



ACCESS TO CLEAN COOKING IN ASIA AND THE PACIFIC WORKSHOP

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Jointly organised by



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Around 1.8 billion people or nearly 40% of the Asia-Pacific region’s population in 2018 rely on polluting and unhealthy cooking fuels and technologies. With close to four million people worldwide dying prematurely each year from illness attributable to household air pollution from inefficient cooking practices using polluting stoves paired with solid fuels and kerosene. Despite stipulations for universal access to clean cooking by 2030 on the Sustainable Development Goal (SDG) 7, the Asia-Pacific has been slow in its journey to achieving this goal.

Further setbacks in achieving the SDGs have been feared due to the spread of the Coronavirus (COVID-19) this year. Despite these setbacks, achieving universal access to clean cooking is a necessary action to achieve not only affordable, reliable, sustainable, and modern energy services for all (SDG 7), but also healthy lives and wellbeing for all at all ages (SDG 3), and readiness to combat climate change and its impacts (SDG 13). Continuing and accelerating the efforts in the provision of clean cooking, will decrease indoor air pollution, help households avoid respiratory diseases, contribute to allaying the future impacts of natural disasters and calamities, and support in developing the resilience of countries' renewable energy systems.

Provision of clean cooking for the rural and urban-poor population will alleviate the plight of women — who often bear the brunt of household work — and children, who both suffer more from the health consequences of indoor air pollution. Household air pollution is attributable to cooking and heating practices using solid fuel (wood, charcoal, coal, dung, crop wastes) on open fires or traditional stoves.

These produce harmful air pollutants such as fine particulates, toxic smoke as well as climate change-inducing gases like black carbon. According to the World Health Organization, household air pollution causes noncommunicable diseases such as stroke, ischemic heart disease, chronic obstructive pulmonary disease, and lung cancer. As such, access to clean fuels and technologies such as clean cookstoves reduces exposure to indoor air pollutants and health risks including death.

Recognizing the critical gap between the SDG7 target by 2030 of achieving universal access to clean cooking, and the current low access and slow progress toward the goal, the Asian Development Bank (ADB), Sustainable Energy for All (SEforALL) in partnership with the Sustainable Energy Association of Singapore (SEAS), through its Sustainable Energy Center of Excellence (SECOE), organized a workshop focusing on access to clean cooking, contributing to the closing of disparity in clean energy access among countries in Asia and the Pacific, particularly in the field of cooking. This year, SECOE’s Clean Cooking Workshop saw over 40 delegates coming from over 20 private organizations and government institutions.

Opening Remarks



Kavita Gandhi, Executive Director, Sustainable Energy Association of Singapore (SEAS), extended a warm welcome to all attendees and speakers while thanking the Asian Development Bank (ADB) and Enterprise Singapore for their support in organizing the event. Citing how Minister of Trade of Industry of Singapore, Mr. Chan Chun Sing, has outlined his agenda for a low carbon recovery economy, Kavita shared that this will not only initiate the significant emission reductions needed to change or slow down climate change but further create more jobs and thus economic growth. Highlighting the diverse mix of speakers from various different regions and countries, she further thanked all participating speakers and attendees for taking the time to

participate in the workshop and hoped that everyone will be able to forge strong partnerships for the development and implementation of access to clean cooking in their respective countries.

Session 1: Accelerating Access to Clean Cooking in the Asia and Pacific Region: Status and Major Issues

The session discussed the status of access to clean cooking in Asia and the Pacific region with a focus on the current issues, challenges and barriers. Highlighting the critical role of clean cooking in the achievement of the Sustainable Development Goals (SDGs) and its current status within technical, policy, and financial challenges and risks, presenters shared major issues and barriers in increasing access to clean cooking and promoting the shift from traditional to modern cooking technologies.

