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Disaster Risk Reduction Heritages of Bangladesh

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ABSTRACT

Bangladesh is a disaster-prone country. Different areas of the country are vulnerable to different hazards. The communities have been practicing a wide range of Disaster Risk Reduction (DRR) strategies and techniques. Six DRR practices have been identified as DRR heritage because of the uniqueness, inherent knowledge management, and confined and long history of practice, etc. Airband (traditional retention wall) and Koroch Tree plantation in the Hoar basin wetlands, Goiroha (mini pond in yard) in the dry Barind tract, Baira (floating agriculture) in the Beel basin and Rain Water Harvesting in the coast are unique and have long history of practice generation after generation. A study was conducted between June 2022 and December 2024 to understand the techniques, ecological values, and cultural integrity, etc. of those DRR Heritages; there were literature reviews, community consultations, interviews with experts and knowledgeable individuals, and direct observation. Some of the DRR Heritages were lost, and some others were integrated with modern technologies too. DRR Heritages are contributing towards the wellbeing of the ecosystem. Many DRR preparedness practices are being used as adaptation technologies to climate change. Bangladesh's DRR and climate policies are supportive to the DRR Heritages and there are execution initiatives by the government and non-government intervention. Proper documentation of the process, analysis of ecological and cultural values, and history of effectiveness are required.

INTRODUCTION

Bangladesh is a land of rivers. Hydro-meteorological hazards are prehistoric. There are tales of floods, storms, cyclones, and hailstorms in folktales and songs. The country though is small and a plain land except one-tenth of its hilly area, the country is a wetland. Sixty percent of the country is wetland of any form. Different parts of the country have different sorts of hazards and the community has developed its own mechanism of coping with the hazards. Because of population increase, changes in land use, introduction of technology and betterment of the economy there are changes happening in the Disaster Risk Reduction (DRR) practices. The study is a compilation of the DRR practices that have been practiced by the community for a long period of time. They are the heritages of the community. By definition heritages are features belonging to the culture of a particular society that were created in the past and still have historical importance. Those DRR heritages are very indicative of the society. That is, they are limited to a specific society and the community feels them as their own. Some of those DRR heritages have been lost, that is no more in practice; practices of some being declined but many of them are being in practice, some of those has been modernized with inclusion of modern technologies. The present paper has documented those major DRR Heritages and has analyzed the importance and scope of its use as an adaptation technology. The study documented well-known DRR practices that are considered as pride of the locality around the country, and have also reviewed the climate change consequences on those famous DRR practices.

MATERIALS AND METHODS

The study was conducted to know about the DRR heritages scattered around the country. The DRR practices were identified from a literature review and interviews with DRR and Climate Change experts from June to December 2022; to identify legendary DRR traditions, 16 leading DRR experts of the country, based in the capital and other district towns, were interviewed informally. The direct observation of those DRR practices has been conducted between January 2023 to December 2024 by having exhaustive field study. The practices were studied in the field to document the process and community consultations were conducted to understand the details of investment and effectiveness, 30 community consultations were conducted, the consultations were participated by both male and female considering the local social context. Moreover, a total of 12 DRR practitioners and elderly people have been interviewed to understand the extreme event consequences to those DRR Heritages.

RESULTS AND DISCUSSIONS

DRR Heritages

The study has recorded 48 DRR practices followed in different areas of the country as preparedness to different hazards. Identified major hazards were, flood, flash flood, over rain, no rainfall, drought, cyclone, storm surge, water logging, drought, tornado, nor'waster, hail storm, thunderstorm, lightning, landslide, river bank erosion, afal, mud flood, fog, heat wave, extreme cold, etc. Different areas of the country are prone to different hazards. Among the recorded 48 DRR practices six were considered by the experts and the community

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as DRR heritage, since those are very specific and special in practice and have been in the community for generation after generation. The community feels proud

of those DRR for their uniqueness. They are distinct and exceptional in addressing the disaster. The identified DRR Heritages were as follows:

