India's Ocean Diplomacy in the Small Island Developing States (SIDS) of the Indo-Pacific: Modelling the Enablers using Fuzzy AHP

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Abstract

Indo-Pacific geopolitics is now redefining the ocean diplomacy of India and other countries in the region including China, Vietnam, Indonesia and Australia. Therefore, the Small Island Developing Countries (SIDS) have now acquired immense diplomatic interests in the renewed regional architecture. This paper examines the dynamics of India's ocean diplomacy in the Indo-Pacific and outlines 12 enablers which can strengthen India's engagements with the SIDS countries of both the Indian Ocean as well as the South Pacific Ocean. These enablers have been grouped into three broad sets namely geo-economic enablers, geo-strategic enablers, and, environmental and healthcare enablers. The weightage of individual enablers and sub-category of the enablers have been calculated by employing Fuzzy Analytical Hierarchy Process (AHP), a mathematical modelling technique. The results reveal that among all geo-economic enablers, 'sub-regional cooperation' is the most significant variable. While, among the geo-strategic enablers and environmental and healthcare enablers, factors like 'support for democratic governance' and 'abating vector and water-borne diseases' are the most important ones respectively. Also, in terms of the global weights of the 12 enablers, it is found that the top five enablers that can potentially drive India's ocean diplomacy with SIDS include the following: sub-regional cooperation, aid-for-trade, trade capacity building, abating vector and water-borne diseases, and, management of water-related ecosystem. This study has implication for policy-making in India especially in context of determining the areas in which the resources can be allocated to strengthen India's engagements with the SIDS countries. Also, it contributes to the discourse on India's emerging role in the Indo-Pacific geopolitical architecture.

Keywords: SIDS, Indo-Pacific, India, Ocean Diplomacy, SDGs

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Introduction

The Indo-Pacific region is geopolitically vibrant, and the countries therein are striving to maintain their geopolitical gravity. The region includes countries like the United States, China, Russia, India, Japan, Vietnam, Indonesia, and Australia, among others, which are key

players in redefining the regional architecture. Their ocean diplomacy spans across the Indian and the Pacific Oceans, and are determined by their respective national interests. Also, they are well grounded in academic and policy discourse. For instance, there are studies which have examined the importance of maritime security and trade in the Indian Ocean region (Upadhyaya, 2014; Peron and Rey, 2011; Cordner, 2010) or on Quadrilateral Security Dialogue (Lee and Lee, 2016), or on the strategic and geopolitical manoeuvring pertinent to the South China Sea (Degang[1], 2018; Meng, 2017; Bajpaee, 2017; Ganguly, 2017; Hsiao, 2016; Ren and Liu, 2013).

India has already defined the geographical coordinates of Indo-Pacific as being spreading from the shores of Africa to that of the Americas. In June 2018, Prime Minister Narendra Modi called for a Free, Open, and Inclusive Indo-Pacific, while delivering his Address at the Shangri-La Dialogue in Singapore. India has made its intent clear that it does not want to exclude any country which has a stake in the Indo-Pacific region.Thus, other than the geopolitical rivalries as evident in the South China Sea, East China Sea or the Indian Ocean, there is a growing interest in India and China to deepen engagements with the Small Island Developing States (SIDS) in the region. For instance, China, which is the second largest donor of aid to the South Pacific islands is likely to surpass Australia. Also, India's ocean diplomacy is not pro-actively taking a strategic shift and is now focusing on the South Pacific islands as well.

SIDS is a congregation of small island countries located across the Atlantic, Indian and the Pacific Oceans. These small island states face some of the most rudimentary challenges related to economic development, non-traditional security issues and environmental sustainability. They also experience high socio-economic vulnerability owing to increased costs of trade and transport, economic fragility, lack of economies of scale and several inherent supply-side constraints (Briguglio, 2016; Feeny et al, 2015; Hay, 2013). Also, there have been multilateral frameworks to support the SIDS countries in their pursuits of development and sustainability e.g. Barbados Program of Action in 1994, Mauritius Strategy of Implementation in 2005, and the SIDS Accelerated Modalities of Action (SAMOA) Pathways in 2014. Moreover, the vulnerabilities and the needs of SIDS have also been recognised by the Sendai Framework for Disaster Risk Reduction (2015-2030) and Addis Ababa Action Agenda of 2015. Some of these countries are also least developed countries (LDCs).

India's engagements with these islands have been mostly through South-South Cooperation initiatives, and also through economic integration frameworks like the Pacific Islands Forum and the Indian Ocean Rim Association. But, in the last few years, Prime Minister Narendra Modi has made historic visits to some of these islands. India is a dialogue partner of the Pacific Island Forum and the Prime Minister has called for enhancing broad-based engagements engagements with these countries under the aegis of Forum for India-Pacific Islands Cooperation (FIPIC), which was formed in 2014. In fact, India's outreach to the Pacific island states is the next step in its "Act East" strategy (Walsh, 2016). Also, Garge (2017) discussed about the maritime outreach as part of India's 'Act East' policy and argued that India is expanding its maritime engagement in the East because of its rich inheritance of maritime culture. India is also keen to expand its strategic objectives in the East, which obviously drives India to enhance its engagements even beyond the Indian Ocean region. Moreover, India's impetus on ocean diplomacy was also evident with the visit of Prime Minister Modi to the Seychelles and Mauritius in 2015. India has signed agreements with the two countries to develop infrastructure in Agalega in Mauritius and Assumption Islands in the Seychelles[2].