Session 1.1: Rethinking Clean Cooking: State of Access to Modern Energy Cooking Services



Prof. Ed Brown, Research Director, Modern Energy Cooking Services Programme (MECS), Loughborough University, gave an overview of the state of access to modern energy cooking services in the region. Highlighting the need to rethink universal access to modern energy cooking services, he shared a multi-tier framework for assessing MECS standards. Noting how contemporary clean cooking narratives have encompassed elements of energy strategy, aspiration for modernization, urban populations, reduction in costs of electricity, and potential of electricity use for cooking, Prof. Ed further shared how finance for clean cooking remains incredibly small and far behind estimates to make transformative change. Despite these challenges, he shared that much potential in the future of clean cooking and the transition from biomass to MECS.

Session 1.2: Increasing Access to Clean Cooking: Challenges and Prospects from the Philippine Perspective



Dr. Kee-Yung Nam, Principal Energy Economist, Asian Development Bank (ADB), provided an overview of the challenges facing the transition to clean cooking in the Asia-Pacific as well as the impact and costs of switching from traditional to clean cooking technologies and fuels. Noting how 54% of Filipinos rely on traditional cookstoves and fuel for cooking, Dr. Nam cites perceived and associated costs of shifting, perceived advantages in using traditional cookstoves and need for enabling the environment as barriers to shifting to cleaner alternatives. He further outlined some of the methods in overcoming these barriers including, increasing public awareness to encourage shifting to modern cookstoves, developing cookstove design standards and efficient fuels as a solution to fuel stacking, and provide intentional government support and create an enabling environment.

Q&A Session facilitated by Michael Williamson, Section Chief, Energy Division, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)



Presenters were asked whether the production and transmission energy losses have been taken into account in the total energy efficiency for electric cooking. **Prof. Ed Brown** answered that the concept of energy efficiency mentioned in his presentation is directed toward electrical cooking appliances. This meant that suggestions about improvements to energy efficiency are related to the impacts of desirability and affordability of electric cooking appliances. However, Prof. Ed highlighted that there is potential to work with electric generation companies to understand the efficiency of clean cooking at the supply level, as clean cooking is dependent on electricity that comes from the grid. He also emphasized that reliable and affordable electric generation and transmission are important issues that impact the adoption of electric cooking technologies.

Agreeing with the sentiments of Prof. Ed Brown, **Dr. Nam** shared that the presentations were showcasing energy efficiency from the demand side of the clean cooking ecosystem. However, he shared that the supply side of the clean cooking ecosystem provides a bigger picture into the overall narrative of ensuring efficient clean cooking. He exemplifies this by sharing how ADB is looking at grid connections including decentralizing clean and renewable energy at the city and urban levels as well as looking at distributed mini-grid solutions in rural areas.

Session 2: Best Practices on Innovative Clean Cooking Technologies

Presentations showcased case studies of innovative clean cooking technologies already being implemented and piloted in the region specifically in areas lacking access to clean cooking and fuel. The case studies provided a glimpse of the challenges encountered, measures taken, and recommendations moving forward in order to replicate and scale-up said technologies and solutions in other parts of the region. Measures taken to tackle indoor air pollution and its impacts on the health and environment were discussed.

Session 2.1: A journey towards accelerating electric cooking in Nepal



Karuna Bajracharya, Country Manager, Clean Cooking Alliance (Nepal), opened her presentation with a sharing of plans and programmes that Nepal is implementing to transition towards electric cooking. Anticipating how electric cooking will become an important part of the clean cooking mix, Karuna highlighted the opportunities in e-cooking including, strong political commitment, increase in electricity access, availability of e-cooking appliances, cost-effective options in comparison to LPG and firewood, rise in communities opting for cleaner and smarter technologies in their daily life, opportunities to reduce trade deficit through the reduced import of LPG.

Session 2.2: What We Learnt from Selling A Million Stoves



Neha Juneja, Co-Founder and CEO, Greenway Appliances, gave an overview of the types of consumers that purchase clean cookstoves in India. Highlighting how most of her potential customers understand the need to shift to cleaner cooking technologies, Neha shared that most do not have disposable income to spend and that investment in clean cooking is not a priority. However, she notes that a majority of their stoves are sold to consumers with decent rural income levels that are likely to stack other solutions for 10 - 20% of their cooking and affiliation with women self-help groups in driving most of their sales. She also lists factors including, having an optimized stable supply chain, investment into manufacturing cost reduction, enabling risk-free sales

enrolment, and capitalizing on women self-help group as critical success factors in helping her target consumers to transit towards clean cookstoves.

