

## PLENARY LECTURES

# THE BODY AND THE WOUND: SOME REFLECTIONS ON THE MEANING OF RESEARCH AND THE HUMAN BEING

### **Dr. Anthony M. Juan, Jr.**

University of Notre Dame  
United States of America

The paper will explore the interconnectivity between performance arts and research: “culture as research” and “research as culture,” knowledge through creative research into human development; scientific invention and cultural innovation; applied research methods in performance such as performance ethnology, theatre history and cultural history.

The paper will examine the lack of and emphasize the urgent need for a cooperation between sciences and the arts towards humane development in a world faced with crises and global indifference, and articulate the Performing and Film Arts as agents in helping connect the disciplines of scientific research and creative research, and performance as a source of information and human narratives, that may, in turn, inspire the scientist into finding more meaning in his research towards humane development.

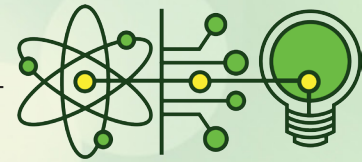


### **BIOGRAPHICAL SKETCH**

Internationally recognized for his work that often challenges convention, stunning visual poetry, and language in space, playwright and director Anton Juan is a Tenured Full Professor and Theatre director at the University of Notre Dame du Lac in the USA. He completed his Ph.D. in Semiotics at the Kapodistrian and Panhellenic University of Athens. To honor his contributions to the arts, Juan has been knighted twice by the French government, receiving the Chevalier de l'Ordre des Arts et Lettres in 1992 and the Chevalier de l'Ordre National de Merit in 2002. He received the Alexander Onassis International Award for Theatre (Playwriting), and the Special Jury Prize for Screenplay from the CineManila International Film Festival. Beyond his work at Notre Dame, Juan is also the founding Artistic Director of the Step of Angels Theatre in Athens, Greece and was the Director-General of Dulaang UP, University of the Philippines, where he has taught at the Departments of Speech Communication and Theatre Arts, English and Comparative Literature,

and European Languages. He was also the Fellow for Drama at the Creative Writing Center of UP.

Earlier known as the “enfant-terrible” of Philippine Theatre, Juan’s visually poetic and expressive physical style of theatre has certainly created an impact on his audiences and recent generations of artists of the Philippines as well as on artists and students in other countries where he has taught. To Juan’s disciplined mentorship is credited the success of many emergent directors, actors, and playwrights. His students have won awards for Playwriting, Acting, and Directing both nationally and internationally. Juan was selected as one of the 100 Philippine Artists awarded the CCP Philippine Centennial Honors for the Arts, who have contributed significantly to and made an impact on the evolution of Philippine culture. He has also received the Balagtas Award from the National Writers’ Union of the Philippines for his body of works, and has won several Playwriting awards from the Carlos Palanca Literary Awards. Juan has received Fellowships and Awards from prestigious institutions, among them the Rockefeller-Bellagio Foundation Fellowship for senior artists, the Fulbright Foundation, Hitachi Foundation of Japan, Jack Lang Scholarship in France, Asian Cultural Council in New York, the Association of French Artists and the Ministry of Culture of France, the Ministry of Education of Greece, and the Italian Ministry of Foreign Affairs, and the British Council.



## PREPARING FOR THE BIG ONE: THE CASE OF THE GREATER METRO MANILA AREA

### **Renato U. Solidum, Jr.**

Undersecretary  
Disaster Risk Reduction and Climate Change  
Department of Science and Technology (DOST)

The Philippines is highly prone to various geologic hazards, including earthquakes and tsunamis because of its geologic and geographic setting. For the past 400 years, ~ 90 destructive earthquakes and ~ 40 tsunami events have affected the country. Large earthquake and tsunami events have caused significant loss of lives and properties and heavily impacted the economy of the country. These losses still happen despite the advances in science and engineering. Large cities, with its dense population and infrastructure, are at risk to strong earthquakes. Preparedness, mitigation and response efforts must be enhanced to significantly reduce the risk from earthquakes. Key to timely and proper efforts by various sectors of society is appropriate disaster imagination, where hazard and impact scenarios are defined for different magnitude of events, clearly communicated to all sectors, and appreciated and used in plans and actions at the individual, family, community, organization, local and national levels, that are aligned and complementary. Hazard and impact scenarios for Metro Manila and surrounding provinces from a strong earthquake from the Valley Fault System, named by the media as the “Big One” have been developed and publicized. The scenarios indicate tens of thousands of deaths, hundreds of thousands injured, 8-13% of residential, public and mid-rise building stock heavily damaged or collapsed, lifeline facilities affected. Since most of the country’s government and business operations are concentrated in the metropolis, the effect on governance and business may consequently be felt all over. The potential disaster has raised the awareness of and concern by various sectors. Efforts must be enhanced to develop national government and business resilience to strong earthquakes, improve building and infrastructure earthquake resistance, improve risk and emergency management, improve community disaster management, and promote research and development in risk assessment, building construction, and instrumentation for monitoring and response. Reducing the impact of extreme events such as a large earthquake requires extreme preparedness involving a whole of society approach, from individual, family, community, organization to local and national government level.

