



100%RE
multi-actor
partnerships

Conference Proceeding

INTERNATIONAL CONFERENCE ON 100% RENEWABLE ENERGY



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BACKGROUND

The Paris Agreement on Climate Change can only be realized by transitioning to 100% Renewable Energy (RE) at the earliest possible. This global agreement aims to limit global temperature rise to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels by the end of this century. Working towards 100% RE is more than just replacing fossil fuels with renewable sources. Energy transition should also serve as a means for socio-economic development and help create a just society for current and future generations.

There is a huge potential for renewable energies such as hydroelectricity, solar power and wind energy. However, these resources have not been well utilized due to geographical, technical, political, and economic reasons. In many developing countries, traditional and commercial sources of energy still contribute significantly in the total energy share. We need to prioritize investment on renewable energy and develop an enabling policy environment that ensures affordable, reliable, and sustainable energy access to all.

In recent years, promotion and access to renewable energy are increasing globally. Countries already have experiences with a steep learning curve on promoting and integrating RE in their energy system. It is important that these learnings are shared among countries and stakeholders. Thus, Prakriti Resources Centre (PRC) and World Wide Fund for Nature (WWF) Nepal along with Alternative Energy Promotion Centre (AEPC) organized an international conference in Kathmandu, Nepal, from 18–19 December 2022, with the following objectives:

- Facilitate a discourse on renewable energy and climate change to implement the Nationally Determined Contributions (NDCs) for achieving net zero emission and just transition.
- Share regional and international knowledge on the interrelationship between renewable energy and climate change, and learning of implementing RE policies, plans, and projects.
- Document learning and good practices on energy transition for future collective sharing and promote linking actions to policies, plans, and strategies.

The conference was organized under the project “Multi-Actor Partnerships (MAP) for Implementing NDCs with 100% Renewable Energy (RE) for All in the Global South”, which envisions to achieve complete decarbonization and shift to RE by 2050 through sustainable and just transition.

Around 121 participants from 18 countries participated in the conference. The conference participants were members of the MAP platform comprising of government agencies, civil society organizations, private sectors, bank and financial institutions, academia and research institutions, media, development agencies, and other stakeholders committed to work and advance the agenda of renewable energy and climate change.



Opening Session

Chair:	Madhusudhan Adhikari, Ph.D., Executive Director, Alternative Energy Promotion Centre, Nepal
Chief Guest:	Dinesh Kumar Ghimire, Secretary (Energy), Ministry of Energy, Water Resources and Irrigation, Nepal
Welcome remarks:	Raju Pandit Chhetri, Executive Director, Prakriti Resources Centre, Nepal
Keynote speech:	Prof. Shobhakar Dhakal, PhD, Asian Institute of Technology, Thailand
Guest speech:	Fentje Jacobsen, Senior Policy Advisor Climate & Energy, WWF Germany

Welcoming the conference participants, **Raju Pandit Chhetri**, Executive Director of Prakriti Resources Centre outlined the aim of the conference as sharing and listening to different countries' experiences, learnings, and outcomes on renewable energy (RE) transition and climate action. The science is clear on the necessity of limiting the global temperature to 1.5°C by the end of this century, and thus, Chhetri emphasized the need for a rapid and sustained reduction of greenhouse gas emissions by working toward a clean, green, and resilient energy system, and moving away from fossil fuels to RE for a just energy transition. The government alone cannot achieve this energy transition, so, he stressed the need for the participation of everyone.

Keynote remarks by **Shobhakar Dhakal**, Professor at the Asian Institute of Technology, highlighted the current low level of RE consumption and adoption, particularly in the heating, cooling, and transportation

sectors. He stressed that the current progress is not enough to limit the global temperature rise to well under 2°C. The world needs rapid progress on low-carbon technologies in terms of cost, performance, and adoption for achieving net zero emissions by 2030. RE is needed to address global challenges: climate change and air pollution; as well as to address local needs: energy access, alternatives of traditional energy, jobs, and livelihood upliftment. Limiting fossil fuel usage, eliminating fossil fuel subsidies, focusing on innovation and improvements, and enabling policies and systems are key to energy transition. He emphasized the need to create an evidence-based approach to transitioning to renewable energy in developing countries and to work on climate finance and investment facilitation.