Table 1: DRR Heritages in Bangladesh

Sl	DRR Heritages	Areas (Districts)	Ecosystem type	Hazard	Materials
1	Airband (traditional retention wall)	Sunamganj, Netrokona, Kishoreganj	Haor (Wetland)	Land erosion	Bamboo, Chailla grass
2	Koroch Bag (Tree plantation)	Sunmaganj, Sylhet, Moulvibazar	Haor (Wetland)	Land erosion	Tree
3	Goiroha	Rajshahi, Natore	Barind (Dry land)	Water scarcity (drought)	Mini pond
4	Baira (floating bed cultivation)	Gopalganj, Pirojpur	Beel (Wetland)	Crop loss due to flood	Water hyacinth
5	Kuni	Satkhira	Coast	Soil salinity	Mini pond
6	Rain Water Harvesting	Satkhira, Khulna, Gopalganj	Coast	Water salinity	Rainfall

Airband

Airband is for protecting the village mound from the wave erosion. Strong and high waves created in the Haor are called ‘Afal’. The Airband is found only in the Haor basin of Sylhet division and Mymensingh division, in upper-Meghna basin. Almost all villages of Sunamganj and Netrokona sub-district that are located inside the Haor basin are protected by Airband during the rainy season, specifically from May to October. This is a bamboo made protection wall. Usually, the bamboo pillars are put in around 0.5 meter distance and 0.5 meter in depth under soil on the base, the pillars are set around more than 15° angle. Then there are crossed bamboos. The pillars are always full bamboo but the cross baboons are half or whole bamboo. The gap area between the baboo and the soil is filled by Chailla grass (*Hemarthria protensa*). The Chailla grass remains alive, and grows during the rainy season when the Haor basin is full with water. Airband is prepared or repaired during early April. Though a well prepared Airband can sustain for two to three years but it needs to be repaired every year.

Koroch Bag

‘Koroch Bag’ is plantation of Koroch tree (*Milletia pinnata*). In the Hao basin most of the old villages has a Koroch vegetation on Haor facing side of the village around 200 meters to 500 meters far from the village mound. Some Koroch Bags are hundred years old some are very new. There are Koroch Bag planted by non-government and government intervention. Koroch usually germinates from the seeds and also grows from roots. Natural growth of Koroch is riparian, on the bank of canals. Koroch vegetation on the Haor face side protecting the village from the wave erosion was a very old days practice. It was reported that propagation of Koroch is also possible.

Goiroha

Country’s high plainland of northwestern part is

comparatively arid. Such old land is known as the Barind tract. There is water scarcity of both drinking and irrigation water during the monsoon. There are human made deep canals locally known as Khari. But during the monsoon Khari(es) also became dry. Goiroha is a small pond. It is a water retention area in front of the house. The bottom of such a small pool is cemented by muddy clay. Sometimes the clay is mixed with small pitches of paddy straw. During the field observation almost all Goiroha of the sub-district Tanur under Rajshahi were found with water during the month November. The Goiroha is present in Tanur, Pursa and Godagari areas of Barind region.

Baira

Baira cultivation was found in the Beel basin located in the southwest of Bangladesh. Beels are perennial water bodies mostly located in Gopalganj District areas. The Beel basin is also a plain land with scattered water pools and being flooded during the monsoon. The flooding season is usually prolonged. To ensure the winter cultivation on time the community has been practicing cultivation on water hyacinth made floating bed. Presence of a terracotta showing a floating bed on the wall of an old and nearly destroyed Temple in the Nonikhir village assumes that the cultivation in floating bed has been practiced in the Gopalganj area for around two hundred years. There are two distinct forms of floating bed found in the Beel basin of Bangladesh. The floating bed in Gopalganj area is around 15 meter long, 2 to 2.5 meter wide and 0.7 to 1 meter height. For a 0.7 to 1 meter height ‘Baira’ it is necessary to dump water hyacinth for 2 meters height. The floating bed in Pirojpur and Barisal areas are comparatively too long, around 40 meters, there are also 60-meter-long floating beds in Pirojpur. In Pirojpur areas the floating beds are locally called Dhap. Common crop seedlings grown in a floating bed are Water Gourd, Pumpkin, Chili pepper and Eggplants. To grow the seedling germinated seeds are kept in a small ball

made of an aquatic weed. The weed is Durali, *Hygroryza aristata* which grow widely in the Beel wetland areas. Nowadays people are also cultivating many other crops in the floating bed. The production of ginger, amaranth, tomatoes, lady's finger, etc. were found very good on the floating bed. According to the local community, diversification of crops cultivation on the floating bed is new, not more than three decades old.

Cultivation of floating beds is more widespread nowadays compared with the past. Significant support from government and non-government agencies were reported on the promotion of floating beds.

