

Potential of Nature-Based Solutions to Mitigate Hydro-Meteorological Risks in Sub-Saharan Africa: A Systematic Review

Supplementary Materials

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Supplementary Table 1. List of databases and websites used for literature searches and respective search strategy.

Database or website	Search strategy
adelphi	Filter by region (Africa) AND topic (climate)
CARE Climate Change	Filter by topic (disaster risk & humanitarian action OR ecosystems & nature-based solutions) AND country (SSA countries)
Cities with Nature	(Green infrastructure OR Nature-based solution) AND (stormwater OR flood)
CRiSTAL	Filter by region (SSA countries)
Equator Initiative	Flood OR drought OR extreme heat AND (sub-Saharan Africa) AND urban
Global Adaptation Network	Filter by region (Africa) AND topic (climate change OR disasters & conflicts OR ecosystems & biodiversity)
Global Environment Facility	Filter by region (Africa) AND focal area (climate change)
Global Landscapes Forum	(Green infrastructure OR Nature-based solution) AND (stormwater OR flood)
Global Programme for NBS for Climate Resilience	Filter by region (sub-Saharan Africa) AND hazard addressed (urban flooding, coastal flooding, river flooding, drought)
Global Reference on the Environment, Energy, and Natural Resources Database (GREENR)	(Green infrastructure OR Nature-based solution) AND (stormwater OR flood OR extreme heat) AND (sub-Saharan Africa)

Database or website	Search strategy
Google Scholar	("Nature-based solutions" OR "green infrastructure" OR "ecosystem services") AND (hydro-meteorological risk OR "flood" OR stormwater OR runoff OR extreme heat OR drought) AND ("urban OR urbanization) AND (sub-Saharan Africa)
International Climate Initiative (IKI)	Filter by topic (Conservation sustainable use and restoration of natural carbon sinks without relevance for REDD+ OR Reduction of loss rate, degradation and fragmentation of ecosystems/areas OR Sustainable use of ecosystems/areas OR Sustainable urban development/urbanization OR Ecosystem-based adaptation (including adapted water and land management) OR REDD+ forest- and landscape restoration OR Restoration of ecosystems) AND countries (sub-Saharan African countries)
International Union of the Conservation of Nature	Keyword=Green infrastructure OR Natural infrastructure OR Ecosystem services OR Nature-based solution OR Ecosystem based adaptation OR LID OR BMP AND Keyword=stormwater OR flood LIMITS: Content Type="Academic Journals" Or "Case Studies" Or "Primary Sources" Or "Conf Presentations" AND Document Type=Annual Report Or Article Or Brief Article Or Case Study Or Conference Notes Or Government Document Or Product/Service Evaluation Or Report Or Technical Report
Local Governments for Sustainability (ICLEI) Africa	Filter by pathway (nature-based development) AND workstream (nature-based solutions)
Nature4Climate	Filter by region (SSA countries) AND location (urban)
NBS Initiatives	Filter by region (sub-Saharan Africa) AND Climate change impacts addressed (flooding, extreme heat, drought) AND intervention type (protection, restoration)
Oppla	Filter by type (NBS project case study)
PANORAMA	West and Central Africa East AND South Africa OR Green roofs OR Green walls OR Green spaces OR parks OR gardens OR urban forests) AND Disaster risk reduction AND Ecosystem services AND Drought AND Erratic rainfall AND Extreme heat AND Floods AND Increasing temperatures
PEDRR	Urban OR other OR Ecosystem-based Adaptation OR Ecosystem-Disaster Risk Reduction OR Nature-based Solution AND Disaster Risk Reduction AND Climate change adaptation AND Urban green infrastructure AND Africa AND Floods AND Droughts AND extreme heat
PreventionWeb	Filter by theme (disaster risk management) AND hazard (flood, drought, heat wave) AND region (Africa)
Proquest Dissertations & Theses Global	su("Green infrastructure*" OR "Natural infrastructure" OR "Ecological service*" OR "Ecosystem service*" OR "Nature based solution*" OR "Ecosystem based adaptation" OR "green space*" OR "greenspace*" OR "natural area*" OR "low impact development*" OR "low impact infrastructure" OR "best management practice*" OR "rain garden*" OR raingarden* OR "green roof*" OR "blue roof*" OR "permeable pavement*" OR "bioswale*" OR "greenstreet*"OR streetscape* OR cistern* OR "rain barrel*" OR "French drain*" OR "dry well*" OR "urban waterway*" OR "urban wetland*" OR "urban constructed wetland*" OR "urban riparian corridor*") AND su(stormwater OR "storm water" OR "rainwater runoff" OR "Urban runoff" OR "surface runoff" OR rain* OR precipitation OR downpour OR waterlogging OR "water logging" OR flood*) AND (urbanization OR urban growth OR urban planning OR spatial planning OR land-use change) AND (climate change OR climatic extremes OR hydro-climatic extremes OR hydro-meteorological risks OR climate impacts OR extreme events OR extreme heat OR extreme rainfall OR heat mitigation OR cooling OR rainwater runoff OR stormwater OR surface runoff) AND (sub-Saharan Africa)