Moreover, India is also providing development assistance to the SIDS countries just like China or Australia. For instance, in June 2017, India committed US$ 1 million toward a Climate Early Warning System project for six Pacific Island countries. Also, India pledged to provide US$ 500 million in grant-in-aid and US$ 1 billion in soft loans to SIDS over the three-year period[3]. And there are multifarious geo-economic, geo-strategic and environmental and healthcare related areas in the SIDS where India's assistance is being given. However, it is important at this juncture that India needs to prioritise its development assistance to SIDS by aligning India's expertise in capacity-building with that of SIDS requirements. This will help in adequate allocation of resources as part of India's ocean diplomacy in SIDS, and will help create result-oriented allocations and utilisation for SIDS. This study addresses the concerns and thus contributes to the body of knowledge in the following ways:

a)It outlines 12 enablers and groups them into geo-economic, geo-strategic and environmental and healthcare enablers. Further, a mathematical modelling technique i.e. Fuzzy Analytical Hierarchy Process (AHP) is used find out the five most important enablers on which India should allocate a major chunk of its resources, so that it can streamline and consolidate India's ocean diplomacy with the SIDS countries. It therefore has utmost policy implications for India.

b)It would help the SIDS countries also in channelizing the

developing assistance from different countries based on their specific geo-economic, geo-strategic or environmental and healthcare necessities. This would meaningfully support the mechanisms as envisaged in the SAMOA Pathways as well.

The remainder of the paper is organised as follows. The second part of the paper includes a thematic review of literature and outlines the enablers of ocean diplomacy. The third and the fourth parts explains the methodology and presents the results respectively. Finally, the last part presents a discussion on the findings and concludes the study.

Literature Review

In the above backdrop, the relevant discourse can be examined under two different heads viz. the first one pertaining to the Indo-Pacific geopolitics, while the other examining the enablers of ocean diplomacy in the SIDS.

Indo-Pacific Geopolitics

The natural progression of India's Look East Policy to a more pro-active Act East Policy has contributed immensely to the discourse on India's economic, strategic and maritime diplomacy in East Asia and the larger Indo-Pacific region. Bajpaee (2017) describes that India's Act East Policy has gained momentum in its foreign policy agenda because of the strategic significance of Southeast Asia. India has gained an assertive diplomatic posture in the region by maintaining freedom of navigation and calling for a peaceful resolution of maritime territorial disputes. India has, in fact, broadened the strategic and geographic scope of the Act East Policy to incorporate the larger Indo-Pacific region. The paper also refers to the Indo-Pacific as the growing interconnectedness of Indian Ocean and Western Pacific along with Southeast Asia or South China Sea. This brings to the fore a strong maritime significance for the stakeholder countries including China, Russia, Japan, Republic of Korea, Vietnam, Indonesia and Australia. Most importantly, ASEAN Centrality has acquired immense significance in the Indo-Pacific discourse. the centrality of ASEAN is a key factor in defining the robustness of the region. Ahmed (2018) argues that ASEAN Centrality acquires significant owing to the following reasons: a) ASEAN countries are emerging as markets for India's defence sales, b) focus on Southeast Asia will help leverage the benefits of Act East Policy, and, c) ASEAN countries can provide a cushion to negotiate India's strategic interests in the Eastern Indian Ocean and South China Sea.

Maritime cooperation and security considerations continue to be a critical concern for the countries especially in context of big power rivalries in the region. Cordner (2010) stated that in the recent decade Indian Ocean region has acquired global significance in political and security aspects owing to the growing Chinese and Indian influence and expansion therein. He also mentions about a relative slump in United States' power. Indian Ocean region has been a gateway for cooperation in multiple areas ranging from maritime resources to value chain and environmental challenges. It is clearly evident that the competition for regional supremacy is primarily between India and China. India, however, is mainly concerned about developing improved security capabilities and ensuring peace and stability in the Indian Ocean. Garge (2015) has examined the role of Australia in the region. The paper maintains that since 2009, India and Australia has expanded their bilateral cooperation in the field of strategic partnerships and defence linkages, with the orientation of having a greater strategic presence in the Indian Ocean region. The economic ties between the two countries have also expanded in the last decade. The paper is also critical of the role of China in the security architecture of the Indian Ocean region. It argues that the regional security architecture is being influenced by the assertive approach of China.

