



ANNUAL REPORT

2021

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The APO Secretariat thanks NPOs for providing updates on their directory information and some of the project-related images used in this report.

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Shared aspirations,
determination, and
cooperation among
members have prevailed.

Foreword



The region has seen dramatically improved productivity, and economic growth has transformed Asia into the world's economic center.

The year 2021 was historic for the APO, marking 60 years since the organization's founding in 1961. The APO's founders recognized a profound need to work together to improve people's lives in the Asia-Pacific by enhancing productivity. It was a tremendous ambition, given that many Asian nations were still in the nascent stage of socioeconomic development while struggling with limited resources and insecurity.

Many aspects of their dream have been achieved. The region has seen dramatically improved productivity, and economic growth has transformed Asia into the world's economic center. Shared aspirations, determination, and cooperation among members have prevailed. Sixty years on, I believe that these attributes remain a core part of the APO's spirit today.

The year saw the APO commemorate its Diamond Jubilee in style. An inaugural virtual ceremony linked productivity trailblazers, alumni, and present-day policymakers and stakeholders in a journey of reminiscence and hope. A hybrid international conference on the "Centrality of Productivity" featuring a Nobel Laureate followed in Tokyo, supported by the Government of Japan and co-organized by the Japan Productivity Center. A special publication, *Reason for Growth: 60 Years of Asian Productivity*, was released to document six decades of the APO's endeavors.

Another milestone in 2021 was the launch of the APO Vision 2025 of "Inclusive, innovation-led productivity growth in the Asia-Pacific." This was the product of intensive deliberations among our members and consultations with productivity leaders and experts. The goals and key focus areas articulated in this vision will shape the organization's work in the years to come.

The productivity journey is far from over, however. The COVID-19 pandemic has shed light on the fragility of our institutions and our ways of living and working. It has also shown the need for us to adapt to change and be as forward-looking as our founders six decades ago. Therefore, I am proud that in 2021 the APO not only looked back to honor the trailblazers who came before but also set a vision for the future.

In East Asian culture, a 60th anniversary marks a rebirth or the beginning of a new cycle. It is fitting that the APO used 2021 to continually improve and innovate. As the pandemic restricted the organization's ability to implement face-to-face projects, the APO embraced virtual modalities. With digital learning, the APO revamped its e-learning platform and reached thousands of participants across the region and elsewhere.

Despite facing grave challenges, the APO has been able to adapt to continue to serve its members. Communications between the Secretariat and NPOs became closer and faster, helping us to achieve the same unity of purpose and cohesiveness that preceded the organization's and the region's great success. I am confident that we will be able to forge a path ahead to a better, brighter, and more productive future.

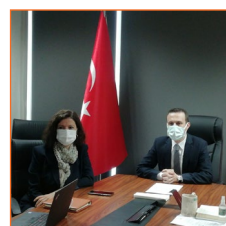
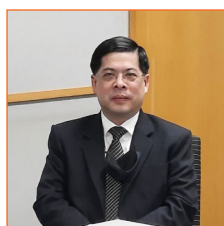
AKP Mochtan
Secretary-General

63rd Session of the APO Governing Body

The 63rd Session of the APO Governing Body (GBM) was conducted virtually on 8 and 9 June 2021. The meeting was attended by APO Directors representing 20 member economies. APO Director for Japan Atsushi Ueno delivered the Inaugural Address, outgoing APO Chair and APO Alternate Director for Vietnam Dr. Ha Minh Hiep gave the Welcome Statement, and incoming APO Chair and APO Director for Bangladesh Zakia Sultana presented the Opening Remarks.

The APO Chair is assigned on a rotational basis by member economy in alphabetical order as decided by the GBM in 2002 and practiced since 2003, beginning with Bangladesh. Thus, under this system, the 63rd GBM elected APO Director for Bangladesh Zakia Sultana as APO Chair for 2021–22, with APO Director for Cambodia Phork Sovanrith as First Vice Chair and APO Director for the ROC Sheng-Hsiung Hsu as Second Vice Chair.

The GBM also discussed and adopted APO Vision 2020: Report of Roadmap 2020 as well as the Tokyo Statement on the Centrality of Productivity. In addition, the GBM agreed to endorse the new APO National Award and Vision 2025 Outreach Programs. In conjunction with the 60th Anniversary, the GBM also conferred the APO Regional and National Awards on recipients.



62nd Workshop Meeting of Heads of NPOs

The 62nd Workshop Meeting of Heads of National Productivity Organizations (WSM) was conducted via videoconference on 26 October 2021. It was attended by 33 NPO delegates and 31 advisers. Acting NPO Head for the ROK and KPC Managing Director Jung Sung Moon chaired the meeting.

In welcoming the delegates, Secretary-General AKP Mochtan emphasized four core activities that would create greater impact and value for member economies:

- 1  **Upgrading Green Productivity;**
- 2  **Strengthening flagship programs;**
- 3  **Intensifying in-country programs; and**
- 4  **Boosting the APO's think-tank role.**

The development of NPOs would also be enhanced to reinforce the centrality of productivity, and in-country programs to support NPOs would therefore feature new mechanisms for greater impact and speedy implementation.

The WSM discussed and endorsed the new provisions of the APO National Award and APO Honorary Fellow; implementation procedures, budget, and financial report of the Vision 2025 Outreach Program; the Revised APO Program for 2022; and the APO Preliminary Programs for the 2023-24 Biennium. The meeting also discussed and adopted the revised Guidelines on the APO Centers of Excellence and the Evaluation of 2020 Projects.



The 62nd Workshop Meeting of Heads of National Productivity Organizations (WSM) was conducted via videoconference on 26 October 2021.

ACTIVITY REPORT

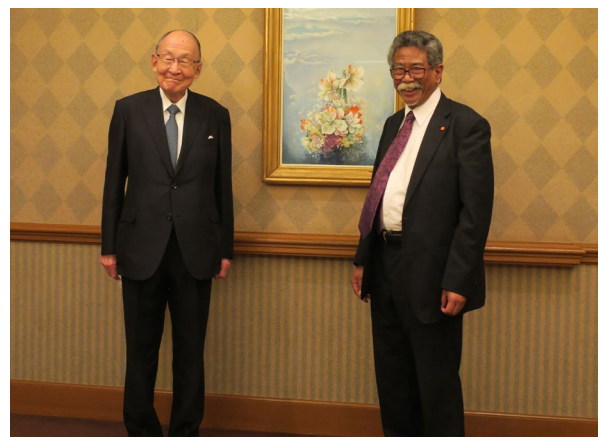
Celebrating the Diamond Jubilee

2021 marked the 60th anniversary of the APO's establishment in 1961. To commemorate the milestone, an inaugural virtual launch ceremony was held and broadcast live on the APO YouTube channel. The program showcased past and present activities of the APO in its 60-year journey as a productivity enabler for its members in the Asia-Pacific. With the theme "Enabling the Region," the ceremony also featured messages from government ministers, past and present APO country directors, NPO heads, liaison officers, and Secretariat staff members.

The celebration continued with the conferment of the APO Regional and National Awards. In conjunction with the anniversary, the awards, which were introduced in 1978, were modified to enhance their standing and expand recognition within and outside the APO membership. A new Meritorious and Distinguished Award category was added, which is open to recipients from nonmembers. Six individuals with various backgrounds received APO Regional Awards, while four received the inaugural Meritorious and Distinguished Awards. In recognition of their contributions to promoting productivity in their countries, 10 individuals received the APO National Award in 2021. Special Productivity Talk sessions were arranged for the recipients to share their knowledge and expertise.

In conjunction with the 63rd Session of the Governing Body (GBM), a hybrid international conference was held in Tokyo. The event was supported by the Government of Japan and co-organized by the JPC. "The Centrality of Productivity" was selected as the theme, and speakers from members and nonmembers gave presentations focusing on the "Quality of the Workforce" and "Smart Transformation." 2008 Nobel Prize Winner in Economic Sciences Professor Paul Krugman delivered the keynote speech. The event was broadcast live through a Zoom webinar and on the APO YouTube channel.

The special publication *Reason for Growth: 60 Years of Asian Productivity* was released to document the past six decades of the APO's efforts to assist members in achieving socioeconomic development through productivity enhancement.






Bottom • Chairman Yuzaburo Mogi, Japan Productivity Center (L) and Secretary-General Dr. AKP Mochtan (R) at the International Conference on the Centrality of Productivity.

New Vision, New Hope



2021 marked the beginning of the five-year APO Program Plan under the new Vision 2025. Projects for the 2021–22 biennium were therefore refined to align with the new vision and its three goals of:

- 1  Sustained productivity growth,
- 2  Robust innovation systems, and
- 3  Inclusive engagement and shared prosperity.

Multicountry programs were divided into the four focus areas of the **Centrality of Productivity**, **Innovation for Productivity**, **Inclusive Productivity**, and **Regional Catalyst**. Meanwhile, the In-country Program focused on **Strengthening of NPOs and Policy Advisory**. All continued to be supported by institutional activities including IT services, information dissemination, public relations, and international cooperation.



Centrality of Productivity



Innovation for Productivity



Inclusive Productivity



Regional Catalyst



Strengthening of NPOs and Policy Advisory

Centrality of Productivity



Top & Middle • 5th International Conference on Biofertilizers and Biopesticides: Marketing and Commercialization

Bottom • Training of Assessors for the Green Productivity Specialists Certification Program

The Centrality of Productivity focus area emphasizes the need for productivity to take center stage in national development planning agendas.

This means that productivity is institutionalized at the national level and an integral element of the overall work ethos and culture. Under this focus area, projects are divided into three initiatives: Smart Transformation; Quality of the Workforce; and Green Productivity (GP).

Smart Transformation

Smart transformation projects aim at enabling organizations in manufacturing, services, the public sector, and agriculture to transform their business models through the introduction of innovative inputs that may include technology, insights, tools, techniques, and modalities.

Four conferences, three observational study missions, nine workshops, and three training programs were implemented in 2021 under these initiatives.

Quality of the Workforce

This initiative focused on improving various aspects of workforce quality over time, ensuring that employees have the appropriate education, skills, knowledge, and competencies in the rapidly evolving, intensely competitive digital economy.

In 2021, eight training courses, two workshops, and one research project on reskilling workers to enhance labor productivity were conducted.

Green Productivity

GP projects intensify applications of the GP Framework and develop or disseminate new GP tools, techniques, and methods. The focus was expanded to other environment-related issues such as climate change, the circular economy, and environmental, social, and governance aspects.

In 2021, two conferences, five workshops, and two training courses were implemented under the GP focus area.

Innovation for Productivity

The second focus area is enabling innovation as the key driver of productivity.

It underlines the point that productivity growth can be led or spurred by innovation only if a robust supporting ecosystem is in place. There are two initiatives under this focus area, Robust Ecosystems and Regulatory Frameworks and Innovation for Capability.

Robust Ecosystems and Regulatory Frameworks

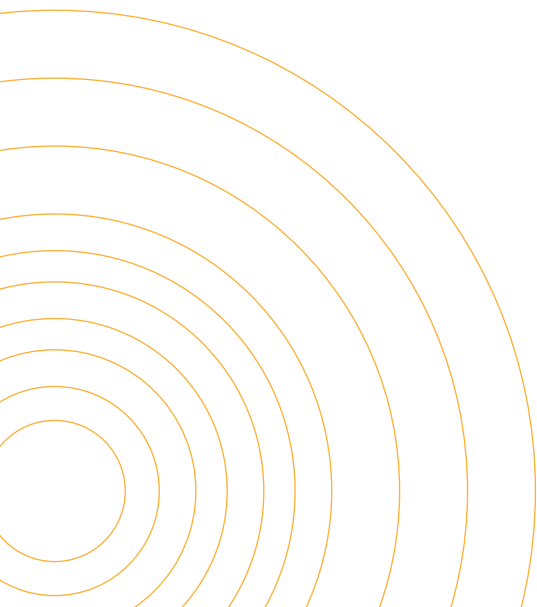
Under this initiative, projects were developed to improve the regulatory environment to boost business dynamism and stimulate innovation. Another aim is to minimize bureaucracy and eliminate unnecessary, burdensome rules and regulations.

In 2021, two training courses, three conferences, four workshops, and one conference were organized.

Innovation for Capability

Facilitating or enhancing the innovation capability of members and organizations through promotion of an innovation culture, generation of ideas, R&D, and adoption of international standards on innovation is the focus of the Innovation for Capability initiative.

In 2021, the APO conducted five workshops and two conferences under this category.



Inclusive Productivity

Under this focus area, project content is designed to involve all economic sectors and segments of society in national productivity drives.

Projects are categorized into three initiatives: SME Development; Broad-based Engagement; and Productivity Gainsharing.

SME Development

SMEs continued to be a priority of the APO in 2021. Under the SME Development initiative, the main objective was to enhance the capability of SMEs and reduce the size of the informal sector in member economies. Hence, projects were designed to enhance the capability of SMEs as well as informal-sector enterprises by introducing new productivity tools and techniques, benchmarking against best practices in the region and beyond, and creating networks to strengthen collaboration.

In 2021, four workshops and two observational study missions were held.

Broad-based Engagement

The Broad-based Engagement initiative is intended to encourage widespread participation in and commitment to the productivity movement. Involving women, youth, and persons with different abilities equips them with new productivity skills and knowledge and increases their participation in labor markets.

Six workshops, two training courses, one conference, and one observational study mission on relevant topics were implemented in 2021.

Productivity Gainsharing

Projects focusing on the concepts and practices of the equitable distribution and sharing of productivity gains at organizational level are developed. This initiative guides companies in measuring their productivity performance and linking it to gainsharing with all employees.

In 2021, a workshop to address productivity gainsharing in agribusiness was conducted.

Regional Catalyst

The fourth focus area is the APO's role as a regional catalyst as the leading organization on productivity.



This initiative also ensures that member economies benefit from APO research on emerging trends, including political, economic, environmental, social, and technological developments; leverage technology as a new mode of learning; develop standards for productivity specialists; and have access to a reference center on productivity-related topics. Under this focus area, projects are divided into four initiatives: Certification and Accreditation; Digital Learning; Research; and Centers of Excellence (COE).

Certification and Accreditation

Launched in 2018, the Certification and Accreditation Program aims to elevate the role of NPOs from training providers to certification bodies (CBs) on productivity-related certification schemes. In 2021, two NPOs became accredited CBs of Productivity Specialists, while five more were in the development stage. In addition, two training courses and a workshop were conducted to enhance knowledge of the requirements of NPOs to operate as CBs.

Digital Learning

The APO continues to offer digital-learning programs open to individuals from members and nonmembers. In 2021, improvements were introduced including a revamped website, video presentations by resource persons, and greater consistency in developing e-course modules. Eight new courses were initiated, five related to the industry and service sectors and three on agriculture. Meanwhile, 45 existing courses were retained. Detailed information on the courses, number of registered participants, and number who passed the exams are available in Appendix 2.

The APO Productivity Talks that started in 2020 continued to be broadcast on the YouTube channel in 2021, with the addition of the P-Innovator series to promote new productivity-related tools, research, products, and services. Fifty-eight sessions were organized, featuring 70 speakers/resource persons from around the world. The sessions had an average of 3,000+ views per month, and more than 3,100 new YouTube subscribers had registered by the end of 2021.

Research and Program Development

The third initiative under the APO's role as a regional catalyst is Research and Program Development. Under this initiative, projects involve scanning and identifying emerging ideas and trends related to productivity in various sectors, analyzing the needs and requirements of members, and providing the basis for new program development. In 2021, 17 research projects were undertaken, covering labor market policies, the circular economy, digital disruption, smart transformation in agriculture, impact of COVID-19 on SMES, aging populations, and future human resources.

COE

The COE Program was introduced in 2009 with the establishment of the COE on Business Excellence hosted by the Singapore Productivity Centre. The implementation guidelines were revised in 2021. Under the new guidelines, the "1-3-1" development model was introduced whereby newly designated COE will have one year of designation, three years of delivery, and one year to disseminate knowledge to other members. COE that have completed this cycle are given the option either to renew for another two years or decide to end the program. The Secretariat is reviewing proposals submitted by members as well as proactively exploring candidate organizations.

Support for existing COE continued in 2021 despite the pandemic. The COE on IT hosted by the NPC India and COE on GP and Smart Manufacturing hosted by the CPC conducted various capacity-building and best practice-sharing programs utilizing virtual platforms.

Strengthening NPOs and Policy Advisory



Top • Training in Applications of Mini-grid Solar PV Systems in Indonesia

Middle & Bottom • Applications of Green Productivity Tools and Techniques in the Printing Industry in Sri Lanka

Under the Individual-country Program, the APO continues to play its key role as an institution builder by strengthening the ability of NPOs and other institutions to promote productivity, provide training, and offer capacity-building services to the public and private sectors.

It also 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.

The entire Individual-country Program is now grouped under Strengthening of NPOs and Policy Advisory, including Technical Expert Services (TES), Bilateral Cooperation between NPOs (BCN), Individual-country Observational Study Missions (IOSMs), Specific National Program (SNP), Certification Body Development (CBD), and Demonstration Companies (DMP).

Despite the challenges due to travel restrictions that affected IOSM and BCN projects, the APO continued organizing them using virtual platforms. Three virtual IOSMs and one BCN project were conducted in 2021. In addition, resource persons assigned under TES provided expertise online through 29 projects mainly focused on productivity enhancement tools and techniques.

Under the SNP, the development of national productivity roadmaps and institutional capacity-building projects for NPOs were held in I.R. Iran, Lao PDR, and Pakistan.

Projects to upgrade the capability of NPOs as CBs continued in the NPO Indonesia, NPC India, Mongolia Productivity Center, and NPO Pakistan, while the NPO of I.R. Iran and Turkish Management Sciences Institute (TUSSIDE), an affiliate of the NPO Turkey, started their journeys in 2021.

Institutional Program

Information and Public Relations

The Information and Public Relations (IPR) Program plays an important role in increasing the visibility of the APO as the leading regional organization promoting productivity. It maintains and strengthens networks with member economies and serves as a clearinghouse for productivity information. The IPR Program also provides regular updates on strategies, programs, and projects developed for the benefit of APO members.

With the ongoing pandemic in 2021, the APO continued to utilize its website and social network services (SNS) to promote its activities. SNS platforms such as Facebook, Twitter, and YouTube provided opportunities to widen the APO's outreach. Publications to disseminate productivity-related information to policymakers, practitioners, NPOs, and other stakeholders were also produced.

Website and SNS

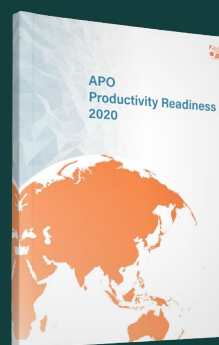
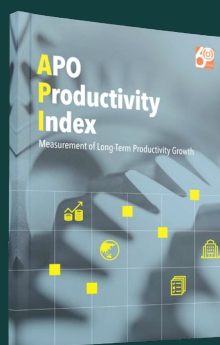
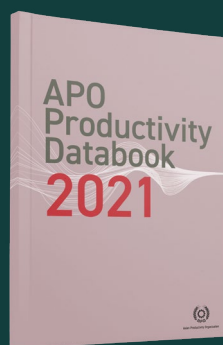
In 2021, the IPR Program promoted APO publications, self-learning courses, multicountry and in-country projects, and the Productivity Talk series. The views on the APO YouTube channel increased from 78,000 in 2020 to 138,000. More than 5,200 website publication downloads were recorded.

Publications

During 2021, the Secretariat published the following 20 books and reports.

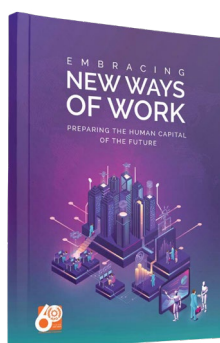
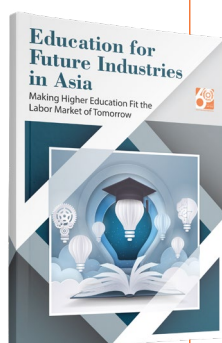
Books

- ✓ *APO Productivity Databook 2021*
- ✓ *APO Productivity Index*
- ✓ *APO Productivity Readiness 2020*
- ✓ *Productivity, Innovation, and Competitiveness: Diagnostic for APO Member Countries*



Research and Resource Papers

- ✓ *Education for Future Industries in Asia*
- ✓ *Digital Innovation Process Guide—Handbook for Manufacturing SMEs*
- ✓ *Embracing New Ways of Work*
- ✓ *Digitalization of Public Service Delivery in Asia*
- ✓ *APO Productivity Data: Quick Facts 2020*
- ✓ *Productivity Analysis Series (4 issues)*
- ✓ *Productivity Insights Series (7 issues)*



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 released a publication to highlight the role that productivity has played in the Asia-Pacific since its inception in 1961. *Reason for Growth: 60 Years of Asian Productivity* presents an overview of the APO's evolution and progress since its founding, showcasing key events in the organization's history.

APO Honorary Fellows

Since 1978, the title of APO Honorary Fellow has been conferred by the Governing Body on former APO Directors, Alternate Directors, NPO Heads, Secretaries-General, or Liaison Officers in recognition of their outstanding contributions to the organization. Based on guidelines set by the APO Governing Body at its 19th Session held in 1977, six individuals were conferred the title of APO Honorary Fellow in 2021:

MS. FATEMEH PAHLEVANI

Former APO Director and NPO Head for I.R. Iran

DR. KYOO-SUNG NOH

Former APO Director and NPO Head for the ROK

MS. ANJANA TAMRAKAR

Former NPO Head for Nepal

MS. CHEW MOK LEE

Former APO Director for Singapore

MR. TRAN VAN VINH

Former APO Director for Vietnam

MR. PHAN THANH SON

Former APO Liaison Officer for Vietnam

APO 2021 Regional/National Awards

During its 61st and 62nd sessions held in 2019 and 2020, respectively, the Governing Body decided to defer the conferment of the APO Awards in 2020 to coincide with the APO 60th anniversary in 2021. The Governing Body also expanded the scope of the Screening Committee to actively identify eligible individuals who may meet the conditions of the awards in addition to receiving nominations from member countries.

The Screening Committee proposed that revisions be made to the current arrangements for the APO Awards by revising the existing categories and adding a new one, increasing the number of awardees, and adjusting the frequency of the awards, which were approved by the Governing Body as follows.

New Category: Meritorious and Distinguished Award

Individuals who through their work, inspiring ideas, and/or influence have made exemplary contributions enabling focused priority attention on productivity improvement leading to the centrality of productivity in national and/or regional socioeconomic development endeavors are eligible for nomination.

Changes in the Number of Awardees and Frequency of Awards

Regional Awards: A total of six awardees every three years.

National Awards: Two awardees/member country every year.

Meritorious and Distinguished Award: Open number and nationality every three years.

The following four individuals received the APO Award for 2021, which was presented by the NPOs in their countries (listed in national alphabetical order):



APO REGIONAL AWARD 2021

CATEGORY: POLICY, STRATEGIC THINKING, LEADERSHIP, AND MANAGEMENT

MR. SHENG-HSIUNG HSU

Chairman, China Productivity Center, ROC

MR. JONE USAMATE

Minister of Infrastructure and Meteorological Services and
Minister for Lands and Mineral Resources, Fiji

PROF. CHAM TAO SOON

Chairman, Singapore Quality Award Governing Council, Singapore



CATEGORY: METHODOLOGY, TOOLS, AND TECHNIQUES

SHRI RUPINDER SINGH SODHI

Managing Director, Gujarat Cooperative Milk Marketing Federation Limited (AMUL), India

PROF. RYOICHI YAMAMOTO

Emeritus Professor, University of Tokyo, Japan

DR. KAMRAN MOOSA

Chief Executive Officer, Pakistan Institute of Quality (PIQC), and Principal Consultant, Trainer, Academician, and Researcher, Pakistan



APO MERITORIOUS AND DISTINGUISHED AWARD 2021

CATEGORY: POLICY, STRATEGIC THINKING, LEADERSHIP, AND MANAGEMENT

PROF. BOMER PASARIBU

Professor, University of Krisnadwipayana, Indonesia

TAN SRI DR. REBECCA FATIMA STA MARIA

Executive Director, Asia-Pacific Economic Cooperation Secretariat, Malaysia

MR. FORTUNATO T. DELA PEÑA

Secretary, Department of Science and Technology, Philippines

CATEGORY: METHODOLOGY, TOOLS, AND TECHNIQUES

DR. SANTHI KANOKTANAPORN

Chairman of the Board, Scenario Thailand Foundation, Thailand



APO NATIONAL AWARD 2021

CATEGORY: POLICY, STRATEGIC THINKING, LEADERSHIP, AND MANAGEMENT

MR. YEA BUNNA

Under Secretary of State, Ministry of Industry, Science, Technology, and Innovation, Cambodia

MR. JANG-HWA LEU

Director General, Industrial Development Bureau, Ministry of Economic Affairs, ROC

MR. HARIYADI BUDI SANTOSO SUKAMDANI

Chairman, Indonesia Employers' Association (APINDO), Indonesia

MR. MOHAMMAD MOKAVVEN

Former Director, International Affairs Department, NPO of I.R. Iran and APO Liaison Officer, I.R. Iran

MR. SOMDY INMYXAI

Former APO Director and NPO Head for Lao PDR, Lao PDR

DATO' MOHD. RAZALI HUSSAIN

Former Director General, MPC, Malaysia

MR. BYAMBASUREN URGAMAL

Deputy Chief, Cabinet Secretariat of the Government of Mongolia, Mongolia

MS. PACITA U. JUAN

President, GREAT Women, President and Co-founder, ECHOstore, President and Co-chair, Philippine Coffee Board, Board Member, Women's Business Council Philippines, Regional Head, International Women's Coffee Alliance Southeast Asia, Philippines

CATEGORY: METHODOLOGY, TOOLS, AND TECHNIQUES

PROF. KUMANDURI RANGA CHARI

Dean, Student's Welfare and Professor (Operations Management), Birla Institute of Management and Technology (BIMTECH), India

DR. APICHART PONGSRIHADULCHAI

President, Thai Organic Agriculture Foundation, President, Dr. Somnuk Sriplung Foundation, Secretary-General, Agricultural Economics Society of Thailand under Royal Patronage, Thailand

Information Technology

The adoption of a Secretariat-wide enterprise resource planning (ERP) system was initiated in 2017 with the objective of migrating all key administrative and operational functions to a single database-driven process environment. During 2021, the Secretariat continued maintaining and adjusting the system, while it started exploring solutions to enhance the digitization process during the 2021–25 period with the approval of the Governing Body of the Strategic Digital Capability Plan 2021–25.

The focus of the plan is to integrate five of the Secretariat's functions that are digitally based but currently operating on separate systems and platforms:

-  **Program delivery**
-  **e-Learning**
-  **Information dissemination and public relations**
-  **Videorecording and production**
-  **Organizational activities**

The integration is designed to give new strength and value to Secretariat services, simplify maintenance and reduce maintenance costs, and allow the Secretariat and NPOs to be connected more seamlessly. The project is ongoing, and the new ERP system is scheduled to launch in 2022.



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International Cooperation




The continuing COVID-19 pandemic presents global challenges. Through the use of digital platforms, collaborations with new and existing partners were able to proceed and even expanded the APO's reach in 2021. Proactive efforts were made to develop strategic partnerships with other international organizations and create synergy in areas of common interest. Efforts to explore opportunities to strengthen cooperation and collaboration with new partners and governments contributed to socioeconomic development through the productivity movement.

In 2021, a joint research project with ASEAN produced a Labor Productivity Index. The partnership with the Asia Marketing Federation (AMF) continued for the second year by organizing the World Marketing Forum 2021. The APO also continued its collaboration with the Asia Development Bank Institute (ADBI) in conducting a joint study on the impact of COVID-19 on selected APO members. The involvement of the APO in the Africa Kaizen Award also continued with the appointment of the Secretary-General as a member of the Examination Committee to evaluate candidate companies. To step up efforts to support evidence-based policymaking by member countries, the APO in collaboration with the Korea Development Institute conducted an annual sectoral productivity outlook study. The inaugural *APO Productivity Outlook 2021* edition focused on the manufacturing sector.

Cooperation with the OECD expanded with the inclusion of the APO as member of the Global Forum on Productivity (GFP). With this initiative, APO member countries 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.

Through the use of digital platforms, collaborations with new and existing partners were able to proceed and even expanded the APO's reach in 2021.



The Special Account for
Business Recovery and
Resilience that started in
2020 to assist member
countries in dealing with
the COVID-19 pandemic
continued in 2021.

Special Account for Business Recovery and Resilience

The Special Account for Business Recovery and Resilience that started in 2020 to assist member countries in dealing with the COVID-19 pandemic continued in 2021. Considering that most member countries faced huge challenges due to the ongoing pandemic, the 63rd Governing Body agreed to approve the extension of the project completion timeline from 1 December 2021 to 1 July 2022.

Strengthening Digital Capability

USD20,000

per NPO allocated to strengthen digital capabilities to continue operations during the pandemic

19 NPOs

had utilized as of 31 December 2021

The special fund is provided for NPOs to strengthen their digital capability in order to continue operations during the pandemic. The fund allocated a total of USD20,000 for each NPO to procure essential equipment such as cameras, laptops, and projectors to conduct virtual meetings, workshops, conferences, or training courses. As of 31 December 2021, a total of 19 NPOs had utilized the fund. This fund is available up to 1 July 2022.

Assistance to SMEs and Critical Sectors

USD1,800,000

available for all member countries to support capacity building and equipment purchase

15 member countries

had implemented this project as of 31 December 2021

Activities under the special account support members in providing financial support to SMEs and critical sectors badly hit by the pandemic. A total of USD1,800,000 is available for all member countries, of which USD50,000 is for assistance to SMEs and USD40,000 for assistance to critical sectors. The fund can be used to support capacity building and the purchase of equipment. NPOs may combine the two funds and focus on one area of assistance for greater impact if deemed appropriate.

A total of 15 member countries had implemented this project for assistance to SMEs and three had completed their activities as of 31 December 2021. A total of 2,617 participants and 74 resource persons were involved in the completed projects in the ROC, Fiji, and the ROK. The assistance to critical sectors targets improving the efficiency and productivity of hospitals and medical-related institutions in member countries. As of 31 December 2021, five countries had benefited from this special program, and two countries had completed their projects. Around 100 individual and institutional beneficiaries and 30 resource persons were involved in the completed projects.

