

Appendix

Adapting to Climate Change in Small Island Developing States: A Systematic Literature Review

1. Document selection

We first searched for potentially relevant articles on ISI Web of Science Core Collection available as of August 2017 using the following search string in the field “topic”:

(climat* chang* OR global warming) AND (adapt* OR resilien* OR cope OR coping) AND (Antigua OR Barbuda OR Bahamas OR Bahrain OR Barbados OR Belize OR 'Cabo Verde' OR 'Cape Verde' OR Comoros OR Cuba OR Dominica OR Micronesia OR Fiji OR Grenada OR 'Guinea-Bissau' OR Guyana OR Haiti OR Jamaica OR Kiribati OR Maldives OR 'Marshall Islands' OR Mauritius OR Micronesia OR Nauru OR Palau OR Papua OR Guinea OR Samoa OR 'Sao Tome' OR Principe OR Seychelles OR Singapore OR Solomon OR Kitts OR Nevis OR Lucia OR Vincent OR Grenadines OR Suriname OR 'Timor-Leste' OR 'East Timor' OR Tonga OR Trinidad OR Tobago OR Tuvalu OR Vanuatu OR Anguilla OR Montserrat OR 'Puerto Rico' OR Aruba OR Bermuda OR 'Virgin Islands' OR Cayman OR Marianas OR Cook OR Curacao OR Polynesia OR Guadeloupe OR Guam OR Martinique OR Caledonia OR Niue OR 'Sint Maarten' OR Turks OR Caicos OR Caribbean OR Pacific OR Ocean* OR Melanesia OR Antilles OR SIDS)

NOT (penguin OR urchin OR *Arctic OR salmon* OR benthic OR *plankton OR paleo* OR larva* OR cod OR microb* OR *cene OR thermal OR alga* OR pheno* OR symbio*)

We included only articles published between 2000 and 2016. This search yielded a list of 1,513 articles. We then used the following guidelines (Ford *et al.*, 2015) to select the documents to be used in the content analysis.

inclusion	exclusion
– countries/territories on UN list of SIDS	– countries/territories not on UN list of SIDS
– human adaptations to climate change	– animal/biological adaptation to climate change
– study of concrete adaptation action (including policy)	– study of perceptions, assessments of vulnerability/adaptive capacity or only recommendations for future adaptation
– empirical focus	– conceptual/theoretical focus
– enough detail for analysis	– too little detail for analysis

Table A-1: inclusion and exclusion criteria. Based on Ford *et al.* (2015).

In a first step, we eliminated all articles that did not fulfill our inclusion criteria based on their title and/or abstract. We eliminated 1,326 articles at this stage, mainly articles that focused on natural adaptation processes and/or areas that are not SIDS, such as the Pacific Northwest. We downloaded the remaining 187 articles for a full-text screening.

Inclusion criteria

Articles were retained if the full text included substantive reporting or discussion of a human adaptation intervention that purposefully responded to the impacts of current or expected climate variability and change with the aim of reducing vulnerability (see Eisenack & Stecker, 2012).

Exclusion criteria

We excluded articles that did not narrowly focus on concrete adaptation interventions or lacked detail for further analysis. The following list details our exclusion criteria and provides examples of articles for each category that we did not select for further analysis.

