CLIMATE STORYLINES FOR INCLUSIVE RESILIENCE PLANNING: EVIDENCE FROM DURBAN AND BEIRA

How communities in Durban and Beira combined climate information, lived experience and future visioning to identify locally grounded resilience pathways

Evidence from six informal settlement communities: Quarry Road West, Pholani and Tshelimnyama in Durban, and Mungassa, Alto da Manga and Ndunda in Beira

OVERVIEW

Climate information is essential, but projections alone do not explain what a changing climate will mean for households, communities, municipalities and other stakeholders. The Designing Inclusive African Coastal City Resilience (INACCT Resilience) project used Climate Storylines—also referred to in the project as climate risk narratives or physical climate storylines—to connect scientific information with lived experience and future-oriented decision-making to facilitate decision making and preparedness for resilience building to climate change in Durban and Beira (including related to tropical cyclones in Beira).

APPROACH TO CLIMATE STORYLINES

Residents from informal settlements in Durban and Beira participated in interactive Learning Labs where they worked through a structured matrix of Today–2030–2050 and Problems–Impacts–Solutions. The process made climate information relatable, surfaced different perceptions of risk, revealed cascading and differentiated impacts, and supported communities to identify immediate, incremental and transformational responses for responding to climate impacts. Climate Storylines helped INACCT move beyond communicating future climate change. They enabled communities, researchers and municipal actors to examine how climate hazards interact with settlement conditions, inequality, infrastructure, livelihoods and institutional response —and to identify choices that could shape more resilient futures.

1. WHY CLIMATE STORYLINES?

The INACCT Resilience project explores inclusive and equitable disaster risk reduction, climate adaptation and resilience in informal settlements in Durban, South Africa, and Beira, Mozambique. The work is grounded in informal settlements affected by major flooding—Cyclone Idai in Beira in 2019 and the April 2022 floods in Durban—and in the everyday, recurrent risks faced by residents in low-income and informal neighbourhoods.

Within INACCT, Climate Storylines were used as one of several participatory and co-production methods alongside Photovoice, playdough modelling and community-based risk mapping. Their distinctive role was to bring the future into present-day discussion: not by predicting one outcome, but by asking how plausible climatic conditions could interact with local exposure, vulnerability, infrastructure, governance and action (Shepherd et al., 2018; Sillmann et al., 2021; Shepherd & Lloyd, 2021).

A storyline is not a forecast. It is a plausible, conditional and place-based account of how climate, society and decisions may combine to shape future risk (Shepherd et al., 2018; Scott and Jack, 2017).

2. THE INACCT ANALYTICAL FRAMEWORK

INACCT treated Climate Storylines as a form of inclusive systems analysis. The exercise linked five connected dimensions: (McClure et al., 2024; Scott and Jack, 2017).

Climate hazard	Exposure	Differentiated vulnerability	Cascading consequences	Resilience choices
Heavy rainfall, flooding, strong winds, extreme heat, rainfall variability, sea-level and coastal influences	Homes beside rivers or in low-lying areas, unpaved roads, weak drainage, exposed infrastructure and livelihoods	Gendered care roles, disability, age, poverty, insecure tenure, limited mobility, weak services and uneven access to warnings	Housing loss, disrupted access, disease, livelihood loss, fires, food and water insecurity, psychosocial stress and unsafe evacuation	Drainage, waste management, early warning, resilient housing, ecological measures, health protection, livelihood shifts, upgrading and relocation

Analytical value
The method made visible the difference between a hazard and a disaster. A flood or heatwave does not affect everyone in the same way; its consequences depend on where people live, the condition of services and infrastructure, who can act on a warning, who carries care responsibilities, and whether institutions respond.

3. HOW THE PROCESS WORKED - A METHODOLOGICAL GUIDE FOR CLIMATE STORYLINES

The Climate Storyline sessions in both cities were facilitated around the same core structure, adapted to local context. Prof. Genito Maure of Eduardo Mondlane University led the climate-science framing and storyline process (Maure, 2025).

This section outlines the participatory methodology used during Learning Labs in Beira and Durban. The approach is designed in such a way it can be replicated elsewhere, helping to bridge the gap between commonly technical climate projections and local, actionable solutions.

