus; one related to environmental information, and the other to employ this information for improved decision-making. Moreover, the said project has three inter-related outcomes: regular availability of consistent and reliable environmental data; a coordinated and robust environmental information management system; and enhanced commitment and capacity for sustainable development planning and legislation.

One day lecture on “Environmental Information & Management-The Case of Punjab, Pakistan” organized by GEB (Generating Global Environmental Benefits), Ministry of Climate Change (MoCC) and United Nations Development Programme (UNDP) Islamabad, was held



on November, 28 2019 in new senate hall, University of Agriculture Faisalabad (UAF). The Ceremony was hosted by vigorous and efficient speaker Miss Rikza Anwar ul Haq Awan. The prestigious name of Allah Almighty was recited by Mr. Syed Ali khazmi and praise of Islamic Prophet Muhammad (PBUH) was called Miss Fareeha Athar. After that Miss Rikza requested Dr. Muhammad Sajjad Khan Dean Faculty Animal Husbandry for welcome address.

### Welcome Remarks:

The welcome remarks in the ceremony were given by Dr. Muhammad Sajjad Khan, Dean Faculty Animal Husbandry. He drew the vision of the University of Agriculture Faisalabad (UAF) that the institute provides the diverse field of sciences and further he committed that through favorable and better policies of the



project of UNDP, the community will bring good name within a couple of years. He paid special thanks to all the participants and GEB team in local Punjabi language. After the welcome Address, Miss. Rikza requested Dr. Saleem Janjua, Country Coordinator, of GEB project for the opening remarks and more detailed orientation of the GEB project.



## Opening Remarks

Dr. Saleem Janjua, Country Coordinator GEB welcomed all participants to the lecture and heartily thanked all especially Professor Muhammad Dr. Ashraf, Vice-Chancellor, University of Agriculture, Faisalabad and faculty of UAF for the facilitation with the venue and all the arrangements. He explained the purpose of this lecture by briefing the



importance of environmental information and management, as well as barriers and challenges that government departments, private and public sectors are facing in the country. He said that environmental data and information is being produced from the different department but the main issue is that, the information is patchy and it is not reliable and consistent. This makes it difficult for the authorities to make decisions because they are unable to have evidence-based information. It is imperative to discuss basic issues and challenges regarding environmental information and certain themes in a simple way. Dr. Saleem Janjua, also stated that GEB is the “cross-cutting” project and it work for the improvement of the environment under three dimensions.

- Land degradation
- Biodiversity
- Climate change

Dr. Saleem Janjua catalogued the key institutions for Environmental Information and Management System (EIMS). He also highlighted that there is a dire need of awareness for all these scenarios in Punjab province. The institutional mapping of different departments/stakeholders are important.

Accurate, timely and reliable environmental data are the prerequisites for the decision making or the climatic processes at both individual and



organization levels. Moreover, he comprehensively shared intended outcomes of GEB project with the audience in three main points.

- Robust EIMS system
- Awareness and capacity building
- Identify the role of universities in building relationships.

Dr. Saleem Janjua also encouraged and promoted the students for their active participation in the EIMS lecture. Further, he raised the importance of the event and emphasized that under limited funding restrictions and timeline indicators, we are actively arranging such kind of informative lecture/seminars and also facilitated the new learners with the beneficent internship offers.

At the end, Dr. Saleem Janjua, Country Coordinator of GEB encouraged collaborations with all the stakeholders, policymakers, all teachers and students. He thanked and welcomed to all the participants for participating in the lecture. After the opening remarks, Miss. Rikza requested Professor Muhammad Dr. Ashraf, Vice-Chancellor, University of Agriculture, Faisalabad and faculty of UAF for Remarks.



### **Vice Chancellor Remarks:**

Professor Muhammad Dr. Ashraf, Vice-Chancellor, University of Agriculture, Faisalabad thanked Dr. Saleem Janjua, Country Coordinator of GEB for organizing this lecture in University of Agriculture, Faisalabad (UAF) and appreciated the efforts of Mr. Hassan Nasir Jamy, Federal Secretary, Ministry of Climate Change (MoCC), and UNDP at national and provincial level for taking steps towards better environmental data management.



