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### Dr. Santhi Kanoktanaporn joins the APO 📭





Growth and green goals **P6** GIR needs engines of real economies **P8** Finding new sustainable economic models **P12** 

## 57th WSM to convene in Putrajaya



he APO's 57th Workshop Meeting of Heads of National Productivity Organizations (WSM) will be held in Putrajaya, Malaysia, 19–21 October. The agenda includes adoption of the evaluation of 2015 projects, reconfirmation of the APO Program Plan for 2017, and a statement from new Secretary-General Dr. Santhi Kanoktanaporn.

The 57th WSM will focus on reviewing programs to respond effectively to the changing needs of member countries. The Secretariat will present the project evaluation report for 2015 and impact evaluation for 2014 and

2015 as well as an overview of the program approach for 2017 and 2018.

Representatives from NPOs will present country papers describing their strategic plans to drive national productivity movements and the challenges they face. The country papers will help the WSM to identify country-specific needs not addressed in the APO roadmap and devise proposals to meet them. The WSM will also focus on the human resources development frameworks of members for creating programs to develop skill sets and competencies that the future workforce will require to meet productivity challenges.

A new banner was created for the 57th WSM, drawing upon the APO logo and colors. It symbolizes how the mechanics of gears, representing industry, can only be beneficial when many come in contact to move or deliver a load factor. The design identifies the WSM as the lubricant that helps the APO to avoid wear and tear among multiple gears and function optimally while maintaining the dynamism of individual member economies. This is depicted by the abstract design of a flying object moving upward and onward.







#### **Enhancing Public-sector Excellence**

This guidebook is meant for NPOs aiming to introduce a business excellence (BE) model or awards for the public sector or to enhance their existing schemes. The importance of BE models is introduced through a series of questions and answers, followed by information on promoting and adopting BE and setting up an award process. The final of seven chapters explores how NPOs undertake BE initiatives in the all-important public sector.

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Go to the APO website at **www.apo-tokyo.org/publications/ebooks** to access this book online.

#### Inspiring Entrepreneurship

The research resulting in this report was based on the Global Entrepreneurship Monitor model showing the relationship between entrepreneurship and development. A clear distinction is made between start-up activities and entrepreneurship, since the latter is the mindset that makes the former possible. The book examines in detail the critical role of entrepreneurship in seven APO member economies at different stages of development to show how it can be encouraged to support more innovation.

Go to the APO website at www.apo-tokyo.org/publications/papers to access this book online.



## Dr. Santhi Kanoktanaporn joins the APO

As Secretary-General, he aims to focus on making member economies more productive and competitive by 2020.

n 16 September, the APO Secretariat welcomed 11th Secretary-General Dr. Santhi Kanoktanaporn. He was elected unanimously at the 58th Governing Body Meeting held in Jakarta, Indonesia, in April 2016 to succeed Secretary-General Mari Amano, who completed his term of office on 15 September.

Secretary-General Dr. Kanoktanaporn is an industry veteran with over 40 years of hands-on experience in driving productivity enhancement initiatives and strategic international development programs. He also has vast experience ranging from product quality control, to environment and waste management consultancy, to the telecom and petrochemical sectors.

"I am really happy to be at the APO Secretariat, the premier organization focused on improving productivity across the Asia-Pacific region. I have a long association with the APO, particularly during my recent tenure at the Thailand Productivity Institute (FTPI), and hope to work closely with NPOs to understand their country-specific needs and translate them into meaningful programs that can contribute to sustainable socioeconomic development," he commented.

He added that as Secretary-General his focus would be on making member countries more productive and competitive by 2020. "Globally, economies are concerned about further improving productivity through the use of better technologies and by reducing wastage of resources. The APO was the first organization in the world to promote the concept of Green Productivity, and I want to strengthen the APO's leadership role to help even less-developed economies achieve low-carbon development."

Dr. Kanoktanaporn has a PhD in Chemistry from Sunderland Polytechnic in the UK and a Master's in Management from Sasin Graduate Institute of Business Administration. He is the author of several academic research papers and has translated two books, *Power and Love* and *Transformative Scenario Planning* by Adam Kahane. Before heading the APO Secretariat, Dr. Kanoktanaporn was Executive Director of the FTPI, where he developed the master plan (2016–2020) for improving national productivity for the Ministry of Industry. He was also responsible for developing the Sustainable Corporate Index, a self-assessment tool to help Thai companies identify gaps in their roadmaps and action plans to achieve sustainability.

