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Filling the gaps: Policy supports and interventions for scaling up renewable energy development in Small Island Developing States

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HIGHLIGHTS

- Incentive based policies are required to stimulate investment and reduce transaction costs.
- Sustained, consistent long term policy outlooks to support achieving targets are often absent.
- Gaps in technical data, resource assessments and local capacity hinders strong policy decisions.
- Coordination by public and private actors across the value chain increases renewables deployment.

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ABSTRACT

SIDS have both opportunities and challenges – economic, social and environmental vulnerability – for low carbon development. Economically, they are highly dependent on international trade; they have limited domestic markets, too small to provide significant scale economies; their exports are constrained by their isolation and remote location. We provide an overview of current energy situation in SIDS, their goals to adopt low carbon economic development paths, policies already in place or required to achieve the goals and challenges to implement their plans and strategies. The focus is on energy policy landscape that needs to be addressed in order to scale-up renewable energy technologies needed to stimulate low carbon economic growth. We find that SIDS face four key barriers to renewable energy development: information to improve the energy information network by strengthening existing information systems and building awareness of renewable energy; financing mechanisms for renewable energy projects, including regional loan structures and technical assistance to banks; policy supports to implement regulatory frameworks that enable renewable energy development; and building technical capacity among players in the renewable energy field. We recommend “policy enablers” that underlie what could positively impact on renewable energy goals and more broadly energy efficiency and climate change.

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1. Introduction

The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil during 3–14 June 1992 (also known as the ‘Earth Summit’ or the Rio Conference’)

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¹ In this study we include only the UN members of SIDS. They are Bahrain, Cabo Verde, Comoros, Guinea-Bissau, Maldives, Mauritius, Sao Tomé and Príncipe, Seychelles and Singapore from the AIMS region; Antigua and Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago from the Caribbean; and Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu from the Pacific.

recognized that small island developing states (SIDS) have been facing specific social, economic and environmental vulnerabilities. Currently, the United Nations Department of Economic and Social Affairs lists 52 small island states under this group of which 38 are UN members.¹ These states come from three geographic regions: the Caribbean, the Pacific; and Africa, Indian Ocean, Mediterranean and South China Sea (AIMS). These states widely vary in terms of their land area and population. While the smallest state Tuvalu located in the South Pacific has only 30 square kilometer of land area, Papua New Guinea, also located in the South Pacific has 453 thousand square kilometer (World Bank, 2015). These states vary from a single island state (Nauru, Tuvalu) to states with hundreds of islands (e.g. the Bahamas). The 2013 population counts show that population in SIDS varies from 10,000 in Nauru and Tuvalu to 11.3 million in Cuba (World Bank, 2015) (see Fig. 1). Of the 38 SIDS members, 11 states (Cuba, Dominican Republic, Haiti, Papua New

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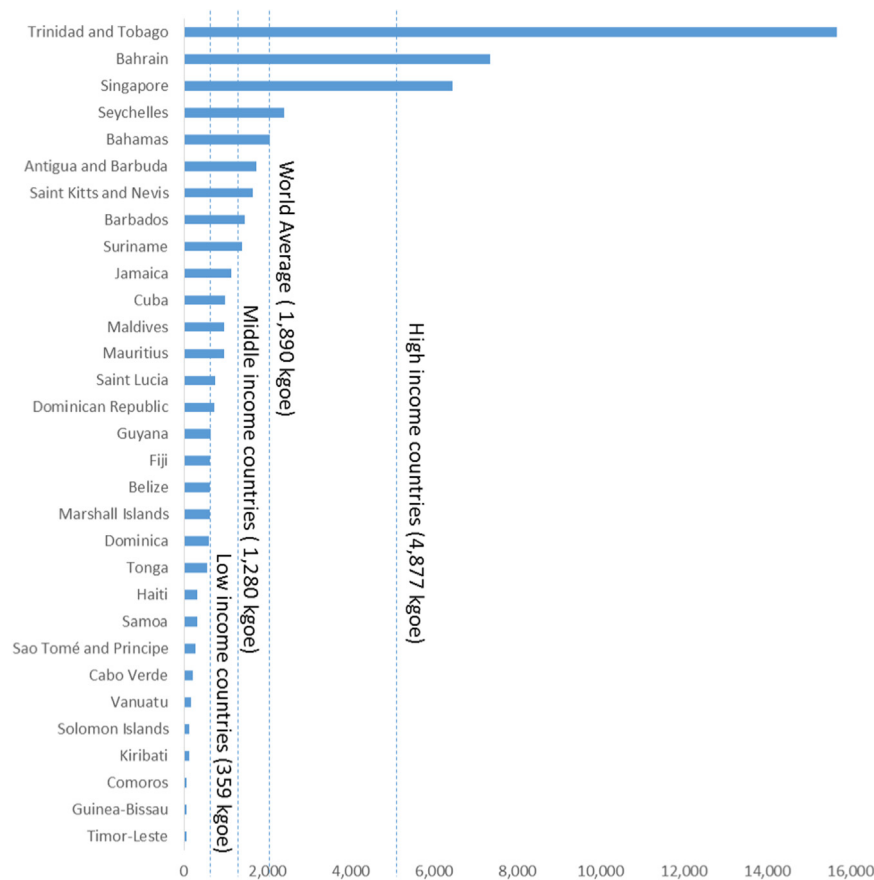