Residents from six settlements across both Durban and Beira participated: Quarry Road West, Pholani and Tshelimnyama (Durban) and Mungassa, Alto da Manga and Ndunda (Beira).

3.1. THE LEARNING LAB FRAMEWORK

The foundation of the engagement is the “Learning Lab”, a collaborative workshop designed to integrate diverse forms of knowledge.

- **Objective:** To co-create detailed “Climate Physical Storylines” with community members to understand local climate risks and identify effective, locally-owned solutions.
- **Participants:** The session brings together a diverse group of stakeholders (of a city). In Beira, this included residents of specific at-risk neighbourhoods, defined by INACCT, members of local, gender-balanced Committees for Disaster Management, municipal officials, and civil society representatives. The inclusion of community members alongside decision-makers is crucial for co-production.

3.2. STEP-BY-STEP METHODOLOGY

The session follows a structured process to guide communities from discussing current problems to envisioning future solutions:

Step 1 - Presenting the climate scenarios

A facilitator begins with a "Climate physical storyline presentation" in plenary. This involves sharing high-level climate projections for future time horizons (e.g., 2030 and 2050). For this to be effective, technical biophysical information must be translated into accessible and relatable impact statements. To make climate projections relatable in Beira, a facilitator would start with real stories and images from events like Cyclone Idai, then explain in simple terms how future climate changes, like more intense floods (one could indicate the depth of the water using a proxy like a human body), higher temperatures, and rising sea levels will affect daily life in local neighbourhoods. By linking data to familiar places and everyday experiences, the facilitator helps the community understand and discuss how these changes could impact their lives and what they can do to adapt.

Step 2 - Forming breakout groups

Participants are divided into smaller "climate physical storyline breakout groups", ideally organised by neighbourhood or community affiliation (e.g., "committee members from the same committee"). This approach allows residents to discuss the specific context of their own area and fosters a more open exchange of ideas. Decision makers and other groups, if available, are put in a different group.

Step 3 - Structuring the narrative on flip charts

Each group is given large flip chart pages and a clear template to structure their discussion and capture their perspectives. This visual tool is critical for guiding the conversation. The template used was organised as a matrix:

- **Columns:** Defined by time periods: Today ("HOJE"), a medium-term future (for example, "2030"), and a long-term future (for example, "2050").
- **Rows:** Participants fill in the following for each time period:

1.Problems ("PROBLEMAS")
2.Impacts ("IMPACTOS")
3.Solutions ("SOLUÇÕES")

Step 4:

Plenary Reporting and Sharing After the breakout session, a representative from each group presents their completed flip chart and narrative to all attendees. This "plenary report" is a vital step for cross-community learning and allows for a broader discussion of the proposed ideas.

Key guiding principles:

1. Ground the discussion: Begin with observed weather changes, familiar places, recent floods and locally meaningful experiences.
2. Introduce climate information: Present relevant regional projections and plausible changes in accessible language, linking technical information to daily impacts.
3. Build neighbourhood narratives: Use breakout groups—often organised by settlement—to complete a Today–2030–2050 matrix covering problems, impacts and solutions.
4. Report and compare: Groups present their narratives in plenary, allowing different futures and assumptions to be discussed rather than forced into one consensus.
5. Translate into planning: Use findings to inform risk and resilience profiles, early-warning design, resilience pathways, municipal dialogue and the Gender-Responsive Coastal Cities Resilience Planning Framework.

4. EMPIRICAL FINDINGS FROM DURBAN

The Durban Learning Lab brought together residents from Quarry Road West, Pholani and Tshelimnyama informal settlements, municipal officials and civil-society actors. Learning Lab break out groups worked from present-day observations toward plausible 2030 and 2050 futures. Across the city, participants linked flooding with heat, erosion, waste, weak infrastructure, health impacts and livelihood pressure—but proposed notably different resilience trajectories. (Maure et al., 2018; Engelbrecht et al., 2025).