Enhanced In-country Services

USD800,000

available for all member countries to support in-country activities in response to the pandemic or key activities in promoting productivity enhancement

5 member countries

had implemented projects as of 31 December 2021

The Enhanced In-country Services initiative under the Special Account for Business Recovery and Resilience aims to complement the second fund to support SMEs and critical sectors. To ensure that it benefits all members, NPOs are given flexibility to use the fund in supporting any other in-country activities in response to the pandemic or key activities by NPOs in promoting productivity enhancement. A total of USD800,000 is available for member countries under this initiative. As of 31 December 2021, the ROC, Fiji, the ROK, Sri Lanka, and Vietnam had implemented projects. Member countries are expected to complete projects under this initiative by July 2022.



Evaluation of 2020 Projects



In 2021, the APO evaluated projects implemented from 1 January to 31 December 2020. Due to the COVID-19 pandemic during which travel restrictions were imposed by all member countries, the APO conducted only one face-to-face multicountry project in 2020 and changed all others to the virtual mode.

The change to the virtual modality also required changes in project duration, timing, and content. Training courses, workshops, and observational study missions were shortened from five days to three and conducted for three hours per day. Conferences were reduced to one day from the usual three. This evaluation covered multicountry projects, self-learning e-courses, and individual-country projects.

Multicountry projects

Twenty-nine multicountry projects were implemented, comprising 11 training courses, 13 workshops, and five conferences. A total of 772 participants attended these projects. Feedback from participants, resource persons, and implementing organizations was obtained through questionnaires. Evaluation questionnaires focused on the criteria of relevance, effectiveness, and efficiency in project implementation. The feedback from participants indicated that one-third of APO projects were highly relevant, highly effective, and highly efficient. Analysis showed that the most notable positive responses were on the usefulness of project topics and good organization (97.6% highly useful and 94.2% very well organized, respectively). The majority of participants agreed that the presentations were very informative, and the knowledge gained would improve their performance (98.6% and 96.6%, respectively). Participants also agreed that the group exercises during the online programs were effective and helped to expand their productivity networks (80.0% and 88.0%, respectively). However, only 46.7% of participants agreed that the virtual site visits were useful, indicating room for improvement.

The feedback from participants and resource persons indicated that the APO executed relatively well in conducting digital multicountry projects in swift response to the COVID-19 pandemic. The virtual site visits were very adaptable, flexible, resilient ways of learning for participants, which would be relevant in the future. APO projects were relevant, effective, and efficient, with no

project rated low in these three criteria. The aspects participants appreciated the most about APO digital multicountry projects were the usefulness of the subjects and good organization. Knowledgeable resource persons with hands-on experience, technical knowledge, and very good quality of presentations contributed to the usefulness and relevance of multicountry projects. The good program content was also listed among the most common high points by participants. The resource persons and implementing organizations in general appreciated participants being enthusiastic and interactive and the diverse mixture of participants.

For these digital multicountry programs, the most typical low points noted by participants, resource persons, and implementing organizations were short project duration and timing. However, since the digital multicountry projects were the first conducted by the APO due to the ongoing pandemic, many factors need to be improved, including project design, knowledge-sharing sessions through country papers, and virtual site visits. Resource persons suggested that due to language difficulties in English, some participants could not interact during the breakout sessions, which could be improved during the selection of participants. Objectives of projects could be more specific for easier understanding by participants considering the digital format. More lead time for preparation and determining the level of participants, more coordination among experts' materials, and following up action plans prepared by participants were among other suggestions for improvement to be taken up in the next year. Participants and implementing organizations suggested that follow-up programs should be continued either in the digital mode or face to face for more effective learning.

Self-learning e-courses

Self-learning e-courses are offered through the online eAPO platform on topics related to productivity tools and techniques. The platform allows learners to study at their own pace and time. Data on the number of courses conducted, number of participants registered, and number of participants who passed the final exam were collected. In 2020, six new self-learning e-courses were offered. The duration of courses running from pre-2017 was also extended. This is part of the strategy to strengthen the online eAPO platform.

772 participants

attended multicountry projects, comprising 11 training courses, 13 workshops, and five conferences

6 new e-courses

offered in 2020 for self-learning, and duration of courses running from pre-2017 extended

5,500 beneficiaries

of in-country projects implemented under BCN, CBDP, IOSMs, DMP, SNP and TES

The total number of courses open in 2020 reached 43. The number of participants who completed the courses, defined as those taking the final exam as a percentage of those registered, decreased sharply. It can be assumed that the interest of participants in the courses was higher and it is considered to be a high point of self-learning e-courses. Despite the fact that more participants registered compared with previous years, fewer completed and passed the final exams. This indicates that many aspects of the courses need to be improved. Although NPOs have assisted in promoting the courses, more efforts may be required. The course format could be reviewed, and more interactive, animated, video-based lectures could be added for improving the format. Offering new content covering the most needed topics could also be considered for participants to complete the courses successfully.

Individual-country projects

Due to pandemic-related travel restrictions imposed by all member countries, the APO conducted two face-to-face in-country projects in 2020 and modified others to the virtual mode. In 2020, there were 54 in-country projects implemented under Bilateral Cooperation between NPOs (BCN), Certification Body Development Program (CBDP), Individual-country Observational Study Missions (IOSMs), Demonstration Company Projects (DMP), Specific National Program (SNP), and Technical Expert Services (TES). There were approximately 5,500 beneficiaries of these projects.

The feedback from NPOs and participants showed that the BCN Program continued to be a major initiative that will forge long-term relationships and collaborations among NPOs in advancing knowledge sharing and benchmarking in critical areas that enhance the productivity and competitiveness of specific sectors. However, there are a few areas that can be improved when implementing the BCN Program. These include: an effective way to conduct BCN missions in the virtual format; a clear purpose of visits so that hosting NPOs can make proper arrangements with local organizations; allowing adequate lead time for the preparations of hosting NPOs; and timely submission of reports including follow-up actions based on the learning from the missions to determine the outcome of the projects.

All DMP projects were implemented in the virtual mode and many were delayed due to the impact of the COVID-19 pandemic since they still require onsite review/assessment and handling of machinery/equipment in the field. IOSM projects were conducted in the virtual modality due to the pandemic, with an average duration of about two days. To strengthen the IOSM Program for enhancing mutual partnerships among member countries, all NPOs were encouraged to host two or three missions in 2021 depending on their strengths in relevant subject areas.

SNP projects in 2020 had relatively high levels of engagement including NPOs, high-level officials, strategic public and private institutions, and policymakers, which resulted in comprehensive recommendations and policy guidance. Possible areas for improvement were levels of accuracy of data/information provided by stakeholders for the country diagnostics/analyses, ownership of implementation plans to ensure the intended impact, and postproject evaluation.

TES is an in-country project scheme to meet specific needs for national productivity improvement. A total of 49 TES requests were received in 2020, and 40, or nearly 81%, were approved. The evaluation of TES experts was carried out through an online questionnaire to participants. Based on the responses received, six questions related to the measurement of effectiveness and relevance of the projects received high ratings by 73% of respondents. Around 81% of participants stated that the project topics were timely, while 18% indicated the opposite. Since the implementation of TES in 2020 was fully conducted in the digital modality due to travel restrictions related to the global pandemic, the questionnaire also included the delivery of the digital sessions. Digital implementation of TES projects made it possible for quicker preparation compared with the face-to-face modality, resulting in more projects, more participants, and more experts assigned. Despite some advantages of the digital modality, its effectiveness still needs to be investigated.



FINANCIAL STATEMENT



Independent Auditor's Report

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 2021, 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 2021;
- the statement of revenues or expenses and other comprehensive income for the year then ended;
- the statement of changes in surplus for the year then ended;
- the statement of cash flows for the year then ended; and
- the notes to the financial statements, which include a summary of significant accounting policies.

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



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.

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

PricewaterhouseCoopers Sarata LLC

31 March 2022

ASIAN PRODUCTIVITY ORGANIZATION
STATEMENTS OF FINANCIAL POSITION
31 DECEMBER 2021 AND 31 DECEMBER 2020

	(US dollars)	
	2021	2020
<u>ASSETS</u>		
Cash and cash equivalents (Note 3)	\$27,980,529	\$27,716,985
Receivables (Note 4):		
Member countries	892,909	4,935,159
Others	98,899	668,314
Prepaid expenses	57,821	64,820
Deposits and other advance payments	1,118,262	109,816
Total current assets	<u>30,148,420</u>	<u>33,495,093</u>
Fund for severance payments (Note 11)	183,368	201,706
Property, plant and equipment (Note 5):		
Leasehold Improvement	527,181	527,181
Furniture & Fixture	169,326	169,326
Equipment	340,318	320,617
Automobile	72,935	72,935
Right of use assets (Note 13)	613,724	613,724
Accumulated depreciation	(761,099)	(782,324)
Construction in progress (Note 5)	0	0
Intangible assets (Note 5)	328,812	393,795
Total noncurrent assets	<u>1,474,565</u>	<u>1,516,960</u>
Total assets	<u><u>\$31,622,985</u></u>	<u><u>\$35,012,053</u></u>
<u>LIABILITIES AND SURPLUS</u>		
Accounts payable	\$2,903,971	\$2,099,796
Withholding tax and social insurance	5,173	29,459
Lease liabilities - current (Note 13)	291,848	128,256
Other current liabilities (Note 8)	6,284,600	9,556,373
Total current liabilities	<u>9,485,592</u>	<u>11,813,885</u>
Accrued annual leave (Note 6)	724,708	779,895
Liability for severance payments (Note 12)	2,213,254	2,555,824
Lease liabilities - noncurrent (Note 13)	58,992	62,391
Other noncurrent liabilities	119,591	119,591
Total noncurrent liabilities	<u>3,116,544</u>	<u>3,517,700</u>
Total liabilities	<u>12,602,136</u>	<u>15,331,585</u>
Surplus:		
Appropriated for		
Working capital fund (Note 15)	7,000,000	7,000,000
Contingency fund (Note 2)	500,000	500,000
Continuing projects	5,286,778	5,670,344
Unappropriated surplus (Note 15)	6,286,109	6,659,614
Accumulated other comprehensive income (Note 12)	(52,038)	(149,490)
Total surplus	<u>19,020,849</u>	<u>19,680,469</u>
Total liabilities and surplus	<u><u>\$31,622,985</u></u>	<u><u>\$35,012,053</u></u>

The accompanying notes are integral part of these statements.

ASIAN PRODUCTIVITY ORGANIZATION
STATEMENTS OF REVENUES OR EXPENSES AND OTHER COMPREHENSIVE INCOME
YEARS ENDED 31 DECEMBER 2021 AND 2020

(US dollars)

	2021	2020
Revenues:		
Membership contributions (Note 7)	\$11,986,035	\$11,986,035
Special cash grants (Note 8)	2,739,841	545,080
Mandatory contribution for rent (Note 9)	249,218	257,368
Participation by member countries	710	5,150
Miscellaneous Revenue	38,028	80,463
Total revenues	<u>15,013,832</u>	<u>12,874,095</u>
Expenses:		
Projects		
Current year's project costs:		
APO share Current	1,838,936	1,958,530
Subtotal	<u>1,838,936</u>	<u>1,958,530</u>
Prior years' continuing project costs:		
APO share Continue	4,734,105	2,150,745
Subtotal	<u>4,734,105</u>	<u>2,150,745</u>
Allocation to project costs from		
Administration expenses (Note 10)	3,478,199	3,184,947
Total	<u>10,051,240</u>	<u>7,294,223</u>
Administration		
Staff expenses (Note 6, 12)	5,504,730	5,890,876
Office maintenance	26,898	127,055
Depreciation expenses (Note 5, 13)	334,855	334,678
Operations	120,818	92,624
Miscellaneous	218,623	250,851
Allocation to project costs (Note 10)	<u>(3,478,199)</u>	<u>(3,463,055)</u>
Total	<u>2,727,724</u>	<u>3,233,029</u>
Exchange (gain)/loss	797,599	(422,890)
Insurance recovery gain (Note 17)		(394,939)
Increase (decrease) in loss allowance (Note 4)	2,215,667	1,092,691
Total	<u>3,013,266</u>	<u>274,861</u>
Total expenses	<u>15,792,230</u>	<u>10,802,113</u>
Net adjustment (gain)/loss for closed projects (Note 14)	(21,327)	(3,915)
Excess of revenues over expenses (expenses over revenues)	<u>(757,071)</u>	<u>2,075,897</u>
Other comprehensive income (loss):		
Pension liability adjustments (Note 12)	97,452	(71,349)
Total other comprehensive income (loss)	<u>97,452</u>	<u>(71,349)</u>
Total comprehensive income (loss)	<u>(\$659,619)</u>	<u>\$2,004,548</u>

The accompanying notes are integral part of these statements.

ASIAN PRODUCTIVITY ORGANIZATION
STATEMENTS OF CHANGES IN SURPLUS
YEARS ENDED 31 DECEMBER 2021 AND 2020

(US dollars)

	<u>Appropriated for</u>				
	<u>Working capital fund</u>	<u>Contingency fund</u>	<u>Continuing projects</u>	<u>Unappropriated</u>	<u>Accumulated other comprehensive income</u>
					<u>Total</u>
<u>2020</u>					
Excess of revenues over expenses	-	-	-	2,075,897	-
Transfer to continuing projects		-	2,336,368	(2,336,368)	-
Transfer to working capital fund (Note 15)	1,000,000			(1,000,000)	-
Pension liability adjustment (Note 12)	-	-	-	-	(71,349)
Surplus at end of year	<u>\$7,000,000</u>	<u>\$500,000</u>	<u>\$5,670,344</u>	<u>\$6,659,614</u>	<u>(\$149,490)</u>
<u>2021</u>					
Excess of revenues over expenses	-	-	-	(757,071)	-
Transfer to continuing projects		-	(383,566)	383,566	-
Pension liability adjustment (Note 12)	-	-	-	-	97,452
Surplus at end of year	<u>\$7,000,000</u>	<u>\$500,000</u>	<u>\$5,286,778</u>	<u>\$6,286,109</u>	<u>(\$52,038)</u>

The accompanying notes are integral part of these statements.

ASIAN PRODUCTIVITY ORGANIZATION
STATEMENTS OF CASH FLOWS
YEARS ENDED 31 DECEMBER 2021 AND 2020

(US dollars)

	<u>2021</u>	<u>2020</u>
Cash Flows from Operating Activities:		
Excess of revenues over expenses (expenses over revenues)	(\$757,071)	\$2,075,897
Adjustments:		
Depreciation and amortization	602,034	543,372
Loss on disposal of fixed assets (Note 5)	0	38,675
Provision for losses on receivables	2,215,667	1,092,691
Interest income	(33,375)	(74,657)
Exchange variance	1,024,144	(591,458)
Decrease (increase) in receivables from member countries	1,829,442	(1,654,123)
Decrease (increase) in receivables - others	566,556	(662,293)
Decrease (increase) in other current assets	(1,001,447)	41,368
Decrease (increase) in funds for severance payments	18,338	74,860
Increase (decrease) in accounts payable	804,174	(404,868)
Increase (decrease) in other liabilities	(3,296,060)	2,386,459
Increase (decrease) in accrued annual leave	(55,187)	136,547
Increase (decrease) in liability for severance payments	(245,118)	20,239
Subtotal	<u>1,672,099</u>	<u>3,022,707</u>
Interest received	33,375	74,657
Net cash flow from operating activities	1,705,473	3,097,364
Cash Flows from Investing Activities:		
Acquisition for PP&E and intangible assets (Note 5)	(89,036)	(800,234)
Net cash flow from investing activities	(89,036)	(800,234)
Cash Flows from Financing Activities:		
Payments for lease liabilities (Note 13)	(311,609)	(292,892)
Net cash flow from financing activities	(311,609)	(292,892)
Effect of exchange rate changes on cash and cash equivalents	(1,041,284)	595,370
Net increase (decrease) in cash and cash equivalents	<u>263,544</u>	<u>2,599,607</u>
Cash and cash equivalents at beginning of year	<u>27,716,985</u>	<u>25,117,378</u>
Cash and cash equivalents at end of year (Note 3)	<u>\$ 27,980,529</u>	<u>\$ 27,716,985</u>

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 of the funding include:

- a) Annual membership contributions based on gross national income;
- b) Special cash grants given by member governments and external assistance from cooperating agencies and institutions;
- c) Mandatory contribution for rent given by the host government; and
- d) Miscellaneous income such as proceeds from interest income.

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 2021 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, intangible assets, and right-of-use assets

Property, plant and equipment consist of the leasehold improvements including contra-asset-retirement-obligation, furniture and fixtures, equipment, and automobile. Intangible assets include Software. 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

Right-of-use assets are generally depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

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 2021, the Organization recorded accrued annual leave of 69 days (68 days in 2020) for staff members who had annual leave of more than 60 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 decided 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, 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 year-end 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	2021	2020
Current Deposits	\$16,898,976	\$19,525,723
Time Deposits	11,081,552	8,191,262
Total	<u>\$27,980,529</u>	<u>\$27,716,985</u>

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

Receivables	2021	2020
Membership contributions	\$7,134,907	\$8,964,349
Participating country expenses	7,092	8,582
Others	138,615	663,231
Loss allowance	<u>(6,288,806)</u>	<u>(4,073,140)</u>
	<u>\$991,808</u>	<u>\$5,563,022</u>

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. Loss allowance of \$6,288,806 comprises \$6,248,356 of the receivables overdue for one year and longer including \$6,241,998 for membership contributions and \$6,358 for participating country expenses, and \$40,450 of the unsettled advance payment for the project canceled in 2020.

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 2021	Current	More than 1 year overdue	Total
Expected loss rate	0%	100%	
Gross carrying amount - receivables	<u>\$991,808</u>	<u>\$6,288,806</u>	<u>\$7,280,614</u>
Loss allowance	<u>-</u>	<u>\$6,288,806</u>	<u>\$6,288,806</u>
31 December 2020	Current	More than 1 year overdue	Total
Expected loss rate	0%	100%	
Gross carrying amount - receivables	<u>\$5,563,022</u>	<u>\$4,073,140</u>	<u>\$9,636,162</u>
Loss allowance	<u>-</u>	<u>\$4,073,140</u>	<u>\$4,073,140</u>

The closing loss allowance for the years ended 31 December 2021 and 2020 reconcile to the opening loss allowance as follows:

	2021	2020
Opening loss allowance as of 1 January	\$4,073,140	\$2,980,449
Increase in loss allowance recognized in profit or loss during the year	2,215,667	1,092,691
Unused amount reversed	-	-
Closing loss allowance as of 31 December	\$6,288,806	\$4,073,140

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. 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 2021 were as follows:

	Leasehold Improvement	Furniture & Fixture	Equipment	Automobile	Total	Construction in Progress	Software
Acquisition Cost							
On 1 January 2021	\$527,181	\$169,326	\$320,617	\$72,935	\$1,090,059	\$0	\$646,149
Additions			21,410		21,410		67,626
Disposals			(1,710)		(1,710)		
Transfer							
On 31 December 2021	527,181	169,326	340,317	72,935	1,109,759		713,775
Accumulated depreciation							
On 1 January 2021	167,313	36,442	77,809	72,935	354,500		252,354
Depreciation	50,949	33,865	77,750		162,564		132,608
Disposals			(1,710)		(1,710)		
On 31 December 2021	218,262	70,307	153,849	72,935	515,354		384,962
Net Book value							
On 1 January 2021	359,868	132,883	242,808		735,559		393,795
On 31 December 2021	\$308,919	\$99,018	\$186,468	\$0	\$594,405	\$0	\$328,812

The total depreciation amount of \$295,172 for 2021 was recognized, including \$204,788 as project costs and \$90,384 as administration expenses.

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	Total	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.

6. Accrued annual leave

Movements in accrued annual leave for the years ended 31 December 2021 and 2020 were as follows:

	2021	2020
On 1 January	\$779,895	\$643,348
Additional accrual during the year	163,849	193,145
Payments made during the year	(140,820)	(45,545)
Reclassified to payable	0	(54,021)
Foreign exchange movements	(78,216)	42,968
On 31 December	\$724,708	\$779,895

7. Membership contributions

The apportionment of total membership contributions for 2021/2022 was based on the membership contribution formula based on the six-year average GNI as approved first by the 61th GBM held in April 2019. 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.

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 the 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 2021 and 2020 were as below, which were included in other current liabilities.

	2021	2020
Unrecognized revenue on 1 January	\$8,809,614	\$7,127,001
Grants received during the year	203,638	2,208,661
Revenue recognized during the year	(2,739,841)	(545,080)
Foreign exchange movements	(50,016)	19,032
Unrecognized revenue on 31 December	\$6,223,395	\$8,809,614

9. Mandatory contribution for rent

The 54th GBM held in April 2012 decided that the cost of the annual rent for the APO Secretariat Office from 2013 shall be borne by the host government, as a mandatory contribution of the host government, distinct and separate from its annual membership contribution to the APO. The lease contract for the APO Secretariat Office was renewed for 1 April 2021 to 31 March 2023 at the same annual rent of JPY27,136,260 (equivalent to \$244,470) as in the prior contract and shall be borne by the host government, the Government of Japan.

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 of program directorate.

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 2021 and 2020 were \$2,757 and \$3,973, 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 2021 and 0.37% for the year ended 31 December 2020. 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:

	2021	2020
Current service cost	\$361,333	\$291,787
Interest on obligation	8,706	6,788
Net periodic pension cost	\$370,039	\$298,575

Movements in the present value of the defined benefit obligation in the current period and the amount included in the statements of financial positions arising from the Organization's obligation in respect of its defined benefit plan were as follows:

	2021	2020
Opening defined benefit obligation	\$2,555,824	\$2,464,235
Current service cost	361,333	291,787
Interest cost	8,706	6,788
Remeasurements (actual gain/loss)	(97,452)	71,349
Payments made during the year	(364,180)	(9,992)
Reclassified to payable	-	(437,562)
Foreign currency translation adjustments	(250,977)	169,219
Closing defined benefit obligation	\$2,213,254	\$2,555,824

13. Leases

Movements in the right-of use assets for the year ended 31 December 2021 were as follows:

	Office building	Equipment	Total
Right-of-use assets on 1 January 2021	\$613,724	\$0	\$613,724
Additions	488,942	-	488,942
Lease contract terminations	(488,942)	-	(488,942)
Right-of-use assets on 31 December 2021	\$613,724	\$0	\$613,724
Accumulated depreciation on 1 January 2021	\$427,824	\$0	\$427,824
Depreciation	306,862	-	306,862
Lease contract terminations	(488,942)	-	(488,942)
Accumulated depreciation on 31 December 2021	\$245,744	\$0	\$245,744

The depreciation of \$306,862 includes \$62,391 recorded as project expenses and \$244,471 as administration expenses.

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

	Office building	Equipment	Total
Right-of-use assets on 1 January 2020	\$604,731	\$23,622	\$628,352
Additions	124,783	-	124,783
Lease contract terminations	(115,789)	(23,622)	(139,411)
Right-of-use assets on 31 December 2020	\$613,724	\$0	\$613,724
Accumulated depreciation on 1 January 2020	\$241,248	\$4,973	\$246,221
Depreciation	302,365	4,144	\$306,510
Lease contract terminations	(115,789)	(9,117)	(124,906)
Accumulated depreciation on 31 December 2020	\$427,824	\$0	\$427,824

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.

The lease liabilities as of 31 December 2021 and 2020, by maturity were as follows:

Lease liabilities by maturity	2021	2020
Less than one year	\$291,848	\$128,256
Between one and two years	58,992	62,391
Between two and three years	-	-
Between three and four years	-	-
Between four and five years	-	-
After five years	-	-
Total lease liabilities	\$350,840	\$190,647
Less current portion of lease liabilities	291,848	128,256
Non-current portion of lease liabilities	\$58,992	\$62,391

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

	2021	2020
Expenses on short-term leases	\$0	\$56,003
Expenses on low-value leases	4,970	13,532
Payments of lease liabilities	311,609	292,892

The expenses on short-term leases include the temporary service office rent from 1 January 2020 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 the account of revenues and expenses retroactive year.

	2021	2020
Revenues	\$0	\$0
Expenses	(21,327)	(3,915)
Net adjustment for closed projects	(\$21,327)	(\$3,915)

15. Unappropriated surplus

The 62nd GBM held in June 2020 decided to increase the working capital amount by USD1,000,000 to USD7,000,000. The 63rd GBM held in June 2021 approved \$1,218,772 by using unappropriated surplus to fund the 2022 preliminary budget.

16. Related party transactions

Key management personnel compensations for 2021 and 2020 were as follows:

	2021	2020
Short-term employee benefits	\$211,546	\$217,744
Annual leave	6,445	22,086
Severance payment	-	-
	<u>\$217,991</u>	<u>\$239,830</u>

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 receivable which was received the payment in December 2021.

About the APO

The Asian Productivity Organization (APO) is a regional intergovernmental organization with the mission to enhance productivity in Asia and the Pacific. Established in 1961, the APO contributes to the sustainable socioeconomic development of its members by providing policy advisory, strengthening institutional capability, sharing productivity best practices, and disseminating productivity data and analyses.

The APO currently has 21 members: 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.



Mission

Contribute to the sustainable socioeconomic development of Asia and the Pacific through enhancing productivity.



Vision 2025

Inclusive, innovation-led productivity growth in the Asia-Pacific.



Goals

Sustained productivity growth, robust innovation ecosystems, and inclusive engagement and shared prosperity.

Roles

Think Tank

The APO conducts research on emerging productivity trends and overall socioeconomic development and produces data, analyses, and recommendations to support policymaking of its members.

Catalyst

The APO promotes cooperation among members and with institutions and international organizations in productivity-related activities for greater synergy and wider outreach.

Regional Adviser

The APO supports the economic and development policies of members and assists in the formulation of blueprints and strategic plans for enhanced productivity and competitiveness.

Institution Builder

The APO strengthens the institutional capability of national productivity organizations (NPOs) in providing productivity consultancy services, training, certification, and promotion to the national audience.

Clearinghouse for Productivity Information

The APO disseminates productivity information through social media platforms, publications, digital programs, and educational and promotional material in the forms of videos and public events.

Programs

Digital Learning

The Digital Learning Program caters to the growing need for productivity training and skill development with the flexibility to learn at one's own pace and convenience, from anywhere at any time. The APO's productivity-centered e-courses are open to all, free of charge, and provide certification for those who complete the course requirements.

International Cooperation

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

Multicountry

The Multicountry Program provides practical training, promotes knowledge development, and shares best practices and innovations among diverse groups of productivity stakeholders from all APO members. The activities include training courses, workshops, conferences, and observational study missions covering the industry, service, agriculture, and public sectors.

In-country

The In-country Program offers tailored activities to support NPOs by strengthening their ability in spearheading the productivity movement and disseminating productivity know-how, techniques, and tools across APO members. The program is also extended to institutions and organizations of APO members when requested by NPOs and comprises the following initiatives:

- ✓ Technical Expert Services
- ✓ Bilateral Cooperation between NPOs
- ✓ Observational Study Missions
- ✓ Development of Demonstration Companies
- ✓ Centers of Excellence
- ✓ Specific National Program
- ✓ Certification Body Development
- ✓ National Awards
- ✓ Vision 2025 Outreach



Emphases



Centrality of Productivity

The APO places productivity at center stage, ensuring that higher productivity receives top priority in national development agendas. This means putting productivity in the driver's seat and recognizing it as the core strength propelling a country's growth.



Inclusive Productivity

The APO encourages all sectors of the community to participate in and contribute to productivity improvement efforts, including those with differing abilities. Inclusive productivity ensures that no one is left behind and that the productivity movement is a broad-based effort supported by all.



Innovation-driven Productivity

The APO addresses emerging challenges and opportunities brought about by new-generation digital technologies and the ongoing Industrial Revolution 4.0, tapping them as sources of innovation and new drivers to boost productivity.



Green Productivity

The APO's Green Productivity (GP) Program enhances productivity and simultaneously reduces the negative impacts of economic development on the environment. After three decades of the GP journey, the APO is repositioning GP by upgrading its techniques and methodologies, broadening its scope, and building synergy with global efforts to mitigate the effects of climate change.



Linkages with the SDGs

The APO contributes to meeting the UN SDGs, particularly Goals 2, 8, 9, 12, and 17. Linkages with the SDGs also enable the APO to collaborate with other international organizations in addressing common global concerns.

APO Directors, Alternate Directors, NPO Heads, and Liaison Officers

(As of 31 December 2021)

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APO Director for Bangladesh

APO First Vice Chair

MR. PHORK SOVANRITH

APO Director for Cambodia

APO Second Vice Chair

MR. SHENG-HSIUNG HSU

APO Director for the ROC

BANGLADESH

Director

MS. ZAKIA SULTANA

Secretary, Ministry of Industries

Alternate Director & NPO Head

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Director General (Additional Secretary), National Productivity Organisation, Ministry of Industries

Liaison Officer

MR. MUHAMMAD ARIFUZZAMAN

Senior Research Officer, National Productivity Organisation, Ministry of Industries

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Secretary of State, Ministry of Industry, Science, Technology and Innovation

Alternate Director

MR. YEA BUNNA

Under Secretary of State, Ministry of Industry, Science, Technology and Innovation

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Director, National Productivity Centre of Cambodia, Ministry of Industry, Science, Technology and Innovation

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MR. CHOR SOPHANNA

Chief of Productivity Promotion Office, National Productivity Centre of Cambodia, Ministry of Industry, Science, Technology and Innovation

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MS. HSIU-LAN LIN

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Permanent Secretary for Employment, Productivity and Industrial Relations, Ministry of Employment, Productivity and Industrial Relations

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MS. YUEN YU TANG

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Liaison Officer

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ISLAMIC REPUBLIC OF IRAN

Director

NOT DESIGNATED

Alternate Director

NOT DESIGNATED

NPO Head

NOT DESIGNATED

Liaison Officer

MS. MITRA ALIPOUR

Division Head of International Affairs, Directorate for Head Office, Public Relations and International Affairs, National Productivity Organization of Islamic Republic of Iran

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Chairman, Malaysia Productivity Corporation

Alternate Director & NPO Head

DATO' ABDUL LATIF HAJI ABU SEMANDirector General, Malaysia
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Mongolian Productivity Organization**NEPAL**

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NPO Head

NOT DESIGNATED

Liaison Officer

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National Productivity and Economic
Development Centre**PAKISTAN**

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and Production

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Liaison Officer

MS. SIM SILINGDeputy Director,
Singapore Productivity Centre**SRI LANKA**

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Productivity Institute

Liaison Officer

MS. VU THI THU PHUONGPrincipal Officer, International Cooperation
Department, Directorate for Standards,
Metrology and Quality

APPENDICES

APO 2021 Projects at a Glance



199
projects



12,821
participants attended
APO projects



659
experts assigned
to APO projects



138,000+
views of APO Productivity Talks
open to the public through
the APO YouTube channel

Appendix 1:

List of 2021 Projects

In 2021, the number of projects conducted totaled 199 (136 projects had been completed and 63 were in progress as of 31 December 2021), with 12,821 participants. A total of 659 experts facilitated these projects.

