

Listening to the urban islanders: oral histories of resilience from Tuti island, Khartoum, Sudan

VITTORIO FELCI
MALMÖ UNIVERSITY

Aims of the research

The main purpose of this research was to contribute to scientific knowledge to tackle consequences of climate and environmental changes in urban areas of the Global South. The project aimed at strengthening applied studies on urban sustainable development according to the Sustainable Development Goal 11, also known as the Urban SDG (USDG).¹ This project therefore explored urban community resilience initiatives that are participatory and inclusive and help mitigate climate change and adapt to increasingly challenging conditions in urban areas. In order to face environmental threats, at the roots of growing inequalities, there is a scholarly need to better understand the proactive or reactive acts of resilience that urban communities develop themselves. Dealing with the Sustainable Development Goal 10 and 13, this project also highlighted the ways communities in a specific urban neighbourhood contribute to enhance a sustainable climate action and strengthen efforts to reduce inequalities.

In order to study the effects of climate change and environmental issues in urban areas, the researcher conducted a temporal analysis focused on Tuti island in Greater Khartoum. Tuti is an island located at the heart of Greater Khartoum, Sudan, and is known for its vulnerability to environmental and climate change. The aim was to explore environmental challenges as well as the societal responses that are developed by the community through the use of participatory historical methods and, in particular, oral history.

One main research question informed this study:

To what extent is social memory of key environmental events present in society at large, and how does social memory contribute to resilience against flooding?

This interdisciplinary project will result in the co-creation of environmental oral histories that utilize local knowledge holders for promoting a sustainable future in Tuti. The project will therefore involve collaboration between local knowledge holders and researchers in Sudan and Sweden, and combine environmental sciences, humanities and social sciences to explore memories of environmental events in Tuti island as a unique case study of urban areas under human-induced environmental stress.

¹ KLOPP, Jacqueline M. and PETRETTA D.L. (2017), "The urban sustainable development goal: Indicators, complexity and the politics of measuring cities," *Cities* 63.

Background

Sudan is severely affected by upcoming climate change with projections of rising temperatures by over 3 degrees Celsius in 2060. Climate change in Sudan has a diverse range of effects: (1) environmental (desertification, reduction of agricultural land, extreme flooding, industrial pollution and deforestation), (2) social (migration and immigration), (3) political (mismanagement of existing resources like water).²

The capital region of Khartoum is a conurbation of three urban centers: Khartoum, Khartoum North and Omdurman. This conglomerate is the largest urban area in Sudan, one of the largest in Africa, and as many other African mega-cities it has experienced an uncontrolled urbanization process over the last few decades, in tandem with rapid population growth. Currently Greater Khartoum is “host” to a population of multi-ethnic Internally Displaced People (IDPs) from the Darfur and Kordofan provinces, migrants from South Sudan, Eritrea, Ethiopia, Iraq and the latest arrivals of war refugees from Syria.³

Tuti island lies at the very center of Greater Khartoum. It is bordered by the Blue Nile to the East and the White Nile to the West, and it is on the island’s Northern tip that the two rivers merge and give birth to the Nile (Figure 1 and 2). Surrounded and modelled by water, Tuti has gained the title of “green eye” of the capital because of its rich vegetation, fertile soil and agricultural production.⁴ Tuti is inhabited by a small community of approximately 18.000 people,⁵ whose origins can be found in the migration of the Nubian Mahas tribe to the South in the 16th century, both in search for fertile soil and for Islamization purposes.⁶ Other Nubian groups, non-Nubians, and Western Sudanese are also present in the island and “are integrated into everyday life to different degrees”.⁷

Tuti suffers from severe flooding in the East. Tuti has a long history of flooding due to its peculiar location. According to the US National Aeronautics and Space Administration (NASA), during the 2020 Sudanese floods “the Nile river and tributaries reached their

² ZAKIELDEEN, Sumaya (2009), “Adaptation to Climate Change: A Vulnerability Assessment for Sudan,” *Gatekeeper Series* 142. <https://pubs.iied.org/sites/default/files/pdfs/migrate/14586IIED.pdf>; WARNER, Koko and ZAKIELDEEN, S. (2011), “Loss and Damage Due to Climate Change: An Overview of the UNFCCC Negotiations,” *European Capacity Building Initiative (ECBI) Background Papers*; UNEP (2020), *Sudan. First State Environment and Outlook Report 2020. Environment for Peace and Sustainable Development* (2020). <https://www.unep.org/resources/report/sudan-first-state-environment-outlook-report-2020>

³ SALIH, Zeinab Mohammed (2016), *Shared Language and Religion in Sudan. A Long Way from Home, Syrians in Unexpected Places*, The New Humanitarian, 31 May 2016.

