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Every Drop of Freshwater on Islands Counts for Sustainability, Survivability, Buildability and Livability

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Abstract

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Every Drop of Freshwater on Islands Counts for Sustainability, Survivability, Buildability and Livability

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Abstract

There are different categories of island countries. Many are termed United Nation members and sovereign states while a smaller number of islands are termed dependencies and other territories. The largest island country is Indonesia with land area of 1,904,569 km2 (density 142 per km2) and the smallest being Cocos Island of 14 km2 (density of 42.6 per km2). Faroe Island has 1,393 km2 (density 35.5 per km2) compared with Singapore with 728 km2 (density 7831 per km2). Nevertheless, with big or small in land area or multitude of islands in a country or a single main island of very big population density, the problems face on freshwater sufficiency and inundation is common. The degree and variation of challenges on these islands could differ due to geography/geology, governmental-societal actions and state of technologies however, the common mitigation is on the climate change impacts affecting all islands – sovereign, dependencies and territories.

In the paper "*Every drop of water footprint counts for humanity*" and subsequent publication on "*Every drop of water and food footprints count for humanity*" by same author has emphasized the need for life-long listening and learning on sustainable water footprint as laid out by United Nations Sustainable Development Goals 2030. To many island countries, water and consequently food insecurity results in high economic livelihood impacts to their people. The tri-factor of Administration, Collaboration and Innovation relating to freshwater on islands could take on a fresh approach in meeting challenges by island countries. Even for Singapore, having overcome most strategic freshwater dependency problems head on, with some occasional floods, fresh new eyes too are needed in looking at administration, collaboration and innovation on freshwater and food footprints particularly with the long term risk of rising sea level.

Freshwater from rain precipitation is a precious natural resource with or without climate change impacts. Understanding the regular patterns of weather outcome that was more predictable in the past until greenhouse gases emissions due to CO2 and methane built up in the environment has touted to cause global irregular and extreme conditions. The big variations in average rainfall which affects the amount of runoff on land surfaces and water table levels beneath, hence, groundwater of islands requires mitigation and implementation of widespread small, fast and effective solutions. Big national projects take time and costly while may become overkill when reversal of local weather conditions happen.

Each island may need bespoke unique ecosystem to overcome challenges on collection, storage, processing and conflicting/competing uses; precious freshwater from rainfall precipitation however would simply be drained into the surrounding seas easily from the islands. On the contrary, such islands could be inundated by heavy detrimental floods destroying homes, farms, facilities, etc. of entire village. Survivability is at humanity scale.

This paper attempts to take a lateral and out-of-the-box thinking by proposing first-of-its-kind ideas and solutions on to a deep personal-individual level administration; deep-root close-loop collaboration and simple back-to-basic frugal innovation. All these ideas and solutions are easily implemented with the will (societal and political) at local buildability levels without the need for much United Nations COP pact/convention high level interventions. The motivation on such initiatives should start with individual at grass roots tapping on readily available practical frugal engineering and local sustainable materials with watered-down regulations by encouraging public participation/collaboration of youngsters at private firm -Institute of Higher Learning for life-long learning.

Unlike Singapore, most island countries may not have the economic resources at local level which gets the environmental flooding or drought head-on impacts of freshwater and sea level rise. Island countries need to have unique bespoke solutions for sustainability, survivability, buildability and livability.

Keywords: Islands Freshwater Footprints Sustainability Survivability Buildability Livability

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