

ANNUAL REPORT

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Foreword

"If I were to choose a single word that represents my hope and guides me in passing through the harsh, trying time such as we are experiencing currently, I would choose the word 'tenacity.' This word underlines determination; it combines endurance with conviction that all we are aiming at will transpire. With tenacity, not only will we be able to bear this hard time but turn it into achievements and glory."

> 61st Workshop Meeting of Heads of NPOs 20 October 2020

Making the Best out of the Worst

In the late 1970s, *The Year of Living Dangerously* was published, recounting the tumultuous mid–1960s in Indonesia. Most would agree that the title was hyperbole, a clever marketing ploy by the author. What everybody failed to foresee was how such a quirky title, after more than four decades, so aptly portrays the predicament that we all face today under the threat of the COVID-19 pandemic.

Extraordinary times call for extraordinary responses. That is probably the best description of how the APO performed during a completely pandemic-dominated 2020. Caught unprepared, everyone struggled and scrambled for survival. Losses abounded, and opportunities or momentum halted, if not shattered. One of the world's most extravagant events, the Olympic Games, was forced to be postponed for the first time in its modern history, excluding the three cancelled due to wars.

Recovery and resilience became the new buzzwords. The APO reacted similarly, but with a distinct difference: the pandemic highlighted the continuing relevance of productivity. We therefore passed through a frenzied 2020 with the clear, firm conviction that our mission of promoting productivity had become more important than ever.

In two of the most significant moments in the organization's history, APO Directors and NPO Heads gathered virtually for its Governing Body Meeting and then the Workshop Meeting of Heads of NPOs. As a demonstration of unity and solidarity, the Directors issued the "APO Statement on the COVID-19 Pandemic and Productivity," reaffirming the APO's stance on overcoming the profound challenges presented by the pandemic and restoring prosperity in the Asia-Pacific region through productivity enhancement.

With the world closing down due to travel restrictions, all projects were converted to a digital format. This led to new, creative solutions in imparting productivity messages and learning. The APO's YouTube channel became the primary platform to engage with a wider audience on productivity issues. The Productivity Talk (P-Talk) series, presentations by notable experts, government ministers, heads of international organizations, and academics, took center stage. Seventy-seven P-Talk sessions involving 109 speakers from around the world were launched, garnering more than 75,000 views.

Multifaceted, unprecedented challenges are continuing. In 1859, naturalist Charles Darwin proposed that the species most adaptable to change, not the strongest, would survive. This remains true today. The APO will continue adapting through innovation, transformation, wisdom accumulated from its six-decade journey, and the collective strength of its member countries.

AKP Mochtan Secretary-General

62nd Session of the APO Governing Body

61st Workshop Meeting of Heads of NPOs

The 61st Workshop Meeting of Heads of National Productivity Organizations (WSM) was conducted via videoconference, 20–22 October 2020. It was attended by 38 NPO delegates, 22 advisers, and 17 observers from the ACCSQ, Asian Development Bank, ASEAN Secretariat, African Union Development Agency—New Partnership for Africa's Development, Science and Technology Centre of Antioquia, Colombia, Ethiopia Kaizen Institute, Japan International Cooperation Agency, Kaizen Institute of Zambia, UN Human Settlements Programme, World Bank Group, and an expert from the University of Newcastle.

Deputy Minister of Science and Technology of Vietnam Le Xuan Dinh delivered the inaugural address, while APO Alternate Director for Vietnam Dr. Ha Minh Hiep presented the welcome remarks.

The meeting discussed and endorsed the Impact Evaluation Study of the APO 2018/2019 Program, Evaluation of 2019 Projects, and the reports on the Program and Project Planning Workshop, Vision 2025: Operational Targets, 60th Anniversary, Digital Capability and the Centers of Excellence, and Preliminary Program Plan for the 2021–2022 Biennium. At the International Conference on iProductivity which was conducted by the host country in conjunction with the WSM, the speakers and delegates exchanged views and experience on how innovation could help member countries adapt to the changing business environment and become more resilient in responding to crises like the COVID-19 pandemic.





The 62nd Session of the APO Governing Body (GBM) was conducted on 8 June 2020 via videoconference for the first time in the organization's long history. The meeting was attended virtually by APO Directors representing 20 member countries, including the newest member, Turkey.

Outgoing APO Chair and APO Alternate Director for Thailand Dr. Phanit Laosirirat delivered the inaugural address, while the incoming APO Chair and APO Alternate Director for Vietnam Dr. Ha Minh Hiep presented the opening remarks.

The GBM discussed and approved the Preliminary Budget for the 2021–2022 Biennium, report on the new APO Vision 2025, Financial Report for the Year 2019, and other administrative matters. The GBM released a joint statement reaffirming the APO's commitment to supporting member countries in dealing with the economic impact of the COVID-19 pandemic and steering them toward sustained recovery through productivity improvement.

APO Welcomes Turkey

From a humble beginning of eight founding members in 1961, the APO has continued to grow from strength to strength, which was made especially meaningful in 2020 with the inclusion of Turkey as its 21st member.

Turkey's history with the APO started even before its formal membership. For close to a decade, Turkey took part as an observer in APO meetings. In 2011, Turkey's existing National Productivity Organization was integrated with the Ministry of Industry and Technology. With this new platform, the office has led Turkey's productivity initiatives nationwide and pushed for a stronger industrial ecosystem, backed by the latest technologies.

In 2018, the government made the decision to formally join the APO. In March 2020, Turkey officially became an APO member, with the Ministry of Industry and Technology adopting the role of NPO.

Turkey adds depth and breadth to the productivity movement in Asia. It is immediately active in the APO family and plans to send public- and private-sector participants to a variety of APO multicountry projects in 2020 and beyond as well as host APO projects so that other members may learn from its productivity journey.



APO Director Dr. Ilker Murat AR (R) and NPO Head Gul Taskiran Battal



Activity Report

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Transformation to the Digital Platform

The APO was swift to take advantage of digital platforms from the beginning of the COVID-19 pandemic for both operational continuity and finding new avenues to promote productivity. The digital modality also provided opportunities for the APO to reach out to member countries and assist them in overcoming challenges. The Secretariat therefore maximized digital platform usage in 2020 to continue support and services to member countries and productivity partners elsewhere. All regular face-to-face activities such as multicountry projects, the GBM, and WSM were converted into the virtual mode using a videoconferencing platform, while the APO YouTube channel was used extensively to disseminate information on the latest and emerging productivity issues, trends, and topics as well to interact with viewers.



A series of presentations by productivity experts, government ministers, heads of international organizations, academics, and other recognized experts, called Productivity Talks (P-Talks), was initiated. These one-hour sessions were broadcast over YouTube. Notable P-Talk speakers included individuals from within the APO membership and beyond. The APO publicized the sessions using social network services such as Facebook, LinkedIn, and Twitter to attract the widest possible audience. In contrast to scheduled multicountry projects, P-Talks allow the APO to react to the latest issues, announce research findings, promote publications, and share the best practices of current productivity initiatives. In 2020, 77 P-Talk sessions were broadcast in cooperation with 109 resource persons from around the world. More than 75.000 viewed those sessions, and more than 2,300 APO YouTube channel subscribers newly registered.

Special Account for Business Recovery and Resilience

The COVID-19 pandemic rapidly affected day-today life, businesses, world trade, and travel, causing unprecedented disruption to the global economy, including APO member countries. As the immediate response to assist members in dealing with the pandemic, the 62nd GBM approved the establishment of the Special Account for Business Recovery and Resilience.

a. Strengthening Digital Capability of National **Productivity Organizations (NPOs)**

The COVID-19 pandemic underlines the importance of having an adequate digital capability to allow for business continuity of NPOs, such as providing virtual training and consultancy as well offering online courses. The APO provided supporting facilities and equipment for the setting up of a videoconference or digital studio facility within NPOs to strengthen their digital capability.

b. Assistance to SMEs and Critical Sectors

As the backbone of all member economies, SMEs are given priority under this special account. This will ensure that SMEs are able to sustain operations and absorb the impact of the pandemic. In addition, assistance focuses on other sectors hardest hit by the pandemic such as healthcare, food, and tourism.

c. Enhanced In-country Services

The third initiative aims to complement assistance to SMEs and critical sectors. In addition, member countries are given flexibility to use the fund in supporting in-country activities in response to the pandemic or key activities by NPOs in promoting productivity enhancement.







Responding to the Urgent Needs of Member Countries

Supported by a Special Cash Grant from the Government of Japan (GOJ), the APO facilitated technical support and provision of equipment to member countries most severely affected by the COVID-19 pandemic. The grant was provided to Cambodia, Indonesia, and Vietnam. Cold storage containers and a saltwater ice machine developed by a Japanese SME to assist agrifood SMEs were sent to Cambodia and Vietnam. The objective was to improve the end-to-end cold chain system (from farm to retail) using modern storage technologies, enabling those countries to become more resilient to food chain disruptions.

For Indonesia, the grant provided one computed numerical control (CNC) milling machine and one blowmolding machine to assist healthcare-sector SMEs. The objective was to scale up the manufacture of healthcarerelated products such as hospital beds, operating tables, and stretchers, enabling the country to reduce the impact of COVID-19.

Assessing the Impact of COVID-19 on SMEs

The COVID-19 global pandemic resulted in the temporary closure of many businesses. The most heavily affected businesses were SMEs, and without interventions undertaken by governments, SMEs will become the greatest casualties of this crisis. In most APO member countries, governments have stepped up by providing short-term assistance including paying partial salaries to workers, offering tax exemptions, and setting moratoriums on loan repayments. However, it is now important for governments to plan long-term strategies to assist SME recovery. In collaboration with the Asian Development Bank Institute (ADBI), the APO launched a joint study on the impact of COVID-19 on selected member countries. In the first stage, two survey rounds were conducted to gain an understanding of the situation faced by SMEs and amount of damage and losses from various business perspectives. In the second stage in 2021, the ADBI and APO will analyze the data and draw up recommendations for long-term government strategies to keep SMEs afloat.

Smart Transformation



The Smart Transformation Initiative continues to support member countries in responding to the challenges and opportunities brought about by Industry 4.0. It is aimed at transforming the three major economic pillars of manufacturing, services, and agriculture as well as the public sector by leveraging advances in digital technologies and internet connectivity. Through research on industry benchmarking and development of new productivity frameworks, conferences to raise awareness of global and industry trends, workshops to utilize appropriate technologies and manage digital upgrading, and training to diffuse practical knowhow and techniques for mass adoption, the Smart Transformation Initiative has been catalyzing efforts to transform traditional approaches to upgrading productivity by embracing technological and managerial innovation, new knowledge and tools, and upskilling.

Industry Transformation

The Industry Transformation Program promotes improvements in production processes, management methodologies, business models, technologies, and strategies and policies to enhance productivity. It supports industrial upgrading and advocates for more sustainable ways of boosting economic performance to ensure that productivity gains are derived from activities with positive impacts in the long run and that the benefits can be shared among all stakeholders, including workers, employers, and communities. In 2020, projects were implemented digitally due to COVID-19 pandemic-related restrictions. Topics related to digital transformation, SME development, and enhancing the capability for digitization were key areas.

Developing Digital Transformation Change Agents

Comprehensive support to SMEs is essential to undertake digital upgrading. Therefore, developing competent agents and institutions that can provide suitable guidance and consultation to SMEs is immensely important in accelerating digital transformation in the APO region. To enhance the capabilities of intermediate agents in assisting SMEs to initiate digital upgrading, the APO organized a digital multicountry workshop on Consultancy Skills and Strategies for Industry 4.0. The workshop provided participants with the latest knowledge and understanding of manufacturing digitization and applicable tools that could support consulting services for digital transformation. Participants also learned



Workshop on Internet of Things Applications in Various Sectors, ROC

about the required skills and technical know-how for supporting smart manufacturing transformation.

Understanding the Important Role of Data in Digital Upgrading

To raise awareness of the importance of data and the implications for SME digitalization, the APO organized a digital multicountry workshop on Data Analytics and Machine Learning for Productivity. It explained how data analytics set the foundation for digital transformation and implications for business operations, technologies, and productivity improvement. Participants also exchanged ideas and best practices in handling and analyzing big data. A maturing technology to handle big data is machine learning, which uses algorithms and inflows of information to strengthen the ability to analyze data and produce predictive analyses.

Enhancing SME Competitiveness and Resilience

As the pandemic continued to evolve, there was a need to shift the focus toward business continuity while addressing change. SMEs, which are the backbone of economies in APO member countries, need to deploy appropriate strategic management tools and techniques (SMTTs) to survive the crisis, protect employee wellbeing, and continue efforts to achieve profitability and a competitive edge. To impart the knowledge required to provide training and consultancy for SMEs in developing strategic planning, the APO organized the digital multicountry training course on Advanced Strategic Management for Enhancing Productivity in SMEs. Participants virtually connected to learn about advanced SMTTs that have been proven effective for enterprises. Discussions on mitigating the impact of COVID-19, business continuity in the new normal, and advanced technology interventions were included.

Developing the Future Workforce

The rapid spread of next-generation technologies has transformed the future of production systems and led to the creation of new industries. Individuals need to acquire the necessary skills and equip themselves with the knowledge and abilities to be relevant in tomorrow's labor market. Responses to Industry 4.0 must also be incorporated in national policies on industry competitiveness, employment, and new industrial digital ecosystems.

The APO commenced a research project on National Strategy on Developing Human Resources for the Industries of the Future. The research aims to support member countries in studying strategic approaches to national human capital development policies to enhance the qualifications of labor for the industries of the future and ensure sustainable national productivity growth. It also examines the requirements for enhanced skills, different organizational structures, and new elements of education as critical factors at national level for the workforce to be relevant in the future.

Smart Public Sector

The COVID-19 pandemic underlined the importance of public-sector capacity to solve societal problems, especially in emergencies, and resiliency to overcome major challenges. It called for a different set of skills, capabilities, and resources to perform policy functions and provide public services to combat the much broader havoc created by the pandemic.

Digitizing Public Service Delivery

To examine the best practices of public-sector organizations in delivering services using digital technologies in a cost-effective, efficient manner, the APO organized the digital multicountry conference on Successful Models of Smart Public Service Delivery. Through this virtual conference, speakers shared the best practices of smart public services, emerging technology and innovations in public service delivery, measuring service quality using analytics, and transforming public services using the digital platform.

To ensure that member countries are provided with more examples and best practices of digital transformation in public services, the APO also held the conference on Smart Public Service Delivery. Participants learned about the importance of data analytics, opportunities and challenges in public-private partnerships, enablers for the public sector to adapt to digital transformation, the role of IT in containing COVID-19, and experiences of member countries in using technology to bring citizens into the policymaking process.

In addition to best-practice sharing through conferences, the initiative to promote digital transformation in public services and its implications for public-sector productivity for member countries continued with the training of trainers on Government Digital Services for Public-sector Productivity. In this course, participants examined government digital services for citizens (G4C) and businesses (G4B). Case studies from member and nonmember countries were also shared.

With the objective of assessing the various models and initiatives adopted by member countries to digitize their public sectors, the APO conducted a research project on the Digitization of Public Service Delivery. In addition to a focus on assessment through case studies in selected member countries, the research proposed a set of recommendations for improving digitization strategies for governments. Another output will be a regional outlook report on the status of smart government in the Asia-Pacific, particularly in the area of public service delivery.



Nurturing Innovation in the Public Sector

Scientific breakthroughs, disruptive technologies, and radical innovation have contributed to advances in productivity and economic development. Recently, the emergence of complex social issues has raised questions about the lack of focus on social issues in most countries' science, technology, and innovation policy (STIP) frameworks. As part of APO efforts to support informed STIPs in member countries and to share the best practices in designing and reframing STIPs to target both social and economic progress issues, the digital multicountry conference on Science, Technology, and Innovation Policies for Productivity Growth was organized. Participants learned about the STIP instruments to address social challenges, funding schemes for social innovation projects, whole-ofgovernment approaches in shifting from technologycentered to human-centered STIPs, and how to mainstream Sustainable Development Goal (SDG) inclusiveness targets into national STI strategies.

To provide member countries with the latest, most relevant information on national innovation systems (NIS) and discuss platforms for public service innovation, the APO organized the digital multicountry conference on Strategies for Strengthening National Innovation Systems. In this conference, participants examined innovation policies for transitioning to the new normal, best practices in NIS development, and the impact of national digital transformation on NIS.

To assess current public policies on education and human capital at a time of rapid transformation of global industries and to offer a basis for rethinking policies on

human capital development in member countries, the APO conducted research on Public Policy Innovation for Human Capital Development. The project report gives a comprehensive overview of human capital strategy for creating national competitive advantage, especially with the pace of change in the global employment scenario.

Regulatory Reform and Managing Change in the **Public Sector**

Smart regulation delivers clearly defined, measurable policy objectives and is set through a transparent, objective, consultative process. Ultimately, to earn the trust and confidence of citizens, smart regulation must fulfill its promises through well-targeted conception, effective design, and committed implementation by the government. To introduce the tools available for evaluating the requirements and principles for developing, implementing, and evaluating smart regulation, the APO organized the digital multicountry training course on Smart Regulation. Participants discussed the various tools and techniques in designing, developing, reviewing, and evaluating smart regulations.

Models and processes to shift the culture of the public sector have recently been introduced under the banners of organizational development and institutional reform. To enhance the effectiveness of change management in the public sector, it is essential to identify, examine, and emulate the best practices and models of successful public organizations. The APO conducted research on Change Management in the Public Sector to explore various successful examples of managing change in public-sector organizations in selected APO member countries which lead to higher efficiency and greater citizen satisfaction.

Transforming Education Systems to Prepare Future Talent

New education models must be developed to better meet the demands of the future labor market and develop "21st century skills" such as digital literacy, cross-cultural knowledge, systems thinking, and beyond. To allow key

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18 Smart Transforma

☆ "Governments around the world are also building smart services, such as smart education, smart communities, and smart nations in the wake of the COVID-19 pandemic."

stakeholders in member countries to learn from experts and explore ways to adapt existing learning systems, the APO organized the digital multicountry conference on Education for Future Industry. The participants learned about the education models adapted for future industry, 21st century skills and competencies, shaping human capital for the future of work, and designing global hybrid universities to advance future economies.

The future of industry will be driven by many trends interacting in complex ways, including automation, globalization, population aging, urbanization, and the rise of the green economy. These changes are likely to create new demands for skills in the labor force in Asia and the Pacific, meaning that existing education and skilling systems will need to be made future fit. To meet future requirements, the APO also conducted research on Education for Future Industry to explore initiatives to reform higher education and the roles of each partner under these different arrangements. The report analyzed the broad trends and concepts in higher education for future industry.

Smart Services

Smart services include digital services and products offered under the Industry 4.0-driven digital transformation process. Furthermore, smart services combine the intelligent analysis of data with the transformation of user-centered services to provide added value for customers. While smart services incorporate the ability to use technology as a strategic enabler to intelligently analyze huge amounts of information (big data analytics), delivering customer satisfaction remains the key objective. Governments around the world are also building smart services, such as smart education, smart communities, and smart nations in the wake of the COVID-19 pandemic.

Raising the Productivity of the Hospitality Industry

The hospitality and hotel industry is a key player in the tourism landscape and a major contributor to the economies of APO members. It is important for hotels to continue to raise productivity levels to maintain sustainability and continuous growth, particularly for those operating in a manpower-scarce environment. To ensure sustainable hotel performance, promote industry competitiveness, and support a pro-business regulatory environment, it is essential to develop a vibrant, innovative hotel sector.

The APO launched a project on Intercity Benchmarking Research on Hotel Productivity in Asia. The report will provide recommendations and insights on best practices that are applicable to the overall hotel industry to increase productivity.

Smart technology also transforms how services are delivered to customers and organizations themselves. The global hospitality industry has benefited from Industry 4.0 smart services and technology, with digital automation, data analytics, and data-driven business intelligence changing its operations. To familiarize participants with the latest smart service business models and their impact on the hospitality industry in the new post-COVID-19 pandemic normal, a digital multicountry training course on Smart Service and Technology for the Hospitality Industry was conducted. Participants explored current developments and initiatives in smart services and technology to accelerate digital transformation in the hospitality industry across member countries.

Journey toward Excellence

The Business Excellence (BE) framework has helped many organizations, businesses, and enterprises enhance their management systems and processes over the years to deliver superior performance. APO member countries have benefited from international excellence frameworks. Enterprise Singapore was designated the APO COE on BE in 2009 and it played significant roles in assisting member countries to develop national BE strategies. To strengthen national BE strategies, promote the adoption of the BE framework, and develop BE practitioners, a digital multicountry workshop for Practitioners of Business Excellence was organized.

Agricultural Transformation

The COVID-19 pandemic has impacted agriculture like other sectors. Crop production was affected due to restrictions on migrant workers' mobility to contain health risks, while purchasing power reductions experienced by workers in other sectors changed consumer behavior. Supply chains were also disrupted. COVD-19 revealed weaknesses in agrifood systems throughout the Asia-Pacific, making agricultural transformation more urgent. Agricultural transformation covers aspects from farm to fork to make current systems more productive, resilient, and sustainable. APO programs in this area focus on advanced ICT-based farming technologies, modern agribusiness models, advanced food-processing and -manufacturing techniques, state-of-the-art food safety and quality systems, and successful rural community development strategies.

Promoting Smart Agriculture

To create an opportunity for participants to learn about how ICT is changing aquaculture, innovations in agricultural finance, and technology integration in poultry farming, the APO organized the 2020 International Conference on Smart Agriculture. Representatives from government agencies, agricultural producers, researchers on technical developments in smart agriculture in government R&D agencies, academic experts, researchers from legal entities,



smart agricultural technology service providers, and agribusiness representatives participated. They received updated information on smart agriculture initiatives implemented in Asia and beyond.

To enhance the understanding of precision agriculture, greenhouses with artificially controlled environments, and commercially available smart resource management technologies, the APO conducted a workshop on Smart Resource Productivity Management. In this workshop, participants were introduced to initiatives on improving agricultural productivity while conserving and enhancing natural resources like water and soil fertility. In addition, smart farm management using applications of sensing, digital, and web-GIS technologies, artificial intelligence (AI)-enabled water and liquid fertilizer supply systems, sensors of soil moisture and sunlight in greenhouse horticulture, precision agriculture, remote pest sensing, and analysis of crop growth conditions using drone technology were covered in this workshop.

Women are emerging as key players in the development of agribusiness enterprises in many Asian countries. Often, however, they do not have formal training in business planning and management. In many cases, their enterprises are not sustained or unable to expand. Digital technologies can improve women's ability to sell products, while ICT can be a powerful tool to overcome limited access to information, boost productivity, and facilitate outsourcing, resource sharing, and networking. To broaden women entrepreneurs' understanding of recent trends in e-commerce and e-business in the era of digital agriculture, the APO organized a workshop on Digital Agribusiness for Women Entrepreneurs. The aim was to enhance women's involvement in smart digital agribusiness and food industry enterprises and empower them to raise productivity in agriculture.

The APO initiative to transform agriculture is a comprehensive effort to respond to the most pressing challenges faced while maximizing the opportunities they present. Transforming agriculture can enhance its role as a primary connection between people and the planet and also help achieve multiple UN SDGs. However, certain prerequisites must be met for optimal agricultural transformation. Research on Smart Agricultural Transformation for APO Member Countries is being conducted to formulate a set of indicators for readiness assessment and analyze the gaps to benchmark against advanced transformations in other countries. As the final research output, the report will contain suggestions on strategies and policy recommendations to help speed up the adoption of smart agriculture tools and techniques.

Food Security

The COVID-19 pandemic has affected food supply chains worldwide. Meeting food security goals will require extensive analysis to identify efficient, sustainable plans and programs for the agriculture sector. The APO organized a workshop on Agricultural Transformation for Food Security to enhance understanding of key concepts and links between food security and agricultural transformation, drivers of agricultural transformation, and climate-smart agriculture and food systems. In this workshop, participants learned about the global trends, approaches, issues, and challenges in achieving food security; drivers of agricultural transformation; and ICT for agricultural transformation.

To expand understanding of innovative trends and sustainable practices to produce safe food, improve the efficiency of startups in the food-processing industry, and create enabling ecosystems to raise startup productivity, a workshop on Startups in the Food-processing Industry was held. Participants discussed the challenges and emerging opportunities in the food-processing industry, the need for development in startups, seed funding, and venture capital. Best practices of governments as catalysts for startups were also presented.

Temperature-controlled food supply chains are essential, especially for fish, meat, poultry, dairy products, and fresh fruit and vegetables. They help prevent food losses, ensure food safety, and maintain customers' health and

satisfaction, benefiting all upstream and downstream stakeholders in food supply chains. The APO organized a national conference on Temperature-controlled Supply Chains in Asia to provide advanced knowledge of food value chains (FVCs) and present best practices of temperature-controlled supply chains for agricultural products.

Creating Awareness of Organic Agriculture and Sustainability

Organic agriculture is important to make farming more sustainable, conserve the natural environment, provide safe food to consumers, and increase farmers' incomes. To promote organic agriculture, the development of national standard and certification systems and an understanding of organic food marketing strategies are necessary. The APO organized a national seminar and training course on Organic Agriculture and Product Development for Farmers and Producers for Cambodia to provide knowledge of standard and certification systems for organic food, management of organic farms, and organic FVCs. Representatives of local government and provincial departments, state agricultural universities,



food supply chains."

farmers' cooperatives/associations, organic retail shops, organic agroindustry, and SMEs involved in organic production participated.

Leadership and institution building are the key factors for greater sustainability in agriculture and development of



 \approx "Temperature-controlled food supply chains" are essential, especially for fish, meat, poultry, dairy products, and fresh fruit and vegetables. They help prevent food losses,

ensure food safety, and maintain customers' health and satisfaction, benefiting all upstream and downstream stakeholders in

> the organic sector. To broaden understanding and skills in promoting and leading organic agroindustry while improving its productivity and sustainability in member countries, introduce recent and emerging developments in the sector globally, and provide opportunities for networking and sharing of best practices, the Organic Agroindustry Development Leadership Course in Asia was conducted by the APO. This course provided guidance on supply chain integration systems, organic guarantee systems, and policy and advocacy and shared best practices in organic agroindustry and innovations in organic farming.

A steady increase in agricultural output driven by sustainability and higher productivity is vital, particularly for optimizing natural resource management, climate resiliency, and poverty reduction efforts. Producers, agribusinesses, processors, marketers, food service companies, retailers, consumers, and waste management services can contribute to the enhanced productivity and sustainability of agrifood systems. The APO organized a workshop on Sustainable Productivity Models in Agriculture to enhance understanding and skills in utilizing innovative productivity models for enhancing the sustainability of agriculture in member countries.

To enhance the understanding of the changing environment surrounding agrifood supply chains and promote food supply chain adaptation to shifts in consumer demand in member countries, the APO conducted a training of trainers in Building Sustainable Supply Chains for Agriculture. In this training course, participants were provided with knowledge on managing the agrifood environment and the dynamics of last-mile distribution as well as updates on changes in food demand and the latest trends in food supply chains.

22 Capability Development

Capability

Despite the COVID-19 pandemic throughout 2020, the Capability Development Program continued its focused assistance to members covering areas such as strategic foresight, sustainable productivity, Centers of Excellence to showcase the best practices of productivity enhancement in the region, the Program Development Fund (PDF) to assist member countries in special projects, and the Accreditation Body Program to elevate the role of NPOs. The self-learning e-courses offered solutions for the APO to spread productivity knowledge within and outside the region even with pandemic-related restrictions imposed worldwide.

Strategic Foresight

The global pandemic represented a serious challenge for APO member countries which highlighted the importance of strategic foresight capability in organizations. Strategic foresight tools enable successful decision-making even in the face of such threats. Beyond that, it allows organizations to identify new opportunities that arise from rapidly evolving circumstances. The APO's Strategic Foresight Program has the overarching aim of enhancing the long-term planning capability and future readiness of member countries. It consists of three types of activity:



In 2020, the APO continued efforts to promote this method in member countries through a virtual workshop on Scenario Planning Development. Scenario planning is a process where users can develop several plausible "stories" about the future in a rigorous, structured way. Those scenarios are then used to develop strategic options that are sensitive to uncertainties. By targeting public-sector organizations and employing scenario planning and other associated strategic foresight tools in the planning process, public-sector officials can manage their organizations in the face of volatility, complexity, and uncertainty. In the workshop, participants were introduced to future thinking, scenario planning, and horizon scanning as methods for identifying driving forces and developing scenarios. This will develop the capability of public-sector organizations to set forward-looking strategies.

To visualize the future productivity scenario in Asia and the Pacific, the research on Construction of a Productivity Forecasting Model Framework was conducted. Looking at the current scenario in which global productivity is in a state of flux with growing polarization of labor opportunities between high- and low-skilled jobs, unemployment and underemployment especially among young people, stagnating incomes, and income inequality, this research is meant to empower decisionmakers and policy planners in using new ways of thinking about, discussing, and implementing strategic changes that are compatible with the future of work. The final report was being prepared for publication on the APO website by December 2021.

Sustainable Productivity

In 2020, the Sustainable Productivity Program remained a key area for the APO to explore new productivity measurement methods, analyze and identify new models and frameworks to reskill and upskill labor, and recommend strategies and policies for member countries to gain maximum benefit from technological advances. Overall, the projects focused on identifying



the contributing factors and reinforcing those elements to make productivity sustainable while nurturing competency and achieving results in ways that maintain or enhance overall long-term effectiveness.

Exploring New Measures of Productivity

Reigniting the productivity engine is more important than ever if economies are to build back better and achieve sustainable, inclusive, resilient growth after the pandemic. To move in this direction, effective policy decisions must rely on evidence-based economic analyses, making the compilation of accurate, comprehensive productivity statistics of paramount importance. The collaboration between the APO and OECD to develop improved, more comparable productivity statistics across their member economies continued with joint research on Sustainable Productivity Measurement. The research explores current practices and challenges in productivity measurement and provides recommendations. The joint effort will continue through the second phase in 2021.

Proposing New Skills for the Future Workforce to Benefit from Digitalization

An inclusive national reskilling strategy, ensuring that workers have opportunities to either broaden or deepen their existing sets of skills to match those demanded in the emerging labor market, is critical for easing structural adjustments. To provide support to member countries by identifying sustainable, inclusive models of reskilling and upskilling the existing workforce in its member countries, including groups at risk of missing out on such opportunities, the APO conducted research on Reskilling Workers to Enhance Labor Productivity. The report will document innovative models of reskilling and upskilling for improving productivity while protecting livelihoods in APO member countries. The final report is scheduled to be released in 2021.

Another research project conducted by the APO will provide member countries with recommendations on approaches to mitigate the impact of digital disruption. In collaboration with the University of Technology of Sydney, the research on Digital Disruption: Policy Tasks and Responses by Governments will present macro analysis of digital technology adoption, examine which policies and regulations could maximize economic benefits for APO member economies, and identify new policies. Initiatives, policies, and regulations that will deliver benefits from technological advances while enhancing productivity, economic growth, and competitiveness in member economies will also be analyzed. The final draft report will be delivered by June 2021, and a seminar will be conducted in an APO member country to launch the report and hold a workshop to discuss the findings.