He recalled his memories as a member of biodiversity. Professor Muhammad Dr. Ashraf mentioned the collaborations for the mega issues of climate change particularly Clean and Green Pakistan and endorsed

the statement of Dr. Saleem Janjua that we have not appropriated climate data and this is the major enigma. We have a systematic data of plantation for our university, as UAF has planted 7500 trees of different species, with proper layout. He declared his aim that every student has to plant one tree.

Further, Professor Muhammad Dr. Ashraf, the Vice-Chancellor, UAF shared the interesting question by South Korean ambassador when he was the administrator of Pakistan Science Foundation. The Korean ambassador asked “We have the miracle Han River which raised our Gross Domestic Product (GDP) up to 36 thousand US dollars per capita while Pakistan has Indus River, but the Gross Domestic Product



(GDP) was just 14 hundred US dollars per capita, even though we got the independence just with the difference of two years. So, why such a big contrast exists? This was the serious question and Dr. Ashraf answered that the prime factor was the impact of climate change on our country. Sometimes hailstorms, very high temperatures, high humidity and random rainfalls, all these factors are hampering our agriculture a lot. He considered the initiative of this program is very significant. He admired the efforts of all leaders, for launching the most viral and constructive program. In the end, he paid tribute to National Project Director and Country Coordinator of UNDP-GEB Project.

### **Presentation on EIMS- Setting the Baseline & Global Examples:**

Mr. Lutfullah Khalid, Assistant Project Officer, GEB, UNDP presented a lecture on Environmental Information & Management – The Case of Punjab, Pakistan”. He provided the description of EIMS by setting a baseline and gave global examples. Actual EIMS comprised of all the descriptive information, mega datasets, data information and datasets. In general, EIMS assisted the government for benchmarking efforts. He glanced back towards the Agenda 21 as the plan of action to achieve sustainable development that was adopted by the world leaders at the United Nations Conference on Environment and





Development held in Rio de Janeiro, Brazil, in June 1992. He mentioned two significant points of EIMS

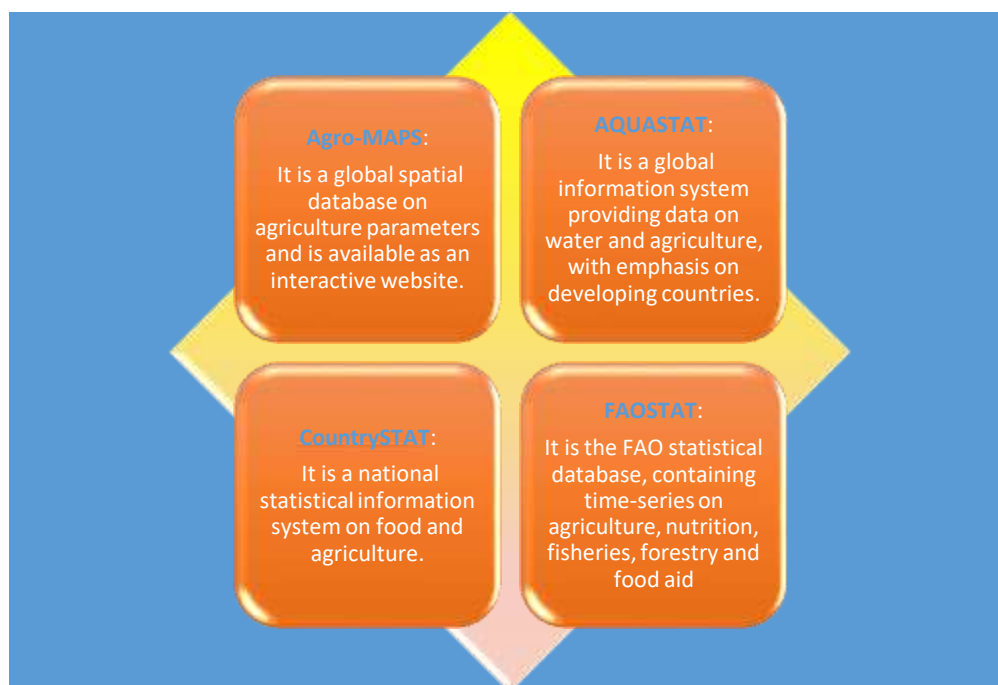
- Bridging the data gap
- Improving information availability

APO of the project presented the classic applications of Environmental Databases and highlighted how the data gathered is being used to analyze present trends for future predictions and acts as a pre-requisite for the 'State of Environment Reports'. He further emphasized that databases can be compiled by the policymakers in providing reliable information.