APO Projects in 2021

Type of projects	Project		Resource persons		Participants	
	Completed	Ongoing	Completed	Ongoing	Completed	Ongoing
Multicountry projects	91	7	436	51	6879	0
Individual-country projects	45	3	97	4	504	6
Self-learning e-Courses (released in 2021)	0	8	0	8	166	0
Self-learning e-Courses (continued)	0	45	0	63	5266	0
Subtotal	136	63	533	126	12815	6
Total	199		659		12,821	

Centrality of Productivity

SMART TRANSFORMATION			
Project	Implementing country	Resource persons	Participants/observers
Multicountry Observational Study Mission on Emerging Models of Controlled-environment Agriculture in Japan	Japan	2	32
Multicountry Observational Study Mission on Modern Farm Machinery	Japan	5	24
Workshop on Advanced Food Manufacturing Technologies	Thailand	2	32
Conference on Smart Agriculture	Republic of China	3	98
5th International Conference on Biofertilizers and Biopesticides: Marketing and Commercialization	Republic of China	4	79
Multicountry Observational Study Mission on Advanced Food Safety Management	Japan	4	38
Observational Study Mission on Collaboration among Agriculture, Manufacturing, and Retailing in Japan	Japan	6	32
Conference on Blockchain Solutions for Productivity	Republic of Korea	5	101
Training Course on Critical Big Data Analytics to Drive Productivity	Thailand	3	46
Conference on Emerging Technologies for Productivity Enhancement	Malaysia	4	67
Workshop on Promoting the Productivity Movement in the Digital Age	Cambodia	2	34
Training Course on Digitization Readiness Assessment	Republic of China	4	31
Training Course on Internet of Things Applications for Smart Manufacturing	Republic of China	4	34
Workshop on Blockchain Solutions for Productivity	Republic of Korea	5	35
Workshop on Service Design for Business Growth and Improvement	Singapore	4	36
Workshop on Driving Service Productivity through Effective Business Models	Singapore	5	36
Workshop on Modern Mechanization Technologies for Increasing Rice Productivity	Thailand	3	25
Workshop on Innovation for Climate-smart Livestock Production	Mongolia	4	39
Workshop on Modern Food Transportation and Regulation	Philippines	5	35
Workshop on Agricultural Innovations	Vietnam	3	38
Training Course on Strategic Management for Public-sector Productivity Enhancement	Sri Lanka	2	45
Workshop on Smart Transformation for Various Sectors	Republic of China	3	45

QUALITY OF THE WORKFORCE

Project	Implementing country	Resource persons	Participants/ observers
Certified Productivity Practitioners Course for NPOs	Philippines	4	40
Development of APO-certified Public-sector Productivity Specialists	Philippines	3	29
Training Course on Data Analysis and Applications for Digitization in SMEs	Thailand	5	34
Training Course on Productivity Measurement for Service-sector Organizations	Indonesia	3	36
Training Course on Service-sector Productivity Specialists	Singapore	6	45
Development of APO-certified Public-sector Productivity Specialists	Philippines	3	37
Basic Training Course on Foresight for Public-sector Organizations	Indonesia	2	33
Workshop on Digitization of SMEs in the Manufacturing Sector	Japan	2	48
Workshop on the Circular Economy for the SDGs	Republic of China	4	47
Training Program on Productivity Improvement for the Supporting Industry	Member Countries	N/A	479
Research on Reskilling Workers to Enhance Labor Productivity	APO Secretariat	9	N/A

GREEN PRODUCTIVITY

Project	Implementing country	Resource persons	Participants/ observers
Conference on Climate-resilient Agriculture	Indonesia	3	79
Workshop on Green Productivity and Sustainable Development	APO Secretariat	2	27
Training course on Energy Audits and Management	India	2	51
Workshop on Waste Management in Manufacturing SMEs through MFCA and Lean	India	2	46
Training Course for Green Productivity Specialists	Pakistan	2	42
Workshop on the Circular Economy in the Agroindustry Sector	Malaysia	3	36
Workshop on Ecological Models of Agroforestry Systems	Sri Lanka	3	35
Conference on Promoting the Circular Economy in Manufacturing through Green Productivity	Vietnam	2	46
Workshop on Agroecological Systems	Cambodia	4	46

Innovation for Productivity

ROBUST ECOSYSTEM & REGULATORY FRAMEWORK			
Project	Implementing country	Resource persons	Participants/ observers
Training of Trainers on Regulatory Reform Agendas for Productivity Growth and Competitiveness	Malaysia	2	32
Training of Trainers on Performance Monitoring and Evaluation for Public-sector Organizations	APO Secretariat	3	33
Conference on Enabling Regulations to Accelerate Agricultural Innovations	APO Secretariat	3	59
Conference on Organic Farming and Agroecology	Mongolia	2	73
Workshop on Regulatory Ecosystems for Startups	Philippines	3	35
Multicountry Observational Study Mission on Data Governance in the Public Sector to Improve Productivity	Republic of Korea	3	33
Conference on Urban Agroecology and Food Security	Philippines	4	54
Workshop on Development of New Innovation Standards for SMEs	Vietnam	5	34
Workshop on Developing National Innovation Systems	Vietnam	5	43
Workshop on Food Storage Models	Pakistan	4	48

INNOVATION CAPABILITY			
Project	Implementing country	Resource persons	Participants/ observers
Special Program for Capacity Building of Sustainable Food Value Chains for Enhanced Food Safety and Quality in Asian Countries: Third Year	Republic of China	13	420
Workshop on Productivity, Quality, and Innovation for Transforming Economies	Pakistan	4	29
Workshop on Adoption of Industry 4.0 Applications for SMEs	Bangladesh	5	38
Workshop on Cybersecurity and Network Resilience Approaches for Industry 4.0	Malaysia	2	41
Workshop on Innovative Business Models for Industry 4.0	Pakistan	4	37
Conference on Public-sector Productivity: Ensuring Public Services in the New Normal	Philippines	3	71
Workshop on Evaluating Regulatory Quality and Performance to Improve Public-sector Productivity	Philippines	5	41

Inclusive Productivity

SME DEVELOPMENT			
Project	Implementing country	Resource persons	Participants/ observers
Workshop on Empowerment of Small-scale Farmers in Adopting Internet of Things Technologies	Malaysia	3	36
Special Account for Business Recovery and Resilience PIP Title: Assistance to SMEs	APO Secretariat	104	2717
Special Account for Business Recovery and Resilience PIP: Enhanced In-Country Services	APO Secretariat	N/A	N/A
Multicountry Observational Study Mission on Support for Digital Transformation for SMEs	Republic of China	6	47
Multicountry Observational Study Mission on Service Quality and Productivity for the Retail Industry	Republic of China	8	33
Workshop on Innovations in Farmers' Cooperatives and Producers' Associations	Japan	3	25
Workshop on Agribusiness Innovations for Sustainable Rural Community Development	Pakistan	3	38
Workshop on Rural Economic Development through Development of Village Tourism	Indonesia	3	53

BROAD-BASED ENGAGEMENT			
Project	Implementing country	Resource persons	Participants/ observers
Workshop on Policy Initiatives for Attracting Youth and Preventing Attrition in Agriculture	Indonesia	6	24
Training of Trainers on Developing Future-ready Agribusiness Social Enterprises	Philippines	4	31
Workshop on Women's Empowerment for Productivity Gains	APO Secretariat	2	34
Multicountry Observational Study Mission on Enhancing Equal Opportunities for Inclusive Engagement of the Workforce	Republic of Korea	4	20
Workshop on Nurturing Social Enterprises	APO Secretariat	5	26
Workshop on Diversity and Organizational Performance in the Public Sector	APO Secretariat	3	44
Workshop on Continuing Education for the Aging Societies	Republic of China	3	41
Training Course on Innovative Aquaculture Models	Bangladesh	3	40
Conference on Social Empowerment in Agriculture	APO Secretariat	3	36
Workshop on Enhancing Productivity for SMEs: Measuring and Analyzing Productivity Gains	Fiji	3	44

PRODUCTIVITY GAINSHARING

Project	Implementing country	Resource persons	Participants/ observers
Workshop on Productivity Gainsharing Models in Agribusiness Enterprises	Malaysia	3	42

Regional Catalyst

CERTIFICATION & ACCREDITATION

Project	Venue/host	Resource persons	Participants/ observers
Training of Assessors for the Productivity Specialists Certification Program	Malaysia	3	44
Workshop on Requirements and Management System for APO Certification of Persons Scheme	Vietnam	4	35
Training of Assessors for the Green Productivity Specialists Certification Program	Indonesia	3	44

DIGITAL-LEARNING PLATFORM

Project	Resource persons	Participants/ observers
Self-learning e-Course on Advanced Course on Data Analytics for the Public Sector	1	186
Self-learning e-Course on Advanced Smart Manufacturing 101 in a Blockchain-driven Era	1	140
Self-learning e-Course on Agribusiness Management (Advanced)	2	37
Self-learning e-Course on Agritourism Business Development	1	34
Self-learning e-Course on Apiculture Management	1	67
Self-learning e-Course on Applying Green Productivity Based on ISO14001 Standards	1	284
Self-learning e-Course on Basic Data Analytic Course for the Public Sector	1	207
Self-learning e-Course on Basic Smart Manufacturing 101 in a Blockchain-driven Era	1	74
Self-learning e-Course on Building Climate Change-resilient Agriculture	1	40
Self-learning e-Course on Business Models for Women Entrepreneurs	1	92
Self-learning e-Course on Case Studies on Incorporating Lean Manufacturing to Industry 4.0	1	268
Self-learning e-Course on Climate Change Impacts and Adaptation (Basic)	1	56
Self-learning e-Course on Controlled-environment Agriculture	1	31
Self-learning e-Course on Critical Strategic Foresight Tools for Sustainable Productivity	1	137

Project	Resource persons	Participants/ observers
Self-learning e-Course on Energy Efficiency Techniques	1	87
Self-learning e-Course on Energy Management System Auditors' Course	1	62
Self-learning e-Course on Food Safety Management (Advanced)	1	61
Self-learning e-Course on Food Safety Management (Basic)	1	81
Self-learning e-Course on Future Aquaculture Farming	8	65
Self-learning e-Course on Future Food Exploring Business Opportunities	1	41
Self-learning e-Course on General Aspects of Energy Management and Audit	8	225
Self-learning e-Course on Good Agricultural Practices (GAP)	1	45
Self-learning e-Course on Green Productivity and Integrated Management System	1	97
Self-learning e-Course on Innovations in Agroforestry Systems	1	47
Self-learning e-Course on Innovative Cost-effective Technologies for Sustainable Agriculture	1	48
Self-learning e-Course on Integrating Lean Manufacturing Systems and Industry 4.0 Concepts	1	165
Self-learning e-Course on Management Innovation in SMEs	1	166
Self-learning e-Course on Marketing Strategy and Product Branding for SMEs	1	110
Self-learning e-Course on Material Flow Cost Accounting (ISO 14051)	1	60
Self-learning e-Course on Measurement of Public-sector Productivity	1	220
Self-learning e-Course on Modern Food Distribution Systems	1	56
Self-learning e-Course on Modern Food Storage and Transport Technologies	1	48
Self-learning e-Course on Occupational Health and Safety Management System (OHSAS 18001)	1	372
Self-learning e-Course on Organic Agriculture and Organic Agribusiness	1	39
Self-learning e-Course on Organic Inspection and Certification	1	65
Self-learning e-Course on Productivity Tools and Techniques (Advanced)	4	227
Self-learning e-Course on Productivity Tools and Techniques (Basic)	1	400
Self-learning e-Course on Rural Entrepreneurship Development	1	69
Self-learning e-Course on Smart Farm Mechanization	1	65
Self-learning e-Course on Smart Manufacturing: Advanced	1	14
Self-learning e-Course on Smart Manufacturing: Basic	1	94
Self-learning e-Course on Smart Transformation of Agriculture	1	82
Self-learning e-Course on Sustainable, Resilience Supply Chain and Integration into Global Value Chains	1	401
Self-learning e-Course on Urban Agriculture	1	49
Self-learning e-Course on Waste Management in Agribusiness	1	52

Project	Resource persons	Participants/ observers
Self-learning e-Course on Service Design Thinking for SMEs	1	22
Self-learning e-Course on Cloud Solutions for Enhanced Productivity in the Service Sector	1	11
Self-learning e-Course on Energy Efficiency and Management in Thermal Systems	1	26
Self-learning e-Course on Energy Efficiency and Management in Electrical Systems	1	17
Self-learning e-Course on Service-sector Productivity and Innovation for the Digital Economy	1	11
Self-learning e-Course on Agricultural Insurance for Food Security	1	31
Self-learning e-Course on Digital Technologies for Smallholder Farmers	1	26
Self-learning e-Course on Development of Social Enterprises for Agribusiness	1	22

RESEARCH & PROGRAM DEVELOPMENT

Project	Resource persons	Participants/ observers
Program Development Fund: Research on the Widening of Economic Divides under the Impact of COVID-19	3	N/A
Development of the Framework of the National Productivity Network of Islamic Republic of Iran	1	N/A
Research on Smart Agricultural Transformation for APO Member Countries	1	N/A
APO Productivity Databook and Database	20	N/A
Research on Labor Market Policies and Programs in Changing Market Demands for Skills	12	N/A
Research on the Complementarities of the Circular Economy and Green Productivity	13	N/A
Research on Innovation-led Productivity Growth for Middle-income Trap Avoidance	9	N/A
Research on an Aging Asia and Pacific: Preparing for the Future	5	N/A
Asian Productivity Outlook	0	N/A
APO-OECD Review of Long-Term Productivity Growth Statistics and Estimating Method	4	N/A
Research on Need Assessment on Innovation Management	11	N/A
Labor Productivity Index	2	130
Research on Country Diagnostics: Productivity and Its Challenges	1	N/A
Inter-city Benchmarking Research on Hotel Productivity in Asia	0	N/A
Research on Digital Disruption: Policy Tasks and Responses by Governments	1	N/A
Development of the APO Productivity Index	4	N/A
Research on National Strategy in Developing Human Resources for the Industries of the Future	8	N/A

CENTERS OF EXCELLENCE

Project	Venue/host	Resource persons	Participants/observers
APO COE on GP (ROC): Forum on Resilient Green Energy-efficient Technologies for the Future: Sustainable Industry 4.0	Republic of China	2	60
APO COE on IT for Industry 4.0 (IND): Research on Digital Innovation Process Guide for Manufacturing SMEs	India	6	N/A
APO COE on IT for Industry 4.0 (IND): Webinar on Digital Innovation Process for SMEs	India	2	80
APO COE on IT for Industry 4.0 (IND): Research on Case Studies of Manufacturing Transformation Strategies for Industry 4.0	India	6	N/A
APO COE on IT for Industry 4.0 (IND): Workshop on Bharat 4.0 Digital Readiness Assessment Tool	India	1	30
APO COE on IT for Industry 4.0 (IND): Workshop on the Development of Training Modules for Industry 4.0 Readiness Assessors	India	2	30
APO COE on SM (ROC): Research on National Smart Manufacturing Implementation Framework	Republic of China	6	N/A

Strengthening of NPOs and Policy Advisory

BILATERAL COOPERATION BETWEEN NPOS

Project	Deputing country	Venue/Host	Participants
Knowledge Transfer for Sustainable Productivity Drive by NPO Pakistan	Pakistan	Malaysia	3

INDIVIDUAL-COUNTRY OBSERVATIONAL STUDY MISSIONS

Project	Deputing country	Venue/Host	Participants
Productivity Master Plan Best Practice	Pakistan	Vietnam	15
Smart and Sustainable City	Pakistan	Republic of Korea	11
Benchmarking Study Mission for the DAP Future Center & Innovation Laboratory	Philippines	Republic of China	15

CERTIFICATION BODY DEVELOPMENT

Project	Venue/host	Resource persons	Participants/observers
Certification Body Development	N/A	15	N/A

SPECIFIC NATIONAL PROGRAM

Project	Venue/host	Resource persons
Development of the Framework of the National Productivity Network of Islamic Republic of Iran	I.R. Iran	2
Institutional Capacity Development Plan for NPO Pakistan	Pakistan	1
Development of National Productivity Master Plan for Vietnam	Vietnam	8
Development of National Productivity Master Plan for Lao PDR	Lao PDR	5

TECHNICAL EXPERT SERVICES

Project	Venue/host	Resource persons
Productivity Measurement for NPO Professionals	Bangladesh	1
Industrial Engineering	Bangladesh	1
Green Productivity for NPO Professionals	Bangladesh	1
Food Management System	Bangladesh	2
Technical Cooperation Program for COVID-19 Pandemic Recovery	Cambodia	1
National Quality and Productivity Convention XXV and International Quality and Productivity Convention 2021	Indonesia	3
Productivity Forum: Reset, Reform, and Rebound	Malaysia	1
Smart Service and Technology for the Banking and Public Service Sectors	Mongolia	2
Occupational Health and Safety Management Systems (OHSMS) Based on ISO 45001	Mongolia	1
Business Continuity and Resilience for SMEs	Mongolia	2
Lead Auditors Course on ISO 50001 Energy Management System (EnMS)	Pakistan	1
Technical Assistance on the Development of an Awareness Strategy and Promotional Material for the Launch of the Productivity Movement 2021 in Pakistan	Pakistan	1
Energy Management System (EnMS) Development and Implementation	Pakistan	1
Productivity Improvement of the Olive Industry in Pakistan	Pakistan	2
Capacity Building on Heat-tolerant Wheat	Pakistan	1
Developing Value-adding and Innovative Systems for the Philippine Congress Using the Blue Ocean Strategy	Philippines	2
Strategic Foresight for Undersecretaries and Assistant Secretaries	Philippines	1
Strategic Foresight for Local Government Leaders	Philippines	1
Public-sector Human Resources	Philippines	1
The 2021 Circular Economy to Sustainable Management Training Course	Republic of China	1
Workshop on Advanced Performance Management	Sri Lanka	1

Project	Venue/host	Resource persons
Workshop on Smart Service Transformation for the Public and Private Sectors	Sri Lanka	1
Workshop on Big Data Analytics for the Public Sector	Sri Lanka	1
Strategic Foresight Training for National Security Officers	Thailand	1
Workshop on Assessment of Socioeconomic Impacts of Government's Operations	Thailand	1
Compilation Methods for Total Factor Productivity (TFP) Indicator for the General Statistics Office of Vietnam	Vietnam	1

DEMONSTRATION COMPANIES

Project	Venue/host	Resource persons	Participants
Scientific Molding: Digitization for Productivity Improvement in Manufacturing	Thailand	3	40
Innovation, Quality Circles, and Lean Manufacturing for Productivity Enhancement in SMEs	Cambodia	1	90
Material Flow Cost Accounting in Sugar Production	Bangladesh	1	40
Applications of Green Productivity Tools and Techniques in the Printing Industry	Sri Lanka	1	60
Training in Applications of Mini-grid Solar PV Systems	Indonesia	5	30
Application of Kaizen in Micro Hydropower Turbine Manufacturing	Pakistan	1	6

Appendix 2: Summaries of 2021 Projects



1 Centrality of Productivity

The first focus area emphasizes the need for productivity to take center stage in national development planning agendas. This means that productivity is institutionalized at the national level and imparted as an integral element of the overall work ethos and culture. Under this focus area, projects are divided into three initiatives: Smart Transformation; Quality of the Workforce; and Green Productivity.

Smart Transformation

Smart transformation projects aim at enabling organizations in manufacturing, services, the public sector, and agriculture to transform their business models through the introduction of new, innovative inputs that may include technology, insights, tools, techniques, and modalities. The following are summaries of projects implemented under this initiative in 2021.

Multicountry Observational Study Mission on Emerging Models of Controlled-environment Agriculture in Japan

The typical models of controlled-environment agriculture are plant factories where temperature, air and soil moisture, soil nutrition, and CO₂ levels are monitored and precisely controlled at optimum levels. Some plant factories use artificial light. Data regarding the crop growth environment are automatically stored and analyzed to increase quality and yields. The ideal growth environment is then maintained artificially. To enable precise environmental control, smart technologies such as sensors and the IoT are important. Controlled-environment farmers must also have entrepreneurial skills. Compared with natural cultivation, controlled-environment agriculture is costly. Sound financial planning taking into account costs and benefits is crucial for success. The production of high-quality produce must therefore be accompanied by the necessary marketing skills.

To introduce emerging controlled-environment agriculture models in Japan and observe monitoring and control technologies to facilitate crop growth in a controlled agriculture environment, the APO with assistance from the Government of Japan organized a multicountry observational study mission on Emerging Models of Controlled-environment Agriculture in Japan, 27–29 July. Thirty-four participants from 11 APO members attended, along with five resource persons from Japan who shared best practices of controlled-environment agriculture.

Program coverage: Japanese policy for promotion of next-generation greenhouse horticulture; Overview of plant factory complexes in Japan; Best practices of artificial-light plant factory business models; Energy-saving plant factory models; and Best practices of sunlight plant factory business models.

Multicountry Observational Study Mission on Modern Farm Machinery

Machinery is indispensable for modern farming. As human labor has moved from agriculture to other sectors, agricultural workers have been replaced with farm machinery. Most farmers use small four-wheeled tractors for plowing instead of the draft animals and wheeled plows of the past, robotic chemical sprayers instead of hand sprayers, and combine harvesters instead of people and draft animals to carry out threshing. Such equipment reduces the time needed for farm management and enables scaling up of operations, thus increasing agricultural productivity.

The IoT, sensors, and GPS have contributed to the development of more efficient farm equipment, while power-assisted equipment makes farming feasible for women and the elderly. In these ways, modern farm machinery has made agriculture more productive and sustainable.

To expose participants to applications of modern farm machinery in Japan and help them understand how those applications result in more effective farm management and higher agricultural productivity, the APO with assistance from the Government of Japan organized a multicountry observational study mission on Modern Farm Machinery, 15–17 June. Twenty-four participants from 11 APO members attended, along with five resource persons from Japan who shared applications of advanced farm machinery technologies.

Program coverage: Automated self-driving vehicles; Data-controlled machinery; Power-assisted devices; Farm management using drones; Weeding robots; and Cattle management using sensors and ICT.

Workshop on Advanced Food Manufacturing Technologies

Thanks to processed food, consumers can save time on cooking, preserve food longer, and enjoy new tastes. In addition, processed food offers consumers more choice in their diets. As a result, the demand for agricultural products as raw materials has been increasing, and local food-processing industries have been growing. Food manufacturing technologies have evolved to meet modern demand. For example, retort-packaged and freeze-dried foods cater to busy consumers. Their quality and taste have improved and their varieties have expanded.

To acquire the knowledge and information necessary to manage food manufacturing SMEs, share technical information on advanced food manufacturing, and familiarize participants with best practices in advanced food manufacturing by SMEs, the APO in cooperation with the FTPI organized a multicountry workshop on Advanced Food Manufacturing Technologies, 17–19 March. Thirty-two participants from 11 APO members attended the workshop, along with two resource persons from Japan and one from Thailand who shared freeze-drying technologies and best practices of food manufacturing SMEs.

Program coverage: Key points of management of food-manufacturing SMEs; Development of processed food by SMEs; Conventional and emerging drying technologies; Principles and applications of freeze-drying; Advanced food manufacturing in Thailand; and Challenges and opportunities in advanced food manufacturing in Thailand.

Conference on Smart Agriculture

In the food and agriculture sector, smart technologies are rapidly transforming how people, businesses, and governments work, and they have already generated significant benefits by reducing the costs of information, transactions, and supervision. Many countries are developing smart agricultural strategies to design, develop, and apply innovative ways to use ICT, GPS, and AI. For example, remote-sensing technology is an important element of smart agriculture. Drones with multispectrum cameras transmit images of crop growth to cloud-based computer systems to allow analyses of where additional fertilizer and other inputs are needed. Other drones then transport the inputs for pinpoint applications. Optimum conditions can thus be maintained throughout the growing period, resulting in maximum yields of high-quality crops. Another example is driverless robotic tractors that depend on GPS technology for directions and sensors to detect obstacles in their paths, decreasing farmers' labor.

To disseminate the knowledge and information necessary to manage smart agriculture, the APO and CPC held a multicountry conference on Smart Agriculture, 19 April. It was attended by 98 participants from 13 APO members, along with three resource persons from the ROC and one from Japan who shared smart agricultural technologies based on ICT, GPS, and AI.

Program coverage: Smart agriculture with robots and ICT; AI for R&D and application of intelligent image recognition; Development and application of assistive devices and unmanned aerial vehicles in agriculture; and Best practices of smart agricultural application and promotion methods.

5th International Conference on Biofertilizers and Biopesticides: Marketing and Commercialization

The growth of the biofertilizer and biopesticide (B&B) market is driven by the organic food industry, rising demand for natural agrifood products, and increasing awareness of the need for agricultural sustainability. Greater knowledge of the hazards of chemical fertilizers is also accelerating B&B market growth. The integrated use of biofertilizers and organic manure lowers the overall environmental cost of crop cultivation in the long term and contributes to cleaner production. During the current COVID-19 pandemic, consumers are showing more interest in safe, organic food for boosting their immunity, a trend that will likely continue during and after the pandemic. The APO started the five-year International Conference on B&B (ICBB) series in 2016.

To deliberate on recent advances in and future perspectives on marketing and commercialization of B&B; share successful marketing and commercialization strategies for scaling up and utilization of B&B in Asia and the Pacific, particularly in APO member countries; and assess the results of the last four ICBB, the Council of Agriculture of the Executive Yuan of the ROC, CPC, and APO Secretariat organized the 5th ICBB: Marketing and Commercialization on 28 April through a combination of virtual and face-to-face modalities. A total of 79 participants and 40 observers from 14 APO member countries attended, along with four resource persons from the host ROC, Japan, Malaysia, and Vietnam.

Program coverage: Global industry trends and biopesticide marketing strategies: During and after the COVID-19 pandemic; Public-private partnerships in biocontrol research and product development: A successful case from Vietnam; The biofertilizer market in Southeast Asia: Future development trends; Review of the 1st–4th APO-ICBB biopesticide project implementation; and Recommendations and future prospects.

Observational Study Mission on Collaboration among Agriculture, Manufacturing, and Retailing in Japan

Collaboration among agriculture, manufacturing, and retailing brings multiple benefits to farmers. Manufacturing adds value and creates demand for agricultural products as raw materials, while retailing or direct sales to consumers increases farmers' incomes compared with selling products to middlemen. Japan enacted a law to promote such collaboration in 2010 and has promoted farmers' manufacturing and retailing since then. Surveys show that from 2012 to 2018, the average annual sales of Japanese farms engaged in manufacturing increased by 24% and sales of those with retailing increased by 26%.

To introduce successful examples of collaboration among agriculture, manufacturing, and retailing in Japan through virtual site visits with the aim of inspiring participants to replicate similar efforts, the Ministry of Agriculture, Forestry and Fisheries, Japan, and APO Secretariat organized a digital multicountry observational study mission on Collaboration among Agriculture, Manufacturing, and Retailing in Japan, 25–27 May. Thirty-two participants from 10 APO members attended, along with six resource persons from Japan who explained current best practices.

Program coverage: Promoting farmers' new business through the AFFriinnovation policy of the Japanese government; Promotion of agribusiness by educating young farmers for the next generation; Enhancing linkages between farmers and consumers; Best practices of farm-based food processing and manufacturing; Innovative agriculture and manufacturing; and Expansion of management scale by establishing cooperatives.

Conference on Blockchain Solutions for Productivity

Blockchains have been identified as a key technology pillar by Plattform Industrie 4.0 and McKinsey Consulting. The systems ensure the integrity of data records. This means that records in a blockchain cannot be altered once they are registered. This assurance provides great upside potential to sectors such as education, banking, finance, securities, and insurance logistics as well as public services in general. All countries, however, face challenges in addressing the wide-ranging implications of blockchains, and prioritizing targets, resources, and policy measures for digital transformation is timely. It is thus necessary to establish a holistic understanding of blockchain solutions and develop strategies in response to their opportunities and challenges.

To explore the potential implementation of blockchain technologies and solutions tailored to the needs of various economic sectors and examine the future of blockchains in improving firm-level operational efficiency and effectiveness, the KPC and APO Secretariat organized a digital multicountry conference on Blockchain Solutions for Productivity, 25 February. A total of 101 participants from 15 APO members attended the conference, with five resource persons from Japan, the Netherlands, Singapore, Switzerland, and Thailand.

Program coverage: Blockchain and fintech: Cryptofinance, examples of use, and potential issues to resolve; Productivity in supply chain management: How decentralized technology keeps global trade humming in a closed-trade global climate; Blockchains and Industry 4.0: Creation of a new marketplace based on distributed consensus; Regulatory management: Role of government authorities in a decentralized tech-based era; and Smart cities driven by blockchain solutions: Decentralizing smart city data management through distributed consensus algorithms.

Training Course on Critical Big Data Analytics to Drive Productivity

Digital transformation requires knowledge, awareness, sound strategies, technical support, appropriate infrastructure, and champions. It also involves the translation of big data into more efficient processes within factories, enterprises, and public-sector organizations. However, the volume, velocity, variety, veracity, and value (5Vs) of big data mean that data analytics are now more important than ever to condense large volumes of disparate raw data into useful insights to make appropriate decisions. With advances in computing power, data analytics have evolved into highly automated algorithms that yield valuable insights for decision-making in enterprises, industries, and governments.

To develop an understanding of the key tools and methodologies in data science and data analytics, including the use of data mining, machine learning, visualization techniques, predictive modeling, and statistics, the FTPI and APO Secretariat organized a digital multicountry training course on Critical Big Data Analytics to Drive Productivity, 26–28 April. A total of 46 participants from 13 APO members attended the conference, with three resource persons from Singapore.

Program coverage: Introduction to big data analytics; Data management for various economic sectors; Sustainable digital service delivery; Increasing productivity with technologies; Current status and future trends of big data analytics; Harnessing the power of big data visualization; Making sense of graphs and charts for productivity gains; Data-driven methodologies and step-by-step processes for better decision-making; Automation with essential machine-learning techniques; Essential types of machine-learning algorithms; and Hands-on exercise.