⁴ DAVIES, H.R.J. (1994), “A Rural Eye in the capital: Tuti Island, Khartoum, Sudan,” *Geojournal* 33. <https://oxfordclimatepolicy.org/publications/documents/LossandDamage.pdf>

⁵ UNDDR (2015), *Local Knowledge Saves Nile Islanders*. <https://www.undrr.org/news/local-knowledge-saves-nile-islanders>

⁶ LOBBAN, Richard A. (1981), “The law of elephants and the justice of monkeys: Two cases of anti-colonialism in the Sudan,” *Africa today* 28, 2.

⁷ ARANGO, Luisa (2015), “Some Theoretical Models, Methods and Concepts of Urban Anthropology in Sudan: The Case of Tuti Island Revisited,” *Canadian Journal of African Studies/Revue canadienne des études africaines* 49, 1.

highest levels in 100 years.”⁸ Three distinct types of flooding occur in Greater Khartoum and Tuti alike: from the rivers, from local streams, and from urban runoff. Regular flooding occurs every year between July and September when the Blue Nile reaches its peak in the rainy season, but extreme floods are becoming more common because of climate change.⁹ Blue Nile floods extending outside the normally flooded areas result from intense and highly localized downpours when prolonged heavy rain occurs in Blue Nile’s headwater in the Ethiopian Highlands.¹⁰ Infrastructural issues such as reduced infiltration, poor drainage and the presence of local streams subject to flooding emerge every time rainfall is prolonged.¹¹ Blue Nile floods are particularly devastating in East Tuti as people and properties are mostly concentrated in the proximity of Tuti’s Eastern banks. Furthermore, Blue Nile floods are causing a process of erosion, which has resulted in the receding of Tuti’s South-Eastern riverbanks.¹²

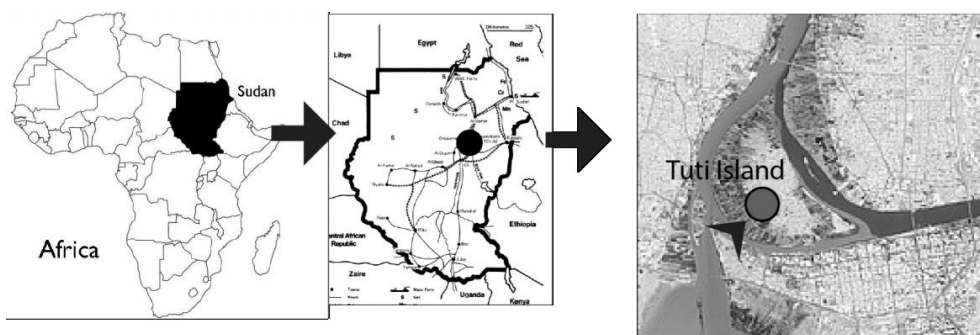


Figure 1. Tuti island. Source: I.Z. Barethdin

Theory

The material turn

The project is theoretically rooted in the framework of the “material turn”, which contests the classical separation between scientific knowledge and vernacular knowledge, and, more specifically, the traditional idea of a top-down knowledge transfer from so-called “experts”

⁸ NASA (2020), *Record Flooding in Sudan*, <https://earthobservatory.nasa.gov/images/147288/record-flooding-in-sudan>

⁹ ZERBONI, Alberto – BRANDOLINI, F. – MARIANI, G.S. – PEREGO, A. – SALVATORI, S. – USAI, D. – PELFINI, M. and WILLIAMS, M.A.J. (2020), “The Khartoum-Omdurman conurbation: a growing megacity at the confluence of the Blue and White Nile Rivers,” *Journal of Maps*, <https://www.tandfonline.com/doi/full/10.1080/17445647.2020.1758810>

¹⁰ WILLIAMS, Martin (2019), *The Nile basin: Quaternary geology, geomorphology and prehistoric environments*, Cambridge, Cambridge University Press.

¹¹ MAHMOUD, Wifag Hassam – ELAĞIB, N.A. – GAESE, H. and HEINRICH, J. (2014), “Rainfall conditions and rainwater harvesting potential in the urban area of Khartoum,” *Resources, Conservation and Recycling* 91.

