

1 **Supplementary Information**

2 **Leverage points to support Africa's efforts to track climate adaptation**

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10 **Content:** The Supplementary Information file contains: Supplementary Note 1, with
11 additional tables on data sources, target and indicators for food and fiber sector, and
12 Supplementary Note 2, with the research protocol

13 Supplementary Note 1: Additional tables and figures

14 Table S1: List of Nationally Determined Contributions (NDC) and National Adaptation 15 Plans (NAPs) reviewed

	Country	Document	Submission Date	Language
1	Algeria	NDC	2016-10	EN
2	Angola	NDC	2021-05	EN
3	Benin	NDC	2021-10	FR
4	Benin	NAP	2022-05	FR
5	Botswana	NDC	2016-11	EN
6	Burkina Faso	NDC	2021-10	FR
7	Burkina Faso	NAP	2015-10	EN
8	Burundi	NDC	2021-10	FR
9	Côte d'Ivoire	NDC	2022-05	FR
10	Cabo Verde	NDC	2021-04	EN
11	Cameroon	NDC	2021-10	FR
12	Cameroon	NAP	2015-06	FR
13	Central African Republic	NDC	2022-01	FR
14	Central African Republic	NAP	2022-02	FR
15	Chad	NDC	2021-10	FR
16	Chad	NAP	2022-02	EN
17	Comoros	NDC	2021-05	FR
18	Congo	NDC	2021-02	FR
19	Democratic Republic of the Congo	NDC	2021-12	FR
20	Democratic Republic of the Congo	NAP	2022-11	EN
21	Djibouti	NDC	2016-11	EN
22	Egypt	NDC	2022-07	EN
23	Equatorial Guinea	NDC	2018-10	ESP
24	Eritrea	NDC	2018-06	EN
25	Eswatini	NDC	2021-10	EN
26	Ethiopia	NDC	2021-07	EN
27	Ethiopia	NAP	2019-03	EN
28	Gabon	NDC	2022-07	FR
29	Gambia	NDC	2021-09	EN
30	Ghana	NDC	2021-11	EN
31	Guinea	NDC	2021-07	FR
32	Guinea-Bissau	NDC	2021-10	EN
33	Kenya	NDC	2020-12	EN
34	Kenya	NAP	2017-02	EN
35	Lesotho	NDC	2018-06	EN
36	Liberia	NDC	2021-08	EN
37	Liberia	NAP	2021-12	EN
38	Madagascar	NDC	2016-09	EN
39	Madagascar	NAP	2022-05	FR
40	Malawi	NDC	2021-07	EN
41	Mali	NDC	2021-10	FR
42	Mauritania	NDC	2021-10	FR
43	Mauritius	NDC	2021-10	EN
44	Morocco	NDC	2021-06	FR
45	Mozambique	NDC	2021-12	EN
46	Namibia	NDC	2021-07	EN
47	Niger	NDC	2021-12	FR
48	Nigeria	NDC	2021-07	EN
49	Rwanda	NDC	2020-05	EN
50	Sao Tome and Principe	NDC	2021-07	EN
51	Senegal	NDC	2020-12	EN
52	Seychelles	NDC	2021-07	EN
53	Sierra Leone	NDC	2021-07	EN
54	Sierra Leone	NAP	2022-02	EN
55	Somalia	NDC	2021-07	EN
56	South Africa	NDC	2021-09	EN
57	South Africa	NAP	2021-09	EN
58	South Sudan	NDC	2022-09	EN
59	South Sudan	NAP	2021-11	EN
60	Sudan	NDC	2022-09	EN
61	Sudan	NAP	2016-09	EN
62	Tanzania	NDC	2021-07	EN
63	Togo	NDC	2021-10	FR
64	Togo	NAP	2018-01	FR
65	Tunisia	NDC	2021-10	FR
66	Uganda	NDC	2022-09	EN
67	Zambia	NDC	2021-07	EN
68	Zimbabwe	NDC	2021-09	EN

16 Submission date refers to year and month and is based on the information provided on the
17 NDC Registry and NAP central. EN=English, ESP=Spanish; FR=French.

18 **Table S2: Measurable and time-bound targets for food and fiber sector**

#	ISO3	Doc	Element	Target	Time	Value	Unit	Metric
1	BDI	NDC	Objective	More productive varieties of priority crops will be provided in all ecological zones	2025	5	Number	New crop varieties
2	BDI	NDC	Objective	Increase in fish production will be achieved	2029	13,000	Tons/year	Fish produced
3	BDI	NDC	Objective	A strategic stock of veterinary inputs will be functional	2025	1	Number	Strategic reserves
4	BDI	NDC	Objective	An autonomous management structure for artificial insemination, genetic improvement, and support to central services will be functional	2027	1	Number	Management structures
5	BDI	NDC	Objective	Pilot sites will be established	2027	3,000	Number	Pilot sites
6	BDI	NDC	Objective	Provincial veterinary centers will be rehabilitated and strengthened	2029	9	Number	Provincial veterinary centers
7	BDI	NDC	Objective	Slaughter areas will be rehabilitated and strengthened	2029	80	Number	Slaughter areas
8	BDI	NDC	Objective	Quarantine centers for veterinary control will be rehabilitated and strengthened	2029	9	Number	Quarantine centers
9	BDI	NDC	Objective	Livestock markets will be rehabilitated and strengthened	2029	9	Number	Livestock markets
10	BDI	NDC	Objective	One block manufacturing plant will be installed in the Imbo region	2027	1	Number	Block manufacturing plants
11	BDI	NDC	Objective	Satellite units will be installed in 4 provinces	2027	4	Number	Satellite units
12	BDI	NDC	Objective	Satellite units will be rehabilitated	2027	3	Number	Satellite units
13	BDI	NDC	Action	Install a collection of biopesticide plants in the Mahwa stations and Bukemba	2023	1	Number	Biopesticide plants
14	BDI	NDC	Indicator	Functional strategic stocks of vet inputs	2025	1	Number	Strategic stock of vet inputs
15	BDI	NDC	Indicator	A functional structure for artificial insemination, genetic improvement, etc.	2027	1	Number	Management structure
16	CPV	NDC	Action	Women will take up 40 % of employment in agriculture	2030	40	Percentage	Women employed
17	CPV	NDC	Action	Adopt a public agricultural financing and credit program to promote regenerative, circular agricultural systems, with special incentives for women and youth to enter the scheme	2030	1	Number	Program
18	CAF	NDC	Objective	Improvement and dissemination of production practices taking into account climatic projections	2030	26	Percentage	Increase in cassava yield
19	CAF	NDC	Objective	Improvement and dissemination of production practices taking into account climatic projections	2030	13	Percentage	Increase in peanut yield
20	CAF	NDC	Objective	Improvement and dissemination of production practices taking into account climatic projections	2030	33	Percentage	Increase in corn yield
21	CAF	NDC	Objective	Improvement and dissemination of production practices taking into account climatic projections	2030	30	Percentage	Increase in sorghum/millet yield
22	CAF	NDC	Objective	Improvement and dissemination of production practices taking into account climatic projections	2030	23	Percentage	Increase in sesame yield
23	CAF	NDC	Objective	Land productivity loss reduced by 50%	2030	50	Percentage	Reduction in land productivity loss
24	CAF	NDC	Objective	Land productivity loss: 50% women owners with reduced land productivity loss	2030	50	Percentage	Women owners
25	CAF	NDC	Objective	Cultural practices like slash and burn reduced by 60% in 2030	2030	60	Percentage	Reduction in slash and burn use
26	CAF	NDC	Objective	Varieties of food crops adapted to water stress and /or temperature developed in the regions: Central and Northern CAR, in favor of the communities most vulnerable	2030	10	Number	Food crop varieties
27	CAF	NDC	Objective	A system for food crisis prevention associated with climate variability and changes, developed and functional (early warning system including an information system)	2030	1	Number	Food crises prevention system
28	CAF	NDC	Objective	New plans for land occupation redefine the farming areas and corridors for transhumance, in consistency with current and projected climate variability and change	2030	7	Number	Land occupation plans
29	CAF	NAP	Action	Establish a national system for disseminating real-time seasonal forecasts at the community level and alerts to reduce vulnerability related to false starts to the growing season and agricultural drought	5 y	1	Number	Seasonal forecast system
30	CAF	NAP	Action	Set up a sustainable corridor management mechanism for transhumance	4 y	1	Number	Management mechanism
31	CAF	NAP	Action	Establish a mechanism for the prevention and management of farmer-herder conflicts	4 y	1	Number	Conflict prevention mechanism
32	COM	NDC	Action	Establishment of an early warning and effective intervention system throughout the territory in case of emergence of new bovine or caprine diseases	2030	1	Number	Early warning system
33	COD	NDC	Action	Development of a zoning program to circumscribe [areas with] agricultural activities	2021-30	1	Number	Zoning program
34	COD	NDC	Action	Implementation of an early-warning system	2021-30	1	Number	Early warning system
35	COD	NAP	Action	Establish a collaboration platform for the various key CCA actors within the Directorate of Sustainable Development and strengthen the access and sharing of CCA-related information	1-6 y	1	Number	Actor platform
36	COD	NAP	Action	Develop and disseminate national financing mobilization strategy for participatory, gender sensitive CCA	0-6 y	1	Number	Finance mobilization strategy
37	COD	NAP	Action	Train agents (including at least one woman) from the institutions concerned in various negotiation skills	1-6 y	3	Staff	Negotiation skills training
38	COD	NAP	Action	Facilitate the participation agents (including at least one woman) of the institutions concerned in the various negotiations relating to climate change, and more specifically, CCA	1-6 y	2	Staff	Participating in climate negotiations
39	COD	NAP	Action	Train staff members (including at least one woman) of the institutions concerned in the project cycle/programme operational procedures of the main financial partners of the DRC	1-6 y	3	Staff	Participants in training
40	COD	NAP	Action	Involve at least one staff member from the institutions concerned in the management /steering /technical committees of CCA projects	1-6 y	1	Staff	Participating in projects