Conference on Emerging Disruptive Technologies for Productivity Enhancement

Disruptive technologies are innovations that uproot an established technology or revolutionary products or services that can spawn entirely new industries. New technologies and their integration into the economy have been central to long-term productivity growth. Past disruptive technologies such as the personal computer or the internet, while inconceivable prior to their diffusion, are now central pillars of contemporary life. Technologies such as AI, blockchains, and autonomous

vehicles appear likely to disrupt industries and societies in coming decades. To fully leverage these technologies and enhance productivity, it is key for policymakers and other stakeholders to understand their fundamentals and possible applications in the market and society. It is important to manage the risks and opportunities presented by these technologies through smart regulation. Policymakers and other stakeholders can work together to ensure that the benefits of new technology are distributed across firms, sectors, and wider society.

To share insights on the latest developments of disruptive technologies and their trends and potential applications in the future, the MPC and APO Secretariat organized a virtual conference on Emerging Disruptive Technologies for Productivity Enhancement on 8 April. Sixty-seven participants from 14 member countries attended this conference. There were three resource persons from Australia, Cambodia, and Hong Kong.

Program coverage: The government's role in promoting Industry 4.0 in the manufacturing sector; Foodtech to the rescue; Automation and its impacts on workplace arrangements; and Robot roles, environments, and interactions.

Workshop on Promoting the Productivity Movement in the Digital Age

Over the past 60 years, productivity movements have been successful in driving economic development across the Asia-Pacific. Hundreds of millions of people have been lifted out of extreme poverty, and living standards have risen for those at all income levels. The region has climbed from low- to middle-income status. Over the same period, the world entered the digital age, with the adoption and usage of digital communications becoming widespread. Technology links individuals, cultures, and markets in unprecedented ways. These technologies and new modes of communication created opportunities to expand and evolve productivity promotion to the next stage. Productivity promotion in the digital age requires governments to catch up with citizens and the private sector in embracing new communication channels.

To explore new digital approaches to productivity promotion, the NPCC and APO Secretariat organized a digital multicountry workshop on Promoting the Productivity Movement in the Digital Age, 20–22 April. Thirty-four participants from 14 member countries attended, along with two resource persons from Japan and Singapore.

Program coverage: Principles of productivity promotion; Principles of digital promotion and strategic communication; How to build a digital marketing and promotion plan; and Introduction to marketing and digital promotion tools.

Training Course on Digitization Readiness Assessment

Leveraging digital technologies to transform services and business operations has become indispensable for any organization to stay productive and competitive in the era of Industry 4.0. However, a common reason why businesses are hesitant in embarking on digital transformation is the lack of understanding of how and where to start the journey. Evaluating their current status and identifying strategies for digital upgrading are thus the first step for SMEs to harness its benefits.

To impart methodologies and tools for SME executives, consultants, and productivity practitioners to assess the level of digitization in businesses and assist them in initiating and sustaining digital upgrading in a practical, incremental manner, the CPC and APO Secretariat joined forces in organizing a digital multicountry training course on Digitization Readiness Assessment, 19–21 May. Thirty-one participants from 13 APO members attended the course, along with four resource persons from the ROC, Singapore, and Vietnam who introduced readiness assessment tools and methodologies, case studies, and their implications for businesses to enable participants to formulate strategies and implement digital upgrading plans.

Program coverage: Industry 4.0 and smart manufacturing; Introduction to the Smart Industry

Readiness Index (SIRI); SIRI: Implementation steps; Introduction to the Industry 4.0 iBench “Productivity Again” Readiness Assessment Tool (iBench); Smart manufacturing introduction and implementation in developing countries: Case studies from Vietnam; Hands-on experience in conducting SIRI assessment; and iBench: Case studies and supplementary tools.

Training Course on Internet of Things Applications for Smart Manufacturing

The IoT is a system of interconnected physical devices embedded with sensors, software, and other technologies for the purpose of capturing and transferring data over a network such as the internet. These devices range from machines, computers, and vehicles to home appliances and other ordinary objects in daily life. The deployment of the IoT in manufacturing connects devices and facilities physically and digitally; it also enables management and employees to collect and retain data from entire product life cycles in digital format and real time. These characteristics are the foundation of smart manufacturing; the IoT is therefore one of the first steps for manufacturers to embark on the Industry 4.0 journey.

To impart knowledge of the IoT and implications of digitization in factories and enterprises, the CPC collaborated with the APO Secretariat in conducting a digital multicountry training course on Internet of Things Applications for Smart Manufacturing, 25–27 August. Thirty-four participants from 13 APO members completed the training led by four resource persons from the ROC and Singapore. Interactive hands-on practice was also provided to enhance participants' understanding of the concepts, applications, and implications of the IoT.

Program coverage: The IoT and smart manufacturing; Smart factories: Applications across facilities and product life cycle management; IoT applications in manufacturing: Business use cases, challenges, and solutions; Configuring IoT devices and connecting them to the internet; Connecting and collecting information from IoT devices; and Visualizing information for strategy development.

Workshop on Blockchain Solutions for Productivity

Blockchains are regarded as the next generation of disruptive technologies after the internet. They have many applications and hold vast promise for every business, society, and individual. This groundbreaking digital revolution is expected to transform entire value chains by leveraging state-of-the-art decentralized digital ledger technologies. Blockchains are also positioned as great enablers for improving the productivity of SMEs. Blockchain technology has been adopted across the banking, financial service, and insurance industries but also in traditional areas such as shipping and logistics. All countries, however, must address the challenges and anticipate the wide-ranging implications of blockchains, and prioritizing targets, resources, and policy measures is critical. It is thus necessary to establish a holistic understanding of blockchain solutions and develop strategies in response to the opportunities and challenges.

In preparation for a wider application of this innovative technology in the new business normal, the KPC and APO Secretariat organized a digital multicountry workshop on Blockchain Solutions for Productivity, 25–27 August. Thirty-five participants from 11 member countries as well as five resource persons from the ROC, Japan, and the ROK attended.

Program coverage: Blockchain concepts and methodologies; Blockchain data management; Blockchain storage and retrieval management; Blockchains and smart contracts for SMEs; Blockchains as a service (BaaS) for SMEs; Blockchain security for SMEs; Blockchains and healthcare; Blockchains and energy; and Blockchains and insurance, payments, and cryptocurrencies.

Workshop on Service Design for Business Growth and Improvement

Service design and innovation frameworks are developed through the synthesis of service-sector productivity, quality, and innovation. The interconnections among these three elements are

critical to increase service-sector productivity and formulate optimal strategies for enterprises. Service design is about meeting users' and customers' needs by improving existing processes or creating new ones. It puts consumers at the heart of the design process to improve both commercial and social enterprise services. The concept of service design thinking therefore prioritizes the needs and wants of customers by blending experiences and interactions between them and service providers. Through innovative thinking in service design, organizations can understand their consumers better and gain a competitive advantage by actively involving them in a co-creation process.

As part of its service quality improvement initiatives, the SGPC and APO Secretariat organized a digital multicountry workshop on Service Design for Business Growth and Improvement, 25–27 May, to introduce the concepts of service design, service design thinking, and related tools to enhance business growth and improve productivity. Thirty-six participants from 12 member countries attended as well as two resource persons from Singapore and the ROK.

Program coverage: Concept of service design to enhance business growth and productivity; Service design and innovation frameworks to formulate strategies for improved service-sector productivity; Developing service design to increase quality or implement innovations; Country case studies on service design and innovation; and Challenges and opportunities for service design solutions across member countries.

Workshop on Driving Service Productivity through Effective Business Models

The global service industry market is expected to grow from USD2.8 billion in 2019 to USD10 billion by 2026. The main driver of this growth is the development of new technology, which includes cloud-based software and mobility solutions for field service management (FSM). This new technology is extremely important for service businesses, making it inevitable for all to incorporate FSM in their business models. The service sector encompasses a broad spectrum of enterprises, including startups and SMEs. Businesses that want to start and stay at the cutting edge need to use design thinking, strategy, and continuous change in their business models. Some of the most successful businesses today reinvented models, disrupting their industries to create the value customers seek in the digital era.

The SGPC and APO Secretariat organized a digital multicountry workshop on Driving Service Productivity through Effective Business Models, 19–21 October, to examine the principles of effective business models and tools to encourage innovation in the service sector for higher productivity. Thirty-six participants from 12 member countries attended, along with five resource persons from Singapore and the ROK.

Program coverage: Concept of service productivity in the service sector; Productivity measurement using the IMPACT framework; Service design and innovation frameworks to formulate strategies for improved service-sector productivity; The business model canvas: Business, human resource planning, and productivity; The changing landscape of the service sector (digitalization); Innovating customer experience; and Challenges and opportunities for productivity specialists across member countries.

Workshop on Modern Mechanization Technologies for Increasing Rice Productivity

Rice is consumed by over 50% of the world's population and is the staple food in the Asia-Pacific, where more than 90% of the world's rice is produced. To feed the growing population, rice productivity must be continuously improved. Mechanization is essential to enhancing agricultural productivity by saving labor, optimizing inputs, maximizing outputs, and expanding operational size. Mechanization also contributes to environmental sustainability by supporting the efficient use of natural resources such as water and land. Moreover, mechanization contributes to the quality of life of people involved in rice farming by providing safety, ease, and comfort in work including for women and the elderly.

A virtual multicountry workshop on Modern Mechanization Technologies for Increasing Rice Productivity was organized by the FTPI and APO Secretariat, 24–26 November, to discuss recent developments in machinery, policies, and business models to increase the productivity of rice farming through mechanization and promote its greater utilization in the region. Twenty-five participants from 11 member countries, along with resource persons from Japan, the Philippines, and Thailand, attended.

Program coverage: Role of mechanization in rice production in the Asia-Pacific; Sustainable rice production through mechanization in Thailand; Virtual field tour in Thailand; Mechanization and agricultural technology in Thailand; Driving agricultural modernization through farm mechanization in the Philippines; and Models of rice mechanization for smallholder rice farmers.

Workshop on Innovation for Climate-smart Livestock Production

Livestock contributes significantly to food security because it supplies calories, protein, and nutrients; feeds on a diet mostly not consumed by humans; and provides nutrient-rich fertilizer for crop production. The global demand for livestock products is anticipated to double by 2050, mainly due to improvement in the worldwide standard of living. At the same time, the intensifying effects of climate change on agricultural systems, primarily global warming, pose threats to livestock production and to the quality of feed crops and forage, water availability, animal and milk production, animal diseases and reproduction, and overall biodiversity. It is important for policies and institutional settings promoting climate-smart livestock production to address all those challenges.

To make the livestock sector more sustainable and profitable for farmers of all scales, while supporting global initiatives to combat climate change and share recent advances contributing to more productive livestock farming, the MPO and APO Secretariat organized a digital multicountry workshop on Innovation for Climate-smart Livestock Production via virtual sessions, 19–21 May. Thirty-nine participants from 11 member countries as well as four resource persons from India, Japan, host Mongolia, and Switzerland attended.

Program coverage: Climate change projections for Asia; Challenges to livestock economies; Climate-smart livestock management in Mongolia: Options and pilot results; Preventing zoonosis through climate-smart livestock production; Simple innovations for big changes: Adopting climate-friendly livestock systems; Appropriate livestock production practices under climate change; Environmental factors, disease cycles, and regulating livestock production; and Building resilience in livestock value chains.

Workshop on Modern Food Transportation and Regulation

The COVID-19 pandemic has caused unexpected disruptions in food systems affecting production and processing, transport, and logistics before reaching consumers. To address these disruptions, particularly the movement of food, key players in supply chains should introduce new ways to ensure the continued availability of food while maintaining high quality and the safety of food handlers. Concerns in transporting food include long waiting times, long distances, a variety of manual tasks, difficulties in managing the quality of fresh produce, and high frequency of small-lot deliveries. However, progress in ICT has contributed to making food transportation more efficient, and regulations have been enacted to address disruptions in food systems.

To enhance participants' understanding of food transportation and the role of regulations to meet current consumer demand for higher-quality, safe food, fast delivery, and long-distance transportation, the DAP and APO Secretariat organized a digital multicountry workshop on Modern Food Transportation and Regulation, 13–15 July. Thirty-five participants from 11 APO members attended, along with five resource persons from Indonesia, Italy, Japan, the Philippines, and Singapore, who discussed current food transportation systems and regulations.

Program coverage: Global trends, challenges, policy/regulatory responses, and opportunities in food transportation during and postcrisis; Modern delivery systems with ICT; Cold chain logistics in response to COVID-19; ISO 23412:2020; Indirect, temperature-controlled refrigerated delivery services—land transport of parcels with intermediate transfer; The “Move Food Initiative”; and Regulations affecting food transportation.

Workshop on Agricultural Innovations

Applications of innovative technologies are expected to revolutionize the global agricultural landscape, making it more resource efficient, sustainable, and productive. By using modern technology as a sustainable, scalable resource, agriculture can be transformed into a more profitable, attractive sector. Policymakers and planners, farmers, and agribusinesses should therefore pay attention to innovations as enablers of transformation. Developing countries, however, face difficulties in achieving innovation-based agricultural transformation due to a lack of information, low investment, insufficient infrastructure, lack of skill sets, and weak business systems.

A digital multicountry workshop on Agricultural Innovations was held virtually, 15–17 September, organized by the VNPI and APO Secretariat with the objectives of understanding recent innovations in agrifood and how they are applied and to discuss how innovations could contribute to agrifood systems in member countries. There were 38 participants from 12 countries, along with four resource persons, with one each from Hong Kong and Singapore and two from Vietnam.

Program coverage: Overview of innovations in agrifood; Importance of innovations in agriculture; Innovations in food: Alternative protein for a growing population; Applicable smart agricultural innovation ideas in the Mekong Delta; Plant-based protein as an alternative protein source for the future; Cultivated meat as an animal- and environment-friendly protein alternative; and Opportunities and challenges in adopting agrifood innovations.

Training Course on Strategic Management for Public-sector Productivity Enhancement

To satisfy their constituents and create public value, leaders and managers of public-sector organizations must be able to develop effective strategies and employ strategic management. Taking a strategic view is critical because leaders and managers in the public sector must be able to look beyond day-to-day operations to adapt to a rapidly changing, interconnected world. Strategic management is the art of arriving at fundamental decisions and actions that share and guide what an organization is, what it does, and why it does it. It is a set of concepts, tools, and procedures which can enhance organizational performance and productivity. This can include environmental scanning, issue identification, stakeholder analysis, strategy formulation, and performance management. These processes can help organizations make better decisions, create ideas for strategic action, organize participation, and build coalitions for support.

To help participants understand the purpose of strategic management in a public-sector context and be able to apply strategic thinking methods in their work, the NPS and APO Secretariat organized a digital multicountry training course on Strategic Management for Public-sector Productivity Enhancement, 30 November–3 December. Forty-five participants from 11 countries joined and received certificates of attendance. There were two resource persons from Australia and Japan.

Program coverage: An introduction to strategy; Environmental scanning; Stakeholder analysis; Identifying strategic issues; Formulating and implementing strategies; Strategic review and evolving your plan to maintain strategic value; Getting started with public management; Ethics and values in the public sector; Leadership in the public sector; and Governance options for policymakers.

Workshop on Smart Transformation for Various Sectors

During the COVID-19 pandemic, most sectors are undertaking digital transformation, which is now regarded as a must rather than an option. Once the productivity gains achieved through this accelerated digital transformation have been experienced by many organizations and countries, it is just a matter of time before smart work and better performance become the norms. It is therefore important to consider how smart transformation should be approached. A digital transformation framework is the blueprint for how to move through this period of significant change as working conditions evolve. Such frameworks can guide all levels of organizations or even countries through the transformation journey. In this context, having a good understanding of smart transformation can be extremely useful.

The CPC and APO Secretariat organized a digital multicountry workshop on Smart Transformation for Various Sectors, 21–23 July. It was attended by 45 participants from 13 member countries. Three resource persons from the ROC, India, and Japan introduced effective methods used by governments, business associations, and enterprises in implementing smart transformation initiatives; familiarized participants with the tools and techniques deployed for organizational digital transformation; and discussed innovation-led productivity improvement initiatives involving Industry 4.0 technologies, including digitalization and AI.

Program coverage: Smart transformation in the ROK; Smart transformation in Japan; Smart transformation in the ROC; Effective digital transformation; How Industry 4.0 technologies such as AI and the IoT can be used for smart transformation; Why data matter; Process innovation; Smart transformation toolkit; and Why smart transformation for manufacturing doesn't always work.

Quality of the Workforce

Projects under this initiative focus on improving various aspects of workforce quality over time, ensuring that workers have the appropriate education, skills, knowledge, and competencies in the rapidly evolving, intensely competitive digital economy. The following were projects in 2021 under this initiative.

Certified Productivity Practitioners Course for NPOs

The Certified Productivity Practitioners Course is one of the prerequisites to become an APO-certified Productivity Specialist. In the current business scenario disrupted by the COVID-19 pandemic, organizations need to adapt quickly to the new environment. Remote work and virtual communications are now the norm. The role of productivity practitioners is critical in guiding enterprises through crises. After this course, participants apply the skills gained in hands-on consultancy projects and submit reports to become APO-certified Productivity Specialists.

The 2021 digital multicountry course was hosted by the DAP in partnership with the APO Secretariat, 25–29 January. Participants from NPOs gained knowledge of enterprise-level productivity improvement strategies, enhancing their abilities to act as productivity consultants, trainers, and promoters. It also explained the standards and requirements for APO-certified Productivity Specialists. Forty participants from 16 APO member countries completed the course. Four resource persons from India, Japan, Malaysia, and the Philippines delivered presentations and shared information on productivity improvement measures.

Program coverage: Developing functional competency as productivity practitioners; Domain expertise and process skills; Carrying out productivity and quality diagnosis in two host organizations in the Philippines, The Regional Office of the Department of Science and Technology and Kingland Hopia Factory, under the supervision of the resource persons; and Overview, scope, and domain of expertise under the APO Productivity Specialists Certification Program.

Development of APO–certified Public–sector Productivity Specialists

Public–sector productivity is defined as optimizing the delivery of services through the efficient use of public resources, resulting in increased citizen satisfaction, public trust, accountability, cost–effectiveness, competitiveness, and quality of life. With the prolonged COVID–19 pandemic, the public sector is evolving. Current challenges are how to make public–sector organizations more agile in solving problems and adopting more citizen–centric solutions. The APO has launched a series of public sector–related projects to address the needs of member countries. All those initiatives were designed to enhance public–sector efficiency and the competencies of individuals through certification while cultivating a community of experts and strengthening APO leadership in the field.

To introduce the concepts, approaches, tools, and techniques needed by productivity specialists in the public sector and enable participants to develop the skill sets required as APO–certified public–sector productivity specialists, the DAP and APO Secretariat organized a digital multicountry training course on Development of APO–certified Public–sector Productivity Specialists, 1–5 March. Twenty–nine participants from 13 APO members attended the training, with three resource persons from Canada, the ROK, and Philippines who shared their knowledge on different topics outlined in the *APO Course Manual on Developing Productivity Specialists in the Public Sector*.

Program coverage: Tools for improving organizational productivity; Citizen–centered service; e–Government; Regulatory reform; Performance management; Measuring public–sector productivity; Leadership and change management; Developing a productivity improvement plan; and Mentoring and APO certification guidelines.

Training Course on Data Analysis and Applications for Digitization in SMEs

With wider access to the internet and digital technologies, digitalization has been revolutionizing economies and societies in all aspects. It enables faster communication and lowers costs, contributing to strengthened business management and operations. It also prompts innovative business models and activities, creating new economic value. The gigantic volumes of data generated by the processes of digitalization and digitized activities provide valuable records of actions, frequencies, durations, and status. With suitable collection, processing, and analysis, they can offer valuable information and are a powerful, effective way for SMEs to improve efficiency and productivity.

To impart fundamental knowledge on data collection and analysis and their implications for SMEs, the FTPI and APO Secretariat collaborated to conduct a digital multicountry training course on Data Analysis and Applications for Digitization in SMEs, 14–17 December. Thirty–one participants from 12 member countries were selected to attend this training course. Five resource persons from the ROC, Hong Kong, Singapore, and Thailand shared trends and good practices of applying data science in the manufacturing and SME sectors and provided interactive, hands–on practice in using data analysis skills and tools.

Program coverage: Data, digital technologies, and digital transformation; Data analytics in SMEs: Benefits and challenges; Data science in manufacturing; Data–driven decision–making and new business models; Data thinking: Identifying and solving problems with data; Basic data collection and processing; Data visualization; and Applying data analysis for business strategy and decision–making.

Training Course on Productivity Measurement for Service–sector Organizations

The service sector provides employment and contributes to GDP, especially in developed economies. However, unlike manufacturing where performance is measured by taking quality dimensions into consideration, service quality depends on the “human touch,” customer satisfaction, and employee engagement. The degree to which these qualities are present directly

correlates with productivity. AI, digitalization, and emerging technologies are promoting paradigm shifts in delivering services and enhancing productivity at the enterprise level. Technological advances also facilitate service-sector productivity measurement with better accuracy.

A digital multicountry training course on Productivity Measurement for Service-sector Organizations was organized by the Indonesian Directorate for Productivity Development, Directorate General for Vocational Training and Productivity Development, and Ministry of Manpower in cooperation with the APO Secretariat, 21–23 July. The course aimed to train participants in productivity concepts and measurement in service-sector organizations within the context of digitalization and AI as well as demonstrate productivity measurement tools and frameworks promoting service quality and innovation. Thirty-six participants from 12 APO member countries attended, while three resource persons from Indonesia, Malaysia, and Singapore shared knowledge and recent service-sector productivity trends.

Program coverage: Understanding service-sector productivity, quality, and innovation; Measuring service-sector productivity including examples from Indonesia's hospitality sector; Service process and performance improvement; Service-sector productivity in Indonesia's food and beverage industry; and Service-sector productivity measurement through robotics, AI, and service intelligence (RAISA).

Training Course on Service-sector Productivity Specialists

In view of the important role of service-sector productivity in national development and competitiveness, the APO conducts projects to build productivity and quality improvement capability in the sector, train specialists in NPOs, share know-how and best practices in productivity improvement techniques and methods, and increase the number of service-sector productivity experts. The service sector is a key enabler of national economies, encompassing a broad spectrum of enterprises. As emerging technologies like AI and advanced interfaces become more accessible, services will be designed around customer needs, allowing predictable, seamless experiences. Service providers have evolved from providing manual services (Service 1.0), to efficient ones enabled by automation and the internet (Service 2.0), and to more productive self-service models enabled by mobile, wireless, cloud-based technologies (Service 3.0).

The SGPC and APO Secretariat organized a digital multicountry training course on Service-sector Productivity Specialists, 10–12 November, with 45 participants from 13 member countries. Six resource persons from the ROK and Singapore explained the role of service-sector productivity specialists to enhance the competencies of NPO professionals by upgrading their theoretical and practical knowledge of improvement strategies for the sector as well as how to apply skills and tools to review, diagnose, and continuously improve service businesses.

Program coverage: Concept of service productivity to enhance business growth and productivity; Knowing your customer; Building a brand story; Service productivity consultation models, frameworks, and tools; Reinventing business models inside companies; Business financial analysis and productivity measurement; and Challenges and opportunities for productivity specialists across member countries.

Development of APO-certified Public-sector Productivity Specialists

Productivity is key to a high-performing public sector, leading to improved citizen satisfaction with government programs and services, enhanced public trust in government and public-sector organizations, improved cost-effectiveness of government programs and services, and better national economic competitiveness, among others. There are several focus areas to improve the productivity of the public sector: work processes; workers' motivation and skills; and managerial capability to optimize resources for producing better services.

To train participants in the concepts, framework, tools, and techniques to enhance the productivity and performance of the public sector and prepare them to become competent, certified specialists by mastering the knowledge, skills, and competencies stipulated under the APO's curriculum and requirements, the DAP and APO Secretariat organized a digital multicountry training course on Development of APO-certified Public-sector Productivity Specialists, 6–10 December. Thirty-seven participants from 11 APO members attended the training, with three resource persons from Canada, the ROK, and Philippines who shared their knowledge on different topics outlined in the *APO Course Manual on Developing Productivity Specialists in the Public Sector*.

Program coverage: Tools for improving organizational productivity; Citizen-centered service; e-Government; Regulatory reform; Performance management; Measuring public-sector productivity; Leadership and change management; Developing a productivity improvement plan; and Mentoring and APO certification guidelines.

Basic Training Course on Foresight for Public-sector Organizations

The APO has undertaken strategic foresight and scenario planning projects to support member countries, especially the public sector and NPOs, in their capacity-building initiatives, specifically in addressing the challenges of strategic planning for the long term in the face of uncertainty and accelerating change. Recognizing that these changes are already underway, governments must understand them better as they will have significant impacts on policy, regulatory, and program shift options, as well as the strategies, structures, and skills needed in the future.

To develop the ability of public-sector organizations to undertake foresight-based strategic planning through scenarios-for-the-future exercises, the Directorate for Productivity Development, Ministry of Manpower, Indonesia, and APO Secretariat organized a digital multicountry basic training course on Foresight for Public-sector Organizations, 25–27 May. Thirty-three participants from 14 APO members attended the training, with two resource persons from Australia who shared their knowledge on foresight and scenario planning for the public sector.

Program coverage: What is foresight?; Foresight in the public sector; Horizon scanning and trends; Developing a focal question; Defining critical uncertainties; What are scenarios for the future?; Communicating scenarios for the future; and Scenarios, public policy and programs, and innovation in the public sector.

Workshop on Digitization of SMEs in the Manufacturing Sector

Approaches to preparing SMEs for digitization vary due to the different stages of economic development among APO member countries. Overall, most are still in the early stage of implementation and focusing on creating awareness of the benefits, educating stakeholders on the importance of adopting advanced technology, expanding internet access, and examining the level of investment needed for SMEs to embark on digital transformation. Issues such as a lack of management capabilities, resources, skills, access to ICT, and internet connectivity remain obstacles. Regulations and rules may also slow efforts by SMEs to transform and venture into new fields supported by digital technology.

To discuss the latest, most effective methods for digital transformation and develop a framework to guide SMEs toward digitization for sustained productivity growth, the JPC and APO Secretariat organized a digital multicountry workshop on Digitization of SMEs in the Manufacturing Sector, 28–30 September. Forty-eight participants from 16 APO members attended, along with four resource persons from the ROC and Japan who presented case studies and facilitated group discussions.

Program coverage: Digitization and the pandemic; Digitization of the manufacturing industry in Japan; Smart transformation in the ROC; Case study of a Japanese company; Case study of companies in the ROC; How industry leaders successfully transform companies toward digitization:

Group discussion; NPO support for digitization of the manufacturing industry; and Opportunities and challenges in digitization of the manufacturing industry: Group discussion.

Workshop on the Circular Economy for the SDGs

Since the First Industrial Revolution starting in 1760, technological advances, expansion of the scientific knowledge base, and innovations have guided us to the Fourth Industrial Revolution. Globalization and progress in manufacturing techniques have also opened new business avenues, thereby fostering economic growth across the world. However, since its inception, industrialization has mainly been based on a linear model of “take–make–waste.” This has led to myriad issues directly impacting the environment negatively through waste generation, pollution, greenhouse gas emissions, and climate change. Businesses need to transform their processes from linear to circular to remain competitive and resilient against the adverse effects of climate change. The transition from the extractive linear model to a circular one also offers economic benefits and opportunities for sustained growth for businesses.

To discuss and enhance understanding of the circular economy, explore business growth opportunities, and share innovative business models and technological experience to transform the existing linear economic model to the circular, the CPC and APO Secretariat organized a digital multicountry workshop on the Circular Economy for the SDGs, 24–26 November. Forty-seven participants from 13 APO members attended, along with four resource persons from the ROC, India, and Japan who presented case studies and facilitated group discussions.

Program coverage: Integrating Green Productivity with the circular economy approach; International standardization of circular economy approaches and implementation in industry; Transforming business to the circular economy model; Promoting the circular economy among SMEs; Optimizing resources through digitization; Transforming the economy from linear to circular: Case in the ROC; and Updates by APO member countries on pursuing sustainability.

Training Program on Productivity Improvement for the Supporting Industry

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-quality 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 business in Asia and local companies that are business partners of Japanese companies. 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. Since the beginning of this program in 2016, it has provided support for a total of 2,982 trainees.

In February 2021, a survey was conducted to understand the needs of companies in the Monozukuri Project under the APO Training Program on Productivity Improvement for the Supporting Industry with 18 companies participating. The results indicated that most respondents showed interest in continuing training programs despite the pandemic situation. Topics such as quality control, safety management, 5S, and kaizen were identified as needs, and shopfloor leaders and factory workers were identified as those with the greatest need for training. Based on the survey results, funding support for online technical guidance and additional costs resulting from COVID-19–related restrictions were newly added.

In 2021, 26 proposals were received from local companies in India wishing to apply for training courses under the scheme proposed by Japanese manufacturers and 479 were trained. Although the COVID-19 pandemic limited business activities including training, the number of proposals from manufacturing companies slightly increased from 2020.

Program coverage: Productivity skills and management techniques.

Research on Reskilling Workers to Enhance Labor Productivity

Technological advances can result in employment losses for workers whose skills do not match changing requirements 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. 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 Enhance 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, participated in the research. The objectives were identifying sustainable, inclusive models of reskilling and upskilling the existing workforce in APO members, including groups at risk of missing out on such opportunities. The research report documents 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 are incorporated in the publication. The output was finalized in November 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.

Green Productivity

Green Productivity (GP) projects intensify applications of the GP Framework and develop new tools, techniques, and methods relating to GP. The focus was expanded to other environment-related issues such as climate change, the circular economy, and environmental, social, and governance aspects. The projects that were implemented in 2021 are summarized below.

Conference on Climate-resilient Agriculture

Agriculture is the most climate-vulnerable sector of the economy. Climate change, in the form of higher temperatures, erratic precipitation, uncertain seasons, and increased intensity and frequency of extreme weather events, is expected to exacerbate food insecurity. Consistent global warming trends and more frequent, intense, extreme weather have clear impacts on agriculture such as decreasing crop yields, increasing insect diseases and weed infestations, and declining soil properties and microbial compositions in farming systems. The adaptive abilities of farmers and optimal utilization of resources can mitigate the effects of climate change on agriculture. Threats to livelihoods, food security, and productivity by climate change make these vital issues for APO members.

To disseminate knowledge of innovative climate-resilient technologies and management methods by reviewing advances in the agriculture sector as well as discuss the scope and opportunities for promoting successful models and best practices of climate-resilient farming in member countries, the Ministry of Agriculture, Indonesia, and APO Secretariat organized a digital multicountry conference on Climate-resilient Agriculture on 9 March. A total of 79 participants from 13 member countries and three resource persons from Australia, Bangladesh, and India, along with two from host Indonesia, attended.