Centers of Excellence

The APO Centers of Excellence (COE) Program allows the best practices in a productivity enhancement-related area to be showcased and emulated by other member countries. Since 2009, five COE have been established: the COE on Business Excellence (BE) in Singapore; COE on Green Productivity (GP) (2013, ROC); COE on Public-sector Productivity (PSP) (2015, the Philippines); COE on IT for Industry 4.0 (2017, India); and COE on Smart Manufacturing (SM) (2019, ROC). In 2020, the APO continued to strengthen the COE through various interventions.

COE on BE **Review of Priority Needs on BE**

The COE on BE remains the pioneer of the program since its establishment in 2009, hosted by Enterprise Singapore. Since then, the COE on BE has shared its best practices among APO member countries while strengthening its leadership in BE in the region. In 2020, a report on assessing the needs of member countries on BE capabilities was initiated by the APO.

COE on GP

Review of Emerging and Priority Needs on GP

Since its establishment, the APO COE on GP has helped member countries develop and strengthen their national GP initiatives focusing on the four key themes of resource recycling, green energy, green factories, and ecoinnovation. Defining needs through multiple channels including research has contributed to the success of the COE on GP. Learning about and sharing technical expertise and best practices of the ROC based on the needs identified were facilitated. This approach resulted in the wider adoption and application of relevant GP tools, techniques, and methods in other APO member countries.

Given the recent trends and developments in GPrelated themes, particularly the application of advanced technologies, it is necessary to reidentify and reprioritize the areas, sectors, and institutions that require support from the COE on GP. A review was initiated in 2019. Two experts assigned by the APO concluded the research in 2020. Recommendations on the types and topics of activities that strengthen the capacity for GP promotion and align GP activities with other similar global initiatives to create greater synergy were made.

COE on PSP

Strengthening the Programs of the COE on PSP

The COE on PSP through its four component pillars of acting as a knowledge center, capacity development program, innovation laboratory, and research program has disseminated knowledge, expertise, and other resources on PSP and innovation in the Philippines throughout the region. The COE on PSP has undertaken activities to help APO member countries enhance their competencies in and knowledge of PSP. Assistance to strengthen PSP initiatives continued in 2020.

To enhance the capacity of the COE on PSP on the topic of innovative and creative thinking, an online training course was organized 8-12 June. The training was conducted by two experts from Germany. Throughout the five-day course, the experts guided participants in essential skills to design and facilitate innovation journeys in public-sector organizations.

COE on IT for Industry 4.0

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Development of the Expert Database on IT for Industry 4.0

To reinforce its position as a knowledge center on IT and its applications for Industry 4.0, a directory of national experts in the field was developed and expanded internationally in 2019. An expert was assigned to design the database structure divided into various domains of IT for Industry 4.0 and then oversee the input of contents. Completed in November 2019, this systematic database offers member countries access to directories of individual experts and institutions on Industry 4.0

across sectors. A meeting to finalize the integration of the database into the COE web portal, as well as launching the database, was organized in February 2020.

Digital Innovation Process Guide for Manufacturing SMEs

The 4th Industrial Revolution (Industry 4.0), characterized by increasing digitization, connectedness, and operational integration among different companies in global value chains, has fundamentally transformed production systems. The majority of SMEs in the manufacturing sector, which are the backbone of industrial development, have yet to put digital technologies and digitization to work. The lack of digital capabilities and knowledge of cybersecurity prevents many SMEs from taking advantage of Industry 4.0.

SMEs must embrace digital innovation to enhance efficiency, meet international quality standards, and strengthen their position as competent suppliers for the global market. To support SMEs in the process of digital transformation for Industry 4.0, the COE on IT for Industry 4.0 and APO commenced a research project to publish a paper guiding SMEs in manufacturing in undertaking digital innovation. One chief expert was assigned to lead a group of five national experts from Bangladesh, the ROC, India, Singapore, and Vietnam. A virtual online meeting was held among experts 26-27 August to finalize the paper. Digital innovation processes suggested for use by SMEs to achieve sustainable growth and productivity gains were compiled and submitted in October 2020. The paper will be published in 2021.

26 Capability Developmen



pprox "In the APO region, where manufacturing remains dominant, the impact of new technologies on businesses is obvious. Protecting domestic markets from international rivals while simultaneously tapping new markets for long-term growth is a key concern."

Research on Case Studies of Manufacturing **Transformation Strategies for Industry 4.0**

Technological changes are reshaping the ways manufacturing companies strategize for growth with new economic opportunities. In the APO region, where manufacturing remains dominant, the impact of new technologies on businesses is obvious. Protecting domestic markets from international rivals while simultaneously tapping new markets for long-term growth is a key concern. A variety of approaches is taken by manufacturing firms to transform their businesses and find ways to differentiate themselves to stay competitive in global value chains.

The COE on IT for Industry 4.0 and APO started a research project on Case Studies of Manufacturing Transformation Strategies for Industry 4.0 to support manufacturers by identifying successful examples of business strategies leading to transformation. The best practices allowing firms to remain relevant and sustain growth will be analyzed. The APO assigned a team composed of a chief expert and five national experts from the ROC, India, Japan, Malaysia, and Thailand to conduct the research. Each national expert collected and analyzed data under the guidance of the chief expert. A coordination meeting among experts was held virtually 29-30 July 2020 to finalize and refine the report. The final draft was completed and submitted to the Secretariat in October 2020, and the report will be published in 2021.

Development of a Toolkit on Industry 4.0 for SMEs on Industry 4.0 Transformation

Industry 4.0 has grown to encompass diverse business operations. However, there is no ready-made, one-sizefits-all strategy for implementing Industry 4.0 in every company. SMEs struggle to create their own methods to maximize the potential of Industry 4.0. Under the APO

COE on IT for Industry 4.0. efforts were made to enhance the capability of the COE in scaling up the adoption of IT for Industry 4.0 technologies in SMEs.

An Industry 4.0 Assessment Readiness Toolkit for SMEs to position themselves in terms of readiness and maturity level in the journey of adopting Industry 4.0 was developed by the COE on IT for Industry 4.0. An expert from Germany was appointed by the APO to support the review and refinement of the Industry 4.0 Assessment Readiness Toolkit. A series of 10 virtual consultation sessions was held in November and December 2020. The toolkit and its technical paper on working processes and implementation plan were concluded in February 2021.

COE on SM

Assessment of SM and Needs of Member Countries

The APO has implemented numerous projects supporting initiatives in member countries to promote the adoption of SM as a key strategy to achieve sustainable development. It was therefore recommended that a COE on SM be established to strengthen the APO's efforts in this area. This research was conducted to assess and document the extent of implementation and adoption of SM in member countries and identify emerging areas where SM needs to be the focus to support their needs. The output of this research will help the COE on SM and APO in designing and implementing SM activities that are relevant and attuned to the needs of members. The project was completed in 2020.

Research on a National Smart Manufacturing Implementation Framework

In 2020, a research project to detail SM implementation mechanisms at national level was initiated. It is a followup activity to the research on SM need assessment of APO member countries conducted in 2019. The research findings with the need assessment will clarify the current SM status and recommend effective approaches APO members can follow to benefit from its adoption. Recommendations on SM implementation at national level, among industry sectors, and at enterprise level will be generated and the roles of different stakeholders delineated. One chief expert from the ROC and five national experts from India, Malaysia, Pakistan, the Philippines, and Vietnam participated in the research. A virtual coordination meeting of those experts was held 15-17 September to determine the research framework. The final report is expected to be submitted in April 2021.

Evaluation of the Performance of the APO COE

To adopt a longer-term approach in supporting the COE beyond the initial two years and to institutionalize procedures for their annual performance assessments, a monitoring and evaluation (M&E) system should also ideally be in place for each COE. The development of the M&E framework with relevant evaluation criteria and other elements began with the assignment of one expert. The final M&E framework was commented on by the four established COE and completed in February 2019. The framework serves as the starting point to conduct the evaluation of each COE by an external expert.

An evaluation of the performance of the APO COE was conducted. The primary purpose was to assess how COE have implemented their planned activities to strengthen their capabilities and benefited participants and/or organizations in member countries. One evaluation expert from Canada was assigned to start the evaluation in October 2019. COE staff, NPOs, and other beneficiaries of COE activities were surveyed and interviewed. The report including the results of evaluation was completed and submitted in April 2020. Suggestions for COE to achieve the intended results more effectively in the future were included in the COE performance evaluation report.

Program Development Fund

Research on Knowledge Management with the **Concept of Sustainable Productivity**

Knowledge capital should be institutionalized and managed so that it leads to more innovation. Combining the innovation resulting from knowledge capital management with agility will lay a firm foundation for steady productivity growth. Agility in responding to changes and taking advantage of opportunities they present should be an integral part of the equation for achieving productivity and prosperity. Productivity without agility will yield limited contributions to economic progress since it is only related to the notion of "doing the right things right" without considering

risks and potential stemming from the turbulent, uncertain, complex environment. This has even broader ramifications for economic progress with the inclusion of innovation in the productivity concept. Agility augments and accelerates the contributions of productivity to economic growth, while strengthening the connection between productivity and innovation. Appropriate management of the knowledge accumulated through innovation and agility will make responses sustainable.

An APO research project on Knowledge Management with the Concept of Sustainable Productivity was initiated in 2019. Experts from the UK and Australia contributed to the research project. It was designed to present practitioners with practical information for enhancing productivity, first at the macro and then at the micro level, by taking into account the factors of agility in the face of change, the need for constant innovation, and new forms of knowledge technologies. It is expected to be completed by December 2021.



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The APO KM Facilitators' Guide was first published in September 2009 as the culmination of a more than 12-month effort by many experts from the region and beyond. It was followed by the publication of the KM Tools and Techniques Manual in August 2010. A decade later, we have seen several major changes in knowledge management (KM) practices worldwide. In addition, the APO's views on productivity and related issues have evolved, particularly on the importance of knowledge capital to link innovation to productivity. This research project was intended to update the two KM publications under the guidance of an expert from the UK. The project was completed in January 2020.

Accreditation and Certification Process: Authentication of APO Certificates Using a Blockchain

The Secretariat successfully conducted a pilot project on the authentication of APO certificates on the Ethereum blockchain. This sought to complete the APO accreditation and certification process by offering greater security, resilience, and transparency, while ensuring tamper-proof data integrity. The pilot project showcased the viability of the certificate authentication process within the APO Secretariat through deploying decentralized distributed ledger technology (DLT) and a cryptographic hash algorithm based on the Ethereum technical architecture. This is part of the Strategic Digital Capabilities transformation of the APO Secretariat.

Technical Working Group for the APO Vision 2025

With the completion of Vision 2020 execution guiding APO activities during 2016–2020, Vision 2025 was formulated to address the latest challenges confronting the region and individual member countries, meet new expectations, and guide APO activities from 2021 to 2025. A Steering Committee led by Thailand as the APO Chair for 2019 and 2020 was therefore convened to discuss the formulation of Vision 2025.

Two technical working groups (TWGs) were formed to assist the Steering Committee which consisted of delegates from Bangladesh, Cambodia, the ROC, India, Japan, the Philippines, Thailand, and Vietnam. One TWG involved selected eminent persons and productivity experts from member countries to deliberate on the strategic thrusts and strategies, and the other involved experts to help develop the monitoring and evaluation system for the plan. The Steering Committee and TWGs were supported by the APO Secretariat and two rapporteurs. Formulating the APO Vision 2025 involved three task force meetings (in Tokyo, Hanoi, and virtual) and two TWG meetings (in Tokyo and virtual). The APO Vision 2025 was adopted after consultation and feedback from member countries.

Research on the Widening of Economic Divides under the Impact of COVID-19

As an effort to minimize the economic impact of the pandemic among its member economies, the APO initiated research on the Widening of Economic Divides under the Impact of COVID-19. The aim is to support members with large populations, especially those at the base of the pyramid, in mitigating the long-term economic consequences due to income inequalities. Three experts from India, the Philippines, and Thailand were assigned to conduct the research. Situations in different member countries and predictions of how COVID-19 could increase inequalities in the long term were analyzed. Three policy analysis papers were completed by December 2020. Recommendations for policy responses by member governments were proposed based on the research findings. These policy analysis papers will be published in 2021.

Regional Study on Labor Productivity

In 2020, joint research with ASEAN for improving labor productivity through human capital development was conducted. This project examined current labor productivity in ASEAN member states and analyzed factors responsible for its growth. It also made policy suggestions to help sustain that growth in the future. The main components of the project were: 1) analyzing the trends in labor productivity in ASEAN member states; 2) reviewing the concepts of labor productivity used in ASEAN and examining the factors contributing to its growth; 3) providing recommendations at both national and regional levels to maintain and/or improve labor productivity taking into account the changing socioeconomic environment; and 4) exploring the feasibility of developing a regional labor productivity index for ASEAN. This project was a useful opportunity for policymakers to better understand labor productivity within ASEAN and then develop recommendations for increasing it in the region. Follow-up research in 2021 will cover other APO member countries, and the findings of the research will serve as a baseline.

Accreditation Body

The Accreditation Body (AB) Program was identified as one activity that could raise the APO's visibility and authority as a leading productivity organization. The program includes recognition of NPOs or their affiliates as APO-accredited certification bodies (CBs) to build APO brand awareness, strengthen its leadership in the area of productivity, and boost the value of its services. Real of

Lead Assessors' Course for APO Accredited Certification Bodies, Japan

This initiative also expands the APO's role in developing the capacity of NPOs from mere training providers to becoming productivity-related specialist ABs.

3rd Meeting of the APO Accreditation Body Council

The APO-AB Council held its third meeting on 15 December 2020 using the digital modality to discuss progress during the year, issues and challenges faced, and its future direction. The council also provided recommendations to the Secretariat on improving the management of the APO-AB. AB Council members include NPO Heads and representatives of ministries and government agencies, academia, professional associations, and accreditation schemes. Ten council members plus two individuals representing regular members and a technical adviser participated virtually in the third meeting. As CB Development (CBD) project participants, the NPOs of India, Indonesia, Malaysia, Mongolia, Pakistan, and Vietnam also shared their progress during the meeting.

Developing Assessors for APO Certification Bodies

As the main beneficiaries, NPOs play vital roles in ensuring the success of the APO Accreditation and Certification Program. The APO therefore designed a



training course to provide explanatory guiding sessions for NPOs or affiliated organizations so that they can operate as APO CBs.

The Lead Assessors' Course for APO Accredited Certification Bodies was conducted to meet that purpose. The course aimed to enhance the knowledge and understanding of NPOs of the entire CB process, such as internal audits, documentation needed, and certification requirements. In the course, participants were guided through the standard requirements developed by the APO-AB.

Guiding NPOs to Become Certification Bodies

The CBD Program aims to expand the role of NPOs by focusing on building up their capabilities to become APO-accredited CBs. As CBs, NPOs will have opportunities to upgrade their own operational systems, particularly in certifying productivity professionals through compliance with international standards of practice. This development program guides NPOs in complying with the requirements set by the APO-AB. It involves consultancy and training on the scope of accreditation, certification process, competency of staff, and management structure. It also ensures that recipient NPOs are able to meet the requirements and are fully prepared before assessment by the APO-AB. NPOs from India, Indonesia, Malaysia, Mongolia, Pakistan, and Vietnam participated in the APO CBD Program in 2020.

Digital Learning

The Digital Learning Program offers the opportunity for everyone in APO member and nonmember countries to enroll in self-learning e-courses on various subject areas related to productivity enhancement. It covers areas including manufacturing, agriculture, the public sector, and services. In 2020, six new courses were initiated, while 37 existing courses were retained. The Secretariat observed an increase in the number of individuals who enrolled in those courses and assumed that the COVID-19 pandemic was a major reason.

Agriculture Courses

Three e-learning courses on smart agriculture were launched in 2020: Apiculture Management; Future Aquaculture Farming; and Smart Transformation of Agriculture. The three courses became available from late 2020 and will continue. By the end of 2020, 253 participants had enrolled in the agriculture courses, of whom 93% were from member countries, while the remainder were from Ethiopia, Monaco, Switzerland, Togo, and the UK. A total of 36 passed the final examination required to receive the APO certificate.

Industry Courses

To spread productivity awareness, methods, and techniques related to technical advances and developments throughout the Asia-Pacific region and beyond, three new industry sector-specific self-learning courses were offered during the year. The topics covered were: Advanced Smart Manufacturing 101 in a Blockchain-driven Era; General Aspects of Energy Management and Audit; and Measurement of Publicsector Productivity. The APO introduced its first video format for the General Aspects of Energy Management and Audit course with the aim of improving content quality and engagement. A total of 285 participants registered in all three courses, of whom 33 passed the final examination and received the APO certificate. The courses also attracted participants from outside the APO membership residing in Angola, Australia, Burkina Faso, Egypt, Kenya, Maldives, Monaco, the Netherlands, New Zealand, Nigeria, Qatar, Saudi Arabia, Senegal, Tunisia, and Venezuela.



Developing NPOs and other productivity institutions has been at the core of APO programs since its establishment. Considering the varied needs and challenges of the productivity movement in member countries, the APO's Individual Program is tailored to the specific demands of each. While the primary emphasis is on supporting and developing NPOs' ability to deliver productivity services, the program also accommodates a wide range of other national stakeholders. It emphasizes advisory and consultancy services, collaborative learning, cooperation among NPOs, and the development of demonstration companies. All activities were implemented virtually in 2020, covering topics such as productivity policy frameworks, supporting the development of NPO capability, assistance to SMEs, and capacity building on productivity tools and techniques.

Specific National Program

The Specific National Program (SNP) focuses on providing tailored assistance to develop national productivity master plans and institutional development plans for NPOs including other relevant sectoral productivity plans. The program aims to mainstream productivity enhancement in member countries' national development agendas and to promote the centrality of productivity in their policies.

Institutional Capability Development Plan for the Mongolian Productivity Organization

The APO provided consultancy services for the MPO to build its capability to devise productivity-related strategies and programs at the national level. The MPO was the first NPO to participate in this type of initiative. One of the key recommendations was for the MPO to reposition itself to address more strategic issues at higher levels of the decision-making hierarchy. This will assist the MPO in securing greater government-wide support for national or PSP initiatives than when positioned under a single ministry. The plan was handed over to the APO Director for Mongolia, Yamaaranz Erkhembayar by APO Secretary-General Dr. AKP Mochtan.

Development of the National Productivity Master Plan for Vietnam

In November 2019, the APO initiated policy consultancy projects to develop a national productivity master plan for Vietnam, addressing the need for a more productive, innovative economy and higher living standards. The plan sets out productivity strategies and a roadmap covering a 10-year time frame. It focuses on four areas most relevant for national productivity enhancement: innovation; state-owned enterprises; linkages between foreign-invested and domestic firms; and skill development. A team of researchers from the Korea Development Institute (KDI) worked closely with the VNPI and other key nationwide stakeholders to develop this plan, which was finalized in December 2020 and scheduled to be handed over in 2021.



The NPO of Bangladesh was the second to participate in the APO's Institutional Capability Development Program. The program consisted of formulating plans to enhance the NPO's capacity and roles in productivity promotion, training, and consultancy services for the public and private sectors in Bangladesh while raising its visibility as the leading productivity organization. The project involved a five-stage development plan to address nine key areas for determining transformation strategies for the NPO. One strategy was to establish a governance board for the NPO to ensure its abilities to lead the productivity movement, develop appropriate methodologies, and use public funds wisely for maximum impact. The final plan was released to the NPO of Bangladesh in April 2020.

Development of the National Productivity Master Plan for Lao PDR

The Government of Lao PDR requested the APO to develop a National Productivity Master Plan to lay the foundations for productivity-driven economic growth to support its Vision 2030 and Socioeconomic Development Strategy 2016–2025. This project not only analyzed the current productivity status but also proposed future targets, strategies, and policy tools to achieve national goals. The final document includes productivity enhancement plans for all ministries, relevant agencies, and other stakeholders in Lao PDR over a 10-year time frame (FY2021–2030). A major emphasis is institutionalizing and strengthening the productivity movement and its supporting ecosystem. A research team from the KDI collaborated with a national task force formed by the Laotian government which comprised representatives of 21 key agencies, ministries, and organizations. The project was completed in March 2021.

Policy Consultancy on Innovation-driven Productivity Improvement

This consultancy project assisted the NPO of Bangladesh in formulating an action plan for SMEs based on its national productivity plan. The project was conducted from 1 April to 31 December 2020 with one chief expert and two supporting experts from Japan. They incorporated lessons from Japan's development experience into the action plan for innovation and assisting SMEs in Bangladesh, reflecting efforts such as the Greater Tokyo Initiative. The NPO submitted the completed report to the Ministry of Industries and SME Foundation, which will serve as the focal point for implementing the action plan.

Institutional Capacity Development Plan for the National Productivity Organization of Pakistan

The APO provided consultancy for the development of an institutional capacity-building plan for the NPO of Pakistan. This was the third NPO to participate in the APO's Institutional Capability Development Program. An expert on organizational excellence from New Zealand carried out the project. A series of virtual consultation meetings with approximately 20 national productivity stakeholders in Pakistan was carried out to present, review, and deliberate on the plan's findings and recommendations. The analysis focused on the NPO's 16 broad objectives and benchmarking against more advanced NPOs.



"The Government of Lao PDR requested the APO to develop a National Productivity Master Plan to lay the foundations for productivity-driven economic growth to support its Vision 2030 and Socioeconomic Development Strategy 2016–2025. This project not only analyzed the current productivity status but also proposed future targets, strategies, and policy tools to achieve national goals."



Individual-country Observational Study Missions

In 2020, five Individual-country Observational Study Mission (I-OSM) proposals were implemented, which benefited 75 participants from four member countries: Capability Building in Service Engineering, from Singapore to Japan; Benchmarking Mission on the Circular Economy toward Sustainability: ROC Experiences, from Malaysia to the ROC; Benchmarking Mission on the Industrial Education System for National Competitiveness, from Pakistan to the ROK; Benchmarking Mission on Understanding Best Practices and Working Models of the Application of Industry 4.0 for MSMEs, from the Philippines to the ROK; and Benchmarking Study Mission for the DAP Future Center & Innovation Laboratory, from the Philippines to the ROK.

Bilateral Cooperation between NPOs

In 2020, three Bilateral Cooperation between NPO (BCBN) study missions were organized by the APO involving the ROC, Japan, the Philippines, Singapore, and Vietnam. Thirty-three participants benefited from the BCBN program, under which the topics included Smart Manufacturing and IT Solutions in Singapore's Food and Beverage Industry; Establishing a National Quality Infrastructure Framework; and Learning Experience in Building NPO Capability and Human Resource Development in Productivity and Quality. The participants were expected to undertake follow-up activities based on the best practices demonstrated and new knowledge gained from the bilateral exchanges between NPOs.

APO Secretary-General (R) presenting the report on Strengthening the Mongolian Productivity Organization (MPO) and Increasing Productivity within Mongolia to APO Director for Mongolia Yamaaranz Erkhermbayar in Ulaanbaatar

Development of Demonstration Companies

One demonstration project was concluded in 2020, the Implementation of GLOBALGAP in Sun Feed Joint Stock Company in Vietnam. Another demonstration project was also newly selected for implementation in 2020, related to Improvement of Productivity through Adoption of Innovation Management Tools and Blockchains for the Education and Agriculture Sectors in Mongolia. However, the project was unavoidably terminated due to the unforeseen situation caused by the COVID-19 pandemic.

Technical Expert Services

In 2020, TES activities were delivered virtually using videoconference applications as the COVID-19 pandemic did not allow experts to travel to member countries. Thirty-three TES projects for 11 APO members were implemented, and 48 experts undertook virtual assignments, including five projects carried over from 2019. The most experts assigned from within the APO membership were from Singapore (eight), and the most from outside were from Australia, Germany, and Hong Kong (three each). Other experts came from Malaysia and India (seven each) and Japan (four).

Overall, TES projects received an average evaluation score of 92 out of 100 for the quality of service provided to members who utilized them. Based on the information from NPOs, a total of 4,879 participants benefited from virtual conferences, seminars, and training courses.

Institutional

Program/Project Planning Workshop

The APO Secretariat conducted a strategic planning event to assess member countries' specific needs and expectations, especially those relevant to the new Vision 2025, and to give updates on recent Secretariat initiatives. The Program/Project Planning Workshop (PPP Workshop 2020) was held virtually 4–5 August and attended by eight APO Directors/Alternate Directors, six NPO Heads, and 34 officers engaged in APO activities at NPOs. The two-day workshop discussed topics such as updates on 2020 project implementation, overview of the APO Vision 2025, new program areas based on the APO Vision 2025, 2021/2022 project alignment, program plan for APO 60th Anniversary commemorative events, and digital initiatives.

Information and Public Relations Program

In 2020, the APO continued to utilize its website and social media platforms. It also produced several publications to disseminate productivity-related information to policymakers, practitioners, NPOs, and other stakeholders.

Website and Media

In 2020, the APO promoted its publications, self-learning e-courses, projects implemented with the cooperation of NPOs, and the series of P-Talks and Top Talks which started in April 2020. This increased the engagement level on the APO's social networking service channels by about three-fold, and more than 6,400 downloads of the various titles available on the website. In addition, the APO was cited almost 1,000 times in the media.

Publications and Collateral Materials

During 2020, the Secretariat published 11 books and reports. To commemorate the organization's diamond jubilee in 2021, the APO launched its 60th anniversary logo design to be used throughout the year. A special calendar was produced to showcase the APO's productivity journey using photos illustrating the history of its activities.

The APO also produced an animation video called "What Is Productivity?" which is meant to help the public, especially young people, to understand the productivity concept.

The following titles were released in 2020.

Titles

- APO Manual: Public-sector Productivity
- APO Productivity Databook 2020
- Innovative Institutions to Accelerate
 Agroindustry Development in Asia
- Knowledge Management Facilitators' Guide (revised edition)
- Knowledge Management Tools and Techniques Manual (revised edition) Research and Resource Papers
- Assessment of Smart Manufacturing in APO Member Countries
- Building Industry 4.0 Capacity: Need Analysis
 of Six APO Economies
- Emerging Trends Report
- Green Productivity and SDGs
- Innovation Creation in SMEs: Lessons from Japan
- Public Policy Innovation for Human Capital Development







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Information Technology Program

It is important for the APO to make full use of IT to cope with the changes and challenges of the digital world and to deliver better services to stakeholders. With the COVID-19 pandemic, the APO Secretariat's and NPOs' normal ways of working were disrupted, including holding face-toface projects. Member economies were forced to adopt new normal life and work styles, using digital approaches for productivity initiatives. The new ICT infrastructure the Secretariat established in 2019 enabled the remote work necessary in the COVID-19 era. In keeping with global trends, the Secretariat strengthened its cloud infrastructure with more features and better cybersecurity in 2020.

On the maintenance front, the Secretariat also continued supporting the use of some legacy IT systems, including those for project management and accounting and budget management, which are critical for day-today operations and business continuity. However, the Secretariat also continued developing its new project management system (PMS) and document management system (DMS).

Enterprise Resource Planning Initiative

The adoption of a Secretariat-wide ERP system was initiated in 2017 with the objective of migrating all key administrative and operational functions to a single database-driven process environment. The integrated platform not only helped the Secretariat improve document management but also avoid duplications, thereby creating consistency among departments. This enables the Secretariat to eliminate paper-based documents, thereby reducing its ecological footprint. Access to uniform data and information also facilitates faster analysis and more efficient decision-making.

During 2020, the Secretariat continued adjusting and improving the ERP system, including developing the PMS, DMS, as well as the finance module. While those efforts were originally expected to be completed within 2020, external factors including the pandemic meant that they must continue over 2021.

IT Infrastructure Improvement Initiative

In 2020, the Secretariat started redeveloping the IT infrastructure affected by a fire in its office building in March 2019 after renovation had been completed. That was an essential investment, and most costs were covered by insurance. The Secretariat advised NPOs to maintain similar levels of infrastructure, equipment, and device security to enable online projects in line with the 2020 GBM decision.

Cybersecurity

The Secretariat introduced a new cloud-based firewall system at the end of 2019, which offers all-round protection for the replaced IT infrastructure. In 2020, the Wi-Fi network was updated with a more secure tracking environment for Secretariat staff and guests, and the latest smart-scan, predictive machine learningbased security and antivirus systems were added. Cybersecurity efforts will continue, and the Secretariat plans to introduce additional platforms for stakeholders.

International Cooperation

2020 was a challenging year for the APO due to the COVID-19 pandemic. It was impossible to conduct international cooperation activities in conventional ways, and all activities were switched to the online/ virtual modality. Through these digital platforms, collaborations with new and existing partners could continue and even expand the APO's reach. For example, some partner organizations from other continents were able to participate as observers in the virtual WSM in October 2020.

New Member

Turkey

In March 2020, Turkey became the 21st member of the APO. Turkey has rich experience and expertise through its own productivity movement starting from the 1960s. Based on this, member countries are expected to benefit from Turkey's entry into the APO. The country is recognized as an investment destination in various sectors where lean manufacturing techniques and digital transformation are increasingly being applied. This is an important step for Turkey's further development as it stands to benefit through policy advisory and other APO initiatives.

International Organizations/Academia

The APO continues to develop strategic partnerships with other leading international organizations to



create synergies in areas of common interest. It also explores opportunities to strengthen cooperation and collaboration with new partners and governments to contribute to socioeconomic development through the productivity movement.

ASEAN

In August 2020, the APO started a joint study with ASEAN as part of ongoing efforts to expand strategic partnerships with other international organizations. The study is focused on analyzing the trends and factors of labor productivity within ASEAN, the majority of which are APO members. By reviewing the concepts of labor productivity used in ASEAN and examining the factors contributing to its growth, this study aims to help policymakers better understand and then develop recommendations for increasing labor productivity in the region.

Cornell University

Joint research between the APO and Dyson School of Applied Economics and Management, Cornell College of Business, was successfully concluded and the report was published on the APO website. Opportunities in agribusiness are expanding substantially in the Asia-Pacific due to increasing populations, growing economies, and trade globalization. This joint study identified the institutional basis for promoting innovations that accelerate agroindustry development and cited examples of efforts undertaken by governments in the region.

JICA and AUDA-NEPAD

At the 2020 Africa Kaizen Annual Conference held virtually by JICA and the African Union Development Agency in September, the APO was given the opportunity to showcase how its member countries have been learning from the unique strengths and expertise of its COE in specific fields. The APO Secretary-General was invited to serve as one of the Examination Committee members evaluating African companies that participated in the Africa Kaizen Award 2020, which was held in conjunction with the annual conference.

Keio University

The annual APO Productivity Databook has been published since 2008 with support from Keio Economic Observatory, Keio University, Tokyo. The 2020 version analyzes the latest productivity and economic performance data and includes the impact of the COVID-19 pandemic on economies in the Asia-Pacific region in the first and second quarters. National and regional productivity indicators were expanded to provide more comprehensive comparisons with reference economies, and a growth accounting framework for new APO member Turkey was included.

Korea Development Institute

The KDI and APO signed an MOU in May 2019. The KDI has supported the APO in developing national productivity master plans under the SNP. The master plan for Vietnam was completed in November 2020, and its prime minister gave approval for its implementation. The KDI also contributed to the development of a master plan for Lao PDR. Formal handover of the master plans and release of the national reports are expected in the first half of 2021.