Kuni

Kuni is a water body dug usually on the corner of a paddy field to keep water reserves. The salinity intrusion in the coastal crop field got massive after the super cyclone Aila. Before Aila the soil salinity was not even significant to disturb the crop cultivation. The practice of Kuni has a hundred years of history, but the Kuni is not a permanent structure. Since they are made on the corner of a paddy field, they are called Kuni, which means in the corner. But nowadays there are Kuni(es) in the middle of a paddy field. The objective of the Kuni was to store rain or flood water for irrigation during winter. Nowadays the Kuni is mostly excavated in the height part of the crop field. Earlier the Kuni was excavated in a size of one-fifth of the crop field area. There was natural growth of fishes, now fish are also being cultivated in Kuni. Due to the presence of a clay layer of sediment the seepage of saline water is less. During the field visit in the winter there were aquatic grasses and bottom weeds found in the Kuni(es) of Shyamnagar sub-district of Satkhira district.

Rain water harvesting

Rainwater harvesting is an ancient technique practiced by different nations. In Bangladesh before the popularization of the tubewell in early 1960s the pond water and the rain water were the sources of drinking water. The mud pot that was used to store the rainwater is called Motka. There were two popular forms of collecting rain water, direct collection of rainwater during the rainfall by keeping the Motka as an open place, and also collecting water from the roof. To keep the rain water clean and edible there was a practice of keeping a Stinging Catfish on the water. During the study 6 Motka(s) were found in Mongla that were more than 30 years old. A traditional rainwater system was found in Mongla sub-district of Bagerhat that has been in operation for more than fifty years. Rain water harvesting got popular again during the early of twentieth century, initially to address the high volume of iron and arsenic in water in the southwest coastal areas. Huge attention on the rainwater harvesting started after the super cyclone Aila to address the crisis of salinity in the surface and groundwater in the coastal area.

Modernization

Bangladesh is a land of wetlands. The country is located

in between the Himalayas and the Bay of Bengal. Living with hydro-meteorological hazards was an everyday life of the people. There were a number of DDR practices that were very own of the community. The 'Astomaisha Band', literally meaning embankment for eight months, was the common practice of flood protection embankment. The embankment of that type was constructed during the month Chaitra (15 March to 15 April) and was existing upto the month Kartik (15 October to 15 November). The 'Astomaisha Band' was effective only to protect the flood very specifically storm surge on the coastal area. Such an embankment was not resulting in any water logging. There is no practice for the 'Astomaisha Band' now. The 'Astomaisha Band' was made by the participation of the community; the villages repairing or constructing the embankment in a festival mode for the part of their own responsibility. The community leaders were allocating the responsibility of the enablement construction and repair to a village located on the embankment side. The villagers also know their responsible length area. Such embankments were helpful for the fish migration and fish breeding. The 'Astomaisha Band' was mostly found in coastal and far coastal districts of the country. Such a DRR Heritage has been lost due modernization and availability of new technologies.

The Airband being replaced by a retention wall. Retention wall being constructed with the support from the government and the non-government initiatives. Some designs are very eco-friendly some are not. The retention wall of Nasirnagar town that was constructed during the British Period, that is during the late eighteen century was with number of supporting angle-pillars of different sizes and has sufficient number of perforations. But the new design is not considering the drainage scope properly. The use of Baira has been widened with the support from different government and non-government initiatives. There was an introduction of a bamboo made frame to construct a Baira, but it was not welcomed by the farmers. Rain water harvesting system has been modernized in various ways. The mud pot 'Motka' has been shifted by plastic tanks of different sizes. Use of filters both in input and output was also recorded during the study.

State of Practice

The country has a wide range of hydro-meteorological hazards, there many DDR practices. But all those practices are not heritages, some of them are very unique and the community that owns those practices has their own technology and those has a long history of practice. The technology of such DRR is transmitted from generation to generation. The practice of Airband is unique though it is being replaced by the retention wall. The existence of those retention walls is questioned by the community. In many areas erosion of those walls was reported. A proper designing of the retaining wall needs to study the design of the Airband in detail. Moreover, the availability of Chailla grass is a challenge for constructing the Airband.