4.1 Quarry Road West: from practical risk reduction to existential risk

Two Quarry Road West groups produced related but distinct narratives. The first, the "Green Quarry Trailblazers", focused on recurrent and interconnected everyday problems: frequent flooding, blocked drains, illegal dumping, soil erosion and rising heat. Participants connected these conditions to repeated damage, loss of homes and jobs, poor sanitation and heat-related health effects (INACCT Resilience, 2025b).

- **Immediate and incremental responses:** community waste campaigns; clearing alien vegetation; planting indigenous vegetation; improving drainage; and strengthening community-based early warning.
- **A less visible impact:** participants highlighted cumulative mental and physical strain after repeated disasters, indicating that psychosocial recovery should be considered part of resilience planning rather than treated as separate from adaptation.
- The second Quarry Road West group imagined a more severe trajectory. Participants described more intense flooding, heatwaves and fragile infrastructure, and by 2050 foresaw the possibility that the settlement could be "washed away". They linked future risk to housing loss, worsening drought, fires associated with illegal electricity connections and chronic illness under extreme heat.
- **Transformational responses:** safe relocation to formal housing, solar energy, improved waste systems and cooling centres supported by trees and parks.
- **Analytical significance:** the group moved beyond strengthening coping capacity and questioned whether resilience in place would remain viable. Their narrative brought the limits of incremental adaptation into the discussion.

4.2 Pholani: everyday innovation and pragmatic resilience

Pholani participants focused on increasing temperatures, rainfall variability and erosion. Impacts included skin conditions, mosquito-borne disease, blocked access routes and water scarcity. Rather than describing one large intervention, the groups proposed a package of practical, locally manageable actions (INACCT Resilience, 2025b).

- Improved drainage and hygiene to reduce standing water and mosquito exposure.
- JoJo tanks and small dams to store water.
- Drought-tolerant crops and changes in food production.
- Solar systems and protective shading for plants and animals.
- Reusing materials and protecting vegetation as part of day-to-day adaptation.

Pholani's narrative shows how resilience is often built through distributed, everyday innovation. These actions may appear modest individually, but together they reduce exposure, protect health and livelihoods, and increase household flexibility under uncertain rainfall and heat.

4.3 Tshelimnyama: adaptation as an economic and ecological opportunity

Tshelimnyama participants identified extreme heat and changing rainfall patterns as central concerns. They linked these to reduced agricultural productivity, health challenges, biodiversity loss and higher living costs (INACCT Resilience, 2025b).

- Tree planting and vetiver grass for erosion control.
- Awareness campaigns and youth-led action.
- Environmentally friendly factories and greener forms of production.
- Tourism and environmental entrepreneurship as potential adaptive livelihood pathways.

This storyline was distinctive because it framed climate risk not only as a threat but also as a possible driver of local economic transition. It expanded adaptation from protection and preparedness to new livelihood and enterprise opportunities.

4.4 What the Durban narratives reveal

Settlement narrative	Dominant risk framing	Preferred response	Resilience trajectory
Quarry Road West – Group 1	Recurrent floods, waste, erosion and heat; cumulative losses	Drainage, waste campaigns, ecological restoration, early warning and psychosocial recovery	Strengthen resilience in place
Quarry Road West – Group 2	Existential risk and possible loss of the settlement	Relocation, formal housing, solar energy and cooling infrastructure	Transformational adaptation
Pholani	Everyday climate variability affecting health, access, water and livelihoods	Distributed household and community innovations	Pragmatic, incremental resilience
Tshelimnyama	Heat, ecological decline and livelihood pressure	Green enterprise, youth action and ecosystem measures	Economic and ecological transition

5. EMPIRICAL FINDINGS FROM BEIRA

The Beira Learning Lab brought together residents from Mungassa, Alto da Manga and Ndunda, including members of local disaster-management committees, municipal officials and civil-society actors. The three neighbourhoods shared a strong focus on flooding, erosion, drainage and damaged access, but constructed sharply different futures (Maure, 2025; INACCT Resilience, 2025a, 2025b).

5.1 Mungassa: a worsening trajectory

Mungassa participants identified flooding and strong winds as current problems, with waterborne disease, erosion and infrastructure destruction among the most serious impacts. Their 2030 and 2050 storyline anticipated an “increase for the worse” (aumento para o pior): deeper or more frequent flooding, more disease and greater loss of property and infrastructure. (Maure, 2025; INACCT Resilience, 2025a; 2025b).