Keywords: earthquake; disaster imagination; resilience; disaster management; preparedness



### **BIOGRAPHICAL SKETCH**

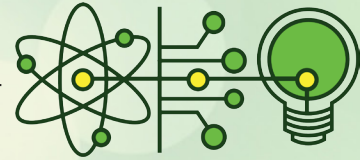
Dr. Solidum was recently appointed as DOST Undersecretary for Disaster Risk Reduction and Climate Change and concurrently the officer-in-charge of Philippine Institute of Volcanology and Seismology.

His most recent recognitions include, Distinguished Achievement Award, The Honors Society of Phi Kappa Phi University of the Philippines (2013), Presidential Gawad CES, Career Executive Service Board, Philippines (2011), and Excellence Award for Government Service, Philippine Federation of Professional Associations (2010).

He is an active member of the Geological Society of the Philippines (Past President, 2004) Member, the International Association of Volcanology and Chemistry of the Earth’s Interior, (Member of Executive Committee, 2003-2007), the National Research Council of the Philippines (Regular Member, Division of Earth and Space Sciences), and a Trustee of Philippine Society of Youth Science Clubs (2007 – present).

He has over 50 local and international publications.





## DISASTER RISK REDUCTION IN NEPAL: ITS RETROSPECT AND PROSPECT

### **Dr. Jiba Raj Pokharel**

Nepal Academy of Sciences and Technology

Nepal suffers from different disasters every year. They are fire, flood, landslide, thunderstorms that occur annually. While a high magnitude earthquake occurs in Nepal every 75 to 100 years and medium one every 50 years. Nepal was one of the first countries in South Asia to enact a legislation entitled Natural Calamity Relief Act in the year 1982. But it focuses on post disaster phenomenon only thereby giving very little or no emphasis on Preparedness. A comprehensive Act encompassing all the phases of Disaster Cycle has been prepared but it has yet to be passed from the Parliament.

The Nepal Reconstruction Authority has been recently criticized for not delivering in time. This has been attributed to a rather fluid political situation in Nepal. The earthquake victims are languishing in the temporary shelter even after two years of the occurrence of the earthquake. The number of deaths in Nepal following disaster compared to the number of affected persons is still higher in the region. This shows that the disaster risk reduction mechanism needs lot of improvement. The improvement needs to be made in several fronts but the one in the institutional framework is very glaring. This paper seeks to highlight on the approaches undertaken in the past, stories of success and failure and what should be done in the future in order to address the problems of the disaster vulnerable Nepal.

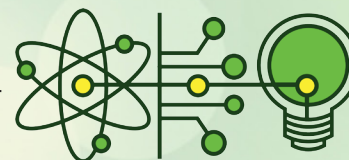
*Keywords:* Disasters, fire, earthquake, landslide, Reconstruction



### **BIOGRAPHICAL SKETCH**

Dr. Pokharel is a retired professor of Architecture and Urban Planning. He is now the Vice Chancellor of Nepal Academy of Science and Technology. His research is in the area of Disaster Risk Reduction Technologies specially focused on Rural Areas of Nepal. The notable ones are the fire resistant, landslide prevention and earthquake damping technologies.

He has written several books in Architecture, Disasters and Culture. The notable one is Architecture, Oh! Architecture. He writes regularly for the Himalayan Times, an English Daily newspaper. He is a former Dean of the Institute of Engineering and also a former President of Nepal Engineers' Association as well as Society for Democratic Thinking of Nepal.