In the architecture determining India's ocean diplomacy, the role of Japan is also very crucial. Garge (2016) examined the India-Japan strategic partnership in context of the Indo-Pacific region and argues that, in the recent years there has been a remarkable expansion in defence and security cooperation between the two countries. This has eventually helped in strengthening the economic relations as well especially in context of trade, investments and aid. The mutual cooperation in strategic, defence, and security aspects depict progression in their approach to the Indo-Pacific architecture. Also, China factor continues to play a role both in terms of the geopolitical manoeuvring in South China Sea and the East China Sea as well as through the geopolitical intent envisaged in the Quadrilateral Security Dialogue (Quad).

Interestingly, Bajpaee (2017) put the points in perspective. He argued that India is geographically located outside of South China Sea, but geopolitically and geo-economically operates inside the South China Sea. South China Sea is geopolitically volatile and there are competing claims by China and other stakeholders like Vietnam and the Philippines over their Exclusive Economic Zones (EEZ). Despite provisions under the United Nations Convention on Law of Sea (UNCLOS) 1982, these countries have been asserting their claims in the South China Sea based on their own interpretations of EEZ provisions under UNCLOS and their respective national interest considerations.

However, a verdict by the Permanent Court of Arbitration (PCA) given in 2016 rejected China's claims and called for freedom of navigation in the South China Sea. Ningbo (2016) asserted that economic expansion and the expansion of political and strategic international space that influences its national security is the key objective behind China's maritime assertions. The Declaration on the Conduct of Parties of South China Sea of the year 2002 has significantly lost its mandate through time as it contains only a restatement of the basic contents of UNCLOS, to which the parties are not adhering.

Linking the issue with international trade, Hsiao (2016) associated the role of South China Sea as being strategic to the flow of international trade. The paper argued that the strategic role of South China Sea has increased in the recent times, and so has the role of international law as it applies in this context. The rigorous attention given by the United States on South China Sea is responsible for the changing maritime power equations in the region. In fact, the United States has initiated new alliances and partnerships with Vietnam and India, in order to counter China in the South China Sea. This also includes the allocation of more troops and other related facilities in the region.

Ren and Liu (2013) gave a historical dimension to the political dynamics in the Sea. They argue that since the end of the Cold War, the United States, Japan and India have focussed their strategic presence in the ASEAN region, which has created security dilemma for China in South China Sea. Ganguly (2017) has already clarified that China is strengthening its maritime territorial claims and restricting the other nations' effort to expand their outreach in both the East and South China Seas. In fact, China aims to strengthen its influence in the Indian Ocean along with South China Sea in order to expand its maritime power. The paper further concludes by arguing that the security dilemma over the region can be minimised, not through conflict, but by engaging strategically with China.

Meng (2017) delved into the dichotomy of the South China Sea being a “Sea of Cooperation” or a “Sea of Conflict”. The paper argued that China's implementation of Maritime Silk Road depicts an extended maritime cooperation between China and ASEAN. Also, in order to boost its economy and investment in other countries, China has developed its commercial seaports (Degang, 2018). Further, the South China Sea is a common resource for international trade and cultural exchanges as well. Valdez (2019) rightly points out that the South China Sea has played a significant role in the channelization of cultural and religious exchanges between China, India and the Persian Gulf states.

However, a critical aspect in the Indo-Pacific discourse and pertinent to India's ocean diplomacy is the mandate and evolving role of Quad, which comprises of the United States, Japan, Australia and India. Lee and Lee (2016) discussed the strategic significance behind the establishment of 'democratic security diamond' (DSD) by Japanese Prime Minister Shinzo Abe. With the inclusion of the United States, Australia, India and Japan (points of diamond), Shinzo Abe's call for DSD was to protect the maritime commons which stretches from Indian Ocean region to Western Pacific region. In fact, the strategic reasoning behind the formation of DSD was to counter China's assertiveness in the region as well as to safeguard peace, stability and freedom of navigation within the DSD. Bateman (2015) examined the confrontations in Asia in the context of maritime threats and challenges. He advocates about a risk assessment approach to identify and counter these threats and challenges. He addressed the issues of shifting of maritime power balance, influence of threat in maritime architecture, effects of maritime sovereignty dispute, and, exploitation of marine resources, among others, in the Indo-Pacific region. Interestingly, Ahmed (2018) has argued that the mechanism of Quad seemingly opposes China's ambitions in the South and East China Seas.

In fact, the strategic orientation of the United States toward the Indo-Pacific region is also crucial. President Donald Trump's administration is also focussing on the region because of naval expansion of China, island-building activities and fortification of military power in South China Sea, which is a threat to freedom of navigation and rules-based international order (Castro, 2018). Oehler-Sincai (2016) examined the United States' pivot toward Asia and discussed about the complications of the matrix relationship in the Indo-Asia-Pacific region. Simultaneously, the paper also emphasized on the economic, cultural, security, historical, diplomatic, defence and developmental architecture of the region. The author maintained that the United States has recently started rebalancing activity in the region owing to significant transformation of Asian economies in the last decade. The U.S. approach toward the Asia-Pacific region can be divided into a two-fold strategy. First, it deals with the U.S.-China-India perspective, where India is also rebalancing its strategy towards Asia-Pacific; whereas, the second strategy deals with the U.S.-China-ASEAN perspective, where a contradiction is evident in the U.S. and Chinese foreign policies (Oehler-Sincai, 2016)

Enablers of Ocean Diplomacy in SIDS

Given the backdrop, the ocean diplomacy of big powers solicits reshaping, in order to fulfil their obligations.