OECD

The APO and OECD signed an MOU in October 2019 for joint research to develop improved, more comparable productivity statistics across their member economies. This initiative explored current practices and challenges in productivity measurement and provided recommendations to national statistics offices, NPOs, and other agencies involved in the compilation and analysis of productivity statistics in APO member economies to improve measurement and cross-country comparability. The study provided a timely, meaningful benchmark for assessing the performance of members in line with the new Vision 2025.

OECD Global Forum on Productivity

The APO became a member of the OECD Global Forum on Productivity (GFP) in November 2020. The GFP was created in 2016 to foster international cooperation among public institutions that promote productivity-enhancing policies. It gives government institutions a platform to exchange views, share data and knowledge, discuss best practices, and undertake productivity analysis. APO members are given opportunities to participate in and contribute to leading-edge productivity research with other economies in the GFP, expand networks, and engage formally with national productivity institutions of GFP members. The APO's inclusion is valuable to other GFP participants, especially as it vastly increases Asian representation in the forum.

UN Centre for Regional Development

The APO was invited to attend the 10th Regional 3R and Circular Economy Forum in Asia and the Pacific which was co-organized by the UN Centre for Regional Development of the Division for Sustainable Development Goals, Japanese Ministry of the Environment, and UN Department of Economic and Social Affairs through a series of webinars. The forum addressed emerging topics including the SDGs to provide innovative solutions in terms of policy, institutional setups, and partnerships for the effective implementation of the 3Rs and resource efficiency policies and strategies under the COVID-19 pandemic.

UNIDO

The APO participated as an observer in the 48th Session of the Industrial Development Board of UNIDO which was held virtually in November 2020. In addition to regular administrative matters, its members exchanged views on the global COVID-19 pandemic. As the APO and UNIDO address common issues such as COVID-19 and the SDGs, it is expected that the sharing of knowledge and experience will strengthen cooperation between the two organizations.

Evaluation of 2019 Projects

Forty-one multicountry projects were evaluated, comprising 10 training courses, 24 workshops, two observational study missions, and five conferences, in 2019. A total of 911 participants attended those projects. Feedback from participants, resource persons, and implementing organizations was obtained through questionnaires. Evaluation questionnaires were designed to focus on the criteria of relevance, effectiveness, and efficiency in project implementation. The feedback from participants and resource persons indicated that APO projects were highly relevant, highly effective, and highly efficient. Participants rated one-third of APO projects as highly relevant, highly effective, and highly efficient. Resource persons rated 65.8% of projects as highly efficient, 63.1% as highly relevant, and 52.6% as highly effective. No project was rated as low in these three criteria.

The aspects participants appreciated the most about multicountry projects were usefulness and good organization. Knowledgeable resource persons, good program content, and good site visits were also listed among the high points by participants. The resource persons and implementing organizations appreciated participants being enthusiastic and interactive. Comments by resource persons showed that most projects were well organized, of high quality, and featured excellent hospitality arrangements. Implementing organizations highly rated the suitability of resource persons assigned.

The most typical low points noted by participants were project duration and timing. Resource persons and implementing organizations suggested the inclusion of participants from the private sector in some projects and stricter selection of participants in terms of English proficiency. More lead time should be given for preparation and determining the level of participants, there should be more coordination among experts' materials, and followup action plans should be prepared by participants were among other suggestions. Implementing organizations recommended that networking activities among participants and local organizers should be continued to ensure the sustainability of projects.



The APO continued to offer self-learning e-courses through the online eAPO platform with nine new selflearning e-courses launched in 2019. The duration of courses running from pre-2017 was also extended. In this evaluation, data on the number of courses conducted, number of participants registered, and number of participants who passed the final exam were collected. In 2019, the number of participants who completed the courses increased sharply. The increase in the number of participants taking the final exam might indicate the enhanced quality of the self-learning e-course contents. The majority of participants agreed that the course objectives matched the desired learning and that site visits were useful. Comments from participants showed that the learning experience was very good, and the courses were highly applicable and insightful. Suggestions for improvement included greater conceptual clarity of content, more supplementary videos, more detailed explanations of figures, more graphic presentations, and more practical examples.

There were 54 in-country projects implemented under Bilateral Cooperation between NPOs (BCBN), Certification Body Development Program, Individual-country Observational Study Missions (I-OSMs), Demonstration Company Projects (DMP), Specific National Program (SNP), and Technical Expert Services (TES). There were approximately 2,850 beneficiaries of those projects.

The feedback from NPOs and participants showed that the BCBN Program continued to be a major initiative that forges long-term relationships among NPOs in critical areas that enhance the productivity of specific sectors. The high point of DMP included smooth implementation with strong support of NPOs. SNP projects were appreciated for the involvement of high-level officials and strategic public and private institutions as well as in-depth analysis resulting in comprehensive recommendations. The TES evaluation obtained through questionnaire feedback from participants and implementing organizations received an average score of 80 (out of 100) for the quality of services provided. The relevancy and appropriateness of TES applications based on the priority areas stipulated in the project notifications improved considerably in 2019.

There are areas that can be improved based on the evaluation by NPOs, resource persons, and participants in individual-country projects. They include allowing adequate lead time for the preparations of hosting NPOs; avoiding last-minute withdrawals of participants by dispatching NPOs; and timely submission of reports for BCBN. In DMP, proactive participation of the demonstration companies and planning dissemination activities to avoid prolonged processes and enhance the implementation efficiency were areas for future improvement. For SNP, raising the accuracy of data and integration of a postproject evaluation system in the design were recommendations by stakeholders. Under the TES Program, the careful reviewing of TES applications to provide sufficient details and submission of TES evaluation reports in a timely manner by NPOs were areas for consideration noted by the Secretariat.

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Financial Statement

APO ANNUAL REPORT 2020



To the Governing Body of Asian Productivity Organization

Our opinion

In our opinion, Asian Productivity Organization (the "Organization")'s financial statements present fairly, in all material respects, the financial position of the Organization as at 31 December 2020, and its financial performance and its cash flows for the year then ended in accordance with International Financial Reporting Standards.

What we have audited

The Organization's financial statements comprise:

- the statement of financial position as at 31 December 2020; •
- •
- the statement of changes in surplus for the year then ended;
- the statement of cash flows for the year then ended; and

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing ("ISA"). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of the Organization in accordance with the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (IESBA Code) and the ethical requirements that are relevant to our audit of the financial statements in Japan. We have fulfilled our other ethical responsibilities in accordance with the IESBA Code and the ethical requirements in Japan.

Other information

Management is responsible for the other information. The other information comprises the annual report not yet received (but does not include the financial statements and our auditor's report thereon), which is expected to be made available to us after the date of this auditor's report.

Our opinion on the financial statements does not cover the other information and we will not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other

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Independent auditor's report

the statement of revenues or expenses and other comprehensive income for the year then ended; the notes to the financial statements, which include a summary of significant accounting policies.



information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

When we read the annual report, if we conclude that there is a material misstatement therein, we are required to communicate the matter to those charged with governance.

Responsibilities of management and those charged with governance for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with International Financial Reporting Standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Organization's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Organization or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Organization's financial reporting process.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISA will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISA, we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Organization's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Organization's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are



inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Organization to cease to continue as a going concern.

events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

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Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and

(US dollars)

ASIAN PRODUCTIVITY ORGANIZATION STATEMENTS OF REVENUES OR EXPENSES AND OTHER COMPREHENSIVE INCOME YEARS ENDED 31 DECEMBER 2020 AND 2019

ASIAN PRODUCTIVITY ORGANIZATION STATEMENTS OF FINANCIAL POSITION 31 DECEMBER 2020 AND 31 DECEMBER 2019

	2020	2019
ASSETS		
Cash and cash equivalents (Note 3)	\$27,716,985	\$25,117,378
Receivables (Note 4):		
Member countries	4,935,159	4,333,603
Others	668,314	5,694
Prepaid expenses	64,820	48,162
Deposits and other advance payments	109,816	208,291
Total current assets	33,495,093	29,713,129
Fund for severance payments (Note 11)	201,706	276,566
Property, plant and equipment (Note 5):		
Leasehold Improvement	527,181	119,591
Failinment	320 617	0,442 70 640
Automobile	72,935	72,935
Right of use assets (Note 13)	613,724	628,352
Accumulated depreciation	(782,324)	(467,980)
Construction in progress (Note 5)	0	41,931
Intangible assets (Note 5)	393,795	531,133
Total noncurrent assets	1,516,960	1,279,610
Total assets	\$35,012,053	\$30,992,739
LIABILITIES AND SURPLUS		
Accounts payable	\$2,099,796	\$2,504,665
Withholding tax and social insurance	29,459	9,459
Lease liabilities - current (Note 13)	128,256	310,132
Other current liabilities (Note 8)	9,556,373	7,189,915
Total current liabilities	11,813,885	10,014,170
Accrued annual leave (Note 6)	779,895	643,348
Liability for severance payments (Note 12)	2,555,824	2,464,235
Lease liabilities - noncurrent (Note 13)	62,391	75,473
Other noncurrent liabilities	119,591	119,591
Total noncurrent liabilities	3,517,700	3,302,646
Total liabilities	15,331,585	13,316,818
Surplus:		
Appropriated for		
Working capital fund (Note 15)	7,000,000	6,000,000
Contingency fund (Note 2)	500,000	500,000
Unappropriated surplus (Note 15)	0,070,344 6 659 614	3,333,970 7 920 085
Accumulated other comprehensive income (Note 12)	(149,490)	(78,141)
Total surplus	19,680,469	17,675,920
Total liabilities and surplus	\$35,012,053	\$30,992,738

The accompanying notes are integral part of these statements.

Revenues: Membership contributions (Note 7) Special cash grants (Note 8) Mandatory contribution for rent (Note 9) Participation by member countries Miscellaneous Revenue Total revenues
Expenses: Projects Current year's project costs: APO share Current Subtotal Prior years' continuing project costs: APO share Continue Subtotal Allocation to project costs from Administration expenses (Note 10) Total
Administration Staff expenses (Note 6, 12) Office maintenance Depreciation expenses (Note 5, 13) Operations Miscellaneous Allocation to project costs (Note 10) Total
Exchange (gain)/loss Insurance recovery gain (Note17) Increase (decrease) in loss allowance (Note 4) Total
Total expenses
Net adjustment for closed projects (Note 14)
Excess of revenues over expenses (expenses over revenues)
Other comprehensive income (loss): Pension liability adjustments (Note 12)
Total other comprehensive income (loss)
Total comprehensive income (loss)
The accompanying notes are int

(US dollars)

2020	2019
\$11,986,035 545,080 257,368 5,150 80,463 12,874,095	\$11,986,035 612,262 246,155 3,454 124,322 12,972,228
1,958,530 1,958,530	4,167,637
2 150 745	3 /08 261
2,150,745	3,408,261
2,100,110	0,100,201
3,184,947	1,566,587
7,294,223	9,142,485
5,890,876 127,055 334,678 92,624 250,851 (3,463,055) 3,233,029 (422,890) (394,939) 1,092,691 274,861 10,802,113	4,666,978 547,739 159,840 67,702 225,123 (1,698,929) 3,968,453 (8,272) <u>860,573</u> 852,301 13,963,239
(3,915)	166,774
2,075,897	(1,157,786)
(71,349)	(16,158)
\$2,004,548	(\$1,173,944)

otes are integral part of these statements.

ASIAN PRODUCTIVITY ORGANIZATION STATEMENTS OF CASH FLOWS YEARS ENDED 31 DECEMBER 2020 AND 2019

ASIAN PRODUCTIVITY ORGANIZATION STATEMENTS OF CHANGES IN SURPLUS YEARS ENDED 31 DECEMBER 2020 AND 2019

(US dollars)

	Appropriated for			Accumulated		
	Working capital fund	Contingency fund	Continuing projects	Unappropriated	other comprehensiv e income	Total
<u>2019</u>						
Surplus as of 1 January 2019 Excess of revenues over expenses Transfer from continuing projects Pension liability adjustment (Note 12)	\$6,000,000 - -	\$500,000	\$4,900,197 (1,566,221)	\$7,511,650 (1,157,786) 1,566,221	(\$61,983) - (16,158)	\$18,849,864 (1,157,786) - (16,158)
Surplus as of 31 December 2019	\$6,000,000	\$500,000	\$3,333,976	\$7,920,085	(\$78,141)	\$17,675,920
<u>2020</u>						
Excess of revenues over expenses Transfer to continuing projects Transfer to working capital fund (Note 15) Pension liability adjustment (Note 12)	- 1,000,000 -	-	2,336,368	2,075,897 (2,336,368) (1,000,000)	(71,349)	2,075,897 - - (71,349)
Surplus as of 31 December 2020	\$7,000,000	\$500,000	\$5,670,344	\$6,659,614	(\$149,490)	\$19,680,468

The accompanying notes are integral part of these statements.

Cash Flows from Operating Activities:

Excess of revenues over expenses Adjustments: Depreciation and amortization Loss on disposal of fixed assets (Note 5) Provision for losses on receivables Interest income Exchange variance Decrease (increase) in receivables from member co

Decrease (increase) in receivables - others Decrease (increase) in other current assets Decrease (increase) in funds for severance paymer Increase (decrease) in accounts payable Increase (decrease) in other liabilities Increase (decrease) in accrued annual leave Increase (decrease) in liability for severance payment Subtotal

Interest received

Net cash flow from operating activities

Cash Flows from Investing Activities:

Payments for PP&E and intangible assets (Note 5)

Net cash flow from investing activities

Cash Flows from Financing Activities:

Payments for lease liabilities (Note 13)

Net cash flow from financing activities

Effect of exchange rate changes on cash and cash ec

Net increase (decrease) in cash and cash equivalents

Cash and cash equivalents at beginning of year

Cash and cash equivalents at end of year (Note 3)

(US dollars)

	2020	2019
	\$2,075,897	(\$1,157,786)
	543,372	195,867
	38,675	125,483
	1,092,691	860,573
	(74,657)	(117,708)
	(591,458)	67,919
ountries	(1,654,123)	(2,734,714)
	(662,293)	463
	41,368	(93,018)
nts	74,860	(6,499)
	(404,868)	573,683
	2,386,459	(348,641)
	136,547	9,950
ents	20,239	114,997
	3,022,707	(2,509,432)
	74,657	117,708
	3,097,364	(2,391,723)
	(800,234)	(426,268)
		(100.000)
	(800,234)	(426,268)
	(292,892)	(60,408)
	(292,892)	(60,408)
quivalents	595,370	(67,919)
6	2,599,607	(2,946,319)
	25,117,378	28,063,697
	\$ 27,716,985	\$ 25,117,378

The accompanying notes are integral part of these statements.

ASIAN PRODUCTIVITY ORGANIZATION

NOTES TO FINANCIAL STATEMENTS

1. Organization, business, and source of funding

The Asian Productivity Organization (the "Organization" or "APO") is an intergovernmental regional organization established in 1961 by several governments in Asia with its headquarters in Tokyo, Japan, and continues to operate from this location. The Organization is nonpolitical, nonprofit making, and nondiscriminatory.

The objective of the Organization is to increase productivity and thereby accelerate economic development in Asia through mutual cooperation among member countries. To fulfill its objective, the Organization institutes programs for the development of productivity, provides information and advice for productivity improvement, and promotes and disseminates modern productivity skills and techniques in the agriculture, industry, and service sectors.

The Organization membership is open to all Asian and Pacific governments that are members of the United Nations Economic and Social Commission for Asia and the Pacific. From 1 July 1997, the Hong Kong Productivity Council was instructed to cease all APO activities when sovereignty was transferred to the People's Republic of China.

The Organization performs activities in cooperation with national productivity organizations (NPOs) and other international organizations. NPOs in member countries that deal with productivity activities at the national level act as implementing agencies for the Organization's projects and nominate participants from their countries to attend those projects.

The budget of the Organization is composed of the budget covering the program of action of the Organization and staff, administrative, and nonproject expenses. The Governing Body, which is the supreme organ of the Organization, meets once a year to decide on policy matters concerning program and budget, finances, and membership. The sources for the budget are:

- Annual membership contributions based on gross national income; a)
- b) Special cash grants given by member governments and external assistance from cooperating agencies and institutions;
- Project implementation grants given by member governments that host projects and other c) governments and organizations that organize projects jointly with the Organization; and
- Miscellaneous income such as proceeds from interest income. d)

2. Significant accounting policies

(1) Basis of preparation of accompanying financial statements

a) Compliance with IFRS The financial statements of the Organization are prepared based on the Convention and the Financial Regulations established by the Organization, which is in line with International Financial Reporting Standards ("IFRS").

b) Historical cost conversion The financial statements of the Organization are prepared on a historical cost basis, except for certain financial assets and liabilities which are measured at fair value.

c) Changes in accounting policies

New standards and interpretations are not yet adopted. Certain new accounting standards and interpretations have been published that are not mandatory for 31 December 2020 reporting period and have not been adopted early by the Organization. These standards are not expected to have material impact of the Organization in the current or future reporting periods and on foreseeable future transactions.

(2) Receivables

Receivables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method, less loss allowance.

(3) Property, plant and equipment and intangible assets

Property, plant and equipment and intangible assets consist of the leasehold improvements including contra-asset-retirement-obligation, furniture and fixtures, equipment, and automobile. The Organization books on the statements of financial position for the items whose acquisition cost amount is significant.

Depreciation is calculated to write off the cost of items of property, plant and equipment and intangible assets using the straight-line method over their estimated useful lives, and is recognized in profit or loss.

The estimated useful lives of the property, plant and equipment and intangible assets are as follows:

-	Leasehold improvements:	5–8 years
-	Furniture and fixtures:	5–8 years
-	Equipment:	3–8 years
-	Automobile:	6 years
-	Software:	5 years

Depreciation methods and useful lives are reviewed at each reporting date and adjusted if appropriate.

(4) Fund for severance payments

The fund for severance payments includes an insurance endowment fund and is stated at fair value. The fair values of the fund for severance payments are estimated based on values quoted by financial institution.

IFRS 7 "Financial Instruments—Disclosures" defines fair value and establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The three levels of the fair value hierarchy are as follows:

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or

liability, either directly or indirectly

Level 3: Unobservable inputs for the asset or liability The insurance endowment fund held by the Organization is classified into Level 2 assets.

(5) Liability for severance payments

Staff members terminating their employment with the Organization are entitled, under most circumstances, to severance payments based upon the monthly basic pay at the time of termination of employment and years of service. The cost of the severance payments is determined using the Projected Unit Credit Method, with actuarial valuations being carried out at the end of each reporting period. Remeasurements of the Organization's defined benefit obligation, which comprise actuarial gains and losses are recognized immediately in other comprehensive income.

(6) Accrued annual leave

Based on Rule 5.01 of APO Staff Regulation V, annual leave is accumulated up to 90 days, which does not expire until leaving the Organization. In 2020, the Organization recorded accrued annual leave of 68 days (68 days in 2019) for staff members who had annual leave of more than 68 days as a liability, taking into consideration both the rule that an annual leave up to 60 days is paid by a sum of money equivalent to their salary for the period of the accrued annual leave upon leaving the Organization and the possible utilization of unused accrued leave in excess of 60 days before leaving the Organization...

(7) Revenues

Major sources of revenues of the Organization are membership contributions and special cash grants, among others. Membership contributions, which are approved by the Session of the Governing Body (GBM), are recognized as revenues on 1 January of each fiscal year. Special cash grants are recognized as revenues over the period necessary to match them with the costs that they are intended to compensate.

(8) Appropriation for working capital fund

Based on Regulation 7 of the Financial Regulations, a working capital fund is established from which advances may be made to finance budgetary appropriations to the extent that this is necessary in anticipation of pledged but unpaid contributions. In 2012, the Organization set up a contingency fund amounting to \$500,000 as approved by the 54th GBM.

(9) Appropriation for continuing projects

The outstanding balance of commitments for continuing projects at year-end, which has been funded mainly from membership contributions and special cash grants, is appropriated for continuing projects. The balance for continuing projects funded from special cash grants includes unspent balances of special cash grants, which are balances generated from completion of some projects prior to the yearend being reallocated for the following year's projects in the same programs.

(10) Translation of foreign currencies

For the purpose of the financial statements, the results and financial position of the Organization are expressed in US dollars, which is the functional currency of the Organization and presentation currency for the financial statements. The Organization's books of account are maintained both in Japanese yen and US dollars. Assets and liabilities denominated in Japanese yen are translated into US dollars at the appropriate exchange rate on the statements of financial position date. For revenue and expense accounts, average rates for the prior month of the transactions are applied. Revenue and expense accounts of other currencies except Japanese yen are translated into US dollars at the rates prevailing at the time of the transactions. The resulting unrealized gain/loss from translation is included in exchange gain/loss in the statement of revenues or expenses and other comprehensive income.

(11) Taxes

The Organization is exempt from direct taxes on assets or income and from customs duties.

(12) Use of estimates

The Organization makes estimates and assumptions to prepare the financial statements. Such estimates and assumptions affect the reported amounts of assets, liabilities and expenses. Actual results could differ from those estimates.

3. Cash and cash equivalents

Cash and cash equivalents include all highly liquid investments, generally with original maturities of three months or less, which are readily convertible to known amounts of cash and are so near maturity that they present insignificant risk of changes in value because of changes in interest rates.

Cash and cash equivalents	2020	2019
Current Deposits	\$19,525,723	\$18,985,445
Time Deposits	8,191,262	6,131,933
Total	\$27,716,985	\$25,117,378

4. Receivables of membership contributions, participating country expenses, and others

Receivables	
Membership contributions	
Participating country expenses	
Others	
Loss allowance	

Receivables represent uncollected revenue from membership contributions, participating country expenses, and others. Membership contributions approved by the GBM are to be paid to the Organization from each member as soon as possible after the receipt of such advice according to Regulation 6 of the Financial Regulations. Receivables of others in 2020 include USD394,938 from insurance company for the insurance recovery related to the fire incident. Loss allowance of \$4,073,140 comprises \$4,032,690 of the receivables including \$4,029,190 for membership contributions and \$3,500 for participating country expenses, and \$40,450 of advance payments for the project canceled.

The Organization has receivables that are subject to the expected credit loss model and applies the IFRS 9 simplified approach to measuring expected credit loss which uses lifetime expected loss allowance for the receivables.

31 December 2020	Current	More than 1 year overdue	Total
Expected loss rate	0%	100%	
Gross carrying amount - receivables	\$5,563,022	\$4,073,140	\$9,641,162
Loss allowance	-	\$4,073,140	\$4,073,140
31 December 2019	Current	More than 1 year overdue	Total
Expected loss rate	0%	100%	
Gross carrying amount - receivables	\$4,339,296	\$2,980,449	\$7,319,745
Loss allowance	-	\$2,980,449	\$2,980,449

2020	2019
\$8,964,349	\$7,310,225
8,582	5,556
663,231	3,964
(4,073,140)	(2,980,449)
\$5,563,022	\$4,339,296

The closing loss allowance for the years ended 31 December 2020 and 2019 reconcile to the opening loss allowance as follows:

	2020	2019
Opening loss allowance as of 1 January	\$2,980,449	\$2,119,876
Increase in loss allowance recognized in profit or loss during the year	1,092,691	860,573
Unused amount reversed	-	-
Closing loss allowance as of 31 December	\$4,073,140	\$2,980,449

Loss allowance for the receivables is maintained for potential credit losses based upon the assessment of the receivables aging, taking into consideration any circumstances regarding member's inability to meet its financial obligations. The Organization's exposure to credit risk is influenced mainly by the individual characteristics of each member country. Out of the total allowance balance of \$4,073,140, the loss allowance for the receivables overdue for one year and longer amounts to \$4,032,690. The maximum exposure to credit risk is represented by the carrying amount of receivables.

5. Property, plant and equipment and intangible assets

Movements in property, plant and equipment and intangible assets for the year ended 31 December 2020 were as follows:

	Leasehold Improvement	Furniture & Fixture	Equipment	Automobile	<u>Total</u>	Construction in Progress	Software
Acquisition Cost	•						
On 1 January 2020	\$119,591	\$6,442	\$70,640	\$72,935	\$269,608	\$41,932	\$663,108
Additions	365,658	162,883	249,977		778,519		21,715
Disposals							(38,675)
Transfer	41,932				41,932	(41,932)	
On 31 December 2020	527,181	169,326	320,617	72,935	1,090,059	0	646,149
Accumulated depreciation							
On 1 January 2020	105,135	2,577	42,125	71,922	221,759		131,976
Depreciation	62,178	33,865	35,684	1,013	132,740		120,379
Disposals							
On 31 December 2020	167,313	36,442	77,809	72,935	354,500		252,354
Net Book value							
On 1 January 2020	14,455	3,865	28,515	1,013	47,849		531,133
On 31 December 2020	\$359,868	\$132,883	\$242,808	\$0	\$735,559	\$0	\$393,795

The total depreciation amount of \$253,119 for 2020 was recognized, including \$153,912 as project costs and \$99,207 as administration expenses.

Movements in property, plant and equipment and int 2019 were as follows:

	Leasehold Improvement	Furniture & Fixture	Equipment	Automobile	Total	Construction in Progress	Software
Acquisition Cost							
On 1 January 2019	\$487,791	\$51,544	\$180,840	\$72,935	\$793,111		\$306,096
Additions			27,324		27,324	41,932	357,013
Disposals	(368,201)	(45,102)	(137,524)		(550,827)		
On 31 December 2019	119,591	6,442	70,640	72,935	269,608	41,932	663,108
Accumulated depreciation							
On 1 January 2019	312,455	35,935	146,869	59,766	555,025		88,594
Depreciation	47,048	6,535	26,339	12,156	92,078		43,381
Disposals	(254,368)	(39,893)	(131,084)		(425,344)		
On 31 December 2019	105,135	2,577	42,125	71,922	221,759		131,976
Net Book value							
On 1 January 2019	175,337	15,609	33,971	13,169	238,085		217,501
On 31 December 2019	\$14,455	\$3,865	\$28,515	\$1,013	\$47,849	\$41,932	\$531,133

The total depreciation amount of \$135,459 for 2019 was recognized, including \$74,213 as project costs and \$61,246 as administration expenses.

The disposals were made due to the demolition of the APO Secretariat office in 2019, by which the assets cost of \$550,827 and the accumulated depreciation of \$425,344 were written off and the disposal loss of \$125,483 was recorded, including \$75,936 as project costs and \$49,547 as administration expenses.

6. Accrued annual leave

Movements in accrued annual leave for the years ended 31 December 2020 and 2019 were as follows:

	2020	2019
On 1 January	\$643,348	\$633,397
Additional accrual during the year	193,145	80,630
Payments made during the year	(45,545)	(77,388)
Reclassified to payable	(54,021)	-
Foreign exchange movements	42,968	6,708
On 31 December	\$779,895	\$643,348

7. Membership contributions

The apportionment of total membership contributions for 2020 was based on the long-term permanent membership contribution formula based on the six-year average GNI as approved first by the 60th GBM held in May 2018. After the admission of Turkey in 2020 and its membership contribution, the adjustments for the apportionment were incorporated in membership contributions for 2021. There are no unfulfilled conditions or other contingencies attaching to these contributions.

Movements in property, plant and equipment and intangible assets for the year ended 31 December

8. Special cash grants

Special cash grants are used for specific programs and other administrative expenses for which member governments are encouraged to cooperate with the Organization in addition to their membership contributions. There are no unfulfilled conditions or other contingencies attaching to these grants. The Organization will recognize special cash grants received from Government of Japan as revenues over the period necessary to match them with the costs that they are intended to compensate. Unrecognized revenue balances for the years ended 31 December 2020 and 2019 were as below, which were included in other current liabilities.

	2020	2019
Unrecognized revenue on 1 January	7,127,001	\$7,501,151
Grants received during the year	2,208,661	238,111
Revenue recognized during the year	(545,080)	(612,261)
Foreign exchange movements	19,032	
Unrecognized revenue on 31 December	\$8,809,614	\$7,127,001

9. Mandatory contribution for rent

This amount is to be considered as a mandatory contribution of the host government, distinct and separate from its annual membership contribution to the APO.

10. Allocation to project costs

The Organization allocated administration expenses which are directly or indirectly related to project activities to project costs. Allocation to project costs includes the staff expenses for program directorate and program related operations expenses.

11. Fund for severance payments

In 2001, the Organization purchased the insurance for employees as a fund for severance payments, of which the beneficiary is the Organization. Net gains on the fund for the insurance endowment fund for the years ended 31 December 2020 and 2019 were \$3,973 and \$4,081, respectively, and were included in miscellaneous revenues.

12. Liability for severance payments

For the purposes of the actuarial valuations, the Organization used the discount rate of 0.37% per annum for the year ended 31 December 2020 and 0.30% for the year ended 31 December 2019. The expected rate of salary increases was applied in determining the projected benefit obligation and the expected rate was compiled from data of employee's basis salary.

Amounts recognized in profit or loss in respect of the defined benefit plan were as follows:

	2020	2019	
Current service cost	\$291,787	\$192,892	
Interest on obligation	6,788	6,901	
Net periodic pension cost	\$298,575	\$199,793	

included in the statements of financial positions arising from the Organization's obligation in respect of its defined benefit plan were as follows:

	2020	2019
Opening defined benefit obligation	\$2,464,235	\$2,333,081
Current service cost	291,787	192,892
Interest cost	6,788	6,901
Remeasurements (actual gain/loss)	71,349	16,158
Payments made during the year	(9,992)	(105,163)
Reclassified to payable	(437,562)	-
Foreign currency translation adjustments	169,219	20,367
Closing defined benefit obligation	\$2,555,824	\$2,464,235

The impact of the value of the defined benefit obligation of a reasonably possible change to the discount rate of 0.30% per annum for the year ended 31 December 2019, holding all other assumption constant, is presented in the increase of \$12,998.

13. Leases

Movements in the right-of use assets for the year ended 31 December 2020 were as follows:

Right-of-use assets on 1 January 2020

Additions

Lease contract terminations

Right-of-use assets on 31 December 2020

Accumulated depreciation on 1 January 2020

Depreciation

Lease contract terminations

Accumulated depreciation on 31 December 2020

The depreciation of \$302.365 for office building includes the amount of \$16,256 for the exempted lease by the landlord from 1 January 2020 to 20 January 2020, and the net depreciation expenses paid amount to \$286,109, including \$54,782 recorded as project costs and \$231,327 as administration expenses.

Movements in the present value of the defined benefit obligation in the current period and the amount

Office building	Equipment	Total
\$604,731	\$23,622	\$628,352
124,783	-	124,783
(115,789)	(23,622)	(139,411)
\$613,724	\$0	\$613,724
\$241,248	\$4,973	\$246,221
302,365	4,144	\$306,510
(115,789)	(9,117)	(124,906)
\$427,824	\$0	\$427,824

Movements in the right-of use assets for the year ended 31 December 2019 were as follows:

	Office building	Equipment	Total
Right-of-use assets on 1 January 2019	\$171,938	\$23,622	\$195,560
Additions	488,942	-	488,942
Lease contract terminations	(56,149)	-	(56,149)
Right-of-use assets on 31 December 2019	\$604,731	\$23,622	\$628,352

Accumulated depreciation on 1 January 2019	-	-	-
Depreciation	\$297,396	\$4,973	\$302,369
Lease contract terminations	(56,149)	-	(56,149)
Accumulated depreciation on 31 December 2019	\$241,248	\$4,973	\$246,221

The depreciation of \$297,396 for office building includes the amount of \$241,961 for the exempted lease by the landlord from 12 March 2019 to 31 December 2019 due to the fire incident, and the net depreciation expenses paid amount to \$60,408, including \$11,361 recorded as project costs and \$49,047 as administration expenses.