During his tenure at the FTPI, Dr. Kanoktanaporn expanded its productivity initiatives through local and international networks, while encouraging organizations to adopt Thailand Quality Award (TQA) management excellence guidelines for self-assessment and continuous improvement. Under his guidance, the TQA was conceived as a national productivity strategy to help public and private organizations make sustainable management improvements to enhance competitiveness.

The new Secretary-General previously served as the President of the Foundation for Industrial Development for the Management System Certification Institute (Thailand), a notfor-profit foundation under the Ministry of Industry, where he was responsible for increasing national competitiveness through standardization and the development of competency in the public and private sectors to meet international standards. He developed the first Thai management system standard, TISI 9999: Sufficiency Economy Guideline for Industry. Other roles included Chairman of the CB Association of Thailand, Country Manager (Thailand) of the US Chamber of Commerce, and Managing Director of Sysmen Company Limited. (2)

## This is why green projects are not white elephants

## Once we look past the false-positives of a petroleum economy, a compelling case can be made for funding green industrialization.

hen Javier Morales, then the deputy mayor of the island of El Hierro, part of the Canary Islands region of Spain, asked me to assist in the design of a local economy that one day would be self-sufficient in water and fuel and would stimulate small-scale local industries, it did not take long to propose a strategy based on wind energy, hydropower, and flywheels. The goal was to provide renewable energy and abundant water to stimulate agriculture and local food-processing industries, especially meat, cheese, and yogurt. The total investment for this project at the outset in 1997 was estimated at €67 million. The response from the political and financial world was that if this little island of no more than 10,000 inhabitants required an investment of so much money, then we were out to build a "white elephant." Is that true? Let us look at it from another angle.

At the time, the island spent €8 million a year on the import of diesel fuel to generate electric power. It is interesting that this economic and energy model was considered normal: water and power were expensive, rendering industrialization impossible. However, it does not take an economist to realize that the total expense for the local population for importing the fuel, while assuming major risks, was €80 million over a decade. Also, this money went straight to the oil producers, none of which are based in Spain. So we raised the question: "How can the import of polluting fossil fuels be considered normal, while the redirection of a guaranteed expense by everyone on the island into local renewable sources of energy which plough money back into the economy is considered a white elephant?"

The idea to convert El Hierro into the first water and fuel self-sufficient island turned into a reality. The facility was inaugurated in 2013. Water and power are life, and for centuries this island has suffered from dramatic shortages of both, rendering industrialization impossible. Just imagine the turnaround thanks to renewables: double the amount of water on the island at half the cost. Today, industrial production includes a meat-packing enterprise processing goats and sheep; a cheese and yogurt factory, combined with the processing of fresh fruit; and a winery converting locally grown grapes into wine. The island has high employment rates, and, for the first time in decades, children and grandchildren imagine a future and professions on the island.

#### Unaware of the consequences

A century ago, the world production of silk hovered at around one million tons per year. Today, output hardly reaches the 100,000-ton level. The arrival of nylon, a synthetic polymer developed by scientists at Dupont de Nemours, introduced the knock-out phase for the natural polymer produced by the mulberry caterpillar (which the English mistakenly call a silkworm). The traditional ecological economist would enter the debate and calculate the amount of carbon emitted by one million tons of petroleum used to produce nylon and compare it with the carbon sequestered in the process of silk making. While this is a correct approach, it is incomplete.

When China embraced the farming of silk 5,000 years ago, the first interest was not the silk, but rather the conversion of savannas into fertile areas. It was quickly noted that the symbiosis of a caterpillar that would devour about 50% of the canopy of the mulberry tree left a rich mix of excrements so nutritious to microorganisms that it triggered the creation of topsoil. An area considered infertile that was planted with mulberry trees would be ready for planting watermelons within a decade. What few people realized is that the caterpillars triggered a soft, unnoticed chemical reaction that fixed carbon into the soil, creating black earth that would continue to serve humanity for centuries. This ecosystem service was the real success of the mulberry–caterpillar symbiosis. Silk was a by-product.