Sustainability, capacity building, improving healthcare, and contributing to stability and security in the small islands remains the key drivers of their diplomacy. In the context of SIDS countries therefore, the ocean diplomacy encompasses an optimal mix of geo-economic, geo-strategic as well as environmental aspects.

Geo-economic Enablers: The SIDS countries have an imminent need for trade capacity building which can help in developing the blue economy. For the expansion of ocean diplomacy, a greater support is needed to improve the global competitiveness of SIDS to enhance their participation in the multilateral trading system (Tigerstrom, 2005). Also, there is an imminent need for investment support in physical and institutional infrastructure, market access, and, skill development, among others, in Pacific Island Countries (Gani and Clemes, 2015). Also, Schiff (2014) maintained that for an increased market access with SIDS, intra-bloc migration and North-South trade negotiation will be helpful. In fact, India's ocean diplomacy endeavours with SIDScan get a boost with the inclusion of either trade or commercial agreements that lay emphasis on extractive industries and greater global value chain participation (e.g. see Anderson, 2017).

An emphasis on enhancing value chain participation, and investments in trade capacity building would be helpful in developing the blue economy as well. Babb (2015) has discussed about the blue economy in SIDS, where he cites that SIDS countries should focus on revamping their industry and technological innovation, which shall include energy and sustainable resource management. Further, Kurecic (2017) discussed the importance of export of natural resources, which plays a vital role in determining the economic growth of SIDS countries, while Matadeen and Seetanah (2015) have studied the relation between financial markets and economic growth. Gani (2010) found that the average real growth in GDP in the 22 Pacific Island Countries (PIC), ranges between 1.5-3.5 per cent from 1985 to 2007. Further, Williams (2016) discussed the role of FDI in SIDS countries to enhance per capita income and GDP. In fact, the policy-makers in SIDS have to focus on selective strategies for FDI. This will also help in strengthening sub-regional cooperation, which India's ocean diplomacy should focus on. Chasek (2005) has discussed how the Pacific SIDS countries evolved as a geopolitical and economic state in context of their positioning in the Pacific Ocean. Other studies e.g. Quirk (2013) discussed about the regional legal framework and examined the role of institutions of PICs, while Anderson (2017) have advocated about the realignments with new regional blocks for the benefits of SIDS.

Moreover, SIDS of the Indian Ocean as well as of the South Pacific are also dependant on development aid as well as aid-for-trade. The aid dependence in the SIDS is very high given their limited capacity for production, and other supply-side constraints. Gungah (2017) has discussed the importance of aid as a tool of economic growth and poverty alleviation in SIDS. In fact, this becomes an integral component of ocean diplomacy in context of the SIDS countries. For instance, China, is presently the second largest aid donor to the South Pacific islands (which includes the SIDS as well). It is likely to surpass Australia and become the largest donor soon[4].

Anderson (2017) discusses about human development strategy in the SIDS and argues that it is in a vulnerable state and needs realignment with the regional blocks to achieve stability and sustenance. He also emphasized more on capacity building, rather than the exploitation of natural resources. Schiff (2014), however, argued that in international negotiations, losses occurred to SIDS because of their low bargaining capacity and minimal resources. Thus, a focused approach for the socio-economic development of SIDS and to enhance their global competitiveness must be adopted. In context of strengthening ocean diplomacy, developing and strengthening sub-regional cooperation on a bilateral level also. For instance, India and the Pacific islands formed FIPIC in 2014 and it is playing a crucial role in strengthening engagements between India and the Pacific island countries.It is extending the outreach of India's Act East Policy as well. Support for sub-regional integration is thus crucial for defining the ocean diplomacy.

Geo-strategic Enablers:Then, there are geo-strategic enablers which are crucial in context of the regional security architecture and defence cooperation as already discussed in studies like Bajpaee (2017), Ningbo (2016) and Garge (2016). Also, the issue related to the EEZ is becoming a cause of concern both in the Pacific islands as well as those in the Mozambique Channel. For instance, one of the EEZ related disputes in the SIDS include those of Minerva Reef between Fiji and Tonga. These small islands have sizable EEZ and are facing the challenges related to overexploitation of EEZ resources viz. illegal fishing etc. Niesten et al. (2012) argued that to generate an alternative livelihood approach, technical assistance is needed in SIDS along with the initial funding for new livelihoods. Providing support in coastal surveillance and contributing to fish zoning are some of the ways through which a country can extend its ocean diplomacy outreach in the SIDS. India has also entered into an agreement with the Seychelles, a small island country in the Indian Ocean, for developing naval base in the Assumption Island, and also to

do patrolling in the EEZ of Seychelles.