Session 2.3: Scaling Cooking Energy Solutions in South East Asia: Lessons Learned from Practical Experiences



Bastiaan Teune, SNV Cambodia Sector Leader Energy & Global Cookstoves Coordinator, gave an overview on SNV’s sustainable energy markets approach including, stimulating demand, changing behaviors, improving supply, improving access to finance, quality assurance, enabling environments for business, and smart incentive to drive tangible change in Southeast Asia. Noting how traditional cooking methods are contributing to health risks such as child pneumonia and air pollution, Bastiaan shared three critical factors including demand, supply, and creating an enabling environment for upscaling clean cooking in Southeast Asia. He further outlined some of the tactics

including word-of-mouth and localizing clean cooking technologies through local franchising and distribution models to generate demand for clean cooking. Bastiaan also shared that a results-based finance model has helped to supply activities and technologies to attract investments as well as ensuring quality product development. In terms of having an enabling environment, he shared how

SNV has labs in Lao PDR, Cambodia, and Vietnam to drive greater education and knowledge sharing within the clean cooking ecosystem.

Q&A Session facilitated by Michael Williamson, UNESCAP



Neha Juneja was asked how governments can intervene to help the transition towards clean cooking. She shared that there is a need for partnerships between civic society and rural self-governance networks. Noting how many of these self-help groups and networks are unaware about the benefits of clean cooking, Neha emphasized that there is a need for governmental infrastructures to start talking and generating awareness on the need for clean cooking.

Bastiaan Teune was asked about what would be the optimal framework for both the government and private sector to come together to accelerate the adoption of clean cooking technologies and processes. He shared that it is important to realize that there is a public and commercial element to the clean cooking industry. Emphasizing on how the cost of business in the industry is high, he highlighted the need for government support in providing information, education and awareness for the transition of clean cooking instead of relying on private businesses and organizations to bear the costs in addressing these areas as they directly impact both public health and policy agendas.

Both presenters were asked about their experience on how much of an effect cultural and social context have on sustained adoption of clean cooking and the impact of long-term affordability is managed with respect to fuel costs. Neha shared that consumers in India are not used to spending on fuel despite the accessibility of LPG. As such, as a commercial enterprise there is no motivation and resources to change their consumers behavior in a very significant way. Noting the lack of electric-based solutions, she further shared that there is a lack of consumers willing to pay for these solutions and technologies. Hence, the shift to cleaner solutions on an ongoing basis will be a big challenge in India necessitating a need for big investment in behavioral change.

Bastien highlighted that the complexities are different in each country. He shared how the consumers in Vietnam and Lao PDR have different considerations when transiting to cleaner cooking. He further emphasized that there are big cultural differences in promotion and appreciation for the different countries and it is important to take these factors into consideration to communicate the value proposition of clean cooking within the different markets.

Session 3: Accelerating Access to Clean Cooking in the Asia and Pacific Region: Solutions and Scaling-up

The presentations discussed the different ways and measures that should be and have already been taken by the public and private sectors, including development financing institutions, in increasing financial commitments in clean cooking. Highlighted were the roles they have played, and the different mechanisms, approaches used, challenges, and lessons learned to encourage financing of sustainable clean cooking solutions.

Presentation on the critical role of government to promote and achieve access to clean cooking - government programmes on clean cooking including policy and regulatory standards and framework that are conducive to private sector investment in clean cooking technologies.