With the arrival of nylon, we not only replaced natural silk with petroleum derivatives at high energy expense; worse, we stopped creating topsoil for the sequestration of organically bound carbon and nitrogen. The lack of continuous cycles of topsoil generation with a blend of minerals and nutrients through the creation of additional ecosystem services led to the mining of carbon and nitrogen up to the point where there is none left. As soon as carbon levels are less than 5% or 6%, farmers are obliged to maintain production by irrigation since carbon-poor soil cannot retain water and by adding synthetic fertilizers and nitrogen since the core feedstock (carbon) is too depleted. This is only viable with the infusion of a massive input of fossil fuels. Silk is natural and resistant and has a useful life of at least three generations or 100 years. Nylon is a typical throw-away product, as symbolized by women's stockings that are in the bin the day minor damage is visible. Nylon is never recycled.

We need to realize that petroleum chemistry is not only about replacing a natural fiber (silk) with a synthetic one (nylon), it is also about replacing a system that cycled carbon with long retention and storage systems into one that leads to the permanent spewing of carbon into the atmosphere due to this throw-away culture. This makes our addiction to petroleum even more debilitating. It is like a drug addict who is not only endangering his/her own life, but destroying the whole social tissue

around it by promoting illegal production and trade that enrich a few and leave society with the costs of rehabilitation, violence, and penitentiary services.

#### Reverse the system, go green industries

The key question is how to reverse this trend. Silk has unique tensile strength, permits cells to grow on and in it, and is a natural inhibitor of the growth of fungi and specific bacteria. This natural design at the molecular level has been studied in great detail by scientists. It is an amazing reality that unfolds before our eyes: silk can regenerate cartilage and thus avoid knee replacements based on titanium; and silk provides the scaffolding for the regeneration of nerves after trauma, including the potential to allow quadriplegics to walk again.

While these are only small volumes that we can foresee for medical applications, the big market will be in cosmetics where synthetic emulsifiers have become the standard, causing massive marine pollution with microbeads that end up in our food chain. Nondegradable plastic beads in everything from shaving creams for men to emulsifiers in night creams to reduce wrinkles can now be replaced with silk, and that would conservatively require two million tons of silk.

We will only succeed in creating a fossil fuel-free world if we change our system of production and consumption. The case of coffee is one of those obvious examples that surprises many and demonstrates once again how ignorant we are about the opportunities before us and of the magnitude of the damage we cause.

With the arrival of nylon, we not only substituted petroleum derivatives for natural silk at high energy expense; worse, we stopped creating top soil and the sequestration of organically bound carbon and nitrogen.

Coffee is a globally traded commodity. An estimated 10 million tons of green coffee travel the world. Who is aware that only 10,000 tons are actually ingested, and a staggering 9.99 million tons are discarded as waste? At best, this leftover from the brewing process is composted, even though we know that between the moment of brewing and the moment of disposal there is vast generation of (once more) methane gas. We all know that agriculture causes major methane emissions. But what we do not know is that many of these emissions could easily be avoided. The coffee-processing industry, from the makers of instant coffee to the chains of coffee shops, has found ecological solutions that unfortunately belong to the same category of "substi-

tuting high fat for regular fat, while we know that we cannot have fat."

While the incineration of coffee waste, like so many other forms of agricultural residue, is often presented as a fine substitute for fossil fuels, we forget that the generation of methane gas and carbon emissions cannot be lost to sight. It is not just about burning versus rotting; the whole supply chain requires a fresh approach. The substitution of fossil fuel with coffee leftovers is "doing less bad." But what we need is "doing more good." Here is the logic: coffee is

treated either by heat or by inert gases to extract the soluble part that offers either a powder to produce an instant drink or a hot coffee to enjoy. Since the biomass has been pretreated, it is ideal for farming mushrooms. Do we realize that 60% of the cost of mushroom farming is the sterilization of the substrate and that this energy is not required if we use processed coffee grounds on-site?