Database or website	Search strategy
Science Direct	(Nature-based solutions OR natural infrastructure OR river protection OR river conservation OR river restoration OR river management OR flood management OR flood mitigation OR wetland conservation OR wetland restoration OR permeable pavement OR permeable paving OR infiltration basins OR infiltration trenches OR green roofs OR rain garden OR blue roof OR urban wetland OR French drain OR low impact infrastructure OR bio-retention OR dry well OR urban waterway OR rain barrels and cisterns) AND (green infrastructure OR green space OR green spaces OR low impact development OR green infrastructure types OR green streets OR greenscape OR naturalized landscaping OR trees OR urban forest OR urban greening OR urban parks OR conservation OR ecosystem restoration OR ecosystem management OR ecosystem-based adaptation) AND (urbanization OR urban growth OR urban planning OR spatial planning OR land-use change) AND (climate change OR climatic extremes OR hydro-climatic extremes OR hydro-meteorological risks OR climate impacts OR extreme events OR extreme heat OR extreme rainfall OR heat mitigation OR cooling OR rainwater runoff OR stormwater OR surface runoff) AND (sub-Saharan Africa)
Scopus	(Nature-based solutions OR green infrastructure* OR Natural infrastructure* OR Ecological service* OR Ecosystem service* OR Nature based solution* OR "Ecosystem based adaptation" OR "green space" OR "green spaces" OR greenspace* OR "natural area" OR "natural areas" OR "low impact development" OR LID OR "low impact infrastructure"[all fields] OR "best management practice" OR "best management practices" OR BMP OR drainage[MeSH Terms] OR "rain garden" OR "rain gardens" OR raingarden* OR "green roof" OR "blue roof" OR "permeable pavement" OR "permeable pavements" OR bioswale* OR greenstreet* OR "green street" OR streetscape* OR cistern OR cisterns OR "rain barrel" OR "rain barrels" OR "French drain" OR "French drains" OR "dry well" OR "dry wells" OR "urban waterway" OR "urban waterways" OR "urban wetland" OR "urban wetlands" OR (urban AND constructed wetland*) OR (urban AND riparian corridor*)) AND (stormwater OR "storm water" OR "rainwater runoff" OR "urban runoff" OR "surface runoff" OR rain[Mesh] OR waterlogging OR "water logging" OR floods[MeSH]) AND (urbanization OR urban growth OR urban planning OR spatial planning OR land-use change) AND (climate change OR climatic extremes OR hydro-climatic extremes OR hydro-meteorological risks OR climate impacts OR extreme events OR extreme heat OR extreme rainfall OR heat mitigation OR cooling OR rainwater runoff OR stormwater OR surface runoff) AND (sub-Saharan Africa)
UN agencies (United Nations Environment Programme, UN Decade of Restoration, United Nations Development Programme)	(Nature-based solutions" OR "Green infrastructure*" OR "Natural infrastructure" OR "Eco* service*" OR "Nature based solution*" OR "Eco* based adaptation" OR "green space*" OR "greenspace*" OR "natural area*" OR "low impact development*" OR "low impact infrastructure" OR "best management practice*" OR "rain garden*" OR raingarden* OR "green roof*" OR "blue roof*" OR "permeable pavement*" OR "bioswale*" OR "greenstreet*" OR streetscape* OR cistern* OR "rain barrel*" OR "French drain*" OR "dry well*" OR "urban waterway*" OR "urban wetland*" OR "urban constructed wetland*" OR "urban riparian corridor*") AND SU (stormwater OR "storm water" OR "rainwater runoff" OR "Urban runoff" OR "surface runoff" OR rain OR rains OR rainfall OR precipitation OR downpour OR waterlogging OR "water logging" OR flood OR floods OR flooding) AND (urbanization OR urban growth OR urban planning OR spatial planning OR land-use change) AND (climate change OR climatic extremes OR hydro-climatic extremes OR hydro-meteorological risks OR climate impacts OR extreme events OR extreme heat OR extreme rainfall OR heat mitigation OR cooling OR rainwater runoff OR stormwater OR surface runoff) AND (sub-Saharan Africa)
United Nations Framework Convention on Climate Change	Filter by geographic region (Africa) AND adaptation sector/theme (disaster risk reduction OR ecosystem-based adaptation) AND climate hazard (drought OR extreme heat OR floods)
WeAdapt	Filter by region (sub-Saharan Africa) AND hazard addressed (flood, drought, extreme heat) AND location (urban)