- Improving drainage channels and access routes.
- Using stronger and better-quality construction materials.
- Planting protective trees, including casuarina and eucalyptus.
- Installing more flood and alarm sensors for early warning.
- Creating more employment and livelihood opportunities and strengthening awareness.

The group's pessimism was grounded in lived experience rather than a lack of agency. Their storyline implied that community action alone would be insufficient without sustained institutional support, infrastructure maintenance and investment.

5.2 Alto da Manga: a future shaped by visible improvement

Alto da Manga participants began with severe present-day impacts: flooding and erosion, inundated houses, outbreaks of waterborne disease, collapsing homes and destroyed access routes. Unlike Mungassa, however, the group envisioned flooding declining by 2030 and the problems being substantially overcome by 2050. (Maure, 2025; INACCT Resilience, 2025a).

- Opening and regularly cleaning drainage ditches.
- Preventing solid-waste disposal in drainage channels.
- Using warning tape and sandbags in dangerous locations.
- Requalifying or upgrading the neighbourhood.
- Lining and modernising drainage channels.

This optimism was linked to observed evidence that intervention could change outcomes. In the discussion, participants referred to drainage work around Rua Número 1, where standing water that previously remained for several days or up to a week reportedly cleared much faster after improvements. The group used this lived example to reason that cumulative action could reduce impacts further by 2030 and 2050 (INACCT Resilience, 2025b).

> *"We have no right or wrong; it is how we envision. It is our vision that it will happen."* - ***Alto da Manga Community Representative***

5.3 Ndunda: conditional resilience and the importance of memory

Ndunda participants identified high water and flooding, blocked access routes and destroyed houses as continuing challenges. Their future was neither clearly optimistic nor pessimistic: conditions could improve or deteriorate depending on the behaviour of exposed people, the continuity of interventions and the effectiveness of collective action. (Maure, 2025; INACCT Resilience, 2025a).

- Continuous cleaning and concrete reinforcement of drainage channels.
- Improving access roads through embankments, grading and better drainage.
- Constructing retention basins.
- Building resilient housing.
- Recording and sharing local disaster histories so future generations recognise unsafe places.

Ndunda's discussion made intergenerational risk memory an explicit adaptation strategy. Participants imagined future children and grandchildren hearing where houses had collapsed or people had died, so that inherited knowledge would influence settlement, preparedness and evacuation decisions. (INACCT Resilience, 2025b; Marchezini et al., 2017).

> *"Our children... can hear the story: in this place where you are building, your grandfather died there because the house collapsed."* - ***Ndunda Community Representative***

5.4 What the Beira narratives reveal

Neighbourhood	Future outlook	Key enabling condition	Dominant action logic
Mungassa	Worsening conditions	Sustained external and	Build stronger systems and
Alto da Manga	Progressive improvement	Maintenance, upgrading and	Reduce risk through practical
Ndunda	Conditional future	Behaviour, continuity and	Combine structural

Overall, five headline findings emerged:

- **Communities have strong foresight capacity.** When information was accessible and facilitation was inclusive, all groups articulated clear visions of 2030 and 2050 climate scenarios and impacts.
- **Hazards produce different futures.** Flooding, heat, erosion and weak drainage were widely shared, but perceptions of agency, institutional support and the reversibility of risk differed sharply.
- **Everyday development conditions shape climate risk.** Drainage, waste management, housing, roads, sanitation, health services and livelihoods were repeatedly noted as mediating whether hazards became disasters.
- **Resilience requires diverse and interacted actions.** Participants combined infrastructure, ecosystem-based measures, early warning, health protection, livelihood adaptation, community mobilisation and, in some cases, relocation as key measures for resilience building.
- **Memory is part of resilience infrastructure.** Beira participants emphasised preserving stories of past disaster so future generations recognise unsafe places and act before harm occurs.

6. CROSS-CITY ANALYSIS: SHARED HAZARDS, DIFFERENT RESILIENCE PATHWAYS

A key aspect of storylines is the assumptions and relationships they reveal. The six settlement narratives show common pressures alongside different interpretations of what can change, who must act and whether risk can be reduced in place. (Harris et al., 2018; Ziervogel et al., 2017).