In some areas Durba grass (*Cynodon dactylon*) and paddy straw were found used to fill the gap between the bamboo structure and the earth of the village mound, but it is not sustainable. The Chailla grass grows like a carpet during monsoon. The Koroch plantation has also been increased in the riparian areas. The growth of the Koroch tree is comparatively slow. Plantation of Hijal (*Barringtonia acutangula*) was also reported with the Koroch. The practice of Kuni has been declining. Due to the promotion of the water melon cultivation the government is promoting the excavation of mini ponds inside the crop field in the coastal areas. There is

a seasonal short time existing form of Kuni in Assasuni sub-district and surrounding areas, namely 'Khond'. Khond(s) are mini ponds excavated to store water but usually filled again by soil within a year. The practices of rain water harvesting has been increased dramatically but with a significant change in design.

Ecological Importance

The DRR heritages studied were found helpful to the biodiversity and ecosystem. They are contributing as habitat for biodiversity and also there are ecosystem values.

Table 2: Ecological Importance of the studied DRR Heritages

Sl no	DRR Heritage	Ecological Importance
1	Airband (traditional retention wall)	Provide habitat to the wildlife of Haor. During the monsoon frogs, lizards, rats etc., took shelter. Wild flowers and seeds are food for bees and birds. Chailla grass is a nesting material for many birds. Chailla grass grown on the water surface provides shed to the fishes in a hot summer.
2	Koroch Bag (Tree plantation)	Koroch Bag is a good habitat for wildlife and other migratory birds. Mammals like, Jackal, Fox etc. has been reported. More than 54 species of birds are reported present in the Koroch Bag of Anandapur village of Sulla Sub-district, Sunamganj. Many flowering plants grow in the Koroch plantation, a very good habitat for a wide number of butterflies, dragonflies, etc. Birds like Pallas's Fish Eagle, Brahminy Kite, White-breasted Waterhen, Egret, etc. nest in Koroch vegetation.
3	Goiroha	Goiroha keeps the surroundings moist during the hot dry summer. Wild birds were reported drinking water from there.
4	Baira (floating bed cultivation)	Baira provides food and shelter to fishes. It helps the nutrient value of the water. Many pollinators have been recorded from a floating bed of Vennabari village, Gopalganj district. By making a wise use of water hyacinth the floating bed is helping the wetland ecosystem control the growth of that floating aquatic weed.
5	Kuni	Kuni is a source of fresh water for birds and other homestead wildlife. Aquatic grass, like Burnyard Grass (Boro Shama) <i>Echinochloa crusgalli</i> , Straw Coloured Cyperus (Sokto Khagra) <i>Cyperus pilsus</i> , Umbrella Sedge (Boro cheich) <i>Cyperus irria</i> , and Nut Sedge (Mutha) <i>Cyperus rotundus</i> , have been recorded from a Kuni located at Harinagar village of Shyamnagar sub-district, Satkhira. Kuni is a good habitat and also a breeding ground for native fishes, like Climbing Perch Fish (Koi Mach) <i>Anabas cobojus</i> , and Stinging Catfish (Singi Mach) <i>Heteropneustes fossilis</i> .
6	Rain Water Harvesting	Large scale rainwater harvesting systems also ensure water for domestic cattle and poultry.

Effectiveness in Current Climatic Change Scenario

Bangladesh is one of the most vulnerable countries to climate change. Due to its geographical location the country is experiencing almost all hydro-meteorological hazards except snow and snow related. All the studied DRR heritages were found being used and identified as adaptation to climate change. Though significant attention was not found to the Airband as an adaptation option, the retaining wall was supported as adaptation action. Koroch plantation is recognized as both adaptation and mitigation action. Due to the changes in the rainfall pattern the first flash flood days have been shifted. According to the local community, it is happening faster than earlier. Koroch plantation helps reduce the water speed and protect erosion. Community observed no or less erosion on the Koroch plantation area. Strong and high wave of

Afal lost its speed very significantly after crossing the Koroch plantation. Most of the climate action projects in the Haor basin have included the Koroch plantation as an activity. Goiroha in the Barind and Kuni in coast are not considered as adaptation to climate change, but the upgraded form of those traditional DRR, mini ponds has been identified as adaptation to climate change. The mini ponds are being constructed from government and non-government interventions. Floating bed is probably the first documented adaptation agricultural practice in the country. Floating bed cultivation is widely practiced in different types of wetlands. The number of crops being cultivated on the floating bed has been increased and diversified. Traditional use of the floating bed was mainly as seed bed and very-short duration crop but nowadays there is cultivation of long duration crops also.

