IRENA
International Renewable Energy Agency

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# Note of the Director-General
# **Region in Focus – Asia**

## I. Background

1. Asia has experienced unprecedented economic growth in the past two decades. This growth has been accompanied by a rapid increase in energy consumption, with which Asia is now accounting for nearly one third of the global total. With fast economic growth set to continue, the region is projected to represent a major share of the global increase in energy demand over the coming two decades.

2. Asia also remains home to more than 600 million people lacking access to electricity, many of which rely heavily on traditional biomass for energy consumption. The majority of this population is concentrated in South and Southeast Asia. These two sub-regions are also highly vulnerable to the impact of climate change which is further challenging Asia's energy supply-demand equation. Fossil fuels dominate Asia's energy supply mix, accounting for more than 85% of the total primary energy supply. This could change towards an increased deployment of renewable energy based on effective policies designed and implemented in a timely manner. The challenges Asia faces today present a unique opportunity to fuel future economic development through carefully developed policy choices.

3. According to IRENA's recently released *Renewable Capacity Statistics 2016*, Asia has nearly tripled its installed renewable power generating capacity over the 2006-2015 period to 780 GW. This represents 40% of total global capacity, generating 36% of renewable electricity. While China and Japan are leaders in the region, India and Southeast Asia are rapidly gaining momentum.

4. Asia represents nearly half of the total global hydropower capacity, with 498 GW installed. Wind and solar energy follow with 160 GW and 88 GW respectively, each accounting for more than one third of the world total. One fourth of global geothermal and bioenergy capacity can be found in the region. Although installed generation capacity stands at a relatively small 262 MW, Asia is home to nearly half of the global total capacity of marine energy.

## II. IRENA's engagement in Asia

5. IRENA's membership in Asia has expanded rapidly. Given the diversity of challenges across the region, from energy sectors dominated by fossil-energy, to the daunting challenge of energy access, IRENA has worked to address the different needs and priorities of each sub-region by developing a number of tailor-made programmes, including national and regional initiatives, in close collaboration with regional and country partners.

6. The Agency has also significantly improved its visibility in Asia by engaging with key energy platforms and events. In 2016, IRENA continued to support the development and implementation of the G20 renewable energy agenda under the Chinese presidency. The Agency has also increased the visibility of its engagement by hosting several high-level events in the region, including the Second International Off-Grid Renewable Energy Conference (IOREC) in the Philippines and IRENA's Day at the ASEAN Renewable Energy Week, both held in 2014, and the First International Forum on Energy Transitions held in Suzhou, China last year. IRENA is partnering with Kazakhstan on different aspects of the upcoming EXPO-2017 in Astana, under the theme "Future Energy".

7. The focus of the Agency's work in Asia is informed by the concrete findings and insights gained through the Renewables Readiness Assessment (RRA) and REmap 2030 consultative and research processes, which have contributed to the emergence of a policy landscape favourable to renewable energy development in the region. Initiatives at the sub-regional level, such as the Greening the ASEAN Power Grid initiative have also offered a broad framework for the mobilisation of IRENA's various facilitation and support instruments and the conduct of analytical studies.

### a. Country Support

8. IRENA's country support in Asia has taken different forms, ranging from a comprehensive assessment of key conditions for renewable energy development and deployment, including RRAs and REmap analyses, to specific technical advice. This approach seeks to be in tune with a region that is rapidly transforming its energy landscapes to meet growing demand while also addressing various emerging constraints, which requires a longer-term vision for achieving a sustainable energy future.

9. The Agency has so far facilitated RRA processes in Mongolia, Pakistan and the Philippines. These assessed key conditions for renewable energy development and deployment and identified policy, technology and regulatory measures to further improve these conditions. RRAs are valued by potential investors, developers and financiers as means to gain a better grasp of the state of renewable energy development in each country.

10. A number of countries in the region have been engaged in the REmap 2030 process:

- REmap China marked the first REmap country report, and provided crucial input in the development of China's 13th Five-Year Energy Plan. Released in November 2014, the report found that China has the potential to exceed its 2030 renewable energy targets – an important move for the world's largest global energy producer and consumer to accelerate its on-going energy transition.
- REmap India and Indonesia, which are due to be published later in 2016, aim to support both countries in charting a technological and sectoral pathway to achieve their renewable energy ambitions.

11. In Thailand, the Agency is undertaking a pilot implementation of the RRA and REmap through a single, integrated process. The final product aims to complement RRA recommendations for short- to medium-term measures for further improving the enabling conditions for renewables investments, with REmap's technology focused analysis with a longer-term vision for renewables deployment.

12. Technical assistance, advisory and capacity building support, including during the post-RRA phase, are increasingly playing an important role:

- *The Philippines:* A mini-grid study revealed specific procedural, programmatic and regulatory issues, that have to be addressed, as well as the need for reliable information and capacity-building assistance to tackle technical and management challenges facing renewable energy stakeholders. The report sets out a number of recommendations based on these findings.
- *Mongolia*: A Project Navigator training workshop conducted in 2015 provided assistance and training to renewable energy project developers and entrepreneurs in using the Project

Navigator as a tool to facilitate project financing by improving project bankability, and also introduced best practices in project development.

- *Pakistan*: IRENA is at present coordinating with other development partners in providing post-RRA implementation support, including the World Bank, the United States Agency for International Development (USAID), the Asian Development Bank (ADB) and the German Corporation for International Cooperation (GIZ).