Also, maritime security remains a key concern in ocean diplomacy especially in context of SIDS countries owing to their geographical location. Garge (2016) argues that India has expanded its ocean diplomacy in the Indian Ocean region with a high priority on comprehensive maritime security. Earlier, a study by Rahman (2009) has already established the linkage between maritime security and ocean diplomacy arguing that maritime security is a commonly used term in policy circle of a country to expand their base. In fact, the countries need to address structural limitations to enhance their maritime security collaboration in the Indo-Pacific region (Rahman, 2016). These include the following three factors: geography, coastal state concern with control over waters under their jurisdiction, and political and strategic context (Rahman, 2016). More recently, Song et al. (2019) maintains that maritime security is not only concerned with ocean diplomacy, but it also manifests the international relations endeavours.

A related factor is the defence cooperation. Upadhyaya (2014) discussed that India has expanded its ocean diplomacy by signing defence cooperation agreements with Japan and Vietnam and most other Indo-Pacific countries. These agreements were being made to counter the increasing presence of China in the region. Later, Garge (2016) also argued that India increased its defence and security cooperation with Japan, which benefits their respective ocean diplomacy efforts. India's ocean diplomacy in the context of India's 'Act East' policy, and maintains that by increasing its maritime defence cooperation, India will have a significant strategic outreach in the Northeast Indian Ocean (see Garge, 2017).

Moreover, there is immense need for development of democratic institutions and democratic governance in some of the SIDS. For instance, India had supported the Maldives in its process of democratic transition. Prasad (2008) has discussed the institutional and governance related challenges, which is barricading the economic performance of PICs. Moreover, there have been other studies which have discussed about economic governance, corruption issues and public governance issues in context of SIDS (see Naidu and Chand, 2014; Babb, 2015). Williams (2016) argued that the political instability in SIDS countries is leading to weak governance. Hence, robust democratic institutions to be developed, and India can support such initiatives in the SIDS countries. This is also apparent because as Feeny et al (2015) already mentioned that SIDS are more prone to fragility than any other parts of the world. Political instability, weak institutional systems, small size, limited resources and climate vulnerability has contributed to fragility in SIDS.

Environmental and Healthcare Enablers:Finally, environmental and healthcare enablers are very crucial for SIDS countries as they face imminent climate change risks in terms of sea level rise, natural disasters, and epidemics. Robinson (2015) has discussed about the vulnerability of SIDS countries caused due to climate change, and mentions about the prevalence of vector and water-borne diseases. World Health Organisation (WHO) statistics has revealed that since 2012, the region has seen outbreak of more than forty large infectious diseases, including climate-sensitive diseases like dengue and Zika virus[5]. Spickett et al (2013) did a study on climate-sensitive health risks in Vanuatu and classified the water-borne diseases under "extreme risk category", and vector-borne diseases under "high risk category". Roper (2005) hasalso discussed about the prevalence of water-borne diseases, especially in the South Pacific islands.

Providing support in managing water-related ecosystem is also crucial. Sovacool (2011) has given the example of Integrating Climate Change Risk (ICCR) project in Maldives, funded by United Nations Development Program. This project includes managing the Water-Related Ecosystem, along with human settlements and critical infrastructure and coral reef biodiversity. Lashley (2013) also pointed out that the vulnerability of low-income group people affected by climate and weather change, especially in agriculture, fishing and tourism sector were all are related to water ecosystem.These countries also face serious water-related challenges like coral-reef damage etc. Studies by Mata-Lima et al (2016) and Smallehan et al (2017) have discussed about water-related disasters including floods and how to manage them. Also, there are other studies which have discussed about the Marine Protected Areas (Mwebaze and Macleod, 2013), the need for technical assistance for biodiversity conservation in SIDS (Teelucksingh et al., 2013), and about global participation of PICs through the gateway of Climate Action Pacific Partnership (Mead, 2017).

India can provide extensive support to the SIDS through its ocean diplomacy initiatives. An ocean diplomacy outreach must therefore be able to address these pertinent challenges and help their population reduce their vulnerabilities. Earlier, Ghina(2003) also discussed about the status of sustainable development in SIDS countries citing a case study of Maldives.

Moreover, the population in these small islands are vulnerable to the risk of becoming climate refugee. Betzold (2015) discussed about the effect of climate change in SIDS countries as a cause of migration as well. Climate

change is affecting sustainable growth and consequently leading to rise in unemployment in these countries. Church et al (2008) argued thatthe coastal zone of the planet has changed a lot due to climate change with poor countries and SIDS being more at the risk of rising sea level. The number of climate refugees will thus increase with the increase in rising sea level. Burkett (2015) has discussed about the climate refugees and migration patterns. He called for identification of the vulnerability factors and for providing adequate funding to ease the process of resettlement. Also, Betzold (2015) has discussed about the effect of climate change in SIDS countries, resulting in migration from these countries. He further maintains that migration is widely prevalent in SIDS countries owing to declining natural resources and degrading ecosystem.Speelmanet al (2017) have discussed about the increasing number of climate refugees in Maldives.

