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**Special Topics Session on Plant Health and Environment Protection -
Information Note**

Agenda item 17

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English only

CPM-13 Special Topics Session on Plant Health and Environment Protection

Thursday 19 April 2018 (15:00 – 18:00)

Plenary Hall

I. Programme of the Session

No	Topic	Speaker
1	Plant Health and Environment Protection <i>(Environmental protection, plant health and sustainability – pies and doughnuts)</i>	Vernon H Heywood Emeritus Professor in the University of Reading, President of the International Association of Botanic Gardens and Honorary Fellow, Royal Botanic Garden, Edinburgh e-mail: vhheywood@btinternet.com
2	Pine Wood Nematode and ISPM 15 implementation <i>(Impact of spread of pine wood nematode on forest environment and phytosanitary measures in Republic of Korea)</i>	Kyu-Ock Yim IPPC CPM Bureau Member Senior Researcher Dept. of Plant Quarantine, Animal and Plant Quarantine Agency/MAFRA, Republic of Korea e-mail: koyim@korea.kr
3	Human and Plant Health Interaction, influenced by Climate Change	Geoffrey Donovan Research Forester, Forest Service, PNW Research Station, Portland, Oregon, USA e-mail: gdonovan@fs.fed.us
4	Pacific Islands Climate Change Impact on Plant Health	Viliami Kami IYPH Steering Committee Member Head of Quarantine and Quality Management Division Ministry of Agriculture, Food, Forestry, and Fisheries, Tonga e-mail: maf-ento@kalianet.to

II. Abstracts of the presentations

Environmental protection, plant health and sustainability – pies and doughnuts

Vernon H Heywood

1. The sustainability of our planet depends on maintaining healthy, functioning and diverse ecosystems yet we are continuing to lose biodiversity across the world at an alarming rate, despite government commitments (e.g. the Convention on Biological Diversity, the Aichi targets) to protect it. Yet while most policymakers understand the likely consequences of climate change, very few seem to show any sense of urgency about the need to stem the loss of biodiversity. At least two of the main threats to biodiversity – pollution and biological invasions – directly affect plant health and given that plants both are the background and structure of most terrestrial ecosystems and habitats for other organisms, as well making a vital contribution to human nutrition and our rural economies and providing other important ecosystem goods and services concerted, effective actions to control these threats are paramount. With a global population today of 7.6 billion, expected to reach 8.6 billion in 2030, 9.8 billion in 2050 and 11.2 billion in 2100, pressure on biodiversity through habitat loss, land use change, overexploitation of resources, and climate change, as well as biological invasions and pollution, will inevitably increase if we are to meet the basic needs of such a demographic expansion, let alone aspirations for a generally better quality of life. Today no country meets basic needs for its citizens at a globally sustainable level of resource use and it has been calculated that providing a high quality of life for everyone on the planet would require two to six times the natural resources that are actually available. The dilemma we face is how to live sustainably and keep within the Planetary Boundaries framework – all the critical, interacting processes on Earth (including biodiversity health and integrity) that contribute to the stability and resilience of the Earth system as a whole – and at the same time provide us with the necessary resources. Biodiversity, in particular plant diversity, is thus both the provider of goods and services on which we depend and a planetary resource that we must protect. These issues will be discussed in terms of doughnut economics (*sensu* Raworth) and the challenges of biodiversity conservation in the Anthropocene.

Impact of spread of pine wood nematode on forest environment and phytosanitary measures in Republic of Korea

Kyu-Ock Yim

2. Pine trees species occupy approximately 25% of Korean forest and have economic, environmental, ecological, social and cultural attachment for Korean people. The major three native *Pinus* species (*P. densiflora*, *P. koraiensis*, *P. thunbergii*) are very susceptible to the pine wilt disease caused by nematode, *Bursaphelenchus xylophilus* that was introduced into Republic of Korea in 1980's, probably through wood packaging material. A special law for pine wood nematode management was endorsed, and official control has been implemented against *B. xylophilus*, but not promising for eradication.

3. More than 10 million trees have been removed with cost of approximately 609 million dollars in last 20 years. Dead trees by infection of *B. xylophilus* are cut and the nematode inactivated by chipping, fumigation and incineration and live trees in the infected area are protected by trunk injection or aerial and ground spray, which are very expensive and labor taking and sometimes not possible. For early detection, intensive survey and early reporting obligation are implemented and currently using Drone is a very promising tool for survey in dense mountain forest. Prohibition of movement of host

out of infected area is enforced and national campaign through broadcast, media and social media is very active.

4. One of the important pathways of the introduction of *B. xylophilus* is wood packaging material (WPM) of traded consignments. WPM has been recognized as a pathway of pest introduction not only *B. xylophilus* but also other wood associated insects by the interception during the import phytosanitary inspection. IPPC adopted an ISPM 15 'Regulation on wood packaging material in international trade' in 2002 and revised in 2006, 2009 and 2013. Prevention of pest introduction by phytosanitary measures may be the most effective and economic way for the pest which mainly is moved long distance through international trade. To develop and implement the internationally harmonized measures, development of harmonized international standards, communication and cooperation among countries and relevant bodies (international organizations, NPPOs and competent authorities especially environmental authority), scientists and industries are crucial.

Human and Plant Health Interaction, influenced by Climate Change

Geoffrey H. Donovan

5. Globally, invasive insects cause extensive ecological and economic damage. However, invasive insects can also pose a major threat to public health. For example, in the United States, the emerald ash borer (*Agrilus planipennis*)—an invasive beetle native to Asia—has killed hundreds of millions of ash trees in 31 states since it was first confirmed in Detroit, Michigan in 2002. The spread of the emerald ash borer provides a unique opportunity to study the impact of a rapid change in the natural environment on public health. Between 2002 and 2007, the loss of trees to the emerald ash borer was associated with an additional 15,080 deaths from cardiovascular disease and an additional 6,113 from lower-respiratory disease in 15 US states. In a companion study, post-menopausal women living in counties infested with emerald ash borer were found to have a 25% higher risk of cardiovascular disease than women living in un-infested counties. These findings add to the growing body of evidence that exposure to the natural environment in general, and trees in particular, may provide major public-health benefits. In addition, policies designed to limit the spread of invasive tree pests may wish to consider the public-health impacts of tree loss.

Impacts of Climate Change on Environment in the Pacific Islands

Viliami Kami

6. The vulnerability of small island development states to climate change is increasing. This is due to the increasing intensity of cyclones, droughts and sea level rise due to warming global temperatures. The impacts have led to loss of coastal infrastructure and land, devastation of mangroves, natural forests, pest and disease outbreaks, and transboundary movement. Impacts from a Climate Change event e.g cyclone can effectively affect a whole island country due to the size of the territories involved.