Drainage as foundational resilience. All Beira groups and several Durban groups prioritised drainage. In Beira the emphasis was strongly on opening, cleaning, lining and reinforcing channels and improving roads. In Durban, drainage was more often linked to waste management, vegetation and community early warning.

Risk is produced through development conditions. Flooding became most damaging where drainage was blocked or absent, roads were inaccessible, homes were fragile, waste accumulated, health services were weak and livelihoods lacked buffers. Adaptation and development were therefore inseparable. Foresight is already present at community level. Participants did not need to be technical experts to discuss 2030 and 2050. They combined observation, memory, practical knowledge and aspirations to form coherent conditional futures.

Optimism and pessimism are analytical data. Mungassa's worsening future, Alto da Manga's confidence in improvement, Ndunda's conditional future and Quarry Road West's existential concern reveal different levels of trust, agency, experience and perceived institutional capacity.

Incremental and transformational adaptation coexist. Drain cleaning, sandbags, water storage and tree planting sit alongside settlement upgrading, formal housing and relocation. The method helped expose when strengthening current systems may be insufficient.

Resilience is social as well as physical. Awareness, youth leadership, disaster committees, psychosocial recovery, livelihood options and intergenerational memory appeared alongside infrastructure and technology.

7. A TYPOLOGY OF ACTIONS EMERGING FROM THE SESSIONS

Action category	Empirical examples	What it contributes
Infrastructure and services	Drainage channels, retention basins, access roads, resilient housing, neighbourhood upgrading	Reduces exposure and service failure
Maintenance and risk reduction	Drain cleaning, waste campaigns, erosion control, danger marking and sandbags	Prevents manageable hazards from escalating
Early warning and preparedness	Sensors, alarms, community warning, local committees and evacuation knowledge	Turns risk knowledge into anticipatory action
Ecosystem-based measures	Indigenous vegetation, casuarina, eucalyptus, vetiver grass, clearing invasive plants	Stabilises land, moderates heat and supports drainage
Health and social protection	Mosquito control, hygiene, cooling centres, safer shelter considerations and psychosocial recovery	Addresses differentiated and cascading impacts
Livelihood adaptation	Drought-tolerant crops, green factories, tourism, environmental enterprise and employment	Builds economic flexibility and reduces vulnerability
Transformational measures	Formal housing, solar-supported upgrading and planned relocation	Changes the conditions that generate intolerable exposure
Knowledge and memory	Written stories, images of past disasters, local indicators and cross-community learning	Sustains risk awareness across generations

8. GENDER, DISABILITY AND INCLUSION

The storyline method creates space for differentiated experiences to emerge, but inclusive findings are not automatic. They depend on participant selection, facilitation, language, group dynamics and explicit prompts. The wider Beira evidence illustrates why this matters. In Ndunda, flood risk intersects with single motherhood, disability, care responsibilities, livelihood insecurity, unsafe access and risks within unofficial shelters. Local disaster committees include women in operational roles, including search and rescue, and volunteers identify residents who may require additional assistance. These realities should be brought deliberately into storyline questions about warning, evacuation and recovery. (INACCT Resilience, 2025c).

Inclusion prompts for future sessions
Who receives a warning? Who can act on it? Who is responsible for children, older people or people with disabilities? Who can evacuate independently? Who controls household resources? Who is safe in shelters? Whose livelihood is interrupted? Whose knowledge is heard in planning?

The available storyline records do not provide systematic gender-disaggregated findings for every group. The strongest defensible conclusion is therefore that the method offers an important entry point for intersectional analysis, but future applications should include explicit GESI prompts and more systematic recording of who contributes which insights.

9. LINKING STORYLINES TO EARLY WARNING, DRR, ADAPTATION AND RESILIENCE

Climate Storylines help connect short-term disaster preparedness with longer-term adaptation. They ask not only whether an extreme event may occur, but how a warning would travel, who could act, what barriers would prevent action, what cascading impacts would follow and which investments could reduce future exposure. (Hazeleger et al., 2015; Sillmann et al., 2021).