The case of coffee is just one of the many examples that demonstrate that, with a minor shift in handling and processing, we are able to create energy efficiencies that have not been considered viable. We can farm mushrooms with 60% less energy and no need to transport raw materials. The advantage is that most of these solutions do not require new technologies, complex engineering, or heavy capital investments. These solutions are pragmatic and can be implemented by you and me. The only way that we will succeed in the steering of business toward sustainability is by realizing that it is not difficult, it is different. To quote the legendary Nelson Mandela: "It always seems impossible, until it is done."



Gunter Pauli, an entrepreneur and proponent of green industrialization, is also the author of the best-selling book The Blue Economy. Follow him on Twitter @MyBlueEconomy.

# Quality, not quantity of growth can lead to green goals

Low-carbon economies will become a reality only by marrying long-term gains with short-term economic interest.



p-Watch: A macro view of productivity trends

he UN's Sustainable Development Goals (SDGs) and the Paris Climate Agreement were adopted in 2015 to serve as charters for the planet in the 21st century. The outcome document for the UN post-2015 development agenda, Transforming Our World: the 2030 Agenda for Sustainable Development, defined the immense challenges to sustainable development. Enormous disparities of opportunity, gender inequality, unemployment, global health threats, more

frequent and intense natural disasters, spiraling conflicts, violent extremism, and humanitarian crises threaten to reverse the progress of recent decades. Natural resource depletion and environmental degradation including desertification, droughts, land degradation, freshwater scarcity, and loss of biodiversity exacerbate challenges to sustainability.

#### The peril of climate crisis

Climate change is one of the greatest challenges of our time and its adverse impacts such as rising global temperatures and sea levels, ocean acidification, and increasing volatility of weather patterns put biological life-support systems at risk. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change released in October 2015 concluded that global surface temperatures had warmed an average 0.85°C from 1880 to 2012 and could rise by 3.7°C to 4.8°C, with sea levels rising 45–82 cm by the end of the century. These will impact ecosystems by increasing extreme climate-related events such as droughts, floods, heat waves, wildfires, and ocean acidification, in turn adversely affecting food and water security.

#### Transformation of the economic system

Achieving the SDGs and promoting a low-carbon future require a fundamental economic system change for balanced

Maximizing GDP growth forces us to exploit human and natural capital. We need to exit the vicious cycle of exploiting and set in motion the virtuous cycle of investing long term in human and natural capital for sustainability. integration of short-term economic interests with long-term social and environmental gains. Economies can adopt three-step transformational strategies to ensure this.

First, we must move away from the current trade-off among economic, social, and environmental dimensions toward a new win-win synergy by closing the gap between short-term economic interests and long-term social and environmental gains. Second, we need to shift the policy focus from the "quanti-

ty" of GDP maximization the "quality" of growth. Maximizing GDP growth forces us to exploit human and natural capital. We need to exit the vicious cycle of exploiting and set in motion the virtuous cycle of investing long term in human and natural capital for sustainability. Third, we must adopt a new paradigm where greenhouse gas mitigation stimulates economic growth. Unless it drives growth, it will not be easy to scale up voluntary mitigation called for by the Paris Climate Agreement.

#### Green as a driver of economic growth

In 2005, the idea that green can drive economic growth was discussed at the Ministerial Conference on Environment and Development in Asia and the Pacific. As the director of the UN ESCAP, I proposed green growth to turn ecological crisis into economic opportunities. After the 2008 financial crisis, similar approaches emerged based on the belief that investing in the green sector could stimulate growth while meeting the challenges of climate change and sustainable development. Those were the first attempts to change perceptions of the relationship between the economy and environment from "trade-off" to "synergy."

In March 2009, the UN Environment Programme's policy brief on the Global Green New Deal recommended that governments "invest 1% of GDP over the next two years," which "could provide the critical mass of green investment needed to reduce carbon dependency and to seed a significant greening of the global economy." Many governments initiated ambitious programs of green investment. The G20 discussed how to make the Green New Deal a paradigm shift for green growth. The OECD is leading programs to sustain the vision of green growth through policy shifts. The Low Carbon Green Growth Roadmap for Asia and the Pacific was published by the UN ES-CAP in 2012 as a blueprint for policymakers with more than 100 specific policy options and success stories. In June 2016, the International Asia EnviroEconomics Conference during the



APO Eco-products International Fair in Bangkok gave recommendations that nations could adopt to create a lowercarbon economy.