The lease liabilities as of 31 December 2020 and 2019, by maturity were as follows:

Lease liabilities	2020	2019
Less than one year	\$128,256	\$310,132
Between one and two years	62,391	66,692
Between two and three years	-	5,018
Between three and four years	-	3,764
Between four and five years	-	-
After five years	<u> </u>	-
Total lease liabilities	\$190,647	\$385,606
Less current portion of lease liabilities	128,256	310,132
Non-current portion of lease liabilities	\$62,391	\$75,473

The following table provides additional disclosures related to right-of-use assets and lease liabilities:

	2020	2019
Expense on short-term leases	\$56,003	\$444,953
Expense on low-value leases	13,532	15,442
Payments of lease liabilities	292,892	60,408

The expense on short-term leases in includes the temporary service offices rent from 20 March 2019 to 20 January 2020.

14. Net adjustment for closed projects

Adjusted revenues and expenses attributed to projects that have already been closed prior to this financial year have been recorded in account of revenues and expenses retroactive year.

Revenues	
Expenses	
Net adjustment for closed projects	

Adjusted revenues were recognized in 2019 for long outstanding Special Cash Grants from the Ministry of Foreign Affairs of Japan for the programs of 2013, 2015, and 2016 and the Ministry of Agriculture, Forestry and Fisheries of Japan for 2009 through 2017, which were refunded to the Treasury of Japan.

15. Unappropriated surplus

The 62nd GBM approved to increase the working capital amount by USD1,000,000 to USD7,000,000.

The 62nd GBM approved \$1,285,072 by using unappropriated surplus to fund the 2021 preliminary budget.

16. Related party transactions

Key management personnel compensations for 2020 and 2019 were as follows:

	2020	2019
Short-term employee benefits	\$217,744	\$213,933
Annual leave	22,086	12,141
Severance payment	-	54,844
	\$239,830	\$280,918

17. Insurance recovery gain

The gain of \$394,939 was recognized in 2020 for the insurance recovery amount assessed by insurance company for the fire incident, and recorded as other receivables which will be settled in 2021.

2020	2019	
-	\$194,557	
(\$3,915)	(27,783)	
(\$3,915)	\$166,774	

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60 About the APO

About

The Asian Productivity Organization (APO) is an intergovernmental organization committed to improving productivity in Asia and the Pacific. Established in 1961, the APO contributes to the sustainable socioeconomic development of the region through policy advisory services, institutional capacity-building efforts, sharing of productivity best practices, and dissemination of productivity data and analyses.

The current APO membership comprises 21 economies: Bangladesh; Cambodia; Republic of China; Fiji; Hong Kong; India; Indonesia; Islamic Republic of Iran; Japan; Republic of Korea; Lao PDR; Malaysia; Mongolia; Nepal; Pakistan; Philippines; Singapore; Sri Lanka; Thailand; Turkey; and Vietnam.

The APO Secretariat is located in Tokyo, Japan, headed by a Secretary-General.



Key Activities

Sharing & Dissemination of Productivity Best Practices The APO promotes best practices in utilizing productivity tools, techniques, and methodologies to enable firms, organizations, and government agencies to boost their productivity sustainably, covering the industry, service, agriculture, and public sectors.

Capability Development

The APO acts as an institution builder, strengthening the ability of national productivity organizations (NPOs) to provide productivity promotion, training, and consultancy services to the public and private sectors. The mechanisms include:

- Technical Expert Services (TES)
- Individual-country Observational Study Missions (I-OSM)
- Bilateral Cooperation between NPOs (BCBN)
- Demonstration Companies (DMP)
- Centers of Excellence (COE)
- Certification Body Development (CBD)

Policy & Advisory Support

The APO serves as a regional adviser, surveys the economic and development policies and performance of each member, and assists in formulating strategies for enhanced productivity and competitiveness through the Specific National Program. Working with national experts, the APO creates productivity master plans for members aligned with their national development plans.

International Cooperation

The APO partners with international organizations, reputable universities, and nonmember governments to build synergy and complementarity, multiplying the impacts and benefits of productivity initiatives for the region.



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APO Directors, Alternate Directors,

(AS OF 31 DEC 2020)

APO Chair APO First Vice Chair APO Second Vice Chair Tran Van Vinh K M Ali Azam **Phork Sovanrith** APO Director for Vietnam APO Director for Bangladesh APO Director for Cambodia BANGLADESH FIJI **INDONESIA** Director Director Director K M Ali Azam Osea Naitura Cawaru **Budi Hartawan** Secretary, Ministry of Industries nanent Secretary for Employment, Productivity Director General, Directorate General and Industrial Relations, Ministry of Employment, for Vocational Training and Productivity Alternate Director & NPO Head Productivity and Industrial Relations Development, Ministry of Manpower, Republic Nishchinta Kumer Podder of Indonesia Alternate Director & NPO Head Director & Joint Secretary, National Productivity Organisation (NPO), Ministry of Industries Dr. Isimeli Waibuta Tagicakiverata Alternate Director Liaison Officer Surya Lukita Warman Director, National Training and Productivity Liaison Officer Centre (NTPC), Fiji National University Deputy Director General, Directorate General Vilakone Philomlack Md. Nazrul Islam of Training and Productivity Development, Director of Productivity Division, Department Liaison Officer Joint Director (AC), National Productivity Ministry of Manpower, Republic of Indonesia of Small and Medium Enterprise Promotion Organisation (NPO), Ministry of Industries **Jitendra Naidu** (DOSMEP), Lao National Productivity NPO Head & Liaison Officer Manager, Productivity and Training, Ministry of Organization (LNPO), Ministry of Industry and Fahrurozi Employment, Productivity and Industrial Relations Commerce CAMBODIA Director of Productivity Development. Directorate General of Training and Director HONG KONG Productivity, Ministry of Manpower, Republic Phork Sovanrith of Indonesia Director Secretary of State, Ministry of Industry, Director Science, Technology and Innovation (MISTI) Kenneth Fang, OBE, JP Chua Tian Chang H ISLAMIC REPUBLIC OF IRAN Chairman Hong Kong Productivity Council Chairman, Malavsia Productivity Corporation Alternate Director (MPC) Alternate Director & NPO Head Yea Bunna **Director & NPO Head** Under Secretary of State, Ministry of Industry, Thomas Tang Fatemeh Pahlevani Alternate Director & NPO Head Science, Technology and Innovation (MISTI) Executive Director, Hong Kong Productivity Head, National Productivity Organization of Dato' Abdul Latif Haji Abu Seman Council Islamic Republic of Iran Director General, Malaysia Productivity NPO Head Corporation (MPC) Liaison Officer **Him Phanith** Alternate Director Yuen Yu Tang Director, National Productivity Centre of Liaison Office Not designated Manager, Adm Cambodia, Ministry of Industry, Science, istration and Development Abigail Subatra Anbalakan Liaison Officer Technology and Innovation (MISTI) Division Assistant Manager, Corporate & Planning Mohammad Mokavven Division, Malaysia Productivity Corporation Liaison Officer Director for Head Office, Public Relations (MPC) Chor Sophanna INDIA and International Affairs, Head office, Public Chief of Productivity Promotion Office, Relations and International Affairs Directorate National Productivity Centre of Cambodia, Director National Productivity Organization of Islamic **—** Ministry of Industry, Science, Technology and Guruprasad Mohapatra, IAS Republic of Iran Innovation (MISTI) Secretary, Department for Promotion of Industrv Director & NPO Head and Internal Trade, Ministry of Commerce and Yamaaranz Erkhembayar Industry. Government of India JAPAN **REPUBLIC OF CHINA** Productivity Organization (MPO) Alternate Director & NPO Head Director Director Arun Kumar Jha, IES Alternate Directo Atsushi Ueno Sheng-Hsiung Hsu Director General, National Productivity Assistant Minister and Director-General, Chairman, China Productivity Center (CPC) Council (NPC)

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International Cooperation Bureau, Ministry of Foreign Affairs

Shige Watanabe Director Country Assistance Planning Division I. International Cooperation Bureau. Ministry of Foreign Affairs

Center, International Cooperation Unit, Japan Productivity Center (JPC)

REPUBLIC OF KOREA

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NPO Head Director, International Cooperation Anjana Tamrakar Department, Korea Productivity Center (KPC)



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Director Afzal Latif Secretary, Ministry of Industries and Production

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Shovakanta Poudel

Alternate Director

Alternate Director Capt. (Retd.) Saeed Ahmad Nawaz al Secretary-I, Ministry of Ind and Production

productivity



dersecretary for Regional Development Authority

President and CEO. Development Academy of

Project Officer, Develop Philippines (DAP)

Chew Mok Lee Chairman and Executive Director, Mongolian Digitalisation. Enterprise Services & New

Alternate Director Dr. Sharav Munkhtseren Christophane Foo Executive Director, Human Development, Research and Training Center Enterprise Singapore

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Liaison Officer Taiho Kang

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Medium Enterprise Promotion (DOSMEP). Lao National Productivity Organization (LNPO). Ministry of Industry and Commerce Alternate Director

MALAYSIA

MONGOLIA

Liaison Officer

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Director Dr. Adoracion M. Navarro Office, National Economic and Development

Alternate Director & NPO Head Engelbert C. Caronan, Jr. the Philippines (DAP)

Liaison Officer **Armand Tristan R. Suratos** ment Academv of the

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Director Assistant Chief Executive Officer, ICM &

Alternate Director

NPO Head Kazutaka Maeda President, Japan Productivity Center (JPC)

Liaison Officer Misaki Matsushita Project Manager, Global Management

Liaison Officer K.D. Bhardwaj Regional Director & Group Head (International

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Chandra Kumar Ghimire Secretary for Industry, Ministry of Industry,

Joint Secretary (Division Chief: Industrial Infrastructure and Environment Division), Ministry of Industry, Commerce and Supplies

eneral Manager, National Productivity and Economic Development Centre (NPEDC)







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Executive Director, Enterprise Academy,

Chief Executive Officer. Singapore Productivity Centre (SGPC)

SRI LANKA

Director M.P.D.U.K. Mapa Pathirana Secretary, Ministry of Labour

Alternate Director M.D.M.D. Karunathilake Additional Secretary, Ministry of Labour NPO Head

G.U.K. Algewattage Director, National Productivity Secretariat (NPS), Ministry of Labour Liaison Officer

J.M. Madhurangi Wathsala Jayasinghe Assistant Direct Secretariat (NPS). Ministry of Labour



Director Kobchai Sungsitthisawad

Permanent Secretary, Ministry of Industry

Alternate Director & NPO Head Dr. Athisarn Wayuparb

Executive Director. Thailand Productivity Institute (FTPI)

Liaison Officer Ratchada Asisonthisakul Relations Department Manager, Thailand Productivity Institute (FTPI)



Director Dr. Ilker Murat AR

Acting Director General for Strategic Research and Productivity, Ministry of Industry and Technology

Alternate Director & NPO Head

Gul Taskiran Battal Department Head for Productivity Implementations, Ministry of Industry and . Technology

Liaison Officer

Gozde Bosnali Industry and Technology Expert, Ministry of Industry and Technology

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Director Tran Van Vinh

Director General, Directorate for Standards, Metrology and Quality (STAMEQ)

Alternate Director

Dr. Ha Minh Hiep Deputy Director General, Directorate for Standards, Metrology and Quality (STAMEQ)

NPO Head

Nauven Thu Hien Acting Director, Vietnam National Productivitv Institute (VNPI)

Liaison Officer

Phan Thanh Son Officer, International Cooperation Department, Directorate for Standards, Metrology and Quality (STAMEQ)

Appendices

APO ANNUAL REPORT 2020

APPENDIX 1

List of 2020 Projects

In 2020, the number of projects APO conducted totaled 255 including multicountry, in-country, self-learning e-courses and the newly launched APO Productivity Talk. A total of 187 projects had been completed and 68 were in progress at the end of 31 December 2020, with 14,327 participants. A total of 569 experts facilitated these projects.

APO Projects in 2020

TYPE OF PROJECTS	PROJ	ECT	RESOURCE	PERSONS	PARTIC	IPANTS
	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
Multicountry projects	132	43*	300	89	4,175	5,399
Individual-country projects	55	25	122	58	4,397	356
Subtotal	187	68	422	147	8,572	5,755
Total	25	5	56	59	14,:	327

*Self-learning e-course

Smart Transformation

Industry Transformation

PROJECT

Workshop on Deriving Positive Impacts of Industry 4.0 for Productive Workshop on Consultancy Skills and Strategies for Industry 4.0 Workshop on Internet of Things Applications in Various Sectors Training of Trainers and Consultants in Green Productivity Training of Trainers on Basic Automation through Simulation of Fact Workshop on People-centric Digital Transformation Training of Trainers on Lean Manufacturing Systems Workshop on Data Analytics and Machine Learning for Productivity Training Course on Advanced Strategic Management for Enhancing Training Program on Productivity Improvement for the Supporting In Research on Capacity Development Needs for Industry 4.0

Technical Cooperation Program for COVID-19 Pandemic Recovery

APO 2020 Projects at a Glance

14,327

/5.000+

Talks open to public through

the APO YouTube channel

APO projects

255 projects

569 experts assigned to APO projects

HOST	PARTICIPANTS
ROC	22
ROC	26
ROC	27
ROC	24
ROC	21
ROC	21
Bangladesh	33
Philippines	26
Pakistan	32
APO Secretariat	N/A
APO Secretariat	N/A
APO Secretariat	N/A
Cambodia, Indonesia, Vietnam	N/A
	HOST ROC ROC ROC ROC ROC ROC ROC ROC ROC ROC

Smart Public Sector

PROJECT	HOST	PARTICIPANTS
Conference on Successful Models of Smart Public Service Delivery	Bangladesh	58
Conference on Education for Future Industry	Indonesia	49
Conference on Smart Public Service Delivery	Philippines	13
Training of Trainers on Government Digital Services for Public-sector Productivity	Philippines	26
Training Course on Smart Regulation	Philippines	22
Conference on Science, Technology, and Innovation Policy for Productivity Growth	Japan	38
Conference on Strategies for Strengthening National Innovation Systems	Sri Lanka	66
Research on Change Management in the Public-sector	APO Secretariat	N/A
Research on Public Policy Innovation for Human Capital Development	Sri Lanka	N/A
Research on Digitization of Public Service Delivery	APO Secretariat	N/A
Research on Education for Future Industry	APO Secretariat	N/A

Smart Services

PROJECT	HOST	PARTICIPANTS
Research on Hotel Productivity	APO Secretariat	N/A
Workshop for Practitioners of Business Excellence	Singapore	26
Training Course on Smart Services and Technology for the Hospitality Industry	APO Secretariat	25

Agricultural Transformation

PROJECT	HOST	PARTICIPANTS
2020 International Conference on Smart Agriculture	ROC	650
National Conference on Temperature-controlled Supply Chains in Asia	Thailand	50
National Seminar and Training Course on Organic Agriculture and Products Development for Farmers and Producers in Cambodia	Cambodia	75
Workshop on Agricultural Transformation for Food Security	Philippines	20
Training of Trainers on Village Tourism Development	Indonesia	29
Organic Agroindustry Development Leadership Course in Asia	Mongolia	31
Workshop on Digital Agribusiness for Women Entrepreneurs	India	19
Workshop on Startups in the Food-processing Industry	Sri Lanka	17
Workshop on Sustainable Productivity Models in Agriculture	Bangladesh	26
Workshop on Smart Resource Productivity Management	Japan	17
Workshop on Advanced Postharvest Technologies for Horticultural Crops	Pakistan	29
Training of Trainers on Building Sustainable Supply Chains for Agriculture	Indonesia	22
Research on Smart Agricultural Transformation for APO Member Countries	APO Secretariat	N/A

Capability Development

Strategic Foresight

PROJECT

Workshop on Scenario Planning Development

Research on Construction of a Productivity Forecasting Model Fran

Sustainable Productivity

PROJECT

Research on Reskilling Workers to Enhance Labor Productivity APO Productivity Index Research on Sustainable Productivity Measurement APO Productivity Databook and Database (2020 edition) APO Productivity Databook and Database (2021 edition) Research on Digital Disruption: Policy Tasks and Responses by Gove Research on Country Diagnostics: Productivity and Its Challenges APO-ADBI Joint Study on the Impact of COVID-19 on SMEs

Centers of Excellence

PROJECT

APO COE-BE (SIN): Review of Priority Needs on Business Excellence

Review of Emerging and Priority Needs on Green Productivity

Strengthening the Programs of the Center of Excellence on Public-s APO COE-IT (IND): Development of the Expert Database on IT for Inc

Digital Innovation Process Guide for Manufacturing SMEs

APO COE-IT (IND): Research on Case Studies of Manufacturing Tran for Industry 4.0

APO COE-IT (India): Development of the Toolkit for SMEs on Industr

Assessment of Smart Manufacturing and Needs of Member Countrie

APO COE-SM (ROC): Research on a National Smart Manufacturing Framework

Evaluation of the Performance of the APO COE

	HOST	PARTICIPANTS
	Thailand	21
nework	APO Secretariat	N/A

	HOST	PARTICIPANTS
	APO Secretariat	N/A
ernments	APO Secretariat	N/A
	APO Secretariat	N/A
	APO Secretariat	N/A

	HOST	PARTICIPANTS
e	APO Secretariat	N/A
	APO Secretariat	N/A
sector Productivity	Philippines	30
dustry 4.0	India	N/A
	India	N/A
nsformation Strategies	India	N/A
ry 4.0 Transformation	APO Secretariat	N/A
es	ROC	N/A
Implementation	ROC	N/A
	APO Secretariat	N/A

Program Development Fund

PROJECT	HOST	PARTICIPANTS
Research on Knowledge Management with the Concept of Sustainable Productivity	APO Secretariat	N/A
Review and Updating of the KM Facilitators Guide and KM Tools and Techniques Manual	Cambodia	N/A
Accreditation and Certification Process: Authentication of APO Certificates Using Blockchain	APO Secretariat	N/A
Technical Working Group for the APO Vision 2025	Japan	N/A
2nd Technical Working Group Meeting for a New APO Vision and Strategy 2025 with the focus on an effective monitoring and evaluation (M&E) system	Japan	N/A
3rd Steering Committee Meeting for a New APO Vision and Strategy 2025	Japan	N/A
2nd Steering Committee Meeting on the APO Vision 2025	Vietnam	N/A
Research on the Widening of Economic Divides under the Impact of COVID19	APO Secretariat	N/A
Regional Study on Labor Productivity	APO Secretariat	N/A

Accreditation Body

PROJECT	HOST	PARTICIPANTS
Lead Assessor Course for the APO Accredited Certification Bodies	Japan	17
APO Accreditation and Certification Development Program	APO Secretariat	N/A
Certification Body Development Program: Development Project for the Directorate of Productivity Development (NPO of Indonesia) as an APO Certification Body	Indonesia	N/A
Certification Body Development Program: Development Project for the Malaysia Productivity Corporation as an APO Certification Body	Malaysia	N/A
Certification Body Development Program: Development Project for the Vietnam National Productivity Institute as an APO Certification Body	Vietnam	N/A
Certification Body Development Program: Development Project for the Mongolian Productivity Organization (MPO) as an APO Certification Body	Mongolia	N/A
Certification Body Development Program: Development Project for the National Productivity Council (NPC India) as an APO Certification Body	India	N/A
Certification Body Development Program: Development Project for the National Productivity Organization of Pakistan (NPO Pakistan) as an APO Certification Body	Pakistan	N/A
APO Accreditation and Certification Development Program: Development of the Accreditation Standard Operating Procedures	APO Secretariat	N/A

Digital Learning

PROJECT	PARTICIPANTS
Self-learning e-Course on Smart Transformation of Agriculture	121
Self-learning e-Course on Future Aquaculture Farming	71
Self-learning e-Course on Apiculture Management	61
Self-learning e-Course on Advanced Smart Manufacturing 101 in a Blockchain-driven Era	38
Self-learning e-Course on General Aspects of Energy Management and Audit	11
Self-learning e-Course on Measurement of Public-sector Productivity	236
Self-learning e-Course on Critical Strategic Foresight Tools for Sustainable Productivity	203
Self-learning e-Course on Waste Management in Agribusiness	105
Self-learning e-Course on Controlled-environment Agriculture	79

PROJECT

Self-learning e-Course on the Occupational Health and Safety Man Self-learning e-Course on Productivity Tools and Techniques (Basic Self-learning e-Course on Good Agricultural Practices (GAP) Self-learning e-Course on Marketing Strategy and Product Branding Self-learning e-Course on Food Safety Management (Basic) Self-learning e-Course on Productivity Tools and Techniques (Advan Self-learning e-Course on Applying Green Productivity Based on ISC Self-learning e-Course on Material Flow Cost Accounting (ISO 1405 Self-learning e-Course on Climate Change Impacts and Adaptation Self-learning e-Course on Agritourism Business Development Self-learning e-Course on Rural Entrepreneurship Development Self-learning e-Course on Agribusiness Management (Advanced) Self-learning e-Course on Food Safety Management (Advanced) Self-learning e-Course on Sustainable, Resilient Supply Chains Self-learning e-Course on Smart Manufacturing: Basic Self-learning e-Course on the Energy Management System Auditors Self-learning e-Course on Integrating Lean Manufacturing Systems Self-learning e-Course on Green Productivity and Integrated Manag Self-learning e-Course on Smart Manufacturing: Advanced Self-learning e-Course on Organic Agriculture and Organic Agribusi Self-learning e-Course on Business Models for Women Entrepreneu Self-learning e-Course on Energy Efficiency Techniques Self-learning e-Course on Smart Farm Mechanization Self-learning e-Course on Urban Agriculture Self-learning e-Course on Future Food: Exploring Business Opportu Self-learning e-Course on Building Climate Change-resilient Agricul Self-learning e-Course on Basic Data Analytics for the Public Sector Self-learning e-Course on Modern Food Storage and Transport Tech Self-learning e-Course on Innovative Cost-effective Technologies for Self-learning e-Course on Organic Inspection and Certification Self-learning e-Course on Modern Food Distribution Systems Self-learning e-Course on Innovations in Agroforestry Systems Self-learning e-Course on Basic Smart Manufacturing 101 in a Block Self-learning e-Course on Management Innovation in SMEs

Productivity Talk

PROJECT

Series of Productivity Talk on Enhancing Resiliency and Business Co Shocks and Future Uncertainties

	PARTICIPANTS
agement System (OHSAS 18001)	320
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g for SMEs	109
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hnologies	178
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chain-driven Era	143
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Individual Program

Specific National Program

PROJECT	HOST	PARTICIPANTS
Institutional Capability Development Plan for the Mongolian Productivity Organization (1st trip)	Mongolia	N/A
Development of the National Productivity Master Plan for Vietnam	Vietnam	N/A
Institutional Capability Development Plan for the National Productivity Organisation of Bangladesh	Bangladesh	N/A
Development of the National Productivity Master Plan for Lao PDR	Lao PDR	N/A
Policy Consultancy on Innovation-driven Productivity Improvement	Bangladesh	N/A
Institutional Capability Development Plan for the National Productivity Organization of Pakistan	Pakistan	N/A

Individual-country Observational Study Missions

PROJECT	DEPUTING COUNTRY	HOST	PARTICIPANTS
Circular Economy Towards Sustainability: ROC Experiences	Malaysia	ROC	8
Benchmarking of Industrial Education System for National Competitiveness	Pakistan	ROK	12
Understanding Best Practices and Working Models on the Application of Industry 4.0 for MSMEs	Philippines	ROK	38
Online Benchmarking Study Mission for the DAP Future Center & Innovation Laboratory	Philippines	ROK	4
Capability Building in Service Engineering	Singapore	Japan	3

Bilateral Cooperation between NPOs

SUBJECT	DEPUTING COUNTRY	HOST	PARTICIPANTS
Smart Manufacturing and IT Solutions in Singapore's Food and Beverage Industry	ROC	Singapore	4
Establishing a National Quality Infrastructure Framework (Virtual Session)	Philippines	Vietnam	23
Learning Experience in Building NPO Capability and Human Resource Development in Productivity and Quality	Vietnam	Japan	6

Demonstration Companies

SUBJECT	HOST	PARTICIPANTS
Transforming Chicken Litter into Value-added Commercial Product(s) in Future Farms Limited	Fiji	14
Scientific Molding: Digitization for Productivity Improvement in Manufacturing	Thailand	40
Innovation, Quality Circles, and Lean Manufacturing for Productivity Enhancement in SMEs	Cambodia	150
Material Flow Cost Accounting in Sugar Production	Bangladesh	40
Applications of Green Productivity Tools and Techniques in the Printing Industry	Sri Lanka	60
Training in Applications of Mini-grid Solar PV Systems	Indonesia	30

Technical Expert Services

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SUBJECT	VENUE	PERSONS
Enhancing Organization Productivity and Competitiveness through Experience Management	Thailand	1
Leveraging Industry 4.0 Technologies for productivity Enhancement	India	2
Management Excellence	Japan	1
Innovation Management through Knowledge Management	Cambodia	1
Support to the Development of a Digital Platform for VNPI (NPO Vietnam)	Vietnam	2
Knowledge Management and ISO 30401 (2018) Knowledge Management System	Pakistan	1
Strategic Foresight and Scenario Planning	Philippines	1
Training of Trainers on Business Excellence Framework for NPO Bangladesh	Bangladesh	1
Knowledge Management	Mongolia	1
Citizen-centered Frontline Public Service Delivery During and Post COVID-19 Pandemic	Philippines	1
Smart City for Mongolia	Mongolia	2
Productivity Measurement for Electricity Sector for Vietnam	Vietnam	1
Productivity Consultant Course	Cambodia	4
Leading Basic Education in the Age of Disruption (LEAD)	Philippines	4
ISO 9001 Lead Auditor Training and Certification	Mongolia	1
Capability Building on Innovative Leadership for Legislative Staff (CBILLS)	Philippines	1
Environmental Management System and ISO 14001 Implementation	Mongolia	1
Productivity Consultant Course for NPO Professionals	Bangladesh	2
Innovation Led Knowledge Management	Pakistan	1
Integrating Lean Manufacturing Systems and Industry 4.0	Turkey	1
Global Marketing and Sales for Horticulture Sector	Pakistan	1
Guidance on the Foresight Implementation and Strategic Development	Thailand	1
National Quality & Productivity Convention (NQPC) 2020	Indonesia	2
Training of Trainer - Kaizen Practitioners Program	Pakistan	1
Occupational Health and Safety Lead Auditor Course	Mongolia	1
Capability Building Program for Local Government Leaders	Philippines	1
Business Process Reengineering (BPR)	Mongolia	2
Business Excellence Senior Assessor Training	Pakistan	1
Performance Management	Bangladesh	1
Blockchain Project Development for Agribusiness and Education Sector	Mongolia	2
Innovation and Market Development for Textile Industry	Pakistan	1
Smart Manufacturing Promotion	Vietnam	3
Technical Expert Services on Circular Economy	Pakistan	1

DEAGUDAE

APPENDIX 2

Institutional Program

PROJECT	HOST	PARTICIPANTS
Program/Project Planning Workshop	APO Secretariat	48
Impact Evaluation Study	APO Secretariat	N/A

Projects Funded by Special Cash Grants

SUBJECT	VENUE
2020 International Conference on Smart Agriculture	ROC
National Conference on Temperature-controlled Supply Chains in Asia	Thailand
National Seminar and Training Course on Organic Agriculture and Products Development for Farmers and Producers in Cambodia	Cambodia
Policy Consultancy on Innovation-driven Productivity Improvement	Bangladesh
Technical Cooperation Program for COVID-19 Pandemic Recovery	Cambodia, Indonesia, Vietnam
Training Program on Productivity Improvement for the Supporting Industry	APO Secretariat

Summaries of 2020 Projects

Smart Transformation

Industry Transformation

The Industry Transformation Program promotes improvements in production processes, management methodologies, business models, technologies, and strategies and policies to enhance productivity. It supports industrial upgrading and advocates for more sustainable ways of boosting economic performance to ensure that productivity gains are derived from activities with positive impacts in the long run and that the benefits can be shared among all stakeholders, including workers, employers, and communities. In 2020, projects were implemented in the digital modality due to COVID-19 pandemic-related restrictions. In workshops, such current topics in the era of digital transformation as strategies for Industry 4.0, Internet of Things (IoT) applications, and data analytics were covered. Training courses focused on themes of core importance including lean manufacturing, automation through simulation, and strategic management in SMEs. The program also highlights the importance of sustainability and responsible production and consumption by promoting Green Productivity, which places equal emphasis on productivity enhancement and environmental protection and contributes to meeting the UN Sustainable Development Goals.

Workshop on Deriving Positive Impacts of Industry 4.0 for Productivity

The Industry 4.0 movement offers extensive benefits in enhancing manufacturing efficiency, creating business models, and deriving knowledge from digitized information; however, concerns over its impact on labor substitution, environmental sustainability, and income inequality also cloud the prospects for a fully connected digital economy. It is thus necessary to explore how countries, businesses, and individuals can leverage the technologies and applications of Industry 4.0 to achieve goals that ensure inclusive development, sustainable production and consumption, and the creation of human capital.

To provide a platform to explore how digitization and other technological breakthroughs could be used as enabling tools to address the above issues, the CPC and APO Secretariat conducted the digital multicountry Workshop on Deriving Positive Impacts of Industry 4.0 for Productivity from 9 to 11 September. The workshop was attended by 22 participants from nine APO member countries, and six resource persons from Belgium, Canada, the ROC, and Germany shared their insights on the implications of Industry 4.0 for business resilience, environmental sustainability, and workforce upskilling. The participants also benchmarked their experiences against practices and examples from the ROC.

Program coverage: Building business resilience with Industry 4.0 applications; Responding to crisis with technologies; A smart and sustainable future: Integrating digital technologies into circular economy approaches; Smart manufacturing and the circular economy in Taiwan: Policy support and case studies; Capability building in a digital economy; and Necessary skills and technical know-how for SMEs.

Workshop on Consultancy Skills and Strategies for Industry 4.0

The industrial landscape has been changing drastically in recent years with breakthroughs in technology and upgrades needed for the era of Industry 4.0. Comprehensive support to manufacturers is essential for enterprises of all sizes to undertake digital upgrading. Intermediate institutions play a pivotal role in disseminating knowledge, matching needs, and support, and overcoming technical and managerial obstacles by working hand-in-hand with industries. Therefore, developing competent agents and institutions that can provide suitable guidance and consultation to industries is of immense importance for digital transformation in the APO region.

To enhance the capabilities of these intermediate agents in assisting SMEs to initiate digital upgrading, the CPC and APO Secretariat organized digital multicountry Workshop on Consultancy Skills and Strategies for Industry 4.0 on 23-25 September. The workshop was attended by 28 participants and observers from 13 APO members, where four resource persons from the ROC, Germany, and Singapore shared their experiences in facilitating businesses to develop and implement strategies for digital upgrading. The participants also gained an understanding of manufacturing digitization and applicable tools that could support consulting services for business digitalization.