¹² ZERBONI – BRANDOLINI – MARIANI – PEREGO – SALVATORI – USAI – PELFINI and WILLIAMS, “The Khartoum-Omdurman conurbation.”

(e.g scientists) to indigenous communities.¹³ The "material turn" prioritizes materiality over discursivity and therefore encourages to look at those objects that are generated locally and contribute to the production of environmental knowledge such as maps, flora and fauna inventories, know-how, traditional knowledge, tales, legends, songs, etc.¹⁴ The "material turn" values the role of creativity, culture and tradition, and it invites us to place center-stage the expertise of local experts, thus contributing to the democratization of environmental knowledge.¹⁵ Taking the "material turn" as a theoretical framework offers scholars in African studies the opportunity to focus on the understanding, production and circulation of grassroots environmental knowledge.



Figure 2. Satellite image of Tuti island. Source: Google Earth

Social memory

Social memory is a key factor to understand and inform social resilience processes. Social memory is a concept utilized to indicate the connection between social identity and history, and its definition can vary according to the disciplinary perspective.¹⁶ Adger, Folke et al. define social memory as "the reservoirs of practices, knowledge, values and worldviews" institutions and individuals mobilize to cope with change.¹⁷ Wilson argues that social memory in human systems facilitates "learning and adjustment based on past experience" as any human system "carries with it the memory – or, in a more negative sense, the 'baggage' – of previous decision-making trajectories."¹⁸ He points out three components of social memory that are relevant for developing social resilience: community learning, tradi-

¹³ BICKER, Alan – ROY, E. and PARKES P. (ed.) (2000), *Indigenous Environmental Knowledge and its Transformations. Critical Anthropological Perspectives*, Amsterdam, Overseas Publisher Association.

¹⁴ LATOUR, Bruno (1987), "Les 'Vues' de l'esprit," *Réseaux. Communication – Technologie – Société* 27.

¹⁵ LEACH, Melissa and FAIRHEAD, J. (2002), "Modes de contestation: le 'savoir indigène' et la 'science des citoyens' en Afrique de l'Ouest et dans les Caraïbes," *Revue internationale des sciences sociales* 173.

¹⁶ FRENCH, Scot A., "What is Social Memory?" *Southern Cultures* 2, 1 (1995).

¹⁷ ADGER, Neil – HUGHES, T.P. – FOLKE, C. – CARPENTER, S.R. and ROCKSTROM, J. (2005), "Social-Ecological Resilience to Coastal Disasters," *Science* 309; WILSON, Geoff (2015), "Community Resilience and Social Memory," *Environmental Values* 24, 2.

¹⁸ WILSON, "Community Resilience and Social Memory."

tion, and networking.¹⁹ Learning involves observation and processing of information and experiences as well as engagement in discussion and practice at the community level. It is connected to place attachment and therefore it is incentivized by a genuine interest in preserving the community and its surrounding environment. Tradition refers to the environmental beliefs and customs handed down from generation to generation by cultural transmission. It is also linked to place attachment, especially in communities that have lived in a specific location over several generations.²⁰ Lastly, networking is a crucial factor in the mobilization of social memory against change. Indeed, social memory effectively contributes to resilience when it involves most community members.

This emphasis on social memory as a repository of knowledge, practices, values, and worldviews draws attention to its composite nature. On the one hand, traditional knowledge and practices are important aspects of social memory and are therefore central to social resilience. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), “traditional knowledge concerns knowledge, innovations and practices of indigenous and local communities around the world.”²¹ It consists of knowledge and know-how accumulated across generations.²²

On the other hand, values and worldviews constitute important elements of social memory. Worldview refers to “the fundamental cognitive orientation of a person or group regarding the world and life,” and reveals how people interact and make sense of physical nature.²³ A worldview encompasses a set of values that “influences such things as how we see ourselves as individuals, how we interpret our role in society, how we deal with social issues, and what we regard as truth.”²⁴

Values can provide attributes and inclinations that contribute to develop resilience and overcome change. Such meanings and values not only act as mechanisms of path dependence in processes of adaptation, but they also “form the cognitive and institutional frame-

¹⁹ Ibid.; WILSON, Geoff – KELLY, C.L. – BRIASSOULIS, H. – FERRARA, A. – QUARANTA, G. – SALVIA, R. – DETSIS, V. – CURFS, M. – CERDA, A. – EL-AICH, A. – LIU, H. – KOSMAS, K. – ALADOS, C. – IMESON, A. – LANDGREBE-TRINKUNAITE, R. – SALVATI, L. – NAUMANN, S. – DANWEN, H. – IOSIFIDES, T. – KIZOS, T. – MANCINO, G. – JIANG, M. and ZHANG, P. (2017), “Social Memory and the Resilience of Communities Affected by Land Degradation,” *Land Degradation & Development* 28, 2.