#	ISO3	Doc	Element	Target	Time	Value	Unit	Metric
41	COD	NAP	Action	Develop internal fund mobilization strategy, particularly for CCA.	1-6 y	1	Number	Fund mobilization strategy
42	COD	NAP	Action	Set up an interinstitutional coordination and information -sharing platform for the funding mobilization	1-6 y	1	Number	Platforms
43	COD	NAP	Action	Exhaustive study on opportunities and climate funding mechanisms for mobilizing available climate funds	4-6 y	1	Number	Studies
44	COD	NAP	Action	Encourage participation of the institutions' staff in national and international dialogues with donors	4-6 y	30	Percentage	Participant women staff
45	COD	NAP	Action	Develop internal strategy for mobilizing non-state funding	4-6 y	1	Number	Fund mobilization strategy
46	COD	NAP	Action	Assessment of logistics needs specific to the institution	1-6 y	1	Number	Assessment
47	COD	NAP	Action	Develop logistic capacity-building strategy [for] implementing projects financed by financial partners	1-6 y	1	Number	Capacity building strategy
48	COD	NAP	Action	Develop internal human capacity development strategy that specifies for each level of responsibility the number and/or type of training required per year	1-6 y	1	Number	Capacity building strategy
49	COD	NAP	Action	Develop gender strategy and / or action plan for the institution	1-6 y	1	Number	Gender strategy
50	COD	NAP	Action	Set up platform for inter-institutional and multi-stakeholder exchange and dialogue on gender	1-6 y	1	Number	Platform
51	ETH	NDC	Indicator	Productivity of rainfed cropland	2030	46	Quintals/ha	Rainfed crops
52	ETH	NDC	Indicator	Area under irrigation	2030	225,913	Hectares	Irrigated
53	ETH	NDC	Indicator	Crop production through irrigation	2030	38,000,000	Quintals	Land under irrigated crop
54	ETH	NDC	Indicator	Productivity of specialized poultry commercial	2030	80,900	Tons	Specialized commercial poultry
55	ETH	NDC	Indicator	Productivity of specialized poultry household	2030	16,200	Tons	Subsistence poultry
56	ETH	NDC	Indicator	Productivity of sheep	2030	324,000	Tons	Sheep
57	ETH	NDC	Indicator	Productivity of goat	2030	282,000	Tons	Tons of goat
58	ETH	NDC	Indicator	Percentage of improved livestock	2030	17	Percentage	Improved dairy livestock
59	ETH	NDC	Indicator	Percentage of coverage of animal health services	2030	42	Percentage	Dairy service coverage
60	ETH	NDC	Indicator	Percentage of coverage of animal health services	2030	28	Percentage	Beef service coverage
61	ETH	NDC	Indicator	Percentage of coverage of animal health services	2030	28	Percentage	Small ruminant service coverage
62	ETH	NDC	Indicator	Percentage reduction of crop and animal disease cases	2030	30	Percentage	Reduction in disease cases
63	ETH	NDC	Indicator	Percentage of improved content in dry feed	2030	100	Percentage	Local dairy
64	ETH	NDC	Indicator	Percentage of improved content in dry feed	2030	100	Percentage	Crossbreed
65	ETH	NDC	Indicator	Percentage of improved content in dry feed	2030	100	Percentage	Exotic breed
66	ETH	NDC	Indicator	Improved seed coverage	2030	100,000	Hectares	Improved seed
67	ETH	NDC	Indicator	Improved seed coverage	2030	193,000	Hectares	Improved seed
68	ETH	NDC	Indicator	Improved seed coverage	2030	673,000	Hectares	Improved seed
69	ETH	NDC	Indicator	Improved seed coverage	2030	823,000	Hectares	Improved seed
70	ETH	NDC	Indicator	Number of farmers (gender disaggregated) covered by drought crop insurance	2030	30	Percentage	Increase in farmers with insurance
71	ETH	NDC	Indicator	Number of dependent communities benefiting from climate resilient wildfire resources	2030	1,500,000	Beneficiaries	Climate resilient wildfire resources
72	ETH	NDC	Indicator	Number of PFM associations vested with legal personality (to cover 10,000 catchment areas)	2030	10,000	Number	Catchment areas
73	LBR	NDC	Objective	Develop facilities and climate smart technologies to promote postharvest and value addition practices	2030	5	Number	Seedbanks, facilities, technologies
74	LBR	NDC	Objective	Establish Marine Protected Areas	2030	2	Number	Marine protected areas
75	LBR	NDC	Objective	Establish co-managed fishery areas in coastal and aquatic ecosystems associated with fish production	2030	4	Number	Co-managed fishery areas
76	LBR	NDC	Objective	Support alternative fishery livelihoods by developing the foundational structures and extension services needed to increase aquaculture production and reduce the impact on marine fisheries	2025	25	Number	Aquaculture kits
77	LBR	NDC	Action	Establish farmer field schools in climate-resilient agricultural and livestock practices	2025	100	Number	Farmer field schools
78	LBR	NDC	Action	Train farmers in climate-resilient agricultural and livestock practices	2025	5,000	Number	Trained farmers
79	LBR	NDC	Action	Train agricultural extension agents to support (...) climate-resilient agricultural and livestock practices	2025	150	Number/year	Trained extension agents
80	LBR	NDC	Action	Agents receiving additional support for increased implementation with vulnerable groups	2025	45	Number	Agents receiving support
81	LBR	NDC	Action	"Women in Agriculture" program with trainings to support implementation of climate-resilient agricultural and livestock practices and increase women's access to agricultural inputs and labor-saving devices	2025	4	Number/year	Training sessions
82	LBR	NDC	Action	Women trained under the "Women in Agriculture" program	2025	45	Number	Women trained
83	LBR	NDC	Action	Increase finance for agriculture diversification	2025	3,000,000	USD	Agriculture finance
84	LBR	NDC	Action	Increase finance for livestock diversification.	2025	3,000,000	USD	Livestock finance
85	LBR	NDC	Action	Establish a national research institution focusing on new climate smart seed varieties and improving livestock breeding	2030	1	Number	National research institutions
86	LBR	NDC	Action	Increase funding for research on climate-related pressures on fisheries and appropriate climate adaptation solutions in the fisheries sector	2030	1,500,000	USD	Research finance
87	LBR	NDC	Action	Implement trainings for fishery managers to learn and implement adaptive management practices	2030	20	Number	Trainings
88	LBR	NDC	Action	Conduct training with artisanal fishers, fishmongers, and fish processors, especially women, on sustainable fishery and fish handling practices	2030	1	Number/year	Training

