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Community Resilience of the Sundarbans: Restoring Tourism after Oil Spillage

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Abstract

This paper explores the local perspective of community engagement in restoring the natural ecological balance and sustain the eco-tourism opportunities on the backdrop of the recent oil spillage in the Sundarbans. Drawing from community discourse and the community resilience model (Akamani 2012), and national and international media releases in relevance to the oil spillage incident, this study explores community views of the post-Spillage-Sundarbans. A number of suggestions are made for restoring the balance as a platform to build a tourist-friendly resilient community. The study calls for the sustainable public supported community resilience ingenuity. It emphasizes on a harmonised and balanced interrelationship between the private and public parties, stakeholders and beneficiaries to undertake community resilience initiatives for survival.

Keywords: sustainability, community resilience, oil spillage, the Sundarbans, the community resilience model

1. Introduction

Resilience studies are drawn from multiple disciplines, addressing differing systems ranging from business organisations to natural environments (Bec et al. 2016). The concept of resilience in tourism, has been adopted as a means to investigate either a specific system's level of responsiveness or retrospective assessment of system vulnerability (Cochrane 2010). Engaging community individuals and resources to develop better responsiveness against a natural or man-made disaster can be an effective strategy for developing an appropriate and sustained natural asset management for eco-tourism (Bec et al. 2016).

Maintaining the ecological balance is a major challenge for the Sundarbans. Sustainability goals would not be achievable unless the resilience and responsiveness of the community is enhanced. The paramount question facing natural resource management in this locality is to "think beyond the forest" and address the dynamic relationship between the community and other stakeholders. Recently, the forest faced an accidental disaster of oil spillage. This

spill not only threatened the natural and ecological balance, but also left communities reliant on the forest vulnerable. Drawing from the community resilience model (Akamani 2012), this study provides some suggestions to develop an integrated community–based resilience framework, which would be inherently efficient to restore a balanced human-nature interaction and promote the engagement of concerned stakeholders. The objective of this paper is to explore the current condition and expectation of the community to mitigate the impacts of disasters. A range of managerial implications are proposed, which is hoped will be of interest to the academic community, policy makers, strategists and donors.

2. Resilience

2.1 Resilience - towards a definition

The term resilience is a sum of disturbances that an ecosystem can possibly withstand. This does not necessarily change self-organised structures or processes, but rather alters a stable situation. Holling (1973) first introduced the notion of environmental and ecology focused resilience supported by the promotion of systems theory and modelling. From the compilation of exemplary literature (Brand & Jax 2007), detailed views on defining 'resilience' from its diversified normative perspectives have set an informed basis to further this discourse. More specifically, resilience is expressed as a social-ecological system's capacity for withstanding or absorbing perturbations (Adger et al. 2005). Resilience "is about adaptation, including building human resource capacities to change in efficient ways, creating learning institutions that can address changing circumstances while maintaining core values, understanding feedback loops in dynamic social and environmental systems, and generally encouraging flexibility, creativity and innovation in the culture of a community" (Lew et al. 2016, p:21).

There is a wider debate in literature with scholars identifying the resilience concept from different perspectives based on its descriptive, operational contents (Holling 1973; Gunderson and Holling 2002; Cumming et al. 2005), social-ecological aspects (Folke et al. 2002; Adger et al. 2005) and normative components (Pickett et al. 2004). However, from a broader ecological perspective, resilience is analysed within the degree that allows a system to function embracing learning, self-organization and adaptation capacities (Holling 1973; Gunderson and Holling 2002; Walker et al. 2004). On the other hand, social-ecological and economic concept of resilience focus more on the social, economic and ecological (Adger et al. 2005; Brock et al. 2002) capabilities of the system to cope with the transition in the face of both natural environmental turbulence and abusive use by humans.

From a sustainable tourism perspective, conflicts may arise when defining the conceptual origin and operational scope of sustainability and resilience (Lew et al. 2016). Success of the system's survival and its sustenance in the long run depends upon necessary strengths and capabilities it has, to respond to immediate unforeseen natural and man-made hazards (resilience) (Centre for

Resilience 2016).