Database or website

Search strategy

Web of Science

(Nature-based solutions OR river protection OR river restoration OR river management OR flood management OR flood mitigation OR wetland restoration OR permeable pavement OR infiltration basins OR infiltration trenches OR green roofs OR rain garden OR urban wetland OR French drain OR low impact infrastructure OR bio-retention OR dry well OR urban waterway OR rain barrels and cisterns) AND (green infrastructure OR green space OR green spaces OR low impact development OR green streets OR greenscape OR naturalized landscaping OR trees OR urban forest OR urban greening OR urban parks OR conservation OR ecosystem restoration OR ecosystem management OR ecosystem-based adaptation) AND (urbanization OR urban growth OR spatial planning) AND (climate change OR climatic extremes OR hydro-climatic extremes OR hydro-meteorological risks OR climate impacts OR extreme events OR extreme heat OR extreme rainfall OR heat mitigation OR cooling OR rainwater runoff OR stormwater OR surface runoff) AND (sub-Saharan Africa)

*Peer-review journal

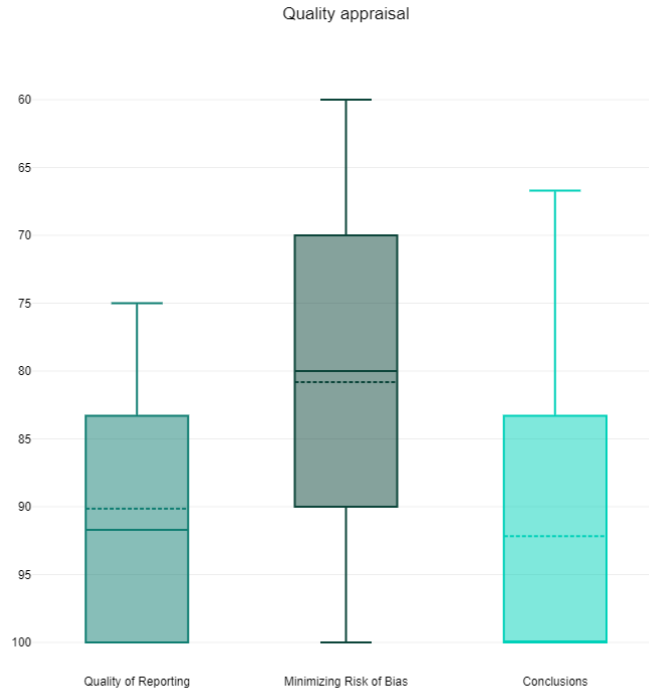
Key institution

Database

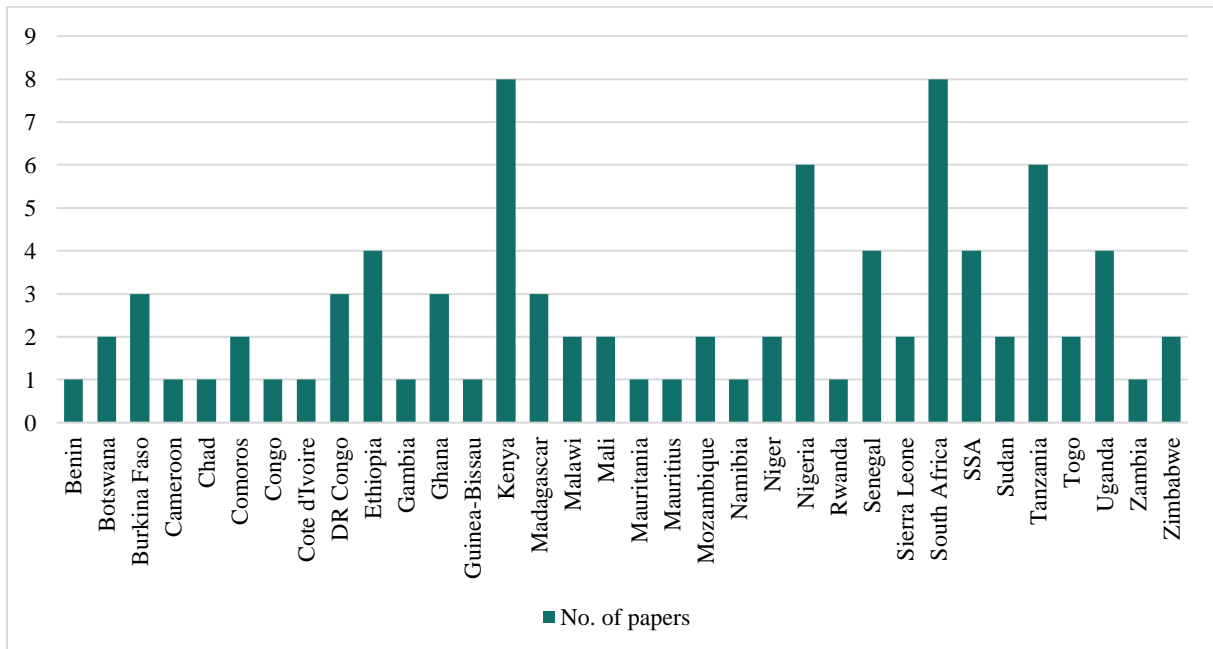
Supplementary Table 2. Quality Appraisal Framework and Scoring Guidelines