²⁰ Stump, Daryl (2010), “Ancient and Backward or Long-Lived and Sustainable?” The Role of the Past in Debates Concerning Rural Livelihoods and Resource Conservation in Eastern Africa,” *World Development* 38, 9.

²¹ UNESCO (2007), *Secretariat of the Convention on Biological Diversity (SCBD), Article 8(j): Traditional Knowledge and the Convention on Biological Diversity*, <http://uis.unesco.org/en/glossary-term/traditional-knowledge>

²² BERKES, Fikret – COLDING, J. and FOLKE, C. (2000), “Rediscovery of Traditional Ecological Knowledge as Adaptive Management,” *Ecological Applications* 10, 5, 125.

²³ CHUANG, Frank – MANLEY, E. and PETERSEN, A. (2020), “The Role of Worldviews in the Governance of Sustainable Mobility,” *Proceedings of the National Academic of Sciences of the United States of America* (PNAS) 117, 8.

²⁴ PARK, Chris and ALLABY, M. (2017), *Oxford Dictionary of Environment and Conservation*, Oxford, Oxford University Press.

works through which resilience, or lack thereof, is experienced and socially defined.”²⁵ Culture shapes specific values or qualities that are intrinsically ideal to develop effective response to climate change.²⁶

Method

Oral history, and the information and meanings it carries, is an effective tool to study social memory and therefore resilience at community level. Oral history, long used by scholars in the social sciences and the humanities, draws on the unique perspectives of individuals reflecting upon their past and how it intertwines with the present. Paul Thompson, Alessandro Portelli, Michael Frisch, and Valerie Raleigh Yow are prominent names in a long tradition of oral historians devoted to the promotion of an “history from below.”²⁷ Born to give voice to the “unheard” in society and to contest dominant narratives of the past, oral history has become a valuable tool in several fields of study, and a larger use has been advocated in the field of environmental studies.²⁸

The value of oral history for the study of flood events and flood memories has been discussed in the scientific literature for nearly four decades. Drawing primarily on Berkes’ work, Williams and Riley have recently assessed the use of oral history in environmental history and identified three main areas of contribution: knowledge, practices, and power.²⁹ First, oral history provides unique empirical material on events and phenomena that cannot be captured otherwise. Hence it can document the “very stuff that rarely gets into any kind of public record.”³⁰ Second, oral histories can give detailed insights into people’s practices, namely how people interact with the surrounding environment. Within this framework, oral history can be used as a tool to understand how people make sense of the environment and attribute meaning to it. This aspect is, according to Portelli, what distinguishes oral history from other disciplines: “the first thing that makes oral history different, therefore, is that it tells us less about events than about their meaning.”³¹ Last, oral narratives have the potential to contest dominant narratives of the environment and human ecology found in colonial archives and scientific documents.

In line with the participatory approach that guides the RUS project, data collection involved synergistic relations among local research participants from Tuti, Sudanese researchers, and a Sudanese institutional partner – the Institute for Environmental Studies

²⁵ O’BRIEN, Karen (2009), “Climate Change and Values: Do Changing Values Define the Limits to Successful Adaptation?” in ADGER, Neil W. – LORENZONI, Irene and O’BRIEN, Karen (eds.) (2009), *Adapting to Climate Change: Thresholds, Values, Governance*, Cambridge, Cambridge University Press.

²⁶ ADGER Neil – BARNETT, J. – BROWN, K. – MARSHALL, N. and O’BRIEN, K. (2013), “Cultural Dimensions of Climate Change Impacts and Adaptation,” *Nature Climate Change* 3.

²⁷ PERKS, Robert and THOMPSON, A. (2016), *The Oral History Reader*, London, Routledge.

²⁸ WILLIAMS, Brian and RILEY, M. (2018), “The Challenge of Oral History to Environmental History,” *Environment and History* 26, 2.

²⁹ Ibid.

³⁰ RALEIGH YOW, Valerie (2005), *Recording Oral History: A Guide for the Humanities and Social Sciences*. Lanham, MD, Altamirra Press.