2.2 Resilience - a necessary community capability

Massive scale of human activities such as agriculture, manufacturing, and transport, release various novel chemicals in nature that threaten the natural harmony of the eco-system (IPCC 2014). Often there is not enough preparedness among communities to face, cope and adapt with its consequences. Situations might get worse if it is coupled with resource scarcity and lack of integrated policies at the state level. For most of the countries that are in an economic transition, it is a double-edged sword to strike a balance between the rocketing speed of industrialization and conservation, to capitalize their natural endowment.

Research on forest-dependent communities provides limited views to generate the understanding of the relationship between community awareness and their response effectiveness (Donoghue and Sturtevant 2007). Intricacies of community responsiveness specifically among forest-dependent communities can be traced in the forestry literature (Akamani 2011, 2012; Force et al. 2000). There is also inadequate understanding of how forest-dependent communities respond to, or are affected by different man-made hazards. There is a need to better understand the dynamics of community awareness, capabilities and expectations to become resilient in a context-specific way.

While sustainability has been a major focus in tourism research, importance of community resilience need to be further investigated (Amir et al. 2015). Tourism and hospitality literature have embraced the concept of community resilience by harnessing concepts of coping with vulnerability and developing adaptive capacity (Bec et al. 2016), as a means to becoming sustainable. From an ecotourism perspective, community resilience may be referred as the ability of the community to enhance and sustain tourism opportunities (Amir et al. 2015). In the social context, we cannot consider resilience without paying attention to issues of justice and fairness in terms of both the procedures for decision-making and the distribution of burdens and benefits (Davoudi 2012).

3. Theoretical Model of Community Resilience

The Stockholm Resilience Centre (SRC) (2014) introduces seven principles that are considered necessary to create sustainable ecosystems coupled with social-ecological system resilience. Their set of principles include: connectivity management, diversity management and redundancy, slow variables management and feedbacks, adaptive systems thinking fostering, learning encouragements, widening participation and polycentric governance systems promotion (Biggs et al. 2012).

In the community resilience model (Akamani 2012), the community is seen as a system, aligned with other internal reactive variables and layered within wider systems, getting constant influence from several external change drivers (Force et al. 2000). Such drivers (see figure 1) are shown by policy and politics, culture, economics, demography, technology and even natural ecosystem dynamics

(Tuler et al. 2008). These change drivers differ in terms of their duration, frequency, magnitude, intensity and other relevant features (Cutter et al. 2008). The community resilience model (Akamani 2012) has been claimed to have addressed a number of methodological and theoretical challenges in areas of resource-dependent communities, in general and forest-dependent communities, in specific. This model can serve as a guide to evaluate the effects of forest policies on forest-dependent community's sustainability. For example, indicators derived were applied numerically to assess and compare the conditions of households' pre and post implementation of Ghana's collaborative forest management program (Akamani 2011). Community response process to change is a multi-level phenomenon that happens not only through collective action at the community level, but also through independent responses of households, individuals and groups. Understanding and employing the process view is the recent consideration call for the study of community resilience (Davidson 2010).

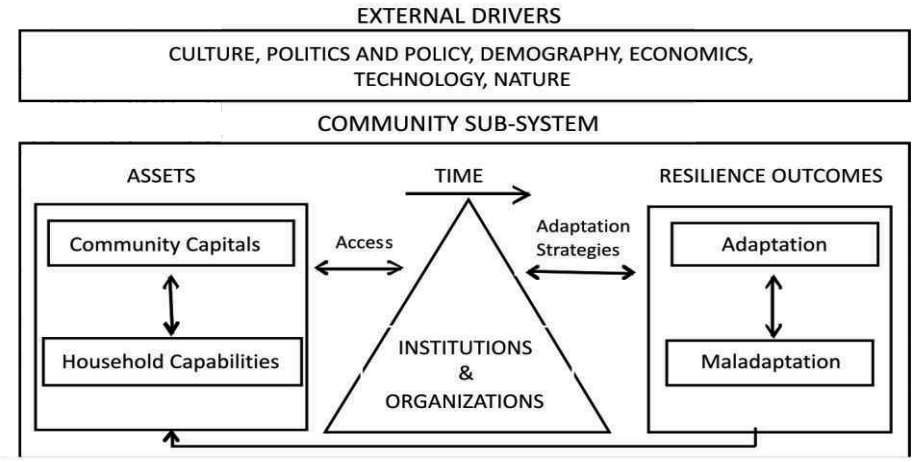

Figure 1. The community resilience model (Reproduced with permission from: Akamani, 2012).

