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National Environmental Science Academy (NESA)

Wishes all the Life members &
Delegates of TETE 2017

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Happy and Prosperous New Year 2018

2018
Happy New Year!

From

All the NESA Office Bearers and Staff

ABSTRACTS INVITED

National Conference on

CURRENT TRENDS IN PLANT SCIENCE AND MOLECULAR BIOLOGY FOR FOOD SECURITY AND CLIMATE RESILIENT AGRICULTURE (PSMB2018)

Jointly organised by:

Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, (M.P.)

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NATIONAL ENVIRONMENTAL SCIENCE ACADEMY (NESA)

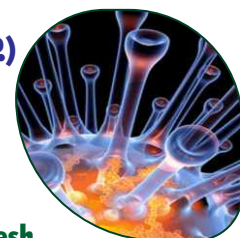
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on 15-16, February, 2018

at Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, Madhya Pradesh

Abstract Submission Deadline **05.11.2017**

Last date of Registration **07.02.2018**



CONFERENCE THEMES & SUB THEMES

PLANT BREEDING AND MOLECULAR BIOLOGY

Prebreeding for broadening the genetic base of crop varieties | Marker Assisted Breeding | Biotic and abiotic stress management in crops using Modern Plant Breeding Approaches | Anticipated Plant breeding or next generation breeding approaches

PLANT BIOTECHNOLOGY

Application of biotechnology in Crop Improvement | Omics Approaches (Genomics Proteomics, Metabolomics) Genome editing | Bioinformatics | Transgenic and GMOs | Micro propagation and in-vitro culture

AGRICULTURE SCIENCES

Plant genetic resources and conservation | Agri-biotechnology | Application of Organics | Plant Breeding in organic agriculture

CROP SCIENCE AND CROP PROTECTION

Agronomy for sustainable management of natural resources | Modern aspects of Agronomy and Horticulture | Plant Pathology: Mechanism of disease and their control | Plant Nutrition and Soil Sciences

BIOSAFETY AND STATISTICAL TOOLS FOR AGRICULTURAL DATA MANAGEMENT

Intellectual Property Protection for Plant Innovation | Environmental Impact on Science and Bio-safety issues
An introduction to Statistical tools for Agricultural Data Management

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Wildlife Deaths Due to Railway and Highway Collisions: Challenges and Viable Solutions

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One of the most common and well reported causes of wildlife deaths across the globe in both developed as well as developing and under developed countries is due to car and/or railway accidents. Infrastructural developments are a need that no modern economy can ever ignore. With the exponential rise of human populations across the globe; and the push for infrastructure to cater to increasing number of citizens is a priority for most modern

governments. However, often such infrastructural developments are being sanctioned without or with very little Environmental Impact Assessment (EIA) studies conducted. Sometimes the findings and evaluations and/or recommendations provided by EIA studies have been grossly neglected. As a consequence, such negligence and/or ignorance have further accelerated unfortunate human-animal conflicts causing deaths of local wildlife being hit by moving vehicles or passenger and/or goods train in heavily forested areas.

Furthermore, lack of any suitable monitoring and surveillance system by highway/freeway traffic and railway authorities and forest department; as well as lack of suitable technology, adequate staff members, forest guards, dedicated volunteers and modern technological gadgets to prevent such collisions; death of wildlife continues without any long term solutions. Irresponsible, over



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Home gardens: A dynamic approach to positively transform urban and rural environments

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Our cities, towns and municipalities are being turned into concert jungles devoid of open green spaces and waterbodies which could serve as the lung for the city environment by the booming real estate industries around the globe. The need for green open spaces and waterbodies within the city limits is ever increasing due to increasing levels of detrimental air pollution. The concept of green, sustainable cities with adequate green spaces, waterbodies, parks, gardens, lawns, green avenues and boulevards, and custom designed forests is critical to the long term health of the urban populations around the planet.