Topic	Criteria	Questions	Notes on scoring (out of 1)
Quality of Reporting	1. Objectives	Were the objectives or aims of the study reported?	0 = objectives not described, 0.5 = partly described, 1 = objectives and rationale thoroughly described.
	2. Context	Was the context of the study described?	0 = neither item below described, 0.5 = one item described, 1 = both items described. <ul style="list-style-type: none"> rationale for site selection broader social/historical/cultural/geographic context or implementation process
	3. Study design	Was the type of study design mentioned?	0 = study design not mentioned, 0.5 = study design not explicitly mentioned but elements are referred to, 1 = study design mentioned as retrospective, cross-sectional; longitudinal/panel; qualitative; ethnography, RCT, etc.
	4. Sampling	Was the sampling method and sample described?	0 = neither item below described, 0.5 = one item described, 1 = both items described. <ul style="list-style-type: none"> sampling strategy (e.g. random, purposive, etc.) sample size and description If secondary data, should describe what portion of data were used and how data were collected (0.5 for each).
	5. Data collection	Were data collection methods and procedures reported?	0 = neither item below reported, 0.5 = one item reported, 1 = both items reported. <ul style="list-style-type: none"> type of primary data collected (e.g. surveys, interviews, water samples, observation) data collection instruments and process (collector, transcription/recording) If secondary data: 1 = describe original data source, 0.5 = process of collecting original data not mentioned.
	6. Analysis	Were analytical methods used in the study reported?	0 = neither item below reported, 0.5 = one item reported, 1 = both items reported. <ul style="list-style-type: none"> analytical approach (e.g. content analysis or grounded theory; or estimator used, regression type) analytical process (e.g. coding transcripts, listening to recordings; or confidence interval, p-value, t-statistic)
	mizing Risk of	7. Appropriateness of sampling	Was the sampling strategy appropriate to the study design?

