

VISIT-REPORT OF DELEGATION FROM SHIHEZI UNIVERSITY CHINA TO MNS-UNIVERSITY OF AGRICULTURE, MULTAN, PAKISTAN

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VISIT OF DELEGATION FROM SHIHEZI UNIVERSITY CHINA TO MNS-UNIVERSITY OF AGRICULTURE, MULTAN, PAKISTAN

A delegation from the College of Agriculture, Shihezi University, Xinjiang, China visited MNS-University of Agriculture Multan (MNSUAM) from December 16 to 18, 2019 with coordination of Engr. Dr. Tariq Rana, Director, Murray-Darling Basin Authority, Australia. The delegation comprised four scientists; Dr. Fenghua Zhang (Professor/Dean), Dr. Jiaping Wang (Professor), Dr. Haichang Yang (Assistant Professor) and Engr. Dr. Tariq Rana. The purpose of the visit was to seek opportunities for joint options of collaboration.

The day-wise activity report of the visit are as follows:

➤ **December 16, 2019 (Day 1):**

The guests arrived on December 16, 2019. The worthy Vice Chancellor welcomed the distinguished guests and acknowledged the efforts of Dr. Tariq Rana for arranging this visit. Dr. Tariq introduced the guests to the MNSUAM team. The Vice-Chancellor introduced his team and gave a brief introduction of MNSUAM. The participants discussed the potential areas for collaboration and research. Dr. Zhang asked questions about the soil health, water productivity and cropping practices being used in Pakistan for crop production. After discussion Dr. Tariq said that MNSUAM and Shihezi University may collaborate in the following areas:

- i. water use efficiency
- ii. climate change
- iii. eco-hydrology
- iv. crop varieties
- v. soil and water environment
- vi. integrated pest management

➤ **December 17, 2019 (Day 2):**

On second day, Dr. Tariq Rana along with Chinese delegation visited MNSUAM campus. A formal meeting was held in the committee room along with the faculty members of MNSUAM. Activities of the day comprised multiple sessions.

Introduction of MNSUAM and Shihezi University, China.

The following participated in the meeting:

1. Prof. Dr. Asif Ali, Vice-Chancellor MNSUAM
2. Prof. Dr. Fenghua Zhang, Dean College of Agriculture, Shihezi University, Xinjiang, China
3. Dr. Rana Tariq Mahmood, Director, Murray-Darling Basin Authority, Australia
4. Dr. Haichang Yang, College of Agriculture, Shihezi University, Xinjiang, China
5. Dr. Jiaping Wang, College of Agriculture, Shihezi University, Xinjiang, China
6. Prof. Dr. Shafqat Saeed, Dean, Faculty of Agriculture and Environmental Sciences
7. Prof. Dr. Irfan Baig, Dean, Faculty of Social Sciences and Humanities)
8. Prof. Dr. Hammad Nadeem, Director QEC
9. Prof. Dr. Zulfiqar Ahmed, Director ORIC
10. Engr. Dr. Alamgir A. Khan, Chairman Department of Agricultural Engineering
11. Dr. Muhammad Asif Raza, Chairman Department of Veterinary Sciences
12. Dr. Zulqurnain Khan, Assistant Professor, IPB²
13. Dr. Ummrah Waheed, Assistant Professor, IPB²
14. Dr. Mahmood Ahmed, Assistant Professor, IPB²
15. Dr. Mirza A. Qayyum, Assistant Professor, Entomology
16. Engr. Asim Nisar Bajwa, DA OFWM, Multan
17. Mr. Muhammad Nasir, SFO, Agriculture Department, Multan
18. Mr. Fayyaz Ahmed Tahir, Agri-chemical, Soil Fertility
19. Dr. Khalid Abdullah, Cotton Committee
20. Engr. Dr. Sarfraz Hashim, Assistant Professor, Agricultural Engineering
21. Engr. Dr. Muhammad Abid, Assistant Professor, Agricultural Engineering
22. Engr. Dr. Muhammad Saifullah, Assistant Professor, Agricultural Engineering
23. Engr. Dr. Mohsin Nawaz, Assistant Professor, Agricultural Engineering
24. Engr. Dr. Umair Sultan, Assistant Professor, Agricultural Engineering
25. Engr. Muhammad Mohsin Khan, Lecturer, Agricultural Engineering
26. Engr. Farrukh Ehsan, Lecturer, Agricultural Engineering
27. Engr. Muhammad Kashif, Lecturer, Agricultural Engineering
28. Nabeel Ahmed, Lecturer, Agronomy
29. Engr. Muhammad Waqas, Lab Engineer, Agricultural Engineering
30. Engr. Muhammad Zohaib, Research Engineer, TDF project