The guest speakers emphasized the importance of renewable energy to address climate change and increase electricity access, as well as the importance of engagement of diverse stakeholders for achieving a 100% renewable energy future, and presented Nepal's efforts on decarbonization. Some major takeaways from the session were:

- Energy is playing an important role in driving economic and human development. But the significant role that fossil fuels have played in electricity production for many decades has contributed to climate change, and harmed the environment and human health. In order to meet the Paris Agreement goals, it is necessary to drastically and quickly reduce carbon emissions through energy transition and efficiency.
- Despite progress in increasing electricity access in developing countries, there is still a need in improving energy efficiency, which will help to improve access to clean and safe cooking technology.
- Nepal has committed to the Paris Agreement and set ambitious goals for clean energy generation, electric transport, and clean cooking. The country's goal is to graduate from a developing country by 2030, which requires production of environmentally friendly and affordable energy, and its sustainable consumption. Nepal is committed to achieving its own development goals and also support transition goals in the South Asia region by exporting its abundant hydropower and reducing non-renewable energy generation.
- Involving a diverse range of stakeholders, including private sectors, utilities, infrastructure providers, and local communities, is important in the transition to 100% RE, as well learning from each other's experiences for achieving a 100% RE future.





Session 1

Advancing Just Energy Transition for achieving 'net zero emissions'

Moderator: Ram Prasad Dhital, PhD., Former Commissioner, Nepal Electricity Regulatory Commission, Nepal

Panel Presenters: Michel Kohler, Founding Partner, the greenwerk, Germany; Rassu Manandhar NDC Coordinator, UNDP Nepal

The session's objective was to discuss the importance of Just Energy Transition in implementing the Paris Agreement and Net Zero emissions target, and to share experiences, policy practices, and challenges on just energy transition and pathways to achieve net zero emissions. **Michel Kohler** presented the importance of just energy transition, and challenges and lessons learned from Germany's transition efforts. **Rassu Manandhar** shared Nepal's policies, plans and initiatives on achieving Net Zero emission targets.

Electricity generation is a major source of carbon emissions. But in today's fast developing world, it's need and demand is ever increasing. Thus, in order to achieve carbon neutrality by 2050, there is an urgent need to transition into using renewable energy. However, according to the IRENA report, the world requires four times more RE by 2030 than in 2020, and 10 times by 2050, which requires gigantic investment, and Asia faces the lion's share of RE deployment.

Germany's efforts on RE transition started with its government prioritizing safe and affordable energy, phasing out their nuclear program, and focusing on power price regulation, ambitious feed-in-tariffs (FITs) introduction, and liberalization and unbundling of monopolistic energy market. As a result of these efforts, the RE share increased significantly from 2010 onwards, reaching 30% in 2019. Since 2015, Germany has installed more RE capacity than conventional. Germany has also introduced laws to phase out coal by 2038 and policies to increase RE share to 80% by 2030 accompanied by massive structural change in investment. However, the transition is slow. Currently, the country faces new challenges with energy crisis in Europe due to the Ukraine war and sanctions against Russia, which has led to new investment in fossil fuel. Europe paying higher prices for fossil fuel is also driving up international fuel prices posing serious economical problems in developing countries.

Key takeaways from Germany's transition experience are that there is a need to increase participation and ownership of individuals and communities in energy generation by creating an enabling environment, such as feed-in tariffs, and an urgent need for ambitious, reliable and predictable policy framework to guarantee long-lasting planning security for stakeholders. Building financial participation and ownership of stakeholders, fair distribution of costs, and creation of new sustainable jobs are important to address resistance from traditional electricity providers and market as countries work towards becoming 100% RE. Technical challenges on grid from scattered, non-synchronous, and weather dependent energy sources also need to be considered beforehand. FITs can act as booster for diversified energy transition and also make energy affordable. International support and climate finance from developed countries, as well as platforms to share experiences and best practices, are required to support for inclusive and just energy transition in developing countries.

Nepal's electricity sector is almost carbon-neutral but transport, industries, and cooking are highly dependent on fossil fuel. Nepal has planned to achieve net zero carbon emissions by 2045 and formulated policies and plans such as NDCs, SDGs, energy sector vision to reduce emissions. The strategic interventions identified for net-zero emissions are increasing generation of RE especially hydropower and solar, electrification of sectors as well as improving energy efficiency, and deploying low emission technologies, among others.

Key challenges for Nepal to shift to RE technologies are limited awareness; high initial cost of technologies; lack of transmission and distribution infrastructure upgrade; lack of new infrastructures, such as charging stations for electric vehicles, as well as the large investment cost. The hydropower dominance energy generation also poses challenge to the energy security. The way forward for Nepal is to work on green energy



generation by focusing on hydropower storage, integration of variable renewable energy including green hydrogen and waste to energy, and innovation in the RE.