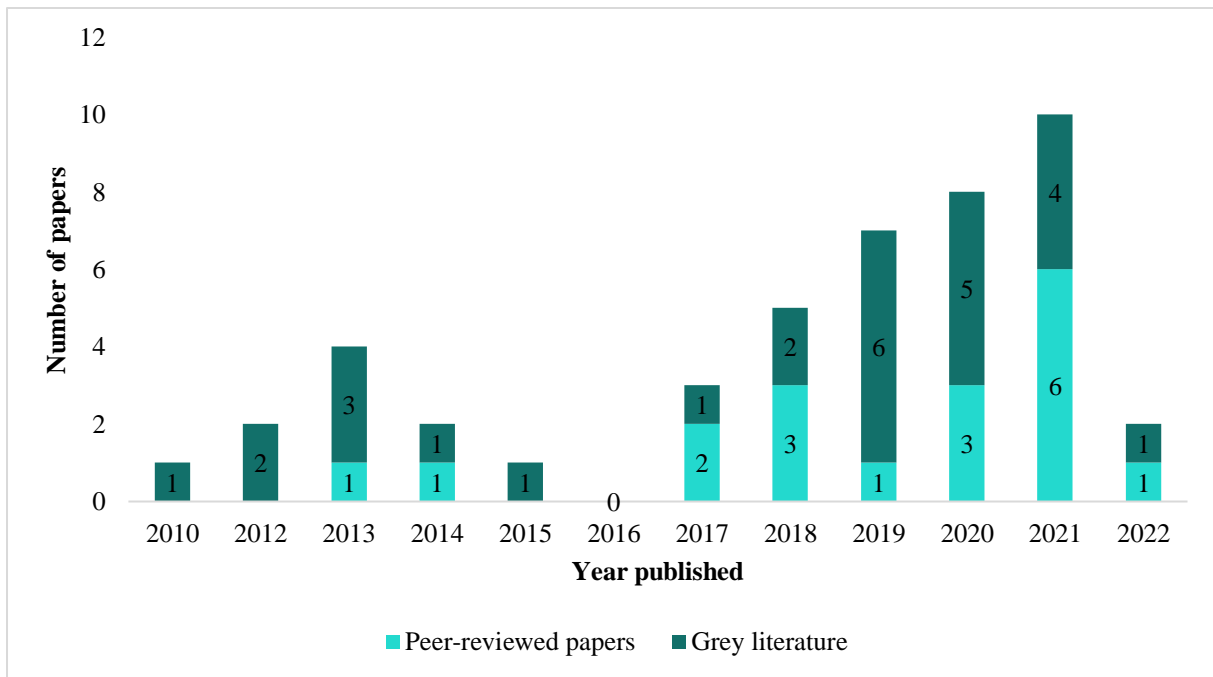
		<ul style="list-style-type: none"> • Qualitative studies should theoretically use purposive, snowball, or convenience sampling • Mixed methods studies may use a combination <p>If secondary data: 1 = original data source has representative sampling.</p>
8. Appropriateness of data collection tools	Were appropriate data collection tools and measures used?	<p>0 = neither item below appropriate, 0.5 = one item appropriate, 1 = both items appropriate.</p> <ul style="list-style-type: none"> • e.g. surveys for quantitative, interviews/FDGs/observation for qualitative • validated tools (for quantitative), triangulation of data/multiple sources (for qualitative) <p>If secondary data: 1 = original data source used appropriate/validated surveys. 0.5 = unclear or not verified.</p>
9. Rigor and quality control in data collection	Was a rigorous data collection process adhered to?	<p>0 = neither item below practiced, 0.5 = one item practiced, 1 = both items practiced.</p> <ul style="list-style-type: none"> • pre-testing/piloting of data collection tools • training and auditing of enumerators/data collectors (if NA, give 0) <p>If secondary data: 1 = original data source known to have rigorous processes (e.g. Census). 0.5 = authors describe rigor/QC to some extent or describe data cleaning efforts. 0 = not enough information present.</p>
10. Rigor in data analysis	Were appropriate analytical methods used for the study design?	<p>0 = analytic methods inappropriate for study design, 0.5 = partial analytical rigor, 1 = appropriate methods.</p> <ul style="list-style-type: none"> • e.g. appropriate statistical tests for quantitative data • e.g. appropriate qualitative data analysis procedures (e.g. coding, matrices)
11. External peer-review	Is there evidence of the study being subjected to external review?	0 = no evidence of external review, 0.5 = internal review (e.g. dissertation), 1 = external peer review conducted.
Conclusions	12. Interpretation	Is there a discussion and interpretation of the main findings? 0 = no discussion, 0.5 = discussion incomplete, 1 = complete discussion and interpretation.
	13. Limitations	Were study limitations described? 0 = no limitations described, 0.5 = limitations incomplete, 1 = limitations thoroughly described.
	14. Conclusions	Were stated conclusions within the scope of the study design? 0 = conclusions not stated or beyond scope, 0.5 = partly beyond scope, 1 = conclusions within scope of study.