- *conceptual or theoretical focus*: Articles that are of a conceptual or theoretical nature, for instance articles that presented frameworks, or typologies of adaptation. Articles that review or comment on adaptation and/or vulnerability at a general level or with regard to a specific dimension (such as the role of aid) but lack detail of concrete adaptation interventions (e.g. Kelman, 2010; Popke *et al.*, 2016).
- *vulnerability/resilience/adaptive capacity assessments*: Articles that assess vulnerability and adaptive capacity of particular groups or systems to climate variability and change (e.g. Hogarth & Wojcik, 2016) – except in cases where such assessment were explicitly part of an adaptation strategy and not of a purely scientific nature. This category also includes articles that assess how current practices or policies are conducive to climate change adaptation (e.g. Klint *et al.*, 2012; Wong *et al.*, 2013).
- *perceptions and future adaptation*: Articles that survey stakeholder perceptions of climate change impacts and of (potential) adaptation interventions. Articles that recommend specific adaptation strategies or examine potential future adaptation strategies (e.g. Johnston, 2014; Webb *et al.*, 2015).
- *sustainability or resilience focus*: Articles that focus on resilience, sustainability or disasters not related to climate change such as earthquakes and tsunamis. Articles that deal with (responses to) environmental change in a broad sense but do not specifically discuss responses to climate variability and change (e.g. Abrahams, 2014; Hardy *et al.*, 2016).
- *too little detail*: Articles that mention adaptation interventions in SIDS but that lack detail for analysis, for instance because these adaptation interventions are only very brief and used to illustrate a framework or typology (e.g. Agrawala, 2004; Mercer *et al.*, 2012).
- *other*: Articles that have been excluded for other reasons, for instance articles that report responses of natural systems to climate variability and change (Goulding *et al.*, 2016); articles that are not research articles but for instance a comment on another article or an interview (Gorry *et al.*, 2015); or articles that report the same research as another article (Hiwasaki *et al.*, 2015; Hiwasaki *et al.*, 2014).

Figure A.1 visually displays our document selection process, including how many articles were eliminated at each stage, while Table A.1 lists the 53 articles we retained for analysis.