An important component of any country's ocean diplomacy with SIDS is to provide disaster management support as well. Narayan (2003) has discussed about the impact of natural disasters in SIDS with particular attention to Fiji. This study found that cyclones have largely damaged the infrastructure and economic activities in Fiji. There have been several other studies which have pointed the vulnerabilities of SIDS in different perspectives of disaster management e.g. coral reef damage in the Seychelles (Payet and Agricole, 2006),providing measures to minimize the vulnerability(Hay, 2013), or gap between the adaptation progress and adaptation effort in SIDS (Robinson, 2015).

Research Methodology

This study has employed Fuzzy AHP methodology for calculation of weight of enablers and sub-category of the enablers. The relative importance of each enabler was determined by using linguistic variables which have been represented as triangular fuzzy numbers. The membership function of the triangular fuzzy number is represented in Figure 1.

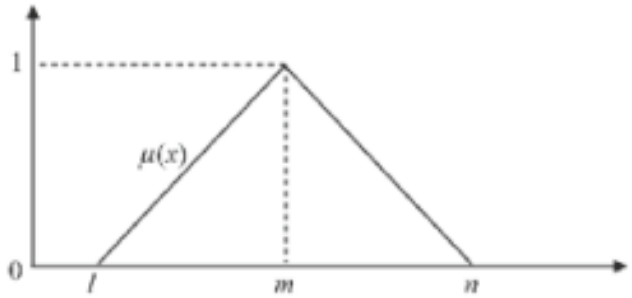

Figure 1: Membership Function of Triangular Fuzzy Number

In this study, the Center of Area Defuzzification method was used to convert the fuzzy evaluations into their corresponding crisps values. The main steps of procedure conducted in this study are as follows:

Step 1: Define the decision-making problem

Step 2: Decompose the complex problem in a hierarchical structure with decision elements

Step 3: Establish pairwise comparison matrix of the criteria using Triangular Fuzzy Numbers and calculate the weight of criteria

A 9-point scale was used to describe the relative importance of criteria with respect to the goal as shown in Table 1. The weights of the criteria have been calculated using geometric mean method.

Table 1: Saaty's Crips Scale and Fuzzified Scale for Pairwise Comparison

Saaty's Crisp Scale	Judgement Definition	Triangular Fuzzy Scale	Triangular Fuzzy Inverse Scale
1	Equal Importance	(1,1,1)	(1,1,1)
3	Least Importance	(2,3,4)	(1/4,1/3,1/2)
5	Weak Importance	(4,5,6)	(1/6,1/5,1/4)
7	Less Strong Importance	(6,7,8)	(1/8,1/7,1/6)
9	Strong Importance	(9,9,9)	(1/9,1/9,1/9)
2	More Strong Importance	(1,2,3)	(1/3,1/2,1)
4	Very Strong Importance	(3,4,5)	(1/5,1/4,1/3)
6	High Importance	(5,6,7)	(1/7,1/6,1/5)
8	Extreme Importance	(7,8,9)	(1/9,1/8,1/7)

To get a pairwise comparison matrix a focus group of three researchers from the related field was formed. The method used for the collection of data was Delphi technique. The focus group comprised of three experts respectively from the fields of international relations, economics and geography. The author of this paper acted as moderator of the group. The consensus of the group was used for assigning the preference score for pair-wise comparison matrices as given in Tables 6, 8, 9 and 10.

Step 4: Convert to crisp value

In this step, the fuzzy evaluation for criterion *i*has been assumed to be(l_i, m_i, u_i), where *l* represents lower value, *m* is middle value and *u* is upper value. Fuzzy evaluation of every criterion is then converted into crisp value. It was done as provided in equation 1.

$$W_i = (l_i + m_i + n_i)/3 \quad (1)$$

Step 5: Consistency check

In this step, the Consistency Ratio (CR) has been calculated. CR is required to determine whether the weight assigned by the decision-maker is correct or not. A CR< 0.1 indicates consistent judgment in pairwise comparisons. CR is calculated using equation 2, equation 3 and Table 2.

$$CI = \frac{\lambda - n}{n-1} \quad (2)$$

$$CR = \frac{CI}{RI} \quad (3)$$

Table 2: Random Consistency Index (CI)

N	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Moreover, based on the review of thematic literature, the enablers (viz. 3 broad sets) and further, the sub-category of enablers (i.e. 12 in numbers) used in the study are listed in Tables 3 to 5 (being separate tables for each of the 3 broad sets).