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exhausted, tired or drunk and/or drug abusing motor drivers on the highways adjacent to forest belts; and untrained or uncaring or tired railway engine drivers operating on the railway tracks crisscrossing forested areas or sanctuaries or wildlife reserves or parks are detrimental to the safety and security of the individuals involved, the passengers on board as well as the local wildlife that are involved in unfortunate collisions. The wildlife deaths due to such collisions, recurrent infrastructural and operational costs as well as the severe ecological cost involved in these accidents are detrimental for both the economy and ecology together. Lack of education and awareness regarding forest and wildlife conservation among drivers using such highways and railway corridors is another important factor that has been adding fuel to this problem for a long time.

However, several high technology solutions are available for preventing such incidents from happening. Few of them are building underpass or overpass in wildlife or forested areas to provide alternate and safer crossing pathways for wildlife and to avoid collisions. Several countries have adopted this successfully and have reduced accidental collisions with vulnerable wildlife. Better railway signaling systems, slow speed, well trained, mentally alert and responsible railway engine drivers, well established watch towers along the railway tracks crisscrossing forest tracks and wildlife migration corridors at appropriate strategic sites with long range view and direct communication system with the engine driver can reduce railway collisions with wildlife significantly; and has been working great in several other countries. The highway patrolling team must be active 24 X 7 in shifting duties to keep monitoring and surveillance on the traffic

Home gardens are an important sustainable solution for safeguarding the polluted city environment and can serve as further green cover to our overcrowded and polluted cities and towns. Home gardens are an important part of both city and urban landscapes in several Asian, African and Latin American nations and a part of sustainable green living. The traditional home garden concepts integrate agro-forestry practices and livestock management in some countries while in others they simply serve as a private natural/artificially planted area which include indigenous herbs, shrubs, forbs, and trees for the purpose of procuring food, fuel, fodder, fiber and fertilizer (Five Fs) as well as different ornamentals and medicinal plants.

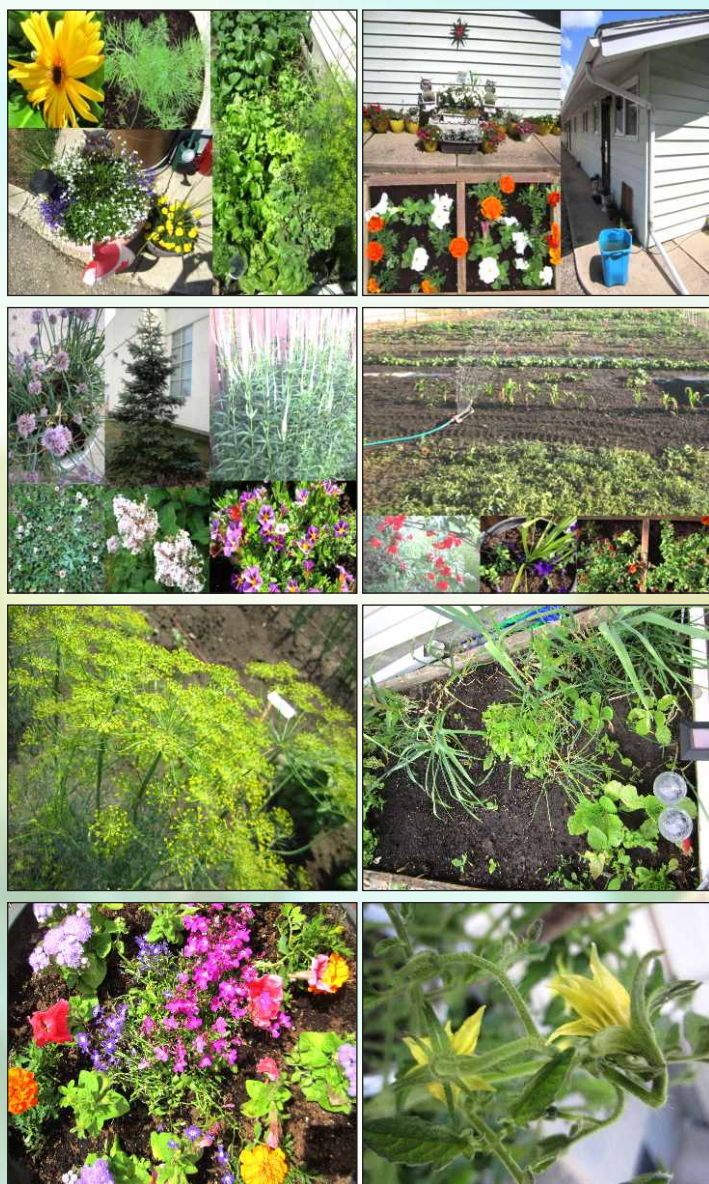
The traditional use of home gardens is inspirational and can easily serve as an important global model for sustainable global city design. The development of urban home gardens in cities and towns can help in creating a better environment and help in fighting against the rising challenges of air pollution. Urban gardens, artificially constructed