Communities in Gopalganj and Pirojpur areas are now cultivating Arum, Reddish, Water gourd, Bitter gourd, Sponge gourd, etc. Rainwater harvesting system is a well-recognized adaptation option to solve the drinking water crisis in coastal Bangladesh. At least twenty-two non-government organizations are working for installation of rainwater harvesting systems in the coastal areas of Bangladesh. There are rain water harvesting systems in household level and community level.

Policy Potential

Disaster management policy in Bangladesh is guided by the National Plan for Disaster Management (NPDm), for which the Ministry of Disaster Management and Relief (MoDMR) is the custodian. The NPDm 2021-2025 focuses on Disaster Risk Reduction (DRR), Humanitarian Response, and Emergency Recovery Management. The policy emphasizes preparedness, early warning, emergency response, and rehabilitation, reconstruction, and recovery. Major DRR policy and legislations includes, Disaster Management Act 2012, Disaster Management Policy, Standing Orders on Disaster, National Plan for Disaster Management, and Earthquake Contingency Planning. The vision of the prospective plan is to take effective measures to protect Bangladesh from the adverse effects of climate change and global warming. The DRR policy aspects are linked with climate action. The adaptation action plan has well recognized many of the DRR heritages as adaptation potential. The Bangladesh Climate Change Strategy and Action Plan (BCSAP) which is a living document has provided the opportunity of Floating bed, Kuni, and Goiroha in its Thematic Area 1: Food Security, Social Protection and Health; and the Thematic Area 2: Comprehensive Disaster Management there are room for Airband; the Thematic Area 5: Mitigation and Low Carbon Develop allows scope for Koroch plantation. Though the BCSAP has not noted the names of those DRR heritages but have recognized the scope of implementation under the suggested action areas. The National Adaptation Plan of Bangladesh (NAP), is a comprehensive document outlining the country's strategy for adapting to the impacts of climate change. It serves as a roadmap for long-term adaptation planning and investment, covering various sectors like water resources, agriculture, urban areas, and ecosystems. The NAP has identified the Floating bed cultivation as a very effective adaptation option and has detailed the scope and diversification of use. NAP has recognized Floating Agriculture as innovative and indigenous agriculture and has attempted upscaling of it in the Haor and Beel ecosystem. As an intervention of protection against flash floods, wave action, erosion, and sedimentation, the NAP has recommended the development of the Koroch and Hijol tree belt along the periphery of Haor settlements. The Bangladesh National Water Policy 1999 recognizes rainwater as a third source of water, and the Bangladesh National Building Code (BNBC) 2020 includes a chapter on rainwater management.

Discussion

According to the UNDRR (2022a) Cultural heritage (including tangible, intangible, and cultural industries) has a significant potential for reducing disaster risk and actively pursuing sustainable development. In the context of DRR, Traditional Knowledge lies in the accumulated experience that comes with the close relationship of Indigenous communities to their environment, formed through successive trials and errors over generations (UNDRR, 2022b). Traditional DRR leverages the accumulated knowledge and practices of indigenous communities and local populations to manage and reduce the impact of natural hazards. The World Conference on Natural Disaster Reduction held in Yokohama in 1994 has recognized the interconnectedness between natural systems and Traditional and local knowledge (IDNDR, 1994). The United Nations already considers indigenous knowledge within Priority 3 of the Hyogo Framework for Action, which focuses on education and knowledge. One of the key activities identified under this priority action focuses on the importance of information management and exchange, and highlights the use of “relevant traditional and indigenous knowledge and cultural heritage” to be shared with and adapted to different target audiences. Mohan and Majhi (2024) has studied the intricate nexus between Indigenous Knowledge Systems, the preservation of cultural heritage, and the promotion of sustainability. Cultural heritage is the concept that connects the past and the future via the use of modern techniques. Objects from cultural heritage have symbolic meaning. In terms of culture and environment, they stand for identities. Community is established through ties to and customs surrounding these artifacts. Simultaneously, the decision of future cultural narratives and societal consensus regarding the past and present are influenced by the preservation of artifacts, landmarks, or natural environments (Cultural Heritage Studies, n.d.). The current study has identified Airband, Koroch Bag, Goiroha, Baira and Kuni as cultural heritages since the knowledge of the technology has been transmitted generation after generation and has a long history of practicing those for DRR. The etymology of those names represents the native leagues and local ecological significance. The word Airband means cross embankment, this is representing the engineering of the bamboo fence. This also stands across the wave action. The Koroch Bag is a swamp forest but has not used the term forest or jungle but the garden. The word bag is for a garden where there is care and beauty. Kuni stands for the corner.