Table 3: Sub-category of Geo-Economic Enabler

Geo-economic Enablers	GEE	Sources
Trade Capacity Building	GEE1	Tigerstrom (2005); Gani and Clemes (2015); Schiff (2014); Anderson (2017)
Developing the Blue Economy	GEE2	Matadeen and Seetanah (2015); Babb (2015); Gungah (2017); Kurecic (2017)
Providing Aid for Trade	GEE3	Gani (2010); Williams (2016);Anderson (2017)
Strengthening Sub-regional Cooperation	GEE4	Chasek (2005); Quirk (2013); Mead (2017); Anderson (2017)

Table 4: Sub-category of Geo-Strategic Enabler

Geo-strategic Enablers	GSE	Sources
Giving Technical Assistance in EEZ	GSE1	Niesten, et al. (2012); Mwebaze and Macleod (2013);Teelucksingh, et al. (2013); Quirk (2013)
Ensuring Maritime Security	GSE2	Garge (2016); Song et al (2019); Rahman (2016); Rahman (2009);
Enhancing Defence Cooperation	GSE3	Upadhyaya (2014); Garge (2016); Garge (2017)
Supporting Democratic Governance	GSE4	Prasad (2008); Naidu and Chand (2014); Babb (2015); Williams (2016); Feeny, et al (2015)

Table 5: Sub-category of Environmental and Healthcare Enabler

Environmental and Healthcare Enablers	EHE	Sources
Abating Vector and Water -borne Diseases	EHE1	Robinson (2015; Spickett et al (2013); Roper (2005)
Managing the Water-Related Ecosystem	EHE2	Sovacool (2011); Lashley (2013); Mata-Lima et al. (2016); Smallegan et al. (2017)
Rehabilitating Climate Refugees	EHE3	Betzold (2015); Burkett (2015); Speelman et al (2017); Church et al. (2008)
Providing Disaster Management Support	EHE4	Narayan (2003); Payet and Agricole (2006); Hay (2013); Robinson (2015)

Results

With the help of group decision-making by the focus group, a pairwise comparison matrix for the enablers was formed as depicted in Table 6.

Table 6: Pairwise Comparison Matrix for Enablers

	GEE	GSE	EHE
GEE	(1,1,1)	(6,7,8)	(4,5,6)
GSE	(1/8,1/7,1/6)	(1,1,1)	(1/6,1/5,1/4)
EHE	(1/6,1/5,1/4)	(4,5,6)	(1,1,1)

Further, the application of Fuzzy AHP on this pairwise comparison matrix having fuzzy triangular numbers and then Defuzzification using Centre of Area method depicted the weight of the enablers (see Table 7).

Table 7: Global Weight of the Enablers

Name of Enabler	Code	Weight
Geo-economic Enablers	GEE	0.69
Geo-strategic Enablers	GSE	0.1
Environmental and Healthcare Enablers	EHE	0.21

Then, for each of the enablers, pairwise comparison was done. The results of the pairwise comparison is listed in Tables 8 to 10.

Table 8: Pairwise Comparison Matrix for Geo-Economic Enabler

	GEE1	GEE2	GEE3	GEE4
GEE1	(1,1,1)	(4,5,6)	(1,1,1)	(1/8,1/7,1/6)
GEE2	(1/6,1/5,1/4)	(1,1,1)	(1/8,1/7,1/6)	(1,1,1)
GEE3	(1,1,1)	(6,7,8)	(1,1,1)	(1/6,1/5,1/4)
GEE4	(6,7,8)	(1,1,1)	(4,5,6)	(1,1,1)

Table 9: Pairwise Comparison Matrix for Geo-Strategic Enablers

	GSE1	GSE2	GSE3	GSE4
GSE1	(1,1,1)	(4,5,6)	(6,7,8)	(1/6,1/5,1/4)
GSE2	(1/6,1/5,1/4)	(1,1,1)	(4,5,6)	(1,1,1)
GSE3	(1/8,1/7,1/6)	(1/6,1/5,1/4)	(1,1,1)	(1/9,1/9,1/9)
GSE4	(4,5,6)	(1,1,1)	(9,9,9)	(1,1,1)

Table 10: Pairwise Comparison Matrix for Environmental and Healthcare Enablers

	EHE1	EHE2	EHE3	EHE4
EHE1	(1,1,1)	(4,5,6)	(9,9,9)	(1,1,1)
EHE2	(1/6,1/5,1/4)	(1,1,1)	(9,9,9)	(4,5,6)
EHE3	(1/9,1/9,1/9)	(1/9,1/9,1/9)	(1,1,1)	(2,3,4)
EHE4	(1,1,1)	(1/6,1/5,1/4)	(1/4,1/3,1/2)	(1,1,1)

After application of Fuzzy-AHP and Defuzzification of the weights thus obtained, the local weights of the enablers falling under the three categories were obtained, as depicted in Table 11.