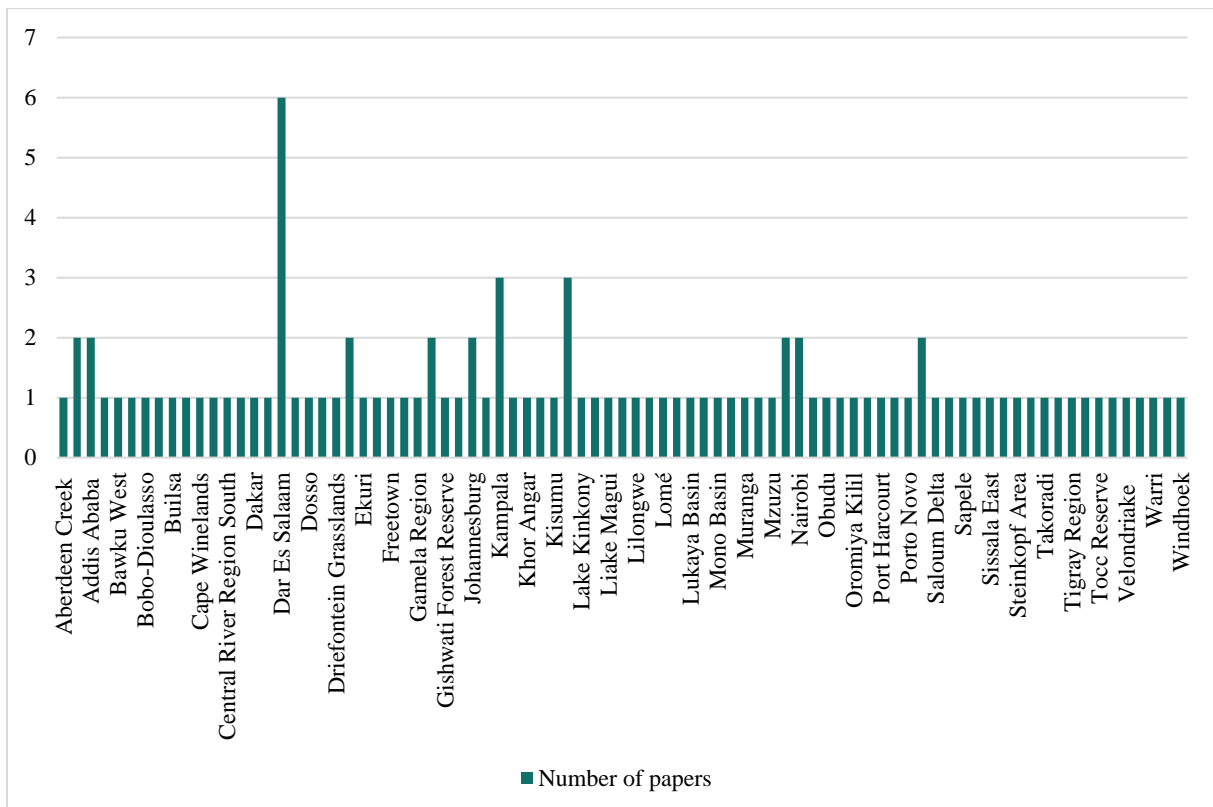
Supplementary Fig. 1. Distribution of quality appraisal scores of 45 included papers by quality appraisal category (14-point scale converted to percentages to compare across categories).



Supplementary Fig. 2. The extent of nature-based solutions uptake in sub-Saharan Africa by countries of included papers.



Supplementary Fig. 3. Number of papers published per year.



Supplementary Fig. 4. Cities/locations where included papers reported nature-based solutions.

Supplementary Table 3. Research themes across included papers.

Topic	Country(ies) and Source		Total
	Peer-reviewed papers	Grey literature	
Review/report of the outcomes of NBS practices	<p>Cameroon, Ghana, Tanzania, Uganda (Lwasa et al., 2014)</p> <p>Democratic Republic of Congo (Etshekape et al., 2018)</p> <p>Kenya (Mulligan et al., 2020)</p> <p>Nigeria (Ajibade, 2017)</p> <p>South Africa (Moyo et al., 2021)</p> <p>South Africa (Washbourne, 2022)</p> <p>Togo (Turner et al., 2021)</p>	<p>Africa (Global Landscapes Forum, 2021)</p> <p>Comoros (UN Environment, 2019a)</p> <p>Comoros, Guinea-Bissau, Kenya, Madagascar, Nigeria, Senegal (Fischborn & Herr, 2015)</p> <p>Ethiopia (World Bank, 2020a)</p> <p>Ethiopia, Kenya, Uganda, Mozambique, Tanzania, Malawi (ICLEI, 2020)</p> <p>Ethiopia, Madagascar, Togo, Cameroon, Kenya, Malawi, Rwanda (GIZ, 2021)</p> <p>Gambia (UN Environment, 2019b)</p> <p>Ghana (World Bank, 2019)</p> <p>Kenya (Mugure, 2020)</p> <p>Kenya (Taylor & Oluoch, 2012)</p> <p>Mozambique (World Bank, 2020b)</p> <p>Niger (World Bank, 2013)</p> <p>Nigeria (Mauvais, 2018)</p> <p>Nigeria (UNDP, 2017)</p> <p>Republic of Congo, Democratic Republic of Congo (Kopansky et al., 2020)</p> <p>Rwanda (World Bank, 2014)</p> <p>Senegal (Jongman et al., 2019)</p> <p>Sierra Leone (Ravenholt, 2021)</p> <p>South Africa (CIFOR, 2013)</p> <p>South Africa (ICLEI, 2010)</p> <p>South Africa (Reid et al., 2018)</p> <p>Tanzania (Garcia, 2019)</p> <p>Tanzania (World Bank, 2021)</p>	14