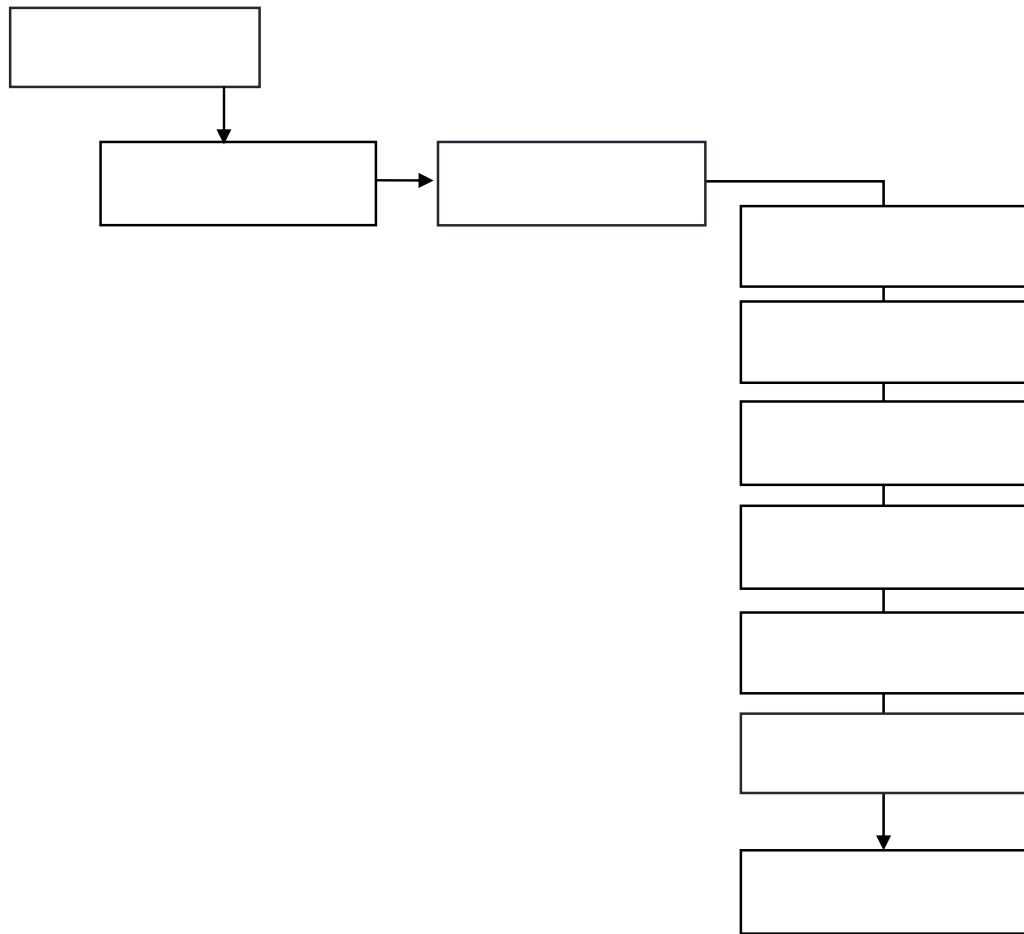


figure A.1: overview of document selection

ID	author(s)	year	journal	title
1	Becken, S.	2005	<i>Global Environmental Change</i>	Harmonising Climate Change Adaptation and Mitigation: The Case of Tourist Resorts in Fiji
2	Becken, S. et al.	2014	<i>Natural Hazards</i>	The Tourism Disaster Vulnerability Framework: An Application to Tourism in Small Island Destinations
3	Béné, C. et al.	2016	<i>Global Environmental Change</i>	Is Resilience Socially Constructed? Empirical Evidence from Fiji, Ghana, Sri Lanka, and Vietnam
4	Bhullar, L.	2013	<i>Sustainable Development</i>	Climate Change Adaptation and Water Policy: Lessons From Singapore
5	Birk, T. and K. Rasmussen	2014	<i>Natural Resources Forum</i>	Migration from Atolls as Climate Change Adaptation: Current Practices, Barriers and Options in Solomon Islands
6	Bridges, K.W. and W.C. McClatchey	2009	<i>Global Environmental Change</i>	Living on the Margin: Ethnoecological Insights from Marshall Islanders at Rongelap Atoll
7	Butler, J. et al.	2015	<i>Coastal Management</i>	Integrating Top-Down and Bottom-Up Adaptation Planning to Build Adaptive Capacity: A Structured Learning Approach
8	Cambers, G.	2009	<i>Aquatic Ecosystem Health & Management</i>	Caribbean Beach Changes and Climate Change Adaptation
9	Campbell, D. et al.	2011	<i>Applied Geography</i>	Dealing with Drought: Small Farmers and Environmental Hazards in Southern St. Elizabeth, Jamaica
10	Chandra, A. and P. Gaganis	2016	<i>Climate and Development</i>	Deconstructing Vulnerability and Adaptation in a Coastal River Basin Ecosystem: A Participatory Analysis of Flood Risk in Nadi, Fiji Islands
11	Chandra, A. et al.	2016	<i>Sustainability Science</i>	How Might Adaptation to Climate Change by Smallholder Farming Communities Contribute to Climate Change Mitigation Outcomes? A Case Study from Timor-Leste, Southeast Asia
12	Chong, J.	2014	<i>International Environmental Agreements: Politics, Law and Economics</i>	Ecosystem-Based Approaches to Climate Changeadaptation: Progress and Challenges
13	da Costa, M. et al.	2013	<i>Food Security</i>	Household Food Insecurity in Timor-Leste
14	Donner, S. and S. Webber	2014	<i>Sustainability Science</i>	Obstacles to Climate Change Adaptation Decisions: A Case Study of Sea-Level Rise and Coastal Protection Measures in Kiribati
15	Dumaru, P.	2010	<i>WIREs Climate Change</i>	Community-Based Adaptation: Enhancing Community Adaptive Capacity in Druadrua Island, Fiji
16	Eakin, H. et al.	2015	<i>Climate and Development</i>	Information and Communication Technologies and Climate Change Adaptation in Latin America and The Caribbean: A Framework for Action
17	Forster, J. et al.	2014	<i>Marine Policy</i>	Marine Dependent Livelihoods and Resilience to Environmental Change: A Case Study of Anguilla
18	Frankland, R. et al.	2012	<i>Institution of Civil Engineers Proceedings</i>	Climate Change Adaptation in a Small Pacific Island Nation