Table 11: Local Weights of the Enablers

Enabler	Local Weight	Enabler	Local Weight	Enabler	Local Weight
GEE1	0.19	GSE1	0.30	EHE1	**0.49**
GEE2	0.09	GSE2	0.18	EHE2	0.33
GEE3	0.23	GSE3	0.04	EHE3	0.08
GEE4	**0.50**	GSE4	**0.47**	EHE4	0.10

Thus, as is evident, among all geo-economic enablers, 'strengthening sub-regional cooperation' is the most important variable. Among geo-strategic enablers, 'supporting democratic governance' is most important; whereas, 'abating vector and water-borne diseases' is the most important enabler among all the environmental and healthcare enablers. Now, to compare these enablers with enablers falling in other categories, the weight of each enabler was multiplied with the weight of category listed in Table 7. This gives the global weight of each of the 12 enablers and it is listed in Table 12. The results show that the top five enablers in decreasing order of their importance are as follows: strengthening sub-regional cooperation, providing aid for trade, trade capacity building, abating vector and water-borne diseases, and managing the water-related ecosystem.

Table 12: Global Weight of the Enablers

Enabler	Global Weight	Enabler	Global Weight	Enabler	Global Weight
GEE1	**0.13**	GSE1	0.03	EHE1	**0.10**
GEE2	0.06	GSE2	0.02	EHE2	**0.07**
GEE3	**0.16**	GSE3	0.00	EHE3	0.02
GEE4	**0.34**	GSE4	0.05	EHE4	0.02

Discussion and Conclusion

This paper outlined 12 enablers of India's ocean diplomacy in the SIDS and grouped them into three broad sets namely geo-economic enablers, geo-strategic enablers, and environmental and healthcare enablers. Then, given the indeterminateness of the enablers and their significance in defining India's ocean diplomacy, fuzzy AHP modelling technique was employed to find out which enablers are the most important drivers of India's ocean diplomacy with the SIDS. This is also pertinent as it helps in policy-making initiatives to ascertain the key sectors of cooperation in terms of resource allocation and development aid interventions by India in these small island countries. This paper thus contributes to the academic as well as policy discourse on India's engagements with the SIDS.

The study reveals that among all geo-economic enablers, 'strengthening sub-regional cooperation' is the most important variable. Similarly, among all geo-strategic enablers, 'supporting democratic governance' is found to be most important, while among all the environmental and healthcare enablers, 'abating vector and water-borne diseases' remains a significant one. Also, when all the 12 enablers are compared, it is found that the top five enablers that can be potential drivers of India's ocean diplomacy with the SIDS include the following: strengthening sub-regional cooperation, providing aid for trade, trade capacity building, abating vector and water-borne diseases, and managing the water-related ecosystem.

So, it is evident that the key enablers are primarily focussed in either geo-economic aspects or the environmental and healthcare aspects. Thus, strengthening the sub-regional cooperation with SIDS by empowering FIPIC in the South Pacific and a similar mechanism with the Indian Ocean islands can be instrumental in redefining and streamlining India's engagements with the SIDS of the Indo-Pacific.

Besides, as Betzold (2015) clearly argued that climate change impacted the sustainable growth of SIDS countries, it is imperative that instruments of ocean diplomacy with SIDS must focus on these aspects. This study also points out that at least two environmental factors e.g. abating vector and water-borne diseases, and managing the water-related ecosystem, should be accorded highest priority in India's ocean diplomacy with the SIDS countries. Further, Anderson (2017) has also referred to human development strategy in SIDS and assert that it needs realignment with the regional blocks to achieve sustainability. The findings of the present study also point out the need for sub-regional cooperation and trade capacity building as the key areas of cooperation and resource allocation in context of India's ocean diplomacy in the SIDS.

In fact, conventionally, Indian ocean has been the primary region for India's ocean diplomacy efforts. With the establishment of FIPIC in 2014, there have been multi-dimensional efforts to engage with the South Pacific islands. India is a dialogue partner of the Pacific Island Forumand the Prime Minister of India Narendra Modi has already called for enhancing India's engagements with these countries. He also chaired India-Pacific Islands leaders' summits, thus setting the momentum for a broad-based engagement between India and these islands. On the other hand, India's impetus on ocean diplomacy was also evident with the visit of Prime Minister Narendra Modi to the Seychelles and Mauritius in the year 2015. India has signed agreements with the two countries to develop infrastructure in Agalega in Mauritius and Assumption in the Seychelles[8].

Moreover, India is already looking forward to help the SIDS countries of the Indo-Pacific in coastal surveillance through joint exercises. On the technological front, India signed a memorandum of understanding with Fiji, Nauru, Samoa and others in 2017 to establish a Centre of Excellence in Information Technology. This will also help the SIDS countries in capacity building for undertaking development initiatives. Also, in 2015, India announced setting up a space research station in the South Pacific. Therefore, given the initiatives already been undertaken by India for the SIDS countries, there is an imminent need to strengthen this effort based on the findings of this paper. There is a need for prioritising the tasks based on India's

expertise and the SIDS countries' requirement.

This paper also advances the key geo-economic and geo-strategic trends envisaged in an earlier research by Garge (2017) that focused on the maritime outreach of India's 'Act East' policy, though did not specifically mentioned about the Indo-Pacific SIDS. In order to promote India's national interests, and support the cause of the SDG globally, it is therefore imperative that India's ocean diplomacy in SIDS is based on focused, but few key enablers, that can serve as instruments of deeper engagements with the small islands.

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Endnotes:

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