Mr. Lutfullah Khalid also threw light on the development of Environmental Databases and Information Systems around the World. He gave few examples, such as, The United Nations Environment Programme (UNEP), Ministry of Environment and Forests and Centre for Environmental and Geographic Information Services (CEGIS) in Bangladesh, State Level Basic Environmental Information Database (ISBEID) and the Environmental Information System (ENVIS) in India, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the last, The Food and Agriculture Organization (FAO) was specialized agency of the United Nations that lead international efforts to defeat hunger.



In his explanation for FAO he described the networking for EIMS consisting of Agro-MAPS which worked on the global spatial database on agriculture parameters and is available as an interactive website.



AQUASTAT designed for global information system providing data on water and agriculture, with emphasis on developing countries.

Country STAT: provided a national statistical information system on food and agriculture.

FAOSTAT: FAO statistical database, containing time-series on agriculture, nutrition, fisheries, forestry and food aid available through it. By stretching his addressed he described Generating Environmental Data in Pakistan comprised of major sectors Academia, Public Organizations (Agriculture, Forestry, Irrigations, EPA) and Industries, (SUPARCO, PCRWR, PCSIR ).

Mr. Lutfullah Khalid concluded that the data/information in a standard format should be the priority for environmental issues. GEB is designed to meet the objectives of Nations Conservation Strategy that provided consistent, reliable, comprehensive and robust EIMS data. So that Global information system can be incorporated in economic decision making and developmental policies. With the concluding remarks, he recommended the need to establish EIMS for Pakistan, with standard format of environmental data which would be the priority for environmental issues. After this Miss. Rikza invited Mr. Syed Amjad Hussain, Group Head, to deliver his lecture on Need for Global Financing to Support EIMS.

## Presentation on Need for Global Financing to Support EIMS:

Mr. Syed Amjad Hussain, Group Head, Centre for Rural Economy, Poverty Alleviation and Social Safety Division, depicted Climate Change as a threat, as the temperature has been raised by 0.6-degree centigrade since 1900-2000. He claimed that projected temperature will rise from 2 to 4-degree centigrade in the 21<sup>st</sup> Century and Pakistan ranks number one amongst the ten most vulnerable countries due to climate change.



Mr. Syed Amjad Hussain defined the potential Climate Change impacts on Agriculture, health, forests, coastal areas, species and natural areas. The speaker also claimed that;

- Climate Change issues in Pakistan projected recession of glaciers in GB threatening water inflows into Indus River System (IRS) due to Climate Change
- Due to Climate Change frequent flood outburst from melting of glacier lakes were happening in GB and in Chitral

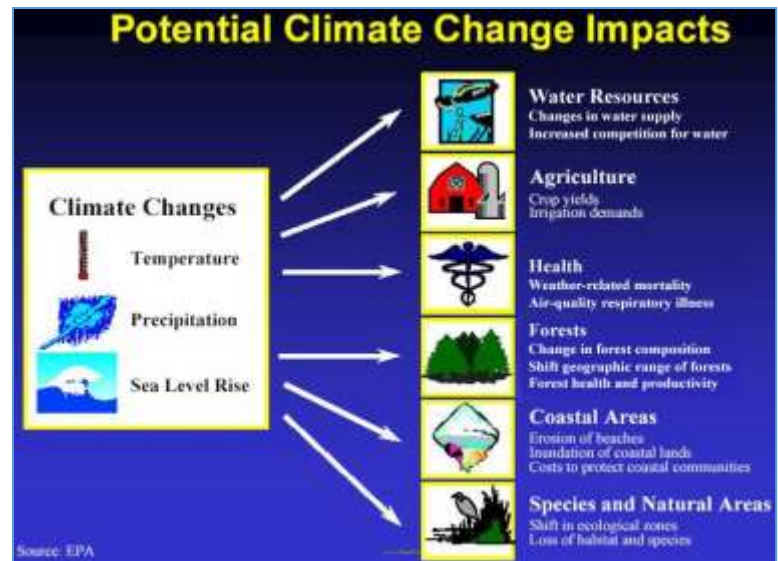
The following threats may lead Pakistan to major concerns:

- Water Security
- Food Security
- Energy Security

He supplemented with, how to respond to Climate Change: through Adapting to the changes and through Mitigation measures. Adaptation strategies suggested by him were: (1) promoting integrated watershed management practices in uphill watersheds areas in Pakistan, (2) increase ecological resilience of forest ecosystems in Pakistan, (3) development of new varieties of crops with high yielding capacity, (4) resistant to Climate Change and less vulnerable to insects and pests. He also suggested developing and introducing better breeds of livestock which have higher productivity and are less prone to the unavoidable impacts of climate change in Pakistan and improving awareness of issues related to the adaptation of climate change-induced disasters through public participation in Pakistan. Moreover, he also recommended the need for

monitoring and early warning systems for the identification and protection of local communities from GLOF's related Disasters in Pakistan.

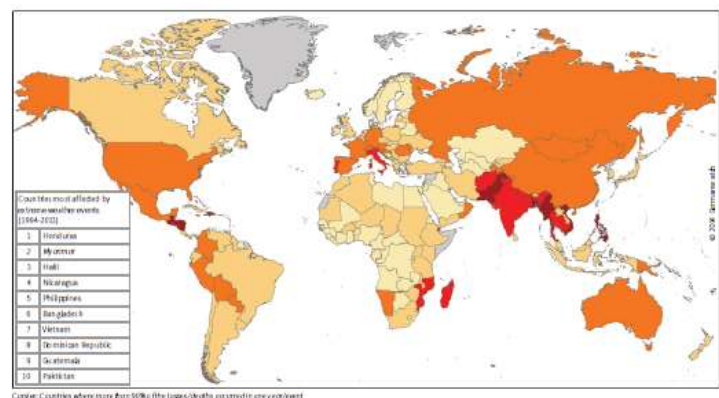
Syed Amjad Hussain focused on Global financing needs and described Types of CDM Projects eligible for CERs, any project resulting in GHG mitigation or carbon sequestration worked for Energy, Waste Management, Transportation, Mass Transit systems/BRT, Railways, Cleaner engines, Industrial processes, Land Use, Land Use Change and Forestry, Agricultural and livestock practices.



### Mitigation

- Reduced emissions from Energy access and power generation
- Buildings, cities, industries and appliances
- Forestry and land use

He also suggested Cross-cutting scheme for both Adaptation and Mitigation related activities including capacity building and other enabling environments that support Climate Change Adaptation.



Furthermore, He highlighted key barriers to Environmental and Climate Change Projects: Financial barriers, Technological barriers, Institutional barriers, Information and behavioral barriers, Regulatory and political framework etc. For the stabilization of funding, Mr. Hussain narrated sources for Global Financing to Support EIMS Projects, A number of funding sources were available to support EIMS Projects at various stages of development. Few examples are given below:

- Germany (ICI)

- UK (ICF)
- European Union and the European Commission (GEEREF, LAIF, AIF)
- France (AFD, FFEM)
- Multilateral Development Institutions (ADB and WB Group)
- Global Environment Facility etc.