19	Gero, A. et al.	2011	<i>Natural Hazards and Earth System Sciences</i>	Integrating Community Based Disaster Risk Reduction and Climate Change Adaptation: Examples from the Pacific
20	Grove, K.	2012	<i>Security Dialogue</i>	Preempting the Next Disaster: Catastrophe Insurance and the Financialization of Disaster Management
21	Grove, K.	2014	<i>Antipode</i>	Adaptation Machines and the Parasitic Politics of Life in Jamaica and Disaster Resilience
22	Hay, J. and N. Mimura	2006	<i>Sustainability Science</i>	Supporting Climate Change Vulnerability and Adaptation Assessments in the Asia-Pacific Region: An Example of Sustainability Science
23	Hickey, C. and T. Weis	2012	<i>Climate and Development</i>	The Challenge of Climate Change Adaptation in Guyana
24	Hiwasaki, L. et al.	2014	<i>International Journal of Disaster Risk Reduction</i>	Process for Integrating Local and Indigenous Knowledge With Science for Hydro-Meteorological Disaster Risk Reduction and Climate Change Adaptation in Coastal and Small Island Communities
25	Karlsson, M. and G. Hovelsrud	2015	<i>Global Environmental Change</i>	Local Collective Action: Adaptation to Coastal Erosion in the Monkey River Village, Belize
26	Khan, A. and A. Vincent	2015	<i>Regional Environment Change</i>	Assessing Climate Change Readiness in Seychelles: Implications for Ecosystem-Based Adaptation Mainstreaming and Marine Spatial Planning
27	Kuruppu, N.	2009	<i>Environmental Science & Policy</i>	Adapting Water Resources to Climate Change in Kiribati: The Importance of Cultural Values and Meanings
28	Lashley, J. and K. Warner	2015	<i>Climatic Change</i>	Evidence of Demand for Microinsurance for Coping and Adaptation to Weather Extremes in the Caribbean
29	Lazrus, H.	2015	<i>Human Organization</i>	Risk Perception and Climate Adaptation in Tuvalu: A Combined Cultural Theory and Traditional Knowledge Approach
30	Leon, J.X. et al.	2015	<i>Coastal Management</i>	Supporting Local and Traditional Knowledge with Science for Adaptation to Climate Change: Lessons Learned from Participatory Three-Dimensional Modeling in BoeBoe, Solomon Islands
31	Linnekamp, F. et al.	2011	<i>Habitat International</i>	Household vulnerability to Climate Change: Examining Perceptions of Households of Flood Risks in Georgetown and Paramaribo
32	López-Marrero, T.	2010	<i>The Geographic Journal</i>	An Integrative Approach to Study and Promote Natural Hazards Adaptive Capacity: A Case Study of Two Flood-prone Communities in Puerto Rico
33	Lynch, A.H. and R. Brunner	2010	<i>Water, Climate and Society</i>	Learning from Climate Variability: Adaptive Governance and the Pacific ENSO Applications Center
34	Magee, A. D. et al.	2016	<i>Natural Hazards and Earth System Sciences</i>	Tropical Cyclone Perceptions, Impacts and Adaptation in the Southwest Pacific: An Urban Perspective from Fiji, Vanuatu and Tonga
35	Marino, E. and H. Lazrus	2015	<i>Human Organization</i>	Migration or Forced Displacement? The Complex Choices of Climate Change and Disaster Migrants in Shishmaref, Alaska, and Nanumea, Tuvalu