4. The Sundarbans- the Natural Wonder

The Sundarbans is the world's largest mangrove and tidal halophytic mangrove forest. The forest spreads over a region of around 10,000 square kilometres in both Bangladesh and India. Out of the total area, 60% belongs to Bangladesh and the rest to India (Hussain and Acharya 1994). The forest is now renowned with the UNESCO World Heritage Site accolade (Hassan & Iankova 2012).

The Sundarbans remains the basic livelihood generation source to classified groups of forest dependent communities known as the 'Mouwalis' (honey collector), the 'Bawalis' (wood collector) and the 'Jele' (fishermen). It is the world's largest mangrove forest and has been acting as a dependable base of livelihood supply and local economic development for hundreds of years. Natural resource collection in this forest is meant to follow clear practice clarifications as set by Government of Bangladesh and relevant international agencies such as UNESCO

(O'Donnell and Wodon 2015). However, effective implementation of these guidelines is often disrupted by unwanted and unjustified intervention. Operational activities by tourism or other business led beneficiaries are important. Uncontrolled and illogical commercial activities beget patronage leading to serious consequences.

The term 'Sundarban' can be literally translated as 'beautiful forest' in local Bengali language which is designated as UNESCO World Heritage Site in 1992. The forest is spread over 139,500ha (345,000 Acres) in Khulna Division, Bangladesh and South 24 Parganas, West Bengal, India. The total area of the Sundarbans is divided into two eco-regions — 'Sundarbans freshwater swamp forests' and 'Sundarbans mangroves'. Mangrove ecosystems are well sought by tourists for their unique habitat and biodiversity (Macintosh & Ashton 2002). Inclusion of Sundarbans as a natural heritage site by UNESCO in 1992 also increased its attraction as a tourist destination. Capitalizing on its biodiversity, the East Division of the Sundarbans offers a range of activities including recreational fishing, bird watching, viewing wildlife and scenic boat trips. Some of the places include Koramjal, Harbaria, Katka, Kochikhali, Dublar Char, Hiron Point, Sarankhola, and Mandarbaria. State and private tour operators have developed their infrastructure and facilities to accommodate tourists inside the Sundarbans. Local tour operators, with the assistance of the Forest Department, have developed a systematic and structured tour system. Visitor numbers increased from 96,002 in 2006-2007 to 208,000 in 2010-2011, a 100% increase in a span of four years. Revenue generated from tourism increased from Taka 29,65,868 ($40,000) to Taka 86,24,020 ($115,000), an almost three folded increase during the same period (Hussain 2014). At present, visitors are allowed to visit any part of the forest including the restricted protected areas. It is also noted that the management has very few facilities in place for tourists, and entrance fees apply.

As far as the ecotourism industry is concerned, developing the community's resilience is two-fold. Firstly, resilience should prepare the community to address natural calamities and man-made incidents by establishing comprehensive destination planning and management (Eber 1992; Islam and Hossain, 2017; Salam et al. 2000) that will enable them to restore the natural balance of the area to keep its viability as an ecotourism destination. Real economic incentives from ecotourism in protected areas can catalyse the community's view toward conservation rather than the exploitation of natural resources (Agardy 1993). Secondly, unlike conventional tourism, ecotourism encourages the use of indigenous guides, local historians and local products. It is claimed to be more educational and expected to come with minimal travel comforts, as well as providing economic incentives to safeguard the environment. It is also argued that a planned agenda of community engagement and employment in the tourism industry is necessary to absorb the disturbances caused by the flow of tourists into the area (Hawkins and Khan, 1998).