#### Achieving the SDGs and a low-carbon future

Green Productivity (GP) is defined as a strategy for enhancing productivity and environmental performance for overall socioeconomic development. GP at the individual firm level will remain important, but national economic policy to incentivize green investments and create synergy between the economy and environment will be a defining factor.

The first critical factor for a national GP policy framework based on the transformational strategies above is long-term consistency in green-sector investments and capacity building. Economic returns on investment in the green sector usually take longer than investment in other sectors. Governments and the public sector must provide the necessary financial and capacity-building support to close the gap between short-term economic returns and long-term green gains.

Reforestation in Costa Rica is a case in point. The Costa Rican government raised taxes on fossil fuel and ranch farming to mobilize the financial resources necessary to invest in reforestation over the last three decades. Now Costa Rica enjoys ecotourism based on rich forests as a main source of income for local people.

A second factor is shifting the policy focus from the quantity to quality of economic output. In many cases, we sacrifice long-term quality in favor of short-term quantity of production. The benefits of GP are sometimes difficult to measure and thus could easily be overlooked. For example, ecotourism involves many elements difficult to quantify, such as social inclusion and environmental quality. This is why governments must design economic policy frameworks that focus on promoting social and environmental good. The Costa Rican government, recognizing the importance of reforestation, invested in it rather than increasing the quantity of cattle and dairy farmland by clearing forests. Economic returns from reforestation through increased ecotourism are far greater than those from dairy farms and cattle ranches. This is a classic success story of creating a virtuous cycle of investing in natural capital, which resulted in higher long-term economic returns.

A third factor is promoting renewable energy policy frameworks presenting the mitigation of greenhouse gas emissions as a business opportunity through incentive schemes such as feed-in tariffs or emission trading. Under the Paris Climate Agreement, countries are working together for a low-carbon future to stave off climate crisis by investing in renewable energy and promoting technological innovations. Developing countries may lose future industrial competitiveness if they do not prepare for the transition to a low-carbon economy. Those lacking financial and technological capacity can create enabling fiscal policy frameworks such as carbon taxes, which are powerful tools to turn climate crisis into business opportunities. Carbon taxes have been mainly tested in developed countries, but many developing countries that introduced energy taxes found that they are compatible with economic growth. As they enhance low-carbon competitiveness, developing countries need policy packages supporting long-term investment in renewable energy products and services.

GP pursued at the national level supported by a policy framework focusing on social, ecological, and climate benefits with long-term consistency can play a critical role in promoting a sustainable, low-carbon future. (9)



Raekwon Chung is a proponent of green growth and author of the Low Carbon Green Growth Roadmap, a compilation of policy options and success stories to make green a driver of economic growth. Follow him on Twitter @greengrowthrkc.

## To charge ahead, GIR needs engines of real economies

Without conscious, focused efforts from governments, there can be no planned allocation of resources and hence no sustainable momentum.



p-Watch: A macro view of productivity trends



he Green Industrial Revolution (GIR) has begun as a global trend through a complete restructuring of the way energy and other major infrastructures such as water and waste management, transportation, and buildings are generated, supplied, and implemented. The GIR now marks an era of extraordinary opportunities, with remarkable innovations in science, technologies, economics, and especially energy, which can lead to sustainable, carbonless economies.

The GIR is more significant and life changing than the earlier industrial revolutions. It also turns out to be the planet's only real chance for survival. With an estimated nine billion inhabitants by 2050, there is much more at stake. Today, the world is rapidly running out of fossil fuel, particularly oil. This alone threatens to shake the very foundation of human existence. Adding a heightened sense of urgency are

environmental degradation and the collapse of various parts of our planet's ecosystem, such as the Brazilian watershed, Antarctica, and the Arctic, with rising sea levels threating island nations around the earth.

The GIR is being led by the Asian economies of the Republic of Korea (ROK), Japan, Singapore, and PR China as well as some European economies such as the Nordic countries and Germany. The USA is lagging behind as a nation, although some of its states such as California, Oregon, and New York and the New England area are moving ahead.