³¹ PORTELLI, Alessandro (2016), “What Makes Oral History Different,” in Robert Perks and Alistair Thomson, *The Oral History Reader*, London, Routledge.

(IES) at Khartoum University. This research drew on ten oral histories co-created by Tuti-ians (narrators) in collaboration with two Sudanese graduates from Khartoum University, Aya Altom and Elizabeth Achu Jervase (interviewers). Visual material complemented oral sources and helped elicit co-creation of oral histories. It consisted of maps drawn by some of the research participants in collaboration with Altom as well as photographs and videos of the 2020 floods provided by Sudanese researchers affiliated to the RUS team.³² Vittorio Felci, an historian by training based at Malmö University, planned the fieldwork together with IES, Altom, and Jervase during a preliminary fieldtrip in Tuti, which occurred in January-February 2020. He later took primary responsibility for oral history training workshops for Altom and Jervase; co-formulation of the interview guide; supervision of oral history co-creation. These activities were conducted via Zoom due to the Covid-19 pandemic. IES facilitated community entry in Tuti by introducing the project to key community members. Altom and Jervase took responsibility to identify key research participants. Snowball sampling (in which participants assist researchers in finding other participants) was also utilized to reach the desired number of participants. Eight elderly men and two elderly women took part in this study. Prioritization of elderly people resulted from their life-long experience in flood management. The patriarchal structure of Tuti's society is reflected in the flood management system and explains the higher number of male research participants. All research participants belong to the dominant ethnic group, the Mahas. Altom and Jervase provided participants with a detailed consent form prior to oral history co-creation. Participation in the research is therefore voluntary. All research participants have agreed to use their real names except one, who has been anonymized. Due to the Covid-19 pandemic, and the need for follow-up interviews, fieldwork was conducted over an extended period, between February 2020 and April 2021. Data analysis was jointly conducted over the same period by Felci, Altom and Jervase in collaboration with key research participants. Dissemination has consisted so far in an article for *Études sur la région méditerranéenne*, "Resilience in Urban Sudan (RUS): a Temporal Analysis of Social Cohesion and Resilience to Tackle the Consequences of Climate and Environmental Change in Urban Khartoum,"³³ the ArcGIS StoryMap "We Are Proud of Them': The Role of the Past in Tuti's Resilience against flooding,"³⁴ and an article in the *International Journal of African Historical Studies* titled "An Oral History Study of Social Memory and Flood Resilience in Tuti Island, Greater Khartoum, Sudan."³⁵

³² Yassir Abdallah Mohammed Elhassan, Malik Adam Alldoum Adam, and Mohamed Abdallah Ishag Mohamed, students at IES and members of the RUS team, provided photographs and videos of the 2020 floods in Tuti.

³³ FELCI, Vittorio (2020), "A Temporal Analysis of Social Cohesion and Resilience to Tackle the Consequences of Climate and Environmental Change in Urban Sudan," *Études sur la région méditerranéenne* 24, 1.

³⁴ FELCI, Vittorio – ALTOM, A. – JERVASE, E. – KAIS, K. I. A. A. – ABDEL-RAHIM, K. A. – ABBAS, M. A. – MUDAWI, M. H. – OSMAN, M. – MODAWI, A. M. A. – ABDULLAH, H. M. and IDRIS, M. A. (2022), "We are proud of them: the role of the past in Tuti's resilience. Against flooding," *ArcGIS StoryMap*, <https://storymaps.arcgis.com/stories/1a53f4f846db4c9b8da980e13911537b>

³⁵ FELCI, Vittorio and ALTOM, A. (2022), "An Oral History Study of Social Memory and Flood Resilience in Tuti Island, Greater Khartoum, Sudan," *The International Journal of African Historical Studies* 55, 3.

Results

Elevating the concept of social memory as the conceptual framework for analysis, oral history revealed the presence of memories that connect the people of Tuti to past floods and provide lay expertise for present and future resilience needs. Due to the lack of a permanent infrastructure to protect the island from recurrent flooding, the Tuti community has resorted to vernacular knowledge and available resources to mitigate floods since 1946. This is reflected in the system of *tayas*, a grassroots initiative consisting of river monitoring (Figure 3) and construction of sandbag dams to block the flow of water (Figure 4). Both activities depend on a profound knowledge of the behavior of the three rivers as well as the territory of the island, in particular those areas that are most vulnerable to flood events during the rainy season. A scientific assessment of the mitigation impact of these measures is difficult to make in such a qualitative study. However, according to the UNDRR, the people of Tuti have succeeded in saving lives and containing damage, which explains the election of Tuti as Champion of Disaster Risk Reduction in 2015.