Fig. 1. Per capita energy consumption in SIDS in 2013 (kilogram of oil equivalent or kgoe). Source: World Bank (2015).

Guinea, Singapore, Jamaica, Guinea-Bissau, Mauritius, Bahrain, Trinidad & Tobago and Timor-Leste) have population more than one million in 2013, whereas eight states (Antigua and Barbuda, Seychelles, Dominica, Saint Kitts and Nevis, Marshall Islands, Palau, Tuvalu and Nauru) have population less than 100 thousand (World Bank, 2015).

SIDS offer both opportunities and challenges for low carbon economic development. The opportunities arise from the fact that almost all these states, with a few exception (e.g., Trinidad and Tobago, Papua New Guinea, Timor-Leste), have very limited fossil fuel resources and have abundant renewable energy resources to meet their energy demand. Most of SIDS are composed of several small islands which do not require large-scale energy intensive infrastructure and can be served through distributed renewable generation resources (or off-grid electricity supply systems) for their electricity need.

The challenges are caused due to their economic, social and environmental vulnerability. Economically, they are highly dependent on international trade; they have limited domestic markets, too small to provide significant scale economies; their exports are constraint by their isolation and remote location. Socially, these are the states mostly inhabited by marginalized and indigenous population. Environmentally, most SIDS members are among the most vulnerable countries to climate change, especially sea level rise; they have relatively small watersheds and threatened supplies of fresh water; due to fragility of island ecosystems, their renowned biological diversity is among the most threatened in the world (UNEP et al., 2012).

This study aims to provide an overview of current energy situation in SIDS member states, their goals to adopt low carbon economic development paths, policies already in place or required to achieve the goals and challenges to implement their plans and

strategies. The focus of the paper will be on energy policy landscape that needs to be addressed in order to scale-up of energy efficient and renewable energy technologies needed to stimulate low carbon economic growth. These include incentive based policies to encourage foreign and local financing and addressing SIDS capacity to develop projects as well as reducing the transaction costs of bringing projects from concept to market. The inclusion of external costs (otherwise known as externalities) in the price paid for energy (electrical and for transport) will also be discussed, while taking into account the social costs and implications of such a measure.

The paper is organized as follows. Section 2 presents an overview of energy situation in SIDS member states including energy consumption, electricity access and electricity generation mix. This is followed by discussions of plans or targets set by various SIDS member state to scale-up their renewable energy sources for electricity generation in Section 3. Existing policies as well as further policy landscape needed to realize the renewable energy targets will be presented in Section 4. Challenges to implement the policies, especially institutional and financial challenges will be discussed in Section 5. Finally, key conclusions will be drawn in Section 6.

2. Current energy situation

2.1. Energy and electricity consumption

Per capita energy consumption in SIDS vary from 60 kilogram of oil equivalent (kgoe) to (Timor-Leste) to 15,691 kgoe (Trinidad and Tobago). More than 10 states have per capita energy consumption smaller than the average per capita energy consumption

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