4.1 Natural asset management of the Sundarbans

The Sundarbans consists of a fragile and struggling ecosystem because of the unplanned extraction of natural resources from its forest. Recent activities by national and multi-national business enterprises have accelerated economic growth in areas adjacent to the Sundarbans. These activities include industrial commodity transportation companies using the waterways of the Sundarbans. Medium to small oil tanker, vessels, steamers and boats are used for transportation of goods, chemicals and crude oils (Hussain and Acharya,1994). Negative resulting impacts include the downgrading ecological resource conservation and toxic emissions. The gross loss from such oil spillage disaster in the Sundarbans forest is unaccountable.

According to British Broadcasting Corporation (2014) and the Daily Telegraph (2014), the oil spillage disaster happened on the 9th December, 2014 in the Sundarbans in the Shela River flowing across the Sundarbans of Bangladesh. An oil-tanker named the 'Southern Star VII' carrying 350,000 litres of furnace oil collided with a tanker vessel and sank into the river. The oil spread over an area of 350 square kilometers by the 17th of December, flowing into another river and canals, blackening the shoreline. Experts have also raised concern over the negative effects of the oil spillage disaster hampering the well-being of aquatic organisms (Bautista & Rahman 2016). Small fish, dolphins, planktons, trees and massive number of forest dependent communities were impacted. The spill also clearly disturbed the protected mangrove forest area that accommodates the Ganges and the Irrawaddy dolphins.

5. Methodology

A review of extant literature on community resilience to restore the tourism opportunities with a particular focus on forest-dependent communities suggests the development of a context-specific framework, taking local stakeholders and resources into account. Considering the need for an all-encompassing view on community engagement, the current study employs the community resilience model developed by Akamani (2012) (see figure 1). The framework underpins the understanding of resilience among the community, their dependence on availability of resources and the existing structural and institutional support. It provides a better understanding of the relationship and network among different stakeholders, and their role to build and sustain a resilient community. This study explores the community's perception regarding the recent oil-spillage incident and traditional indigenous methods to cope with artificial or man-made hazards.

Open ended questions were used to conduct personal interviews with community members. Protocol of the questions and lines of enquiry closely followed the factors recognized in the community resilience model for forest-dependent communities (Akamani 2012, Berg 2004). Interview questions focused on five key themes: (i) individual, community and household capabilities, (ii) institutional role and support, (iii) restoration outcome, (iv) external/out-of-community party identification, and (v) their influencing community bounce-back capabilities. Twenty face-to-face interviews, with

fifteen to twenty minutes duration each, were conducted with forest dependent communities, who were beneficiaries of the Sundarbans, witnesses of recent oil spill incident and most importantly, had an active participation in the crisis mitigation. Interviews were recorded in local Bengali language and translated into English by a bilingual researcher (Hossain et al. 2013). Respondents' discourses were analyzed to elicit preliminary insights. News, press releases, assessment reports of national and international agencies highlighting the participatory community role were consulted to incorporate views from contemporary media.

6. Discussion

6.1 Individual, household and community capabilities

Community capital is the collection of shared resources, expertise and networks that can be leveraged to face any vulnerability to improve aspects of the community (Bec et al. 2016). It is also important for the local community to have access to resources and networks (Akamani 2012; Bebbington 1999, Nunkoo & Ramkisoon, 2011) at the time of crisis. For a forest-dependent community, capability can be a measure of well-being and capacity to adapt to change (Kusel 2001). In a resource poor setting like Bangladesh, developing community capabilities should focus more on traditional knowledge and practices to protect the forest. Bangladesh had some success in developing effective flood and drought resilience engaging local community members throughout its coastal region (Mallick et al. 2005). It is an exemplary community engagement model that works well against natural calamities. Similar model of community preparedness and engagement can be effective to combat against man-made incidents or long term structural changes.

The community preparedness was absent, according to respondent 16,

> ''We depend on this forest for everything but we do not do much to save it. We experienced many droughts, which are a regular natural phenomenon of this area, but we did not experience anything like this before''. Respondent 12's view on awareness about community resilience was:
>
> ''We are scared for our livelihood. If we no longer have mangroves and fish, how will my family and neighbours survive! We do not know how to be safe from this disaster''.