Social memory is not only about knowledge and practices. It is also about those values, worldviews, and meanings that provide ideal qualities for communities to develop effective resilience strategies. Tuti's history, both written and oral, highlighted the role of values in shaping community response to past adversities, be they human-induced or nature-induced. "Unity," "cooperation," and "collective efforts" emerged as key terms in oral accounts of past floods and echoed Lobban's emphasis on the cohesion and "strong community spirit" that characterized the island.³⁶ The research participants tended to associate the power of collective action and the underlying cultural values behind it to a Sudanese initiative, *nafeer*. *Nafeer* revolves around the idea of mutual support in case of need or danger and finds application both in everyday life and extraordinary circumstances. According to the research participants, *nafeer* is closely associated to the work of *tayas* (Figure 5). *Nafeer* incentivizes collective efforts for protecting people and properties against flood as well as post-disturbance intervention such as humanitarian assistance and reconstruction. While *nafeer* and its underlying values are important components of social memory, place attachment is closely correlated to it. Place attachment is a necessary precondition to develop strong social memory. It contributes to social resilience as it inspires protective-place behaviour. Place attachment in Tuti depends on long-term residence and embeddedness. Socio-economic and religious factors are also of importance for the research participants, whose ancestors have inhabited the island since the sixteenth century.

Although men are primarily responsible for *tayas*, the system is collectively owned and driven by mobilization at the community level. From the elderly to the young (Figure 6), from men to women, and from old residents to newly arrived, everyone seems to have a role to play. The construction of the bridge and the slow emergence of a more heterogeneous society has not, according to the research participants, affected the collective nature of Tuti's response to flooding. Oral histories as well as visual material produced during the 2020 Sudanese floods showed a set of highly coordinated activities that one of the research participants described, in a celebratory manner, as "the superior harmony," namely a disci-

³⁶ Lobban, Richard A. (1975), "Alienation, Urbanisation, and Social Networks in the Sudan," *Journal of Modern African Studies* 13, 3.

plined division of competences and roles in accordance with local social norms. It is this capacity to coordinate collective action that led, according to the participants, to Tuti's election as Champion of Disaster Risk Reduction. The award and the international recognition that followed the election have reinforced the diffuse sense of pride and belonging that characterizes the island, and this event is likely to provide a motivational factor for coping with new floods in the future.



Figure 3. Tayas in al Tawoon, Tuti island. Source: RUS team



Figure 4. Newly-built dams. Source: RUS team



Figure 5. A human chain is created to transport sandbags to the site selected for the new dam.
Source: RUS Team



Figure 6. Children filling up bags with sand. Source: RUS team

Conclusion

This study highlighted the analytical value of oral history as an interdisciplinary tool to study human-nature interaction, in this case flood resilience at community level. Not only can oral history provide us with novel details on events, phenomena and practices whose knowledge is non-existent or limited. Oral history can also stimulate reflections about meanings and interpretations that the narrators associate to these events and phenomena.

Recognizing the contribution of oral history to *knowledge* and *practice* as advocated by Williams and Riley (2018), this interdisciplinary study has given voice to local experts to produce and circulate novel knowledge about the environment in Tuti as well as the underresearched traditional practice of *tayas*. Most importantly, oral history allowed us to look beyond the traditional practice of *tayas* and disclose the importance of collective action for the research participants. This is an invaluable aspect of this study as it suggests the function of *tayas* as an agent of social cohesion, thus providing an excellent example of how traditional systems and their preservation can contribute to build a peaceful and sustainable future.

This study is preliminary and cannot draw indisputable conclusions. It presents two major limitations. Firstly, while the exclusive participation of elderly people guarantees invaluable insights into Tuti's social memory in all its components, it may also contribute to a myopic vision of Tuti's past and present. Secondly, the ethnic affiliation of the research participants must be also considered. Tuti's society has never been a monolithic, homogeneous entity based on the Mahas only, and changes in the demography of the island have been steady, especially after the construction of the bridge in 2009. The risk involved in such a circumscribed pool of research participants is the romanticization of Tuti's past to the detriment of an unbiased analysis of the present that could scale down not only the real impact of *tayas* in flood mitigation but also the spirit of unity and cooperation that is said to characterize the system. Further research is therefore needed to give voice to the new generations as well as the non-Mahas groups in the island.