### b. Regional Engagements

13. IRENA is developing a Renewable Energy Outlook for ASEAN in close collaboration with the ASEAN Centre for Energy (ACE). Based on IRENA's REmap programme and analytical approach, this joint effort charts out technological pathways for the realisation of ASEAN's target of a 23% renewable energy share in the total primary energy supply by 2025. The analysis shows that scaling up renewable energy deployment in line with this target is achievable, affordable and will result in numerous benefits, including reduced levels of air pollution, lower $CO^2$ emissions, positive macro-economic effects, and ensuring higher levels of access to modern energy. The key messages along with the analytical results were presented to ASEAN Energy Ministers and senior energy officials for their consideration and feed-back at the 34$^{th}$ ASEAN Ministers on Energy Meeting in Myanmar in September.

14. Over the course of the development of the Renewable Energy Outlook for ASEAN, access to reliable renewable energy statistical data was identified as a challenge. This will be adressed in a regional workshop with a particular focus on the methodologies for data collection, compilation, use and sharing among national agencies and regional/international organisations.

15. IRENA has initiated the preparatory work for undertaking a regional market analysis of policies and trends for renewable energy in Southeast Asia. Building on IRENA's growing body of work in policy, finance, costs, and technology, as well as previous market analyses, the analysis encompasses broader economic and energy sector trends as well as renewable energy investment and policy developments in the region. It will also provide an in-depth examination of important themes intrinsic to the region's energy landscape across electricity, heating/cooling and transport sectors featuring best practices on policy, regulatory and investment frameworks.

16. The Greening ASEAN Power Grid initiative represents the most recent implementation of IRENA's Clean Energy Corridor concept in ASEAN, and offers a solid framework for IRENA's engagement at the country and ASEAN sub-region levels. The initiative aims to support an accelerated development of utility-scale, renewables-based electricity that can be integrated into national systems and the evolving ASEAN Power Grid (APG) – an ASEAN flagship initiative for power grid interconnection in the sub-region. The Greening APG initiative builds on and benefits from the experiences gained during the initiation and development of the clean energy corridor concept in countries of the Eastern and Southern Africa power pools, West Africa and Central America.

17. Following approval for the Greening APG initiative by the ASEAN Senior Officials Meeting on Energy in October 2015, IRENA initiated its engagement with governments and key ASEAN stakeholders to prepare for the implementation of the initiative. Two rounds of multi-stakeholder consultations organised in Malaysia (November 2015) and Thailand (June 2016), in partnership with ASEAN energy institutions, helped identify areas of priority action that would eventually constitute the main components of the implementation strategy for the initiative.

18. Several technical concept guidelines relevant for the APG region, including on solar PV, hydropower, bioenergy and geothermal technologies, will be available by the end of 2016 on the Project Navigator, which support the development of bankable renewable energy projects, in the context of Greening APG. The plan for 2017 is to use these guidelines to provide capacity-building

support with face-to-face workshops and train-the-trainer seminars to multiply benefits for the regional project pipeline in Asia.

19. The Agency also plans to expand the Sustainable Energy Marketplace to Asia as a tool that supports project initiation and development, and access to finance for renewable energy projects, including in the APG region. Preparatory work started at a workshop in Bangkok, Thailand, in June 2016, and co-operation with regional partners is under way to facilitate access to a project pipeline and to support the development of a more liquid renewable energy market in the region.

20. The Global Atlas started its engagement in Asia in 2015 with the organisation of two training sessions on biomass and a solar and wind resource data assessment in Thailand and the Philippines. An assessment of the renewable energy resource potential will be undertaken for the ASEAN region through the Global Atlas, which will provide a region-wide pre-feasibility assessment of solar and wind opportunities for both grid-connected and off-grid systems, based on a high resolution map. The maps available through the Global Atlas will help energy planners in the ASEAN countries optimise the energy mix and identify high potential zones.

21. The Agency is enhancing its engagement in Central Asia by developing a regional approach to supporting the creation of enabling renewable energy policies, regulatory and institutional frameworks, and improve institutional and human capacities for the development of renewables. The first round of stakeholder consultations is being held in October in Baku, Azerbaijan to identify needs and challenges in the development of renewable energy and discuss possible areas of priority action, which will constitute the main components of IRENA's action agenda for Central Asia.

### c. Partnerships

22. With a view to ensuring long-term impact in its regional and country specific work and leveraging efforts and resources while avoiding duplication, the Agency pursues long-term, result-oriented strategic partnerships with various regional organisations active in the renewables area. The improved visibility of the Agency in the region multiplies the opportunities for developing effective modalities for better coordination and exchange with key regional organisations, such as the Asian Development Bank (ADB), United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP), ASEAN ACE, the Heads of ASEAN Power Utilities/Authorities (HAPUA), the Global Green Growth Institute (GGGI) and the Asia-Pacific Economic Cooperation (APEC).

## III. Questions for discussion

- The region is progressing rapidly in terms of renewable energy technology deployment. In light of various renewable energy programmes and initiatives implemented by development partners in the region, what should be the priority areas and the most effective modalities to channel the Agency's support to the region and maximise its impact?

- The region is massive in terms of geographical coverage and population, which not only offers vast energy potential but also suggests huge diversity in energy dynamics bringing in rich knowledge and experience in renewables development.
    - How can IRENA ensure that its engagement is effectively customized to address and satisfy the specific needs and priorities of the different sub-regions or countries?

    - What lessons from Asia can be of relevance to other regions and vice-versa? How can the Agency effectively facilitate and strengthen intra-regional knowledge sharing?

## IV. Suggested reading

REmap 2030 China

REmap 2030 Southeast Asia

Renewables Readiness Assessment Mongolia