Mr. Amjad provided knowledge related to Multilateral Development Institutions (ADB and WB) to the audience which was comprised of all concerned stakeholders and learners from different fields. He provided examples of Multilateral Development in different Countries: – Bangladesh, Cambodia, Kyrgyz Republic, Lao PDR, Maldives, Mongolia, Nepal, Pakistan, Sri Lanka and Vietnam worked with the following aims and objectives:

- Developing tools for transport NAMAs
- Improving data quality in these countries
- Transfer learning regionally

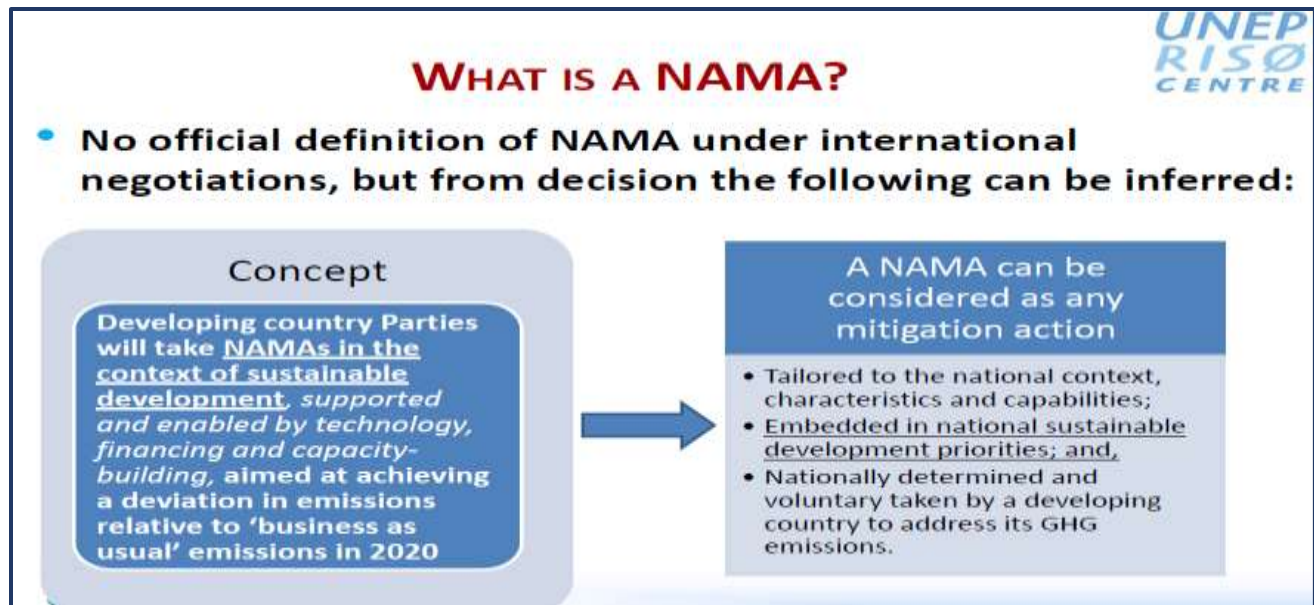
He sketched the mechanism of WB funding, he said that WB Triggers and facilitates first steps by providing loans and concessional funding to prepare and develop NAMAs together with host country help eliminate barriers (technical, regulatory, financial) and risk-return equation, facilitates the access and implementation of climate funds. There is number of International Findings available for Climate



Change/EMIS Project development and implementation for developing countries. Combining and sequencing of multiple sources of finance are possible to catalyze capital to support EMIS Project development and implementation. There is a need for Capacity Building and Awareness Raising sessions and training on CDM, NAMA and GCF in Public and Private Sector through international developing partners like UNDP etc.

There is need of CDM, NAMA and GCF Project assessment and project development for CDM, NAMA and GCF Potential sectors on priority basis in the country to tap international Findings from Green Climate Fund through Accreditation Entity in the country.





Ideally, there should be web (EMIS) portal hosting a multitude of data basis from participating organizations on Environment and Climate Change which help to address climate change and environmental issues inappropriate ways.

After a brief presentation of Mr. Syed Amjad Hussain, Ms. Rikza invited Prof. Dr. Ashfaq Ahmad Focal Person, Center for Advanced Studies (CAS) in Agriculture and Food Security at University of Agriculture, Faisalabad and Head of Climate Change Research Group to deliver the lecture on Role of Academia for Strengthening EIMS in Punjab.