Program coverage: Industry 4.0 and SMEs digitization; Supporting digital upgrading in SMEs; Understanding the readiness of SMEs for digital upgrading; Smart manufacturing transformation in Singapore; How do we cater to digitalization strategists; Necessary skills and technical know-how for supporting smart manufacturing transformation: How to amalgamate industry knowledge with digital tools; and Developing action plans to support digital upgrading.

Workshop on Internet of Things Applications in Various Sectors

The IoT is a system of interconnected physical devices which uses sensors and application programming interfaces to capture, connect, and transfer data over a network. With its features of collecting data in digital formats and exchanging information without requiring human-to-human or human-to-computer interactions, the IoT becomes the basis for digitization in factories, companies, and communities and hence the foundation for digital transformation. With the convergence of evolving, advanced technologies, the applications of the IoT have permeated daily life, helped to raise productivity, and created new business models in different economic sectors and public services.

To support APO member countries in harnessing the benefits of IoT applications, the CPC and APO Secretariat organized digital multicountry Workshop on Internet of Things Applications in Various Sectors, 11-13 November, which was attended by 27 participants from 11 APO member countries. Three resource persons from the ROC and Singapore shared the versatile applications of IoT technologies and their implications for different sectors and potential business models. The participants were also guided through hands-on activities to configure and connect IoT devices and collect and visualize the information gathered.

Program coverage: Industry 4.0, the IoT, and productivity improvement; Applications, examples, and implications of the IoT; Leveraging the power of the IoT; and Hands-on activities: Getting IoT devices online, connecting to and collecting information from IoT devices, and visualizing information for strategy development.

Training of Trainers and Consultants in Green Productivity

Green Productivity (GP) was conceptualized by the APO as a strategy to assist member countries in enhancing productivity and simultaneously reducing environmental impacts, thus providing a competitive edge to businesses in the era of globalization. Since 2001, the training of trainers and consultants has been one key activity to enhance the competencies of GP facilitators and practitioners in the region. This course is one of the mandatory requirements under the APO certification program for GP specialists, after which participants must undertake GP projects and submit reports within six months after course completion.

The CPC and APO Secretariat implemented the digital multicountry Training of Trainers and Consultants in Green Productivity from 16-20 November. The course was attended by 24 participants from 13 APO member countries. Three resource persons from India, Malaysia, and Singapore imparted knowledge on improving productivity and environmental performance through GP tools and techniques, thereby enhancing the abilities of participants to act as GP trainers, consultants, and promoters.

Program coverage: Mitigating the COVID-19 impact on the economy and environment through circular economy strategies; APO Center of Excellence on GP; Responses to global environmental concerns and climate change; The GP concept, guiding principles, and methodology; GP tools and techniques; Management systems on energy, quality, environment, and health and safety; Requirements for GP specialists under the APO certification scheme; and Interactive group work on a case study under the guidance of resource persons followed by group presentations. Participants are carrying out activities related to GP consulting, training, and promotion and preparing to submit project reports on enhancing GP.

Training of Trainers on Basic Automation through Simulation of Factory Operations

Industrial transformation starts from the most fundamental agents in the economy: enterprises and factories. Developing their understanding of digital upgrading and strategies for automation and digitization is required for overall transformation. However, most SMEs are constrained by limited resources for and access to technologies when prioritizing options for upgrades. Observing good practices and demonstrations in SMEs "digital champions" and their adoption of appropriate technologies thus serves the most direct way to disseminate experiences and facilitate digital upgrading.

To provide practical knowledge of factory digitalization for facilitators of industrial upgrading, the CPC and APO Secretariat conducted the digital multicountry Training Course on Basic Automation through Simulation of Factory Operations, 25-27 November. Twenty-one participants from seven APO members attended the training course. Three resource persons from Canada, the ROC, and Singapore presented strategies for and examples of SMEs digital transformation, highlighting the support of suitable technologies and assistance from enabling policy programs and institutions. The participants also experienced a real-time, virtual visit to the Model Factory of the Singapore Institute of Manufacturing Technology, which showcased new technologies for factories and demonstrated how a smart factory was designed and is being operated.

Program coverage: SMEs, Industry 4.0, and productivity; Initiating digital transformation in SMEs; Supporting SMEs in their Industry 4.0 journey; A journey toward a smart factory; Examples of factory digitalization; and Smart factories in the ROC. Virtual site visit: Model Factory of the Singapore Institute of Manufacturing Technology.

Workshop on People-centric Digital Transformation

Radical innovations and rapid advances in digital technologies are not only leading to fundamental changes in business processes and operations but also providing new revenue streams and value-producing opportunities. On one hand, technological disruptions have affected the labor market through job displacement while reducing the need for human interventions; on the other hand, evolving socioeconomic complications are challenging how enterprises operate. As businesses strive to become resilient to navigate tough times, they must also meet employee expectations. Empowering employees to become "workers 4.0" who are future ready and have the requisite digital technology skill sets not only leads to higher output but also to greater productivity growth, which facilitates continuing digital transformation and improves returns on investment.

The CPC and APO Secretariat conducted the digital multicountry Workshop on Peoplecentric Digital Transformation from 25 to 27 November with 21 participants from 12 member countries attending. Twelve observers from six APO member countries were also present virtually. Four resource persons from the ROC, India, and Singapore gave presentations on the key elements of digital transformation of enterprises, ways to deploy suitable learning, and development strategies to implement people-centric digital transformation within SMEs. The workshop also provided a platform for discussion and interaction on the development of a road map for people-centric digital transformation of SMEs.

Program coverage: Overview of digital transformation; Digital literacy as a driving force for business resilience; Disruptions to the future of work; People, process, and technology; Enhancing productivity through a people-centric approach; Worker 4.0; Creating a peoplecentric digital transformation strategy; Building a people-centric workplace; and Group work and presentations.

Training of Trainers on Lean Manufacturing Systems

Lean manufacturing is a methodology for productivity improvement which focuses on reducing all types of waste, streamlining processes, and optimizing resources so that all actions in the manufacturing process create value. Nowadays, lean concepts and practices are even more significant when resource efficiency and timely responses to market demand are equally important for manufacturers. Lean manufacturing provides a simple yet solid methodology to pursue productivity, business continuity, and sustainability, enabling SMEs to adapt to the fast-changing business environment with agility and efficiency.

To disseminate updated knowledge and practices of lean manufacturing and management, the NPO of Bangladesh and APO Secretariat organized the digital multicountry Training of Trainers on Lean Manufacturing Systems, 8-10 December. Thirty-three participants from 14 APO members attended. Three resource persons from Japan, Singapore, and Thailand imparted practical steps and techniques for lean implementation and explained how lean concepts are the foundations to improve resource efficiency and expedite digital transformation.

Program coverage: Steps and techniques for lean implementation; Lean and resource efficiency; Applying material flow cost accounting in SMEs; Lean and digital transformation for SMEs; and Applying lean in SMEs: Challenges and solutions.

Workshop on Data Analytics and Machine Learning for Productivity

Understanding how to gather and interpret data from in-house operations, market demand, and human behavior is the first step toward digital upgrading and improved business operations. Another equally important step is properly handling and analyzing data. A maturing technology to handle big data is machine learning, which uses algorithms and inflows of information to strengthen the ability to analyze data and produce predictive analyses. The results are widely utilized in detecting defects and analyzing market demand and can support SMEs in optimizing their production and marketing strategies.

To raise awareness of the importance of data and the implications for SMEs digitalization, the DAP and APO Secretariat conducted the digital multicountry Workshop on Data Analytics and Machine Learning for Productivity, 16-18 December. Twenty-six participants from 12 APO members attended the workshop. Three resource persons from the ROC, Netherlands, and Philippines explained how data analytics set the foundation for digital transformation and implications for business operations, technologies, and productivity improvement.

Program coverage: Data analytics, digital transformation, and Industry 4.0; Data, productivity optimization, and smart manufacturing; Applications and technologies leveraging data analytics; Basic data analytics and tools; Industrial applications of data analytics; and Project SPARTA of the Philippines.

Training Course on Advanced Strategic Management for Enhancing Productivity in SMEs

The current era of knowledge-based globalization and ambiguous business environment demands enterprises to strategize not only to remain competitive but also resilient while riding out the adverse effects of certain and uncertain threats like the COVID-19 pandemic. As the pandemic continues to evolve, there is a need to shift the focus toward business continuity while addressing the changes. SMEs, which are the backbone of economies in the Asia-Pacific region, need to exercise strategic management by deploying appropriate strategic management tools and techniques (SMTTs) to survive the current crisis, protect employee well-being, and continue efforts to achieve profitability and a competitive edge.

The NPO of Pakistan and APO Secretariat organized the digital multicountry Training Course on Advanced Strategic Management for Enhancing Productivity in SMEs. 16-18 December. Thirty-two participants and an observer from 13 APO member countries attended the training. Four resource persons from India, Japan, Malaysia, and Pakistan explained the use of advanced SMTTs for enhancing productivity in SMEs and the skills and knowledge required to provide training and consultancy for SMEs in developing strategic planning.

Program coverage: An overview of strategic management; SMTTs; COVID-19 as a catalyst for technology interventions; Mitigating the impact of COVID-19 on SMEs through SMTTs; Issues and challenges for SMEs in implementing SMTTs; Strategizing to maintain business continuity in the new normal; SME diagnosis through digital tools for productivity enhancement; Guide to strategic planning for SMEs; Best practice-sharing session on talent management strategy by Pak Suzuki Motor Company, Pakistan; and Group work and group presentation on prudent SMEs strategies for sustainability. A virtual visit was hosted by the National School of Public Policy of Pakistan.

Training Program on Productivity Improvement for the Supporting Industry

Through cooperation with local enterprises, numerous Japanese companies have expanded their businesses into other countries in Asia and contributed to their economic growth. To maintain rapid economic growth, improved productivity in local supporting industries is particularly crucial. It is therefore important to promote improvements in local supporting industries and the quality of their human resources by providing opportunities to learn about and acquire productivity skills and management techniques developed and refined in Japan. This will allow more supporting industries to contribute to higher national productivity.

The Training Program on Productivity Improvement for the Supporting Industry, conducted under a special cash grant from the Japanese Ministry of Economy, Trade and Industry (METI), aims to develop high-guality personnel working in industry and improve the productivity of local Japanese subsidiaries and local companies through training in Japan's excellent productivity improvement methodologies for human resources who will support the manufacturing (monozukuri) sites of Japanese companies doing in business in Asia and local companies that are business partners of Japanese companies. In 2020, 22 proposals were received from local companies in India wishing to apply for training courses under the scheme proposed by Japanese manufacturers. For the Monozukuri Project under this program, the APO subsidized expenses incurred for students at the Japan-India Institute for Manufacturing or Japanese Endowed Courses certified by METI to receive training and technical guidance from experts.

Program coverage: Productivity skills and management techniques; and Smart industry technology, such as the IoT, the cloud, and additive manufacturing.

Research on Capacity Development Needs for Industry 4.0

Industry 4.0, driven by new-generation technologies, is transforming the future of production systems. The response to the waves of Industry 4.0 must be strategically integrated with national policies on industrial competitiveness, labor markets, and new digital ecosystems. A major challenge in coping with Industry 4.0 is the need for human capital, specifically people with the qualifications to plan, oversee, and operate digital processes and services.

The research on Capacity Development Needs for Industry 4.0 initiated by the APO is examining the level of Industry 4.0 integration into national industrial policies. The status of readiness of businesses in the region to adopt Industry 4.0 in selected APO member countries is also covered. Specifically, the research is looking into the contexts of the economy, labor markets, education, digital infrastructure, policies, and national innovation capabilities. A chief expert from Germany and six national experts from the ROC, India, Indonesia, Malaysia, the Philippines, and Vietnam were assigned to conduct the research. Critical needs for capacity development for embracing Industry 4.0 at national level, thus unlocking opportunities for exponential growth through leveraging digital technologies, were pinpointed in the report completed in December 2019. The final report was published on the APO website in July 2020.

Program coverage: The APO COE on IT for Industry 4.0; Industry 4.0 context conditions; Wealth of data; Industrial digital ecosystems; Innovative productive systems; Innovation capability; Human capital; and Complexity capital, structural capital, and relational capital.

Research on National Strategy on Developing Human Resources for the Industries of the Future

The rapid spread of new-generation technologies has transformed the future of production systems and led to the creation of the new industries of the future. Individuals need to acquire the necessary skills and equip themselves with the knowledge and abilities to be relevant to tomorrow's labor market. Responses to the waves of Industry 4.0 must also be incorporated in national policies on industry competitiveness, employment, and new industrial digital ecosystems.

The APO commenced a research project on National Strategy on Developing Human Resources for the Industries of the Future in 2019. The research aims to support member countries in studying the strategic approaches to national human capital development policies to enhance the qualifications of labor for the industries of the future, thus ensuring sustainable national productivity growth. It also examines the requirements for enhanced skills, different organizational structures, and new elements of education as critical factors at national level for the workforce to be relevant in the future. One chief expert and seven national experts from the ROC, India, Indonesia, Malaysia, Pakistan, the Philippines, and Vietnam were assigned to conduct the research. The final report with policy implications for national strategies on human capital development for the industries of the future was finalized and submitted in September 2020. It will be published in 2021.

Program coverage: Human resources development; Industries of the future; National human resources strategies and policies; Education policy; Future labor markets; Reskilling, upskilling, and industry competitiveness; Qualifications of labor; and National productivity growth.

Technical Cooperation Program for COVID-19 Pandemic Recovery

The COVID-19 pandemic has severely affected the production systems of critical items such as medical equipment and food due to factory shutdowns and logistic disruptions all around the world, including APO member countries. At the 62nd session of the APO GBM held virtually on 8 June 2020, the Alternate Director for Japan announced that the GOJ would provide a special cash grant under its Technical Cooperation Program to address those urgent challenges. The special cash grant would amount to around USD1.9 million, and the GOJ further decided that the recipients from APO member countries would be Cambodia, Indonesia, and Vietnam. For Cambodia and Vietnam, the technical cooperation and special cash grant focus on cold storage equipment and related technical training to reduce agricultural losses and ensure fresh, safe food supplies. For Indonesia, the grant is to assist SMEs in the healthcare sector to scale up the production of medical equipment, enabling the country to reduce the impact of the COVID-19 pandemic.

For Cambodia and Vietnam, the grant provided two cold storage containers and one ice machine developed by a Japanese SME to assist agrifood SMEs. The objective is to improve the end-to-end cold chain system (from farm to retail) using modern storage technologies while developing a pilot model tailored to the Cambodian and Vietnamese situations, enabling those countries to become more resilient to food chain disruptions.

For Indonesia, the grant provided one computed numerical control (CNC) milling machine and one blow-molding machine to assist healthcare-sector SMEs negatively affected by the pandemic. The objective is to scale up the manufacture of healthcare-related products such as hospital beds, operating tables, and stretchers, enabling the country to reduce the impact of COVID-19. The equipment will also be utilized for training other SMEs through reskilling labor in Indonesia.

Smart Public Sector

The COVID-19 pandemic throughout 2020 underlined the importance of public-sector capacity to solve societal problems, especially in emergencies, and its resiliency in overcoming major challenges. It called for a different set of skills, capabilities, and resources to perform policy functions and provide public services beyond the protection of public health and economic recovery in combating the much broader havoc created by the pandemic. The APO Smart Public-sector Program quickly responded to this unprecedented, unforeseen challenge during 2020 by addressing the needs of APO members in adjusting to the realities of the new normal. It pivoted to innovative approaches to provide learning opportunities utilizing the digital platform. The capacity-building programs therefore covered various aspects of institutional strengthening through workshops, training courses, conferences, and digital learning projects such as self-learning e-courses, Top Talks, and P-Talks throughout the year amid the pandemic-related restrictions. As the COVID-19 pandemic was so prominent in 2020, activities under the Smart Public-sector Program focused on utilizing the digital platform to ensure the continued delivery of services to APO members and beyond, since face-to-face project implementation was not possible.

Conference on Successful Models of Smart Public Service Delivery

The rise of the digital society has heightened expectations of e-service among citizens and businesses. Intelligent process automation, advanced analytics, and other developing technologies are changing the way governments and agencies deal with citizens' demands. They have come to expect and rely on convenience in their daily lives as technology evolves. Technology is no longer employed simply to automate back-office functions and improve public-sector productivity but has assumed a transformative role in public service design and delivery including offering smart solutions that address citizens' expectations and forging new relationships with government.

To examine the best practices of public-sector organizations in delivering services using enabling technologies in a cost-effective, efficient manner, the NPO Bangladesh and APO Secretariat organized the digital multicountry Conference on Successful Models of Smart Public Service Delivery on 28 October. Forty-four participants from nine APO member countries and twenty-five observers attended the conference, along with four resource persons from Bangladesh, India, the ROK, New Zealand, and the Philippines, who shared their knowledge by giving specific examples and cases of smart public services.

Program coverage: Digital transformation and inclusion in the public sector through service delivery; Defining a smart public service and its link to citizen satisfaction; Emerging technology and innovation: Measuring service quality using analytics; Transforming public services using the digital platform; and Skill and capability requirements of a smart public sector.

Conference on Education for Future Industry

Emerging technologies such as artificial intelligence, advanced robotics, and the internet of things are starting to become integrated into industrial processes. This has the potential to rapidly increase the productivity of firms and other organizations. However, for this to be realized, the workforce must be able to leverage these new technologies. New education models must be developed to better meet the demands of the future labor market and develop "21st century skills" such as digital literacy, cross-cultural knowledge, systems thinking, and beyond.

To allow key stakeholders from government to learn from experts and explore ways to adapt existing learning systems, the Ministry of Manpower of Indonesia in cooperation with the APO Secretariat organized the digital multicountry Conference on Education for Future Industry on 4 November. Fifty-seven participants from 10 APO members attended, along with resource persons from Australia, Indonesia, Italy, Singapore, and the USA, who shared their knowledge by giving specific examples of education models adapted for future industry.

Program coverage: 21st century skills and competencies; Vocational education for industrial development: The case of Indonesia; Project-based learning through community-driven innovation; Shaping human capital for the future of work; and Designing global hybrid universities to advance future economies.

Conference on Smart Public Service Delivery

Today, governments face challenges in delivering high-quality public goods and services while also managing costs and other constraints. Frontrunners in the public sector are managing this by using digital tools to speed up processes, reduce costs, and reach new groups of citizens such as the youth. Others have implemented nontechnological innovations by developing creative management systems and processes at the local, national, and supranational levels. Overall, these trends point towards a shift for the government from its former role as a unitary, top-down service provider to becoming an enabling platform where diverse citizens interact and co-create more responsive, modern services.

To allow key stakeholders to learn from experts and share knowledge on smart public services, the DAP and APO Secretariat organized the digital multicountry Conference on Smart Public Service Delivery on 9 November. Fourteen registered participants from six APO member countries attended the conference, along with hundreds of local participants from various government sectors. This conference had four resource persons from Japan, the Philippines, Singapore, Thailand, and the USA, who shared their knowledge about smart public service delivery with participants.

Program coverage: Data-driven innovation for sustainable smart cities: Opportunities and challenges in public-private partnerships; Enabling the public sector to adapt to digital transformation; Using information technology to contain COVID-19: The Singapore experience; Bringing the voices of citizens into the policymaking process; and Thailand-the digital ID approach.

Training of Trainers on Government Digital Services for Public-sector Productivity

Digital transformation of the public sector has increased the necessity for e-government systems in both developing and developed countries. Government digital services, referred to as the informatization of public service delivery, can be achieved through intranet and extranet systems in the government and affiliated public organizations. Transactional services like submitting taxes via websites are the most common features of e-government, which are known as digital government for citizens (G4C) service. Public affairs dealing with businesses (G4B) such as procurement are also an important element since they make the resource mobilization process more transparent.

To promote quality e-government systems and share recent advances in digital services and their implications for public-sector productivity, the DAP and APO Secretariat conducted a digital multicountry Training of Trainers on Government Digital Services for Public-sector Productivity from 25–27 November. Twenty-six participants from 10 APO member countries attended the training course, with two APO resource persons from Denmark and the ROK who shared an integrated picture and diverse examples of e-government systems and public service delivery.

Program coverage: Introduction to e-government and digital public services; e-Government establishment and G4B services; Denmark's experience of G4C services; The ROK's e-government post-COVID-19; Inclusive digital service delivery; and online training in the DAP; Case studies presentation by participant; and Group exercises.

Training Course on Smart Regulation

A smart regulation delivers clearly defined, measurable policy objectives and is set through a transparent, objective, consultative process. Its emphases are two-fold: outcomes (effective delivery); and real involvement of the people concerned. Accordingly, a smart regulation serves clearly identified policy goals and produces benefits that justify the costs, considering the distribution of effects across the economy, environment, and society. Ultimately, to earn the trust and confidence of citizens, a smart regulation must fulfill its promises through welltargeted conception, effective design, and committed implementation by the government.

To introduce the tools available for evaluating the requirements and principles for developing, implementing, and evaluating a smart regulation, the DAP and APO Secretariat organized the digital multicountry Training Course on Smart Regulation from 7-9 December. Twenty-two participants from eight APO member countries attended the training, along with five resource persons from France, Italy, the ROK, and Malaysia who gave presentations on the definitions and requirements of smart regulations.

Program coverage: Introduction to principles, features, and practices of smart regulation; Tools in designing and developing a smart regulation; Tools in reviewing and evaluating a smart regulation; Reviewing the regulatory guillotine; Policy innovation that promotes smart regulation; and Case presentations of countries.

Conference on Science, Technology, and Innovation Policies for Productivity Growth

Scientific breakthroughs, disruptive technologies, and radical innovation have contributed to advances in productivity and economic development. Recently, the emergence of complex social issues has raised the question of the dominant focus inherent in most countries' science, technology, and innovation policy (STIP) frameworks. Even though economic growth and social progress are not mutually exclusive, their targets have not been in tandem in STIP formulation. There is growing demand to evolve STIP frameworks to tackle social challenges while pursuing economic growth-promoting objectives.

As part of APO efforts to support informed STIPs in member countries and to share the best practices in designing and reframing STIPs targeting both social and economic progress issues, the digital multicountry Conference on Science, Technology, and Innovation Policies for Productivity Growth was organized on 8 December. Forty-four participants from 10 member

countries attended the conference. Five resource speakers from the ROC, India, Japan, Singapore, and the UK shared diverse perspectives such as STIP instruments to address social challenges, funding schemes for social innovation projects, whole-of-government approaches in shifting from technology-centered to human-centered STIPs, and mainstream Sustainable Development Goal (SDG) inclusiveness targets into national STI strategies.

Program coverage: STIP to address social challenges; Society 5.0; Regulatory sandbox mechanisms; Technology-centered vs. human-centered STI agendas; STIP responsiveness; Social innovation; SDG inclusive targets; and National STI strategies; and Panel discussion.

Conference on Strategies for Strengthening National Innovation Systems

Innovation is now widely recognized as the basis for new jobs, growth, productivity, and competitiveness. For countries to sustain their productivity growth over the long term, governments must offer support by creating functional innovation systems. Innovation systems are networks of knowledge creators (research bodies), knowledge adopters (industry), and government. Discourse on creating an enabling environment for innovation suggests that inclusive platforms where all actors freely exchange ideas are helpful. This has implications for how government innovation systems could manage and interact with stakeholders including the public to increase the relevancy and practicality of innovations adopted. Inclusive innovation methods are applicable to APO member countries at all stages of socioeconomic development.

To provide government officials with the latest, most relevant information on national innovation systems (NIS) and discuss platforms for public service innovation, the NPS in cooperation with the APO Secretariat implemented a digital multicountry Conference on Strategies for Strengthening National Innovation System on 10 December. Sixty-six participants from 13 APO members attended the conference, with four resource persons from the ROC, Estonia, Malaysia, and Singapore who presented insightful ideas on sectoral innovation systems which were later discussed and synthesized to draw up integrated NIS.

Program coverage: The ROC's policies on innovation for transitioning to the new normal; A tale of innovation: National digital transformation for Estonia's borderless growth; Singapore's NIS development and evolution; Impact-driven innovation policy and system in Malaysia; and Panel discussion on synthesizing lessons for an integrated strategic NIS.

Research on Change Management in the Public-sector

Change is the only way to remain relevant for any organization. Although usually perceived as resistant to change, change management in public-sector organizations is not considered as less important than in their private-sector counterparts. It is especially important for the former due to the extra dimensions of complexity related to governance, the political landscape, multiple stakeholders, approval processes, new technologies, transforming economies, and markets. Change models and processes to change the culture of the public sector have recently been introduced under the banners of organizational development and institutional reform. To enhance the effectiveness of change management in the public sector, it is essential to identify, examine, and emulate the best practices and models of successful public organizations.

The APO started a research project on Change Management in the Public Sector to explore various successful examples of managing change in public-sector organizations in selected APO member countries which lead to higher efficiency and greater citizen satisfaction. The project was led by chief expert from Thailand with the contribution of national experts from Bangladesh, Cambodia, India, Indonesia, IR Iran, Malaysia, Pakistan, and Sri Lanka. The project involved case studies of public-sector organizations in seven APO member countries and was completed in August 2020.

Program coverage: Exploration of models and theories of change management applied to the public sector; Analysis of the results of the application of those models and theories to public-sector organizations; and Recommendations to enhance the overall performance of public-sector organizations within the framework of change management.

Research on Public Policy Innovation for Human Capital Development

Many of the major drivers of transformation currently affecting global industries are expected to have a significant impact on employment, ranging from job creation to job displacement, and from heightened labor productivity to widening skill gaps. While the adjustment of the nature of work was previously mostly associated with improvements permitting efficiency gains as well as the creation of jobs, the current disruptive effects of technologies could negatively affect opportunities to participate in work if factors contributing to skill adjustment do not support the evolving demands of the labor market. Technology-driven structural unemployment is a cause for concern for developing economies endeavoring to improve productivity. Its mitigation requires the concerted effort of all actors in the labor market.

The APO conducted research on Public Policy Innovation for Human Capital Development to assess current public policies on education and human capital at a time of rapid transformation of global industries and offers a basis for rethinking policies on human capital development in line with the changing external environment. The results are intended to show businesses, governments, and individuals how to benefit from the opportunities presented and mitigate undesirable outcomes. The project report gives a comprehensive overview of human capital strategy for creating national competitive advantage, especially with the pace of change in the global employment scenario. Chief experts from Japan led the research project with the involvement of national experts from ROC, India, Indonesia, Malaysia, Philippines, and Sri Lanka. The publication of the results was finalized in September 2020.

Program coverage: Innovative approaches to public investment in human capital development and its role in determining overall development; Recommendations on managing future skill requirements for human capital in member countries; and Case studies of public policy innovations for human capital development in Cambodia, India, Indonesia, Malaysia, the Philippines, Sri Lanka, and Thailand.

Research on Digitization of Public Service Delivery

With the objective of assessing the various models and initiatives adopted by member countries to digitize their public sectors, the APO started a research project on Digitization of Public Service Delivery. In addition to the focus on assessment through case studies in five selected member countries, the research will propose a set of recommendations for improving digitization strategies to be referred to by governments for increasing the efficiency of public service delivery. Another research output will be a regional outlook report on the status of smart government in the Asia-Pacific, particularly in the area of public service delivery.

The chief expert from the ROK and six national experts from India, Indonesia, the ROK, Malaysia, the Philippines, and Thailand contributed to the project. The focus of the country studies was divided into smart welfare, smart healthcare, smart disaster management, open data, and integrated digital welfare services. The outcome of the research was expected to be published in February 2021.

Program coverage: Assessing the strategy for digital public service delivery; In-depth country case studies; Models of digital public service delivery; and Policy recommendations for digital transformation for public service delivery.

Research on Education for Future Industry

The future of industry will be driven by many trends interacting in complex ways including

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automation, globalization, population aging, urbanization, and the rise of the green economy. These changes are likely to create new demands for skills in the labor force in Asia and the Pacific, which means that existing education and skilling systems will need to be made future-fit. To equip the current and next generations of workers to meet the demands of future industry, member governments must explore new ways of delivering education and skill training to their citizens.

Therefore, the APO is undertaking research on Education for Future Industry to explore initiatives to reform higher education and the roles of each partner under these different arrangements to meet future requirements. A total of seven experts in the fields of education, economics, and management from the ROC, ROK, the Philippines, Singapore, Thailand, and Vietnam have been assigned to work on this research and the final report is expected to be published in 2021.

Program coverage: Research overview; Overview of broad trends and concepts in higher education for future industry and the case of Korea; Proposal for the research framework on education for future industry; Preliminary report presentations; and Discussion and finalization of the research framework and methodology.

Smart Services

Smart services includes digital services, and products offered under the Industry 4.0-driven digital transformation process. Furthermore, smart services combines the intelligent analysis of data with the transformation of user-centered services to provide added value for customers. While smart services incorporates the ability to use technology as a strategic enabler to intelligently analyze huge amounts of information (big data analytics), delivering customer satisfaction remains the key objective. The best organizations and governments often have the advantage of knowing the needs and expectations of their customers and citizens realtime. Governments around the world have also taken seriously to building smart services, such as smart education, smart communities, and smart nations in the wake of the COVID-19 pandemic. In fact, the pandemic has only accelerated the need for digital transformation among member countries. In this connection, the APO has conducted 2 smart services DMC projects to address this.

Research on Hotel Productivity

The hospitality and hotel industry is a key player in the tourism landscape and a major contributor to the economies of APO members countries. It is important to ensure that hotels continue to raise productivity levels to maintain sustainability and continuous growth, particularly for those operating in a manpower-scarce environment. To ensure sustainable hotel performance, promote industry competitiveness, and support a pro-business regulatory environment, it is essential to develop a vibrant, innovative hotel sector. Hence, it is crucial to understand the productivity levels of the hotel industry by providing benchmarking indicators against which they can compare their performance in different Asian cities.

The APO launched a project in collaboration with the Singapore Tourism Board (STB) on Intercity Benchmarking Research on Hotel Productivity in Asia. The research compares the productivity levels of indicators across seven cities in APO members (Hong Kong, Tokyo, Seoul, Singapore, Bangkok, Taipei, and Kuala Lumpur) according to hotel tier and selected functions. The final report is expected to be published in 2021. The report will provide recommendations and insights on best practices that are applicable to the overall hotel industry to increase productivity.

Project coverage: In-depth research on and comparative analysis of hotel productivity indicators across cities and tiers; and Recommendations, insights, and best practices to be promoted across hotel tiers.

Workshop for Practitioners of Business Excellence

The Business Excellence (BE) framework has helped many organizations, businesses, and enterprises enhance their management systems and processes over the years to deliver superior performance. APO member countries have benefited from international excellence frameworks. Enterprise Singapore was designated the APO COE on BE in 2009. Since then, the APO and COE on BE have played significant roles in assisting member countries to develop their national BE strategies

To strengthen national BE strategies and promote the adoption of the BE framework in organizations, develop BE practitioners, and formulate a call-to-action plan, the SGPC, Singapore and the APO Secretariat, organized a digital multicountry Workshop on for Practitioners of Business Excellence from 16-18 November 2020. Twenty-eight participants from fourteen APO members attended the workshop, and facilitated by four resource persons from Japan, New Zealand, and Singapore.

Program coverage: BE Initiative and Framework in Singapore; Planning for BE; Facilitating BE Assessments; Managing Improvements for BE; and Case Studies and Experiences of Japan and New Zealand; BE Future Directions in the New Normal.