		Uganda (Benchwick, 2019)	
Modelling of NBS effectiveness	Burkina Faso, Chad, Mali, Mauritania, Niger, Senegal, Sudan (Tamagnone et al., 2020)	-	1
NBS/ green infrastructure planning and governance	Namibia, Tanzania (Thorn et al., 2021) South Africa (Schäffler & Swilling, 2013) Ethiopia (Habtemariam et al., 2019) Burkina Faso, Ghana, Kenya, Uganda (Douglas, 2018) Ethiopia, Kenya, Madagascar, Nigeria (Kalantari et al., 2018)	Mauritius (Fairhurst et al., 2012) Botswana, Zimbabwe, Tanzania (Laros et al., 2013) Democratic Republic of Congo, Kenya, Sudan (Doswald et al., 2021)	8
Systematic review of green infrastructure and ecosystem services	SSA (Kihara et al., 2020) SSA (Choi et al., 2021) Nigeria (Adegun et al., 2021)	-	3
Management of critical ecosystems	Cote D'Ivoire, Benin, Botswana, Burkina Faso, Madagascar, Mali, Senegal, Sierra Leone, Togo, Zambia, Zimbabwe (Weise et al., 2021)		1
Hydro-meteorological risk vulnerability analysis	Malawi (Kita, 2017)	-	1
Total	18	27	45

Supplementary Table 4. Definitions of NBS practices identified

NBS practice	Definition/explanation
Agroforestry	Agroforestry is the practice where agriculture and forestry are intentionally combined to produce sustainable land use practices.
Anti-fire corridors	It refers to the use of fire-resisting vegetation or construction to create corridors that withstand or limit damage from fires through the prevention of the spread of smoke and fire.
Bamboo planting	Planting bamboos to slow runoff and improve water retention.
Climate-smart agriculture	Climate-smart agriculture seeks to adapt crop cultivation and animal rearing to the changing climate and reduce emissions from agriculture
Composting toilet	Composting is a type of toilet that uses natural processes to decompose human waste. Thus, it uses minimal water and can enhance farming of non-edible plants.
Conservation agriculture	It is a system of farming that promotes minimal soil disturbance through little to no tillage. The farming system aims to maintain permanent soil cover together with the diversification of plant species.
Constructed wetland	An artificial wetland constructed to increase watersheds for runoff or sewage treatment.
Coral reef restoration	The use of measures such as growing, gardening, out-planting and harvesting to restore damaged coral reefs to their natural ecological state.
Cross-cutting theme	These are nature-based solutions which are consciously designed to address multiple challenges and may touch on diverse themes such as risk mitigation, governance and job creation.
Floodplain conservation	This involves measures aimed at protecting floodplains from pollution, degradation or other activities that affect their ecological functions.
Floodplain restoration	It is the process of restoring river floodplains to their original states before they were altered, for instance through draining of the wetlands or the construction of levees.
Gardens	A space that is planned for crop cultivation or plant display and recreation.
Grass strips	Planting grasses along contour lines to create barriers that minimize soil erosion and stormwater runoff.
Green conservation	Green conservation involves activities that help to protect existing trees and other forms of vegetation.
Green roof	Green roofs are building rooftops where plants are grown in extensive or intensive ways.
Green space conservation	These are efforts, including physical and managerial, undertaken to protect green spaces from degradation and pollution, a green space is an open space classified for ecological or human function.
Green/open spaces	While an open space refers to any piece of land that is internationally not developed with buildings, highways or other forms of built infrastructure.
Integrated approach	These are nature-based solutions that may combine two or more approaches/practices to address the same challenge.
Integrated soil fertility management	Integrated soil fertility management refers to a range of practices in cropping and fertilizer application especially on small farms that seek to maximize production.
Land restoration	It is the ecological restoration of lands that have lost their natural productivity back to the natural landscape that is safe for flora, fauna and people.
Mangrove conservation	These are measures undertaken to prevent the destruction and overexploitation of mangrove ecosystems.
Mangrove restoration	This is the regeneration of mangrove ecosystems in areas where they previously existed.
Marine conservation	Marine conservation encapsulates efforts to protect oceans and ecosystems in and around them from pollution and over-exploitation through planned management efforts.