## INNOVATION AND INCLUSIVE DEVELOPMENT THAT EMBODIES GENDER EQUALITY: WHAT WORKS AND WHAT MIGHT WORK

### **Dr. Meryl J. Williams**

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The Science Council of Asia conferences began addressing gender in the 2016 Conference on “Science for the People: Mobilizing Modern Technologies for Sustainable Development in Asia” by exploring the gender gap in IT entrepreneurship. The 17<sup>th</sup> Conference offers a broader look at gender through the session on Gender Integration and Mainstreaming in S & T Innovations.

Society’s efforts to improve gender equality, and more specifically the position of women, are continually confronted with and thwarted by inequalities in society, the economy and politics. As economic wealth grows, power distances and inequality increase, raising the risk of social tensions and threats to wellbeing. In recent decades, the growing body of research on gender theory has traversed several phases. Presently, gender theory is taking an integrated approach in which, first, gender is studied in the context of its intersection with other inequalities due to, e.g., race, ethnicity, nationality, or class, and, second, gender is considered as structure, involving individual, interactional and macro levels of analysis within practical contexts, e.g., introducing innovations.

In this complex of interacting factors, gender mainstreaming and integration were promoted in the 1995 Beijing Declaration and Platform for Action of the Fourth World Conference on Women as the forward path. The achievements of these approaches, however, has been assessed as mixed, although still useful. A growing consensus is that progress on gender equality needs both political action, and technical instruments developed for gender mainstreaming, e.g., planning, toolkits, indicators and checklists.

This consensus is borne out by the evidence on which this plenary talk is based. To examine what works and what might work under the right circumstances, I draw on over 40 years of experience as a scientist in the development of fisheries, aquaculture, agriculture and conservation, and especially on the last 20 years during which gender research gradually has taken over much of my professional engagement.

From the evidence, methods that work to embed gender-sensitive approaches to innovation are: nurturing gender champions, within and outside the organisation; using a gender lens in planning, monitoring and evaluation; changing key institutions and modes of operating, e.g., markets, entrepreneurship, to suit women’s needs rather changing women to suit institutions; putting funding into gender initiatives; and training and educating women scientists and target beneficiaries.

Other approaches that might, or might not work, depending on the context, implementation, and the soundness of their gender basis, are: policies, laws and quotas; providing help through women-only groups and cooperatives; using the gender transformative approach incorporating gender structure analysis; and gender research.

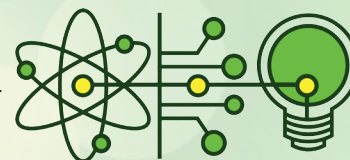


### **BIOGRAPHICAL SKETCH**

She has worked for nearly 40 years in Australian, regional and international fisheries, aquaculture, aquatic resource conservation and agricultural research and development. Currently, she is focusing on research and advocacy on women and gender in aquaculture and fisheries, and information and science for fair and responsible fish production for food security and nutrition.

Vice Chair, Scientific Advisory Committee of the International Seafood Sustainability Foundation Member, Aquaculture without Frontiers Australia and International Member, Selection Committee for the Asian Pew Marine Fellows Awarded, 2015 Crawford Medal for her contributions to international agricultural research Awarded, ‘Outstanding Alumnus’ of James Cook University in 2010 Honorary Life member, Asian Fisheries Society (AFS).





## THE PHILIPPINE PERSPECTIVE ON FUTURE EARTH

### **National Scientist Lourdes J. Cruz**

Past President, NRCP, Philippines

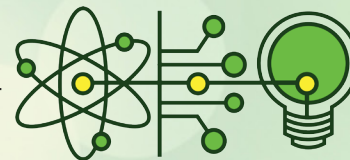
Can a small developing country like the Philippines affect or contribute to global sustainability as espoused by the Future Earth program? As a country in the Pacific Ring of Fire and lying along the typhoon path tracking westward from the Pacific, the Philippines is one of the countries most vulnerable to natural hazards. The cataclysmic eruption of Mt. Pinatubo in 1991 was felt worldwide as it spewed ashes to several Southeast Asian countries, particulate matter into the stratosphere and aerosols that formed global layer of sulfuric acid haze. Typhoon Haiyan devastated Central Philippines and severely affected other countries along its path in SEA. Several factors contribute to its vulnerability including frequency of natural hazards, its geography and socio-political considerations. The intricacies of factors affecting its vulnerability present a microcosm or field laboratory for collaborative scientific studies on the factors affecting sustainability. It provides opportunities for using Future Earth's inclusive and transdisciplinary approach as well as a prospect for testing the Quadruple Helix model versus the Triple Helix model for development.