Program coverage: Role of a techno park to support sustainable farming in the UNESCO-appointed biosphere reserve of SAMOTA; Regenerating soil to increase adaptation to and mitigation of climate change; Participatory assessment of climate impacts on agriculture and

social enterprises; Collective extension approach to climate-smart alternate wetting and drying technology; Innovations in strategic regulation for climate-resilient agriculture; and Case study: West Nusa Tenggara.

Workshop on Green Productivity for Sustainable Development

Industry is one of the major consumers of resources and energy. Hence, it has a vital role to play in addressing environmental concerns and ensuring social well-being while remaining competitive and resilient. The advent of Industry 4.0, technological advances, and concepts such as GP and the circular economy have provided pathways for enterprises to decouple economic growth and resource consumption. However, low levels of awareness, the lack of robust policy frameworks, noninvolvement of key stakeholders, and lack of innovation remain barriers that need to be addressed.

A digital multicountry workshop on Green Productivity for Sustainable Development was organized by the APO Secretariat, 7–9 April. It discussed evolving sustainability issues and concerns and explained the GP concept, integration of Industry 4.0 technologies to strengthen enterprise triple bottom lines, and synergy among international sustainability concepts and GP. Twenty-seven participants from 13 APO member countries attended, along with two resource persons from the ROC and one each from India and Malaysia who discussed current topics related to sustainable development and environmental protection.

Program coverage: Overview of the APO Center of Excellence on GP; International sustainability initiatives; GP and the UN SDGs; GP tools and techniques; Sustainable supply chains; Toward a smart, sustainable future; and Leveraging technology for green growth. A virtual site visit was hosted on plastic waste reduction through ecodesign, recycling, and resource conservation techniques by Hair O'right International Co. Ltd., ROC.

Training Course on Energy Audits and Management

Energy, a major indicator of economic progress and development, is mainly extracted from nonrenewable sources, which negatively impacts the environment. Enterprises can manage and reduce energy consumption through various approaches. Energy audits and management studies provide insights into gaps to be addressed in terms of operating practices and viable technological options to achieve energy savings and monetary benefits. Recognizing the significance of energy conservation, the APO has organized numerous projects, observational study missions, e-learning courses, demonstration company projects, and Productivity Talks, in addition to publishing training manuals, on energy conservation.

A digital multicountry training course on Energy Audits and Management was implemented by the NPC, India, and APO Secretariat, 20–24 December, to guide industrial enterprises, especially SMEs, in becoming more energy conscious to mitigate the adverse impacts of climate change. It gave an overview of the global energy scenario, the need to conserve energy, performance assessment approaches to utilities, and best operating practices for energy conservation. A total of 51 participants from 13 APO members attended. Four resource persons from Canada, India, and South Africa gave presentations on energy conservation.

Program coverage: Global energy scenario and consumption trends; Energy conservation and the SDGs; Energy policy and planning at enterprise level; Instruments and metering to determine operating parameters; Thermal utilities and electrical utilities; Waste heat recovery; Financial mechanisms; and Establishing energy management systems.

Workshop on Waste Management in Manufacturing SMEs through MFCA and Lean

In line with the GP concept developed to improve the triple bottom line of quality, the environment, and productivity in enterprises, a demonstration project was initiated by the APO in 2016 in

collaboration with the NPC, India, to showcase the combined positive impact of material flow cost accounting (MFCA) and lean techniques. The methodology of integrating MFCA and lean during the project was termed “GLEAN” and was validated by the demonstration units.

A digital multicountry workshop was hosted by the NPC, India, 24–26 November, in cooperation with the APO Secretariat based on that demonstration project to allow participants to have firsthand exposure to the benefits of following GLEAN. The workshop also explored Industry 4.0 technologies and showcased the tangible benefits of GLEAN. Forty-six participants from 12 APO members attended. Four resource persons from India, Japan, and Malaysia gave presentations on waste minimization, Industry 4.0, and international standard frameworks.

Program coverage: MFCA and lean as approaches for waste minimization, resource conservation, and productivity enhancement; Leveraging Industry 4.0; International standard frameworks on MFCA; and The GLEAN concept. A virtual site visit was hosted by United Cores Pvt. Ltd., an Indian SME where GLEAN was successfully implemented.

Training Course for Green Productivity Specialists

A holistic approach comprising toolkits and methodologies could assist enterprises in raising the quality of outputs, using fewer resources, and reducing negative impacts on the environment. The APO developed the GP framework in 1994 for sustainable growth while enhancing productivity, quality, and human resources. Considering rapid deterioration of the natural environment and the COVID-19 pandemic, which has exacerbated difficulties in efforts to meet the SDGs, the applicability of the GP concept has become even more relevant. To build up a critical mass of specialists to assist industry in implementing the GP framework, the APO has organized an annual training course since 2001. The five-day course is one of the mandatory requirements under the APO certification program for GP specialists, after which participants undertake GP projects and submit reports within six months.

The 2021 digital multicountry training course for Green Productivity Specialists was hosted by the NPO of Pakistan in cooperation with the APO Secretariat, 13–17 September. In addition to imparting knowledge on the GP framework, the course aimed to equip participants with the competency to become APO-certified GP Specialists. Forty-two participants from 14 APO member countries completed the training successfully. Two resource speakers from Pakistan and one each from Singapore and Thailand made presentations.

Program coverage: GP as a pathway to net-zero carbon emissions; Activities pertaining to GP in APO member countries; International sustainability initiatives; Decoupling economic progress from environmental degradation; GP methodology, tools, and techniques; and APO GP specialist certification guidelines.

Workshop on the Circular Economy in the Agroindustry Sector

The circular economy is a sustainability-based development approach that is gaining ground as an alternative to the long-practiced, linear mass-production, mass-consumption, and mass-waste development model. The circular economy promotes the 3R (reduce, reuse, recycle) concepts. It advocates eliminating unused products that become waste, using waste as a resource to the extent possible, and disposing properly of waste that cannot be used as a resource. Agroindustry produces waste in various forms. Unsold harvest and livestock manure are examples of on-farm waste that could be transformed into compost used for crop production. Food waste in the retail and household sectors could be reduced by limiting purchases and recycling unconsumed commodities into compost. In addition, supermarkets are introducing ecobags and recyclable packaging. Promotion of the circular economy in agroindustry is important to enhance sustainable practices in conventional agriculture.

To introduce the concept of the circular economy to raise productivity in agroindustry, learn about best practices of the circular economy in agroindustry, and enhance sustainable management through tools such as the 3Rs, the MPC and APO Secretariat organized a multicountry workshop on the Circular Economy in the Agroindustry Sector, 12–14 October. Thirty-six participants from 13 APO members attended, along with three resource persons from the ROC, India, and Malaysia who shared concepts of the circular economy in the agroindustry sector, circular business models, and technologies to promote the circular economy.

Program coverage: The concept of the circular economy in the agroindustry sector; Circular food business models; Models of circular agriculture; Technologies promoting the circular economy in the agroindustry sector; and Best practices of the circular economy in the agroindustry sector.

Workshop on Ecological Models of Agroforestry Systems

Agroforestry is the management and integration of trees, crops, and livestock. It enhances agricultural productivity, among other economic, social, and environmental benefits. It is a bridge between agriculture and forestry which has evolved from plot-level technology to embrace a landscape-wide analysis of the forest–agriculture interface and its transitions. Successful ecological agroforestry systems not only protect the environment but are also a good business opportunity for entrepreneurs and social groups. Agroforestry supports nutritional security through the direct provision of food, thereby raising farmers' incomes, and various ecosystem services. It also involves opportunities and challenges from biophysical, social, and financial long-term sustainability perspectives.

To review emerging ecological agroforestry models for increasing the productivity of agricultural and forest land and watersheds and review emerging ecological agroforestry models, the NPS along with the APO Secretariat organized a digital multicountry workshop on Ecological Models of Agroforestry Systems from 16 to 18 June. Thirty-five participants from nine member countries and three resource persons from Australia, Bangladesh, and host Sri Lanka attended.

Program coverage: Innovative agroforestry practices for watershed rehabilitation: Case study from Sri Lanka; Appropriate agroforestry design for diverse rural communities; Role of agroforestry in improving food security and meeting the SDGs; Forest gardens enhance the financial viability of farming enterprises in Sri Lanka; Farmer education, networks, and peer mentoring for agroforestry development; and Climate change mitigation and adaptation through sustainable agroforestry systems.

Conference on Promoting the Circular Economy in Manufacturing through Green Productivity

In its mission to contribute to the sustainable socioeconomic development of Asia and the Pacific through enhancing productivity, the APO introduced the GP concept in 1994 to guide enterprises in enhancing productivity and profitability with minimal environmental impact. Recently, the circular economy, a system-based approach emphasizing the shift to a circular rather than the current linear “take–make–waste” extractive model, has emerged as a reference for enterprises to function in a smart, sustainable manner. The GP framework, including its tools and techniques, and six-step, 13-task methodology, also contributes to the pursuit of a circular economy.

A digital multicountry conference was organized by the Directorate for Standards, Metrology and Quality of Vietnam in cooperation with the APO Secretariat on 30 July. Its aim was to promote the GP framework in manufacturing and build a cleaner industrial ecosystem with net-zero emissions. There were 46 participants from 13 APO member countries in attendance, along with two resource persons from Canada and Japan and two from Vietnam.

Program coverage: The need for greener industrialization; Pursuing the UN SDGs through the circular economy and GP; Green growth through circular supply chain quality management, Industry 4.0, and innovation: Evidence from Vietnam; and Standardization framework for implementing

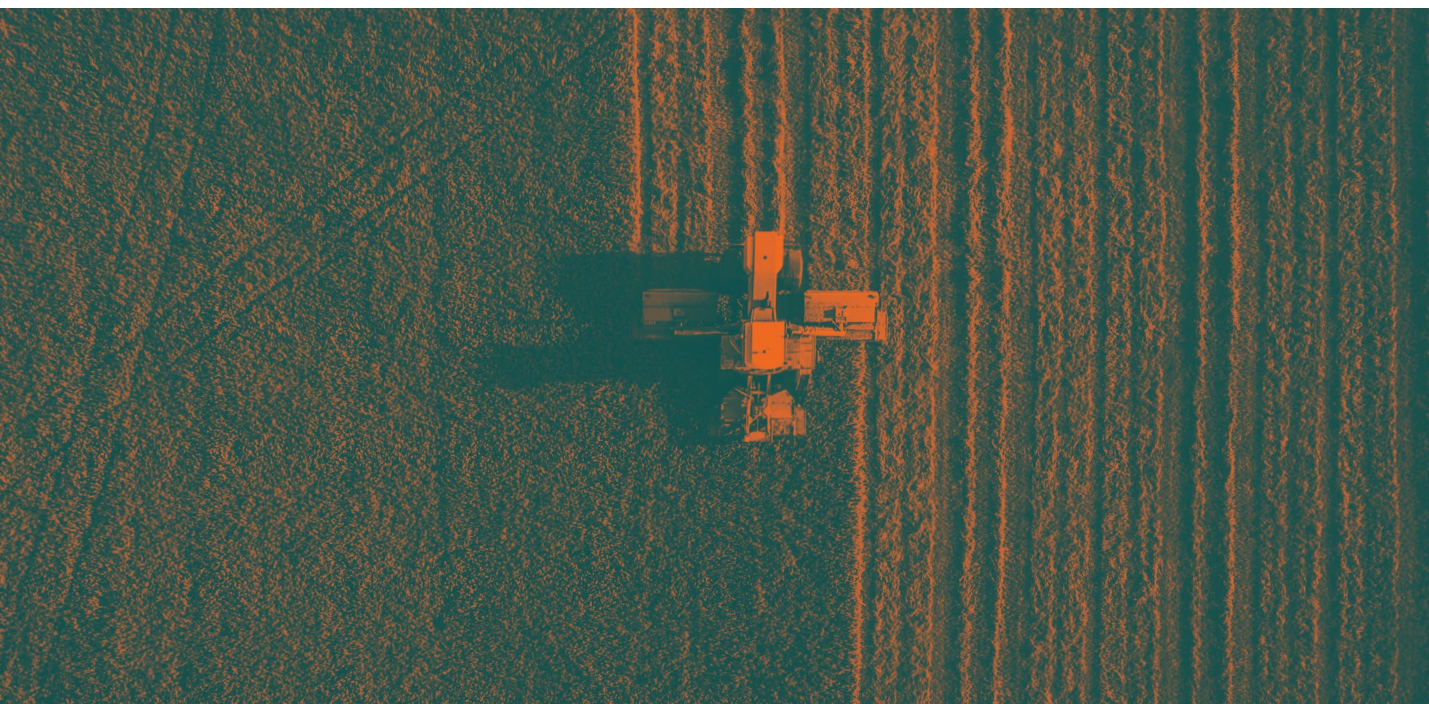
the circular economy. A panel discussion was also held on implementing circular economy approaches in manufacturing.

Workshop on Agroecological Systems

Agroecology is an integrated approach that applies ecological and social concepts and principles to the design and management of sustainable agrifood systems. This approach addresses the root causes of agrifood problems in an integrated way and provides holistic, long-term solutions. The key features include an explicit focus on the socioeconomic dimensions of food; strong emphasis on the rights of women, youth, and indigenous people; and keen attention to climate change adaptation. The COVID-19 pandemic has affected farming and supply chains in the form of food shortages and price spikes. More socially inclusive, ecologically resilient, localized food systems are thus vital to address this situation.

To introduce elements and principles of agroecological systems, share innovative agroecological models and their adoption in and dissemination among APO member countries, and discuss the potential of agroecological systems to enhance small-scale farm productivity, the NPCC and APO Secretariat organized a digital multicountry workshop on Agroecological Systems, 14–16 December. Forty-six participants from 13 member countries and four resource persons from Belgium, the Philippines, Thailand, and Vietnam attended.

Program coverage: Elements and principles of agroecological systems; Contributions of agroecology to the post-COVID-19 new normal; Agroecological practices of smallholder farmers in Asia captured on video; Creating local government policies to support family farms and jurisdictions in transition; Building an ecosystem to mainstream agroecology using digital platforms, tools, and partnerships; Agroecological adaptation for climate resilience and resource regeneration on family farms; and Kitchenponics: A new concept for urban agriculture and living waste treatment.



2 Innovation for Productivity

The second focus area of the Multicountry Program is enabling innovation as the key driver of productivity. It underlines the point that productivity growth can be led or spurred by innovation only if a robust innovation ecosystem is in place. Such an ecosystem comprises not just the narrow domain of science and R&D but also all enabling conditions that are conducive to innovation. There are two initiatives under this focus area, Robust Ecosystems and Regulatory Frameworks and Innovation for Capability.

Robust Ecosystems and Regulatory Frameworks

Projects to improve the regulatory environment to boost business dynamism and stimulate innovation are conducted. Another aim is to minimize bureaucracy and eliminate unnecessary, burdensome rules and regulations. The projects involve the participation of policymakers, public officials, and administrators of rules and regulations. The following are summary reports of projects in this category organized in 2021.

Training of Trainers on Regulatory Reform Agendas for Productivity Growth and Competitiveness

Regulatory reform reduces barriers to competition, ensures market openness, and fosters market dynamics while continuing the provision of essential social and environmental welfare measures. There are many reasons why governments undertake regulatory reforms, especially if regulations create unnecessary burdens, do not stimulate economic development, and hinder national productivity and competitiveness growth. Regulatory reform agendas are aimed at developing practical, viable policy alternatives to ensure that barriers are addressed to create a business-friendly environment while making regulations more effective and efficient. A good example of a recent regulatory reform agenda item undertaken by many governments is the ease of doing business. Regulatory reforms are not just crucial for economic and social development but are hallmarks of good governance.

To learn about the essentials and requirements of regulatory reform and understand the methods of enhancing the quality of regulatory decisions, the MPC and APO Secretariat organized a digital multicountry training of trainers on Regulatory Reform Agendas for Productivity Growth and Competitiveness, 5–7 April. Thirty-two participants from 12 APO members attended the training, with resource persons from the ROK and New Zealand who shared their expertise on regulatory reform.

Program coverage: Understanding the impact of regulatory reform on productivity and competitiveness; Regulatory reforms and regulatory management systems; Monitoring and evaluating regulatory reforms post-COVID-19; Best practices of regulatory quality for competitiveness and productivity; Importance of regulatory impact analysis under regulatory reform agendas; and Revisiting the principles and challenges of regulatory reforms.

Training of Trainers on Performance Monitoring and Evaluation for Public-sector Organizations

Performance management is a key factor in improving performance and productivity. Monitoring and evaluation (M&E) is a key component of performance management and essential to ensure that government programs achieve their intended goals. A sound M&E system allows governments to continually take in information, identify obstacles to policy implementation, and enable learning and innovation in the public sector, allowing them to deal better with general policy issues and crisis situations. While critical, developing an effective M&E system is complex and requires several challenging considerations. On one hand, there are those who believe that what gets measured gets managed and that top-down accountability is core. On the other hand, there is the view that metrics or quantitative measurements often fail to capture complex reality, and that public servants should instead be given more autonomy to make decisions on the ground. A

new approach has emerged in recent years called “measure for learning,” which bridges the gap between these two competing perspectives.

To introduce this approach to M&E, the APO Secretariat organized a digital multicountry training course on Performance Monitoring and Evaluation for Public-sector Organizations, 22–24 March. Thirty-three participants from 10 member countries were involved in this course. There were three resource persons, one from the USA and two from India.

Program coverage: Monitoring and evaluation of public-sector organizations; Result-based management for the public sector; Result-based management: Making sense of a new perspective; Designing and conducting impact evaluations; and Implementing impact evaluation in the field.

Conference on Enabling Regulations to Accelerate Agricultural Innovations

Agriculture faces enormous challenges to feed more than nine billion people by 2050, which will require 70% more food production. Innovation allows farmers to produce more food productively, profitably, and sustainably. Smart agriculture and plant-based technologies are key innovations. Developing flexible regulatory frameworks is important to support and accelerate innovation in agriculture. Japan is a good example of developing regulations on innovations like drone applications, unmanned equipment operations, data protection, and plant genome editing. The Philippines is another good example of sound regulatory systems for plant-based innovation.

A digital multicountry Conference on Enabling Regulations to Accelerate Agricultural Innovations was held virtually on 22 July by the APO Secretariat to share recent and future agricultural innovations, introduce good regulatory practices to accelerate innovations in agriculture, and discuss frameworks to support regulatory implementation to accelerate innovation. Fifty-nine participants and 18 observers from 12 member countries attended, along with resource persons from Japan, the Philippines, and Singapore who gave presentations and led discussions on key agricultural innovations, their regulatory systems, and considerations in enacting regulations.

Program coverage: Plant-based innovations in Japan; Policy and regulatory framework in advancing plant-based innovations; Smart agriculture strategy in Japan; and Regulatory considerations to advance smart agriculture in Asia.

Conference on Organic Farming and Agroecology

Agroecology is the application of ecological principles to agricultural systems by incorporating environmental, economic, ethical, and social aspects. Organic farming is regarded as the main driver of the agroecology approach to sustainable farming, aiming at diversifying food systems, reducing external inputs, and maintaining or improving the natural environment and ecosystems. The COVID-19 pandemic has deepened the need to strengthen awareness of food safety and hygiene. While COVID-19 has had disastrous health and socioeconomic consequences, it has also had a positive impact on the number of consumers and policymakers considering the need for providing more nutritious, safer food from farm to fork.

To share best practices of how organic farming and agroecology can produce sufficient, healthy, safe, affordable food during and after the COVID-19 pandemic and explore the opportunities and challenges in making healthy food available to all by promoting organic farming and agroecology practices, the MPC and APO Secretariat organized a digital multicountry conference on Organic Farming and Agroecology on 7 October. Seventy-three participants from 14 member countries and two resource persons from Germany and the Philippines attended.

Program coverage: The contribution of organic farming and agroecology to global food system transformation; Organic and agroecology approaches for agribusiness and food security; Innovations in Asia: Making organic agriculture more sustainable; and Organic agriculture experience in Mongolia: Support of the APO. The resource persons joined a panel discussion on diverse

organic and agroecology topics, such as principles, critical factors, government policies, and concerns of stakeholders, and explored ways to disseminate that knowledge throughout APO member countries.

Workshop on Regulatory Ecosystems for Startups

Startups refer to companies in the early stage of business development which offer new products and services. They attract talent and investment, catalyze local innovation, and create jobs. That is why they are believed to help transform national economies by driving innovation and collaborating with traditional sectors to increase productivity and competitiveness in the long run. However, regulatory ecosystems such as institutions, processes, and tools should be designed, implemented, monitored, and evaluated holistically across governments. Despite the opportunities in the Asia-Pacific region, regulatory systems need to be improved to encourage the establishment of more innovative startup firms at the national level.

To review startup ecosystems and their regulatory frameworks that support and accelerate startup success as well as identify measures for scaling up startups by improving regulatory ecosystem frameworks, the DAP and APO Secretariat organized a digital multicountry workshop on Regulatory Ecosystems for Startups, 28–30 July. Thirty-five participants from 12 APO members attended, with three resource persons from India, Indonesia, and Thailand who shared their expertise on the topics covered in the workshop.

Program coverage: Introduction to regulatory ecosystems for startups; Regulatory challenges of startup ecosystems; Public support systems for startups; Factors and actors in a startup ecosystem: A framework for policy support in the case of ASEAN; Ranking framework and introducing competitive federalism to support startup ecosystems; Government's role in a successful startup revolution; and Regulatory and policy proposals for startup ecosystem development.

Multicountry Observational Study Mission on Data Governance in the Public Sector to Improve Productivity

Data governance in the public sector is a whole-of-government approach to creating, protecting, using, managing, and sharing data as a strategic asset, enabling informed decisions that lead to better outcomes and services for citizens. Good data governance is therefore compulsory for governments that aim to become more data driven as part of their digital strategy and initiatives. It extracts value from data and enables greater data access, sharing, and integration at the organizational level and beyond while increasing the overall productivity and accountability of the public sector. As the COVID-19 pandemic compels governments to pursue digital strategies more robustly, good data governance has become more necessary on digital government platforms and in online services.

To analyze the fundamentals and benefits of data governance in the public sector and examine how good data governance enables the creation of coherent, successful programs and policy implementation by public-sector organizations, the KPC and APO Secretariat organized a digital multicountry observational study mission on Data Governance in the Public Sector to Improve Productivity, 24–25 November. Thirty-three participants from 13 APO members attended the course, with two resource persons from the ROK and one from the Philippines.

Program coverage: Understanding the data-driven public sector; Data ecosystem and “My Data” in the ROK; From big data to policy: The case of Seoul Transport; Digital government policy and practices in the ROK; and Open government data policies and best practices in the ROK.

Conference on Urban Agroecology and Food Security

Agricultural activities must be in sync with the natural environment. In urban areas, creating such harmony is more critical given the limitations of the natural environment. The benefits of urban

agriculture go beyond crop production and include ecological aspects, giving rise to the term “urban agroecology.” Urban agroecology supplies fresh produce grown near consumption areas, allows urban dwellers to experience agriculture, provides open space to accommodate evacuees during times of disaster, and offers green areas for relaxation. Although urban agriculture may not provide all the solutions to economic and food security dilemmas, it has the potential to promote fresh, nutritious food production at reduced cost, enabling greater self-sufficiency in food. These benefits have created a renewed focus on urban agroecology. With the COVID-19 pandemic prolonging constraints on fresh, nutritious food production, transport, and access, more resilient systems that promote local capacities such as urban agriculture are urgently needed.

To introduce the concept of urban agroecology, explore best practices and models that can be replicated as a response to challenges in food security, and promote fresh fruit and vegetable production from urban agriculture, the DAP and APO Secretariat held a digital multicountry conference on Urban Agroecology and Food Security, 9 September. It was attended by 54 participants from nine APO members, along with four resource persons from Indonesia, Japan, Malaysia, and the Philippines who gave presentations on the roles of urban agroecology in food security, especially in postpandemic society.

Program coverage: Food security and the role of urban agroecology/agriculture in a global context; Sustainability of urban agriculture for postpandemic society; Policies and resource support to help urban agroecology/agriculture thrive in Jakarta; and Best practices of urban agriculture and strategies for implementation.

Workshop on Development of New Innovation Standards for SMEs

In the digital age, drivers of productivity and competitiveness have shifted from efficiency and quality to innovation and entrepreneurship. However, pursuing innovation can be challenging without clear guidance and standards. Since 2019, the ISO has published a series of standards on the terminology, tools, and methods to enable organizations to promote innovations in a systematic fashion. These sets of standards can be applied to all organizations, regardless of type, sector, maturity level, or size. They are especially beneficial for SMEs, which often lack the know-how, methodology, and resources for undertaking innovation activities.

To introduce innovation management and the ISO 56000 standards for applications in SMEs, the VNPI and APO Secretariat organized a digital multicountry workshop on Development of New Innovation Standards for SMEs, 13–15 October. Thirty-four participants from 11 APO members completed the workshop conducted by a resource person from Germany and two each from Japan and Vietnam who discussed the development and adoption of the ISO 56000 series, innovation management tools, and strategies and policies supporting innovation in SMEs.

Program coverage: Innovation management system standard ISO 56002; Walkthrough of the ISO 56000 series: Guidance, tools, and methods for successful innovation management; Between the development and applications of ISO 56000 standards; Innovation and productivity in SMEs: Challenges and opportunities; Tools, methods, and success factors for SME innovation; ISO 56000 conformance and good practices of innovation management in SMEs; and Strategies and policy programs for encouraging innovation in SMEs.

Workshop on Developing National Innovation Systems

Innovation creates new demand and enhances productivity, making it central to sustainable growth and development. However, innovation is not an inevitable process. Economists from MIT found evidence that research productivity has fallen rapidly across the public and private sectors and that innovation is slowing in many advanced economies. Given its centrality to productivity enhancement and growth, governments must work together with enterprises and research institutes to promote innovation. Understanding the range of instruments available and

the roles of different stakeholders within national innovation systems (NIS) is critical to enhancing innovation and, ultimately, productivity.

To enable participants to understand how to develop effective NIS, the VNPI and APO Secretariat organized a digital multicountry workshop on Developing National Innovation Systems, 23–25 November. Forty-three participants from 16 member countries attended. There were five resource persons from Hong Kong, Japan, the ROK, Sri Lanka, and Vietnam.

Program coverage: Best practices from Vietnam in developing NIS; Harnessing innovation systems for sustainable development; Policies for enhancing innovation systems: East Asian experiences; Entrepreneurship and national innovation in the ROK; Principles of responsible research and innovation; Leveraging the capabilities of all actors in NIS; and Tools for responsible research and innovation.

Workshop on Food Storage Models

Improving agricultural productivity is essential for promoting long-term food security and poverty reduction. In addition to producing more food, it is important to reduce food waste and losses due to poor storage or inefficient processing. Food losses occur in the production, handling, storage, processing and packaging, distribution and retail, and consumption stages. According to estimates, one-third of food produced is lost and wasted each year. Proper storage helps in preserving the quality and nutritional value of food while preventing spoilage. Better food storage would contribute to national and regional food security and raise the quality and nutritive value of food from farms to consumers.

To discuss agricultural productivity by reducing food loss and waste with proper storage, review food storage policies and strategies to strengthen national food security, and share innovative food storage models and promote their adoption in and dissemination among APO member countries, the NPO of Pakistan and APO Secretariat organized a digital multicountry workshop on Food Storage Models from 30 November to 2 December. Forty-eight participants from 13 member countries and four resource persons from Bangladesh, New Zealand, the Philippines, and host Pakistan attended.

Program coverage: Implications of COVID-19 for food storage and security; Developing and scaling up hermetic storage systems for rice: The International Rice Research Institute (IRRI) experience; Potential of video-centered approaches for the extension of good crop storage practices; Applications and implications of digital technologies for food storage; Importance, opportunities, and challenges of food storage in terms of national food security; and Rice seed preservation and storage practices of smallholder farmers in Asia.



Innovation Capability

Facilitating or enhancing the innovation capability of members and organizations through promotion of an innovation culture, generation of ideas, R&D, and international standards on innovation is the focus of the Innovation Capability initiative. The following are summaries of projects implemented in 2021.

Special Program for Capacity Building of Sustainable Food Value Chains for Enhanced Food Safety and Quality in Asian Countries: Third 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 2021, involving national capacity-building projects on productivity enhancement in agriculture and the food industry under a special cash grant from the Government of Japan. The following projects were conducted under this special program in 2021.

2021 International Conference on Agriculture Transformation

The CPC and APO Secretariat organized the 2021 International Conference on Agriculture Transformation in the ROC, 26–27 October, to promote the adoption of multidisciplinary, forward-looking technologies in agriculture, share successful cases of introducing smart, innovative agricultural technologies, and create more opportunities for multidisciplinary cooperation and resource integration in the agriculture sector. On the first day, 229 participants attended, with 191 on the second day. They comprised government officials promoting smart agricultural production, experts and researchers specializing in technological development for smart agriculture, and individuals engaged in agribusiness-related activities. In addition to 11 local resource persons, two international resource persons from Japan attended digitally.

Workshop on Productivity, Quality, and Innovation for Transforming Economies

“Transforming economies” refers to structural changes in the composition of industrial sectors such as agriculture, manufacturing, and services. GDP shares in most advanced economies follow the order of services, industry, and manufacturing. APO member countries also follow that trend. Based on country classifications by the UN, the World Economic Situation Prospect 2020 report showed 13 APO members in the middle-income range (measured by per capita GNI) as they transition from economies based on agriculture to other sectors. Recent advances in Industry 4.0 are contributing to the trend as digital technologies become more widespread regardless of national income level, which provides opportunities for APO member economies to climb the ladder of productivity growth. However, the principle of enhancing productivity for the optimum use of resources such as labor, capital, and technology remains crucial in the transformation of economies.

To understand the current views of productivity and ways of increasing the effectiveness and efficiency of productivity measures through enhancing quality and undertaking innovations at firm, industry, and national levels, the NPO of Pakistan and APO Secretariat organized a digital multicountry workshop on Productivity, Quality, and Innovation for Transforming Economies, 27–29 January. Twenty-nine participants from 11 APO members attended the workshop, with four resource persons from Japan, the ROK, Pakistan, and Singapore.

Program coverage: Introduction to economic transformation and productivity growth; Economic progress and the middle-income trap; Role of human capital management for transforming to advanced economies; Digital transformation and governance of Industry 4.0; Quality 4.0—upgrading quality professions and practices to meet changing industrial trends; R&D and strategies for emerging industries; and Policies for industrial transformation.

