INTERNATIONAL WORKSHOP
ON
SMART AGRICULTURE FOR DEVELOPING NATIONS: BROADER PERSPECTIVES AND SPECIAL CHALLENGES FOR ISLAND STATES

Jointly Organised by

Centre for Science & Technology of the Non-Aligned and Other Developing Country (NAM S&T Centre), New Delhi, India

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Ministry of Education, Tertiary Education, Science & Technology, Phoenix, Republic of Mauritius

31 MARCH - 1 APRIL 2021

[VIRTUAL-MODE]

INTRODUCTION

'Smart farming' is an emerging concept that refers to managing farms using technologies like **Internet of Things (IoT), robotics, drones and artificial intelligence** to increase the quantity and quality of products while optimizing the human labour required for production. The Internet of Things has provided not only a way to better measure and control growth factors like irrigation and fertilizer on a farm, it has also changed how we view agriculture entirely.

It is an emerging concept that refers to managing farms using modern Information and Communication Technologies (ICT) to increase the quantity and quality of products while optimizing the human labor required. Among the technologies available for present-day farmers are: **(i) Sensors:** soil, water, light, humidity, temperature management; **(ii) Software:** specialized software solutions that target specific farm types or use case agnostic IoT platforms; **(iii) Connectivity:** cellular, LoRa, etc.; **(iv) Location:** GPS, Satellite, etc.; **(v) Robotics:** Autonomous tractors, processing facilities, etc. and **(vi) Data analytics:** standalone analytics solutions, data pipelines for downstream solutions, etc. Armed with such tools, farmers can monitor field conditions without even going to the field and make strategic decisions for the whole farm or for a single plant. The driving force of smart farming is IoT - connecting smart machines and sensors integrated on farms to make farming processes data-driven and data-enabled.

In an IoT Based Smart Farming Cycle, the core of IoT is the data one can draw from things ('T') and transmit over the Internet ('I'). To optimize the farming process, IoT devices installed on a farm should collect and process data in a repetitive cycle that enables farmers to react quickly to emerging issues and changes in ambient conditions.

Smart Farming follows a typical cycle like this one:

- **Observation -** Sensors record observational data from the crops, livestock, soil, or atmosphere;
- **Diagnostics -** The sensor values are fed to a cloud-hosted IoT platform with predefined decision rules and models - also called 'business logic' that ascertain the condition of the examined object and identify any deficiencies or needs;
- **Decisions -** After issues are revealed, the user, and/or machine learning-driven components of the IoT platform determine whether location-specific treatment is necessary and if so, action(s) needed
- **Action-** After end-user evaluation and action, the cycle repeats from the beginning

In order to discuss various issues on Smart Farming technologies, the *Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), New Delhi, India* jointly with the *Ministry of Education, Tertiary Education, Science And Technology, Republic of Mauritius* will be organizing an International Workshop on ***'Smart* Agriculture for Developing Nations: Broader Perspectives and Special Challenges for Island States'** during **31 March-1 April, 2021.** The Workshop will be hosted by the Ministry of Education, Tertiary Education, Science and Technology, Republic of Mauritius and will be organised in **Virtual-Mode**.

WORKSHOP OBJECTIVES

This Workshop aims to bring together the experts, professionals and the policy makers from the developing countries in the areas of agriculture, IoT, AI, and smart applications domain to develop synergy, exchange knowledge and ideas on smart agriculture and provide solutions with a broader perspective and special focus to island states.

TOPICS TO BE COVERED

- Smart Farming Technologies – *Drones, Sensors, Internet of Things, Multi-spectral Imaging, Robotics, Big Data, Artificial Intelligence and more*
- IoT Solutions to Agricultural Problems
    - Precision Farming/ Precision Agriculture
    - Precision Livestock Farming

  Farming Automation/ Robotization:

    - IoT-driven Third Green Revolution
    - Automation in Smart Greenhouses
    - Agricultural Drones
    - Internet of Food (IoF)
    - Crop Health Management
- Investment in R&D
- New Business Models
- Any other areas relevant to Smart Agriculture

IMPORTANT DATES

ACTIVITY	DATES
Registration/Submission of Application Starts (along with the Extended Abstract)	**22 February 2021**
Last Date of Submission of Application	**15 March 2021**
Deadline for Submission of Full Manuscripts	**19 March 2021**
Acceptance/Selection of Applicants	**23 March 2021**
Issue of Online Conference Link to Participants	**26 March 2021**
Workshop Dates	**31 March and 1 April 2021 (Wednesday and Thursday)**

TENTATIVE PROGRAMME OF THE WORKSHOP

Date	Programme [Mauritius Time (GMT+ 4 hours)]			
	10:30 – 11:30 Hrs.	11:30 – 13:30 Hrs.	14: 00 – 15:00 Hrs.	15:00 – 16:30 Hrs.
31th March 2021	Official Opening	Plenary Session/ Keynote Lecture Technical Session – I (Presentation by Participants)	Technical Session – II (Presentation by Participants)	Technical Session – III (Presentation by Participants)
1st April 2021	Plenary Session/ Keynote Lecture	Technical Session – IV (Presentation by Participants)	Technical Session – V (Presentation by Participants)	Concluding Session, Discussions & Adoption of Resolutions

Note: A detailed session-wise programme will be made available to all the selected participants before the Workshop.