#	ISO3	Doc	Element	Target	Time	Value	Unit	Metric
89	LBR	NDC	Action	Establish fisheries program at the University of Liberia	2025	1	Number	Fisheries program
90	LBR	NDC	Action	Establish artisanal fish landing and processing centers in the Mesurado basin	2025	5	Number	Fish centers
91	LBR	NDC	Action	Develop awareness program in schools within coastal counties to promote climate-smart fisheries and mangrove conservation	2025	1	Number	Programs in coastal counties
92	LBR	NDC	Action	Setup an inter-ministerial national task force to reduce land- and water-based sources of pollution (...)	2025	1	Number	Task forces
93	MWI	NDC	Action	Expand Greenbelt initiative from 4000 ha to 10000 ha	2020-40	10,000	Hectares	Coverage of Green Belt Initiative
94	MRT	NDC	Action	Establishment of an insurance system for farmers against agro-climatic risks	2030	1	Number	Insurance system
95	MRT	NDC	Action	Establishment of a continental fisheries information system	2030	1	Number	Fisheries information systems
96	MRT	NDC	Action	Establishment of an insurance system against climate risks	2030	1	Number	Climate risk insurance systems
97	MRT	NDC	Action	Development of organic agriculture/ agroecology	2030	600	Hectares	Agroecology/organic area
98	MRT	NDC	Action	Creation of new artificial insemination farms	2030	20	Number	Farms
99	MRT	NDC	Action	Establishment of pastoral reserves	2030	20,000	Hectares	Pastoral reserves
100	MRT	NDC	Action	Development of fishing in rural areas	2030	20	Number	Fishing sites in rural areas
101	MRT	NDC	Action	Development of water bodies on 10 pilot sites	2030	1,000	Hectares	Water bodies
102	MUS	NDC	Action	Development of an integrated strategy and policy [on] Pest and Disease Management practices	2021-30	1	Number	Integrated strategy
103	MUS	NDC	Action	Establish an integrated framework for the management of fisheries founded on Blue Economy	2021-30	1	Number	Integrated fisheries framework
104	MAR	NDC	Objective	Extension of irrigation to new agricultural perimeters	2030	60,000	Hectares	Irrigated
105	MAR	NDC	Objective	Extension of irrigation to new agricultural perimeters	2030	3.5 billion	USD	Value of irrigation investment
106	MAR	NDC	Objective	Irrigation equipment	2030	350,000	Hectares	Irrigated
107	MAR	NDC	Objective	Irrigation equipment located on an additional area	2030	1 billion	USD	Value of irrigation investment
108	MAR	NDC	Objective	Establishment of a coastal observation network, with three oceanographic and meteorological buoys	2030	1	Number	Networks
109	MAR	NDC	Objective	Expansion of the coastal environmental and health surveillance and warning system to 40 areas.	2030	40	Number	Observation areas
110	MAR	NDC	Objective	Establishment of marine protected areas corresponding to 10% of the exclusive economic zone	2030	10	Percentage	Marine areas protected
111	MAR	NDC	Objective	Development of two hatcheries for the repopulation of five endangered coastal species	2030	2	Number	Hatcheries
112	MAR	NDC	Objective	Implementation of aquaculture development plans in five coastal areas	2030	5	Number	Coastal areas
113	SEN	NDC	Action	Improved management efficiency and extension of marine protected areas	2025	10	Number	Marine protected areas
114	SEN	NDC	Action	Improved management efficiency and extension of marine protected areas	2040-50	15	Number	Marine protected areas
115	SSD	NDC	Action	Development of a seed breeding and seed bank center	4-10 y	1	Number	Seed breeding and seed bank
116	SSD	NDC	Action	Conduct a feasibility study for the development and adoption of digital solutions	4-10 y	1	Number	Digital solutions feasibility study
117	SSD	NDC	Action	Establish five quarantine points along the national border	0-3 y	5	Number	Quarantine points
118	SSD	NDC	Action	Develop a breeding policy for improving local breeds	0-3 y	1	Number	Local breeding policy
119	SSD	NDC	Action	Formulate a pastoral development policy	0-3 y	1	Number	Pastoral development policy
120	SSD	NDC	Action	Develop an action plan for implementing the IGAD Protocol on Transhumance	0-3 y	1	Number	Protocol for transhumance
121	SSD	NDC	Action	Conduct a feasibility study for an index-based livestock insurance system	0-7 y	1	Number	Feasibility study
122	SSD	NDC	Action	Conduct and document a study on ethno-veterinary knowledge	0-3 y	1	Number	Ethno-veterinary knowledge study
123	SSD	NDC	Action	Implement a bee-keeping project for alternative livelihood	0-7 y	1	Number	Beekeeping project
124	SSD	NDC	Action	Develop an action plan to implement the National Aquaculture Development Strategy	0-3 ys y	1	Number	Aquaculture action plan
125	SSD	NDC	Action	Bee-keeping project: Cover 3,000 farmers in Upper Nile Region, 5,000 farmers in Bahr el Ghazal Region and 6,000 farmers in Greater Equatorial	2030	14000	Number	Farmers
126	SSD	NDC	Action	Rangeland mapping and water management project: Cover 20,000 farmer households in Upper Nile Region, Bahr El Gazal Region and Greater Equatorial	2030	20000	Number	Farmer households
127	SSD	NDC	Action	Improve food security by empowering 10% of [aquaculture] farmers across the country	2030	10	Percentage	Farmers
128	TUN	NDC	Action	Finalize, validate and implement the priority measures of the National Plan for the Adaptation of Tunisian Agriculture and Food Security to the effects of climate change	2030	5	Number	Funded projects
129	TUN	NDC	Action	Creation of 5 pilot areas for the development of organic farming	2030	5	Number	Pilot areas (organic farming)
130	UGA	NDC	Indicator	Proportion of farmers practicing sustainable land management (SLM) practices	2030	71	Percentage	Farmers practicing SLM
131	UGA	NDC	Indicator	Area under irrigation	2030	152,622	Hectares	Irrigated land
132	UGA	NDC	Indicator	Share of post-harvest losses	2030	3	Percentage	Post-harvest loss
133	UGA	NDC	Indicator	Volume of fish stock	2030	1,700,000	Tons/year	Fish stock

19 Country names are expressed using their ISO 3166-1 alpha-3 codes.

20 **Table S3: Assessment of SMART criteria and M&E function of indicators for food and fiber sector**

#	Country	Source	Indicator	S	M	A	R	T	M&E function
1	BDI	NDC	Number of types of seedlings introduced	x	x		x	x	output
2	BDI	NDC	Number of biopesticide plant species planted and registered	x	x		x	x	output
3	BDI	NDC	List of diseases and pests inventoried	x	x		x	x	output
4	BDI	NDC	Number of cultural practices promoted		x		x	x	output
5	BDI	NDC	Number of new varieties introduced/ zone	x	x		x	x	output
6	BDI	NDC	Number of kilograms of quality seeds available		x		x	x	output
7	BDI	NDC	Number of tons of additional fish produced in ponds	x	x		x	x	output
8	BDI	NDC	Number of functional strategic stocks of vet inputs		x		x	x	output
9	BDI	NDC	A functional structure for artificial insemination, genetic improvement	x	x		x	x	output
10	BDI	NDC	Number of [agro-sylvo-pastoral] sites established	x	x		x	x	output
11	BDI	NDC	Number of infrastructures developed [vet centers, slaughterhouses, etc.	x	x		x	x	output
12	BDI	NDC	Number of units for manufacturing supplemental livestock feeds installed and rehabilitated	x	x		x	x	output
13	BEN	NDC	Rate of women farmers taken into account		x		x		output
14	BEN	NDC	Rate of women farmers having benefited from technical and financial support measures	x	x		x		output
15	BEN	NDC	Number of projects and programs of protection and preservation of natural forests and plantations led by the women		x		x		output
16	BEN	NDC	Rate of women involved in the projects of protection and preservation of natural forests	x	x		x		output
17	BEN	NDC	Rate of women and men targeted for reforestation and having benefited from technical and financial support measures	x	x		x		output
18	BFA	NDC	Number of hectares of degraded land restored		x		x		output
19	BFA	NDC	Number of hectares of irrigated perimeter developed	x	x		x		output
20	BFA	NDC	Number of hectares of lowlands developed	x	x		x		output
21	BFA	NDC	Areas irrigated with efficient irrigation systems in operation	x	x		x		output
22	BFA	NDC	Number of hectares of perimeter with total water control developed		x		x		output
23	BFA	NDC	Area of marked territory	x	x		x		output
24	BFA	NDC	Area of degraded land recovered		x		x		output
25	BFA	NDC	Total area of functional pastoral spaces	x	x		x		output
26	BFA	NDC	Length of marked cattle trail	x	x		x		output
27	BFA	NDC	Area of secured pastoral spaces		x		x		output
28	BFA	NAP	Rate of recovery and restoration of the fertility of degraded soils		x	x	x		outcome
29	BFA	NAP	Rate of producer access to: - agricultural inputs, - agricultural equipment, - agricultural credit		x	x	x		output
30	BFA	NAP	New climate-change-adapted production techniques have been developed		x	x	x		output
31	BFA	NAP	Rate of adoption of climate-change adapted techniques		x	x	x		outcome
32	BFA	NAP	Efficiency of new early warning systems			x	x		outcome
33	BFA	NAP	Capacity of vulnerable populations to anticipate vulnerability and climate change			x	x		outcome
34	CMR	NAP	Signed decree for the implementation of the law on spatial planning	x	x		x		process
35	CMR	NAP	Signed implementing decree on access to environmental information	x	x		x		process
36	CMR	NAP	Signed decree of application of the pastoral code	x	x		x		process
37	CMR	NAP	Finalized land and forestry reform	x	x		x		process
38	CMR	NAP	Number of people per group of actors who took part in the various land acquisition and allocation process	x	x		x		output
39	CMR	NAP	Zoning Plan documents developed and approved	x	x		x		input
40	CMR	NAP	Participatory maps developed at community level	x	x		x		output
41	CMR	NAP	Number of agreements concluded and implemented to secure the rights of use of different groups of actors	x	x		x		output
42	CMR	NAP	Official document on the mechanisms of access to land ownership and rural women developed	x	x		x		output
43	CMR	NAP	Number of groups of farmers identified and trained who effectively apply the prescribed measures		x		x		output
44	CMR	NAP	Number of pilot farms and seed farms created	x	x		x		output
45	CMR	NAP	Reports on baseline and improved situation of production				x		input
46	CMR	NAP	Number of people trained in crop and agricultural waste management	x	x		x		output
47	CMR	NAP	Number of functional zoning plans		x		x		process
48	CMR	NAP	Number of groups of breeders identified and trained who effectively apply the prescribed measures		x		x		output
49	CMR	NAP	Number of hay storage areas and water points		x		x		output