#### Asia takes an early lead

The oil embargoes of the 1970s pushed Japan and the ROK toward economic and energy policies that eventually led to their development of the GIR. By the 1980s, many Asian and European countries had realized that their futures were not

rooted in the same carbon-intensive economies that had built the Western economies of the Second Industrial Revolution, as they now became dependent on oil imports and started environmentally damaging programs to obtain oil and natural gas. These Asian and European nations wanted more energy security and developed national policies and programs to reduce their growing dependency on foreign fuels.

PR China started the same thing, in association with Singapore, at the turn of the 21st century by creating the Tianjin Eco-city. All buildings in the Tianjin Eco-city comply with the Green Building Evaluation Standards, a unique benchmark that Singaporean and Chinese expert teams developed. The smart green city has a sound water management system that allows residents to drink directly from their taps, while sewage water is treated to provide a supplementary supply.

Clean, renewable energy sources such as solar water heaters and geothermal heating systems are used in the city to supplement traditional energy supplies. Also, a collective system of waste management and recycling is integrated with waste disposal and incineration processes to regenerate energy as well as minimize the strain on landfills.

Thailand, despite being toward the other end of the economic spectrum in Asia, is also taking significant concrete

steps toward a smart green city. Its capital, Bangkok, has a population of over eight million people. Threatened by an increase in extreme weather and heat waves due to climate change, the city has introduced a number of ambitious environmental, local public health infrastructure, and health programs.

#### Europe's energy strides

In Europe, while Denmark and other Nordic countries shifted national resources toward renewable energy power by national consensus, Germany developed the innovative feedin-tariff (FiT) financial process that started in the early 1990s under the national government that recombined East and West Germany into one nation.

Germany's FiT was part of the 2000 Energy Renewable Sources Act, formally called the Act of Granting Priority to Renewable Energy Sources. This remarkable policy was designed to encourage the adoption of renewable energy sources and to help accelerate the move toward "grid parity," making the price of renewable energy the same as that of the existing power from the grid. Under FiT, those generating eligible renewable energy, either homeowners or businesses, are paid a premium price for the renewable electricity that they produce. Different tariff rates were set for different renewable energy technologies, based on the development costs for each resource. By creating variable cost-based pricing, Germany was able to encourage the use of new energy technologies, such as wind power, biomass, hydropower,

The GIR is more significant and life changing than the earlier industrial revolutions. It also turns out to be the planet's only real chance for survival.

geothermal power, and solar photovoltaic, as well as to support the development of new technologies.

#### **Funding the GIR**

Some market economists and others argued that there was no need for regulation; the government would act as "the invisible hand." Nothing could be further from reality. Without national and local policies in place, countries cannot address the issues, and there can be no action, no improvement, no resources, and certainly no response to environmental degradation. There is not, and never was, such a thing as the government being an "invisible hand" in capitalism. Governments have always been involved and need to be even more involved for a better future.

The key for local, state, provincial, and national govern-

ments is to have each of the major infrastructure components, i.e., energy, water, waste, telecommunications, and transportation, linked and integrated. That way, the overlapping costs for construction, operations, and maintenance can be contained and reduced. If these basic infrastructure components can be constructed, operated, and maintained on the local level and meet regional, state, and national goals for carbon reduction, they take on a different per-

spective, format, and cost structure.

Plans need to have financing, and vice versa. For example, the most significant result of the German FiT was that it stabilized the renewable energy companies and reduced the financial risk of energy investment. By guaranteeing investors compensatory payments down to the last pfennig per kWh, the FiT program created a secure climate for investment. The program covered up to 20 years per plant, with the exception of hydroelectricity installations, which required longer amortization periods. The law also offered a means for altering the compensation rates for future installations, if necessary.

So the GIR is not all about costing money. The GIR is about climate change mitigation, renewable energy, smart grids, and environmental sensitivity. But achieving the benefits of the GIR, like a wave of new smart green technologies, business enterprises, and green jobs, will require substantial public and private financing. The GIR economy will be needed to accelerate the necessary changes and stop climate change.