WHO SHOULD ATTEND?

Scientists & Researchers from Agriculture industry, Farmers/Growers, Technology providers and start-ups, Agri-bussiness professionals, Farming/Agriculture technology consultants, Project-planners, Government officials, Policy makers and other Representatives from industry and non-government organizations from various NAM and other developing countries and island nations who are engaged in R&D, generation, promotion and policy making on Smart Agriculture and available supported technological solutions are invited to participate in this Virtual-Workshop. Experts and professionals from the developed countries are also welcome to participate as resource persons for delivering keynote lectures on relevant topics during the workshop.

The interaction of participants from various countries will allow exchange of knowledge, ideas and experiences as well as provide opportunities for global networking and collaborations. The selection of the participants will be strictly based on merit and relevance of their current responsibilities to the subject of the Workshop as well as the quality of the abstracts of paper submitted by them along with the completed nomination form.

CERTIFICATION

E-Certificates will be awarded to participants upon successful completion of the Workshop.

RESOURCE PERSONS

The resource persons for the Workshop will comprise eminent experts and professionals in the relevant fields from Mauritius, India and other countries.

ABOUT THE ORGANISERS

NAM S&T CENTRE

The *Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), New Delhi* is an Inter-governmental Organization with a Membership of 47 countries spread over Asia, Africa, Middle East and Latin America. The Centre was set-up in 1989 in New Delhi, India in pursuance of the decisions of various NAM Summits with the objective of promoting mutually beneficial S&T cooperation among the NAM and other developing countries for collective self-reliance.

The Centre undertakes a variety of programmes, including organization of International Workshops, Conferences and Training Courses, and implementation of Collaborative S&T Projects. It also offers short-term Research Fellowships to Scientists and Technologists from developing countries in association with the *Centres of Excellence* in various countries. The Centre also brings out books and other scientific publications in different subjects that are of interest to developing countries.

The Centre's activities provide opportunity for scientist-to-scientist contact and interactions, familiarizing participants on the latest developments and techniques in the subject areas, identification of the requirements of training and expert assistance, locating technologies for transfer between the Members and other developing countries, and dissemination of STI information etc. In addition, the Centre encourages Academic-R&D-Industry interactions in the developing countries through its *"NAM S&T-Industry Network"*.

MINISTRY OF EDUCATION, TERTIARY EDUCATION, SCIENCE AND TECHNOLOGY, REPUBLIC OF MAURITIUS

The Ministry of Education, Tertiary Education, Science and Technology is responsible for the development and promotion of the education system in Mauritius. It defines and formulates education policies and ensures that sound regulatory and monitoring mechanisms are in place for greater effectiveness and efficiency of the education sector.

The key functions of the Ministry are, inter alia, to:

- Ensure the provision of quality education at the pre-primary, primary, secondary, technical levels as well as the higher education level
- Provide policy guidelines for the development of the national curriculum frameworks

The Tertiary Education and Scientific Research Division of the Ministry specifically formulate policies for the development, regulation and expansion of higher education and the promotion of scientific research.

The Ministry is the Focal Point for the NAM S&T Centre and the Tertiary Education and Scientific Research Division recommends nominations for participation in Workshops and Training programmes organized by the Centre.

The Ministry of Education, Tertiary Education, Science and Technology will be organizing this International Workshop through its Tertiary Education and Scientific Research Division, in collaboration with the Higher Education Institutions, Agencies and other Ministries.

SUBMISSION OF APPLICATIONS

Applications for participating in the Workshop may be submitted electronically to the Director General, NAM S&T Centre (Email: namstcentre@gmail.com) as early as possible but latest by **Monday, 15 March 2021.**

Mauritian applicants should, however, submit their requests directly to the Acting Director, Tertiary Education and Scientific Research Division, Ministry of Education, Tertiary Education, Science & Technology, Republic of Mauritius (Email: vbhurosah@govmu.org).

Participants are welcome to submit abstracts of papers to be presented during the International Workshop. However, the Workshop is also open to all scientists and professionals with an interest in Smart Agriculture, supported technological solutions and related areas.

The following documents must be submitted as e-mail attachments:

i. Filled-in **Application Form** (Blank-form enclosed)

ii. An **Opinion** (a short paragraph; in MS-Word only) on what qualifies you to participate in the Workshop

iii. A **Short CV** (maximum two pages in the format enclosed; in MS-Word only)

iv. An **Extended Abstract** (in MS-Word only) of the Paper that would be presented at the Workshop (about 1-1 ½ pages)

*Note: The documents at (ii), (iii) and (iv) above must be in MS-Word format only; PDF or image files will not be accepted. Hard copies of the Nomination Form and the above attachments are **NOT REQUIRED** to be submitted.*

PRESENTATION OF PAPERS

Participants are welcome to present a Country Status Report and/or a research/ scientific paper on any of the themes appropriate to the Workshop.