#	Country	Source	Indicator	S	M	A	R	T	M&E function
50	CMR	NAP	Number of boreholes and drinkers created and operational	x	x		x		output
51	CMR	NAP	Cultivated and managed forage areas				x		output
52	CMR	NAP	Landscaped / restored areas				x		output
53	CMR	NAP	Production of animal feed inputs				x		output
54	CMR	NAP	Number of demonstration units created		x		x		output
55	CMR	NAP	Number of fish farmers trained	x	x		x		output
56	CMR	NAP	Number of fishponds and above ground structures created and functional		x		x		output
57	CMR	NAP	Number of demonstration centers built and rehabilitated	x	x		x		output
58	CMR	NAP	Number of fish drying ovens installed (improved stoves) or constructed to reduce post-harvest losses	x	x		x		output
59	COD	NDC	Number of development plans integrating climate change adaptation		x		x	x	process
60	COD	NDC	Number of climate resilient seeds adopted		x		x	x	outcome
61	COD	NDC	Area of zones to be specifically allocated for agricultural activities	x	x		x	x	output
62	COD	NDC	Number of meteorological bulletins and seasonal forecasts published	x	x		x	x	output
63	COD	NDC	Number of beneficiaries	x	x		x	x	output
64	COD	NDC	Yield estimates		x		x	x	outcome
65	COD	NDC	Percent of population targeted, disaggregated by sex, age, and province	x	x		x	x	output
66	COD	NDC	Percent of population targeted	x	x		x	x	output
67	COD	NDC	Number of kilometers of agricultural tracks developed and rehabilitated	x	x		x	x	output
68	COD	NDC	Number of cultural practices		x		x	x	output
69	COD	NDC	Number of improved and/or resilient seeds		x		x	x	output
70	COD	NDC	Number of meteorological stations built	x	x		x	x	output
71	COD	NDC	Number of women benefiting from capacity building	x	x		x	x	output
72	COD	NDC	Number and type of energy alternatives developed	x	x		x	x	output
73	COD	NDC	Number of households benefiting from strengthened capacity	x	x		x	x	outcome
74	COD	NDC	Number and type of support to research and innovation	x	x		x	x	input
75	COD	NDC	Number of enterprises developed	x	x		x	x	output
76	COD	NDC	Number of plans developed for the implementation of an early warning system for women in food crops agriculture	x	x		x	x	process
77	COD	NDC	Number of hydro-agricultural buildings developed	x	x		x	x	output
78	COD	NDC	Number of programs for water and land conservation programs developed	x	x		x	x	process
79	COD	NDC	Number of small-scale producers benefiting from subsidies	x	x		x	x	output
80	COD	NAP	Number of experience sharing/consultation/awareness-raising meetings organized	x	x	x	x		output
81	COD	NAP	Number of centralized sharing platforms set up	x	x	x	x		output
82	COD	NAP	Number of gender-sensitive institutional analyses carried out	x	x	x	x		input
83	COD	NAP	Number of exchange and information platforms set up	x	x	x	x		output
84	COD	NAP	Number of meetings/structured dialogues/information- sharing meetings organized	x	x	x	x		output
85	COD	NAP	Number of national strategies for mobilizing participatory and gender sensitive CCA funding developed and disseminated		x	x	x		process
86	COD	NAP	Number of school programs integrating negotiation skills training	x	x	x	x		process
87	COD	NAP	Number of capacity development strategies integrating negotiation skills training	x	x	x	x		process
88	COD	NAP	Number of people trained in negotiation skills	x	x	x	x		output
89	COD	NAP	Number of people who participated in climate negotiations	x	x	x	x		output
90	COD	NAP	Number of training sessions on the formulation, management, monitoring and evaluation of projects integrated into the CCA plan		x	x	x		input
91	COD	NAP	Number of gender-sensitive capacity development strategies integrating training in formulation, monitoring, evaluation of projects	x	x	x	x		process
92	COD	NAP	Number of people trained in the project/ programme management cycle	x	x	x	x		output
93	COD	NAP	Number of people involved in project management/steering committees	x	x	x	x		output
94	COD	NAP	Number of institutional frameworks established for information management and dissemination	x	x	x	x		process
95	COD	NAP	Number of people trained in information management and dissemination techniques	x	x	x	x		output
96	COD	NAP	Number of practical tools provided for collecting, managing and disseminating information		x	x	x		output
97	COD	NAP	Number of studies on financial opportunities carried out	x	x	x	x		input
98	COD	NAP	Number of people who have participated in dialogues structures with financial partners	x	x	x	x		output
99	COD	NAP	Number of internal strategies		x	x	x		process
100	COD	NAP	Number of studies on financing opportunities carried out	x	x	x	x		input
101	COD	NAP	Number of people who participated in structured dialogues with financial partners	x	x	x	x		output

#	Country	Source	Indicator	S	M	A	R	T	M&E function
102	COD	NAP	Number of internal financing mobilization strategies developed		x	x	x		process
103	COD	NAP	Number of state financial decision-makers who participated in the institutions' activities		x	x	x		output
104	COD	NAP	Number of partnerships established/ strengthened with financial partners	x	x	x	x		output
105	COD	NAP	Number of internal human capacity development strategies developed and implemented	x	x	x	x		process
106	COD	NAP	Number of training sessions organized	x	x	x	x		output
107	COD	NAP	Number of people recruited	x	x	x	x		input
108	COD	NAP	Number of gender strategy and/or action plan developed and implemented	x	x	x	x		process
109	COD	NAP	Number of operational platforms for sharing information for and inter-institutional and multi-stakeholder dialogue on gender	x	x	x	x		output
110	COD	NAP	Number of people trained in gender mainstreaming techniques in the CCA planning framework		x	x	x		output
111	COD	NAP	Number of regulatory texts on the institutions' mandate revised	x	x	x	x		process
112	COD	NAP	Number of internal procedures assessed and revised	x	x	x	x		process
113	COD	NAP	Number of people trained in standards and procedures	x	x	x	x		output
114	ETH	NDC	Productivity of rainfed cropland (based on average for teff wheat, barley and corn)	x	x		x	x	outcome
115	ETH	NDC	Area under irrigation (based on corn, wheat, tomatoes and onions)	x	x		x	x	output
116	ETH	NDC	Crop production through irrigation	x	x		x	x	output
117	ETH	NDC	Productivity of specialized poultry commercial	x	x		x	x	outcome
118	ETH	NDC	Productivity of specialized poultry household	x	x		x	x	outcome
119	ETH	NDC	Productivity of sheep	x	x		x	x	outcome
120	ETH	NDC	Productivity of goat	x	x		x	x	outcome
121	ETH	NDC	Percentage of improved livestock	x	x		x	x	output
122	ETH	NDC	Percentage of coverage of animal health services - dairy	x	x		x	x	output
123	ETH	NDC	Percentage of coverage of animal health services - beef	x	x		x	x	output
124	ETH	NDC	Percentage of coverage of animal health services - small ruminants	x	x		x	x	output
125	ETH	NDC	Percentage reduction of crop and animal disease cases	x	x		x	x	outcome
126	ETH	NDC	Percentage of improved content in dry feed - local dairy	x	x		x	x	output
127	ETH	NDC	Percentage of improved content in dry feed - crossbreed	x	x		x	x	output
128	ETH	NDC	Percentage of improved content in dry feed - exotic	x	x		x	x	output
129	ETH	NDC	Improved seed coverage - teff ha	x	x		x	x	output
130	ETH	NDC	Vulnerable districts covered by crop disease and pest monitoring systems (all districts nationally)	x			x	x	output
131	ETH	NDC	Improved seed coverage - barley ha	x	x		x	x	output
132	ETH	NDC	Improved seed coverage - wheat ha	x	x		x	x	output
133	ETH	NDC	Improved seed coverage - corn ha	x	x		x	x	output
134	ETH	NDC	Number of farmers (gender disaggregated) covered by drought crop insurance	x	x		x	x	output
135	ETH	NDC	Number of dependent communities benefiting from climate resilient wildfire resources		x		x	x	output
136	ETH	NDC	Number of PFM associations vested with legal personality		x		x	x	output
137	ETH	NAP	% Increase in yield per hectare (tons)		x	x	x		outcome
138	ETH	NAP	% Increase in agro biodiversity index values	x	x	x	x		outcome
139	ETH	NAP	% of targeted population (women/men) adopting one or more climate-smart agricultural practices		x	x	x		outcome
140	ETH	NAP	% of targeted population (women/men) that are food secure	x	x	x	x		outcome
141	ETH	NAP	# of SNRM plans integrating adaptation developed for vulnerable landscapes		x	x	x		process
142	ETH	NAP	# of hectares of vulnerable landscapes where SNRM plans integrating adaptation are implemented		x	x	x		output
143	ETH	NAP	# of households/communities harvesting rainwater	x	x	x	x		output
144	ETH	NAP	# of hectares of land where SWC measures have been implemented		x	x	x		output
145	ETH	NAP	% of target population (women/men) better able to manage rainfall variability	x	x	x	x		outcome
146	ETH	NAP	% of conservation practitioners aware of climate change impacts on ecosystems	x	x	x	x		outcome
147	ETH	NAP	# of hectares conserved in ways that build ecosystem resilience		x	x	x		output
148	ETH	NAP	# of conservation plans addressing climate impacts on ecosystems	x	x	x	x		process
149	ETH	NAP	% of targeted vulnerable people (women/men) benefiting from livelihood diversification		x	x	x		output
150	ETH	NAP	% of vulnerable people (women/men) with access to social protection mechanisms when affected by climate shocks	x	x	x	x		outcome
151	ETH	NAP	% of targeted population (women/men) adopting one or more climate-resilient livelihood practices		x	x	x		outcome
152	ETH	NAP	# of dialogues/planning processes where local and scientific climate knowledge are integrated		x	x	x		process
153	ETH	NAP	# of community watershed/rangeland plans integrating endogenous adaptation practices		x	x	x		process