During the Q&A session, participants questioned and discussed the possibility of staying below the 1.5°C targets, Germany's challenges on electricity grid with increasing RE share, energy challenges after the Ukraine war, Germany's customer perspectives on energy transition, the modus operandi for transferring knowledge and technology, and Nepal's progress towards net-zero emissions.

- The recent UNFCCC COP27 pointed out that the possibility of limiting temperature rise to under 1.5°C is almost impossible – the only way to be on this track is by removing atmospheric carbon. The world needs to find technical solutions and cooperation to make sure that rare minerals and metals required to produce solar PV, windmills, and mainly EVs are available. We also need energy disruptors to get along this pathway.
- Knowledge transfer, capacity building, and sharing experiences as well as financial support from developed countries are key to supporting global energy transition. Technology innovation is not necessarily happening just in developed countries, so technology transfer, and also sharing their experiences and knowledge, need to happen within developing countries. We also need to improve trade barriers to allow transition to RE more efficiently.
- Grid upgrade is vital for the distribution of RE. Learning from Germany's experience, it is important to bring existing utility company in grid management because they know how to address the technical challenges that arise from transitioning to RE.
- Energy transition in Germany has slowed down in the last ten years, and the country is still dependent on fossils, especially lignite and natural gas. The war has brought down natural gas from Russia, which provided half of the supply, to zero posing energy problems in Germany. But one optimistic change is that the German population has reduced their energy consumption and the country has now to speed up efforts on energy efficiency. It is imperative to change the consumption patterns.

Nepal has almost achieved its NDC targets to increase its forest cover to 45 percent. The country has also developed the NDC implementation plan and have set plans to achieve targets by a specific time.





Session 2

Energy mix for sustainable and resilient energy system: Lessons for 100% RE

Moderator: Prof. Ramesh Maskey, PhD. , Kathmandu University, Nepal

Presenter: Taruna Idnani, Project Manager, TERI, India

Panelists: Nawa Raj Dhakal, Deputy Executive Director, Alternative Energy Promotion Centre, Nepal; Siddique Zobair, Sustainable Energy Expert, Ministry of Power, Energy and Mineral Resources, Bangladesh; Fatima Khan, Climate and Energy Programme Coordinator, WWF Pakistan

The objective of the session was to discuss the importance of RE energy mix for a sustainable and resilient energy system, and share best practices and lessons learned from the countries. In the session, the presenter highlighted the importance of energy mix and shared the policies, plans, enabling factors, and lessons learnt to promote energy mix and decarbonization efforts in India. Panelists discussed their the policies implemented in their countries and experiences on promoting energy mix and resilient energy system in their respective countries.

In her presentation, **Taruna Indani** highlighted that favorable policy ecosystem and private sector investment have played a key role in India's success story on RE development – RE share in India has grown exponentially

by 10 gigawatts every year in the last five years. The RE share resulted from a tariff decline, technological innovation, and increased developer experience. Solar plants were bundled with coal plants which resulted to decline in its tariff. India has also increased wind power generation by introducing tax saving mechanism, providing post-tax benefits to investors, boosting innovations and investments, and developing mechanisms to bank wind power.

Recommendations for scaling-up RE:

- FIT will lead to increase decentralized capacity addition and trigger large scale private investment – that will also bring down the cost of utility companies.
- Large-scale grid storage (pumped storage plants, concentration solar thermal, battery-based energy storage system and hydrogen storage) is an immediate necessity for full utilization of RE capacity, flexible and reliable energy generation and distribution, catering to peak demand, and avoiding new thermal power capacity. The legalized cost of electricity from large-scale grid storage is also declining, making a favorable condition to scale-up RE generation.
- RE auctions and competitive bidding for RE projects will help increase competition and drive down costs.
- Scaling-up domestic production to large volumes to derive benefit of economies of scale and to expand Production Linked Incentive (PLI) scheme.
- Deploy a wide variety of domestic and international financing to scale up renewable energy.

Many developing countries have policies and plans to increase the share of renewable energy and decarbonization targets despite their negligible share of carbon emissions. There is need for investment, technology, and good policies in order to achieve renewable energy goals and energy transition, as well convincing politicians of the benefits transitioning from fossil fuels. Energy diplomacy and developing partnerships with other countries in the region is important to create a regional electricity grid network and support each other in energy transition.

Grid stability is one of the technical challenges for developing countries in increasing RE generation and electrification of sectors. It is crucial to work on energy storage specially to address two aspects: grid stability arising from RE generation and significant peak and off-peak in difference electricity demand. Energy storage will also make RE generation cost-effective.

Focusing on cost-effective solar rooftops and floating solar systems, as well as exploring the use of biomass for thermal applications in industries, can help increasing RE share in countries like Bangladesh where land availability is scarce. Small initiatives on promoting renewable energy in on-grid and off-grid communities can address issues of electricity access in developing countries where a significant portion of the population don't have access to electricity.