36	McCubbin, S. et al.	2015	<i>Global Environmental Change</i>	Where does Climate Fit? Vulnerability to Climate Change in the Context of Multiple Stressors in Funafuti, Tuvalu
37	McIver, L. et al.	2016	<i>Environmental Health Perspectives</i>	Health Impacts of Climate Change in Pacific Island Countries: A Regional Assessment of Vulnerabilities and Adaptation Priorities
38	McNamara, K. and S.S. Prasad	2014	<i>Climatic Change</i>	Coping with Extreme Weather: Communities in Fiji and Vanuatu Share Their Experiences and Knowledge
39	McNamara, K. and H. Jacot Des Combes	2015	<i>International Journal of Disaster Risk Science</i>	Planning for Community Relocations Due to Climate Change in Fiji
40	Mercer, J.	2010	<i>Journal of International Development</i>	Disaster Risk Reduction or Climate Change Adaptation: Are We Reinventing the Wheel?
41	Monnereau, I. and S. Abraham	2013	<i>International Journal of Global Warming</i>	Limits to Autonomous Adaptation in Response to Coastal Erosion in Kosrae, Micronesia
42	Mycoo, M. and A. Chadwick	2012	<i>Proceedings of the Institution of Civil Engineers</i>	Adaptation to Climate Change: The Coastal Zone of Barbados
43	Okano, D. et al.	2015	<i>Coastal Management</i>	Climate Adaptation Planning in the Northern Mariana Islands: Adapting Guidance for a Locally Appropriate Approach
44	Rasmussen, K. et al.	2009	<i>Geografisk Tidsskrift-Danish Journal of Geography</i>	Climate Change on Three Polynesian Outliers in the Solomon Islands: Impacts, Vulnerability and Adaptation
45	Ratter, B. et al.	2016	<i>Natural Resources Forum</i>	Considering the Locals: Coastal Construction and Destruction in Times of Climate Change on Anjouan, Comoros
46	Remling, E. and J. Veyataki	2016	<i>International Journal of Climate Change Strategies and Management</i>	Community-based Action in Fiji's Gau Island: A Model for the Pacific?
47	Riyaz, M. and K. Park	2011	<i>Journal of Earthquake and Tsunami</i>	"Safer Island Concept" Developed After the 2004 Indian Ocean Tsunami: A Case Study of Maldives
48	Sovacool, B. K.	2011	<i>Climate Policy</i>	Hard and Soft Paths for Climate Change Adaptation
49	Suarez, P. et al.	2008	<i>IDS Bulletin</i>	Video-Mediated Approaches for Community-Level Climate Adaptation
50	Tompkins, E. L. et al.	2008	<i>Global Environmental Change</i>	A Less Disastrous Disaster: Managing Response to Climate-driven Hazards in the Cayman Islands and NE Brazil
51	Tompkins, E. L. et al.	2009	<i>Environmental Hazards</i>	Foreignness as a Constraint on Learning: The Impact of Migrants on Disaster Resilience in Small Islands
52	Webber, S.	2015	<i>Geographic Research</i>	Mobile Adaptation and Sticky Experiments: Circulating Best Practices and Lessons Learned in Climate Change Adaptation
53	Wongbusarakum, S. et al.	2015	<i>Coastal Management</i>	The Local Early Action Planning (LEAP) Tool: Enhancing Community-Based Planning for a Changing Climate

Table A-2: Articles included in analysis

2. Codebook

bibliographic and author information	<ul style="list-style-type: none"> – name(s) of all author(s); – article title; – year of publication; – journal name; – discipline of journal (as per Thomson Reuter’s InCites Journal Citation Report)
information on the adaptation intervention(s)	<ul style="list-style-type: none"> – description of adaptation; – country(ies) of focus; – island(s) or region(s) within the country, if applicable; – peripherality of the location(s) (core; core/near-core; near-core; near-core/periphery; periphery), if applicable; – climate change impact(s).
success of the adaptation intervention(s)	<ul style="list-style-type: none"> – is the adaptation intervention deemed successful? – is the evaluation of success implicit or explicit? – any barrier, difficulty or problem related to implementing the adaptation intervention; – any enabling factor, opportunity or advantage related to implementing the adaptation intervention.
additional remarks	<ul style="list-style-type: none"> – any additional remarks or comments.

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