#	Country	Source	Indicator	S	M	A	R	T	M&E function
154	ETH	NAP	# of value chain climate risks assessments completed	x	x	x	x		input
155	ETH	NAP	% of value chain actors (women/men) actively managing climate risks	x	x	x	x		input
156	ETH	NAP	# of insurance companies offering drought and crop insurance	x	x	x	x		output
157	ETH	NAP	% of target population (women/men) with insurance		x	x	x		output
158	ETH	NAP	% of target population (women/men) with access to early warning systems	x	x	x	x		output
159	ETH	NAP	# of agencies with better preparedness for climate hazards		x	x	x		outcome
160	ETH	NAP	# of people (women/men) benefitting from adaptation technologies		x	x	x		output
161	ETH	NAP	# of research products produced that address climate change adaptation/consider climate change impacts		x	x	x		output
162	ETH	NAP	Documented cases of research informing climate-adaptive policies and practices			x	x		input
163	LBR	NAP	Number of technical staff at MoA and CARI trained using technology for managerial aspect, integrated pest control, and plants pathogen		x		x		output
164	LBR	NAP	Staff end-of-training proportion on national and sub-national level using different agrochemical zones to generate crops vulnerability analyses				x		output
165	LBR	NAP	Increase capacity of subnational-local farmers to increase production using climate-proof agro-infrastructure systems				x		outcome
166	LBR	NAP	Number of communities members trained on livestock using early morning warning system base on climate variability proportion to regions		x		x		output
167	LBR	NAP	Create a department of research at MoA and CARI and academic institutions to develop a database for soil, seeds banks, climate-resilient crops, and gene banks geographically				x		output
168	LBR	NAP	Create a department of communication to disseminate climate change adaptation program at MoA and CARI using the EKMS and CCKS				x		output
169	LBR	NAP	Agricultural risk and vulnerability monitoring system deployed	x	x		x		output
170	LBR	NAP	Climate-resilient crops identified to increase adaptation		x		x		output
171	LBR	NAP	A fishery monitoring system established	x	x		x		output
172	LBR	NAP	Number of staff of governmental and non-governmental agencies trained-capacity enhanced		x		x		output
173	LBR	NAP	An appropriate surveillance system for fishing established		x		x		output
174	LBR	NAP	Number of staff at the Bureau of National Fisheries trained	x	x		x		output
175	LBR	NAP	Establishment of a department of research at the Bureau of Fisheries to understand climate vulnerability assessment fishes	x	x		x		output
176	LBR	NAP	Spatially develop marine protected areas				x		output
177	LBR	NAP	Establish and deployed Bureau of Fisheries surveillance team				x		output
178	LBR	NAP	Number of the early warning system and monitoring system established to a reduced external stressor on fisheries		x		x		output
179	LBR	NAP	Community trained on sustainable fisheries activities				x		output
180	MDG	NAP	Number of households benefiting from improved resilience to climate shocks (especially droughts)	x	x		x		outcome
181	MDG	NAP	Adoption rate of improved farming techniques	x	x		x		outcome
182	MDG	NAP	Number of households benefiting from improved self-organization and learning capacities		x		x		outcome
183	MDG	NAP	Number of SRAT and PRD developed considering climate challenges		x		x		process
184	MDG	NAP	Number of livestock mobility plans developed and implemented at the communal level	x	x		x		process
185	MDG	NAP	Number of households whose income has increased following the development of income-generating activities resilient to climate change	x	x		x		outcome
186	MDG	NAP	Number of households benefiting from improved self-organization and learning capacities		x		x		outcome
187	MDG	NAP	Number of households whose main activity is fishing and have strengthened their response capacities to extreme events (cyclones)	x	x		x	x	outcome
188	MDG	NAP	Number of households whose main source of income is fishing and whose income has increased following a change in resource management	x	x		x	x	outcome
189	MDG	NAP	Number of households whose main activity is fishing and have strengthened their capacity to absorb climate shocks regarding food security	x	x		x	x	outcome
190	MDG	NAP	Number of households benefiting from improved self-organization and learning capacities		x		x	x	outcome
191	MDG	NAP	Additional land areas benefiting from improved resilience to climate change		x		x	x	outcome
192	MDG	NAP	Number of producers benefiting from the adoption of technologies contributing to climate change adaptation		x		x	x	outcome
193	MDG	NAP	Number of private operators involved in agribusiness		x		x	x	process
194	MDG	NAP	Average yield of main crops	x	x		x	x	outcome
195	RWA	NDC	Number of climate resilient crop varieties developed		x	x	x	x	output
196	RWA	NDC	Percentage of farmers adopting resilient crop/varieties		x	x	x	x	outcome
197	RWA	NDC	Percentage of crossbreed livestock at national herd species	x	x	x	x	x	output
198	RWA	NDC	Capacity of storage constructed in MT	x	x	x	x	x	output
199	RWA	NDC	Number of farmers using surveillance tool (FAW Database, BXW apps etc.	x	x	x	x	x	output
200	RWA	NDC	Area of land under erosion control measures and used optimally		x	x	x	x	output
201	RWA	NDC	Percentage of arable land (to the land area	x	x	x	x	x	output
202	RWA	NDC	Number of hectares under irrigation within IWRM framework		x	x	x	x	output
203	RWA	NDC	Ha of crops under insurance	x	x	x	x	x	output
204	RWA	NDC	Number of cows under insurance	x	x	x	x	x	output

#	Country	Source	Indicator	S	M	A	R	T	M&E function
205	RWA	NDC	Change in land area covered by agroforestry	x	x	x	x	x	output
206	RWA	NDC	Hectares of forest restored/ afforested in program area		x	x	x	x	output
207	RWA	NDC	Hectares of protected forest in project/program area	x	x	x	x	x	output
208	RWA	NDC	Percentage of forest area (to the land area	x	x	x	x	x	output
209	RWA	NDC	Number of Ha of private forest restored and whose owners are grouped into cooperatives	x	x	x	x	x	output
210	RWA	NDC	Number of Ha of forest plantation whose management is transferred to the private operators	x	x	x	x	x	output
211	RWA	NDC	Change in forest area degraded/ rehabilitated		x	x	x	x	output
212	RWA	NDC	National land use development master plan that includes comprehensive measures and procedures for sustainable land use practices			x	x	x	process
213	RWA	NDC	Detailed spatial plans for all districts			x	x	x	process
214	RWA	NDC	% of compliance of land use development plans (LUDP) to the NLUDMP			x	x	x	output
215	RWA	NDC	Accurate data on exposure to climate vulnerability on households (HHs) and infrastructures in high-risk areas reported			x	x	x	input
216	RWA	NDC	Percentage of operational integrated geospatial information framework integrated with environmental and socio-economic statistics		x	x	x	x	input
217	RWA	NDC	Percentage of registered state land optimally used		x	x	x	x	output
218	RWA	NDC	Model linking land use/administration in place			x	x	x	input
219	UGA	NDC	Proportion of farmers practicing sustainable land management practices (%)		x		x	x	output
220	UGA	NDC	Area under irrigation (ha	x	x		x	x	output
221	UGA	NDC	Share of post-harvest losses (%)	x	x		x	x	output
222	UGA	NDC	Volume of fish stock (tons/year)	x	x		x	x	output

21 Country names are expressed using their ISO 3166-1 alpha-3 codes. x indicates that an indicator meets a SMART criterion: Specific,

22 Measurable, Achievable, Relevant and Time-bound. M&E function refers to the monitoring and evaluation function of the indicator.

Supplementary Note 2: Research Protocol

Introduction

Adaptation tracking focuses on measuring and assessing how people and ecosystems adapt to climate change across spatial scales and over time¹. The field has been fertile ground for scientists and practitioners since the establishment of the Global Goal on Adaptation (GGA) and the Global Stocktake (GST) in the Paris Agreement². The GGA articulates a collective intent to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change. The GST represents a periodic review process that assess countries' progress towards achieving the PA goals, including the GGA. The GST is expected to be carried out every five years, starting with 2023. Understanding how to measure progress towards the GGA is critical for the GST, but also for enhancing adaptation support and action at national and local levels.