The worthy Vice-Chancellor chaired the session. He introduced his faculty members to distinguished guests. Dr. Tariq Rana introduced the Chinese delegation and briefed about their field of specialization. Prof. Dr. Asif Ali introduced history of MNSUAM, phases of its development/achievements and on-going projects. Prof. Dr. Zhang and Dr. Tariq appreciated the efforts made by worthy Vice Chancellor for uplifting the university education and research as well as building leadership and entrepreneurship skills in students.

Prof. Zhang presented a brief introduction of Shihezi University, its research and achievements. She also discussed about her field of expertise and the potential areas of collaboration. She briefed about the strengths of Shihezi university in terms of international co-operation in the field of agriculture. Dr. Zhan introduced plans of Chinese government for training of faculty and young scholars, scientific research projects, international exchange and base construction. Dr. Yang and Dr. Wang also briefed about their field of expertise. After presentation, house opened for discussion and the key points of discussion were as follows:

- Director water management discussed about current water scenario and briefed about drip irrigation projects. He suggested to install a model drip irrigation system in Pakistan and also emphasized the importance of training of drip irrigation system users.
- Director Mango Research institute emphasized on mango water requirement in South Punjab.
- Dr. Tariq Rana discussed the Australian innovative technologies for determining climate change/shift as well as rainfall pattern variations, which can also be adopted in Pakistan.
- Prof. Dr. Zhang showed keen interest in collaborating in following research areas:
 - a) Water use efficiency
 - b) Crop quality innovation and genetic improvement
 - c) Agriculture information technology and smart agriculture
 - d) Oasis soil environment and ecological security. High yield of Oasis crop creation and regulation. Oasis is an area made fertile by a source of freshwater in dry and arid region. Oases are irrigated by natural springs or through underground water sources. China grows dates, cotton, olives, figs, citrus fruits, wheat, canola and maize as common oasis crops
- She described the potential areas of talent training program in which Shihezi University and MNSUAM can collaborate:

- a) Sponsored visit of Senior faculty of MNSUAM to Shihezi University for ten days will be arranged by Dr. Zhang. During the visit, faculty members will interact with their counter parts in China and identify areas of joint venture between both the universities.
 - b) Training of Young teachers. Young faculty members of MNSUAM will apply to Ministry of Commerce/Business for thirty visit of Shihezi University to develop collaborative projects
 - c) Ministry education will provide scholarship to pursue graduate studies for the students of MNSUAM.
 - d) Prof. Dr. Fenghua Zhang informed the participants that Shihezi university has seed money to fund for short term start up grant.
- Dr. Zhang discussed about water use efficiency and fertilizer inputs of different crops and briefed about how they apply inputs in China. She informed that corn yield in China is 23,400 kg ha⁻¹.
 - House discussed about the high efficiency irrigation systems and salinity control measures.
 - The worthy vice-chancellor directed faculty members to get collaboration in field of:
 - a) Drone Technology for pest management
 - b) Advance farm machinery for small and medium scale farmers
 - Meeting ended with the vote of thanks by Prof. Dr. Zulifqar Ali, Director ORIC and Dr. Irfan Baig, Dean FSS&H, and they offered thanks to Dr. Tariq for arranging this visit.