- **Anticipate:** combine projections, observed changes, local signs and historical experience.
- Prepare: identify vulnerable people, routes, shelters, roles, equipment and communication channels.
- **Warn:** define locally meaningful indicators, sensors, thresholds and trusted messengers.
- **Respond:** consider mobility constraints, health needs, rescue capacity and institutional coordination.
- **Recover:** address housing, livelihoods, health, psychosocial strain and repeated losses.
- **Adapt:** improve drainage and services, upgrade settlements, restore ecosystems or relocate where risks become intolerable.

Key connection
Storylines generate a locally grounded risk narrative. Community-based flood early warning systems translate part of that knowledge into operational monitoring, communication and action. Together they connect climate science, lived experience, preparedness and longer-term resilience planning.

10. WHAT THE METHOD CAN—AND CANNOT—DO

Climate Storylines can	Climate Storylines cannot
Make climate information relatable and place-based	Predict exactly what will happen
Bring scientific, local and experiential knowledge into one discussion	Replace quantitative climate modelling or engineering analysis
Reveal cascading and differentiated impacts	Assign probabilities to a future storyline
Expose assumptions, disagreements and contrasting futures	Automatically generate consensus
Identify locally meaningful actions and resilience pathways	Guarantee that proposed actions are feasible or funded
Support dialogue between communities and institutions	Substitute for implementation planning and accountability

11. LESSONS FOR PRACTITIONERS AND CITY GOVERNMENTS

Start with a recognisable event or place. Familiar floods, drainage points, roads and household experiences make future climate information understandable.

Translate climate science without removing uncertainty. Use clear impact statements and visuals, while explaining that storylines are plausible and conditional rather than predictions.

Keep multiple futures visible. Do not collapse contrasting narratives into artificial consensus; differences reveal perceived agency, trust and institutional capacity.

Use explicit inclusion prompts. Ask how gender, age, disability, care, livelihood and location shape the ability to anticipate, evacuate, recover and adapt.

Separate community actions from actions requiring institutional authority. This clarifies responsibility and prevents local participation from becoming a substitute for municipal investment.

Distinguish incremental from transformational options. Identify where maintenance and preparedness are sufficient and where upgrading, land-use change or relocation may be required.
Create a route to uptake. Link outputs to risk profiles, early-warning protocols, settlement plans, municipal budgets, resilience pathways and follow-up accountability.

Return the findings to participants. Co-owned outputs should be translated, validated and used in future cross-community and city learning.

Principles for process reproduction

- **Value all knowledge:** Create an environment that deliberately subverts traditional knowledge hierarchies. For example, remove all titles of the personnel involved in the discussions. Actively encourage community members to share their local and experiential knowledge, ensuring it is valued equally alongside technical or expert opinions.
- **Be gender-responsive:** Intentionally encourage conversations about how climate events and their aftermath uniquely affect women and men. This includes discussing risks in post-disaster shelters and the importance of elevating women into leadership roles.
- **Create tangible, co-owned outputs:** The use of flip charts provides a physical, co-created record of the community's insights. This tangible output is empowering for participants and serves as a foundational document for subsequent analysis and strategic planning.

12. CONCLUSION

INACCT's use of Climate Storylines helped to strengthen risk interpretations, disaster memory and practical and strategic foresight amongst key stakeholders in each city. Across Durban and Beira, the exercises revealed shared hazards but different resilience trajectories: such as strengthening resilience in place, relying on everyday innovation, pursuing green livelihood transitions, improving infrastructure and maintenance, or considering relocation where exposure may become intolerable.

A key project contribution is the use of Climate Storylines as a co-produced form of systems analysis and inclusive foresight—connecting climate, development, inequality, local agency and institutional choices to the decisions that shape future resilience.