Meso-scale vegetation	It refers to vegetation cover at the sub-city scale.
Natural fountain	This is a natural spring of water.
Natural retention ponds	These are ponds and pools that are designed with particularly large storage capacity to improve stormwater retention during rainfall events.
Organic farming	Organic farming is a system of farming that utilizes only fertilizers with organic origin such as compost and green manure.
Parks	These may be open spaces or gardens that offer recreation to residents.
Peatland conservation	These are measures for protecting peatlands from degradation.
Peatland restoration	These are measures aimed at restoring degraded peatlands such as those that have been drained to their original form.
Permeable surfaces	Permeable surfaces are developments that make use of porous materials, and therefore allow water to percolate into the soil to recharge the water table.
Pervious paving	A kind of paving that uses porous materials to enable stormwater to flow through and seep into the soil.
Planted infiltration pits	They are rectangular trenches excavated at intervals in the channels of contour ridges for collecting and storing stormwater runoff, so it infiltrates, through the soil layers.
Planted revetment	Incorporating vegetation into revetments which are structures built along shorelines to address erosion and flooding.
Protection of water sources	This refers to measures that are undertaken by various agencies to protect water sources from contamination and overuse.
Rain gardens	Rain gardens are low-lying and are designed to increase the absorption of stormwater runoff into the soil.
Rainwater harvesting	The process of collecting and storing rainwater rather than letting it runoff.
Rangeland rehabilitation	This aims to address degradation on rangelands and enhance same through the introduction of land sustainable management practices.
Recycled and planted tires	A practice where used tyres are converted into planters for holding various plants, including shrubs.
Reforestation	Reforestation refers to the intentional restocking of depleted forests and woodlands.
Resettlement	It involves the movement of people living in the buffer zones of rivers, floodplains and other important ecosystems.
Restoration of degraded forests	It is the ecological restoration of forests that have sustained levels of deforestation, wildfires or other forms of degradation.
Restoration of degraded land	It is the ecological restoration of lands that have sustained levels of degradation such as sand winning, mining and desertification.
Retaining walls	A wall developed to hold back water and/soil.
Revegetation of degraded slopes	This is the process through which vegetation is re-planted along slopes for soil stability to reduce risk of floods and landslides.
River conservation	River conservation measures are undertaken to protect river bodies from degradation and overexploitation.
River restoration	They include physical, ecological, spatial and management measures that are undertaken to restore degraded rivers to their natural state and functioning, often to mitigate floods, support biodiversity and promote recreation.
Sand dune	Sand dunes are hills or ridges of sand that are formed often at the top of beaches or deserts.
Sewer connection	The point where an individual sanitary service line attaches to the municipal sewer system, thereby allowing the

	discharge of an individual sewage waste (wastewater) stream to the sewer collection main.
Soccer field/playground	This is a space with no built structures, a pitch, which is used for games such as soccer.
Soil remediation	Soil remediation is the process through which soils are returned to their original form of ecological stability before being disturbed.
Springwater collection	This is the collection of springwater which may gush from underground unto the surface on its own.
Stone dykes	This is the use of stones to create an embankment for preventing floods.
Sustainable agriculture	Sustainable agriculture aims to bring innovation and recycling into agriculture to make it more circular.
Swales	They are sunken, marshy, broad and vegetated channels that are designed to store stormwater runoff and sometimes, remove pollutants.
Tree-planting	Tree-planting involves transplanting tree seedlings usually for landscaping, forestry or land reclamation purposes.
Underground detention/infiltration	These are ponds that are used in new developments to detain and slowly release stormwater.
Urban agriculture	This is the cultivation, processing and distribution of food in urban areas.
Urban forest	Urban forests are a comprehensive assemblage of trees within urban contexts.
Urban greening	It refers to increasing areas with natural surfaces or natural settings, whether plant-based or water-based.
Vegetated open areas	These are open spaces that are intentionally vegetated with suitable plants.
Vegetative waterways	A vegetated waterway is an artificial channel, ditch or outlet that is shaped or graded and established with suitable vegetation.
Vertical greening system	Vertical greening systems are made up of plants grown along the vertical axis of buildings, either on the façade or in the interior.
Watershed rehabilitation	In watershed rehabilitation, watershed which are damaged, for instance by pollution or sewage or chemical spill are corrected. The rehabilitated watershed may or may not function at the previous optimum levels.
Wetland conservation	Wetland conservation aims to protect existing wetlands from degradation.
Wetland restoration	The restoration of wetlands involves the manipulation of degraded wetlands' physical, chemical and biological characteristics to return them to their natural condition.