Glimpse of 1st Session

After the meeting, the guests had a round of MNSUAM Hi-Tech Laboratories. Dr. Hammad Nadeem, Chairman IPB² accompanied them and briefed about equipment and research being carried out.



Glimpse of Hi-Tech laboratories Visit

After visiting laboratories, delegation along with Dr. Tariq, Dr. Alamgir A. Khan, Dr. Hammad, Dr. Abid, Dr. Muhammad Saifullah and Engr. Mohsin Khan visited new academic block, boys' and girls' hostel, and admin block. Prof. Dr. Zhang, Dr. Wang, Dr. Yang and Dr. Tariq planted trees at admin block.





Glimpse of Tree Plantation

Team visited block-C for witnessing the advanced research being carried out in MNSUAM. Firstly, they inspected Cotton Stalk Puller Shredder (CSPS). Dr. Alamgir briefed the delegation about salient features including; a). improving soil health, b). soil water holding capacity, c). timely sowing of wheat crop and d). off-season management of pink bollworm. He said that nowadays controlling pink boll worm is becoming a real challenge and engineers can play vital role in controlling pink boll worm. Initial performance evaluation of the machine has shown encouraging results and efforts are in progress to make the machine a success. Prof. Dr. Fenghua Zhang appreciated the efforts of Dr. Alamgir and she said that this machine is a good engineering solution of this problem.



Dr. Alamgir A. Khan describing features of CSPS

Secondly, the delegates inspected Floppy Sprinkler Irrigation System (FSIS). Dr. Sarfraz Hashim briefed the working and outcomes of FSIS. He said that FSIS have several benefits over other HEIS like it has less operational cost, easy to maintain and there is no lateral on ground which means farm operations can be performed easily. Dr. Tariq took keen interest in this technology and said that this seems promising technology for overcoming water shortage problem.



Dr. Sarfraz Hashim briefing about FSIS

The delegation also visited hydroponic system. Dr. Nazar Farid, Assistant Professor, Horticulture briefed about the salient feature and production of vegetables in controlled environment.



Dr. Nazar Farid discussing soilless agriculture

At the end, the team visited the glasshouse and quarantine laboratory. Dr. Muhammad Mahmood Ahmad, Assistant Professor, IPB briefed about the significant feature of laboratory and greenhouse.



Dr. Ahmad briefing about green house and quarantine laboratory

Delegates visited allied institutes including Cotton Research Institute (CRI), and Agricultural Mechanization Research Institute (AMRI). Dr. Saghir, Director Cotton Punjab introduced activities related to varieties of cotton and their management practices. Engr. Ghulam Siddique, Director AMRI discussed objectives and achievements of his institute. He showed great interest for joint projects related to farm mechanization. These projects may be initiated by engineers of MNSUAM in collaboration with Shihezi university and engineers of AMRI will extend all possible cooperation.



Glimpse of visiting AMRI

Second session started in ORIC committee room at 2:30 pm. The agenda of this session was to finalize research areas for collaboration. Following were the participants of meeting:

1. Prof. Dr. Irfan Baig, Dean FSS&H
2. Prof. Dr. Fenghua Zhang, Dean, College of Agriculture, Shihezi University
3. Dr. Tariq Rana, Director Murray Darling Basin Authority, Australia
4. Prof Dr. Jiaping Wang, College of Agriculture, Shihezi University
5. Dr. Haichang Yang, College of Agriculture, Shihezi University
6. Prof. Dr. Zulfiqar Ali, Director ORIC
7. Prof. Dr. Hammad Nadim, Director Quality Enhancement Cell
8. Dr. Alamgir A. Khan, Chairman Department of Agricultural Engineering
9. Dr. Tanveer ul Haq, Chairman Department of Soil and Environmental Sciences
10. Dr. Abid Hussain, Assistant Professor, Soil and Environmental Sciences
11. Engr. Dr. Sarfraz Hashim, Assistant Professor, Agricultural Engineering
12. Engr. Dr. Muhammad Abid, Assistant Professor, Agricultural Engineering
13. Engr. Dr. Muhammad Saifullah, Assistant Professor, Agricultural Engineering
14. Engr. Dr. Mohsin Nawaz, Assistant Professor, Agricultural Engineering
15. Engr. Dr. Umair Sultan, Assistant Professor, Agricultural Engineering