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REFERENCES

Engelbrecht, F. A., Steinkopf, J., Chang, N., Biskop, S., Malherbe, J., Engelbrecht, C. J., Grab, S., le Roux, A., Vogel, C., Padavatan, J., Thatcher, M., & McGregor, J. L. (2025). Extreme event attribution using km-scale simulations reveals the pronounced role of climate change in the Durban floods. Communications Earth & Environment, 6, Article 506. https://doi.org/10.1038/s43247-025-02460-5

Harris, L. M., Chu, E. K., & Ziervogel, G. (2018). Negotiated resilience. Resilience, 6(3), 196–214. https://doi.org/10.1080/21693293.2017.1353196

Hazeleger, W., van den Hurk, B. J. J. M., Min, E., van Oldenborgh, G. J., Petersen, A. C., Stainforth, D. A., Vasileiadou, E., & Smith, L. A. (2015). Tales of future weather. Nature Climate Change, 5, 107–113. https://doi.org/10.1038/nclimate2450

INACCT Resilience. (2025a). Learning Lab discussion: Climate storylines plenary reporting, Beira, 27 March 2025 [Unpublished project workshop transcript].

INACCT Resilience. (2025b). Learning Lab climate storylines: Ndunda, 27 March 2025 [Unpublished project workshop transcript].

INACCT Resilience. (2025c). Reaching the last mile at the frontlines of climate change: The case of Beira, Mozambique [Project blog post].

Marchezini, V., Trajber, R., Olivato, D., Muñoz, V. A., de Oliveira Pereira, F., & Oliveira Luz, A. E. (2017). Participatory early warning systems: Youth, citizen science, and intergenerational dialogues on disaster risk reduction in Brazil. International Journal of Disaster Risk Science, 8(4), 390–401. https://doi.org/10.1007/s13753-017-0150-9

Maure, G. A. (2025). Community-led climate adaptation in Beira: A guide and results from the "Climate Physical Storylines" approach [INACCT Beira Learning Lab II report]. INACCT Resilience.

Maúre, G., Pinto, I., Ndebele-Murisa, M. R., Muthige, M., Lennard, C., Nikulin, G., Dosio, A., & Meque, A. (2018). The southern African climate under 1.5°C and 2°C of global warming as simulated by CORDEX regional climate models. Environmental Research Letters, 13(6), 065002. https://doi.org/10.1088/1748-9326/aab190

McClure, A., Daron, J., Bharwani, S., Jones, R., Grobusch, L. C., Kavonic, J., Janes, T., Zhang, M., Hill, E., & Mzime, M. (2024). Principles for co-producing climate services: Practical insights from FRACTAL. Climate Services, 34, 100492. https://doi.org/10.1016/j.cliser.2024.100492

Scott, D., & Jack, C. (2017, February 22). Telling stories: A multi-disciplinary co-production device? Climate System Analysis Group, University of Cape Town. https://www.csag.uct.ac.za/2017/02/22/stories-a-multi-disciplinary-co-production-device/

Shepherd, T. G., Boyd, E., Calel, R. A., Chapman, S. C., Dessai, S., Dima-West, I. M., Fowler, H. J., James, R., Maraun, D., Martius, O., Senior, C. A., Sobel, A. H., Stainforth, D. A., Tett, S. F. B., Trenberth, K. E., van den Hurk, B. J. J. M., Watkins, N. W., Wilby, R. L., & Zenghelis, D. A. (2018). Storylines: An alternative approach to representing uncertainty in physical aspects of climate change. Climatic Change, 151, 555–571. https://doi.org/10.1007/s10584-018-2317-9

Shepherd, T. G., & Lloyd, E. A. (2021). Meaningful climate science. Climatic Change, 169, Article 17. https://doi.org/10.1007/s10584-021-03246-2

Sillmann, J., Shepherd, T. G., van den Hurk, B., Hazeleger, W., Martius, O., Slingo, J., & Zscheischler, J. (2021). Event-based storylines to address climate risk. Earth's Future, 9(2), e2020EF001783. https://doi.org/10.1029/2020EF001783

Ziervogel, G., Pelling, M., Cartwright, A., Chu, E., Deshpande, T., Harris, L., Hyams, K., Kaunda, J., Klaus, B., Michael, K., Pasquini, L., Pharoah, R., Rodina, L., Scott, D., & Zweig, P. (2017). Inserting rights and justice into urban resilience: A focus on everyday risk. Environment and Urbanization, 29(1), 123–138. https://doi.org/10.1177/0956247816686905

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