With no sophisticated machineries or technologies in place, the locals tried with their indigenous practices to mitigate the incident using household utensils, sacks, and sponges among others. Respondent 20 stated,

> ''As an example of community resilience, forest dependent communities started cleaning up the oil by using sacks and sponges''.

Fishermen used fine fishing nets to scoop up thick oil from the water surface.

Residents tried to manage the situation after the vent. Being unprepared however they did not have the required techniques (NatGeo 2014). Brian D. Smith's Wildlife Conservation Society's Asian Freshwater and Coastal Cetacean Program report showed clean-up efforts relied to a great extent on local fishermen and other volunteers (Wilkinson 2014). Working without proper equipment, training, or oversight, a number have suffered afflictions such as headaches, vomiting, and difficulties in breathing. Vigilant and continual monitoring of the health of local people, as well as the affected area, is crucial, as mentioned in the report. Another immediate concern is for the safe disposal of an estimated 30 to 50 metric tons of oil-saturated vegetation and other debris, still awaiting collection in makeshift shelters erected on the river shores. An expert recounts on how the traditional knowledge of the community elders was used as a primary means of fighting the crisis of floating oil on water,

> "...villagers from one settlement were gathering water hyacinth, which tends to collect a lot of oil, and piling it up onshore, not far from the village well, where the oil could contaminate the drinking water" (Wilkinson 2014).

Local people should have priority to be included in the rescue and restoration projects. But, to ensure sustainable livelihood, it is essential to bring all of them in a platform, where they can act on mutual understanding and community based management, and have access to the supportive network and funding (Bec et al. 2016).

6.2 Institutional role and support

Centralised, community based and market-based institutions and organizations shape the social interaction and economic behavior of the community members (Akamani 2012). Facilitating roles of such institutions are inevitable to bring the long term structural changes for the growth of eco-tourism in a developing country (Amir et al. 2015). According to the Daily Star (2014), the government clearly expressed its inability to deal with the drastic situation. A United Nations Disaster Assessment and Coordination team extended support to the government for the cleanup initiatives.

Amir Hossain, chief forest official of the Sundarbans in Bangladesh, told reporters "This catastrophe is unprecedented in the Sundarbans, and we don't know how to tackle this..." (NatGeo 2014). "Government was totally unprepared for this…" was the statement of Brian D. Smith, the Director of the Wildlife Conservation Society's Asian Freshwater and Coastal Cetacean Program (Wilkinson 2014). "There were some real jurisdiction problems…It wasn't clear who was in charge" (NatGeo 2014). Although the waterway where the spill occurred is within the Sundarbans, which is under the remit of the Forest Department, navigation falls under the Ministry of Shipping. Again Smith stated that,

> "Everybody kept deferring to the Ministry of Shipping, since they were the ones clearly the

> most in charge … but they were nowhere to be found…" (Wilkinson 2014).

So the institutional conflicts are one of the major causes of delayed response with the mitigation efforts. It is a potential problem to allocate necessary resources to the appropriate institution at the time of crises.

While explaining the role of the government, respondent 1 recalled the insufficient role of the government agencies by stating that,

> "The Government of Bangladesh agencies should have professionally dealt with the situation, but they clearly failed to do so".

Respondents 3, 4, 5, 9, 17 reported that the Government of Bangladesh agencies including the Bangladesh Forest Department needs to play sensible roles in dealing with the oil spillage disaster, where survival of both forest dependent people and natural habitats are attached. This was evidenced from interviews, where a domestic tourist, respondent 2 stated that,

> "...the Sundarbans is a natural heritage. If the government allows irresponsible business activities within the forest, this will surely lead to serious negative consequences to those who rely on this forest for their survival and would create a huge catastrophe".

Irresponsible business activities leading to oil spillage disaster in the forest also seemed to create anger within the forest dependent people with wider concern. Respondent 6 expressed clear worries, as to why a disastrous situation like oil spillage may not get much importance in government policy formulations:

> "Oil spillage disaster may have very little effect on governmental policy formulation after a certain period of time and this happens in almost every case in Bangladesh". (Respondent 6).