Developing countries require platforms to share the experiences and evidences on RE to learn from each other. More research on RE is required as well as the need to replicate successful initiatives.



Session 3

Experiences on the promotion of RE technologies and their usage

In this roundtable breakout session, participants discussed the three themes following:

- i) Integration of RE and decentralized energy system;
- ii) Clean and electric cooking and household energy usage; and
- iii) Transport decarbonization and energy efficiency.

Participants shared and discussed the countries' policies and initiatives, experiences, challenges, and lessons learnt on the themes.

A. Integration of RE and decentralized energy system

Moderator: Kushal Gurung, Founder/CEO, Windpower Nepal

Ice breakers: Thomas Joseph Pullenkav, Renewable Energy Specialist, Climate Action Network – International, India; Jiwan Kumar Mallik, Renewable Energy Expert, Nepal

Understanding energy access as a human right is fundamental for just energy transition. Energy transition should translate beyond just lighting. In fact, RE shouldn't be considered only as a service, but as an asset to make gains. The main challenge of promoting RE is not the unavailability of RE technologies and products, but the lack of favorable policies and finances to implement RE technologies. Countries have been pushing for rooftop solar energy programs for years now, but these programs are yet to see sound output because of lacking the necessary policies to interconnect rooftop solar PV to grids. In Nepal, solar FIT is yet to be taken seriously because of the country's large hydro-PV-centric energy vision and policies. Similarly, micro-hydro that has been a lifeline for rural communities for over three decades in Nepal and is seen as only a stopgap solution and alternative until the national grid reaches communities. Developing grid-compatible micro-hydro systems and integrated mini-grids are important to scale up RE initiatives and avoid transmission from long distances. National electricity utilities, which have monopoly over power generation and distribution, are the biggest barriers for the RE market to flourish. The national electricity utility needs to be broken up and the distribution needs to be taken away from them to make more RE efforts more visible.

One **pathway to decentralize the country's energy system** would be by focusing on small RE plants rather than large-scale RE projects, which often compete with land and water issues. Rooftop solar energy is a decentralized energy program with the most potential and just energy transition can be achieved through distributed solar and off-grid access. Opting for lower-capacity RE programs allows access to RE even in places that have land shortages. In addition, working with the communities is important to promote RE technologies and make distributed energy system viable. In the Philippines, for example, experience shows that when RE generation and distribution are communal, energy becomes more cost-effective as the community shoulders the cost of installation and maintenance.

Rather than setting up different institutions for RE and hydropower, integration of RE and commercial hydropower planning at the institutional level is important. Realizing this, Bhutan too has recently merged two departments working separately on RE and hydropower systems.

B. Clean and electric cooking and Household energy usage

Moderator: Pooja Sharma, Thematic Lead - Energy, Practical Action, Nepal

Ice breakers: Biraj Gautam, Chief Executive Officer, People, Energy and Environment Development Association (PEEDA), Nepal; Sandrayanti Winarsa, Program Development Manager, Hivos Southeast Asia, Indonesia

Electric cooking is growing globally, and many countries are implementing programs on electric cooking; however, a very low percentage of population are using electricity as their primary cooking fuel (for e.g., in Nepal, it is only 6%). A significant proportion of global population still lacks clean cooking solutions and many people die prematurely because of dirty energy use.

Main challenges for promoting electric cooking are accessibility and reliability of electricity – in Myanmar, less than 40% of the population has access to the central grid and even grid-connected households face frequent power cuts. The current grid and off-grid infrastructures do not support the growing demand of electric cooking in the country. Off-grid and mini-grid electric cooking have the potential to help address the situation with programmable appliances and battery-based cooking that would allow cooking during off peak hours, assuming there is willingness change cooking behavior.

Key recommendations for promoting electric cooking are to integrate e-cooking within the country's RE electrification program, devise a subsidies mechanism to low-income capitalization, increase access, ensure reliability and affordability of electricity, improve grid infrastructure to support the demand, upgrade household electric infrastructure, devise product standards, ensure availability and reliability of appliances provide product knowledge for customers as well as ensure after-sales service for electric cooking devices. Development partners should play a key role in integrating electric cooking program with government efforts through different forums and partnerships.