Chakraborty and Rahman (2024) have identified the Airband as an adaptation option. They recognized that the Chailla grass, *Hemarthria protensa* contributes to ecological equilibrium. They also noted Airband providing habitats for numerous bird species. Freshwater swamp forest as a ‘biological supermarket’ for its unique biodiversity (Nabahungu & Visser, 2011). Nasren *et al.* (2021) has identified 37 species of fishes from the

swamp forest of Ratargul, Sylhet. Whereas, Islam *et al.* (2016) recorded 93 species from the same swamp forest. Protection and conservation of the Koroch Bag is definitely helpful for fisheries production and availability. IUCN Bangladesh, 2005 noted that the techniques of Baira preparation and cultivation vary from region to region, and from village to village is the same district. On Baira platforms people raise vegetable seedlings and/or grow vegetables. However, raising seedlings is more profitable than cultivating vegetables for marketing. Over a three to four months' period, three to five cycles of seedling production are possible. The input-output analysis by Irfanullah *et al.* (2008) revealed floating gardening to be a feasible alternative livelihood option for the wetland dwellers. The method provided targeted landless people with parcels of land in the monsoon, enabling them to grow vegetables. Floating gardening and associated winter gardening appear to have the potential for introduction to other parts of the world where aquatic weed management is a major problem. Though the floating garden has been recommended in the Haor ecosystem by policy but Ghosh and Chakraborty (2025) suggested the local form of water hyacinth made a small bed which was common in the Haor before 1980s. This form was called 'Bhura'. There are some interventions of floating bed cultivation taken in Haor areas by the non-government organization, Center for Natural Resource Studies. Practical Action, an international NGO also has a good success in promoting the floating bed in the riverine floodplain in Bangladesh. In a compilation of Indigenous Climate Adaptation Knowledge, CPE and BRAC (2024) recorded the Goiroha. Bangladesh averages 2200 millimeters of rainfall annually, one of the highest amounts in the world. Rainfall generates 200-250 billion cubic meters of water per year. The basic requirement of water except in-stream, and environmental needs is 160 billion cubic meters per year. Rainwater alone can meet the basic requirements of water in Bangladesh. Development organization BRAC has been working in the coastal area to ensure blanket coverage of water security by household and community level rain water harvesting. Practical action, Christian Aid, etc., also working for setting rain water harvesting systems in the community. Ursino and Pozzato (2019) recognized the rain water harvesting and reuse systems as an ancient element of old water distribution systems. Policy and legislation of Bangladesh have considered the DRR and Climate Action as priority areas. The DRR practices that have been identified as heritages are being supported by the policies to some extent. There is a lack of well documentation. This is crucial for maintaining cultural heritage and preventing knowledge loss. According to the UNESCO convention not all the intangible heritage are safeguarded but only the one, which is recognized by its community as theirs and that provides them with a sense of identity and continuity is to be safeguarded (Richard, 2004). The DRR heritages are the sense of identity of a community. So that they will be

protected, documented and recognized as the inheritance of the community.

CONCLUSION

Bangladesh has diversified hazards and the people of the country are living with the disaster by developing their own mechanism of coping and preparedness. There are hundreds of practices to cope with the hazards, including techniques, early warning signs, taboos, norms and practices. The study has identified six DRR that are considered as heritage by community and DRR practitioners because of inherent and identity specificity. There are records of lost DRR heritage; current climate change crisis raises re-thinking the importance of the area specific DRR. The study has reviewed the effectiveness of those DRR in the current climate context. The ecological value of the DRR has not been studied in detail. Moreover, the practices are not well documented yet. More study is necessary to unpack the ecological values and the historical records of importance and contribution. The effectiveness of those traditional practices during the extreme events can be identified by reviewing the historical records and folk studies. Climate change context has created a demand of exploring the DRR heritages; such heritages may require inclusion of modern technology and knowledge to contribute in disaster preparedness and adaptation to climate change. Some of the DRR heritages may be replicable with some adoption to other places of similar ecosystems.

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