Prior to 2012, oil carriers used a different channel but it became silted up, that resulted to the redirection of shipping through the Sundarbans. The Daily Star (2014a) informed that, at a national level initiative, the Government of Bangladesh closed the Shela River for vessel use and brought the owner of the oil tanker in salvaging efforts with three other private rescue vessels. The Bangladesh Forest Department filed a lawsuit of 1 billion Taka against owners of both cargo ships involved in the collision. In case of natural asset management, proactive protective legislative measures are useful. Several non-government organizations also are working in different areas ranging from the capacity development, livelihood management, responsible sourcing and disaster responsiveness. To build the community protective capabilities as well as reactive preparations, the government and its local institutions can play a vital role. One relevant example is an NGO, named the "Sundarban Mangrove

Protection Society". An integrated plan to protect the forest from regular malpractices of irresponsible sourcing by different parties is a long standing need.

6.3 Resilience success and restoration of ecotourism

According to Fernandez-Gimenez, Ballard and Sturtevant (2008), resilience performance can lead to either desirable or undesirable outcomes. For natural assets, certain levels of restoration should be left for natural healing. The rescue efforts can be the basis for the development of a stable resilience plan for this region, setting experience-rich directions for the community and local administration. For the Sundarbans, an effective resilience process may influence the local community and household responses for future natural and man-made changes.

The report on the oil spill, five months later indicated that the immediate effects on the environment and local communities appear to have been less serious than initially feared. Following containment and clean-up of the oil-spillage disaster, investigators found only slight amounts of oil remaining on shorelines and vegetation some 24 miles (39 kilometers) upstream and downstream of the accident site, which is because the incident was in the dry season and at low tide.

> "What I've seen was surprising—it's very difficult to find any evidence of the oil spill in most places…"commented M. Abdullah Abu Diyan, an environmental scientist (NatGeo 2015). Although the report notes that visible short-term environmental impacts appear to be limited, long-term effects may still emerge. The economic loss from this incident in terms of route cancelation and diversion as well as missed tour operations in this region was not calculated.

6.4 Influence of external parties on community bounce-back capabilities

External drivers such as economic policies, local and national political interests, state of technological availability and pressure of world organizations for natural asset conservation act as major external drivers influencing the local community (Akamanai 2012). These influences vary in terms of their frequency, duration, intensity, magnitude and their impacts vary both positively and negatively (Cutter et al. 2008). For a long time, the Sundarbans have been the subject of interest for many national and international parties because of its strategic position. Bangladesh has signed, ratified, accepted and acceded to CITES, World Heritage Convention, Ramsar Convention, CBD, Climate Change Convention and Convention to Combat Desertification (Hussain 2014). Thus, it adheres and commit to the conservation of biodiversity and the environment. Respondent 14 was of the view that,

> "There are gaps relating to resources, expertise and

> political commitments with respect to policy formulation for resilience and well-being of the forest dependent people".

Respondent 11 was optimistic and opined that,

> "It is important to use resources properly keeping the future demand in mind. There should be an effective link between the supply and use of resources and these should be offered enormous attention".

6.5 Integrated tourism planning for better resilience

Based on the current condition of natural asset management planning and implementation in the Sundarbans, an integrated plan for establishing the long term sustainability is a crying need. Opportunities for commercially viable tourism in this area can be explored to generate alternative livelihood that eventually can reduce the resource-dependence of the community. Developing responsible ecotourism can be a reciprocal strategy to restore the natural balance in this region. It is also evident in other cases of natural asset management that a long-lasting socio-ecological stability can be earned depending on the community-based eco-tourism that otherwise could hardly be achieved (Lima & d'Hauteserre 2011). The underlying reason is the greater social coherence from an inclusive approach where community is at the core of the destination offer and locals' participation is regarded as the 'symbol of hospitality' for the tourists (Maroudas et al. 2004). In theory, tourism can become supportive of development initiatives and thus promote destinations through effective management and visitor satisfaction (Nunkoo & Ramkissoon, 2012, 2016, Ramkissoon & Mavondo, 2017, Smith & Font 2014). A community-based bottom–up approach to develop eco-tourism in this region may capitalize local strength and retain the local control over their own sustainable socio-economic development (Vafadari 2012; Dehoome et al. 2004). Referring to Kruger National Park, researchers argued that, sustainability practices in ecologically important tourism destinations are much anticipated. Still, numerous issues related to sustainability can hinder development. For instance, significant negative impacts e.g., excess carrying capacity, noise pollution and littering were noted in Casela Nature and Leisure Park in the island of Mauritius (Ramkissoon & Durbarry 2007).