Many approaches to track adaptation have been developed in response to the lack of standards for assessing adaptation progress and success. These include: use of indicators to measure institutional readiness, processes and outcomes^{3–5}; proximity-to-targets approaches that allow comparative assessments, while accounting for context-specificity^{6,7}; frameworks to combine standardized domains with context-specific, process and outcome-based indicators⁸; leveraging existing reporting frameworks and indicators, such as the Sustainable Development Goals (SDGs)⁹; qualitative assessments of enabling environments^{10–12}; or scorecards to assess policy implementation⁴. Syntheses of existing approaches and frameworks reveal variations in scope, data collection methods, and resource requirements^{1,13–15}. The potential for leveraging existing national policies and information systems for adaptation tracking efforts remains unexplored. This has led to missed opportunities for reducing data burden and for promoting more bottom-up, country-driven processes for adaptation tracking.

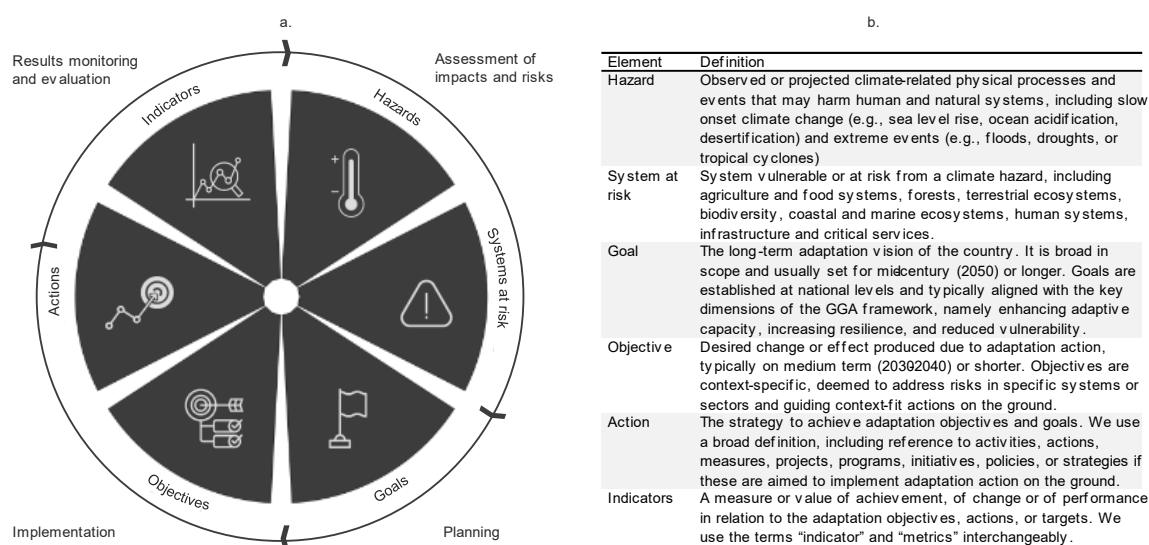
This protocol fills this gap. It guides assessments of opportunities for leveraging existing national policies for future adaptation tracking processes. The protocol establishes that national policies can inform holistic, context-relevant and operational adaptation tracking efforts if they provide comprehensive, coherent, and robust information on adaptation (Table S4).

Table S4: Criteria, questions and analytical lens for assessing the potential of existing policies to inform adaptation tracking

Criteria	Question	Analytical lens
Comprehensiveness	Do policies provide comprehensive information on adaptation context, vision, strategies, and mechanisms to track achievement and effectiveness?	Presence of six adaptation elements
Coherence	Do policies include information that is coherent across the adaptation policy cycle?	Intentional linkages between adaptation elements
Robustness	Do policies include robust information that can be measured and tracked?	Quality of adaptation elements: existence of measurable and time-bound targets and SMART indicators

Comprehensiveness. Adaptation progress and effectiveness is best understood through a contextualized assessment of core elements that capture the breadth of adaptation processes and outcomes occurring in and across countries, sectors, and systems⁶. These elements refer to climate hazards, systems at risk, goals, objectives, actions, and indicators. The elements are embedded in the adaptation policy cycle, which describes an iterative process of understanding the adaptation context, vision, strategies, and mechanisms to track results¹⁶. Applying this criterion in our assessment, we expect that policies provide information on the six elements that deliver a comprehensive understanding of adaptation (Figure S1). Hazards and systems at risk establish the adaptation rationale, while goals and objectives articulate desired visions for change or transformation, at national and sub-national/sectoral level. Adaptation actions lay out the strategy to address risks and achieve the desired vision. Indicators represents instruments for measuring progress and effects of adaptation efforts.

Figure S1: Elements for adaptation tracking across the adaptation policy cycle. a) analytical framework and **b)** definitions of elements. Supplementary Table S4 provides detailed definitions.



Coherence. Adaptation success varies across interventions, spatial and temporal scales, and stakeholders' normative views of success^{17,18}. Therefore, assessments of adaptation need to adequately capture the context in which adaptation unfolds, to provide meaningful insights on progress and effectiveness. This requires coherence between what the policy aims to measure, the implementation strategies, the policy goals and objectives, and the climate risks to be addressed. We assess coherence of information in national policies by exploring the extent to which elements of the adaptation cycle are integrated into coherent adaptation narratives (also defined in the literature as theories of change or transformation^{6,16,19} or adaptation pathways^{20,21}. This involves exploring the extent to which assessments of hazards and systems at risk inform planning, implementation, monitoring and evaluation processes; whether planning informs implementation and indicators design; and whether indicators measure activity implementation, objectives and goals and changes in hazard impacts. Our assessment of coherence is pragmatic and focuses on the internal coherence of adaptation policies; we document explicit linkages between sets of elements provided in the documents (text, tables, figures) (See Sect. *Procedure* and Supplementary Table S7). While such an approach is inherently subjective⁷, it provides a preliminary approximation of the extent to which policies can deliver meaningful information for tracking efforts.

Robustness. The adaptation literature addresses robustness primarily in relation to improved indicator design and data sources that allow capturing the plurality of adaptation dimensions and perspectives^{1,22–25}, balancing between quantitative and qualitative assessment methods²⁶, or capturing local contexts²⁷. Nonetheless, the application of this criterium in large-scale assessments has yet to be demonstrated. In our analysis, we assess robustness by exploring the extent to which NDCs and NAPs provide clear benchmarks to operationalize tracking. these include measurable and time-bound targets and indicators that meet SMART criteria, *i.e.*, specific, measurable, achievable, relevant and timebound^{28,29}. This allows us to move beyond mapping the presence/absence of elements across the adaptation cycle, to assessing the quality (or depth) of information, which can enable (or hinder) effective tracking efforts. Measurable and time-bound targets are critical for providing benchmarks to gauge progress in implementation and effectiveness³⁰. SMART indicators help to ensure feasibility of tracking. While many other indicator assessment lenses exist, SMART criteria are well-known in the adaptation and development programming community. They help to assess whether indicators provide sufficiently clear detail about what is being measured (specific); indication of how they will be counted, observed or analyzed (measurable); explicit reference to data sources

that allows measurement (achievable); evidence of linkages with the adaptation context (relevance); and a clear time reference for achievement (time-bound).

The analytical framework for the Protocol – with the three criteria and six elements for adaptation tracking – draws on available science but is not exhaustive. It is designed to bridge theoretical discussions with practical application. Its utility rests in its applicability across countries and adaptation policies, as well as the potential to provide evidence of how adaptation is planned, aimed to be implemented, monitored and evaluated across contexts. This information holds value not only in the context of the GST, but also at national scales, as countries are developing or implementing national adaptation policies, programs, and projects and/or revising their Nationally Determined Contributions (NDCs) for improved climate ambition. Its application can uncover opportunities on how countries can effectively engage in future adaptation planning and tracking efforts, by leveraging existing policies. While this can help show progress in adaptation planning, the real challenge lies in generating evidence of adaptation effectiveness. This requires complementary assessments of how intentions and plans translate into actions or results on the ground, aspects which our framework does not cover. Lastly, application of the framework can be challenged by the inconsistent use of concepts and terminology across countries and policy documents, as well as the inherent subjectivity that accompanies such analyses. This underscores the necessity for establishing clear protocols to transparently communicate research decisions and ensure consistent interpretation and comparability of results.

Procedure

This protocol outlines the methods to assess entry points for governments to engage in country-driven adaptation tracking processes, by leveraging existing policy efforts. The steps described build on the analytical framework that informs the protocol (See Sect. *Introduction*)

1. Protocol Scope

The Protocol guides data collection and analysis of the extent to which national policies provide

- i. *comprehensive* information, to ensure a holistic understanding of adaptation
- ii. *coherent* information, to facilitate a context-relevant understanding of adaptation
- iii. *robust* information, to ensure operational tracking

2. Document selection

National policies of interest include publicly available National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs) of African countries publicly. NAPs and NDCs are important sources of information of a country's intentions for adaptation enshrined in the United Nations Framework Convention on Climate Change (UNFCCC), including vision, priorities, and progress. NDCs and NAPs address adaptation at different timeframes and serve distinct functions within countries. NAPs are thorough planning processes aimed at identifying and addressing medium- and long-term adaptation needs at multiple scales and across sectors. Adaptation components in NDCs serve as higher-level communication instruments that contain information on a country's vulnerability to climate change and planned adaptation efforts and gaps. They also represent critical vehicles for low-income countries to communicate their support needs to the international community. They may also be considered as adaptation communications for reporting on adaptation progress and are expected to be revised every five years. Despite their largely normative content, they are the best available sources for comparable information on adaptation priorities and tracking systems across countries. National Communications (NCs) were excluded from the analysis, as our intention was to focus on forward-looking aspects of how countries plan to track adaptation.