PUBLICATION OF PROCEEDINGS OF THE WORKSHOP

A Publication edited by one or more international experts and based on the papers presented by the participants during the Workshop and also containing papers contributed by other eminent experts in the field will be published in the form of a book as follow-up of this Workshop. Therefore, all participants are requested to submit the manuscripts of their full papers in MS-Word format only well in advance, but latest by **19 March 2021.**

SELECTION OF APPLICANTS

Selection of applicants will be made based on their academic and professional background, relevance of their current engagements in the relevant field and the abstract of paper submitted by them. Successful applicants will be electronically informed about their selection by **23 March 2021.**

The details about the virtual-platform that will be used for the Workshop including the log-in details will be communicated to all the selected applicants by **26 March 2021**. Other details and terms & conditions for the participation of scientists from various countries will be given to the individual candidates on receipt of their applications.

SECRETARIAT AND ENQUIRIES

NAM S&T CENTRE

Dr. Amitava Bandopadhyay
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HOST ORGANISATION, MAURITIUS

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CENTRE FOR SCIENCE AND TECHNOLOGY OF THE NON-ALIGNED AND OTHER DEVELOPING COUNTRIES
(NAM S&T CENTRE)

INTERNATIONAL WORKSHOP ON SMART AGRICULTURE FOR DEVELOPING NATIONS: BROADER PERSPECTIVES AND SPECIAL CHALLENGES FOR ISLAND STATES

31 MARCH - 1 APRIL, 2021

APPLICATION FORM

PLEASE TYPE OR USE BLOCK CAPITALS
(NO COLUMN SHOULD BE LEFT BLANK)

SECTION –A

(To be filled in by the Nominee)

1 First Name (Prof. /Dr. /Mr. /Mrs. /Ms.): .....

Middle Name: ..... Last Name: .....

2 Father's / Spouse Name: .....

3 Designation (Position held): .....

4 Nationality: .....

5 Date of Birth: .....

Place of Birth (City) .....(Country).....

6 Name of the Parent Institution (Employer): .....

Full Address (Office): .....

.....

Phone: ..... Fax: .....

E-mail: .....

7 Full Address (Home): .....

.....

Phone: ..... Mobile: .....

Fax: ..... E-mail: .....

8 Educational Qualifications: Highest Degree. .....

Year of Award: ..... University: .....

Field of Study: .....

9 Brief Bio data (CV): .....
(Maximum two pages in MS Word only; to be attached on separate sheet as per the attached format)

10 A Write-up (in MS-Word format only) on what qualifies you to attend the Workshop

11 An Extended Abstract (in MS-Word only)of the Paper that would be presented at theWorkshop (about 1-1 ½ pages)

Date: ..... Signature: .....

SECTION –B

ENDORSEMENT BY THE NOMINATING AUTHORITY

(The Applicant in a member country of the NAM S&T Centre must get the Nomination Form endorsed by the Focal Point of the Centre in his/her country, if he/she wishes to take advantages extended to the official nominee of the country. For the list of member countries and names/ addresses of the Focal Points please visit the Centre's official website; www.namstct.org.)

Signature: .....

Name (in full): .....

Designation: .....

Date: .....

SEAL

Enclosures:

1. A Brief CV (maximum two pages, as per attached format; in MS Word only)
2. An Opinion (in MS-Word format only) on what qualifies you to attend the Workshop
3. An Extended Abstract (in MS-Word only)of the Paper that would be presented at theWorkshop (about 1-1 ½ pages)

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CENTRE FOR SCIENCE AND TECHNOLOGY OF THE NON-ALIGNED AND OTHER DEVELOPING COUNTRIES
(NAM S&T CENTRE)

CURRICULUM VITAE

1. Personal Details:

Name: *(Prof./Dr./Mr./Mrs./Ms.)* ***Font Name:*** *Times New Roman*

Designation: *Position Title* ***Font Size:*** *12*

Present Employer: *Full Address (Office)*

City/State/Province:

Country:

Nationality:

Date of Birth: *dd/mm/yyyy*

Proficiency in English Language:

Permanent Address: *Full Address (Home)*

Gender:

Contact: Mobile:

Telephone Office: **Fax:**

E-mail: **Alternative e-mail:**

2. Academic Qualifications: *In chronological order*

Qualification Awarded *Degree/Diploma/Certificate*	**Major Subject**	**University/ Institution**	**Year** *(From-To)*

3. **Professional Experience:***In chronological order*

Organisation/ Institution	**Position Title**	**Year** *(From-To)*	**Nature of duties**
i.			
ii.			

Total number of years of relevant experience –

4. **Research Experience:** In chronological order

Research Title	**Duration**	**Status**

5. **Administrative Experience:***Not more than 100 words*

6. **Experience with respect to the title of the Workshop:**

7. **Details of Awards/Recognitions (if any):**

8. **Any other information:** *Not more than 50 words*

9. **Recent Publications:***Only five recent publications to be mentioned*

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