### **BIOGRAPHICAL SKETCH**

Dr. Lourdes J. Cruz is Professor Emeritus of the University of the Philippines Diliman (UPD) and a National Scientist. She obtained a BS Chemistry degree from UPD in 1962 and her MS and PhD in Biochemistry from the University of Iowa in 1966 and 1968. She worked briefly at IRRI before joining the Department of Biochemistry in UP Manila where she served as faculty member from 1970-1989. She served as Chair of the Department of Biochemistry and Molecular Biology from 1980-1986. In 1989 she transferred to the Marine Science Institute of UP Diliman. From 1976 to 2006 she spent 3-6 months every year at the University of Utah collaborating with Prof. Baldomero M. Olivera on the elucidation of the biochemical and molecular nature of toxins from the venomous Conus marine snail, which are now used as pharmacological tools in the study of brain function and in drug development. Her international awards

include the Sven Brohult Award of the International Foundation for Science (IFS) in 1993, ASEAN Outstanding Scientist & Technologist in 2001, the L'Oreal-UNESCO Award for Women in Science in 2010, and the Outstanding Alumnus Award of the University of Iowa's Carver College of Medicine in 2011.



## CLIMATE CHANGE: IMPACTS, RESILIENCE AND ADAPTATION STRATEGIES

### **Dr. Josefino C. Comiso**

National Aeronautics and Space Administration (NASA), USA

Observations based on direct measurements, satellite remote sensing and other techniques have provided many indicators of a warming climate. The anthropogenic influence on the Earth's climate system is now considered unequivocal. As the concentration of greenhouse gases increased to more than 400 ppm, which is beyond the natural variability of 190 to 290 ppm, as observed from ice cores, atmospheric and surface temperatures have increased, the heat content of the oceans up to 700 m depth has gone up, amounts of snow and ice have diminished, and the rate of sea level rise has increased. At the current rate of decline, the perennial ice in the Arctic, which has persisted in summer for at least 1,450 years, is likely to melt completely within this century and cause drastic changes in the ecology of the region and alterations in the thermohaline global ocean circulation. The rate of sea level rise has increased from 2 mm/year to 3 mm/year but the main concern is the vulnerability of the Greenland and West Antarctic ice sheets which could cause a few meters increase in sea level causing big disruptions in coastal cities around the globe. Warmer sea surface temperature is also expected to cause higher frequency of heat waves and of extreme events like super-typhoons and flooding. A warmer climate will lead to increases in areas affected by drought and fire and the loss of crop yields and biodiversity. Resiliency to catastrophic events and strategies for adaptation to our changing climate will be discussed.



### **BIOGRAPHICAL SKETCH**

He is a senior scientist at the Cryospheric Sciences Laboratory of the NASA Goddard Space Flight Center. He received his Bachelor of Science degree in Physics from the University of the Philippines and became one of the first junior scientists to work at the Philippine Atomic Research Center. After a few months, he took advantage of a faculty job at the University of the Philippines and taught physics as an instructor for a year and a half before attending Florida State University (FSU) where he pursued a Master of Science degree in Physics. At FSU he did research in experimental particle physics and analyzed bubble chamber data on 3-prong events from K-meson interactions with deuterium nucleus. He then went to UCLA to pursue a Doctor of Philosophy degree in physics and did his thesis project at the high energy accelerator facilities at the then Lawrence Radiation Laboratory at Berkeley, California. He studied

inverse pion photo-production in the vicinity of the P33 resonance to assess possible violation of time reversal invariance in electromagnetic interactions. Time reversal is one of the three fundamental symmetries in nature called Charge Conjugation, Parity and Time Reversal (CPT) and was at that time a very hot topic in physics because of previous observations of a violation of Charge and Parity symmetries. His results, which were later confirmed by others, indicated that there is no violation of Time Reversal in Electromagnetic Interaction. He did postdoctoral research at the University of Virginia and studied pion-capture processes in carbon and other nuclei using the then newly constructed linear accelerator (called "pion-factory") at Los Alamos National Laboratory. At UVa he also jointly developed a unique unfolding procedure for measuring the stopping power of charge particles and participated in projects to investigate alpha induced production of light particles using the NASA synchrocyclotron facility at Newport News Virginia.