C. Transport decarbonization and Energy efficiency

Moderator: Prashanta Khanal, Sustainable Cities & Urban Transport Practitioner, Nepal

Ice breaker: Fatima Khan, Climate and Energy Programme Coordinator, WWF Pakistan

Transportation is the second largest source of energy-related emissions globally. However, enough attention hasn't been given to the transport sector in the climate change and renewable energy discourse. Other than emission reductions, transport sector transformation is also required to address air pollution, road safety, public health, transport equity, gender issue, and to make cities safer and livable.

Countries and cities have initiated some programs on transport decarbonization, but not enough. Pakistani cities are promoting cycling and building Bus Rapid Transit (BRT) systems. In Sri Lanka, the government has banned ICE vehicles largely owing to the financial crisis, devised efficiency labelling, and eased registration process for EVs. In Bangladesh, the government has included electric 3-wheelers in the motor vehicle act, devised standard design for electric 3-wheelers, incentivize electric vehicles, also built metro system and planned electric BRT system.

Key recommendations for transport decarbonization are develop policies to prioritize electric mass transport over personal vehicles, couple transport decarbonization with renewable energy generation (for e.g., in India, solar panels are installed in dedicated railway corridors to power the system), overcome technical challenges on promoting electric mobility such as grid management to support EVs usage and charging stations. Electric mobility is one of the ways to decarbonize the transport sector, but it is not the only way. Making cities walkable and cyclable should also be included in the transport decarbonization strategies. Cities should focus on making themselves mixed, compact, efficient instead of focusing on building large infrastructures, to reduce transport demand and change the personal vehicle dependent lifestyle. Modal shift from personal vehicles is imperative to decarbonize transport in the future.



Session 4

Scenarios, policies, and experiences of the countries on energy transition

Moderator: Nakul Sharma, Project Coordinator – Climate Change & Energy Transition, CAN South Asia, India

Panelists: Babu Raj Adhikari, Senior Divisional Engineer, Ministry of Energy, Water Resources and Irrigation, Nepal; Dechen Dema, Executive Engineer, Department of Energy, Ministry of Economic Affairs, Bhutan; Thusitha Sugathapala, Senior Technical Expert, SLYCAN Trust, Sri Lanka; Hashma Hameed, Engineer, Ministry of Environment, Climate change and Technology, Maldives; Oketch Mark Lazarus, Energy Officer, Ministry of Energy and Mineral Development, Uganda

Panelists shared energy scenarios of their respective countries and discussed approaches, experiences and challenges in working towards 100% RE vision.

Bhutan: The country largely depends on hydropower for electricity but relies on fossil fuels for transport and industries. As there is high energy demand during the winter and also growing electricity consumption, hydropower alone isn't able to match the consumption demand. Focus on affordable hydropower-generation is impeding the development of RE. The government is now trying to promote solar but RE developments will be more challenging to prioritize because of lack of financial support and skilled human resources. In terms of policies, there is a restructuring of energy sectors combining institutions working on RE and hydropower, and will be followed by policy revision prioritizing RE.

Sri Lanka: Energy security and energy equity are the largest challenges Sri Lanka is facing. The country highly depends on fossil fuel dependency, but have started transitioning from fossil fuels to renewables. The international commitments such as NDCs and SDGs played a vital role in this transition. To fulfill the competency gap, energy education will be included in the national educational program at all levels from early childhood to adulthood and also in informal education.

Uganda: Uganda relies mainly on biomass for energy generation, and has initiated programs to reduce the dependency by promoting e-cooking by reducing tariff. It is also working on net metering policy, wind energy projects, integrated transport infrastructure, municipal waste to energy, biofuels infrastructure program, and a LPG program. Some of the technical constraints on RE development efforts are: inadequate electricity transmission and distribution infrastructure, and low reliability and high cost of off-grid solutions. Institutional-level challenges includes duplication of interventions, fraudulent private sector, uncoordinated intra and inter-sectoral planning, inadequate support for R&D, access to finance, and low and volatile carbon financing. In addition, a multi-actor platform 'National Renewable Energy Platform' has been helpful for advocacy, effective communication, self-regulations of subsectors, and coordination with private sector and CSOs. Lessons learned from the platform are: the importance of understanding stakeholders' expectation, establishing legal identity of platform, building the platform gradually, focusing on result-based approach and buying in from stakeholders.

Nepal: Almost all the electricity comes from clean energy sources. The hydropower electricity energy will be in surplus soon and will be traded to India. As the country lacks financial resources, foreign investment is essential for RE development. The government has introduced policies to encourage private investment, public-private partnership, foreign investment, and government investment to increase RE share, and has formulated provision of tax exemption for alternative energy equipment import.