16. Dr. Mirza Abdul Qayum, Assistant Professor,
17. Engr. Muhammad Mohsin Khan, Lecturer, Agricultural Engineering
18. Engr. Farrukh Ehsan, Lecturer, Agricultural Engineering
19. Engr. Muhammad Kashif, Lecturer, Agricultural Engineering

Dr. Irfan Baig, Dean FSS&H chaired the session. The formal proceeding started after the recitation of few verses from Holy Quran. Engr. Mohsin Khan presented the proposal of establishment of evapotranspiration (ET) research center at MNSUAM. He briefed about present water scarcity issues in country and their possible solutions with the help of said research center.

Dr. Zhang acknowledged that water loss and water productivity is the major issue faced by Pakistani agriculture and she promised to connect Department of Agricultural Engineering with relevant experts of China. She further vowed to help MNSUAM arrange funding support for the establishment of ET Center in Pakistan.

Dr. Zhang invited and offered funding for senior and junior faculty of MNSUAM to visit China. After that, the house discussed the potential areas and following decisions were made:

- BASE, Shihezi University will provide seed money to start small scale research projects. Interested faculty can submit concept note(s) through ORIC preferably in following areas:
 - Soil health / Salinity management / saline agriculture
 - Agro-tourism
 - Water use efficiency / irrigation management
 - Integrated Pest Management especially Host Plant Resistant (HPR) / repellent and attractant plants for insects
 - Socio-economic adaptation to new crop enterprises / crop diversification studies

Ceremony to sign Memorandum of Cooperation (MoC)

The MoC between Shihezi University and MNSUAM was signed at committee room. Prof. Dr. Asif Ali, Vice Chancellor MNSUAM and Prof. Dr. Fenghua Zhang, representative Shihezi University signed the agreement.



Glimpse of MoC Signing



Exchange of Memorandum shields

Prof. Dr. Fenghua Zhang handed over a memorandum shield to VC-MNSUAM. This shield was formally issued by Chinese ministry to recognize linkages between Shihezi University, China and MNSUAM, Pakistan.

➤ **December 18, 2019 (Day 3):**

Two activities were planned for the third day. Delegates visited mango orchard of Malik Jahanzeb Dharralla, and university farm at Jalalpur Pir Wala. Following members accompanied the delegates:

1. Prof. Dr. Shafqat Saeed, Dean FA&ES

2. Dr. Tariq Rana, Director, Murray-Darling Basin Authority, Australia
3. Prof. Dr. Fenghua Zhang, Dean, College of Agriculture, Shihezi University
4. Dr. Jiaping Wang, College of Agriculture, Shihezi University
5. Dr. Haichang Yang, College of Agriculture, Shihezi University
6. Dr. Alamgir A. Khan, Chairman Department of Agricultural Engineering
7. Dr. Tanveer ul Haq, Chairman Department of Soil and Environmental Sciences
8. Dr. Sarfraz Hashim, Assistant Professor (Agri. Engg.)
9. Dr. Muhammad Abid, Assistant Professor (Agri. Engg.)
10. Engr. Mohsin Khan, Lecturer (Agri. Engg.)
11. Engr. Farrukh Ehsan, Lecturer (Agri. Engg.)

In the morning, the team left for Dharralla farms and reached there at 9:30 am. Mr. Jahanzeb Dharralla welcomed the team and after formal introduction, Mr. Dharala briefed about his farm and mango orchard. He told that they have mango orchard on forty-eight (48) acres and have cultivated about ten varieties of mango. Mr. Dharralla described his efforts for canopy management, salt management and water management for obtaining high yield from mango orchard. Visitors witnessed his efforts as health of mango trees was good.