### **Presentation on Role of Academia for Strengthening EIMS in Punjab:**

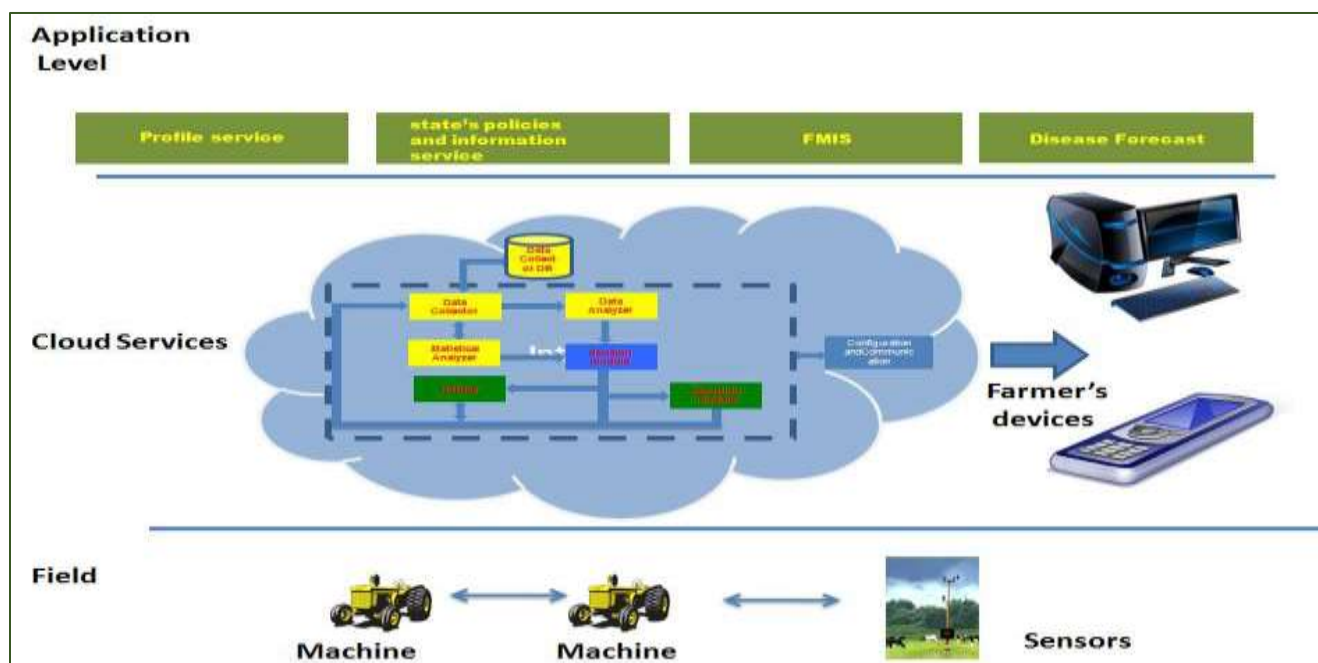
Prof. Dr. Ashfaq Ahmad Focal Person, Center for Advanced Studies (CAS) in Agriculture and Food Security at University of Agriculture, Faisalabad and Head of Climate Change Research Group, presented a brief presentation and gave roadmap of EIMS in future agriculture, Precision agriculture: Be smart Crop Modelling, Remote sensing, Internet of Things (IoT), Robotics, Information & Communication Technology (ICT). Why Smart



Maximize Profits, Less Overlap, Reduce Inputs, Reduce the cost of production, Increase Yields, Reduce Stress, Protect Environment. Crop Simulation Model significance is given by Sir as Research tools, Crop system management tools and Policy analysis tools.

He defined Remote sensing: The processes of collecting information about Earth surfaces and phenomena using sensors, not in physical contact with the surfaces and phenomena of interest and shared Applications of Remote Sensing as emerging scope in Agriculture, crop acreage estimation, integration with crop modelling for yield & production forecast/estimation, crop & orchard monitoring and with the end of topic remote sensing he pointed the benefits as timely availability of crop statistics for decision making & planning, giving Crop growth and soil status monitoring and the last but not least Regular reports regarding total area under cultivation.