Maldives: Maldives is entirely dependent on imported fuels. The Maldives energy act provides the framework for Maldives towards net zero carbon goal by increasing RE and improving energy efficiency. The main challenges are difficulty to transport generated solar energy to scattered islands, high transmission cost, difficulty to obtain economy of scale, diesel gensets operating on non-optimal capacities, and battery storage requirement for higher RE-penetration. The country has formulated energy transformation strategies to accelerate sustainable private investment in RE, accelerate RE integration and sustainable energy, and prepare outer island for sustainable energy development.



Session 5

Financing 100% RE in the developing countries

Moderator: Raju Pandit Chhetri, Executive Director, Prakriti Resources Centre, Nepal

Presenter: Lucia Fuselli, Senior Energy Specialist, Green Climate Fund, South Korea

Panelists: Dinesh Dulal, Head of Energy Department, NMB Bank Limited, Nepal; Harshani Abeyrathna Verification Manager, Sri Lanka Climate Fund (SLCF), Sri Lanka; Resha Piya, Renewable Energy Adviser, British Embassy Kathmandu/ FCDO, Nepal; Sunil Acharya, Regional Policy and Campaigns Coordinator, Oxfam in Asia, Nepal

During the session, the presenter presented an overview of financing in RE by Green Climate Fund (GCF) and discussed leveraging an innovative investment in developing countries. Panelists focused their discussion on how to leverage private sector investment, accessing international financing and mobilizing domestic funds, the role played by bilateral and multilateral development partners in RE investment, and more equity in global climate and RE financing.

Lucia Fuselli, Senior Energy Specialist, Green Climate Fund, mentioned that Asia Pacific is the world's largest and fastest growing consumer of energy as well as the largest CO₂ emitter (as of 2019) and shared 49% of global CO₂ emission. To achieve net zero emissions by 2050, 26 to 37 trillion USD is required for RE investment. There is need of innovative financing for RE non solidarity PPP and catalytic mechanism that support fundraising by tapping new sources and engaging investors beyond the financial dimension of transition and deliver financial solutions to development problems on the ground. GCF co-financing usually takes the form of grants for policy and project development or concessional/ first loss non-grant instruments (guarantees, equity, loans) to de-risk first-of-it's-kind investment. Climate finance in developing and emerging markets has great potential in terms of resource endowment development prospective, infrastructural energy resources, and decarbonization needs. The recommended solutions for the financial barriers are structural blended solutions (grants + guarantees + equity + TA + loans). Also, it is important to form partnership with government, local regional, DIFs or with private players.

Dinesh Dulal, Head of Energy Department of NMB Bank, highlighted that the private sector in Nepal has made remarkable contributions to RE development with the Nepal government adopting an open market economy in 1998 envisioning the participation of the private sector. NMB has been involved in RE financing of all types including practicing blended financing schemes, supporting the promotion of off-grid renewable energy, leveraging private sector financing with government subsidies, mobilizing funds from development partners, handling Central Renewable Energy Fund and partnering with like-minded institutions to promote off-grid energy financing agendas.

Harshani Abeyrathna, Verification Manager at Sri Lanka Climate Fund (SLCF), shared that SLCF is contributing to energy transition and low carbon economy by providing carbon footprint verification certificates and credit schemes to institutions to motivate voluntary carbon free market and encourage carbon neutrality in their operation. SLCF works on innovative strategies, innovative financing and collaboration with local and international markets to finance RE. It also introduced a market-based domestic emission trading scheme to mobilize domestic funds. The barrier for SLCF in assessing international climate financing or investment is it's semi government organizational structure which prohibit's directly dealing with international buyers, thus it has to rely on the national budget.

Resha Piya, Renewable Energy Adviser of British Embassy Kathmandu/ FCDO, shared that the bilateral and multilateral sector relationship is gradually increasing for RE investment and initiative. Development partners support RE initiatives, both financially and also non-financially, in the form of technical assistance and capacity building of the government and stakeholders. Development partners are also focusing on policy and institutional reforms. The development sector is also using different innovative financial models, such as viability gap funding and grant and equity funds, for making investments in more commercially viable RE projects. The UK in collaboration with other development partners has developed green resilient and inclusive development approach in Nepal, and with this program is trying to mobilize around 4.2 billion USD. She highlighted that one of the biggest challenges for private investors is the instability of policies, creating confusion for the private sector, making it difficult for them to make investments, and lack of policy implementation.