Training Course on Smart Service and Technology for the Hospitality Industry

Service-sector innovation is the result of continuous process improvements in service firms, sectors, and industries. Smart technology also transforms how services are delivered to customers and organizations themselves. The global hospitality industry has benefited from Industry 4.0 smart services and technology, with digital automation, data analytics, and datadriven business intelligence changing its operations.

To further familiarize participants with the latest smart service business models and their impact on the hospitality industry in the new post COVID-19 pandemic normal, the digital multicountry Training Course on Smart Service and Technology for the Hospitality Industry was conducted from 9-11 December 2020. Twenty-four participants from eight APO member countries attended the training course, along with three resource persons from Malaysia and Singapore shared current developments and initiatives in smart services and technology to accelerate the digital transformation in the hospitality industry across the Asia Pacific.

Program coverage: Smart Services: IoT; Data analytics, Robotics as a Service; Digital transformation; Smart hospitality; and Advances in the digital hospitality ecosystem.

Agricultural Transformation

The COVID-19 pandemic has impacted agriculture like other sectors. Crop production was affected due to restrictions on migrant workers' mobility to contain health risks, while purchasing power reductions experienced by workers in other sectors changed consumer behavior. Supply chains were also disrupted. COVID-19 revealed weaknesses in agrifood systems throughout the Asia-Pacific, making agriculture transformation more urgent.

Agriculture transformation covers aspects from farm to fork to make current systems more productive, resilient, and sustainable. APO programs in this area focus on advanced ICTbased farming technologies, modern agribusiness models, advanced food-processing and -manufacturing techniques, state-of-the-art food safety and quality systems, and successful rural community development strategies. In addition to these planned capacity development programs, emerging topics were shared through the Productivity Talk series and publications addressing the ramifications of the COVID-19 pandemic and postpandemic

challenges and opportunities including digital farming, assisting small-scale farmers, food logistics, agricultural insurance, pest management, productive organic farming, and food security policies.

Special Program for Capacity Building of Sustainable Food Value Chains for Enhanced Food Safety and Quality in Asian Countries: Second Year

The APO Special Program for Capacity Building of Sustainable Food Value Chains (FVCs) for Enhanced Food Safety and Quality in Asian Countries was conducted from 2018 to 2020, involving national capacity-building projects on productivity enhancement in agriculture and the food industry for Asian countries under a special cash grant from the GOJ. Three projects were conducted under this special program in 2020.

2020 International Conference on Smart Agriculture

The CPC and APO Secretariat organized the 2020 International Conference on Smart Agriculture in the ROC, 15–16 September, to create an opportunity for participants to learn about how ICT is changing Japanese aquaculture, innovations in agricultural finance, and technology integration in poultry farming. Six hundred seventy-seven participants comprising government officers involved in promoting smart agricultural production, researchers on technical developments in smart agriculture in government R&D agencies, academic experts, researchers from legal entities, smart agricultural technology service providers, and agribusiness representatives participated. In addition to nine local experts, three international resource persons from Japan, the Netherlands, and UK were attended via a digital platform.

National Conference on Temperature-controlled Supply Chains in Asia

Temperature-controlled food supply chains are essential, especially for meat, poultry, dairy products, and fresh fruit and vegetables. They help prevent food losses, ensure food safety, and maintain customers' health and satisfaction, benefiting all upstream and downstream stakeholders in food supply chains. The FTPI and APO Secretariat organized the National Conference on Temperature-controlled Supply Chains in Asia in Thailand, 28–29 October, to provide advanced knowledge of FVCs and present the best practices of temperature-controlled supply chains for agricultural products. During the two-day conference, 114 stakeholders involved in temperature-controlled agricultural supply chains representing government agencies, academia, and SMEs participated. In addition to 14 local experts, three international resource persons from the ROC, Japan, and Singapore attended virtually. The conference is expected to help increase productivity in Thailand's agrifood sector.

National Seminar and Training Course on Organic Agriculture and Products Development for Farmers and Producers in Cambodia

Organic agriculture is important to make farming more sustainable, conserve the natural environment, provide safe food to consumers, and increase farmers' incomes. In order to promote organic agriculture, the development of national standard and certification systems and an understanding of organic food marketing strategies are necessary. The NPCC and APO Secretariat organized the National Seminar and Training Course on Organic Agriculture and Product Development for Farmers and Producers in Cambodia, 3–6 November, to provide basic knowledge of standard and certification systems for organic food, management of organic farms, and organic FVCs. The seminar included expert presentations, group work, and field visits. Seventy-five participants from the national government and provincial departments, state agricultural universities, farmers' cooperatives/associations, organic retail shops, organic agroindustries, and SMEs involved in organic production participated. In addition to local experts, a resource person from India attended virtually.

Workshop on Agricultural Transformation for Food Security

In developing countries, agriculture provides the majority of employment and ensures food security. However, hunger and malnutrition still occur. Food security is one of the UN

Sustainable Development Goals (SDGs), although many challenges are faced by agriculturedependent developing countries in meeting it, such as restrictive trade policies, low levels of integration of food systems in evolving economies, climate change, and poor governance. Recently, the COVID-19 pandemic has affected food supply chains worldwide. Meeting food security goals will require extensive analysis to identify efficient, sustainable plans and programs for the agriculture sector.

The DAP and APO Secretariat organized a digital multicountry Workshop on Agricultural Transformation for Food Security, 5–7 October, to enhance understanding of key concepts and links between food security and agricultural transformation, drivers of agricultural transformation, and climate-smart agriculture and food systems. Nineteen participants from 10 member countries as well as two resource persons from India and the ROK attended.

Program coverage: Key concepts and links between food security and agricultural transformation; Global trends, approaches, issues, and challenges in achieving food security; Drivers of agricultural transformation; ICT, technology, and agricultural transformation; Climate-smart agriculture and food systems; Case study of agricultural transformation; and group work session.

Training of Trainers on Village Tourism Development

Tourism is one of world's largest industries. Village tourism can make significant contributions to rural and regional economies by creating job opportunities and encouraging entrepreneurship. Thus, especially in rural regions undergoing economic restructuring with the declining role of agriculture, many hopes are pinned on tourism to boost economic development and incomes by utilizing available natural resources.

To train trainers in applications of innovative strategies and approaches for village tourism management, the Ministry of Manpower and Ministry of Village, Development of Disadvantaged Region and Transmigration of Indonesia and the APO Secretariat organized a digital multicountry Training Course on Village Tourism Development, 6–8 October. Twenty-nine participants from 11 APO member countries attended the course, along with six resource persons from Indonesia, Japan, the ROK, and the Philippines.

Program coverage: Village tourism under the new normal; Village tourism as rural development; Community-driven development; Village-driven development; Case studies from Japan, Indonesia, and the ROK; and Innovative and sustainable village tourism.

Organic Agroindustry Development Leadership Course in Asia

Organic agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. It can contribute significantly to addressing global environmental issues and ongoing social concerns. To take full advantage of its potential, organic agriculture must grow, continuously improve its performance, inspire mainstream agriculture, and take the lead in agroindustry. Leadership and institution building are the key factors for greater sustainability in agriculture and development of the organic sector.

To broaden participants' understanding and skills in promoting and leading organic agroindustry while improving its productivity and sustainability, familiarize them with recent and emerging developments in the sector globally, and provide opportunities for networking and sharing of best practices, the MPO in partnership with the APO Secretariat organized the digital multicountry Organic Agroindustry Development Leadership Course in Asia, 4–6 November. Thirty-one participants and observers from 14 member countries as well as four resource persons from Bangladesh, Germany, Japan, and the ROK attended.

Program coverage: Perspectives on organic agriculture from the viewpoints of meeting the SDGs; National and local government initiatives; Traceability and supply chain integration; Trustworthiness, organic guarantee systems, policy, and advocacy; Best practices in organic agroindustry; Nonfood organic products; and Innovations in organic farming.

Workshop on Digital Agribusiness for Women Entrepreneurs

Women are emerging as key players in the development of agribusiness enterprises in many Asian countries. Often, however, they do not have formal training in business planning and management. Thus, in many cases, their enterprises are not sustained or unable to expand. Digital technologies can improve women's ability to sell products, while ICT can be a powerful tool to overcome limited access to information, boost productivity, and facilitate outsourcing, resource sharing, and networking.

To broaden participants' understanding of recent trends in e-commerce and e-business in the era of digital agriculture, enhance women's involvement in smart digital agribusiness and food industry enterprises, and empower them to raise productivity in agriculture, the NPC, India in partnership with the APO Secretariat organized the digital multicountry Workshop on Digital Agribusiness for Women Entrepreneurs, 4–6 November. Seventeen participants from eight member countries as well as three resource persons from Indonesia, the Netherlands, and UK plus a local expert from India attended.

Program coverage: Emerging opportunities and challenges for women entrepreneurs in Asia; Enabling environment for women entrepreneurs to accelerate adoption of digital technology; Applications of digital technologies in agribusiness; and E-Commerce marketing strategies, tools, and techniques.

Workshop on Startups in the Food-processing Industry

The food-processing industry plays an important role in achieving nutritional security and ending hunger. Increased focus on improving processing could offer better nutrition and longer shelf-life, resulting in higher Food Value Chain productivity in APO member countries. Startups have emerged as key drivers of economic growth and job creation and are often catalysts for innovation. Innovation by young firms contributes significantly to aggregate productivity growth in the food-processing industry. They face different constraints including access to traditional funding in addition to uncertain labor supply, particularly during the COVID-19 pandemic. Hence it is essential to support existing and new startups by understanding the key enablers and disablers within the overall environment which can impact their success.

To expand understanding of innovative trends and sustainable practices to produce safe food, improve the efficiency of startups in the food-processing industry, and create enabling ecosystems to raise startup productivity, the Ministry of Agriculture of Sri Lanka in cooperation with the APO Secretariat organized the digital multicountry Workshop on Startups in the Foodprocessing Industry,10-12 November. Seventeen participants from eight member countries as well as three resource persons from India, Singapore, and the UK attended.

Program coverage: Challenges and emerging opportunities in the food-processing industry; Need for development in startups, seed funding, and venture capitalism; and Governments' roles as catalysts in startups and Group Discussion and presentation on challenges faced by food-processing startups.

Workshop on Sustainable Productivity Models in Agriculture

A steady increase in agricultural output driven by sustainability and higher productivity is vital, particularly for optimizing natural resource management, climate resiliency, and poverty reduction efforts. The development and adoption of innovative productivity models leading to breakthroughs in agricultural productivity on a sustained basis from economic, social, and environmental aspects and to improve the performance of agrifood value chains are therefore critical. Producers, agribusinesses, processors, marketers, food service companies, retailers, consumers, and waste management services can contribute to the enhanced productivity and sustainability of agrifood systems.

To broaden participants' understanding and skills in utilizing innovative productivity models for enhancing the sustainability of agriculture in their countries while providing opportunities for networking and sharing of best practices, the NPO, Ministry of Industries, Bangladesh, in partnership with the APO Secretariat organized the digital multicountry Workshop on Sustainable Productivity Models in Agriculture from 16-18 November. Twenty-six participants from 12 member countries as well as four resource persons from India, the Philippines, FAO-Thailand, and Switzerland and local experts from Bangladesh attended.

Program coverage: Sustainable agriculture from the viewpoints of meeting the SDGs; Agroecology systems, rural infrastructure, and innovation; and Organic farming, natural resource management, sustainable pest management, home garden models, and best practices for small-scale producers; and Group discussion and presentation on agroecological elements and sustainability systems

Workshop on Smart Resource Productivity Management

Improving agricultural productivity while conserving and enhancing natural resources like water and soil fertility is essential to increase global food supplies on a sustainable basis. Smart management is needed, including applications of sensing, digital, and web-GIS technologies. Artificial intelligence (AI)-enabled water and liquid fertilizer supply systems, sensors of soil moisture and sunlight in greenhouse horticulture, precision agriculture, remote pest sensing, and analysis of crop growth conditions by drone technology can save inputs while achieving agricultural sustainability and enhanced productivity.

The APO Secretariat conducted the digital multicountry Workshop on Smart Resource Productivity Management from, 16-18 November, to enhance the understanding of precision agriculture, greenhouses with artificially controlled environments, and commercially available smart resource management technologies. Eighteen participants from 10 member countries as well as three resource persons from Japan attended.

Program coverage: Concept of precision agriculture; Resource productivity management by precision agriculture; Protected horticulture in Japan; and Resource productivity management by farm management systems; A virtual onsite tour was hosted by the Plant Factory Base, Chiba University.

Workshop on Advanced Postharvest Technology for Horticultural Crops

Postharvest food losses and waste are major concerns affecting food security and safety. Postharvest losses (PHLs) of horticultural crops are greater in developing countries and regions with warm climates. The major causes are inappropriate postharvest practices and poor infrastructure for transportation, storage, cooling, processing, and marketing. Many small-scale farmers lack access to postharvest cooling equipment; covered, cooled grading, sorting, and packing areas; refrigerated short-term storage; and packing and loading facilities. Insufficient R&D on postharvest management and poor understanding of advanced postharvest technologies are other impediments.

To broaden participants' understanding and skills in utilizing advanced postharvest models for horticultural crops in their countries while providing opportunities for networking and sharing of best practices, the NPO of Pakistan partnered with the APO Secretariat organized the digital multicountry Workshop on Advanced Postharvest Technology for Horticultural Crops via virtual sessions from 1 to 3 December. Twenty-nine participants from 11 member countries as well as three resource persons from Malaysia, New Zealand, and the Philippines and two local experts attended. Program coverage: PHLs and wastage in the horticultural sector; Innovative cost-effective postharvest technologies for small and medium farms and enterprises; Modern logistics management in horticultural supply chains; Cold chain and logistics services for small farmers to reduce PHLs; Applications of digital technology in postharvest handling; Controlled-atmosphere storage technology for horticultural products; and Policies and institutional settings for promoting the adoption of advanced postharvest technologies; Group discussion and presentation on postharvest issues related to the COVID-19 pandemic and strategies to overcome.

Training of Trainers on Building Sustainable Supply Chains for Agriculture

The environment surrounding supply chains for agriculture continues to change rapidly. With increasing incomes, consumers look for better-guality food in terms of safety and freshness. To maintain freshness, efficient transport from producers to consumers is important. Rapid changes in food logistics technology such as advanced ICT-based monitoring systems enable higher-quality food to be delivered to consumers faster. Preserving food in a safe environment is also important. Maintaining the quality of perishables through cold chain technologies can meet the demand for timely delivery, allowing consumers to enjoy a variety of high-guality, safe food.

The Ministry of Agriculture of Indonesia and APO Secretariat organized the digital multicountry Training of Trainers on Building Sustainable Supply Chains for Agriculture, 14-16 December 2020, to enhance participants' understanding of the changing environment surrounding agrifood supply chains and promote food supply chain adaptation to the evolving environment such as shifts in consumer demand in member countries. Twenty-two participants from 13 countries as well as three resource persons from Japan and Singapore along with local experts attended.

Program coverage: Managing the agrifood environment to reduce loss; Managing the dynamics of last-mile distribution; Observing shifts in consumer demand for food; and Adapting to changes in food demand; and a group work session to examine recent changes in consumer food demand and trend in supply chains.

Research on Smart Agricultural Transformation for APO Member Countries

The APO initiative to transform agriculture is a comprehensive effort to respond to the most pressing challenges faced while maximizing the opportunities they present. Transforming agriculture can enhance its role as a primary connection between people and the planet. The initiative can also help achieve multiple UN Sustainable Development Goals. However, certain prerequisites must be met for optimal agricultural transformation. Integrating transformation strategies into national economic development plans is one necessary condition but not sufficient in isolation. Other readiness factors must be addressed for the transformation to be successful, and they will be identified in the research on Smart Agricultural Transformation (SAT) for APO Member Countries for maximum impact.

The chief experts from the ROC and the Philippines and national experts from India, Indonesia, Pakistan, Thailand, and Vietnam formulated a set of indicators for readiness assessment and analyzed the gaps to benchmark against advanced transformations in other countries. The assessment is directed toward the adoption of smart agriculture which can be replicated or referred to by others when embarking on their own transformation processes. The research identified the institutional arrangements and mechanisms required to reap the maximum benefits from transforming the sector. In the final research output, the experts will suggest strategies and policy recommendations to help speed up the adoption of smart agriculture tools and techniques. After report publication by July 2021, the research project will be followed by a series of dissemination activities for targeted stakeholders.

Program coverage: National readiness assessment for SAT; Country case studies on SAT; and Policy recommendations to move toward SAT.

Capability Development

The Capability Development Program of the APO supports stakeholders in member countries in expanding their knowledge, learning new skills, and adapting to both present and future challenges. A broad, comprehensive approach enables them to be more effective and efficient in their roles. To achieve its objectives, the program provides various opportunities to build up a pool of high-performing individuals and organizations through the introduction of specific skills, tools, and processes that improve productivity through training, workshops, conferences, study missions within and outside the region, and research.

Despite the COVID-19 pandemic throughout 2020, the program continued its focused assistance to members covering areas such as: strategic foresight to think systematically about the future to make informed decisions today, especially among policymakers, public planning agencies, and decision makers in the public sector; sustainable productivity, primarily focusing on redefining traditional productivity measurement with the integration of digital technologies when computing total factor productivity in research projects; the COE to showcase the best practices of NPOs or other organizations to be emulated by others; the Program Development Fund (PDF) to assistant member countries in special projects on emerging needs or exploring new frontiers of productivity through research; and the Accreditation Body Program based on international standards. Expansion of the Digital Learning Program delivered via self-learning e-courses was another milestone in 2020 which maximized opportunities to spread productivity knowledge within and outside the region even with pandemic-related restrictions imposed worldwide.

Strategic Foresight

The COVID-19 pandemic throughout 2020 represented a serious challenge for APO member countries. It also highlighted the importance of strategic foresight capability in organizations. The global pandemic was for many a severe or even existential threat. Strategic foresight tools enable successful decision-making even in the face of such threats. Beyond that, it allows organizations to identify new opportunities that arise from rapidly evolving circumstances. The APO has continued its efforts to build strategic foresight capability across its members since starting the Strategic Foresight Program in 2017. This program has the overarching aim of enhancing the long-term planning capability and future readiness of APO member countries. It consists of three types of activity: capability building for public-sector officials; research and knowledge sharing; and expanding the Asia-Pacific foresight network. These activities help embed foresight into planning processes and instill a foresight mindset in member countries.

Workshop on Scenario Planning Development

Traditional models of planning which rely solely on linear extrapolations of current trends are not able to consider "wild cards" and how multiple factors interact in complex ways. Scenario planning, however, can account for uncertainty and complexity and enhance an organization's ability to think systematically about the future, which is known as strategic foresight. Scenario planning is a process where users can develop several plausible "stories" about the future in a rigorous, structured way. These scenarios are then used to develop strategic options that are sensitive to uncertainties. By employing scenario planning and other associated strategic foresight tools in the planning process, public-sector officials can manage their organizations in the face of volatility, complexity, and uncertainty.

To develop the capability of public-sector organizations to set forward-looking strategies, the FTPI along with the APO Secretariat organized the digital multicountry Workshop on Scenario Planning Development on 1, 3, and 4 September. Twenty-three participants from 11 APO member countries attended the workshop, along with two resource persons from Australia, who shared knowledge and expertise on strategic foresight and scenario planning.

Program coverage: Introduction to future thinking, scenario planning, and horizon scanning; Weak signals for Asia 2040; Identifying driving forces; Introduction to the scenario framework; Creating plausible future worlds; Scenario development; Generating the focal question; Implications for strategy; Introducing wild cards; Indicators and signposts; and Communicating outcomes.

Research on Construction of a Productivity Forecasting Model Framework

Global productivity is in a state of flux, with the growing polarization of labor opportunities between high-and low-skilled jobs, unemployment, and underemployment especially among young people, stagnating incomes, and income inequality. Migration, automation, digital platforms, and artificial intelligence are set to disrupt existing patterns of work. Understanding these shifts can help policymakers, business leaders, and workers to proactively manage the transition to a new future. Conversations, debates, and analysis around the future of work and productivity are increasingly common in major media channels, policy forums, and academia. Despite international attention, much of the analysis takes the perspective of North America and Europe and does not reflect the unique challenges faced by the Asia-Pacific region.

To help member countries make sense of the future of productivity in Asia and the Pacific, the APO initiated research on Construction of a Productivity Forecasting Model Framework, which adopts a foresight-based approach. This publication was prepared in collaboration with Reos Partners, an international social enterprise, who interviewed thirteen experts from APO member economies and beyond. A range of plausible futures was explored by synthesizing and analyzing the secondary literature and interviewing experts from the ROC, India, Japan, the ROK, Malaysia, Singapore, Thailand, and the USA. By bringing together multiple perspectives, this research is meant to empower decisionmakers and policy planners in using new ways of thinking about, discussing, and implementing strategic changes that are compatible with the future of work. The final report was being prepared for publication on the APO website by November 2021.

Program coverage: Horizon scanning of trends in the future of work; Analysis of secondary literature on the future of work; and Interviews with experts.

Sustainable Productivity

Projects focused on identifying the contributing factors and reinforcing those elements to make productivity sustainable while nurturing competency and achieving results in ways that maintain or enhance overall long-term effectiveness.

Research on Reskilling Workers to Enhance Labor Productivity

Technological advances can result in unemployment losses for workers whose skills do not match changing requirements in addition to their potential for improving efficiency and productivity. Such structural unemployment is a concern for policymakers. Its mitigation takes concerted efforts by multiple actors in the labor market, including individuals, employers, and governments. An inclusive national reskilling strategy, ensuring that workers have opportunities to either broaden or deepen their existing sets of skills to match those demanded in the emerging labor market, is critical for easing structural adjustments. A national reskilling strategy must also be dynamic so that it can be easily adjusted to accommodate changing labor and training needs.

The APO launched a research project on Reskilling Workers to Enhancing Labor Productivity in December 2019. Five national experts from India, Indonesia, Malaysia, the Philippines, and Thailand, guided by chief experts from Australia and the ROK, are participating in the research. The objectives are identifying sustainable, inclusive models of reskilling and upskilling the existing workforce in APO member countries, including groups at risk of missing out on such opportunities. The research report will document innovative models of reskilling and upskilling for improving productivity while protecting livelihoods in APO member countries. Recommendations on how those models could be applied in different employment contexts will be incorporated in the publication. The final output will be finalized by August 2021.

Program coverage: In-depth country/case studies on labor reskilling; National reskilling strategies; Proposals for reskilling models; and Policy recommendations on reskilling based on country case studies.

APO Productivity Index

Recognizing the importance of continuously upgrading productivity measurement methodology and providing productivity-related indicators as part of its think-tank role, the APO embarked on an exploratory attempt to introduce a productivity index. One of the aims of the index is to provide a deeper understanding of the multidimensionality of productivity, i.e., the interplay of various determinant factors that affect and contribute to long-term productivity growth and enhancement of a national economy. The introduction of the index also aims at understanding sustainability by looking into the available productivity data over the years. The productivity index is envisaged as a composite index derived from open-source data published by reputable international organizations. The project was conceptualized in 2019, implemented throughout 2020 by a team of researchers from the ROK, Australia, and USA, and publication was scheduled for June 2021.

Program coverage: Measurement/index of long-term productivity measures (LPMs); Institutional measures of LPMs; Input factor productivity; and Establishing LPM indexes.

Research on Sustainable Productivity Measurement (Joint Research with OECD)

Increased productivity is a central driver of long-term economic growth and higher living standards but in recent years its contribution to growth has declined significantly in most countries. The COVID-19 crisis has exacerbated this decline from a statistical and a structural perspective, as heightened uncertainty impacts investment and, despite government support packages, many firms remain closed, and jobs are being lost. Reigniting the productivity engine is more important than ever if economies are to build back better and achieve sustainable, inclusive, resilient growth. To move in this direction, effective policy decisions must rely on evidence-based economic analyses, making the compilation of accurate, comprehensive productivity statistics paramount.

In October 2019, the APO and OECD signed a memorandum of understanding on a collaboration to develop improved, more comparable productivity statistics across their member economies. Joint research on Sustainable Productivity Measurement was conducted from January to December 2020, and the resulting report explores current practices and challenges in productivity measurement and provides recommendations to national statistics offices, NPOs, and other agencies involved in the compilation and analysis of productivity statistics to improve measurement and cross-country comparability. These agencies are best placed to provide the most reliable inputs for productivity measurement given their access to and knowledge of the best data sources in their economies. The second phase of the joint research is scheduled to be conducted in 2021.

Program coverage: First phase of the joint research between the APO and OECD to improve productivity statistics.

APO Productivity Databook and Database (2020 edition)

Monitoring productivity trends and analyzing socioeconomic performance indicators for assessing potential growth are mandates of the APO as the sole organization in the Asia-Pacific devoted to productivity. The APO conducts annual research projects on productivity measurement and developed a comprehensive productivity database. The APO Productivity Databook presents detailed analytical reports on recent and long-term productivity and economic performance in the Asia-Pacific and reference economies. Sets of productivity indicators, measures, and data under an internationally harmonized measurement framework are included.

Policymakers, economic analysts, development planners, and productivity specialists in member countries rely on productivity data and economic statistics to analyze socioeconomic progress and set goals for potential growth in the future. To assist these stakeholders in monitoring productivity gaps and set new targets for the future productivity movement, the APO has conducted annual research projects on productivity measurement and developed a comprehensive productivity database (PDB) under a long-term partnership with Keio University, Tokyo.

The research was led by two experts from Japan with the contributions of national experts from all APO member countries except Turkey. The 2020 edition of the APO Productivity Databook was published in November 2020 as an ongoing effort to support member governments in coping more effectively with current challenges, including the COVID-19 pandemic. Aside from forecasts, this edition contains an analytical report on recent and long-term productivity and economic performance in the Asia-Pacific. Productivity measurement with baseline indicators enables relevant comparisons of the quality of economic growth and productivity gains achieved. A new feature of this edition includes the development of a growth accounting framework for Turkey as an APO member since March 2020. For the third year, mid-term projections of future economic growth and labor productivity in the Asia-Pacific through 2030 were updated. The refinement of the productivity indicators covered in the country and regional profiles makes it easier for readers to use the publication. The effects of the COVID-19 pandemic on Asian economies in the first and second quarters of 2020 are also discussed.

Program coverage: Comparative analyses of labor productivity and sources of economic growth; Forecasting Asian economic growth and productivity indicators; Total factor productivity analysis; Economic impact of the COVID-19 pandemic; APO Productivity Databook 2020; and APO PDB.

APO Productivity Databook and Database (2021 edition)

Preparations for the 2021 editions of the APO Productivity Databook and Productivity Database (PDB) got underway in 2020. Based on planning undertaken in 2020 during the COVID-19 pandemic that has drastically affected world economies, the publication will detail future projections of the productivity performance of APO member countries at aggregate, sectoral, and key industry levels, along with policy implications, and an accompanying database covering major productivity indicators will be published.

Program coverage: Comparative analyses of labor productivity and sources of economic growth; Forecasting Asian economic growth and productivity indicators; Total factor productivity analysis; APO Productivity Databook; and APO PDB.

Research on Digital Disruption: Policy Tasks and Responses by Governments

The dawn of the digital economy increased the opportunities for firms to produce and

provide goods and services more efficiently, resulting in significant positive impacts on productivity. Socioeconomic development would slow significantly if countries failed to address the wave of digital technological changes. Accelerating advances in digital technologies are spawning myriad opportunities both socially and economically in APO member countries, and gaining maximum benefit from them requires positive policy and regulatory actions to overcome reluctance by industries and citizens to embrace the associated transformations and to deal with roadblock issues such as trust and privacy. Hence, it is critical to investigate the potential impact of key technologies such as mobile networks, artificial intelligence, and the Internet of Things across developed and emerging countries.

The APO launched a research project in collaboration with a team of researcher from the University of Technology of Sydney on Digital Disruption: Policy Tasks and Responses by Governments. In this research, macro analysis of digital technology adoption will explore which policies and regulations will maximize the economic benefits for APO member economies in addition to identifying new policies. Initiatives, policies, and regulations that will deliver benefits from technological advances while enhancing productivity, economic growth, and competitiveness in member economies will be analyzed. The final draft report will be delivered by June 2021, and a seminar will be conducted in an APO member country to launch the report and hold a workshop to discuss the findings.

Project coverage: In-depth research and analysis on the impact of digital disruption in selected APO member economies: Interviews with key stakeholders in advanced countries; Socioeconomic data collection in three member countries; Generating a framework and recommended approaches for all member economies; and Seminar to launch the research report.

Research on Country Diagnostics: Productivity and Its Challenges

Building productivity for socioeconomic development and growth can provide the foundation for improved standards of living. Since productivity performance is a primary driver of higher living standards, countries need to be "productivity ready." In addition, sustaining productivity is an important building block for a resilient economy. Both readiness and sustained productivity growth depend on a broad range of prerequisites. Nations must therefore strive to build productivity in the long run through sustained efforts.

The Research on Country Diagnostics: Productivity and Its Challenges was initiated to assess productivity performance and challenges hampering progress in enhancing it. There are two reports from this research: 1) Productivity Readiness of APO Member Countries (carried out by a research team from Australia National University); and 2) Productivity, Innovation, and Competitiveness: Diagnostics for APO Member Countries (conducted by researchers from the Institute of Competitiveness, India). The country studies were conducted from December 2019 to November 2020. The research will be completed by July 2021.

Program coverage: The Productivity Readiness Index; Porter's National Diamond Framework; Country diagnostics/analysis; Innovation policy; and Policy recommendations.

APO-ADBI: Joint Study on the Impact of COVID-19 on SMEs

The COVID-19 global pandemic has disrupted most human activities. Many businesses are temporarily suspended since they were not prepared to deal with this unprecedented situation. The most heavily affected businesses are SMEs, the recognized largest economic contributors in APO member countries and employing more than 60% of the workforce. If no interventions are undertaken by governments, SMEs will become the greatest casualties.

In most APO member countries, governments have stepped up by providing short-term assistance including paying partial salaries to workers, offering tax exemptions, and setting moratoriums on loan repayments. However, it is now important for governments to plan longterm strategies to assist SMEs recovery. In collaboration with the ADBI, the APO launched a joint study on the impact of COVID-19 in the eight member countries of Bangladesh, Indonesia, India, Malaysia, Mongolia, Lao PDR, Pakistan, and Vietnam. In the first stage, two survey rounds were conducted to gain an understanding of the situation faced by SMEs and amount of damage and losses from various business perspectives. In the second stage, the ADBI and APO analyzed the data and drew up recommendations for long-term government strategies to keep SMEs afloat.

Program coverage: Database of SMEs in selected APO member countries; Impact of COVID-19 on SMEs operations and productivity; SMEs readiness and resilience; Post-COVID-19 recovery measures for SMEs; and Policy implications for SME support.

Centers of Excellence

The APO Center of Excellence (COE) Program allows the best practices of an NPO in a specialized area to be showcased and emulated by other NPOs to intensify productivity promotion. To date, five have been established: the COE on Business Excellence (BE) (2009, Singapore); COE on Green Productivity (GP) (2013, ROC); COE on Public-sector Productivity (PSP) (2015, the Philippines); COE on IT for Industry 4.0 (2017, India); and COE on Smart Manufacturing (SM) (2019, ROC). In 2020, various activities were conducted to strengthen COE capabilities.