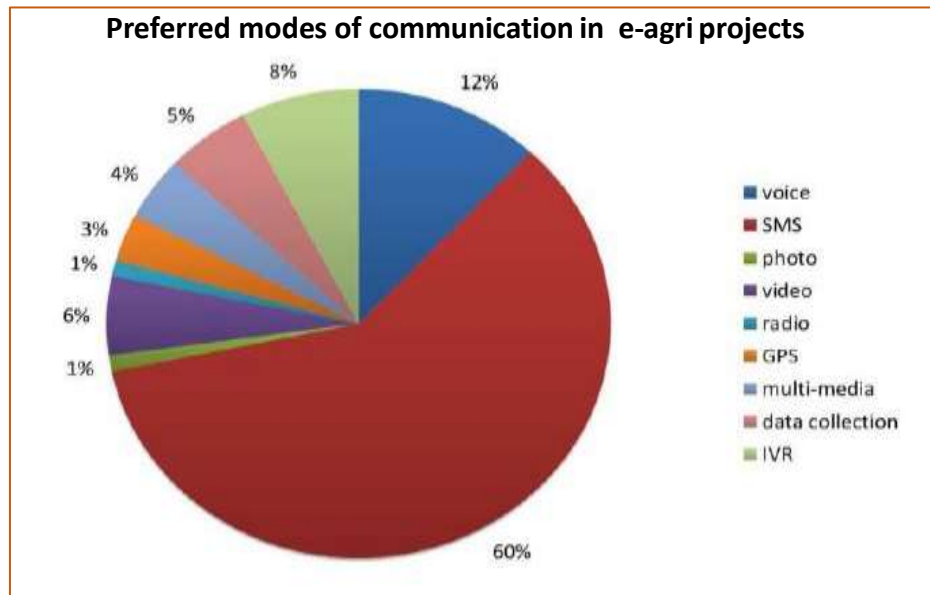
Dr. Ashfaq also outlined the Controlled Traffic Farming, Network Standardization and Traffic planning, included ploughing, spraying, weeding etc.



He demonstrated the Sensor field operations for Rate Determination (NDVI Value, Growing Degree Days, and Potential Yield) and Variable rate technology and their advantages in agriculture.

- Remote Sensing in agriculture statistics: Landcover monitoring

- Area Frame construction
- Support field data collection
- Crop monitoring and yields forecasting



He gave the definition of Robotics: An agricultural robot is a robot deployed for agricultural purposes and emerging applications of robots in agriculture included: Weed control, planting seeds, harvesting, environmental monitoring and soil analysis.

He evolved innovative work for climate change assessment, Internet of things, IoT is a system that built for monitoring the crop field with the help of sensors (light, humidity, temperature, soil moisture, crop health, etc.) and automating the irrigation system. The farmers can monitor the field conditions from anywhere Information & Communication Technology (ICT), to communicate desired information to the targeted audience in a participative way.



He comprehensively stated the position of UAF in this particular topic, the institute developed fertilizers prediction model (web-based) had been developed for Wheat, Rice, Maize, Sugarcane, Cotton and Sunflower.

He sketched Major Derivations as NDVI, Thermal Canopy Segmentation etc.

These derivations assist in the estimation of Crop-health, Water-stress, Nutrient-stress, Crop-diseases, Crop cover estimation, Crop yield estimation.

With this, he ended the lecture session and thanked all the participants for attending this important topic with concentration, great interest and patience, and requested Dr. Saleem Janjua to head the interactive session with the participants.

### Interactive Session:

Dr. Saleem Janjua, Prof. Dr. Asfaq Ahmad, and Dr. Khalid Mushtaq started the interactive session. Dr.

Saleem Janjua said that this is the opportunity to discuss the gaps, bottle-necks and identify the variables and finalize the indicators with the help of departments, organizations and academia. He mentioned that every department is bound to play a prime role in the data generation, the SOP's about data



generation, and explaining what level of data is shared with the concerned department and how central data system will form. With this, we need to develop such a mechanism that all departments should contribute their evidence-based reliable data to the national level centralized data system.