#### **Qualitative economics**

Climate change is real; it impacts everyone around the world. Decades of failing to curb the world's dependency on fossil fuels has made the planet hotter and more polluted. It has killed people and stolen their livelihoods. The world's poorest nations are the most vulnerable as they face increased risk of droughts, water shortages, crop failures, poverty, and disease. The fossil fuel companies and nations continue to deny *continued on page 10* 



climate change and put political pressure on the public and governments to keep and expand fossil fuels. How can we account for these costs?

A hotter planet threatens to roll back decades of sustainable growth, and the science is clear on this. In 2007, the UN Intergovernmental Panel on Climate Change confirmed that humans are the cause of global warming and that the planet has been trending hotter since preindustrial times. Oceans are warming, sea levels rising, and the global mean temperature is higher.

That the costs for saving the environment and solving climate change are unknown is often given as an excuse to do nothing. There needs to be more extensive economic evidence of the impact of climate change through areas not in traditional economics such as "externality" costs for the loss of human lives, damage to communities, and costs for finding, drilling, and then shipping fossil fuels (e.g., ships, trains, and trucks). Furthermore, there needs to be a life-cycle economic analysis that is not just a business plan for companies with a return on investment of two to three years. The devastating environmental impact on the environment and people comes from coal, oil, gas, and nuclear power. The most common comment from the traditional neoclassical economic paradigm is that the "market" will find solutions. That is false.

#### The future is now

First, there needs to be a master plan for all integrated infrastructures that include energy, transportation, water, waste, and telecommunications, along with the traditional dimensions of research, curricula, outreach, and assessments. Second, an array of issues pertaining to the design, architecture, and setting of buildings and overall facility planning must be addressed from the perspectives of green energy and smart systems for energy conservation and efficiency. Third, while the "next economics" is a key part of the GIR and the new economic paradigm is already defined, they need to be placed and managed in every situation. Today, most economic analyses are focused on one area or another, like energy, transportation, or water. Few economic analyses study overall integrated community infrastructure systems. Even more significant are the areas not usually considered in economics, like the environment, climate change, and health issues, which are all interrelated.

The place to start is with small, relatively self-contained communities or villages within larger cities and regions. The issue is to get communities off their dependency on central grid-connected energy, since most of these power generation sources come from fossil fuels like coal, natural gas, and nuclear power. Local on-site or distributed power can be more efficiently used and based on the region's renewable energy resources such as wind, solar, and biomass, among others. This model is now being implemented in Denmark and Germany and is under consideration in Japan and PR China, where many communities are generating power with wind and biomass combined to provide a base load.

The central power grid is still needed but should be combined with on-site local power. They must be integrated so that nations and regions have both systems. This plan and economics are known as "agile energy systems" that have both, not one or the other. The government is really the major part of the solution for both central and on-site power systems. It needs to be present for the objective oversight of the economics, much like a physicist would be in and out of the laboratory.



Woodrow W. Clark II is a qualitative economist with three graduate degrees in different areas including a PhD and the author of 11 books and over 60 peer-reviewed articles on solutions for climate change, which are sustainable communities through smart green technologies and the economics of "civic-capitalism."

## **APO members examine bio-agritechniques**

reen Revolution technologies contributed immensely to crop productivity and food security in developing countries but at a cost, since chemical fertilizers and pesticides have negative food safety and environmental impacts. This means that the world needs more sustainable, economically viable agricultural practices.

To take this further, the APO organized the 1st International Conference on Biofertilizers and Biopesticides in

Taichung, ROC, 23–26 August. It was attended by 46 participants from 13 member nations and 70 local observers representing government, the private sector, NGOs, farmers' associations, and academia who examined new bio-agritechniques for optimal crop growth and pest control. They also formulated recommendations on policy and regulatory environments to encourage the adoption of such techniques. The APO News will publish the document containing the recommendations in the next issue.



Ai

#### Mavu Chiba

She is already a popular face in the Secretariat and effective from 1 August, Mayu Chiba took on new responsibilities as a project officer in the Industry Department. She previously served as a project assistant in the Research & Planning Department. Mayu has a Master's degree in International Economics and Finance from the University of Queensland, Australia, and several years of global financial industry experience, including project implementation, training of overseas staff in Singapore, and setting up JETRO's new office in Ibaraki. She has also worked with stakeholders throughout the region. In her new position, she is eager to cooperate and engage with all NPOs to identify specific needs, issues, and solutions to address their productivity improvement needs. "I hope to contribute to the APO by maximizing my skills and experience by working closely with colleagues from different countries," she commented. When not in the office, she likes holiday travel and engaging in outdoor activities. She is also fond of cooking and listening to music.