COE on Business Excellence (BE) Review of Priority Needs on BE

The BE framework utilizes a management philosophy based on quality management principles to upgrade organizational performance while meeting or exceeding stakeholders' needs. In 2009, the 51st session of the APO Governing Body designated Enterprise Singapore (then known as SPRING Singapore) as the first APO COE focusing on BE. Since then, the COE on BE has shared its best practices among APO member economies, while strengthening its leadership in BE in the region.

APO member countries have been supported by the COE on BE in building up capacity and expertise on BE, enhancing their capabilities in managing BE initiatives, developing and strengthening quality award systems, improving the productivity of various organizations, etc. A review of the needs of member countries on BE capabilities was initiated in 2020, and the final report was submitted to the APO Secretariat in April 2020.

Program coverage: BE framework; BE initiatives; Need review; Capacity building; and BE best practices.

COE on Green Productivity (GP) Review of Emerging and Priority Needs on GP

Since its establishment in 2013, the APO COE on GP has helped member countries develop and strengthen their national GP initiatives focusing on the four key themes of resource recycling, green energy, green factories, and eco-innovation. Defining needs through multiple channels including research has contributed to the success of the COE on GP. Learning about and sharing technical expertise and best practices of the ROC based on the needs identified were facilitated. This approach resulted in the wider adoption and application of relevant GP tools, techniques, and methods in other APO member countries.

Given the recent trends and developments in GP-related themes, particularly the application of advanced technologies, it is necessary to reidentify and reprioritize the areas, sectors, and institutions that require support from the COE on GP. A review was initiated in 2019. Two experts assigned by the APO concluded the research in 2020. Recommendations on the types and topics of activities that strengthen the capacity for GP promotion and align GP activities with other similar global initiatives to create greater synergy were made.

Program coverage: GP; Resource recycling; Green energy, green factories, and eco-innovation; Green technologies; Green consumption and food waste; Sustainable food systems; Carbon footprints; and Emerging and priority GP needs.

COE on Public-sector Productivity (PSP) Strengthening the Programs of the COE on PSP

The COE on PSP through its four component pillars of acting as a knowledge center, capacity development program, innovation laboratory, and research program has disseminated knowledge, expertise, and other resources on PSP and innovation in the Philippines throughout the region. The COE on PSP has undertaken activities to help APO member countries enhance their competencies and knowledge in PSP. Assistance to strengthen PSP initiatives continued in 2020.

To enhance the capacity of the COE on PSP on the topic of innovative and creative thinking, an online training course was organized 8-12 June. The training was conducted by two experts from Germany. Thirty participants who were senior officers of the DAP attended the training. Throughout the five-day course, the experts guided participants in essential skills to design and facilitate innovation journeys in public-sector organizations.

Program coverage: Design thinking; Creative thinking; PSP; Innovation methods; Innovation mindset; Facilitating innovation journeys; and Problem understanding and ideation.

COE on IT for Industry 4.0

Development of the Expert Database on IT for Industry 4.0 The 59th APO Governing Body Meeting in Tehran, IR Iran, in April 2017 approved the establishment of the APO COE on IT for Industry 4.0 under the auspices of the NPC, India. Various activities have since been undertaken by the COE on IT for Industry 4.0 to share its expertise with other APO members.

To reinforce its position as a knowledge center on IT and its applications for Industry 4.0, a directory of national experts in the field was developed and expanded internationally in 2019. An expert was assigned to design the database structure divided into various domains of IT for Industry 4.0 and then oversee the input of contents. Completed in November 2019, this systematic database offers member countries access to directories of individual experts and institutions on Industry 4.0 across sectors. A meeting to finalize the integration of the database into the COE web portal, as well as launching the database, was organized in February 2020.

Program coverage: Database; IT for Industry 4.0; Domains of IT for Industry 4.0; and COE web portal.

Digital Innovation Process Guide for Manufacturing SMEs

The 4th Industrial Revolution (Industry 4.0), characterized by increasing digitization, connectedness, and operational integration among different companies in global value chains, has fundamentally transformed production systems. The majority of SMEs in the manufacturing sector, which are the backbone of industrial development, have yet to put digital technologies and digitization to work. The lack of digital capabilities and knowledge of cybersecurity prevents many SMEs from taking advantage of Industry 4.0.

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SMEs must embrace digital innovation to enhance efficiency, meet international quality standards, and strengthen their position as competent suppliers for the global market. To support SMEs in the process of digital transformation for Industry 4.0, the COE on IT for Industry 4.0 and APO commenced a research project to publish a paper guiding SMEs in manufacturing in undertaking digital innovation. One chief expert was assigned to lead a group of five national experts from Bangladesh, the ROC, India, Singapore, and Vietnam. A virtual online meeting was held among experts 26-27 August to finalize the paper. Digital innovation processes suggested for use by SMEs to achieve sustainable growth and productivity gains were compiled and submitted in October 2020. The paper will be published in 2021.

Program coverage: Industry 4.0, manufacturing SMEs, and digitization; Digital technologies; Digital innovation; and The COE on IT for Industry 4.0.

Research on Case Studies of Manufacturing Transformation Strategies for Industry 4.0

Technological changes are reshaping the ways manufacturing companies strategize for growth with new economic opportunities. In the APO region, where manufacturing remains dominant, the impact of new technologies on businesses is obvious. Protecting domestic markets from international rivals while simultaneously tapping new markets for longterm growth is a key concern. A variety of approaches is taken by manufacturing firms to transform their businesses and find ways to differentiate themselves to stay competitive in global value chains.

The COE on IT for Industry 4.0 and APO started a research project on Case Studies of Manufacturing Transformation Strategies for Industry 4.0 to support manufacturers by identifying successful examples of business strategies leading to transformation. The best practices allowing firms to remain relevant and sustain growth will be analyzed. The APO assigned a team composed of a chief expert and five national experts from the ROC, India, Japan, Malaysia, and Thailand to conduct the research. Each national expert collected and analyzed data under the guidance of the chief expert. A coordination meeting among experts was held virtually 29-30 July 2020 to finalize and refine the report. The final draft was completed and submitted to the Secretariat in October 2020, and the report will be published in 2021.

Program coverage: Manufacturing transformation case studies; Industry 4.0; COE on IT for Industry 4.0; and Technological advances.

Development of a Toolkit on Industry 4.0 for SMEs on Industry 4.0 Transformation

Industry 4.0 has grown to encompass diverse business operations. However, there is no ready-made, one-size-fits-all strategy for implementing Industry 4.0 in every company. SMEs struggle to create their own methods to maximize the potential of Industry 4.0. Under the APO COE on IT for Industry 4.0, efforts were made to enhance the capability of the COE in scaling up the adoption of IT for Industry 4.0 technologies in SMEs.

An Industry 4.0 Assessment Readiness Toolkit for SMEs to position themselves in terms of readiness and maturity level in the journey of adopting Industry 4.0 was developed by the COE on IT for Industry 4.0. An expert from Germany was appointed by the APO to support the review and refinement of the Industry 4.0 Assessment Readiness Toolkit. A series of 10 virtual consultation sessions was held in November and December 2020. The toolkit and its technical paper on working processes and implementation plan were concluded in February 2021.

Program coverage: Industry 4.0; Industry 4.0 Assessment Readiness Toolkit for SMEs; Techniques, methods, and technologies for the Industry 4.0 transformation; and Readiness and maturity levels of SMEs.

COE on Smart Manufacturing

Assessment of Smart Manufacturing and Needs of Member Countries

The CPC as the APO Center of Excellence (COE) on Smart Manufacturing (SM) was approved at the 61st session of the APO Governing Body in Manila, the Philippines, in April 2019. APO Directors recognized the importance of riding the wave of Industry 4.0 and beyond to increase digitization and the interconnection of products, supply value chains, and business models.

The APO has implemented numerous projects supporting initiatives in member countries to promote the adoption of SM as a key strategy to achieve sustainable development. It was therefore recommended that a COE on SM be established to strengthen the APO's efforts in this area. This research was conducted to assess and document the extent of implementation and adoption of SM in member countries and identify emerging areas where SM needs to be the focus to support their needs. The output of this research will help the COE on SM and APO in designing and implementing SM activities that are relevant and attuned to the needs of members. The project was completed in 2020.

Program coverage: Assessment of SM adoption and needs of member countries to indicate relevant policy directions.

Research on a National Smart Manufacturing Implementation Framework

SM, a technology-driven approach that uses intensive applications of ICT and internetconnected machines in the production process, has become more prevalent in recent years. SM is typically led by highly industrialized economies and technology giants. As the ROC is a leading economy in manufacturing and machinery, the CPC was appointed by the APO Governing Body in April 2019 to become the APO COE on SM. The main objective of the APO COE on SM is to support member countries in promoting the adoption of SM in key industries. Various activities have been conducted since its inauguration.

In 2020, a research project to detail SM implementation mechanisms at national level was initiated. It is a follow-up activity to the research on SM need assessment of APO member countries conducted in 2019. The research findings with the need assessment will clarify the current SM status and recommend effective approaches APO members can follow to benefit from its adoption. Recommendations on SM implementation at national level, among industry sectors, and at enterprise level will be generated and the roles of different stakeholders delineated. One chief expert from the ROC and five national experts from India, Malaysia, Pakistan, the Philippines, and Vietnam participated in the research. A virtual coordination meeting of those experts was held 15-17 September to determine the research framework. The final report is expected to be submitted in April 2021.

Program coverage: SM; COE on SM; National SM implementation framework; Delineated roles of SM stakeholders; and Needs of APO member countries.

Evaluation of the Performance of the APO COE

To adopt a longer-term approach in supporting the COE beyond the initial two years and to institutionalize procedures for the annual performance assessment, a monitoring and evaluation (M&E) system should also ideally be in place for each COE. The development of the M&E framework with relevant evaluation criteria and other elements began with the assignment of one expert. The final M&E framework was commented on by the four established COE and completed in February 2019. The framework serves as the starting point to conduct the evaluation of each COE by an external expert.

An evaluation of the performance of the APO COE was conducted. The primary purpose was to assess how COE have implemented their planned activities to strengthen their capabilities and benefited participants and/or organizations in member countries. One evaluation expert

from Canada was assigned to start the evaluation in October 2019. The COE staff, NPOs, and other beneficiaries of the COE activities were surveyed and interviewed. The report including the results of evaluation was completed and submitted in April 2020. Suggestions for COE to achieve the intended results more effectively in the future were included in the COE performance evaluation report.

Program coverage: COE M&E systems; M&E framework; Evaluation of COE performance; and COE evaluation criteria.

Program Development Fund

In 2020, activities focused on mitigating the impacts of the COVID-19 pandemic on productivity and formulating the new APO Vision 2025 for long-term productivity growth.

Research on Knowledge Management with the Concept of Sustainable Productivity

Knowledge capital should be institutionalized and managed so that it leads to more innovation. Combining the innovation resulting from knowledge capital management with agility will lay a firm foundation for steady productivity growth. Agility in responding to changes and taking advantage of opportunities they present should be an integral part of the equation for achieving productivity and prosperity. Productivity without agility will yield limited contributions to economic progress since it is only related to the notion of "doing the right things right" without considering risks and potential stemming from the turbulent, uncertain, complex environment. This has even broader ramifications for economic progress with the inclusion of innovation in the productivity concept. Agility augments and accelerates the contributions of productivity to economic growth, while strengthening the connection between productivity and innovation. Appropriate management of the knowledge accumulated through innovation and agility will make responses sustainable.

An APO research project on Knowledge Management with the Concept of Sustainable Productivity was initiated in 2019. Experts from the UK and Australia contributes to the research project. It was designed to present practitioners with practical information for enhancing productivity, first at the macro and then at the micro level, by taking into account the factors of agility in the face of change, the need for constant innovation, and new forms of knowledge technologies. It is expected to be completed by December 2021.

Program coverage: Sustainable productivity; Foresight planning and agility; Continuous innovation; APO framework for knowledge management; Management of knowledge capital; Management of knowledge technologies; and Transformation through sustainable productivity.

Review and Updating of the KM Facilitators Guide and KM Tools and Techniques Manual Efficiency and competitiveness can be maintained and increased by the proper organization of knowledge assets. This is why enterprises of all sizes focus on managing knowledge to achieve their goals while upgrading operational effectiveness. Knowledge management (KM) is increasingly important in today's rapidly changing technological environment since organizational learning facilitates the selection of appropriate strategies and actions to achieve or adjust those goals. Because KM systems help enterprises increase performance levels, the APO has been promoting its KM framework to raise overall productivity in member countries.

The APO KM Facilitators' Guide was first published in September 2009 as the culmination of a more than 12-month effort by many experts from the region and beyond. It was followed by the publication of the KM Tools and Techniques Manual in August 2010. A decade later, we have seen several major changes in KM practices worldwide. In addition, the APO's views on productivity and related issues have evolved, particularly on the importance of knowledge capital to link innovation to productivity. This research project was intended to update the two KM publications under the guidance of an expert from the UK. The project was completed in January 2020.

Program coverage: APO KM framework; Essential KM tools; Five-step KM process; Advanced KM assessment tools; and KM Facilitators' Guide revision.

Accreditation and Certification Process: Authentication of APO Certificates Using Blockchain The APO Secretariat has successfully conducted a pilot on the authentication of APO Certificates on Ethereum blockchain. This sought to complete the APO accreditation and certification process by offering greater security, resilience, and transparency, while ensuring tamper-proof data integrity. The pilot showcased the viability of the certificate authentication process within the APO Secretariat through deploying decentralized distributed ledger technology (DLT) and cryptographic hash algorithm, based on the Ethereum technical architecture. This is part of the Strategic Digital Capabilities transformation of the APO Secretariat

Program coverage: Blockchain distributed ledger technology; Ethereum: Certification and accreditation; Strategic digital capability; and Digital transformation.

Technical Working Group for the APO Vision 2025

With the completion of Vision 2020 execution guiding APO activities during 2016-2020, Vision 2025 was formulated to address the latest challenges confronting the region and individual member countries, meet new expectations, and guide APO activities from 2021 to 2025. A Steering Committee led by Thailand as APO Chair for 2019 and 2020 was therefore convened to discuss the formulation of Vision 2025.

Two technical working groups (TWGs) were formed to assist the Steering Committee which consisted of delegates from Bangladesh, Cambodia, the ROC, India, Japan, the Philippines, Thailand, and Vietnam. One TWG involved selected eminent persons and productivity experts from member countries to deliberate on the strategic thrusts and strategies, and the other involved experts to help develop the monitoring and evaluation system for the plan. The Steering Committee and TWGs were supported by the APO Secretariat and two rapporteurs. Formulating the APO Vision 2025 involved three task force meetings (in Tokyo, Hanoi, and virtual) and two TWG meetings (in Tokyo and virtual). The APO Vision 2025 was adopted after consultation and feedback from member countries.

Vision 2025 embodies the APO's three main features that in turn distinguish its operations, contributions, and standing from those of other organizations: 1) aspirations, comprising the APO's purpose and intended direction; 2) deliverables, reflecting the targeted achievements; and 3) actions, referring to the concerted efforts that will be made to meet those targets. These features form the primary components of Vision 2025. They are subdivided into goals, key result areas, strategic thrusts, and strategies to guide the APO's program plans for 2021-2025.

Program coverage: Three task force meetings; and two TWG meetings for APO Vision 2025 development.

Research on the Widening of Economic Divides under the Impact of COVID-19 The evolving COVID-19 pandemic is drastically affecting the global economy and will result in greater damage than any preceding pandemic. It is evident that its effects will not be distributed evenly among the rich and the poor. The base-of-the-pyramid (BoP) population, accounting for two-thirds of people worldwide, is the most vulnerable and the worst affected economically.

Before COVID-19, economic inequality was a longstanding social issue. It is forecast that after the pandemic is brought under control, economic divides will widen.

As an effort to minimize the economic impact of the pandemic among its member economies, the APO initiated research on the Widening of Economic Divides under the Impact of COVID-19. The aim is to support members with large populations, especially those at the BoP, in mitigating the long-term economic consequences due to income inequalities. Three experts from India, the Philippines, and Thailand were assigned to conduct the research. Situations in different member countries and predictions of how COVID-19 could increase inequalities in the long term were analyzed. Three policy analysis papers were completed by December 2020. Recommendations for policy responses by member governments were proposed based on the research findings. These policy analysis papers will be published in 2021.

Program coverage: BoP population and the working poor; Economic impact of COVID-19; Economic divide; Income inequality; and Slowdowns in economic and productivity growth.

Regional Study on Labor Productivity

In 2020, a joint research with ASEAN for improving labor productivity through human capital development was conducted.

The APO-ASEAN project examined current labor productivity in ASEAN member state and analyze factors responsible for its growth. It also made policy suggestions to help sustain that growth in the future. The main components of the projects were: 1) analyzing the trends in labor productivity in ASEAN member states; 2) reviewing the concepts of labor productivity used in ASEAN and examining the factors contributing to its growth; 3) providing recommendations at both national and regional levels to maintain and/or improve labor productivity taking into account the changing socioeconomic environment; and 4) exploring the feasibility of developing a regional labor productivity index for ASEAN. This project was a useful opportunity for policymakers to better understand labor productivity within ASEAN and then develop recommendations for increasing it in the region. Follow-up research in 2021 will cover other APO member countries, and the findings of the research will serve as a baseline.

Program coverage: Regional study on labor productivity.

Accreditation Body

The Accreditation Body Program was identified as one activity that could raise the APO's visibility and authority as a leading productivity organization. The program includes recognition of NPOs or their affiliates as APO-accredited certification bodies (CBs) to build APO brand awareness, strengthen its leadership in the area of productivity, and boost the value of its services. This initiative also expands the APO's role in developing the capacity of NPOs from mere training providers to becoming productivity-related specialist accreditation bodies.

Lead Assessors Course for the APO Accredited Certification Bodies

The Accreditation Body (AB) Council and appointment of technical working groups are among the activities conducted by the Secretariat to strengthen its accreditation system. They also ensure that the APO-AB is governed according to international standards. Consultations with member countries are also held to ensure the relevancy and alignment of accreditation and certification with their needs and expectations. As the main beneficiaries, NPOs play vital roles in ensuring the success of the Accreditation Program. The Secretariat therefore designed a training course to provide explanatory guiding sessions for NPOs or affiliated organizations so that they can operate as APO certification bodies (CBs). This will enhance the knowledge

and understanding of NPOs of the entire CB process, such as internal audits, documentation needed, and certification requirements.

The Lead Assessors' Course for APO Accredited Certification Bodies was conducted by the APO Secretariat from 7-10 January in Tokyo. This four-day course was designed to explain how NPOs function as CBs for APO certification schemes. A total of 16 participants and one observer from 11 member countries attended the course, which was conducted by three resource persons from Japan, Malaysia, and Singapore.

Program coverage: Overview of the APO Accreditation and Certification Program; ISO/ IEC 17024:2012 Conformity assessment-General Requirements for Bodies Operating Certification of Persons; APO-AB COP 001/2019 General Requirements for Certification Bodies: Certification of Persons Scheme; APO 101 Requirements for Productivity Specialists; and Internal audit process.

APO Accreditation and Certification Body Development Program

The Certification Body Development (CBD) Program aims to expand the role of NPOs by focusing on building up their capabilities to become APO-accredited CBs. As CBs, NPOs will have opportunities to upgrade their own operational systems, particularly in certifying productivity professionals through compliance with international standards of practice. This development program guides NPOs in complying with the requirements set by the APO Accreditation Body (APO-AB). It involves consultancy and training on the scope of accreditation, certification process, competency of staff, and management structure. It also ensures that recipient NPOs are able to meet the requirements and are fully prepared before assessment by the APO-AB. NPOs from India, Indonesia, Malaysia, Mongolia, Pakistan, and Vietnam participated in the APO CBD Program in 2020.

Program coverage: Assessment of the capability of NPOs; Training on APO General Requirements for Certification Bodies: Certification of Persons Scheme; Training on APO-GPS 201 Certification Scheme and Competency Standard for Green Productivity Specialists; Training on APO-PS 101 Requirements for Productivity Specialists; Internal audit training; and Training on internal assessors and assessment for accreditation.

Certification Body Development Program: Development Project for the Directorate of Productivity Development (NPO of Indonesia) as an APO Certification Body The Directorate of Productivity Development, Ministry of Manpower of Indonesia, is designated as the NPO. It undertakes various activities for promoting productivity and providing training and consultancy on productivity and quality management systems in SMEs, government institutions, the business sector, and educational institutions. The NPO collaborated with the Indonesian National Qualification Framework and Indonesia Professional Certification Authority to develop a certification program in productivity-related areas. The certification program will be one of the key elements under the new human resources development agenda for 2020-2024.

A CBD project was started in November 2019, and phases 2 and 3 were completed in 2020. Five resource persons conducted the activities under these phases including two local ones. The COVID-19 pandemic halted project activities, however, and it is expected that the project will be completed in 2021.

Certification Body Development Program: Development Project for the Malaysia Productivity Corporation (MPC) as an APO Certification Body

The MPC has focused on human capital development and organizational excellence since its inception in 1992. In 2015, the MPC set up its Recognition Management Department, which is responsible for managing certification, training, and consulting activities at national

level. More than 300 individuals have been certified as productivity leaders, practitioners, facilitators, and experts, while 250 firms registered as clients. This development project is assisting the MPC to be recognized as APO-accredited CB and able to offer certification services to other member countries.

The MPC CBD project started in March, and three phases had been completed by December 2020. After travel and other restrictions were put in place due to the COVID-19 pandemic, the modality of the project was changed to digital. Two resource persons including a local resource person were assigned to guide the MPC. The project is scheduled for completion in 2021.

Certification Body Development Program: Development Project for the Vietnam National Productivity Institute (VNPI) as an APO Certification Body

The VNPI spearheads the national productivity movement through various programs and activities to sustain productivity growth and contribute to socioeconomic development. To align its programs with international standards of practice and expand its role in certifying productivity professionals, the VNPI participated in an APO CBD project. The project is assisting the VNPI in establishing CB functions including the assessment process and certification procedures. It will ensure that the VNPI complies with APO requirements for acting as a CB for the productivity specialists scheme.

The project was planned to commence from March to September 2020 by dispatching resource persons to Vietnam. However, due to disruptions caused by the global COVID-19 pandemic, all activities were conducted virtually. A total of four resource persons including one from Vietnam were assigned to assist the VNPI. The project is scheduled to be completed in 2021.

Certification Body Development Program: Development Project for the Mongolia Productivity Organization (MPO) as an APO Certification Body

The mission of the MPO is to instill a productivity and quality culture nationwide. The MPO aims to strengthen its capacity as a national institution and promote the productivity movement through public-sector organizations as well as cooperation with private industry leaders. Its main activities include promoting productivity at national, sectoral, and enterprise levels; providing training and consultancy on productivity improvement; and assessing enterprise productivity performance. The MPO has been developing productivity specialists by conducting training using the APO module on Development of Productivity Practitioners. This project will enhance the role of the MPO from a training provider to an internationally accredited CB.

The MPO started its CBD project in October 2020 and is expected to be completed in 2021.

Certification Body Development Program: Development Project for the National Productivity Council (NPC India) as an APO Certification Body

The NPC, India provides solutions to accelerate productivity, enhance competitiveness, increase profits, augment safety and reliability, and ensure better quality. Certification schemes on topics such as 5S, supervisory development, productivity practitioners, and energy managers and auditors have been undertaken by the NPC under which it certified persons and organizations depending upon the specific requirements. Accreditation as an APO CB will enhance the NPC's brand, strengthen its leadership in productivity, and boost the value of services provided. The NPC aims to transition from being a training provider to a future-oriented, productivity-focused APO CB. This project will assist the NPC in complying with the requirements to become an APO-accredited CB by ensuring that it meets the standards for acting as a CB for productivity specialists.

The project on CBD for the NPC, India began in November 2020 and is expected to be completed in 2021.

Certification Body Development Program: Development of the National Productivity Organization of Pakistan (NPO Pakistan) as an APO Certification Body

The NPO of Pakistan is working to promote productivity in various facets of the economy by providing training and consulting services to its stakeholders. Its major thrust areas are human capital development, productivity awareness, national excellence, Green Productivity, and research on innovation and value addition. In Pakistan, there is a huge gap between available productivity professionals and industry demand for productivity knowledge experts. A professional CB is required to offer productivity-oriented training courses to meet this demand. As part of institutional capacity-building efforts, the NPO is developing in-house resource persons to cope with the growing demand for productivity programs in the country. The CBD project will assist the NPO of Pakistan in complying with the requirements to become an APO-accredited CB by establishing a certification management system, rules, procedures, and processes. It will also support the NPO in achieving its objectives and enhance the credibility, competency, and value of certified professionals.

The CBD project was started in September 2020and will be completed in 2021

APO Accreditation and Certification Development Program: 3rd Meeting of the APO Accreditation Body Council

The APO-AB Council held its third meeting on 15 December 2020 using the digital modality to discuss progress during the year, issues and challenges faced, and its future direction. The council also provided recommendations to the Secretariat on improving the management of the APO-AB. AB Council members include NPO Heads and representatives of ministries and government agencies, academia, professional associations, and accreditation schemes. Ten council members plus two individuals representing regular members and a technical adviser participated virtually in the third meeting. CBD project participant NPOs of India, Indonesia, Malaysia, Mongolia, Pakistan, and Vietnam also shared their progress during the meeting.

Program coverage: Progress reports from the NPC, NPO Indonesia, MPC, MPO, NPO of Pakistan, and VNPI; Updates from the Secretariat; Terms of appointment of APO-AB Council members; APO 60th Anniversary celebrations; and Next AB Council meeting.

Digital Learning

The Digital Learning Program offers the opportunity for everyone in APO member and nonmember countries to enroll in self-learning e-courses on various subject areas related to productivity enhancement. It covers areas including manufacturing, agriculture, the public sector, and services. In 2020, a total of six new courses were initiated, while 37 existing courses were retained. The Secretariat observed an increase in the number of individuals who enrolled in those courses and assumed that the COVID-19 pandemic was a major reason.

New Agriculture Courses

Three e-learning courses on smart agriculture were launched in 2020: Apiculture Management; Future Aquaculture Farming; and Smart Transformation of Agriculture. The three courses became available from late 2020 and will continue. By the end of 2020, 253 participants had enrolled in the agriculture courses, of whom 93% were from member countries, while the remainder were from Ethiopia, Monaco, Switzerland, Togo, and the UK. A total of 36 had passed the final examination required to receive the APO certificate.

Self-learning e-Course on Smart Transformation of Agriculture

Currently, smart technologies such as ICT and the IoT are transforming agriculture and improving its productivity levels. Smart technology in agriculture involves automation

and robots, sensor-based environmental control systems, remote sensing for the pinpoint distribution of inputs via drones, the use of power-assist suits by elderly farmers and others with physical constraints, and crop damage prediction by Al. The use of these tools requires knowledge and training as well as equipment.

To train a critical mass of individuals, in particular government officers, agricultural producers, agribusiness entrepreneurs, agricultural extension workers, academics, and others interested in adopting smart technology in agriculture, the APO offered a selflearning e-course on Smart Transformation of Agriculture starting from 5 June. A total of 121 participants, including seven from nonmembers, had enrolled in the course at the time of writing. Two had completed the course and passed the final examination.

Program coverage: Concept of agricultural transformation; The IoT for agriculture; Smart agriculture; Controlled-environment agriculture; Preconditions for the introduction of smart agriculture; Initial costs and operational costs; Expected income; and Other requisites to introduce smart agriculture.

Self-learning e-Course on Future Aquaculture Farming

Global fish production is increasing yearly, reaching 171 million tons in 2016. Although capture production has been unchanged since 1990, aquaculture production has been constantly increasing. In 2016, 47% of global fish production was from aquaculture. Five APO member countries (Bangladesh, India, Indonesia, Thailand, and Vietnam) are listed in the top 10 aquaculture producers in the world, and five more (the ROC, IR Iran, Japan, the ROK, and the Philippines) are listed in the top 20. The APO collectively contributed more than one-fifth of world aquaculture production in terms of quantity. Aquaculture is important to support local economies and the food supply. When aquaculture was developed more than 3,000 years ago in China, freshwater species such as carp were the main products. In Europe, eels and oysters were produced in aquaculture during the Roman Empire. Today, advances in aquaculture technology have resulted in the production of a variety of fish and seafood.

To train a critical mass of individuals, in particular government officers, aquaculture producers, food business entrepreneurs, aquaculture extension workers, academics, and other individuals interested in adopting advanced technology in aquaculture, the APO offered a self-learning e-course on Future Aquaculture Farming beginning 3rd August. A total of 71 participants, including six from nonmembers, had enrolled in the course at the time of writing. One had completed the course and passed the final examination.

Program coverage: Hatchery technology: Live feed; Hatchery technology: Fish seed production; Formulated feed for aquaculture: Larval feed; Formulated feed for aquaculture: Feed for growth stages; Viral diseases; Bacterial diseases; Parasitic diseases; and Recirculating aquaculture and aquaponics.

Self-learning e-Course on Apiculture Management

In tropical Asian communities, men traditionally engaged in honey hunting and gathering. Today, beekeeping and honey production are becoming a family home gardening pursuit involving women and children as well. The hive honeybee Apis cerana is indigenous to Asia, 80% of the flora in tropical Asia is pollinated by honeybees, and Apis cerana is the only economically manageable species. Beekeeping for honey production has many advantages. Policymakers should be aware of the potential benefits of apiculture to rural farmers, beekeepers, and consumers. Rural beekeepers could potentially become change agents in tropical evergreen forest areas by developing model local honey production resource centers.

The APO launched a self-learning e-course on Apiculture Management, available online from 18 August. At the time of writing, a total of 61 participants had enrolled. The course aims to encourage the sustainable utilization of the natural biodiversity in the forests of tropical Asia and demonstrate how indigenous hive honeybees could become a key component of conservation-based, income-generating activities. The course is designed to show both honey producers at the grassroots level and national policymakers the value of beekeeping in ecological and economic terms.

Program coverage: Starting beekeeping: Honeybee colonies, movable comb hives, and equipment; Growing stage: Reproductive stage; Honey harvesting season; Dearth period; Economics of honey production; and Best practices and success stories of apiculture management.

New Industry Courses

To spread productivity awareness, methods, and techniques related to technical advances and developments throughout the Asia-Pacific region and beyond, three new industry sector-specific self-learning courses were offered during the year. The topics covered were: Advanced Smart Manufacturing 101 in a Blockchain-driven Era; General Aspects of Energy Management and Audit; and Measurement of Public-sector Productivity. The APO introduced its first video format for the General Aspects of Energy Management and Audit course with the aim of improving content quality and engagement. A total of 285 participants registered in all three courses, of whom 33 passed the final examination and received the APO certificate. The courses also attracted participants from outside the APO membership residing in Angola, Australia, Burkina Faso, Egypt, Kenya, Maldives, Monaco, the Netherlands, New Zealand, Nigeria, Qatar, Saudi Arabia, Senegal, Tunisia, and Venezuela.