Workshop on Adoption of Industry 4.0 Applications for SMEs

The ease of access to the internet and ICT, digitization, and usage of data have been identified as fundamental, effective ways to improve productivity and are rapidly transforming production systems, value chains, and labor relations. However, the pace of such transformation varies across countries and sectors and is heavily reliant on access to suitable technologies, availability of a skilled workforce, and mindsets and strategies of businesses. It is imperative to identify necessary steps and adopt appropriate tools and technologies to ensure that businesses can stay competitive and avoid impacts resulting from the digital divide.

To discuss the preparations, implementation strategies, methodologies, and tools to support SMEs in initiating and sustaining digital transformation in their operations and management, the APO joined forces with the NPO of Bangladesh to conduct a digital multicountry workshop on Adoption of Industry 4.0 Applications for SMEs, 7–9 December. Thirty-eight participants from 13 member countries attended the workshop. Two resource persons from Bangladesh, and one each from Canada, the ROC, and Singapore identified practical steps, preparations, and tools and discussed the necessary skills and technologies that SMEs could adopt for their digital upgrading.

Program coverage: Moving toward Industry 4.0; Productivity improvement and preparation for digital upgrading; Understanding the readiness of businesses and prioritizing resources for digital transformation; Suitable technologies and necessary skills for SME digitalization; Leveraging resources from the ecosystem: Policy programs and support from the government and intermediary agencies; and Case studies and good practices of SME digital upgrading.

Workshop on Cybersecurity and Network Resilience Approaches for Industry 4.0

The Fourth Industrial Revolution (Industry 4.0) is taking digital technology to the next level with the help of interconnectivity and access to real-time data, bringing a comprehensive approach to digital transformation. However, the need to improve cybersecurity is even more profound now since the potential impact of relevant threats ranges from compromising physical security to production downtimes and from spoilage of products to damaging equipment as well as ensuing financial and reputational losses. During the COVID-19 pandemic, industries, public services, healthcare, and social interactions, among others, have become more dependent on digital infrastructure and online information.

To learn about the fundamentals of cybersecurity and network resilience approaches in relation to Industry 4.0 and share cybersecurity frameworks of governments to strengthen good IT governance, the MPC and APO Secretariat organized a digital multicountry workshop on Cybersecurity and Network Resilience Approaches for Industry 4.0, 7–9 September. Forty-one participants from 15 APO members attended the workshop, with two resource persons from Malaysia and one from the Philippines who shared knowledge and experience on cybersecurity and network resilience for Industry 4.0.

Program coverage: Understanding Industry 4.0, cybersecurity tools, and fundamentals of cyberresilience protection; Regulatory requirements to harmonize security standards for Industry 4.0; Integrating cybersecurity into industrial control systems and operational technology solution control and life cycles; Risk assessment of cyberattacks in Industry 4.0; Development of a national cybersecurity framework for the public sector; and Cybersecurity standards and guidelines.

Workshop on Innovative Business Models for Industry 4.0

Digitization and applications of digital technologies are revolutionizing methods of production, distribution, marketing, and overall business management. They are also blurring the boundaries between business functions and sectors. Strengthened vertical and horizontal integrations in value chains have been observed in industries; meanwhile, decentralized suppliers of goods, services, and ideas are seen in the industrial landscape. Considering the heightened competition also brought about by digital technologies, it is imperative for businesses to identify and embrace innovative models to stay flexible, resilient, and competitive.

To provide references for innovations in business models to keep member countries abreast of current trends and assist them in developing strategies for digital upgrading, the NPO of Pakistan and APO Secretariat organized a digital multicountry workshop on Innovative Business Models for Industry 4.0, 24–26 November. Thirty-seven participants from 11 APO members attended. Four resource persons, one each from the ROC and Italy and two from Pakistan, led the discussions surrounding digital technologies, market opportunities in the digital age, emerging business models, and how SMEs could leverage innovation and new opportunities.

Program coverage: Industry 4.0 and core technologies: Trends and applications; New rules of digital marketplaces and how to leverage networks; Embracing opportunities with entrepreneurial, ecosystemic organizations; Digitization and data analytics-supported innovation for SMEs; New trends in manufacturing and data-driven innovation and business models; and Strategies for encouraging innovation in SMEs.

Conference on Public-sector Productivity: Ensuring Public Services in the New Normal

The prolonged, disruptive COVID-19 pandemic has pushed the public sector to a critical juncture. Unanticipated events can be a source of both disruption and opportunity. This includes the COVID-19 pandemic that has transformed many economies. The pandemic has severely disrupted public services and tested the continuity, response, and agility of the public sector. All these underscore the need for the public sector to cope with complexity, adapt, and evolve to create value and be responsive to rapidly changing conditions and citizens' expectations.

To share emerging technologies, innovations, and tools that will enhance public service delivery under the new normal, the DAP and APO Secretariat organized a digital multicountry conference on Public-sector Productivity: Ensuring Public Services in the New Normal, 25 August. Seventy-one participants from 14 APO members attended, along with three resource persons from France, the ROK, and Malaysia who shared their knowledge on new normal work for the public sector, its productivity performance, and anticipatory innovation governance capability.

Program coverage: Making the new normal work for the public sector; Tackling public-sector productivity under the new normal; Transforming public service delivery under the new normal; Innovation through the anticipatory innovation governance model; and Cases of public service delivery in the Philippines under the new normal.

Workshop on Evaluating Regulatory Quality and Performance to Improve Public-sector Productivity

Regulation plays a crucial role in society. The World Bank noted in a 2019 report that government regulation is a major determinant of prosperity and a principal instrument that makes a difference in the lives of citizens. Effective regulation alleviates societal risks and corrects market failures, leading to better productivity and growth. However, poorly designed, feebly implemented, or outdated regulations are burdens on citizens and businesses. They are particularly burdensome for small companies, which must devote considerable resources to comply with regulations. Governments must therefore ensure that regulations enhance, not undermine, societal well-being and economic development. To do this, the public sector requires good tools, techniques, and frameworks for evaluating regulatory quality and performance.

To explore approaches to develop tools and frameworks for evaluating regulatory quality, the DAP and APO Secretariat organized a digital multicountry workshop on Evaluating Regulatory Quality and Performance to Improve Public-sector Productivity, 10–12 November. Forty-one participants from 13 member countries were involved, with the majority from the public sector. There were five resource persons, two from Australia, one from the ROC, one from the Philippines, and one from New Zealand.

Program coverage: Evaluating regulation to improve quality and performance; Digital regulatory reform: The case of Taiwan; Introduction to the DAP's regulatory cost model calculator; Australia's experience with regulatory review; Regulatory stewardship: An introduction; Regulatory sandboxes: Overview and key considerations; and 100 years of regulatory reforms in 100 minutes.



3 Inclusive Productivity

The third focus area is promoting inclusive productivity, which requires the involvement of all economic sectors and segments of society in national productivity drives. Projects are developed to address productivity issues in target sectors as well as provide new knowledge on productivity tools, techniques, methods, and technologies. The projects are divided into three initiatives: SME Development; Broad-based Engagement; and Productivity Gainsharing.



SME Development

Projects are organized to develop SMEs/MSMEs as well as informal-sector enterprises by introducing new productivity tools and techniques, benchmarking against best practices in the region and beyond, and creating networks to strengthen collaboration. The overall objective is to enhance the capability of SMEs and reduce the size of the informal sector. Projects on SME Development implemented in 2021 are summarized below.

Workshop on Empowerment of Small-scale Farmers in Adopting Internet of Things Technologies

In Asia, almost 500 million farms are managed by small-scale farmers (SSFs). Innovations must reach them to develop sustainable, productive agricultural systems in the region. Due to expected challenges in feeding more people with shrinking land and water resources for agriculture, it is necessary to adopt smart farming with the potential to develop a climate-resilient, competitive, resource-efficient agriculture sector. However, SSFs usually lack funds for capital investment in smart technologies and may not understand their benefits. Strengthening academia/research-industry-farmer linkages and promoting public-private partnerships will be critical for the adoption of cost-effective IoT technologies by SSFs to reap the benefits of smart farming on a wider scale.

A digital multicountry workshop on Empowerment of Small-scale Farmers in Adopting Internet of Things Technologies was conducted by the MPC in partnership with the APO Secretariat, 16–18 March. It examined digital agribusiness concepts, global trends, and opportunities presented by IoT-based technology adoption. Thirty-six participants from 12 member countries attended, along with three international resource persons from India, Japan, and Vietnam.

Program coverage: Key concepts and global trends in smart farming and opportunities offered by the IoT in rice production; Basic infrastructure and facilities needed for the adoption of smart farming for SSFs; How investment in digital agriculture will help smallholder growers; Digitizing farm machinery adoption systems for SSFs: Case studies; Advanced ICT for smart farm management in rice; IoT solutions in smart and precise alternate wetting and drying for sustainable rice cultivation, and Uberization of agriculture for smallholder farmers through FarmERP.

Multicountry Observational Study Mission on Support for Digital Transformation for SMEs

Digitalization of businesses continues to be a major strategy for companies to raise productivity and for countries to improve the competitiveness of their industries. However, digitalization is a complicated process, which involves adopting suitable technologies, redesigning procedures and practices, leveraging financial and human capital, and exploring new strategies and business models. SMEs usually lack the resources, capacity, or simply information to start and continue the journey; therefore, to ensure timely digital transformation of SMEs, assistance that addresses their specific needs is indispensable.

To provide references for government policies and organizational strategies for SME digital upgrading, the CPC collaborated with the APO Secretariat to conduct a digital multicountry observational study mission on Support for Digital Transformation for SMEs, 10–12 November. Forty-seven participants from 14 member countries were invited to attend the digital study mission, facilitated by six resource persons, four from the ROC, and one each from Singapore and the UK.

who discussed strategies and good practices of digital transformation, stakeholders involved in the ecosystem, and practical policy programs supporting SME digital upgrading.

Program coverage: Digital transformation for SMEs: Challenges and prospects; Creating an ecosystem for SME digital upgrading; Breaking technological barriers: Technical assistance for SMEs; Building a smart manufacturing value system; Initiating digital transformation for SMEs and promotion programs in the ROC; and Enterprise digital transformation.

Multicountry Observational Study Mission on Service Quality and Productivity for the Retail Industry

The Asia-Pacific region, which accounts for more than 50% of the world's population, is the largest retail market. From 2014 to 2019, the compound annual growth rate for Asia-Pacific retail sales was more than quadruple that of the rest of the world. The retail industry in this region is expected to maintain its momentum due to strong overall economic growth, rapidly changing consumer trends, greater purchasing power, and increasing populations. Another reason why the Asia-Pacific will remain the retail industry's growth engine is its advanced digital maturity. The ROC is a good example, since retail sales jumped 3.56% year-on-year in January 2021, following a 1.69% increase in the previous month. Considering the key role of service-sector productivity in determining a nation's overall ability to compete, in addition to its contributions to employment, income, international trade, and production costs, it is timely for APO member countries to give priority to boosting service-sector productivity.

The CPC and APO Secretariat organized a digital multicountry observational study mission on Service Quality and Productivity for the Retail Industry, 27–29 October, with 33 participants from eight member countries as well as eight resource persons, four from the ROC, two from Japan, and two from the ROK. The objective was to examine the best practices of customer service, productivity, and service innovation under various initiatives such as 7-Eleven in the ROC.

Program coverage: Integrating service quality and productivity strategies; Improving service quality and productivity through effective cost management; Learning from customer feedback and data-driven strategies; Addressing service quality problems through customer feedback; Tools to analyze and address service quality problems and returns on quality; The 2 Omnichannel approach: Online and offline coordination; Buy online and pick up in store (BOPIS)/buy online and pick up at curbside (BOPAC) strategy case studies; and Defining, measuring, and improving service productivity.

Workshop on Innovations in Farmers' Cooperatives and Producers' Associations

To offset disadvantages compared with large producers, small and medium agrifood producers organize cooperatives/associations for mutual assistance. They make joint purchases of agricultural inputs such as fertilizer, share equipment and postharvest facilities, and combine harvest sales. Farmers' cooperatives/producers' associations offer other benefits for members such as sharing information on technology and markets. They recognize the need for innovation. Some have established their own product brands, which can be sold to quality-conscious consumers at premium prices. In addition to introducing innovative technologies, some farmers' cooperatives/producers' associations in Asia also provide management techniques such as empowering women farmers and developing relationships with other cooperatives/associations domestically and internationally, making them more productive and competitive.

To introduce the roles of farmers' cooperatives/producers' associations in supporting small and medium producers in the agrifood sector to improve their operations and learn about innovations to make those producers more competitive and productive, the JPC and APO Secretariat organized a digital multicountry workshop on Innovations in Farmers' Cooperatives and Producers' Associations, 9–11 November. Twenty-five participants from 12 APO members attended, along with one resource

person from India and two from Japan, who shared concepts of farmers' cooperatives and best practices.

Program coverage: The role of agricultural cooperatives in terms of food and the world; Strengthening sustainable agriculture through cooperation among Asian farmers; Recent views on movements to improve the management of agricultural cooperatives; Smart agriculture and its prospects; Introduction of good practices of agricultural cooperatives for female farmers; and Future development of sustainable agriculture and regional mutual aid.

Workshop on Agribusiness Innovations for Sustainable Rural Community Development

In the last decade, innovations in technologies and business models have made rapid progress. Adopting the innovations is a key component in developing agribusinesses to maintain sustainable communities. While the importance and value of innovations are recognized, the majority of smallholder farmers in rural areas in the Asia-Pacific have not yet benefited from them because most lack information, have weak financial foundations for investment, and receive few training opportunities.

To examine innovative agribusiness models and current policies on rural community development, the NPO of Pakistan and APO Secretariat organized a digital multicountry workshop on Agribusiness Innovations for Sustainable Rural Community Development, 24–26 March. Thirty-eight participants from 12 APO members attended the workshop, along with four resource persons, one from India, two from the ROK, and one from Pakistan, who shared recent policies supporting sustainable rural community development, status of innovations in agriculture, and the role of public-private partnerships.

Program coverage: Recent policy reform in agribusiness development in Pakistan; Recent policies supporting sustainable rural community development; Innovations in agriculture contributing to sustainable rural community development; and Public-private partnerships for innovation in rural community development.

Workshop on Rural Economic Development through Development of Village Tourism

Successful development of rural tourism requires more than attractive, competitive destinations. A variety of products and services to meet constantly changing market demand and evolving customer requirements, including those prompted by the COVID-19 pandemic, must be delivered.

A multicountry workshop on Rural Economic Development through Development of Village Tourism was held virtually, 5–7 October, to understand the current and future environment surrounding the village tourism sector, share good practices in village tourism programs under the COVID-19 pandemic, and discuss strategies and key success factors for future-ready village tourism. Organized by the Ministry of Manpower and Ministry of Village, Development of Disadvantaged Region, and Transmigration of the Republic of Indonesia in cooperation with the APO Secretariat, it was attended by 53 participants from 13 countries, along with four resource persons from Indonesia (two), Slovenia, and Thailand.

Program coverage: Reshaping tourism toward the new normal; Village tourism in Indonesia; Tourism 4.0 for reshaping village tourism with digital and business innovations; and Approaches to relieve, revitalize, and reshape village tourism in Thailand.



Broad-based Engagement

The Broad-based Engagement initiative is intended to encourage widespread participation in and commitment to the productivity movement. Involving women, youth, and persons with different abilities equips them with new productivity skills and knowledge and increases their participation in labor markets. The following are summarized reports on the projects implemented in 2021.

Workshop on Policy Initiatives for Attracting Youth and Preventing Attrition in Agriculture

Young people are becoming entrepreneurs as producers, distributors, marketers, and sellers using innovative technologies and business models. Attracting talented young people to agriculture has been a core agenda item for governments across APO member countries. Efforts are being made to understand the specific characteristics of young people, create conducive working environments for them, and identify the best methods to nurture their talents.

To review recent policies and initiatives for increasing and sustaining youth participation in agriculture in Asia and beyond, the Ministry of Agriculture and Ministry of Manpower, Indonesia, and the APO Secretariat organized a digital multicountry workshop on Policy Initiatives for Attracting Youth and Preventing Attrition in Agriculture, 6–8 April. Twenty-four participants from 14 APO members attended the workshop, along with resource persons from the ROC, Indonesia, Italy, Malaysia, the Philippines, and Thailand, who reported recent policy initiatives and schemes to attract the young generation to rural areas and promote the utilization of their talent in agriculture and facilitated discussions on how to increase and sustain youth involvement in the agriculture sector.

Program coverage: FAO and IFAD initiatives for youth development: Policy overview of youth development in agriculture in the Philippines; Case studies from Indonesia, the Philippines, and the ROC; and Private-sector view on youth in agribusiness.

Training of Trainers on Developing Future-ready Agribusiness Social Enterprises

In agriculture, social enterprises (SEs) often address challenges in value chains by providing cost-effective financial solutions, best practices for productivity enhancement in crop production, and best processing and packaging solutions to increase product shelf life, with the intention of sharing the financial gains from reduced costs of inputs and increased income with smallholders and contributing to social missions. Digital innovations including the IoT, high-speed internet connections, and greater access to affordable smart devices have the potential to significantly change SEs and startups in agriculture led by the current generation of agribusiness owners and upcoming entrepreneurs who will adopt more innovative technologies to solve social issues.

To broaden participants' understanding of recent trends in SEs, particularly how enterprises are adopting innovative solutions like blockchains, AI, and big data to access affordable financial services, a virtual training of trainers course was conducted by the DAP in partnership with the APO Secretariat, 3–5 March. Thirty-one participants from 15 member countries as well as four international resource persons from India, the Philippines, Portugal, and Uganda attended.

Program coverage: Concepts and principles of future-ready SEs; Global trends in future-ready SEs; Establishing and funding SEs across agriculture value chains; Sustaining, scaling up, and managing SEs; Addressing issues along agricultural value chains; Future-ready technologies in the agribusiness sector; Roles of the public and private sectors in developing future-ready agribusiness SEs; Urban greens—hydroponic farm systems; Characteristics and competencies of effective trainers for creating SEs; and Case studies of future-ready agribusiness SEs.

Workshop on Women's Empowerment for Productivity Gains

UN SDG 5 calls for gender equality and improving the livelihoods of marginalized women at the bottom of the pyramid. Enhancing female labor force participation (FLFP) for productivity growth is therefore high on the international agenda, as exemplified by SDG 5 and the G7 Ise-Shima Leaders' Declaration in 2016. The untapped productive potential of women is almost double that of men globally. Underutilized or unutilized women's capital potential lowers national competitiveness if unaddressed. Many developed countries have committed to improving FLFP by systematically removing hurdles, including entrenched social perceptions and career glass ceilings. However, challenges in engaging women productively in workplaces remain.

To learn from past experience and successful cases including productivity tools and methodologies that encourage higher FLFP across member countries, the APO Secretariat organized a digital multicountry workshop on Women's Empowerment for Productivity Gains, 22–24 June. Thirty-four participants from 13 APO members attended the workshop, along with four resource persons, three from Japan and one from Malaysia, who gave presentations and facilitated group discussions.

Program coverage: Promoting women's empowerment in the workplace in Japan; Progress of female labor force participation in Malaysia; Issues and challenges in women's empowerment; Improving work-life balance by implementing productivity tools and methodologies in the workplace; Championing company-wide productivity improvement activities; Initiatives in the public and private sectors for women's empowerment in Japan; Case study on women's empowerment for productivity gains in a Japanese company; and Opportunities for addressing female labor force participation across Asia and the Pacific.

Multicountry Observational Study Mission on Enhancing Equal Opportunities for Inclusive Engagement of the Workforce

Three major trends have been witnessed amid the COVID-19 pandemic: the accelerated use of digital technologies; disruptions in the employment landscape; and stronger calls for equality and social justice. In response to these, governments and global initiatives have placed more emphasis on social inclusiveness, especially through promoting diversity, equity, and inclusion in the workplace, to ensure that contributions to and gains from productivity improvement are shared by all.

To provide references for government policies and organizational strategies for inclusive engagement of the workforce, the KPC collaborated with the APO Secretariat in organizing a digital multicountry observational study mission on Enhancing Equal Opportunities for Inclusive Engagement of the Workforce, 28–30 July. Twenty participants from 11 APO members attended the study mission, along with four resource persons, one from Canada, two from the ROK, and one from Thailand, who gave presentations on the concepts, trends, policies, and corporate solutions for inclusiveness enhancement in the workplace.

Program coverage: Diversity, equity, and inclusion in the workplace; How do digital technologies influence diversity and inclusion?; Trends of diversity, equity, and inclusion in the Asia-Pacific region; Case studies from APO member countries; Female labor force participation in Asia; Challenges and suggestions; Equal labor force participation in the ROK; Strategies and policies promoting equal labor force participation: Good practices, prerequisites, and implications for APO members; Initiatives and policy programs for diversity and inclusion: Case studies from the ROK; and Benchmarking and good practices: Lessons learned from each other.

Workshop on Nurturing Social Enterprises

Social entrepreneurs around the world have been unparalleled catalysts for change. They use market-driven strategies to tackle critical social issues in new ways. Decades before the UN SDGs were set, social entrepreneurs were promoting a broad range of solutions focused on sustainable development through nonprofit, for-profit, and hybrid enterprises. Businesses today are embracing a new paradigm for management, which views a business not only as a "company" but also as an "institution" integrated into the social fabric. Many companies rate "inclusive growth" as one of their top three goals, eclipsing strategies like "growing market share" or "being the category leader." "Citizenship and social impact" are also regarded as critical or important by most.

The APO Secretariat organized a digital multicountry workshop on Nurturing Social Enterprises, 6–8 December, with 26 participants from 11 member countries to share the concepts of social enterprises and social innovation in the service industry, the key factors for developing social organizations, insight into current social issues, how to devise solutions, and how to measure the impact of social enterprises.

Program coverage: Business models; Case studies from Indonesia, Japan, Rwanda, and ASEAN; Funding for social enterprises; Challenges of social enterprises; Recycling business in collaboration with government; and Opportunities for social entrepreneurship.

Workshop on Diversity and Organizational Performance in the Public Sector

Public organizations that serve and represent all sections of society are attempting to promote greater workforce inclusion to produce improved policy outcomes and services for citizens in general. In this context, many public organizations have adopted diversity and inclusion (D&I) management that recognizes and values individuals from different backgrounds. For example, today's governments are redesigning their performance management systems for public-sector modernization by incorporating D&I as governance mechanisms for multicultural public organizations. Human resources policies have been expanded to behavioral expectations of public servants based on D&I values.

To review D&I initiatives and discuss their managerial and policy implications for enhancing public-sector performance, the APO Secretariat conducted a digital multicountry workshop on Diversity and Organizational Performance in the Public Sector, 18–20 May. Forty-four participants from 13 APO members attended the workshop, with three resource persons from Australia, the ROK, and Singapore who explained the concepts, methods, trends, and various examples of D&I practices in the public sector.

Program coverage: Introduction to D&I for enhancing public-sector performance; Reviewing and linking D&I with human resources systems in the public sector; Mainstreaming D&I through tools for practice in public organizations; Organizational and team management in multicultural settings; and Government initiatives for diversity, equity, and inclusion in the public sector. The course also included a group exercise where participants were divided into virtual teams to draft action plans on implementing and measuring D&I for success through innovative, practical approaches.

Workshop on Continuing Education for the Aging Society

The region's elderly population is projected to reach nearly a billion by 2050. This demographic shift will fundamentally change societies and affect business strategies and government policy. The region's past decades of growth were fueled by a population dividend. Now, governments and firms must look for ways to sustain economic growth while dealing with the increasing costs of supporting a larger elderly population through pensions and healthcare. In terms of productivity, an aging population poses serious challenges. In a 2016 report, the US-based National Bureau of Economic Research estimated that a 10% increase in the elderly population would decrease GDP per capita growth by 5.5%, much of which is attributed to slower labor productivity growth. Population aging can also lead to rising economic inequality, with elderly women being more vulnerable to poverty. One policy channel to address this issue is continuing or lifelong education. Instead of a three-stage life model that comprises education, career, and retirement, a multiphase model would allow people to retrain, reskill, and upskill and improve employability throughout their lives.

To discuss these demographic challenges and different models of continuing education to address them, the CPC and APO Secretariat organized a digital multicountry workshop on Continuing Education for the Aging Society, 15–17 September, with 35 participants from 10 member countries. The three resource persons from the ROC, Japan, and Singapore gave presentations and guided discussions.

Program coverage: Aging society, the future workforce, and productivity; Lifelong learning, technology, and well-being in an aging society; Introduction to upskilling, reskilling, and lifelong education; National movements to enable continuing education; and Key skills and competencies for the future multigenerational workforce.

Training Course on Innovative Aquaculture Models

Aquaculture, also known as aqua farming, is the cultivation of aquatic organisms in both coastal and inland areas and a good source of protein, fatty acids, vitamins, minerals, and essential micronutrients, thereby providing excellent nutritional and health benefits. The protection of marine and freshwater species and aquatic life is therefore vital for the preservation of the environment, biodiversity, and ecology, hence ensuring balance in the natural ecosystem. Aquaculture is growing faster than other major food production sectors, and Asia dominates global aquaculture, accounting for 92% of total production. There are several types of aqua farming differentiated by water type, species raised, water flow, and cultivation intensity.

To promote tools and techniques of modern aquaculture systems; examine strategies, approaches, and guidelines to develop small-scale aquaculture business plans; and share successful innovative aquaculture models and good management practices, the NPO of Bangladesh and APO Secretariat organized a digital multicountry training course on Innovative Aquaculture Models, 16–18 November. Forty participants and an observer from 14 member countries, along with three resource persons from Bangladesh, Malaysia, and the Philippines, attended.

Program coverage: Innovations in aquaculture for greater sustainability; Recent innovations in aquaculture in Bangladesh; Innovations in hatchery management for increased seed production; Business initiatives in aquaculture: Sustaining nutritional security; Antimicrobial resistance and prebiotic/probiotic use in modern aquaculture; and Growout management for greater yields: Feeding, stocking, and handling innovations.

Conference on Social Empowerment in Agriculture

Social empowerment is the process of acting individually and collectively to change social relationships and the institutions and discourses that exclude the poor and keep them in poverty. It is a broad area of practice drawing upon social work and community development principles at individual, family, community, and social levels to promote equity and inclusion of different unprivileged and vulnerable groups. It is recognized as a major enabler in meeting the SDGs. Social entrepreneurship can foster innovation and improve agricultural programs by engaging groups such as persons with different abilities and women, enabling them to support the livelihoods of their families and improve the general social fabric. It is vital to understand the concept and indicators of social empowerment to improve community development in the agriculture sector and learn about successful, innovative models that engage different social groups.

To introduce the concept and indicators of social empowerment for improving community development in the agriculture sector and share successful, related models and policies and their contributions to socioeconomic development, the APO Secretariat organized a digital multicountry conference on Social Empowerment in Agriculture on 2 September. Thirty-six participants from 12 member countries and three resource persons from Bangladesh, Japan, and the ROK attended.

Program coverage: Social empowerment in the sixth industrialization in Japan; The Hansalim cooperative model as a social empowerment business in the ROK; and Transforming land for transforming lives as an innovative agribusiness in Bangladesh.

Workshop on Enhancing Productivity for SMEs: Measuring and Analyzing Productivity Gains

SMEs play a vital role in the overall national development of APO member countries. However, volatility in the business environment and diversity in customer demand require SMEs to embrace innovation and adopt a culture of productivity enhancement to remain competitive for sustained growth and profitability. The ongoing COVID-19 pandemic has also raised additional hurdles, necessitating SMEs to increase operational efficiency, automate business processes, and expedite decision-making. The APO has therefore conducted capacity-building workshops

and training courses and published sector-specific research on productivity measurement and management frameworks for SMEs.

A digital multicountry workshop was hosted by the Ministry of Employment, Productivity, and Industrial Relations, NTPC, Fiji National University, and APO Secretariat, 11–13 August, as a platform to review the methodologies for SME productivity measurement and support participants in developing strategies for productivity enhancement and industrial upgrading. It introduced the concept and major drivers of productivity at enterprise level, showcased suitable approaches to measure and manage productivity, and provided insights into strategies that SMEs could adopt for productivity enhancement. Forty-four participants from 14 APO member countries attended. Three resource persons from Fiji, Malaysia, and Singapore gave presentations and guided participants during the group work.

Program coverage: Productivity trends in the Asia-Pacific region; Productivity levers; Approaches to business excellence; Benchmarking and productivity gainsharing; Productivity measurement systems; Online productivity assessment tools; and Group work on a case study.

Productivity Gainsharing

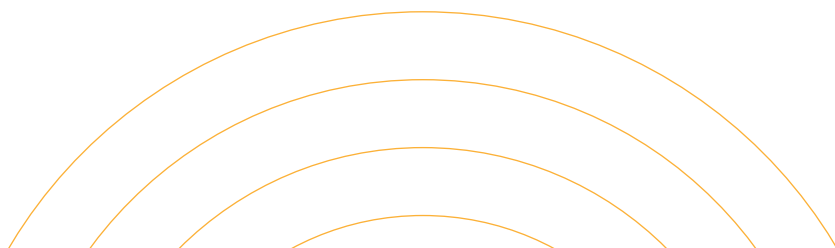
Projects focusing on the concepts and practices of the equitable distribution and sharing of productivity gains at organizational level are developed by the APO. This initiative guides companies in measuring their productivity performance and linking it to gainsharing with all employees. The practice sustains employee commitment to increasing productivity over the long term. The following project was implemented in 2021.

Workshop on Productivity Gainsharing Models in Agribusiness Enterprises

Gainsharing is a management system applied by an organization or enterprise to enhance its performance through the involvement and participation of employees. The basic tenet is that as performance improves, the enterprise will gain higher profits, which in turn are redistributed and shared with employees. Thus, employees always try to make maximum efforts for higher productivity, which ultimately benefits them. The arrangements benefit not just individual workers, but companies as well since productivity gainsharing sustains employee commitment to increasing productivity. One goal of the APO Vision 2025 is inclusive, innovation-led productivity growth as a prerequisite for achieving sustainable socioeconomic development in the region, which is the mandate of the APO. In this context, the gainsharing concept and practices support the APO's aspirations for inclusive engagement and shared prosperity.

To understand the concept, management, and models of gainsharing for improving employee–management relations and enhancing productivity in agribusiness enterprises, the MPC and APO Secretariat organized a digital multicountry workshop on Productivity Gainsharing Models in Agribusiness Enterprises from 14 to 16 July. Forty-two participants from 12 member countries as well as three resource persons from Bangladesh, India, and the Philippines attended.