Session 3.1: Trends in Clean Cooking Finance Commitments

Olivia Coldrey, Lead, Energy Finance and Clean Cooking, Sustainable Energy for All (SEforALL), gave an overview of the Energizing Finance research series which features in-depth analysis by SEforALL and partners that examines supply and demand for finance across two key areas of energy access: electricity and clean cooking. She focused her presentation on findings from last year’s report. In 2017, over USD 32 million in finance commitments were identified, noting the year-on-year increase from commercial finance such as private equity and venture capital firms. On closing the energy access gap in countries such as Uganda, the Philippines and Madagascar, she shared that volume and blend of finance is required for off-grid electricity and clean cooking solutions. Olivia also highlighted the importance of improving energy access for women in vulnerable communities and the need for gender audits in order to overcome financing barriers that are unique to them.



Session 3.2: Improved Cookstoves Programme in Bangladesh



Md. Enamul Karim (Pavel), Director, (Loans) & Head (Renewable Energy), Infrastructure Development Company Limited (IDCOL), Bangladesh, opened his presentation by introducing his organization and its renewable energy, infrastructure and energy efficiency initiatives. This includes the Improved Cookstoves Programme (ICP) launched in 2013 with the aim of creating mass awareness on reducing indoor pollution in Bangladesh through minimizing use of cooking fuel by 2030. IDCOL implemented a unique approach where it provides funds to its partner organizations for promotion and capacity building based on the number of improved cookstoves adopted by households verified physically by its monitoring team. Enamul also talked about the key success factors behind stove adoption which is technology dependent. Recognizing the high cost of stove models which can go up to USD 40 in the market, his research and development team was able to design a low-cost model (USD 4 to USD 14) that not only is manufactured using local resources but has fuel savings of more than 50%.

Session 3.3: Role of Local Government in Improving Indoor Air Quality through Clean Cooking: The Experience of Iloilo City



In his presentation, **Noel Hechanova**, Department Head, Iloilo City Environment and Natural Resource Office, spoke about indoor pollution challenges in Iloilo City, Philippines with 61% of the city's annual emissions contributed by indoor cooking, evaporative landfill emission and agriculture. He gave interesting insight on the cooking practices adopted by the upper, middle- and lower-income households. Noel outlined the government's plans and strategies which included Social Marketing, Information and Education

Campaign (SMIEC), micro-financing facilitation, data banking, partnership building and investment facilitation. He also highlighted the importance of developing partnerships with organizations such as ADB and micro-financiers to promote clean cooking technologies. To date, over 9,034 households in Iloilo City have shifted from traditional cookstoves to LPG canister with 208, 016 canisters refilled.

Q&A Session facilitated by Michael Williamson, UNESCAP

Olivia Coldrey was asked if the data captured in the Energising Finance research series included investments made in Nepal such as those highlighted by Karuna Bajracharya, Country Manager, Clean Cooking Alliance (Nepal). Olivia shared that data from these initiatives were included in their data set.

She was further asked if future intervention in grid architecture loads are feasible. To that, she answered that SEforAll has a commitment to energy transmission and distribution infrastructure under the electricity banner. However, the challenge is to distinguish if the infrastructure supports fossil fuel or renewable energy, due to the current energy mix.

Michael also asked Olivia Coldrey if there was a tangible data set for the benefits of clean cooking so as to build support for this area. Olivia highlighted that quantifying the data is the next step in capturing the benefits of clean cooking so that policymakers can justify the need for supporting cleaner cooking policies and investments.

Closing Remarks

Olivia Coldrey concluded the workshop by thanking the moderator, Michael Williamson (UNESCAP), for the insightful session and in keeping the speakers on track. Touching on a few key factors including, health dimensions, cost benefits of transiting towards clean cooking, and the active momentum of transiting to clean cooking at sub-national levels, Olivia highlighted the need to explore different strategies to address some of the key drivers in transiting towards clean cooking globally. This included understanding the needs, concerns, and aspirations of consumers, while broadly engaging with various communities and harnessing the potential of civil society to raise awareness on the benefit of clean cooking and the importance of data in driving clean cooking globally. Olivia closed her remarks by thanking all panelists for their wonderful presentations as well as the organizing committee for their hard work in organizing the workshop.