Sunil Acharya, Regional Policy and Campaigns Coordinator of Oxfam in Asia, said that developing nations are dealing with both the threats of climate change and the weight of the energy transition. He also underlined leading climate political forces are placing an excessive burden on developing nations to quickly transition to RE, while those historically accountable are not contributing fairly. He also added in the international climate regime, there is a need of equity in climate finance – the countries historically responsible for climate change and who have the capacity for RE should support those who do not have that access to capacity and who have

less share in the global climate crisis. There is a critical gap in terms of the finance that is being mobilized and what has been pledged. In 2009, developed countries had pledged to mobilize 100 billion USD to support developing countries for climate actions but the reality of the support is that they have only mobilized 21 to 24 million USD, of which 70% are loans. Also, there is a difference between what amount they report and what amount is actually mobilized. We need to look at what kind of financial assistance are developing countries getting and whether the climate financing is transparent.

The extractives paradigm of the energy transition presents another difficulty – increasing the extraction of rare minerals from developing countries for industrialized nations, and development finance follows the same neocolonial model. He also added that public and corporate sectors play crucial roles in the transition to 100% RE, but the catalytic role of civil society is one that is frequently overlooked. Although civil society is essential to advancing this equitable and just transformation, they frequently lack access to decision-making opportunities. It will take a long time to achieve equity, and we will need the civil society to exert consistent pressure, he said.





Session 6

Generating science-based scenarios and planning process for 100% RE

Moderator: Sälma El-Gamal, Project Manager, World Future Council, Germany

Presenter: Sven Teske, PhD., Associate Professor and Research Director, Institute for Sustainable Futures – University of Technology Sydney, Australia

Panelist: Syed Jahangir Hasan Masum, Coastal Development Partnership, Bangladesh; Arati Khadgi, Senior Program Officer, WWF Nepal; Manoj Kumar Mahata, Energy Advisor, GIZ India

In the session, the presenter and panelists shared approaches, outputs, and experiences of countries preparing technical scenarios for 100% RE and integrating with countries' NDC, climate change, and energy plans.

Sven Teske, Associate Professor at the University of Technology Sydney, explained that the first step of a technical scenario study was a renewable resource assessment based on the Geographic Information Systems

and RE potential by provinces (in the case of Nepal) and finding potential locations for utility solar power. An online map is prepared for more details on potential of specific locations. Additional information such as details of power lines are taken into account in the planning. Bottom-up demand are used for the projections. In the household sector, household types, their socio-economic situation, and current and future availability of equipment are considered in the scenario modelling. Types of industries and their growth, types of vehicles and their km-travelled or tons-transported are used as bottom-up demand projection. Load-profiling for the year is fetched into modelling for electricity projection.

The key policy assumptions made in the study are stable policy framework for RE generation, strengthened energy efficiency policies, increased local generation and development of a new business model that focuses on energy services rather than just selling kilowatt-hours, same population and GDP growth assumptions, increased firm capacity to reliably meet peak demand, and same cost assumptions. The reference scenario is for the study are taken from 'Nepal's Long-term strategy for net-zero emissions' document, which was remodel for the study.

The technical scenario study aids institutions and policy makers in comprehending the critical nature of RE advancements and in backing up informed investments in technology and RE advancements. Field data are important to feed into modelling to give more reliable results. To implement technical scenario recommendations and energy plans, there needs to be a procedure for collaborating with the government and for including all stakeholders. A formal MOU with government parties at the apex level is essential for holding parties accountable for their responsibilities. A participatory strategy through multi-stakeholder platform and frequent engagement with stakeholders helps to develop a robust technical scenario, to close the data gap for developing scenario, and to forward energy planning to implementation.

Energy plans should be flexible to accommodate emerging data and learnings, and revised accordingly. The energy planning process should start with agreeing with the vision, and then other parts of the process should be developed, such as sectoral integration, planning methodology, technology adoption, resource utilization, learnings from case studies of good practices, integrated policy/regulations, and building institutional capacity. Including a detailed assessment of technical skills and capacity building required in all the sectors in the technical study or the planning process will later help in the implementation of the plan.





Session 7

Addressing social inclusion and gender equity in just energy transition

Moderator: Nithyananthan Nesadurai, Director and Regional Coordinator, Climate Action Network Southeast Asia, Malaysia

Panelist: Dylis Ndibaisa, Programmes Manager, Ecological Christian Organisation, Uganda; Sandrayanti Winarsa, Program Development Manager, Hivos Southeast Asia, Indonesia; Sadia Dada, Chief Marketing & Communications Officer, K-Electric Limited, Pakistan; Pasang Dolma Sherpa, Executive Director, Center for Indigenous Peoples' Research and Development (CIPRED), Nepal

In this session, panelists discussed how to address social and gender equity in just transition planning and implementation process, and the lessons learnt from the experiences of different countries.