Then visitors took a short round of mango orchard. During orchard visit Dr. Zhang, Dr. Wang and Dr. Yang asked questions about mango cultivation practices, fertilizer application and production of trees and Mr. Jahanzaib Dharralla briefly answered their questions. Mr. Dharala also discussed the salinity problem with visitors and also told them about some salinity control measures. Then, he also showed some plants which were previously affected by salt concentration and after treatment, they were recovering.

Furthermore, Mr. Dharralla shared his experience about a recent visit of mango growers to Egypt for witnessing the ultra-high density/small tree plantation (STS) technology. He told that following the learnings from the trip, he is adapting STS technology.

Dr. Tariq and Dr. Zhang appreciated the efforts of Mr. Dharralla for his excellent farming practices and managing his wonderful orchard.

Prof. Dr. Zhang discussed the seed, fertilizer, insecticide, weedicide, water inputs and labor requirement for crops (especially about cotton and wheat). In the end, Mr. Dhrala paid vote of thanks to the team and especially for the compliments by Dr. Tariq and Dr. Zhang. Then the team left for the next destination.



Glimpse of Dharralla Farm

In the afternoon, the team reached Jalalpur Pir Wala farm. Mr. Abid, Farm Manager welcomed the team. After a formal introduction, Mr. Abid briefed about the farm activities. He told that 500 acres were allotted to university at JPW for research and at the time of allotment, the land was totally barren and undulating. The university management started efforts to cultivate this land and under the leadership of worthy vice-chancellor. Now, wheat, cotton, millets and alpha are cultivated, and the university also has a fish and shrimp farm here.

Dr. Alamgir A. Khan further added that salinity is the major issue of this farm and groundwater is also brackish. To counter this challenge university made a long-lined water course that takes the river water to the farm storage ponds and from these ponds farm is irrigated. The Chinese delegation especially Prof. Dr. Fenghua Zhang was concerned about the water use efficiency. They asked many questions related to water use efficiency and water productivity. Prof. Zhang told that she will connect us with the relevant person in China for the solution to this real challenge.

Dr. Tariq promised that he will provide a model to MNSUAM which will tell about crop water requirements under different circumstances. He further told that for salinity control the root zone (up to 2 m) must be flushed by using proper drainage practices. For this purpose, drainage pipes are installed at 2-meter depth, then water is applied to the field. The soil salts leached down with water and ultimately collected by drainage pipes in ditches. Then this water can be used for irrigating salt-tolerant crops.

Dr. Alamgir A. Khan agreed with this solution and said that initially we will adopt this technology for demonstration on one acre, and after successful results, we will extend it to full farm. After the successful visit team left for Multan Airport and reached there at 2:00 pm. MNUAM team bid farewell to the distinguished guests.



Glimpse of University JPW Farm

Summary recommendations

- To explore future collaboration avenues, BASE-Shehizi University will sponsor and invite Senior faculty members of MNSUAM for 10 days visit to China.
- MNSUAM will invite and provide local hospitality to visiting Chinese collaborators from Shehizei University for research and academic purposes
- MNSUAM will facilitate the visiting scientists by extending its research facilities for collaborative initiatives
- Shihezi University will facilitate young faculty members of MNSUAM for visiting China to seek training related to the collaborative projects. Dr. Zhang will help secure funding for young faculty members via Ministry of Commerce/Business, for visit to Shihezi University upto 30 days.
- Shehizi University will offer admission and scholarship to young faculty members to pursue their postgraduate studies at China. Dr. Zhang will help secure funding for graduate studies via Ministry of Education, China.
- Shehizi University will also provide technical support to MNSUAM for establishment of Evapotranspiration Center.
- MNSUAM faculty will apply for start-up grant to Shihezi University as a pilot project