We downloaded all African NDCs and NAPs available on the UNFCCC NDC Registry and NAP Central by 30 of September 2022 (Supplementary Table S5). The cut-off date was chosen to strike a balance between capturing recent adaptation policies and ensuring feasibility of data collection and analysis. By the established date, 53 NDCs and 15 NAPs had been published on the UNFCCC Registry and NAP Central, respectively. Newer documents published after the cut-off date, such as NAPs of Cabo Verde, Mozambique Niger, and Zambia, or updated NDCs of Egypt and Equatorial Guinea shall be included in a subsequent update of the database.

Table S5: Selection of source documents: inclusion and exclusion criteria

Criteria	Included	Excluded
Document type	Nationally Determined Contribution (NDC) with an adaptation component (i.e., a dedicated section on adaptation) National Adaptation Plan (NAP)	NDC without an Adaptation component/ section National Adaptation Programme of Action National Climate Change Strategy Sector-specific Adaptation Plans
Geography	NDC/NAP of an African nation, including Near East and North Africa: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe	NDC/NAP of a country outside the African continent, <i>i.e.</i> , not included in the list on the left
Time period	Submitted by 30 September 2022 If a government has made multiple submissions (first and second generation NDCs), we include the most recent submission	Submitted after 30 September 2022
Availability	Available on UNFCCC NAP Central or NDC Registry	Not published on UNFCCC repository OR in progress of submission

3. Initial document screening

We conducted an initial manual screening of the documents to understand their structure and content. Specifically, we checked whether information on the three criteria (Table S4) and six adaptation tracking elements (Figure S1) is generally available in these types of documents. This allowed us to assess the applicability of the framework to the document types of interest, but also to fine-tune definitions in the framework and establish data collection rules.

4. Establishment of data collection rules

We defined clear guidelines to ensure data extraction consistency within the team (Supplementary Tables S6 and S7). The structure of the guidance was informed by an existing extraction codebook for the systematic global stocktake of evidence on human adaptation to climate change³¹. While key definitions had been established in the framework informing the Protocol (see Sect. *Introduction*), this step was essential to refine these and ensure alignment with the content and language used in these documents. For instance, we broadened our initial definition of actions to include both on-the-ground initiatives and relevant policies and programs, recognizing that NDCs and NAPs place a heavy emphasis on planned adaptation, compared to groundwork initiatives. In addition, this step also enabled us to refine our approach to recording information on targets, which are typically set in relation to objectives, actions or indicators, rather than stand-alone elements.

5. Screening

Data extraction was carried out manually, by a team of three. Every team member screened a subset of documents ($N=68$), ensuring thorough coverage while maintaining a manageable workload. For documents in French and Spanish language documents, the data extracted were translated into English using open-source software (Google Translate). Given the nature of the information required, we extracted data in two different databases, as follows:

(i) the main database captures data on comprehensiveness and robustness of adaptation elements. Here, each row ($n=7686$) records information for one specific element in a specific document (*i.e.*, NDC or NAP) of a country (Supplementary Table S6). A document may include multiple elements of the same type, such as several distinct hazards, systems at risk, goals, objectives, or indicators. Each unique element (*i.e.*, action, indicator, etc.) is recorded individually in the database.

(ii) the secondary database captures data on coherence between adaptation elements for each document (NDC or NAP) in a specific country (Supplementary Table S7). Here, for each document ($n=68$) we recorded linkages between sets of elements (*i.e.*, between sets of actions and objectives; sets of actions and indicators, etc.). We did not document linkages at the level of each unique element (*i.e.*, *between* an individual objective and an individual action), as such documents do not provide the needed granularity for such associations.

Data extracted was cross-checked by the team lead member, who randomly revisited source documents to validate and enhance the accuracy of the information extracted. In addition, the team convened regularly during the data extraction and coding phase to discuss and resolve any discrepancies in extraction and coding and ensure consistency.

6. Coding

Coding categories and definitions (See Supplementary Table S8) are grounded in established adaptation frameworks, to ensure alignment with the current state of knowledge on adaptation. Specifically, hazard categories were developed based on the Sixth Assessment Report (AR6) of the International Panel for Climate Change (IPCC)³² and the International Disaster Database EM-DAT³³. Typology of systems at risk is aligned with IPCC AR6³². Sector categories are aligned to IPCC AR6 Working Group II (WGII)³⁴, the Global Adaptation Mapping Initiative (GAMI)³¹ and observed patterns in the text. For indicators, typologies by tracking function is informed by the monitoring and evaluation literature³⁵ and

211 SMART criteria are based on established practice for designing and using performance
212 indicators^{28,29,36}.

213 Coding was performed by the team lead and cross-checked by the other two members
214 independently, to ensure accuracy and consistent interpretation. Discrepancies in coding
215 among the three members were discussed and resolved through consensus. Ongoing
216 communications among the team members helped to address ambiguities in coding
217 guidelines and to ensure that all team members had a shared understanding of the criteria.

218 We used automatic text classification through keyword and expression matching to code
219 information on sectors, hazards, and systems at risk. This was performed using the R
220 programming tool. Text strings were compared to predefined keywords and phrases (See
221 Supplementary Table S8) and assigned one of the sector codes developed from the
222 literature^{34,37}. While keyword-based classification is straightforward, it may overlook
223 important observations since it only considers the presence or absence of specific words in
224 the text data. Ambiguity can arise from certain text data, where the same text can be
225 interpreted in multiple ways or assigned to multiple categories based on different criteria. For
226 instance, the observation regarding "agricultural area under efficient water management
227 technologies" could be labeled as either "food and fiber" or "water and sanitation" sector. To
228 enhance classification accuracy, we developed detailed search strings specific to the category
229 of interest. Additionally, we used context and syntax analysis to identify sentence structures
230 or phrases that characterize different categories of interest. This approach helped to clarify
231 ambiguous text data and ensure correct categorization. The code used for data coding is
232 available at: <https://github.com/andreeanowak/adaptation-tracking-africa>.

233 We manually categorized indicators using deductive content analysis. Indicators require
234 nuanced understanding of the context and domain expertise and their typologies cannot be
235 determined by simple key word searchers. Clear and comprehensive coding guidelines were
236 essential to avoid ambiguity and ensure quality of the analysis. In addition, maintaining a
237 detailed documentation of the coding process, including the rationale behind coding decisions
238 and examples, was critical for maintaining consistency and for ensuring decision
239 transparency for future replication efforts.

240 **Table S6: Instructions for extracting data on comprehensiveness and robustness of**
241 **information in national policies**

Question	Label	Instruction	Code	Definitions and detailed instructions
1 Which country developed the document?	Country	Select one	Open field	The list of countries follows the United Nations Standard Country or Area codes (M49) ¹⁰ . Options: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe
2 Which document is reviewed?	Document	Select one that applies	NDC NAP	Nationally Determined Contribution National Adaptation Plan
3 What year was the document published?	Document Year	Copy text from source	Open field	For the year of publication of NDCs and NAPs, consider the year indicated on the online NDC Registry and NAP Central, respectively.
4 What element of adaptation tracking is included in the source document?	Element	Select one	Hazard	Explicit reference to one or more climate-related hazards. A hazard is understood as the "potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources" ¹¹ . Include reference to both observed and/or projected climate-related hazards (meteorological, hydrological, climatological, biological), including extremes and slow onset events. In NDCs and NAPs, information on hazards is typically included in the section on national circumstances/ climate risks, impacts, and vulnerabilities.
			System at risk	Explicit reference to one or more systems or sectors vulnerable or at risk from an observed/projected climate-related impact. Systems at risk might include agriculture, ecosystems, and/or human/social systems. In NDCs and NAPs, information on hazards is typically included in the section on national circumstances/climate risks, impacts, and vulnerabilities.
			Goal	Explicit reference to a long-term adaptation vision or a high-level objective. The goal is broad in scope and usually set for mid-century (2050) or longer. The definition of "goal" includes any statement in the source document that is explicitly tagged as "vision" OR "goal" and that is defined in relation to adaptation. The adaptation goal is typically found in the beginning of the Adaptation Component of an NDCs and the section explaining the high-level approach to adaptation in the NAP
			Objective	Explicit reference to a desired change or effect produced due to adaptation action, typically on medium term (2030-2040) or shorter. The definition of "objective" includes any statement in the source document that is explicitly tagged as "objective" OR "aim" OR "outcome" OR "result" OR "impact" OR "priority" OR "ambition". Exclude any statement that might be considered an objective but is not explicitly tagged using the previously mentioned labels. For example, exclude statements tagged as "pillar" or "benefit" as they do not describe a clear objective for adaptation. In the case of NAPs, also list objectives of Programs/Projects.
			Action	Explicit reference to an action or intervention that describes the strategy to prepare for, anticipate, or respond to climate impacts and to achieve adaptation objectives and goals. The definition of "action" covers any statement tagged as: "action" OR "activity" OR "measure" OR "intervention" OR "effort" OR "option" and only if it is explicitly articulated as a strategy to implement the adaptation component of the NDC or the NAP. Our definition of "action" also captures mentions of "project", "program", "programme", "initiative", "policy", "strategy" if these are referenced in the document to implement adaptation action on the ground. Adaptation actions typically have dedicated sections in NDCs and NAPs; they are included in lists, tables, or text. In the case of NDCs, we capture both conditional and unconditional actions, but the dataset does not distinguish between these. Unconditional actions refer to the initiatives that the government assumes to implement based on own resources and capacities, while conditional efforts are those that are contingent upon international finance. In the case of NAPs, list names of Programs/Projects, as well as key activities under these.
			Indicator	Reference to a measure/value of achievement, of change or of performance in relation to the adaptation objectives or actions. Our definition of "indicator" captures any explicit reference to an "indicator" OR "metric" identified in the document. We use the terms "indicator" and "metrics" interchangeably. Consider both