passing through highways/freeways or bridges adjacent or across heavily forested areas.

Depending upon the resources available helicopter or drone based aerial surveillance; videography and still photography could also be conducted for covering vast areas at regular and well spaced time intervals. Infrared cameras could be placed at strategic points covering highway and railway tracks for collecting data on animal crossings, migration patterns, movement of illegal encroachers, poachers as well as highway and railway traffic could add to multiple layers of security on safe transportation; and in successfully protecting forests and wildlife. But above all, a sensitivity and respect for the forests and wildlife; as well as education and awareness in joining hands with others in protecting them among drivers of both motor vehicle and railway engines need to be started with sincerity, diligence and long term planning.

Different stakeholders interested and responsible for traffic movement and forest and wildlife protection need to be recognized and engaged. Collaborative efforts between the Ministries associated with Surface Transport, Railways, Forest and Wildlife Conservation, Internal Security, Infrastructure and Development at the State and Central levels, NGOs, enthusiastic citizen and volunteer groups for protecting wildlife and forests, policy and law makers, politicians, bureaucrats and local residents need to be involved in the process for successful implementation of the traffic monitoring project in designated forest belts. The cumulative efforts will not only help in reducing accidents; but will also reduce wildlife and wildlife parts trafficking, poaching and illegal encroachments into the forested areas significantly.

Photo credit: S. K. Basu



city forests and waterbodies are an important tool in dealing with the congestion and overcrowding in modern cities and towns. Local, native flora in the form of herbs, shrubs and trees could be easily integrated into urban home gardens to create an artificial natural environment. Rural home gardens could be more extensive where, in addition to serving as gardens, could be included and integrated with social forestry practices and sustainable livestock management. Such an approach can help in reducing pressure on the declining local forests for the purpose of animal grazing and daily sustenance of the local residents.

The rich biodiversity of urban or rural home gardens in several developing and under developed nations in Asia, Africa and Latin America is simply awe inspiring. They regularly include a mixture of several native/indigenous ornamentals, medicinal plants, fruit trees and vegetables. These rich collections of native plants help in creating micro environments which successfully contribute towards conservation of native flora. Furthermore, such home gardens also attract local birds, small mammals and a rich



To,

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diversity of local insect pollinators that include native bees, honey bees, moths and butterflies, beetles and some species of flies.

Overall, it can be suggested that such urban and rural home gardens can contribute both directly as well as indirectly towards protecting local vulnerable ecosystems and help in creating new micro ecological sites that can help significantly in conserving both local flora and fauna. In several modern developed nations such home gardens are quickly taking shape in the form of specially designed urban parks, gardens, lawns, avenues and boulevards, roof top and balcony gardens, and backyard kitchen gardens that help substantially in creating micro-ecosystems for the local city flora and fauna representing local and regional biodiversity.

Photo credit: S. K. Basu