Program coverage: Concepts and tools of productivity gainsharing; Gainsharing and pricing policies and practices in the Indian agriculture system; A successful gainsharing community enterprise approach (Daudkandi model) in Bangladesh; Policy changes and requirements for promoting gainsharing in agribusiness enterprises; Policies and best practices of productivity gainsharing models in agribusiness; and Gainsharing with farmers in product pricing: Experience from Satat Sampada, an Indian social enterprise.



4 Regional Catalyst

The fourth focus area is to strengthen the role of the APO as the leading regional organization on productivity. Other than raising the visibility of the organization, it also ensures that member economies benefit from APO research on emerging trends, including political, economic, environment, social, and technological developments; leverage technology as a new mode of learning; develop standards for productivity specialists; and have access to a reference center on productivity-related topics. Projects under this focus area in 2021 covered the following topics.



Certification and Accreditation

The Certification and Accreditation Program aims at ensuring that projects undertaken by the APO adhere to international accreditation body standards, while remaining attuned to the needs of NPOs aspiring to be certification bodies (CBs) and recognizing the national accreditation prerequisites and conditions in each member country. During 2021, the major accomplishment was developing NPOs as APO-accredited CBs of Productivity Specialists with the successful accreditation of two forerunners, the MPC-CB and Vietnam Productivity Specialist Certification Body (ViProCB). The APO Accreditation Body (APO-AB) continued support to NPOs in expediting their CB development processes and assigned resource persons to mentor NPO staff working to become APO-certified productivity specialists, Green Productivity specialists, and public-sector productivity specialists. The following are summaries of projects implemented in 2021 under this initiative.

Fourth Meeting of the APO Accreditation Body Council

The APO-AB Council held its fourth meeting on 15 December 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. Seven council members, two individuals representing regular members, and a technical adviser participated in the meeting. CB Development (CBD) project participants comprising the NPOs of India, Indonesia, Malaysia, Mongolia, Pakistan, Turkey, and Vietnam also shared their progress during the meeting. Representatives from I.R. Iran attended the meeting as observers to learn from the experiences of other NPOs going through CBD projects.

Program coverage: Special presentations by APO-accredited CBs, the MPC-CB and ViProCB; Progress reports from the NPC, NPO Indonesia, MPO, NPO Pakistan, and Turkey; and Updates from the Secretariat on resolutions passed in the third council meeting.

Training of Assessors for the Productivity Specialists Certification Program

The APO developed the first batch of assessors for the APO-PS 101:2019 Requirements for Productivity Specialists scheme in member countries to ensure successful implementation of the certification program and that NPOs are continuously supported in their journey to become and function as CBs. Under the APO-PS 101, CBs conduct documentation verification, examination, and face-to-face panel interviews before granting certification. The qualified assessors will serve CBs and ensure that CBs are able to certify productivity specialists in a sustainable manner while maintaining the highest standards in conducting assessments.

To develop qualified, competent assessors for NPOs that will serve as APO-accredited CBs and familiarize participants with the assessment criteria, methods, and competencies required to conduct the certification process, the MPC and APO Secretariat organized a digital multicountry Training of Assessors for the Productivity Specialists Certification Program, 23–25 February. The

course was attended by 44 participants from 14 APO member countries and conducted by three resource persons from Malaysia, Singapore, and Vietnam.

Program coverage: Introduction to the APO Accreditation and Certification Program; Introduction to APO-PS 101:2019 Requirements for Productivity Specialists; Levels of certification, prerequisites, and competency requirements; Role and responsibilities of assessors; Methods for assessing productivity domain expertise, processes, and people skills; Productivity Specialists Certification Program: Case studies of the MPC-CB and ViProCB; Conducting face-to-face assessment; Assignment of roles and responsibilities; and Assessors' code of conduct.

Training of Assessors for the Green Productivity Specialists Certification Program

The APO-GPS 201:2019 Certification Scheme and Competency Standard for Green Productivity Specialists was developed under the APO Accreditation Program. To build capabilities and ensure successful implementation of GP specialists' certification in member countries and to support NPOs in their journey to become and function as CBs, the first batch of assessors for the APO-GPS 201 certification scheme was developed. Under the APO-GPS 201, CBs conduct documentation verification, examination, desktop assessment, face-to-face panel interviews, and evaluation of reports submitted by candidates before issuing certification. Qualified assessors will serve CBs and ensure that CBs are able to certify GP specialists in a sustainable manner and conduct assessments following APO standards.

A digital multicountry Training of Assessors for the Green Productivity Specialists Certification Program was organized by the Directorate of Productivity Development, Directorate General for Vocational Training and Productivity Development, Ministry of Manpower, Indonesia, in collaboration with the APO Secretariat, 23–25 August. The objective was to develop qualified, competent assessors for NPOs that will serve as APO-accredited CBs and familiarize participants with the APO-GPS 201 certification scheme. A total of 42 participants from 12 APO member countries attended, including 13 from Indonesia. The training sessions were conducted by two resource persons from Indonesia and one each from Malaysia and Norway.

Program coverage: Introduction to the APO Accreditation and Certification Program; APO-GPS 201:2019 Certification Scheme and Competency Standard for GP Specialists; Roles and responsibilities of assessors; GP qualification framework and levels of certification; Prerequisites and competency requirements for GP specialists; Journey and experience of an APO-certified GP specialist; Methods for assessing GP domain expertise, GP specialists' skills, and employability skills; Case study of GP certification; Desktop and face-to-face assessments; Certification and recertification process for various tiers of GP certification; and Assessors' code of conduct.

Workshop on Requirements and Management System for the APO Certification of Persons Scheme

The APO Accreditation and Certification Program builds the capabilities of organizations and prepares them to produce proficient, reputable productivity professionals whose qualifications and credentials meet international standards. For certification and recertification of CBs to operate certification of persons schemes, the APO-AB ensures compliance with standards, examines competence, verifies accredited scopes, and monitors the effectiveness of quality management systems of NPOs. NPOs qualified as APO CBs comply with APO-AB 1003:2020 General Requirements for Certification Bodies: Certification of Persons Scheme.

In collaboration with the VNPI, the APO Secretariat organized a digital multicountry workshop on Requirements and Management System for the APO Certification of Persons Scheme, 7–9 December. The workshop enhanced participants' knowledge and understanding of the entire APO accreditation system, requirements for CB development under the APO-AB, documentation needed, internal audit process, techniques to conduct conformity assessments, and how to operate the productivity specialists certification scheme as APO-accredited CBs. The workshop was attended

by 35 participants from 14 APO member countries, with four resource persons, one from Indonesia, two from Malaysia, and one from Vietnam, who conducted the sessions.

Program coverage: Introduction and course objectives; APO-AB 1003:2020 General Requirements for Certification Bodies; Certification of Persons Scheme; Introduction to the APO-PS 101:2019 Requirements for Productivity Specialists; Certification body development: Best practice sharing by the ViProCB and MPC-CB; Managing documentation and implementation tasks for the APO-PS101:2019 Requirements for Productivity Specialists; APO-AB 4001:2020 Procedure for Accreditation of Certification Bodies; and Assessment and certification process of APO CBs.



Digital-learning Platform

The Digital-learning Program offers the opportunity for everyone in member and nonmember countries to enroll in self-learning e-courses on various subjects related to productivity enhancement. It covers a wide range of topics including manufacturing, agriculture, the public sector, and services. In 2021, the APO renewed its self-learning platform with new features and a more aesthetic design. Eight new courses were initiated, while 45 existing ones were retained. The Secretariat observed an increase in registrations and assumed that the continuing COVID-19 pandemic could be a factor in that upswing.

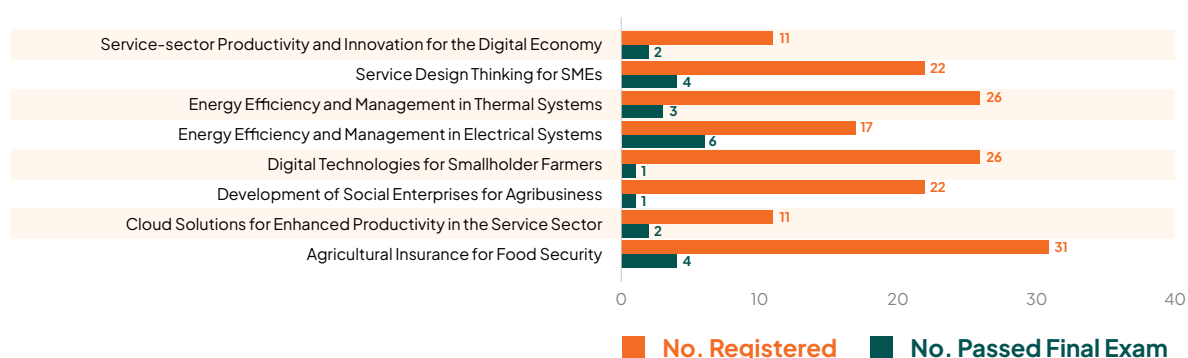
New Agricultural Productivity Courses

Three e-learning courses on agriculture were launched in 2021: Agricultural Insurance for Food Security; Digital Technologies for Smallholder Farmers; and Development of Social Enterprises for Agribusiness. They started from late 2021 and will continue. As of the end of 2021, 79 participants had enrolled in the agricultural productivity courses, of whom 79% were from member countries, while the remainder were from Algeria, Australia, Georgia, Monaco, the Netherlands, New Zealand, Palestine, Switzerland, Uganda, and the UK. Six from APO members had passed the final examination required to receive the APO certificate.

New Industry and Service-sector Productivity Courses

To spread productivity awareness, methods, and techniques related to technical advances and developments throughout the Asia-Pacific region and elsewhere, five new industry/service-specific self-learning e-courses were offered during the year. The topics covered were: Cloud Solutions for Enhanced Productivity in the Service Sector; Energy Efficiency and Management in Thermal Systems; Energy Efficiency and Management in Electrical Systems; Service-sector Productivity and Innovation for the Digital Economy; and Service Design Thinking for SMEs. All newly released courses introduced the video format to improve content quality and engagement. A total of 87 participants, 88% of whom were from member countries, registered in the industry and service-sector courses, of whom 17 passed the final examination and received the APO certificate. The courses also attracted participants from outside the membership, such as those residing in Bahrain, Canada, and Qatar.

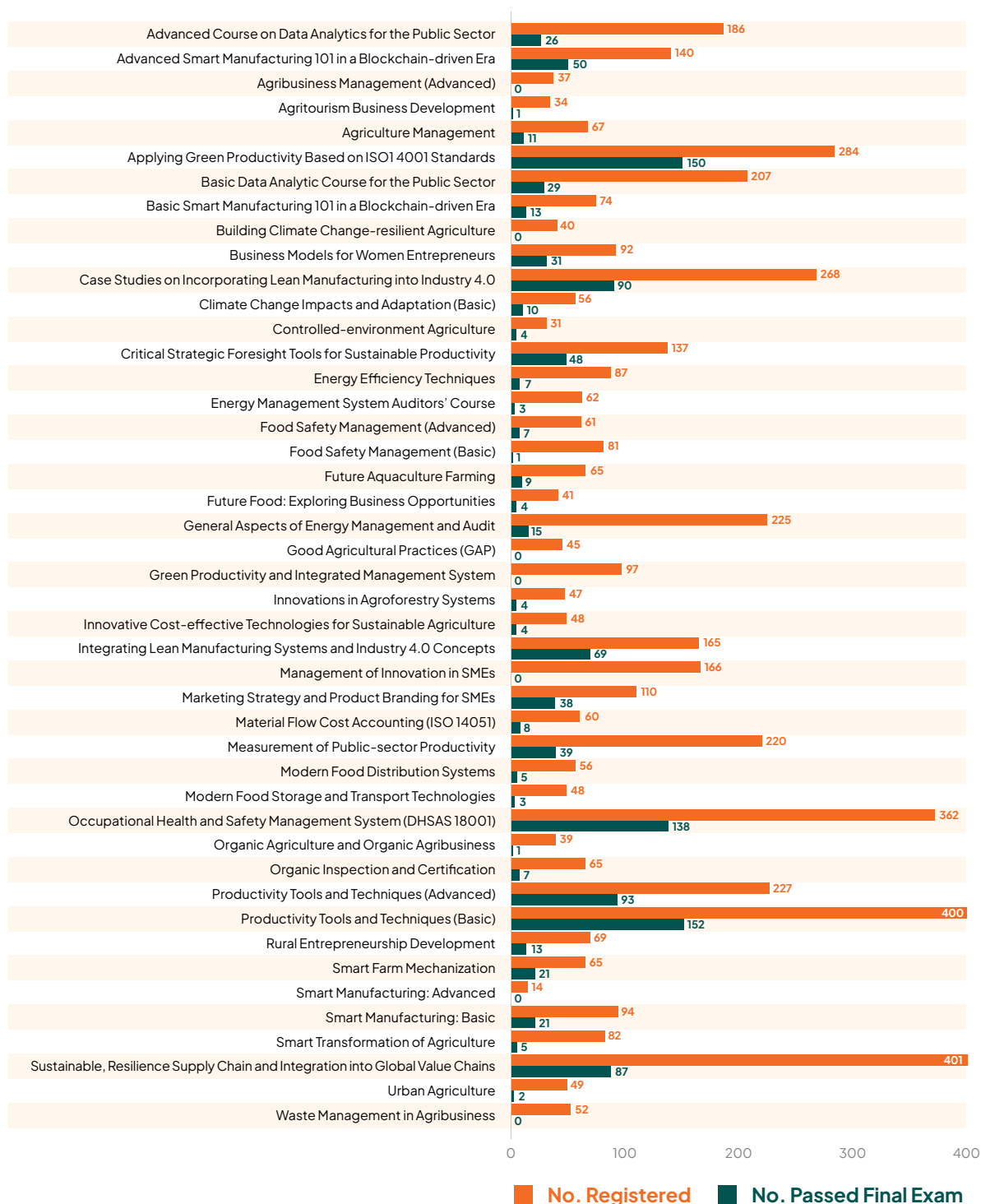
Courses released in 2021 (registered and passed)



Continued Courses

For the 45 continued courses, there were 5,266 new enrollees, of whom 1,219 passed the final examination and received APO certificates. Sustainable, Resilient Supply Chains and Integration into Global Value Chains attracted the highest enrollment at 401 each, followed by Productivity Tools and Techniques (Basic) at 400.

Continued courses in 2021 (registered and passed)



Self-learning e-Course on Digital Technologies for Smallholder Farmers

Agriculture faces enormous challenges to feed more than nine billion people by 2050, which will require 70% more food production, with shrinking land and water resources for agriculture. Smallholder farmers (SHFs) in the Asia-Pacific region play an important role in addressing this challenge since 87% of the total 500 million SHFs worldwide are in the region. For SHFs to contribute to resolving this challenge, they must adopt digital technologies to increase their productivity. The majority, however, are not prepared to utilize advanced technology applications due to a lack of finance, infrastructure, or ICT literacy.

A self-learning e-course on Digital Technologies for Smallholder Farmers was developed by the APO to continue promoting the applications of digital technologies in agriculture, particularly to enable and encourage SHFs to apply digital solutions from the planning to postharvest stages. The course introduces the concept of digitization and the digitalization framework and then examines critical points at various stages such as preparation, production, harvesting, postharvest processing, and marketing. After its launch on the APO e-learning platform on 15 November 2021, 26 had enrolled as of the end of December.

Program coverage: The concept of digitization and the digitalization framework; Agri-input digitalization solutions to access and use high-quality inputs; Monitoring and decision-making through data-based technologies at the production stage; Innovative harvest and postharvest solutions through digital market linkages; and Advancing digital technologies for SHFs in Asia.

Self-learning e-Course on Development of Social Enterprises for Agribusiness

Social enterprises are organizations with multiple objectives of achieving financial, social, and environmental goals. They may take the form of private for-profit, nonprofit, or hybrid organizations that apply business methods to advance their social missions. Social enterprises serve as enablers in strengthening SHFs in the Asia-Pacific region. SHFs in developing countries face challenges to their productivity, growth, and sustainability due to the lack of access to affordable financial products, limited knowledge of high-quality inputs, low usage of technology and market data, and poor market links across value chains. Social enterprises can offer innovative solutions to close these gaps and help SHFs prosper and be more productive.

A self-learning e-course was developed to introduce social enterprises as an enabler to support agribusiness in the Asia-Pacific region. The course discusses the concepts and principles of social agribusiness enterprises, the steps to establish and maintain social agribusiness enterprises, and practical lessons from case studies. The focus is on accessing finance, improving productivity, increasing postharvest value, and creating value chain and market linkages. After its launch on the APO e-learning platform on 15 November, 22 had enrolled by the end of December.

Program coverage: Concepts and principles of social enterprises; Establishing social enterprises across agricultural value chains; Fund raising and accessing finance as a social enterprise; Sustaining, scaling up, and managing social enterprises; and Productivity enhancement and future-readiness.

Self-learning e-Course on Service-sector Productivity and Innovation for the Digital Economy

The digital economy relies on innovative, advanced technologies in both the manufacturing and service sectors to improve products and processes. Manufacturing processes are enhanced through cyberphysical integration of assembly lines involving digitalization and automation using devices, sensors, and robotics for work processes. For the service sector, which includes professional services and fintech firms, productivity is enhanced through measures and techniques aimed at protecting the integrity of data, computing devices, and other systems from damage or theft and preventing disruption to overall functionality.

The APO offered a self-learning e-course on Service-sector Productivity and Innovation for the Digital Economy to introduce productivity and innovation tools, techniques, and methodologies in the service sector along with the latest digital economy solutions. The knowledge gained and sharing of experience will help spread smart transformation ideas and initiatives across APO member countries and prepare them for the digital economy. The course was launched on 30 November, and 11 had enrolled by 31 December.

Program coverage: Service-sector productivity and innovation for the digital economy; Applications of productivity solutions in the service industry; Data analytics, cloud computing, and AI contributions to labor productivity in service enterprises; Case studies of productivity and innovation in the digital economy; and Summary and future directions for service productivity and innovation in the digital economy.

Self-learning e-Course on Agricultural Insurance for Food Security

Natural calamities and subsequent havoc wreaked on agricultural production may cause immense losses to farmers. Climate change and unexpected events such as COVID-19 heighten the risks of agricultural production. The destructive impact of droughts, frost, floods, heatwaves, and hurricanes on crops, plantations, livestock, and fisheries has worsened due to climate change, while COVID-19 brought disruptions to agricultural value chains. With such increased risks, farmers are becoming more vulnerable and food production is under constant threat, endangering national food security. Agricultural insurance coverage may offer a solution to reducing losses while relieving farmers of risk and maintaining their productive capacity. Agricultural insurance not only protects farmers from financial collapse but also ensures national food security.

The APO launched a self-learning e-course on Agricultural Insurance for Food Security, available online from 15 October. By the end of the year, a total of 31 participants had enrolled. The course aims to enhance the knowledge of participants of the principles, mechanisms, and management of agricultural insurance to raise productivity, food security, and farm risk management; policies on agricultural insurance in member countries and successful models of agricultural insurance and farm risk management; and national agricultural risk profiles and insurance models necessary for farming community protection.

Program coverage: Introduction of agricultural insurance, farm risk management strategies, and food security; Lines of agricultural insurance: Crops, livestock, forestry, and aquaculture; Agricultural insurance operation: Pricing, marketing, underwriting, and loss adjustment; Agricultural insurance portfolio management and insurance product development; and Global agricultural insurance, public-private partnerships, best practices, and reinsurance against agricultural risk.

Self-learning e-Course on Energy Efficiency and Management in Thermal Systems

Thermal energy constitutes a significant portion of total energy consumption at enterprise level. The associated steam systems and heat exchangers conveying the heat generated from sources to usage points also form an integral part of manufacturing, processes, and services. However, dependence on fossil fuels as a major source of primary energy leads to environmental degradation. This calls for immediate attention and action. Moreover, lower energy productivity and higher carbon intensity in Asia indicate that there is ample scope for improvement.

To address the lack of awareness and disseminate information to reduce overall energy costs, a self-learning e-course on Energy Efficiency and Management in Thermal Systems was launched by the APO in November. It is a continuation of an e-learning course started in 2020 on General Aspects of Energy Management and Audit. The new course objectives are to provide knowledge on thermal utilities, associated equipment, and systems; impart know-how on basic principles and performance evaluation of thermal utilities and efficient use of related systems; and showcase the energy-saving potential, conservation of natural resources, and monetary benefits through the adoption of best practices and techniques for the efficient operation of thermal utilities.

Program coverage: Overview of thermal utilities, different fuel types, and efficient combustion techniques; Boilers and heaters: Classifications of steam boilers, their performance evaluation, water treatment, and thermic fluid heaters; Steam distribution networks, steam traps and their selection, and efficient utilization of steam; Furnaces, their performance parameters, minimizing heat losses, and recent developments; and Applications for utilizing waste heat commercially, technological advances, and generating heat and power simultaneously.

Self-learning e-Course on Cloud Solutions for Enhanced Productivity in the Service Sector

With the world in the midst of a massive shift to digitalization, cloud computing skills are indispensable to transform businesses. Worldwide, cloud industry spending was expected to grow from USD257 billion in 2020 to USD364 billion in 2022, representing a 41% increase in just two years. As the cloud industry continues to grow, so will the demand for both entry-level and experienced IT professionals.

A self-learning e-course on Cloud Solutions for Enhanced Productivity in the Service Sector was developed by the APO to explain the value of the cloud, share examples of its applications in healthcare, and review cloud services for the healthcare sector. It specifically examines how cloud computing technology can play important roles in the future of the healthcare sector and related services, which is especially relevant in the post-COVID-19 new normal. The course also includes cloud solutions that can increase productivity in other service subsectors. The knowledge gained will promote smart transformation efforts across APO member countries. After its launch on the APO e-learning platform on 30 November, 33 had enrolled as of the end of December.

Program coverage: Introduction to the cloud and cloud computing; Applications of cloud solutions in the service industry; Relationship between cloud technologies and labor productivity in service-sector organizations; Case studies of cloud-driven productivity in the service industry; and Summary of concepts and future directions.

Self-learning e-Course on Service Design Thinking for SMEs

As part of their resilience, SMEs should be flexible in business approaches to adapt to the challenges brought about by the COVID-19 pandemic and other unexpected circumstances. However, given the small size of their workforces and structures, SMEs are often unclear about appropriate strategic approaches to adopt. Design thinking and design innovation are holistic approaches to system changes and process innovations aimed at enabling maximum returns. Typical SMEs also have few resources and therefore feel less compelled to promote innovation. However, the principles, methodologies, and tools of service design thinking are applicable to small enterprises.

Adopting appropriate service design thinking tools will enable the creation of innovation cultures that are essential for the continued growth of SMEs. A self-learning e-course on Service Design Thinking for SMEs was offered by the APO starting from 30 November to introduce the key concepts, benefits, and applications of service design thinking to optimize the profitability and sustainability of SMEs across APO member countries. Twenty-two had enrolled in the course by the end of the year.

Program coverage: Introduction to service thinking: Benefits to SMEs; Essential service-thinking concepts and applications for SME operations; Case studies I: Service thinking in the food and beverage industry; Case studies II: Service thinking in the hospitality and tourism industry; and Future trends in service thinking and service design for SMEs.



Research and Program Development

Research and Program Development projects involve scanning and identifying emerging ideas and trends related to productivity in various sectors, analyzing the needs and requirements of

members, and providing the basis for new program development. In 2021, the following projects were implemented under Research and Program Development.

Program Development Fund: Research on the Widening of Economic Divides under the Impact of COVID-19

The COVID-19 pandemic has drastically affected the global economy and is resulting in greater damage than any preceding pandemic. Its effects are not 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 long-standing 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 published in 2021 with recommendations for responses by member governments based on the research findings.

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

APO-ADB Joint Study on the Impact of COVID-19 on SMEs

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

In most APO members, 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 ADBI, the APO continued the second phase of a joint study on the impact of COVID-19 in the eight member countries of Bangladesh, Cambodia, Indonesia, Malaysia, Mongolia, the Philippines, Pakistan, and Vietnam. 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 next 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 SME operations and productivity; SME readiness and resilience; Post-COVID-19 recovery measures for SMEs; and Policy implications for SME support.

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 meet multiple UN SDGs. 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.

To identify those readiness factors, the APO conducted research on Smart Agricultural Transformation (SAT) for APO Member Countries. Chief experts from the ROC and Philippines and five 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 final research output published in 2021 suggested that member governments invest in the basics of agricultural transformation, including conventional rural infrastructure and R&D. Investment in rural human resources and the inclusion of smallholders in SAT are crucial.

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

APO Productivity Databook and Database

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 (PDB). The *APO Productivity Databook* presents detailed analytical reports on recent and long-term productivity and economic performance in 21 Asian economies, with 10 nonmember economies in Asia and Australia, the EU, and USA included as references. In addition, regional productivity accounts are developed for six economic groups in the 2021 edition. Sets of productivity indicators, measures, and data under an internationally harmonized measurement framework are included.

Preparations for the latest editions of the *APO Productivity Databook* and PDB began in 2021. Because the COVID-19 pandemic drastically affected world economies, they will aim at supporting members in coping with related challenges and devising timely policy responses to maintain growth trajectories and recover quickly. They will include future projections of the productivity performance of APO member countries at aggregate, sectoral, and key industry levels, along with policy implications and data covering major productivity indicators. The chief expert from Japan and national experts from all APO members will be assigned to conduct this research. The final report is scheduled to be released in September 2022.

Project 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 Labor Market Policies for Changing Market Demands

Over the last decade, several studies warned of an impending shift in the labor markets of developed and developing countries from the adoption of digital technologies, big data, and robotics (Industry 4.0). They stated that automation resulting from the adoption of these technologies would destroy jobs, the scale of which has caused fear and anxiety in some quarters. Adequate labor market policy responses are needed to avoid the destruction of jobs by technological advances.

To avoid technology-driven structural unemployment, member countries will require skill adjustments, policies, and programs commensurate with the evolving demands of the labor market. Many current labor force skills are likely to become irrelevant in the near future, with new, more specialized ones emerging. The APO initiated research to investigate changing labor market demands and suggest how policymakers, governments, and relevant stakeholders should prepare the workforce to cope. Researchers from Bangladesh, Cambodia, Fiji, India, I.R. Iran, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, and Vietnam are involved in the research, led by a chief expert from the ROC. Project completion is expected in February 2022.

Program coverage: Review of national labor training and reskilling strategies; Labor market transition opportunities; and Strategic policy directions for cultivating new talent for the future.

Research on the Complementarities of the Circular Economy and Green Productivity

Among efforts to achieve economic progress while tackling environmental issues, Green Productivity (GP) stands out as a holistic approach. The GP concept was formulated as a strategy for simultaneously enhancing productivity and environmental performance for overall socioeconomic development. With the emergence of new approaches to sustainability, there is a need to study the complementarities between these concepts and GP. The circular economy with its potential vast contributions to sustainability was chosen as a subject of study by the APO.

In 2021, this research was initiated to examine and map out national circular economy principles and policies being evolved by APO member countries. It also aims to analyze complementarities between circular economy principles and GP. One chief expert was assigned to lead a team of 12 national experts from Bangladesh, Cambodia, the ROC, Fiji, India, Indonesia, I.R. Iran, Malaysia, Pakistan, the Philippines, Thailand, and Vietnam. Several coordination meetings were held online among these experts. The results of this research are expected to contribute to initiatives to enrich and elevate GP, ensuring its continued relevance to address emerging, pressing global issues through the current development of GP 2.0. This research will also achieve one of the strategic objectives of the APO Vision 2025 of promoting robust, proactive GP.

Program coverage: Green Productivity; Circular economy; Environmental performance; Productivity enhancement; Socioeconomic development; Sustainability; and National policies.

Research on Innovation-led Productivity Growth for Middle-income Trap Avoidance

Innovation is an important source of growth when a country reaches the rank of middle-income economy (MIE) and moves closer to the technological frontier. Fostering innovation to boost productivity performance and economic growth is a way to avoid the middle-income trap, a challenge for the majority of APO members. Sustaining the contribution of total factor productivity (TFP) to overall GDP growth and evolving into the high-income category are the ultimate goals of many APO member governments.

To support member governments in analyzing the bottlenecks that middle-income members are facing, research was commenced in 2021. It aims to estimate the contribution of innovation to the productivity performance of MIEs, examine innovation-related policies that support MIEs, and study the lessons from members that have avoided the trap to reach the high-income level. Seven national experts from Bangladesh, Cambodia, India, Pakistan, Sri Lanka, Thailand, and Vietnam were assigned to determine the status and make recommendations to their governments. A panel of two experts from Japan and Singapore was assigned to peer-review the work of national experts. The research results are aimed at guiding policymakers in leveraging innovation to enhance productivity performance for middle-income trap avoidance. The report will be published in 2022.

Program coverage: Middle-income countries; Innovation-led productivity growth; TFP; Middle-income trap avoidance; and Policy recommendations.

Research on an Aging Asia and Pacific: Preparing for the Future

Rapid aging of the population will pose many social and economic challenges, such as a declining workforce, the squeezed middle where the shrinking workforce will be forced to pay higher taxes to support senior citizens' pensions, economic slowdowns, rising healthcare costs, etc. A shrinking workforce will also eventually affect the prospects for productivity growth. Preparing society for population aging as early as possible in advance with the right public policies is crucial, as it will be too late to prepare at the last minute.

A research project started in October 2021 to examine how five participating member countries, the ROC, India, Indonesia, Pakistan, and Vietnam, are attempting to cope with the challenges of graying societies and identify measures and solutions for better readiness. Recommendations for effective public policies on healthcare, pensions, and increasing birth rates will be made. Five researchers from the five APO members are contributing to the research, led by a chief expert from the ROC. Completion is planned for March 2022.

Program coverage: Updates and analysis of aging populations; Measurements for aging societies; Sectoral impacts of an aging society; and Forward-looking policies.

APO Productivity Outlook

In its role as a think tank, the APO has conducted annual research to monitor productivity trends and economic growth performance in its member countries. Moreover, to better reflect productivity prospects and step up efforts to provide support through evidence-based policy analysis to member countries, a research project on the sectoral productivity outlook is necessary.

A study on the APO Productivity Outlook focusing on the analysis of sectoral productivity was initiated in 2021. A partnership with the Korea Development Institute, a renowned think tank in Asia and the Pacific, was formed to conduct the research. The inaugural 2021 edition of the *APO Productivity Outlook* focuses on the manufacturing sector, the backbone of Asian economies in terms of competitive, sustainable growth and employment. To draw implications for the future of manufacturing in the region, effects such as production and valued-added inducement, forward and backward linkages, and employment inducement are analyzed. The *APO Productivity Outlook 2021* provides in-depth insights on productivity prospects in the manufacturing sector to track the quality of economic growth. Cross-country comparative analyses of the factors, levels, and growth rates of manufacturing productivity in selected APO member economies are included.