Annex 1 - Event Programme

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| <p>Access to Clean Cooking in Asia and the Pacific Workshop Thursday, October 29, 2020</p> |
| <p>2:00 PM to 2:40 PM</p> <ul style="list-style-type: none"> Opening Remarks by Kavita Gandhi, Sustainable Energy Association of Singapore (SEAS) and Kee-Yung Nam, Asian Development Bank (ADB) <p><u>Session 1: Accelerating Access to Clean Cooking in the Asia and Pacific Region: Status and Major Issues</u></p> <ul style="list-style-type: none"> Presentation 1.1 - Rethinking Clean Cooking: State of Access to Modern Energy Cooking Services by Prof. Ed Brown, Research Director, MECS, Loughborough University Presentation 1.2 - Increasing Access to Clean Cooking: Challenges and Prospects from the Philippine Perspective by Dr. Kee-Yung Nam, Principal Energy Economist, Asian Development Bank (ADB) Q&A Session for Session 1: Accelerating Access to Clean Cooking in the Asia and Pacific Region: Status and Major Issues facilitated by Michael Williamson, Section Chief, Energy Division, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) |
| <p>2:40 PM to 3:20 PM</p> <p><u>Session 2: Best Practices on Innovative Clean Cooking Technologies</u></p> <ul style="list-style-type: none"> Presentation 2.1: A journey towards accelerating electric cooking in Nepal by Karuna Bajracharya, Country Manager, Clean Cooking Alliance (Nepal) Presentation 2.2: What We Learnt from Selling A Million Stoves by Neha Juneja, Co- founder & CEO, Greenway Appliances Presentation 2.3: Scaling Cooking Energy Solutions in South East Asia: Lessons Learned from Practical Experiences by Bastiaan Teune, SNV Cambodia Sector Leader Energy / Global Cookstoves Coordinator Q&A Session for Session 2: Best Practices on Innovative Clean Cooking Technologies facilitated by Michael Williamson, (UNESCAP) |
| <p>3:20 PM to 4:15 PM</p> <p><u>Session 3: Accelerating Access to Clean Cooking in the Asia and Pacific Region: Solutions and Scaling-up</u></p> <ul style="list-style-type: none"> Presentation 3.: Trends in Clean Cooking Finance Commitments by Olivia Coldrey, Lead, Energy Finance and Clean Cooking, Sustainable Energy for All (SEforALL) |

- Presentation 3.2: Improved Cookstoves Programme in Bangladesh by **Md. Enamul Karim (Pavel)**, Director, (Loans) & Head (Renewable Energy), Infrastructure Development Company Limited (IDCOL), Bangladesh
- Presentation 3.3: Role of Local Governments in the Promotion of Clean Cooking Programs: the Case of Iloilo City by **Noel Hechanova**, Department Head, Iloilo City Environment and Natural Resource Office, Philippines
- Q&A Session for Session 3: Accelerating Access to Clean Cooking in the Asia and Pacific Region: Solutions and Scaling-up by **Michael Williamson**, (UNESCAP)
- Closing Remarks from by **Olivia Coldrey**, Lead, Energy Finance and Clean Cooking, Sustainable Energy for All (SEforALL)