A Mphil scholar from the Department of Plant pathology, UAF Ms. Fatima Yaseen, asked from the presentation of Mr. Lutfullah Khalid, she showed her concerned about water contamination with animal wastes. Further, she raised the point that policies pressurized the authorities to





provide essential data. She asked the question of why the authentic person did not cooperate with the consumers of data? Why the students have no any access to the environmental data?

Dr. Saleem Janjua replied that policymakers actually have not reliable data from climate change authorities or institutes. Connection gap between policymakers and institutional stakeholders is also persistent. The last and the most prominent problem is the trust deficiency among the authorities and consumers of environmental data.

Possible solution: generate data and will be distributed to concerned authorities like by developed countries do. Another question raised by Dr. Mariam from Government College University, Faisalabad that how other Universities cooperated in EIMS? How we can venture to Climate Change artificial agency?

Dr. Ashfaq answered by giving a view of Agricultural Model Intercomparison and Improvement Project (AgMIP), economic programs were always standing with the great demand of IT specialist in their teams. He appreciated her participation in their running programs.

Another Student Mr. Motela, from South African, said he felt delighted became the part of this very informative seminar and then he asked the question what can enhance our food quality so that we had developed better trade ability?

Dr. Ashfaq replied that by keeping good agricultural practices, by regulating chemicals used, by residual management and by controlling all hassles in a particular program, we can achieve our aim.

Another participant Mr. Zahid Mahmood Assistant Director Bureau of Statistics Punjab was contributed by showing his will in providing the climate data to all authorities.





Another student Kamran form IT raised a question that how we could be the part of such wonderful projects. Dr Ashfaq motivated him and committed to giving all the possible opportunities to students in their running projects and also suggested him to keep in connection with a respective supervisor so that he may help his all students who were interested in climate change.



Finally, he thanked all the participants for the participation and appreciated GEB Project team for their immense efforts to make the lecture successful. After the interactive session, Ms Rikza requested Dr. Khalid Mushtaq to delivers the Vote of Thanks at the end of the program.

### **Vote of Thanks:**

At the end of the program Dr. Khalid Mushtaq, Director, Institute of Business Management Science, UAF, thanked all the participants for the participation and appreciated GEB Project team for their immense efforts to make the lecture successful.



With the closing remarks of the lecture, Dr. Khalid Mushtaq paid thanks to all active and focal persons of the event with the words that he will be expecting and awaiting for future collaborations on EIMS, with UNDP and GEB.

Dr. Khalid also thanked the support staff members of UAF and GEB, who worked very hard for arranging this event and successful. After the vote of thanks from Dr. Khalid Mushtaq, Ms. Rikza the Master of Ceremony thanked all the participants for sparing their



time to attend the lecture and requested to the all participants for a group photo and refreshment.

### Souvenir Distribution:

Dr. Saleem Janjua, Country Coordinator, GEB Project presented souvenir to the guest of honor Professor Muhammad Dr. Ashraf, Vice Chancellor UAF. Dr. Saleem Janjua also presented souvenirs to Prof. Dr. Ashfaq Ahmad Focal Person, Center for Advanced Studies (CAS) in Agriculture and Food Security at University of Agriculture, Faisalabad. Head of Climate Change Research Group, UAF presented a souvenir to Dr. Saleem Janjua, Country Coordinator of GEB, and MoCC as amemory of ceremony.

Moreover Dr. Saleem Janjua, Country Coordinator, GEB distributed souvenirs among the esteemed guests. These included Prof. Dr. Ashfaq Ahmad Focal Person, Center for Advanced Studies (CAS) in Agriculture and Food Security at University of Agriculture, Faisalabad and Head of Climate Change Research Group, UAF, Dr. Muhammad Sajjad Khan, Dean, Faculty of Animal Husbandry UAF, Dr. Khalid Mushtaq, Director, Institute of Business Management Sciences UAF, and Syed Amjad Hussain, Group Head, Centre for Rural Economy Poverty Alleviation and Social Safety Division Islamabad.



## Press Release:

The following are the links of the various National newspapers both Urdu and English:

<https://businessreport.pk/2019-12-01/5>



## The Daily Pakistan Lahore





## Daily Nai Baat



## Business newspaper

## Gallery:









## Group Photo



# GEB MANAGEMENT

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