Program coverage: Cross-country comparative analyses; Total factor productivity; Determinants of manufacturing labor productivity; and Manufacturing labor productivity outlook.

APO–OECD Review of Long-term Productivity Growth Statistics and Estimating Methods

The joint effort by the APO and OECD to develop improved, more comparable productivity statistics across their member economies, refine the methodology for productivity measurement, and produce a sustainable productivity measurement tool is now entering its second phase. Phase 2 of the collaboration focuses on the determinants of multifactor productivity (MFP) growth. It includes an overview of the main drivers of MFP growth identified in the economic literature, a comparative analysis of different measurement approaches, and an assessment of the relevance of different drivers across countries. The report will also address the impact of the COVID-19 pandemic and restrictions enforced to control it on productivity growth and firms/human capital.

Program coverage: Determinants of MFP growth; Comparative analysis of different measurement approaches; Assessment of the relevance of different drivers across countries; and Long-term productivity growth.

Research on Need Assessment on Innovation Management

Due to rapid economic growth in Asia, many countries have moved from low-income to middle-income status. However, these MIEs face difficulty in sustaining growth and evolving into high-income ones. This could be due to their inability to compete with low-income, low-wage economies, as well as with innovative high-skilled, high-income ones. To overcome this, MIEs must raise their productivity performance through innovation.

The APO initiated a research project in October to examine the status, needs, and challenges of APO member countries in implementing innovation management systems for sustaining

productivity growth. It will identify priority needs and drivers for productivity growth in APO member countries through innovation management, assess the status of adoption of ISO 56000: Innovation Management Systems in member countries, and support enhancement of innovation systems. This project is led by a chief expert from Vietnam, with national experts from Cambodia, the ROC, India, Indonesia, I.R. Iran, Pakistan, the Philippines, Singapore, Thailand, and Vietnam. The final report, including recommended models and best practices of innovation management systems at organizational level, will be submitted in early 2022.

Project coverage: Data collection on and analysis of innovation management systems in selected APO member economies; Interviews with selected firms on innovation management systems; Generating a framework and recommended approaches for all member economies; and Seminar to launch the research report.

Labor Productivity Index

To mark the collaboration by the APO and ASEAN Secretariat in the area of labor productivity, a preliminary study on labor productivity in the ASEAN region was conducted in 2020 by the APO to develop a Labor Productivity Index. It was concluded that globalization, the digitalization of economies, and aging populations will affect APO and ASEAN economies' labor productivity substantially in coming years. It also showed that labor productivity growth in the region has resulted from capital deepening, which indicates greater growth potential by improving human capital.

The joint study continued in 2021 to develop the Labor Productivity Index to evaluate the effectiveness of policy measures, comprising the four pillars of labor quality, productivity gainsharing, productivity culture, and labor market policies. Through the development of the index, individual input variables will be identified, measured, and suggested for better policymaking and implementation to boost labor productivity. The Labor Productivity Index aims to support the strategies of policymakers through a holistic approach, establish synergies among different variables, and determine which variables should be improved for better labor productivity. Two APO experts from the ROK and Philippines led the project, which is expected to deliver the final output in February 2022.

Program coverage: Trends in labor productivity growth in the APO–ASEAN region; Factors contributing to labor productivity growth; Labor Productivity Index development; and Policy recommendations for sustainable labor productivity growth in APO–ASEAN members.

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 of 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 research activities were completed in August 2021.

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

Intercity Benchmarking Research on Hotel Productivity in Asia

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 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. The COVID-19 pandemic has adversely affected the hotel industry, and it is crucial to understand its productivity levels by providing benchmarking indicators to compare performance in different Asian cities.

The APO launched a project in collaboration with the Singapore Tourism Board on Intercity Benchmarking Research on Hotel Productivity in Asia and appointed an external consulting agency (Frost and Sullivan) to conduct it. The research compares the productivity levels of indicators across seven cities in APO member economies (Hong Kong, Tokyo, Seoul, Singapore, Bangkok, Taipei, and Kuala Lumpur) according to hotel tier and selected functions and analyzes the factors contributing to hotel productivity. The consulting agency delivered the final draft based on the research findings in January 2022.

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.

Research on Digital Disruption: Policy Tasks and Responses by Governments

The dawn of the digital economy increased 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 members, 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, AI, and the IoT in both developed and emerging countries.

The APO launched a research project in collaboration with the University of Technology of Sydney on Digital Disruption: Policy Tasks and Responses by Governments. The research involved macro analysis of digital technology adoption as well as policies and regulations to maximize the economic benefits for APO members. The final draft report was received in November 2021 and dissemination of the research was conducted through a Productivity Talk discussing its outcomes.

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 selected member countries; Generating a framework and recommended approaches for all member economies; and Seminar to launch the research report.

Development of the APO Productivity Index

The APO views productivity improvement as a continuous effort to achieve steady improvement. The outlook for productivity gains continuing in the future is equally as important as how productive an economy is at a specific point. The scope of productivity measurement should therefore be expanded to include the sustainability dimension. The rapidly changing landscape may obscure the causal relations among factors determining productivity, meaning that productivity-enhancing as well as general capacities of the economy must be continuously evaluated and integrated into policy. Measurement that takes into account multidimensional characteristics and performance

is needed for both policy evaluation and productivity comparisons. Knowledge of productivity-enhancing capacities can also predict prospects for an economy's future performance.

The APO launched a research project to gauge factors contributing to long-term productivity growth. It involves a collaborative platform of four researchers from Australia, the USA, and ROK working in related fields. At the end of 2021, the research was in the consultation phase on data and methodology with member countries, with publication planned by April 2022.

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

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

Rapidly advancing technologies have accelerated changes in industries and created broad ranges of new enterprises of the future. Existing skill sets will quickly become obsolete, and job profiles must be redesigned. Upskilling and reskilling have become key words in human capital development. Nurturing the ability to adapt at all levels will allow individuals, organizations, and nations to thrive along with technological progress and the creation of new industries.

The APO commenced a research project 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 examined 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 from Singapore and seven national experts from the ROC, India, Indonesia, Malaysia, Pakistan, the Philippines, and Vietnam were assigned to conduct the research. The final report titled *Embracing New Ways of Work: Preparing the Human Capital of the Future* was published in 2021. The publication highlighted the ways governments nurture human capital with policy implications to ensure that they thrive in the future.

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.



Centers of Excellence

The APO Center of Excellence (COE) Program aims to intensify capabilities of selected NPOs that can serve as regionwide learning centers on key areas critical to productivity improvement activities so that they can share knowledge with other APO members. In 2021, despite the restrictions due to the ongoing COVID-19 pandemic, the APO supported the COE on Green Productivity (GP), COE on IT for Industry 4.0, and COE on Smart Manufacturing (SM) in conducting various capacity-building and best practice-sharing programs utilizing virtual platforms for strengthening COE capabilities and sharing their expertise.

COE on GP

Established in 2013, the COE on GP supports the APO in promoting GP in the Asia-Pacific region. COE on GP activities focus on the four key themes of resource recycling, green energy, green factories, and agroinnovation.

Strengthening the Programs of the COE on GP

Spearheaded by the CPC, the APO COE on GP has supported member countries in developing their national GP initiatives. In 2021, in collaboration with the NPC, India, five training sessions under the topic Resilient Green Energy-efficient Technologies for the Future: Sustainable Industry 4.0 were organized virtually between May and August. Two resource persons from the APO COE

on GP were assigned to enhance the knowledge of participants on sustainable Industry 4.0 and resilient energy-efficient tools for the future. Best practices and new technologies of the ROC were introduced. Sixty local participants utilized the platform to learn and exchange views with the APO COE on GP experts.

Program coverage: GP; Green energy; Resilience; Technologies for the Future; and Sustainable Industry 4.0.

COE on IT for Industry 4.0

The COE on IT for Industry 4.0 under the auspices of the NPC, India, was launched in June 2017. Efforts to scale up the activities of the COE and promote the adoption of Industry 4.0 technologies in SMEs continued in 2021.

Digital Innovation Process Guide for Manufacturing SMEs

Manufacturing SMEs, which are the backbone of industrial development, are on a fast-growth trajectory in APO economies. However, amid the rise of Industry 4.0, only a small fraction of SMEs has adopted digital technologies and digitalization processes. 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 conducted a research project to publish a document guiding manufacturing SMEs 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. Several virtual online meetings were held among experts in 2020 and 2021 to finalize the paper. The process guide was developed and tested in manufacturing SMEs in participating countries. The *Digital Innovation Process Guide—Handbook for Manufacturing SMEs* was published in September 2021. It is meant not only to support the digital transformation process but also to tackle survival challenges posed by the COVID-19 pandemic for SMEs in member countries. After releasing the publication, a three-day webinar to introduce it to a larger audience was organized 9–11 November. Two experts and 80 participants joined the program.

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

Case Studies of Manufacturing Transformation Strategies for Industry 4.0

Rapid advances in new-generation technologies, together with changes in the overall environment, have affected global production systems and are reshaping the ways businesses strategize. In the APO region, where manufacturing remains dominant, manufacturers need to adapt to stay competitive in global value chains and overcome the challenges of increased supplier-partner relationship complexity, greater competition, and other uncertainties related to the current COVID-19 pandemic.

The COE on IT for Industry 4.0 and APO started a research project and published *Transforming Manufacturing—Strategic Case Studies* in 2021. The study analyzed strategies for sustaining business growth and processes for maintaining continuous improvement in the era of Industry 4.0. The cases presented in this publication show that there is no single strategy to fit all manufacturing enterprises and no common formula for success. The publication was compiled by a team of experts composed of a chief expert and five national experts from the ROC, India, Japan, Malaysia, and Thailand.

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

Rapid technological change is affecting diverse business operations and fundamentally altering the way enterprises function. Amid the rise of Industry 4.0, relatively few SMEs have adopted digital technologies and digitalization processes. There is no ready-made strategy for implementing Industry 4.0. SMEs are therefore struggling to define their starting points in the complex Industry 4.0 journey.

Assessing readiness before embarking on transformation is necessary for all enterprises. To assist in the assessment, the APO published a handbook on *Digital Readiness Assessment—Methodology & Framework* based on the practical experience of the APO COE on IT for Industry 4.0 and Institute for Innovation and Technology (IIT) Berlin. This handbook explains the fundamentals of and framework for determining readiness and technological maturity levels for undertaking digital transformation in the Asia-Pacific context.

Utilizing this handbook, the COE on IT for Industry 4.0 launched its Bharat 4.0: Digital Readiness Assessment Tool to support Indian enterprises in gauging their readiness levels, determining focus areas, and prioritizing digital initiatives for accelerating transformation. Training modules were also developed to support the dissemination of knowledge from consultants to business owners and enterprise managers during two five-day workshops held 1–5 November and 22–26 November. Sixty participants attended these two workshops.

Program coverage: Industry 4.0 and key trends; Digital readiness assessment; Maturity levels of SMEs; and Bharat 4.0.

COE on Smart Manufacturing

The CPC was appointed by the APO Governing Body in April 2019 to become the APO COE on SM. The main objective is to support member countries in promoting the adoption of SM in key industries.

National Smart Manufacturing Implementation Framework

SM, the advanced technology-driven approach that integrates intensive applications of ICT and internet-connected machines in the production process, is a key element of Industry 4.0. APO member economies in different stages of development are embracing SM applications in industries in various ways.

Under the COE on SM, a research project to detail SM implementation mechanisms at national level was initiated in 2020. One chief expert from the ROC and five national experts from India, Malaysia, Pakistan, the Philippines, and Vietnam participated in the research. After a series of virtual meetings for discussion, the publication of the *National Implementation Plan for Smart Manufacturing* was finalized in 2021. Drawn from the expertise of the APO COE on SM and national experts, optimal strategies in national contexts to enable the adoption of smart production technologies were suggested. Recommendations on SM implementation at all levels, from national policies to industry standards to enterprise strategies, are given with the roles of each stakeholder delineated.

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

5 Strengthening of NPOs and Policy Advisory

The APO continues to play its key roles as an institution builder by strengthening the ability of NPOs and other institutions to promote productivity, provide training, and offer capacity-building services to the public and private sectors. It also 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. The entire Individual-country Program is now grouped under Strengthening of NPOs and Policy Advisory. Its focus is on the capacity building of NPOs, fostering greater collaboration, and providing policy advisory services to meet members' needs and expectations.



Bilateral Cooperation between NPOs

Productivity-promoting institutions such as NPOs are the key drivers of sustainable productivity movements. It is thus imperative for NPOs and other relevant institutions to carry out their roles effectively. This necessitates continual efforts to strengthen their capacity to cope with evolving productivity challenges. Learning from the best practices and collaborating with each other are viable ways to develop the institutional capacity of NPOs. The diversity of APO member countries and the unique, distinct strengths of each NPO create valuable opportunities to learn together for mutual benefit.

The Bilateral Cooperation between NPOs (BCN) Program is a collaborative sharing and learning platform to provide opportunities for members to tap expertise and build partnerships for mutual benefit. It allows NPOs and similar organizations to learn from others on current productivity practices and related issues to address their specific needs and requirements. The BCN Program facilitates the visits of high-level officials of NPOs and policymakers to learn about and share best practices in areas related to the productivity movement and innovation.

In 2021, one digital in-country BCN study mission was hosted by the MPC involving the NPO of Pakistan. Three participants benefited from this program, under which the topics included Industry 4.0; Business Excellence; and Productivity and Competitiveness Development: Improving Productivity through Good Regulatory Practice. The participants were expected to undertake follow-up activities based on the best practices demonstrated and new knowledge gained from the bilateral exchanges between the two NPOs.



Individual-country Observational Study Missions

The diverse, unique strengths of each APO member country offer the potential for collaborative efforts among them. The APO's Individual-country Observational Study Mission (IOSM) Program provides opportunities for member countries to tap each other's strengths with the aim of inspiring and guiding the development of strategies, policies, and action plans for new initiatives and/or evolving ideas that are critical for development.

The IOSM Program allows senior government officials and policymakers of a member country to receive exposure to and engage in in-depth discussions on topics under their portfolios with their counterparts in another member country. The program facilitates the learning of best practices through dialogues, presentations, and site visits, enabling the sending country to explore the key success factors in implementing new, nationwide initiatives effectively.

In 2021, three IOSM proposals were accepted for implementation, which benefited 42 participants from three member countries: Benchmarking Study Mission for the DAP Future Center & Innovation Laboratory, from the Philippines to the ROC; Productivity Master Plan Best Practice, from Pakistan to Vietnam; and Smart and Sustainable Cities, from Pakistan to the ROK. Due to travel restrictions, all activities were conducted in the virtual modality.



Certification Body Development

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 to operate APO-certified Productivity Specialists schemes. As CBs, NPOs produce proficient, reputable productivity professionals whose qualifications and credentials meet international standards, thereby enhancing the confidence of stakeholders and clients in NPOs' capabilities and standing. The CBD Program guides NPOs in complying with the requirements and standards of practice set by the APO Accreditation Body (APO-AB). It provides consultancy and training by experienced resource persons on the scope of accreditation, certification process, competency of staff, and management structure. These activities are geared to prepare recipient NPOs to meet the prescribed requirements, readying them for a final assessment and confirmation as CBs by the APO-AB. The CBD Program was started in 2019, and NPOs from India, Indonesia, I.R. Iran, Malaysia, Mongolia, Pakistan, Vietnam, and Turkey with its affiliated organization have participated in the APO CBD Program.

Program coverage: Assessment of the capability of NPOs; Training on APO-AB 1003:2020 General Requirements for Certification Bodies: Certification of Persons Scheme; Training on APO-PS 101:2019 Requirements for Productivity Specialists; Training on APO-GPS 201:2019 Certification Scheme and Competency Standard for Green Productivity Specialists; Internal audit training; and Training on internal assessors and assessment for accreditation.

CBD Program: Development Project for the MPC as an APO Certification Body for Productivity Specialists

The MPC has been mandated to spearhead the national productivity movement by focusing 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. The MPC participated in the CBD project for recognition as an APO-accredited CB and to be able to offer certification services to other member countries. Two resource persons from Singapore and Malaysia were assigned by the APO to guide the MPC. The MPC completed the CBD project in 2021, and the MPC-CB was granted initial accreditation by the APO-AB for four years in September 2021.

The APO-AB deputed an assessment team comprising two assessors from Indonesia and the Philippines to conduct compliance assessments of the MPC-CB in March and April 2021. The assessment reports on findings and processes prepared by the compliance assessment team were presented to the APO-AB Accreditation Review Panel (ARP) consisting of three APO-AB Council members from Indonesia, Malaysia, and Thailand for their review and decision on accreditation. The ARP recognized that the MPC-CB had met the requirements to operate as a CB by demonstrating compliance with the APO-AB 1003:2020 General Requirements for Certification Bodies: Certification of Persons Scheme and APO-PS 101:2019 Requirements for Productivity Specialists and decided to grant accreditation to the MPC-CB for the following scope:

- ✓ Certified Productivity Specialists
- ✓ Certified Senior Productivity Specialists
- ✓ Certified Master Productivity Specialists

CBD Program: Development Project for the VNPI as an APO Certification Body for Productivity Specialists

The mission of the VNPI is to enhance the productivity and performance of businesses and lead 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 the APO CBD project. A total of four resource persons from Malaysia, Singapore, and two from Vietnam were assigned to assist the VNPI. The CBD project of the VNPI

was completed in 2021 and ViProCB was granted initial accreditation by the APO-AB for four years in September 2021.

The APO-AB deputed an assessment team comprising two assessors from Indonesia and the Philippines to conduct compliance assessments of the ViProCB in March and April 2021. The assessment reports, findings, and processes prepared by the compliance assessment team were presented to the APO-AB ARP consisting of three APO-AB Council members from Indonesia, Malaysia, and Thailand for their review and decision on accreditation. The ARP recognized that the ViProCB had met the requirements to operate as a CB by demonstrating compliance with APO-AB 1003:2020 General Requirements for Certification Bodies: Certification of Persons Scheme and APO-PS 101:2019 Requirements for Productivity Specialists and decided to grant accreditation to the ViProCB for the following scope:

- ✓ Certified Productivity Specialists
- ✓ Certified Senior Productivity Specialists

CBD Program: Development Project for the Directorate of Productivity Development (NPO of Indonesia) as an APO Certification Body for Green Productivity Specialists

The Directorate of Productivity Development, Directorate General for Vocational Training and Productivity Development, Ministry of Manpower, Republic 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.

The NPO started its CBD project in November 2019, and phase 2 was completed in 2020. Despite the negative impact of the COVID-19 pandemic on project activities, the NPO continued the process of completing its CB procedures and documentation in 2021 and prepared for assessment by the APO-AB in 2022. Five resource persons including two from Malaysia, one from Norway, and two from Indonesia conducted the activities under these phases.

CBD Program: Development Project for the MPO as an APO Certification Body for Productivity Specialists

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 CBD project for the MPO began in October 2020, and phase 1 activities were completed by February 2021. Phases 2 and 3 of the project were also completed by July 2021 with the support of two APO-assigned resource persons from Malaysia and Singapore who guided the MPO in the development of documentation and preparing for the pilot project. The project is expected to be completed in 2022.

CBD Program: Development Project for the NPC, India, as an APO Certification Body for Productivity Specialists

The NPC, India, provides solutions to accelerate productivity improvement, 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.

The NPC started its CBD project in November 2020. Phase 1 activities were completed in April 2021. Phase 2 activities are in process, and the NPC is preparing to conduct a pilot project for productivity specialists. The APO assigned one resource person from Malaysia to guide the NPC in developing as a CB, and the project is expected to be completed in 2022.

Development of the NPO of Pakistan as an APO Certification Body for Productivity Specialists

The mission of the NPO of Pakistan is to enhance total factor productivity through human resources development, technology demonstration, and improved practices, processes, and procedures by 2030. The NPO promotes productivity in various sectors of the economy by providing training and consultancy services to various national stakeholders. Its major thrust areas are human capital development, productivity awareness, national excellence, GP, research and innovation, and value addition. In Pakistan, there is presently a huge gap between the availability of productivity professionals and industry demand for productivity improvement knowledge and consultancy. As part of its institutional capacity-building efforts, the NPO is developing professionals to cope with the ever-growing demand for productivity improvement in the country. To enhance the credibility and value of the productivity professionals it produces, the NPO aspires to qualify as a CB on the Certification of Persons under the umbrella of the APO-AB scheme.

The CBD project started in September 2020 for the Green Productivity Specialists' certification scheme, which was later changed to the Productivity Specialists' certification scheme in 2021. Phase 1 was completed in June 2021, and phase 2 activities for conducting a pilot project for productivity specialists were underway at the time of writing. The APO assigned a resource person from Malaysia for CB development, and the project was expected to conclude in 2022.

Development of the Turkish Management Sciences Institute (TUSSIDE) as an APO Certification Body for Productivity Specialists

The NPO of Turkey has been promoting productivity in various facets of the economy by providing policy-making advisory and other services to stakeholders. Its major thrust areas are productivity awareness, Industry 4.0 transformation, productivity measurement, strategy development, GP, and research. To ensure effective implementation, it requires qualified productivity practitioners to act as consultants, trainers, and promoters to serve clients and stakeholders. TUSSIDE is a partner of the NPO and provides training, project management consulting, research, and publications in management sciences. In collaboration with the NPO, TUSSIDE aspires to become an APO-accredited CB on productivity specialist certification. This initiative will support the NPO in achieving its objectives and enhance the credibility, competency, and value of certified professionals.

The first phase of the CBD project for TUSSIDE started in November 2021 with the support of one APO-assigned resource person from Malaysia. Activities will continue in 2022 to develop TUSSIDE as an APO CB.

Development of the NPO of I.R. Iran as an APO Certification Body for Productivity Specialists

The NPO of I.R. Iran is committed to planning, policymaking, steering, and monitoring and evaluating productivity in all economically active units and production sites in the country. Major thrust areas are human capital development, productivity awareness, national excellence, consultancy and research, and innovation and value addition. In leading nationwide productivity enhancement

activities, the NPO of I.R. Iran strives to act as an authority in recognizing productivity professionals who perform as consultants, trainers, and researchers. Conferring recognition through a certification program will enhance the trust and confidence of clients and stakeholders in the standards and capabilities of those professionals. The NPO of I.R. Iran is therefore preparing to become an APO CB, augmenting the credibility and recognition of certified productivity professionals across all industries and sectors in the country.

The MPC and MPC-CB are assisting the APO and providing technical cooperation for guiding the NPO of I.R. Iran in its efforts to meet the requirements for an APO-accredited CB on Productivity Specialists. The CBD project of I.R. Iran started in December 2021 with a coordination meeting among the APO Secretariat, MPC-CB, and NPO of I.R. Iran. It will continue with the assistance of the MPC-CB in 2022.

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 those for sectoral productivity. The program aims to mainstream productivity enhancement in member countries' national development agendas and to promote the centrality of productivity in their policies.

Development of the Framework of the National Productivity Network of I.R. Iran

An effective productivity network supported by a well-functioning ecosystem of is one of the preconditions of a successful productivity movement. NPOs are among the key institutions responsible for formulating the plans and policies and implementing the programs of national productivity movements. In achieving the objective of creating a functioning productivity ecosystem, the NPO of I.R. Iran initiated the development of the Framework of the National Productivity Network. It aims to create a platform facilitating the development of policies and implementation of programs through synergies, participation, and collaborations among all stakeholders.

The APO is providing consultancy to assist the NPO of I.R. Iran in addressing institutional needs and building its capability to develop and implement effective productivity-related strategies and programs at the national level. The project consists of three main phases: identification of key issues; consolidation and drafting plans; and development of the Framework of the National Productivity Network of I.R. Iran. The project intends to produce a framework covering institutional mechanisms, engagement partners, productivity services, and a monitoring and evaluation system. The project started in December 2021, and completion was planned for June 2022.

Program coverage: Preproject consultation; Diagnostic and synthesis analysis; Consultation meetings with stakeholders; Productivity stakeholders' mapping and need analysis; and Development of the network blueprint.

Institutional Capacity Development Plan for the NPO of Pakistan

To support the NPO of Pakistan in carrying out its 16 broad objectives and streamlining its organizational plan to enhance national productivity, a policy consultancy project was initiated to assist in the formulation of its institutional capacity development plan and strategy.

The consultancy project started in July 2020 and was completed in July 2021. This was the third NPO to participate in the APO's Institutional Capacity 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 held 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 could be made.

The plan is now under final review by the office of the Ministry of Industries and Production before implementation.

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

Development of a National Productivity Master Plan for Lao PDR

The APO assisted the Government of Lao PDR in formulating a productivity policy framework to lay the foundations for its Vision 2030 and Socioeconomic Development Strategy 2016–2025. The consultancy project aimed 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 (FY2021–30). 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 project was completed in March 2021. A research team from the Korea Development Institute 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 held in June 2021.

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

Technical Expert Services

The APO utilizes its Technical Expert Services (TES) Program as the primary vehicle for strengthening the institutional capacities of NPOs and upgrading the technical knowledge and competencies of their staff and other productivity practitioners in the country through tailored, intensive interventions by experts and specialists assigned to assist requesting member countries. TES offers a broad range of topics to suit the requests and needs of each member country and, together with other types of in-country projects, it aims to boost national productivity through the provision of real-world solutions to problems.

TES activities in 2021 were delivered virtually using videoconference applications in response to the travel restrictions in place to prevent the spread of COVID-19. Twenty-nine TES projects for 12 APO members were implemented, and 34 experts undertook virtual assignments. Bangladesh, Pakistan, and the Philippines implemented four projects each, while Mongolia completed five. Thirteen projects focused on productivity tools and techniques, the most common topic requested by member countries.

Based on information from NPOs, a total of 4,573 participants benefited from virtual conferences, seminars, and training courses.



Demonstration Companies

APO demonstration companies are showcases for practical applications of productivity concepts, tools, and techniques in all sectors. These demonstration companies convey success stories about the development and implementation of productivity improvement initiatives undertaken in member countries to enable other organizations to learn from and embark on similar improvements.

Demonstration company projects are also effective ways to train productivity practitioners. Through hands-on learning with assigned resource persons, company staff can gain knowledge

of practical applications of productivity tools, techniques, and methodologies and adopt them in daily operations. Demonstration projects are unique because they give opportunities for member countries to apply practical knowledge promoted by the APO through other activities such as workshops and training courses. Overall, demonstration companies serve as platforms for knowledge sharing, enabling productivity tools and techniques to reach a broad, diverse audience.

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

Two demonstration projects were also newly selected for implementation in 2021: Applications of Kaizen in Micro Hydropower Turbines in Pakistan; and Productivity Improvement in Biobased Products in Vietnam. These two projects were scheduled to be concluded in 2022.



Appendix 3: List of NPOs

BANGLADESH

National Productivity
Organisation,
Ministry of Industries



CAMBODIA

National Productivity Centre
of Cambodia, Ministry
of Industry, Science,
Technology and Innovation



REPUBLIC OF CHINA

China Productivity Center



FIJI

National Training and
Productivity Centre,
Fiji National University



HONG KONG

Hong Kong Productivity Council

INDIA

National Productivity Council



INDONESIA

Directorate for
Productivity Development,
Ministry of Manpower of
the Republic of Indonesia



I.R. IRAN

National Productivity
Organization of
Islamic Republic of Iran



JAPAN

Japan Productivity Center



REPUBLIC OF KOREA

Korea Productivity Center



LAO PDR

Lao National Productivity Organization, Department of Small and Medium Enterprise Promotion, Ministry of Industry and Commerce



MALAYSIA

Malaysia Productivity Corporation



MONGOLIA

Mongolian Productivity Organization



NEPAL

National Productivity and Economic Development Centre



PAKISTAN

National Productivity Organization



PHILIPPINES

Development Academy of the Philippines



SINGAPORE

Singapore Productivity Centre



SRI LANKA

National Productivity Secretariat, Ministry of Labour and Foreign Employment



THAILAND

Thailand Productivity Institute



TURKEY

Ministry of Industry and Technology



VIETNAM

Vietnam National Productivity Institute



Appendix 4: Abbreviations and Acronyms

ADB	Asia Development Bank Institute	FTPI	Thailand Productivity Institute
AI	Artificial intelligence	FVC	Food value chain
APO-AB	APO Accreditation Body	GBM	Governing Body Meeting (of the APO)
ASEAN	Association of Southeast Asian Nations	GFP	Global Forum on Productivity (of the OECD)
B&B	Biofertilizers and biopesticides	GP	Green Productivity
BCN	Bilateral Cooperation between NPOs (of the APO)	GPS	Global positioning system
BoP	Base of the pyramid	ICT	Information and communication technology
CB	Certification body	IOSM	Individual-country Observational Study Mission (of the APO)
CBD	Certification Body Development (of the APO)	IoT	Internet of Things
CBDP	Certification Body Development Program (of the APO)	IPR	Information and public relations
COE	Center of Excellence (of the APO)	ISO	International Organization for Standardization
CPC	China Productivity Center	IT	Information technology
D&I	Diversity and inclusion	JPC	Japan Productivity Center
DAP	Development Academy of the Philippines	KPC	Korea Productivity Center
DMP	Demonstration Company Project (of the APO)	M&E	Monitoring and evaluation
FAO	Food and Agriculture Organization (of the UN)	MFCA	Material flow cost accounting
FLFP	Female labor force participation	MFP	Multifactor productivity

MIE	Middle-income economy
MPC	Malaysia Productivity Corporation
MPO	Mongolian Productivity Organization
MSME	Micro/small and medium enterprise
NIS	National innovation system
NPC	National Productivity Council (of India)
NPCC	National Productivity Centre of Cambodia
NPO	National productivity organization; National Productivity Organisation (Bangladesh); National Productivity Organization of I.R. Iran; National Productivity Organization (Pakistan)
NPS	National Productivity Secretariat (of Sri Lanka)
NTPC	National Training and Productivity Centre, Fiji National University
OECD	Organisation for Economic Co-operation and Development
P-Talk	Productivity Talk (of the APO)
PDB	Productivity database (of the APO)
SAT	Smart agriculture transformation
SDGs	Sustainable Development Goals (of the UN)

SE	Social enterprise
SHF	Smallholder farmer
SM	Smart manufacturing
SME	Small and medium enterprise
SNP	Specific National Program (of the APO)
SNS	Social network services
SGPC	Singapore Productivity Centre
SSF	Small-scale farmer
TES	Technical Expert Services (of the APO)
TFP	Total factor productivity
VNPI	Vietnam National Productivity Institute
WSM	Workshop Meeting of Heads of NPOs (of the APO)



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