Annex 2 - Attendance Overview

| Groups | First name | Last name | Job title | Company | Country |
|----------|------------|----------------|---|---|----------------|
| Speaker | Noel | Hechanova | Department Head | Iloilo City Environment and Natural Resource Office | Philippines |
| Speaker | Michael | Williamson | Section Chief, Energy Division | UNESCAP | Thailand |
| Speaker | Bastiaan | Teune | SNV Cambodia Sector Leader Energy / Global Cookstoves Coordinator | SNV | Cambodia |
| Speaker | Ed | Brown | Research Director, MECS | Loughborough University | United Kingdom |
| Speaker | Kee-Yung | Nam | Principal Energy Economist | Asian Development Bank | Philippines |
| Speaker | Olivia | Coldrey | Lead, Energy Finance and Clean Cooking | Sustainable Energy for All | Austria |
| Speaker | Md. Enamul | Karim (Pavel) | Director (Loans) & Head (Renewable Energy) | Infrastructure Development Company Limited | Bangladesh |
| Speaker | Karuna | Bajracharya | Country Manager - Nepal | Clean Cooking Alliance | Nepal |
| Speaker | Neha | Juneja | Co- founder & CEO | Greenway Appliances | India |
| Delegate | Lee Heng | Tan | Assistant Vice President | TUV SUD PSB Pte Ltd | Singapore |
| Delegate | Mikael | Melin | Senior Specialist | SEforALL | Vienna |
| Delegate | Fely | Arriola | Access to Energy Expert (Consultant) | Asian Development Bank | Philippines |
| Delegate | Tamojit | Chatterjee | Energy Associate | Sustainable Energy for All | Austria |
| Delegate | Denise | Encarnacion | | Asian Development Bank | Philippines |
| Delegate | Fritzie | Vergel | Sustainable Energy Consultant | Asian Development Bank | Philippines |
| Delegate | Grace | Yeneza | Consultant | Asian Development Bank | Philippines |
| Delegate | Chee Mun | Wai | APAC Sales Director | Eminox Ltd | Singapore |
| Delegate | Andy | Yu | Principal Engineer | EMA | Singapore |
| Delegate | Mann Weng | Yong | Intellectual Property Analyst | Panasonic R&D Center Singapore | Singapore |
| Delegate | Lina | Lee | Executive Director | Durapower Technology (Singapore) Pte Ltd | Singapore |
| Delegate | Erica | de Souza | Biologist | PUB | Singapore |
| Delegate | David | Carrasco Calvo | Business Development Manager | ACCIONA Singapore | Singapore |

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| Delegate | Atsumasa | Sakai | Senior Energy Specialist | Asian Development Bank | Philippines |
| Delegate | Vincent | OR | Deputy Director | Energy Market Authority | Singapore |
| Delegate | Kei | Aoki | Manager | TOKYO GAS ASIA PTE. LTD. | Singapore |
| Delegate | Celine | Paton | Senior financial analyst | Solar Energy Research Institute of Singapore | Singapore |
| Delegate | Jennifer | Tay | Partner | PwC | Singapore |
| Delegate | Joo Duk | Vancoppenolle | Director | Elia Grid International | Singapore |
| Delegate | Marinel | Dungca | Secretary | SERIS | Singapore |
| Delegate | Lyndree | Malang | Consultant - Energy Economist | Asian Development Bank | Philippines |
| Delegate | Sa | Sha | APAC Director | Sungrow Floating | China |
| Delegate | Siak Kiong Elson | Mah | Director, Oil & Gas | Surbana Jurong Infrastructure Pte Ltd | Singapore |
| Delegate | Rahimah | Rahim | Business Development Director | Genesis Ray Energy | Singapore |
| Delegate | Vincent | Phang Cheh Sine | Heads of BD | G8 Subsea Pte Ltd | Singapore |
| Delegate | Amy | Goh | Business Analyst | Durapower Technology (Singapore) Pte Ltd | Singapore |
| Delegate | David Firnando | Silalahi | Student | Australian National University | Australia |
| Delegate | Lokesh | Vinayagam | Research Associate | SERIS | Singapore |
| Delegate | Lu | Zhao | Director Solar Product and Technology | Envision Digital International | Singapore |
| Delegate | Raghuram | Natarajan | CEO APAC | Mainstream Renewable Power Asia Holdings | Singapore |
| Delegate | Sunil | Thapliyal | Representative | QUANTSOLAR | Singapore |
| Delegate | Cheng Guan | Tan | Head, Renewables & Environment Businesses | Sembcorp Industries | Singapore |
| Delegate | Ana Maria | Tolentino | Sustainable Energy Policy and Institutional Expert (Consultant) | Asian Development Bank | Philippines |
| Delegate | Maria Dona | Aliboso | Operations Analyst | Asian Development Bank | Philippines |