The government could develop an action plan specifying all stakeholders to specifically strengthen the capacity of the forest department for better forest management of the Sundarban reserve. Capacity development for community resilience could be initiated through a comprehensive understanding of the individuals, groups and institutions that will be affected by and should benefit from capacity building activities and interventions. It is also necessary to know the past, current and potential relationships between people and natural resources, local traditional knowledge and their importance in resource conservation. There is a need to understand the reality and the complexity of interests and relations of parties involved to evaluate and predict impacts of

potential strategies, and the level of community responsiveness. Strategists may need to look 'beyond the forest'. It is not always easy to identify the key stakeholders among the different parties such as local businesses and their agents, government and non-governmental organisations (NGOs), environmental activists, political parties, and other beneficiaries which is expressed very clearly by a community member

> ''We survive on regular earnings from the forest, we always try to protect it, but the people who are taking the natural resources, specially cutting the trees illegally are not local people. They are often big shots. Local government has no power to stop them from such destruction"(Respondent 9).

Government may need to recognise the potential economic value of ecotourism in the Sundarbans. It is vital to protect the forest and its natural and scenic resources, which remain important attractions tourists are in search of (Ramkissoon 2016; Ramkissoon and Uysal 2014). An important aspect is to develop resilience capabilities and strengths to cope with uncertain natural and man-made hazards. Further, share of the revenues from tourism should be used to protect the sites. Locals need to also benefit directly from tourism activities. People with appropriate traditional knowledge could be offered further training regarding conservation practices. Tourism in such reserved areas should be promoted with responsible selling points. Ecotourism has been developed as a key economic activity throughout Eastern and Southern Africa (Eagles 1997) since a long time and countries like Kenya and Tanzania are well-documented examples (Salam et al., 2000). And resiliency can contribute as an inner strength towards the sustainable development through tourism (Slocum and Kline 2014).

7. Conclusion and implications

This article explores the current scenario of community resilience in the Sundarbans. It can serve as a guide to develop measurement instruments for both developing and testing community resilience model keeping resilience principles as the overarching framework (SRC 2014). This study relates to the evidence collected from local community members and media releases as current discourses on the backdrop of the oil-spillage incident. The theoretical arguments justify the community resilience model as the basic tenet to identify and articulate community readiness and stability in the study's context. Further, it uncovers the relationship between some stakeholders and community households who have access to resources to maintain resilience (Davidson 2010). It further contributes to the existing body of knowledge on community resilience and its multiple determinants and influencers in a resource poor social setting.

This study adopted a retrospective approach, based on the community views on the past incident of oil spillage drawn upon social learning and coping strategies or their lack and expectation about the future. Thus, an effective framework is important to address community capacities to absorb the changes in the near future due to the proposed Rampal power plant. This coal-fired power

station was proposed to be implemented in Bagerhat, 14 kilometres north of the Sundarbans, by 2016, which has led to controversial debates (Rahman 2013).

Voices of local community members as an important stakeholder are largely ignored at different stages of planning and implementation. Understanding locals' strengths and the social-ecological systems, identifying and predicting changes, stakeholders' role to enhance the bounce-back capacity are inevitable to restore tourism opportunities of the Sundarbans. Future research is also needed to tap the potential of ecotourism in the Sundarbans, where it would be crucial to consider the impact of the region's complex multi-faceted stakeholder influence as uncovered in this case from the community discourse.

Further qualitative techniques such as focus-group discussions, participatory rural appraisals and semi-structured interviews could identify specific stakeholders, influencing factors and variables important for community resilience. Oral narratives of local histories from community elders could generate a historical perspective of the community strengths and traditional knowledge to develop a comprehensive resilience framework for further empirical testing. This study could also shed light on effective policies related to developing community resilience and necessary resource mobilisation. Future research could also be directed to frame inclusive community decision-making processes.

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