Self-learning e-Course on Advanced Smart Manufacturing 101 in a Blockchain-driven Era

Smart manufacturing is often synonymous with Industry 4.0, the goal of which is to allow enterprises to transition into intelligent factories that are characterized by adaptability, resource efficiency, and ergonomics. Such transformation also incorporates the Internet of Things, augmented reality, 3D printing, and blockchain technology. This self-learning e-course focused on blockchain solutions, a distributed ledger technology (DLT) that allows for a "trustless source of truth" binding all internal and external stakeholders in smart factories. Participants were introduced to advanced-use cases of smart manufacturing which deploy DLT and how it coexists with other technologies to offer holistic solutions.

The APO launched the self-learning e-course on Advanced Smart Manufacturing 101 in a Blockchain-driven Era to familiarize participants with advanced concepts of smart manufacturing using blockchain solutions, available online from 1 November. At the time of writing, a total of 38 participants from 10 countries had enrolled, of whom seven had passed the final exam and received certificates of completion.

Program coverage: Overview of smart manufacturing; Current examples of smart manufacturing and use cases; Advanced concepts of blockchains; How blockchains work with other technologies; Potential and possibilities of blockchains in smart manufacturing; and Implications and ethical implementation of blockchain technology.

Self-learning e-Course on General Aspects of Energy Management and Audit

Energy is one of the major inputs for economic activity, especially for developing economies in the Asia-Pacific region. Energy consumption is increasing at a rapid pace, while available resources such as fossil fuels are limited. The reliance on fossil fuels results in releases of carbon dioxide and other harmful pollutants to the atmosphere, contributing to climate change and related adverse effects. In global terms, Asian countries consume about twothirds of total energy and contribute to three-quarters of carbon emissions. Enhancing competitiveness by improving energy productivity and reducing carbon intensity is therefore critical. The adoption of energy-efficient tools and techniques, conducting energy audits, and transitioning to renewable sources will not only lower energy costs and reduce carbon footprints but also help APO member countries to enhance energy security and meet national energy conservation targets.

A self-learning e-course on General Aspects of Energy Management and Audit was offered by the APO starting in December 2020 introduces the global energy scenario and environmental issues, international agreements on climate change, international standards for energy management systems, renewable energy sources, and basic concepts of energy audits. The course emphasizes the role of energy management and audits in sustainable development and reducing carbon dioxide emissions

Program coverage: The global energy scenario; Global environmental issues; International agreements on climate change and policies; Energy management and audit; Material and energy balance; Overview of international standards for energy management systems; Energy monitoring and targeting; Financial management; Project management; and New and renewable energy sources.

Self-learning e-Course on the Measurement of Public-sector Productivity

Public-sector productivity is an important part of the economic performance of a country. Yet measuring productivity in the sector, especially of public services, is not a simple task. It requires an appropriate framework and robust calculations of various basic inputs. In the long run, productivity measures for the public sector are vital in understanding the success of governments in using their resources to improve living standards and community wellbeing, giving warning signs to take policy action to improve productivity performance, providing feedback on the effectiveness of productivity-related measures taken, alerting policymakers to adverse productivity consequences that may result from actions taken in other areas, etc.

The APO offered a self-learning e-course on the Measurement of Public-sector Productivity, available online from 1 March. A total of 236 participants from 39 countries, including 22 from nonmembers, enrolled in the course to gain basic knowledge on measurement of publicsector productivity. Twenty-five completed the course and passed the final examination. The course was designed to provide information on the fundamentals of public-sector productivity, introduce basic tools to measure productivity in the public sector including its challenges, and apply the knowledge gained using examples of selected public services.

Program coverage: Measurement of public-sector productivity; The basics of productivity measurement; Outputs and outcomes in the public sector; How to measure output; How to measure input; Formulating productivity measures; Dealing with quality; and How to interpret productivity trends. Passing the final exam was required to receive the certificate of course completion.

Courses released in year 2020



No. Registered

110 Summaries of 2020 Proj

Continued Courses

For the 37 continued self-learning e-courses, there were 5,867 new enrollees, of whom 937 passed the final examination and received the APO certificate. The Basic Data Analytic Course for the Public Sector had the highest number of registrants, which reached 366 during 2020.

98

106

105

72

100

150

200

300

350

250

50

38

40

41

34

56

58

Continued courses in 2020

Basic Data Analytic Course for the Public Sector
Occupational Health and Safety Management System (OHSAS 18001)
Productivity Tools and Techniques (Basic)
Green Productivity and Integrated Management System
Food Safety Managment (Advanced)
Productivity Tools and Techniques (Advanced)
Applying Green Productivity Based on ISO14001 Standards
Management of Innovation in SMEs
Integrating Lean Manufacturing Systems and Industry 4.0 Concepts
Food Safety Managment (Basic)
Critical Strategy Foresight Tools for Sustainable Productivity
Smart Manufacturing (Basic)
Modern Food Distribution Systems
Organic Inspection and Certification
Modern Food Storage and Transport Technologies
Energy Efficiency Techniques
Energy Management System Auditors' Course
Basic Smart Manufacturing 101 in a Blockchain-driven Era
Smart Farm Mechanization
Good Agricultural Practices (GAP)
Innovative Cost-effective Technologies for Sustainable Agriculture
Agritourism Business Development
Marketing Strategy and Product Branding for SMEs
Sustainable, Resilience Supply Chain and Integration into Global Value Chains
Waste Management in Agribusiness
Future Food: Exploring Business Opportunities
Material Flow Cost Accounting (ISO 14051)
Climate Change Impacts and Adaptation (Basic)
Rural Entrepreneurship Development
Business Models for Women Entrepreneurs
Agribusiness Management (Advanced)
Innovations in Agroforestry Systems
Organic Agriculture and Organic Agribusiness
Controlled-environment Agriculture
Building Climate Change-resilient Agriculture
Urban Agriculture
Smart Manufacturing: Advanced

No. who passed final exam

No. Registered

Individual Program

A national productivity movement requires certain preconditions for success such as a strong supporting ecosystem comprising key productivity-promoting institutions and their engagement partners. NPOs are among the key institutions responsible for formulating the plans and policies and implementing the programs of national productivity movements. The development of NPOs and other relevant productivity institutions has been at the core of APO programs and projects since its establishment. Considering the varieties of needs and challenges and different stages of the productivity movement in member countries, the APO's Individual Program is designed to cater to their specific requirements. While the primary emphasis is on supporting and developing NPOs' ability to deliver productivity services, the program also accommodates a wide range of other national stakeholders. It emphasizes advisory/consultancy services, collaborative learning, cooperation among NPOs, and the development of demonstration companies. All of the activities were implemented virtually in 2020 that covered topic such as productivity policy framework, supports to development of NPO's capability, assistance to SMEs, and capacity building on various productivity tools and techniques.

Specific National Program

Specific National Program (SNP) focuses on the provision of tailored assistance to develop national productivity master plans and institutional development plans for NPOs including other relevant sectoral productivity plan. The program aims to mainstream productivity enhancement in member countries' national development agendas as well as to promote centrality of productivity in the productivity promotion policies of member countries.

Institutional Capability Development Plan for the Mongolian Productivity Organization

In addressing institutional needs and building the capability of NPOs by devising productivity-related strategies and programs implemented at the national level, the APO undertakes consultancy services for NPOs. The MPO was the first NPO to participate in the APO's institutional capability development initiative. One of the key recommendations of the development plan was for the MPO to reposition itself to address more strategic issues at higher levels of the decision-making hierarchy. This will assist the MPO in securing government-wide support for national or public-sector productivity initiatives rather than being limited in scope when positioned under a single ministry.

The services and plan development were conducted by a consultant on organizational excellence from New Zealand. The project ran from August to October 2019, and 18 institutional stakeholders from Mongolian public, private, and civil society organizations were involved in the consultation phase. The plan was handed over to the APO Director for Mongolia, Yamaaranz Erkhembayar by APO Secretary-General Dr. AKP Mochtan.

Program coverage: Identification of key issues; Consultation meetings; Diagnostic analysis; NPO strategy review; and Development of the institutional capacity plan.

Development of the National Productivity Master Plan for Vietnam

To assist member countries in achieving higher labor productivity and economic competitiveness, the APO initiated policy consultancy projects to develop national productivity policy frameworks. A consultancy project started in November 2019 for the development of a national productivity master plan for Vietnam to address the need for a more productive,

innovative economy to raise living standards. The plan sets out productivity strategies and a roadmap covering a 10-year time frame. It focuses on four areas most relevant for national productivity enhancement: innovation; state-owned enterprises; linkages between foreigninvested and domestic firms; and skill development.

A team of researchers from the Korea Development Institute (KDI) worked closely with the VNPI and other key nationwide stakeholders in areas such as science and technology, R&D, state-owned enterprises, education and technical and vocational training, and SMEs during the development phase. The final master plan was finalized in December 2020 and schedule to be completed in 2021.

Program coverage: Preproject consultations; Diagnostic and synthesis analysis; Consultation meetings with stakeholders; Productivity strategy and target review; and Development of the master plan.

Institutional Capability Development Plan for the National Productivity Organisation of Bangladesh

The NPO of Bangladesh was the second to participate in the APO's Institutional Capability Development Program. The program offers consultancy assistance in formulating plans to enhance NPOs' capacity and roles in productivity promotion, training, and consultancy services for the public and private sectors while raising their visibility as leading productivity organizations.

The project in Bangladesh started in November 2019 and was completed in January 2020. Two experts on organizational excellence from the ROK and New Zealand made two visits and led the implementation of the project, which included consultation meetings with approximately 20 institutional stakeholder representatives. The project involved a five-stage plan development to address nine key areas for determining transformation strategies for the NPO. One strategy was establishing a governance board for the NPO to ensure its abilities to lead the productivity movement, develop appropriate methodologies, and use public funds wisely for maximum impact. The final plan was released to the NPO of Bangladesh in April 2020.

Program coverage: Identification of key issues; Consultation meetings; Diagnostic analysis; NPO strategy review; and Development of the institutional capacity plan.

Development of the National Productivity Master Plan for Lao PDR

The Government of Lao PDR requested the APO to undertake a policy advisory project to lay the foundations for productivity-driven economic growth to support its Vision 2030 and Socioeconomic Development Strategy 2016–2025. The objective of the consultancy project on the Development of a National Productivity Master Plan for Lao PDR was to enhance socioeconomic development through a nationwide high-productivity growth strategy. This project not only analyzed the current productivity status but also proposed future targets, strategies, and policy tools to achieve national goals. The final document includes productivity enhancement plans for all ministries, relevant agencies, and other stakeholders in Lao PDR over a 10-year time frame (FY2021-2030). A major emphasis is institutionalizing and strengthening the productivity movement and its supporting ecosystem.

The preliminary planning phase of the consultancy project commenced in December 2019, and the projects scheduled to be completed in March 2021. A research team from the KDI collaborated with a national task force formed by the Laotian government which comprised representatives of 21 key agencies, ministries, and organizations. The virtual handing over ceremony of the master plan was to be organized in mid-April 2021.

Program coverage: Preproject consultation; Diagnostic and synthesis analysis; Consultation

meetings with stakeholders; Productivity strategy and target review; and Development of the master plan.

Policy Consultancy on Innovation-driven Productivity Improvement

This consultancy project assisted the NPO of Bangladesh in formulating an action plan for SMEs based on its national productivity plan with the following specific targets: 1) sustain productivity and competitiveness improvement efforts; 2) increase (labor) productivity through innovation and building a robust SME ecosystem; 3) raise the level of national competitiveness; 4) develop more efficient regulatory frameworks and more transparent administrative processes; and 5) align national productivity improvement plans with long-term development agenda goals.

The project was conducted from 1 April to 31 December 2020 with one chief expert and two supporting experts for action plan formulation. The three Japanese experts conducted the necessary research referring to the national direction of Bangladesh and utilizing the practical experience and knowledge acquired during their professional careers. They incorporated the Japanese experience into the action plan for innovation and assisting SMEs in Bangladesh, reflecting efforts such as the Greater Tokyo Initiative. This provides a good starting point to reinforce the ecosystem for innovative SMEs in Bangladesh. The NPO submitted the completed report to the Ministry of Industries and SME Foundation, which will serve as the focal point for implementing the action plan.

Program coverage: Drafting the Action Plan for Innovation Creation in SMEs as a policy advisory consultancy project to achieve sustainable productivity growth in Bangladesh.

Institutional Capacity Development Plan for the National Productivity Organization of Pakistan

NPOs are key productivity-promoting institutions. They are responsible for formulating the plans and policies and implementing the programs of national productivity movements. The APO initiated a consultancy project scheme in 2018 to assist NPOs in addressing institutional needs and building their capability to develop and implement effective productivity-related strategies and programs.

The consultancy project for the development of an institutional capacity-building plan for the NPO of Pakistan started in July 2020 and was to be completed by April 2021. This was the third NPO to participate in the APO's Institutional Capability Development Program. An expert on organizational excellence from New Zealand carried out the project. A series of virtual consultation meetings with approximately 20 national productivity stakeholders in Pakistan was carried out to present, review, and deliberate on the findings and recommendations, including soliciting feedback from relevant actors before finalizing the plan. The analysis focused on the NPO's 16 broad objectives and benchmarking against more advanced NPOs to illustrate how progress can be made.

Program coverage: Identification of key issues; Consultation meetings; Diagnostic analysis; NPO strategy review; and Development of the institutional capacity plan.

Individual-country Observational Study Missions

Under the Individual-country Observational Study Mission (I-OSM) Program, a member country may send missions to one or more other member countries to study and observe the latest developments and best practices in areas of interest relevant to its needs for productivity promotion and socioeconomic development. This APO program addresses individual member country needs in the pursuit of productivity enhancement.

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In 2020, five I-OSM proposals were implemented, which benefited 75 participants from four member countries: Capability Building in Service Engineering, from Singapore to Japan; Benchmarking Mission on the Circular Economy toward Sustainability: ROC Experiences, from Malaysia to the ROC; Benchmarking Mission on the Industrial Education System for National Competitiveness, from Pakistan to the ROK; Benchmarking Mission on Understanding Best Practices and Working Models of the Application of Industry 4.0 for MSMEs from the Philippines to the ROK; and Benchmarking Study Mission for the DAP Future Center & Innovation Laboratory from the Philippines to the ROK.

Bilateral Cooperation between NPOs

The Bilateral Cooperation between NPOs (BCBN) Program, in which NPOs learn from each other to address specific needs and requirements, remains a major platform of the APO for creating collaboration and partnerships, exchanging knowledge, benchmarking, and adopting the best practices among NPOs. BCBN basically facilitates the visits of high-level officials of NPOs and policymakers to observe and study advanced know-how relating to productivity including policies and programs in other APO members.

In 2020, three BCBN study missions were organized by the APO involving the ROC, Japan, the Philippines, Singapore, and Vietnam. Thirty-three participants benefited from this program, under which the topics included Smart Manufacturing and IT Solutions in Singapore's Food and Beverage Industry, Establishing a National Quality Infrastructure Framework, and Learning Experience in Building NPO Capability and Human Resource Development in Productivity and Quality. The participants were expected to undertake follow-up activities based on the best practices demonstrated and new knowledge gained from the bilateral exchanges between NPOs.

Development of Demonstration Companies

The mission of the Development of Demonstration Companies (DMP) Program is to assist model organizations that showcase good practices of productivity improvement with the support of technical experts and NPOs and the commitment of the target organizations. Through capability building, recording of improvement processes, and dissemination of the results, the program demonstrates good practices that other organizations can learn from so that they can embark on similar improvements.

One demonstration project was concluded in 2020, the Implementation of GLOBALGAP in Sun Feed Joint Stock Company in Vietnam. Another demonstration project was also newly selected for implementation in 2020, related to Improvement of Productivity through Adoption of Innovation Management Tools and Blockchains for the Education and Agriculture Sectors in Mongolia. However, the project was unavoidably terminated due to the unforeseen situation caused by the COVID-19 pandemic.

Six demonstration projects that commenced in 2018 and 2019 are expected to be completed in 2021: Transforming Chicken Litter into Value-added Commercial Product(s) in Future Farms Limited in Fiji; Scientific Molding: Digitization for Productivity Improvement in Manufacturing in Thailand; Innovation, Quality Circles, and Lean Manufacturing for Productivity Enhancement in SMEs in Cambodia; Material Flow Cost Accounting in Sugar Production in Bangladesh; Applications of Green Productivity Tools and Techniques in the Printing Industry in Sri Lanka; and Training in Applications of Mini-grid Solar PV Systems in Indonesia.

Technical Expert Services

The main objectives of the Technical Expert Services (TES) Program are to provide assistance to NPOs and related organizations to strengthen their institutional capacities and upgrade their technical competencies as well as to develop the abilities of their trainers and consultants in new areas. TES achieves these two main objectives through the assignment of international experts who work closely with NPOs and other productivity stakeholders on the ground.

In 2020, TES activities were delivered virtually using videoconference applications as the COVID-19 pandemic did not allow experts to travel to member countries. Thirty-three TES projects for 11 APO members were implemented, and 48 experts undertook virtual assignments, including five projects carried over from 2019. The most experts assigned from within the APO membership were from Singapore (eight), and the most from outside it were from Australia, Germany, and Hong Kong (three each). Other experts came from Malaysia and India (seven each) and Japan (four).

Overall, TES projects received an average evaluation score of 92 out of 100 for the quality of service provided to members who utilized them. Based on the information from NPOs, a total of 4,879 participants from the public and private sectors benefited from virtual conferences, seminars, and training courses.

Institutional Program

Program/Project Planning Workshop

The APO Secretariat conducted a strategic planning event to assess member countries' specific needs and expectations, especially those relevant to the new Vision 2025, and to give updates on recent Secretariat initiatives. The Program/Project Planning Workshop (PPP Workshop 2020) was held virtually 4-5 August and attended by eight APO Directors/Alternate Directors, six NPO Heads, and 34 officers engaged in APO activities at NPOs. The two-day workshop discussed topics such as updates on 2020 project implementation, overview of the APO Vision 2025, new program areas based on the APO Vision 2025, 2021/2022 project alignment, program plan for APO 60th Anniversary commemorative events, and digital initiatives. Another feature was special presentations by NPOs.

As a precursor to 61st Workshop Meeting of Heads of NPOs (WSM), the PPP Workshop agreed to report and discuss the proposed list of projects in 2021 and 2022 aligned with the APO Vision 2025 including the classification of programs and comments and suggestions for modifications to the WSM. It was also agreed to continue the task of finalizing key performance indicators and targets under Vision 2025, utilize the Special Account for COVID-19-related healthcare initiatives, and continue the discussion on project modalities.

Program coverage: Update on the development of the APO Vision 2025; Realigning and refining programs/projects in the APO Program Plan 2021 under the new vision; Discussing plans for events to commemorate the APO's 60th anniversary; and Updates on recent Secretariat initiatives.

Information and Public Relations Program

The objectives of the Information and Public Relations Program are to: increase the visibility of the APO among key stakeholders and enhance its brand as the leading organization in the productivity space; maintain and strengthen networks with NPOs in member countries and the media to raise awareness of the organization and its activities while serving as a clearinghouse for productivity information; and support operational departments and teams within the Secretariat to achieve overall organizational goals.

In 2020, the APO continued to utilize its website and social media platforms. It also produced a number of publications to disseminate productivity-related information to policymakers, practitioners, NPOs, and other stakeholders.

Website and Media

In 2020, the APO promoted its publications, self-learning courses, projects implemented with the cooperation of NPOs, and the series of P-Talks and Top Talks which started in April 2020. This increased the engagement level on the APO's social networking service channels by about three-fold, and more than 6,400 downloads of the various titles available on the website. In addition, the APO was cited almost 1,000 times in the media.

Publications

During 2020, the Secretariat published the following titles.

Titles

- APO Manual: Public-sector Productivity
- APO Productivity Databook 2020
- Innovative Institutions to Accelerate Agroindustry Development in Asia
- Knowledge Management Facilitators' Guide (revised edition)
- Knowledge Management: Tools and Techniques Manual (revised edition)
- Assessment of Smart Manufacturing in APO Member Countries
- Building Industry 4.0 Capacity: Need Analysis of Six APO Economies
- Emerging Trends Report
- Green Productivity and SDGs
- Innovation Creation in SMEs: Lessons from Japan
- Public Policy Innovation for Human Capital Development

To commemorate the organization's diamond jubilee in 2021, the APO launched its 60th anniversary logo design to be used throughout the year. A special calendar was produced to showcase the APO's productivity journey using photos illustrating the history of its activities.

The APO also produced an animation video called "What Is Productivity?" which is meant to help the public, especially young people, to understand the productivity concept.

Information Technology Program

IT Program

A solid IT foundation allows organizations to continue improving work efficiency. It is important for the APO to make full use of IT to cope with the changes and challenges of the dynamic digital world as well as to deliver better services to stakeholders. Especially during the COVID-19 pandemic, not only the APO Secretariat but also NPOs have faced difficulties in working as usual and holding face-to-face projects. Member economies were forced to adopt new normal life and work styles utilizing digital approaches to productivity initiatives. The new ICT infrastructure the Secretariat established in 2019 enabled the remote work necessary in the COVID-19 era. In keeping with global trends and coping with the new normal lifestyle, in 2020 the Secretariat strengthened its cloud infrastructure with more features and tightened cybersecurity.

On the maintenance front, the Secretariat also continued supporting the use of some legacy IT systems, including those for project management and accounting and budget management, which are critical for day-to-day operations and business continuity. However, the Secretariat continued developing its new project management system (PMS) and document management system (DMS).

Enterprise Resource Planning Initiative

The adoption of a Secretariat-wide ERP system was initiated in 2017 with the objective of migrating all key administrative and operational functions to a single database-driven process environment. The integrated platform not only helped the Secretariat improve document management but also avoid multiple versioning, thereby creating consistency among departments. This enables the Secretariat to eliminate paper-based documents, thereby reducing its ecological footprint. Access to uniform data and information also facilitates faster analysis and more efficient decision making.

During 2020, the Secretariat continued adjusting and improving the ERP system, including developing the PMS and the DMS as well as the finance module. While those efforts were originally expected to be completed within 2020, external factors including the pandemic meant that they must continue over the year 2021.

IT Infrastructure Improvement Initiative

In 2020, Secretariat started redeveloping the IT infrastructure affected by a fire in its office building in March 2019 after renovation had been completed. That was an essential but additional investment, although most costs were covered by insurance. The Secretariat advised NPOs to maintain similar levels of infrastructure, equipment, and device security to enable online projects in line with the 2020 GBM decision.

Cvbersecurity

Cybersecurity is a rapidly shifting battlefield that requires awareness, continuous observance, and a combined response from everyone involved. A new cloud-based firewall system that the Secretariat introduced at the end of 2019 offers all-round protection for the replaced IT infrastructure. In 2020, the Wi-Fi network was updated with a more secure tracking environment for Secretariat staff/guests, and the latest smart-scan, predictive machine learning-based security and antivirus systems were added. Cybersecurity efforts will continue, and the Secretariat plans to introduce additional platforms for stakeholders.

International Cooperation

The APO continues to develop strategic partnerships with other leading international organizations to create synergies in areas of common interest. It also explores opportunities to strengthen cooperation and collaboration with new partners and governments to contribute to socioeconomic development through the productivity movement.

New Member

Turkey

In March 2020, Turkey became the 21st member of the APO. Turkey has rich experience and expertise through its own productivity movement starting from the 1960s. Therefore, member countries are expected to benefit from Turkey's entry into the APO through mutual cooperation. The country is recognized as an investment destination for projects in various sectors where lean manufacturing techniques and digital transformation are increasingly being applied. This is an important step for Turkey's further development as it stands to benefit through policy advisory and other APO initiatives in a wide range of fields.

International Organizations/Academia

ASEAN

In August 2020, the APO started a joint study with ASEAN as part of ongoing efforts to expand strategic partnerships with other international organizations. The study is focused on analyzing the trends and factors of labor productivity within ASEAN, the majority of which are APO members. By reviewing the concepts of labor productivity used in ASEAN and examining the factors contributing to its growth, this study aims to help policymakers better understand it and then develop recommendations for increasing it in the region.

JICA and AUDA-NEPAD

At the 2020 Africa Kaizen Annual Conference held virtually by JICA and the African Union Development Agency in September, the APO was given the opportunity to showcase how its member countries have been learning from the unique strengths and expertise of its COE in specific fields. The APO Secretary-General was invited to serve as one of the Examination Committee members evaluating African companies that participated in the Africa Kaizen Award 2020, which was held in conjunction with the annual conference.

OECD

The APO and OECD signed an MOU in October 2019 for joint research to develop improved, more comparable productivity statistics across their member economies. This initiative explored current practices and challenges in productivity measurement and provided recommendations to national statistics offices, NPOs, and other agencies involved in the compilation and analysis of productivity statistics in APO member economies to improve measurement and cross-country comparability. The study provided a timely, meaningful benchmark for assessing the performance of members in line with the new Vision 2025.

OECD Global Forum on Productivity

The APO became a member of the OECD Global Forum on Productivity (GFP) in November 2020. The GFP was created in 2016 to foster international cooperation among public institutions that promote productivity-enhancing policies. It gives government institutions a platform to exchange views, share data and knowledge, discuss best practices, and undertake productivity analysis. APO members are given opportunities to participate in and contribute to leading-edge productivity research with other economies in the GFP, expand networks, and engage formally with national productivity institutions of GFP members. The APO's inclusion is valuable to other GFP participants, especially as it vastly increases Asian representation in the forum.

UN Centre for Regional Development

The APO was invited to attend the 10th Regional 3R and Circular Economy Forum in Asia and the Pacific which was co-organized by the UN Centre for Regional Development of the Division for Sustainable Development Goals (DSDG), Japanese Ministry of the Environment, and UN Department of Economic and Social Affairs through a series of webinars. The forum addressed emerging topics including the SDGs to provide innovative solutions in terms of policy, institutional setups, and partnerships for the effective implementation of the 3Rs and resource efficiency policies and strategies under the COVID-19 pandemic.

UNIDO

The APO participated as an observer in the 48th Session of the Industrial Development Board of UNIDO which was held virtually in November 2020. In addition to regular administrative matters, its members exchanged views on a serious global issue, the COVID-19 pandemic. As the APO and UNIDO address common issues such as COVID-19 and the SDGs, it is expected that the sharing of knowledge and experience will strengthen cooperation between the two organizations.

Cornell University

Joint research between the APO and Dyson School of Applied Economics and Management, Cornell College of Business, was successfully concluded and the report was published on the APO website. Opportunities in agribusiness are expanding substantially in the Asia-Pacific due to increasing populations, growing economies, and trade globalization. This joint study identified the institutional basis for promoting innovations that accelerate agroindustry development and cited examples of efforts undertaken by governments in the region.

Keio University

The annual APO Productivity Databook has been published since 2008 with support from Keio Economic Observatory, Keio University, Tokyo. The 2020 version analyzes the latest productivity and economic performance data and includes the impact of the COVID-19 pandemic on economies in the Asia-Pacific region in the first and second quarters. National and regional productivity indicators were expanded to provide more comprehensive comparisons with reference economies, and a growth accounting framework for new APO member Turkey was included.

Korea Development Institute

The KDI and APO signed an MOU in May 2019. The KDI has supported the APO in developing national productivity master plans under the Special National Program. The master plan for Vietnam was completed in November 2020, and its prime minister gave approval for its implementation. The KDI also contributed to the development of a master plan for Lao PDR. Formal handover of the master plans and release of the national reports are expected in the first half of 2021.

APPENDIX 3

List of NPOs







Productivity Institute

VIIPi

122 Abbreviations and Acronyms

APPENDIX 4

Abbreviations and Acronyms

3Rs	Reduce, reuse, recycle		
АВ	Accreditation Body (of the APO)		
ADBI	Asian Development Bank Institute		
AI	Artificial intelligence		
APO-AB	APO Accreditation Body		
ASEAN	Association of Southeast Asian Nations		
AUDA	African Union Development Agency		
BCBN	Bilateral Cooperation between NPOs (of the APO)		
BE	Business excellence		
ВоР	Base of the pyramid		
СВ	Certification Body (of the APO)		
CBD	Certification Body Development (of the APO)		
CNC	Computed numerical control		
COE	Center of Excellence (of the APO)		
CPC	China Productivity Center		
DAP	Development Academy of the Philippines		
DLT	Distributed ledger technology		
DMC	Digital multicountry (project modality of the APO)		
DMP	Demonstration Companies Program (of the APO)		
DMS	Data management system		
ERP	Enterprise resource planning		
FTPI	Thailand Productivity Institute		
FVC	Food value chain		
GBM	Governing Body Meeting (of the APO)		
GFP	Global Forum on Productivity (of the OECD)		
GOJ	Government of Japan		
GP	Green Productivity		
ICT	Information and communication technology		
юТ	Internet of Things		
ISO	International Standardization Organization		
I-OSM	Individual-country Observational Study Mission (of the APO)		
IT	Information technology		
JICA	Japan International Cooperation Agency		
JPC	Japan Productivity Center		
KDI	Korea Development Institute		

КМ	Knowledge management
KPC	Korea Productivity Center
LPM	Long-term productivity measure
M&E	Monitoring and evaluation
METI	Ministry of Economy Trade and Indus
MOU	Memorandum of understanding
MPC	Malaysia Productivity Corporation
мро	Mongolian Productivity Organization
NIS	National innovation system
NPC	National Productivity Council (of Ind
NPCC	National Productivity Centre of Caml
NPO	National productivity organization; N Productivity Organization of IR Iran; N
NPS	National Productivity Secretariat (of
OECD	Organisation for Economic Co-opera
PDB	Productivity Database (of the APO)
PDF	Program Development Fund (of the A
PHL	Postharvest loss
PMS	Project management system
PPP Workshop	Program/Project Planning Workshop
PSP	Public-sector productivity
P-Talk	Productivity Talk (of the APO)
SAT	Smart agricultural transformation (of
SDGs	Sustainable Development Goals (of t
SGPC	Singapore Productivity Centre
SM	Smart manufacturing
SME	Small and medium-sized enterprise
SMTT	Strategic management tools and tec
SNP	Specific National Program (of the AP
STAMEQ	Directorate for Standards, Metrology
STI	Science, technology, and innovation
STIP	Science, technology, and innovation
TES	Technical Expert Services (of the APO
TFP	Total factor productivity
TWG	Technical working group
UN	United Nations
UNIDO	United Nations Industrial Developme
VNPI	Vietnam National Productivity Institu
who	World Health Organization (of the UN
WSM	Workshop Meeting of Heads of Natio

ctivity measure
valuation
my Trade and Industry (of Japan)
understanding
ivity Corporation
ctivity Organization
on system
vity Council (of India)
vity Centre of Cambodia
vity organization; National Productivity Organisation (Bangladesh); National nization of IR Iran; National Productivity Organization (Pakistan)
vity Secretariat (of Sri Lanka)
conomic Co-operation and Development
base (of the APO)
ment Fund (of the APO)
ent system
Planning Workshop (of the APO)
ductivity
(of the APO)
transformation (of the APO)
lopment Goals (of the UN)
stivity Centre
ring
n-sized enterprise
ment tools and techniques
Program (of the APO)
andards, Metrology and Quality (of Vietnam)
gy, and innovation
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Services (of the APO)
ictivity
group
dustrial Development Organization
Productivity Institute
anization (of the UN)
g of Heads of National Productivity Organizations (of the APO)



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