The energy sector is one of the worst sectors in terms of women leadership. But the solar PV sector is leading in terms of gender. The programs and projects led or implemented by women are often more effective. In

Pakistan, the women-led Roshni Baji Program was more successful in comprehending the interests of female clients, increasing energy access to households, and lessening the vulnerability of electrocution incidents. Women are the main consumers of household energy and have the capacity to support behavioral change in regard to community acceptance of RE. RE technology supports gender equality, provides health benefits to women and access to maternal health, increases girls' school attendance, addresses women safety, and contributes economic empowerment of women.

Policies must recognize gender equity and social inclusion (GESI) in order to meet climate action goals. To realize GESI, there needs to be political buy-in from the top level of the state or institution. GESI should be incorporated in all parts of project development, for e.g., while developing feasibility study or getting project approval. We need to understand the barriers to GESI and design strategies to eliminate the barriers, such as improving hiring practices in energy projects to ensure women and young people are given the opportunity. GESI shouldn't be limited to theory. There is a need to develop practical guidelines to implement GESI components, such as separate budgetary allocation, dedicated personnel with knowledge on GESI, adequate resources allocation, capacity building on GESI and including GESI in institutional performance index.

There needs to be assurance that women are not just participating but driving the decision-making in the energy transition process, which will help to formulate policies that are more effective and inclusive. There also needs to be assurance of equal pay so that women could make their own decisions, including in relation to climate actions. "Gender isn't about women alone"- we have to bring men in this gender discussion to eliminate the double burden to women while transitioning to renewable energy.

Without the safeguards policy and inclusive process (without representation of women, indigenous people and youths) in the energy sector, large hydropower projects, for e.g., in Nepal, have displaced indigenous communities, which isn't just about physical displacement but also social and cultural displacement of indigenous people. Thus, RE projects and it's advancements examined from the perspectives of indigenous people and women is important, as is the acknowledging of the rights of indigenous people, the role and contribution of indigenous knowledge, culture and practices for climate mitigation and climate resiliency. The grievance mechanism in which projects collect objections/comments from communities while conducting their program also needs instruments to address people's resentments, which is usually lacking. Climate action projects need to understand target groups and their problems and should ensure participation of indigenous people and women.



International Conference 100% Renewable Energy

POLICY PRACTICE EXPERIENCE

18-19 December 2022, Kathmandu, Nepal



Closing Session

Session Chair: Nawa Raj Dhakal, Deputy Executive Director, Alternative Energy Promotion Centre, Nepal

Conference Summary: Sälma El-Gamal, Project Manager, World Future Council, Germany

Closing Remarks: Joelle Hivonnet, PhD, Chargé d’Affaires a.i., Delegation of the European Union to Nepal

Vote of Thanks: Aarati Gurung, Head – Program Development and Monitoring, WWF Nepal

The closing session started with sharing participants’ experiences of the conference. **Siddique Zobair** from Bangladesh, **Alenz Avril De Torres** from the Philippines, and **Prem Sagar Subedi** from Nepal thanked the organizers for hosting the conference and shared that the thematic sessions were insightful and helped them learn more about 100%RE, adding that to achieve the 100%RE goal, collaboration and political will are required. They suggested that engaging political leaders in such conferences and discussions on opportunities in RE and counter regressive policies arising from the current energy crisis would have been more helpful.

Summarizing the two-day conference, **Sälma EL-Gamal**, Project Manager of World Future Council, emphasized that energy transition isn’t just about changing from fossil fuel to RE, but it is also about inclusion,

people rights, improving life standards, access to health, and safe working environment. Awareness raising is important for accelerating energy transition at the micro-level, as well as hearing young people’s voices. Communities should be provided with financing infrastructures, appliances, technologies to help them on energy transition. Partnerships and knowledge sharing, as the conference aimed, are valuable to find sustainable solutions for a more resilient world.

The deputy head of the EU Delegation to Nepal, **Dr. Jolle Hivonnet**, said that the conference was a useful opportunity to bring international experts together and share experiences, challenges, policies, plans and strategies at the national and regional level in order to promote RE. She added that the conference will also significantly contribute to Nepal’s aspiration to minimize emissions and achieve net-zero emission target. She thanked Alternative Energy Promotion Centre for its role in promoting of RE and committed to continue support Nepali government, private sectors and CSOs on energy access and electricity trade.



WWF Nepal’s Head of Program Development and Monitoring **Aarati Gurung**, provided the vote of thanks to the participants, organizers, and supporting team.

Nawaraj Dhakal, Deputy Executive Director of Alternative Energy Promotion Centre, closed the conference highlighting that we need to achieve the goals of 100% RE through concerted efforts, collaboration, and partnership, and to keep the environment safe for future generations.





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