#### **New @ Secretariat**

Working with an intergovernmental

organization might be a new experi-

ence for Ai Matsumaru but she is not

new to the international business en-

vironment. The Industry Department

project assistant who joined the APO

Secretariat on 1 August is experi-

enced in working with international

development consulting firms and

was responsible for managing and

coordinating various Japan Interna-

tional Cooperation Agency projects

as part of her assignment at PADECO.

With an MSc in Development Stud-

ies from the London School of Eco-

nomics and Political Science, Ai looks

forward to making good use of her

experience to enable smooth deliv-

ery of APO projects. An avid karaoke

fan, she loves J-Pop, K-Pop, and rock

as well as exploring new destinations,

particularly world heritage sites and

experiencing local culture and food.

"Asia is the one of the regions hav-

ing the most variety of cultures and

traditions in the world and I look for-

ward to communicating with various

people and learning from the diverse

cultures at the APO," she said.



#### Shoko Ikezaki



A firm believer in the "less is more" mantra, Shoko Ikezaki is the newest face in the Industry Department, joining as a project assistant on 15 August. She is an alumna of the Osaka University School of International Public Policy, where she studied international law, labor law, and international human rights for an MA after receiving a BA in Sociology from Concordia University in Montreal, Canada. Shoko has rich international experience in community development, environmental and pollution management, and microwatershed management programs in Japan, Nepal, and India, during which she was involved in project accountability monitoring, managing implementation progress, and financial reporting to donor agencies like the Japan International Cooperation Agency. A cycling and yoga enthusiast, Shoko is also fond of watching documentaries and films on development and interested in learning about the spirit of Zen. As part of the APO Secretariat, she is looking forward to learning from everyone and "bringing smiles and laughter" to the office every day.

## **Finding new sustainable** economic models

The Bangkok Outcome Document urges policymakers to respect social and planetary limits to mitigate climate change impacts.



he world has reached planetary and social limits and needs to adopt a major policy change to recreate the delicate balance between economic needs and the environment. "Governments and decision makers around the world need to recognize the need for a change in the present economic model and move away from the conventional short-term supply vision," recommended the recently released APO Bangkok Outcome Document.

The document is based on deliberations at the International Asia EnviroEconomics Conference organized by the APO, along with the Thailand Productivity Institute and Federation of Thai Industries, as part of the Eco-Products International Fair 2016 in Bangkok from 8 to 10 June.

Calling upon global economies to explore and adopt new business models to achieve Green Productivity (GP) and long-term business sustainability for a low-carbon future, the document lists three key strategies and several steps for mitigating climate change. It calls upon APO members and world economies to develop sustainable, smart, green communities and cities and targets 50% reductions in water, waste, and carbon emissions per capita in cities by 2030. The document recommends that this be achieved through recycling water and waste and doubling renewable and bioenergy use. It also suggests that by 2020 the world

<u>Tokyo 113-003</u>3, Japan

should double the number of eco-smart cities, reduce traffic congestion by 50% by increasing the volume and share of public transportation, and establish standards and criteria for eco-smart cities.

The document emphasizes the need for world economies to adopt multifunctional approaches to increase GP and calls for production chains that minimize emissions and waste by undertaking 100% recycling of biomass and other renewable energy sources. It also calls upon governments to provide plans and fiscal incentives for GP and ethical consumption at all levels.

Raising awareness of the need for sustainable development and GP at the social and business level is the third key strategy recommendation. The document recommends the use of mass media, social media, and education to do this and to create GP business models for climate change mitigation. It also recognizes the important role public policy can play in setting standards and criteria, and in promoting renewable energy use for closing the gap between short-term economic priorities and long-term sustainable development goals.

Go to the APO website at www.apo-tokyo.org/publications /outcome\_documents to access this document.



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Fax: 81-3-5840-5322 e-Mail: apo@apo-tokyo.org