Question	Label	Instruction	Code	Definitions and detailed instructions	
				qualitative and qualitative indicators. NDCs and NAPs typically include indicators under the sections dedicated to monitoring and evaluation, in results framework tables or as bullet point text.	
5	How is the element labelled in the document?	Element Label	Copy text from source	Open field	Copy the statement about how the adaptation tracking element is defined, without modifying the text. Labels might include: “goal”, “vision”, “objective”, “outcome”, “action”, “activity”, “indicator”, etc. This information is collected to provide context for how data on adaptation tracking elements is being collected.
6	How is the element described in the document?	Element Text	Copy text from source	Open field	Copy the statement describing the adaptation element, without modifying the text. This might include bullet points or sentences. For French and Spanish documents, statements are translated to English using open-source software and double-checked by a French/ Spanish speaker.
7	Which sector or thematic area does the element refer to?	Sector	Copy text from source	Open field	Copy the text that mentions the sector or thematic area for the specific element, without modifying the text. Sector refers to the economic sector/ thematic area, as defined explicitly by the document. If the element refers to an enumeration of sectors/ thematic areas, this will be recorded accordingly in the field. If the document does not identify any sector or thematic area, the field is left blank.
8	Does the element include a target with a timeframe for achievement?	Target Time	Copy text from source	Open field	Specify the year (e.g., 2030) or the time frame (e.g., 2040-2050) by which the element (goal, objective, action, indicator) is expected to be achieved, as indicated in the source document. If a statement includes references to multiple years, these are recorded as a unique observation. Blank fields indicate the absence of a time-bound target for the element.
9	Does the element include a target with a desired value for achievement?	Target Value	Select one	Open field	Specify the numerical or qualitative benchmark for the element, as provided in the document. The target value represents the ideal or intended quantity or quality of the element. Numerical values might refer, for example, to number of beneficiaries, hectares restored, percentage changes in yields, or to a qualitative measure of achievement, such as “the document has been prepared”. Qualitative statements that do not provide information on the expected value or do not provide context for the level of desired results or changes, such as “high levels of adaptive capacity” are not considered targets. If the element includes multiple quantitative targets, these are recorded as separate rows, where all the other information in the columns is repeated. Blank fields indicate the absence of a measurable target for the element.
10	What is the unit of measurement for the target?	Target Unit	Copy text from source.	Open field	Specify the scale or dimension used to measure the target identified in question 9. The unit helps to interpret whether the target value represents percentages, counts, or some other unit, allowing for accurate data understanding and comparisons. Units might refer to: “US dollars”, “hectare”, “percentage”, “number”, “level”, “ton”, “kilogram”, etc. Blank fields indicate the absence of a measurable target for the element.
11	What is the metric for the target?	Target Metric	Copy text from source document	Open field	Specify what the target value refers to. The metric is broadly understood as the description that provides context to the target value, offering insights into the subject or category of the target, essential to understanding the target content and purpose. Metrics might refer to: information systems, farmers, area cultivated, etc. Blank fields indicate the absence of a measurable target for the element.
12	What is the baseline year for the target?	Target Base Year	Copy from source document	Open field	Specify the reference (baseline) year for the target, if specified in the document. Blank fields indicate the absence of a baseline year for the target.
13	What is the baseline value for the target?	Target Base Value	Copy from source document	Open field	Specify the reference value against which progress to the target will be compared, if specified in the document. Blank fields indicate the absence of a baseline value for the target.

242 The table provides questions, definitions, and instructions to guide data extraction on
243 adaptation elements featured in NDCs and NAPs, as indications of comprehensiveness and
244 robustness. In the data collection sheet, each row records an individual observation for an
245 adaptation tracking element. The columns represent attributes of each observation (source
246 document, year of document, as well as detailed typologies of each element).

247 **Table S7: Instructions for extracting data on coherence of information in national**
248 **policies**

	Question	Variable label	Instruction	Code	Definitions and detailed instructions
1	Which country developed the document?	Country	Select one	Open field	The list of countries follows the United Nations Standard Country or Area codes (M49) ¹⁰ . Options: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe
2	Which document is reviewed?	Document	Select one	NDC NAP	Nationally Determined Contribution National Adaptation Plan
3	When was the document published?	DocYear	Copy text from source	Open field	For the year of publication of NDCs and NAPs, consider the year indicated on the online NDC Registry and NAP Central, respectively
4	Are hazards linked to systems at risk?	HazardSystem	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document provides some evidence that a climate hazard (or several) affects a specific system or sector (or several). 0 indicates no linkage or missing elements from the document (hazards and/or systems at risk)
5	Are goals linked to hazards?	HazardGoal	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document provides some evidence that one or more goals directly references climate hazards (<i>e.g.</i> , drought, flood, increased temperatures, etc.). Goals formulated as "adaptive capacity", "resilience", "vulnerability" or "hazards" are assumed to be linked to hazards if they include the word "climate" in their formulation. 0 indicates no linkage or no mention of hazards and/or goals
6	Are objectives linked to hazards?	HazardObjective	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document provides some evidence that one or more objectives directly references climate hazards (<i>e.g.</i> , drought, flood, climate-driven diseases, etc.) or is suggested in response to or in anticipation of climate hazards (<i>e.g.</i> , climate resilient design, climate early-warning systems, etc.). 0 indicates no linkage or no mention of hazards and/or objectives
7	Are actions linked to hazards?	HazardAction	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document provides some evidence that one or more actions directly references climate hazards (<i>e.g.</i> , drought, flood, climate-driven diseases, etc.) or is suggested in response to or in anticipation of climate hazards (<i>e.g.</i> , climate resilient design, climate early-warning systems, etc.). 0 indicates no linkage or no mention of hazards and/or actions
8	Are indicators linked to hazards?	HazardIndicator	Select one	1; 0	1 indicates presence of a linkage if the document provides some evidence that one or more indicators measures (changes in) climate hazards, such as flood, drought, temperature increase, etc.; or measures implementation or effects of strategies to respond to or anticipate climate hazards (<i>e.g.</i> , adoption of climate-resilient practices, use of climate information, etc.). 0 indicates no linkage or no mention of hazards and/or indicators
9	Are goals linked to systems at risk?	SystemGoal	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document provides some evidence that one or more goals directly references specific systems (or sectors) at risk. 0 indicates no linkage or no mention of systems at risk and/or goals
10	Are objectives linked to systems at risk?	SystemObjective	Select one	1; 0	1 indicates the presence of a linkage, <i>i.e.</i> , the document provides some evidence that one or more objectives directly references specific systems (or sectors) at risk. 0 no linkage or no mention of systems at risk and/or objectives
11	Are actions linked to systems at risk?	SystemAction	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document provides some evidence that one or more actions directly references specific systems (or sectors) at risk. 0 indicates no linkage or no mention of systems at risk and/or actions
12	Are indicators relevant to systems at risk?	SystemIndicator	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document provides some evidence that one or more indicators directly references specific systems (or sectors) at risk. 0 indicates no linkage or missing elements (systems at risk and/or indicators).
13	Are objectives linked to goals?	GoalObjective	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document includes both goals and objectives. It is assumed that the goals established provide the overarching framework for objectives. 0 indicates no linkage due to missing goals or objectives
14	Are actions linked to goals?	GoalAction	Select one	1; 0	1 indicates the presence of a linkage, <i>i.e.</i> , the document identifies both goals and actions. It is assumed that the goals established provide the overarching framework for the actions (which are general or sector-specific). 0 indicates no linkage due to missing goals and/or actions
15	Are indicators linked to goals?	GoalIndicator	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the document identifies both goals and indicators. It is assumed that the goals

Question	Variable label	Instruction	Code	Definitions and detailed instructions
				established provide the overarching framework for the indicators (which are general or sector-specific). 0 indicates no linkage due to missing goals and/or indicators
16 Are actions linked to objectives?	ObjectiveAction	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the structure of the document provides clear evidence that objectives and actions are mapped in a hierarchical order. For example, the text lists actions under headers that contain objectives; or tables/figures map one or more actions to specific objectives. 0 indicates no linkage or no mention of objectives and/or actions
17 Are indicators linked to objectives?	ObjectiveIndicator	Select one	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the structure of the document provides clear evidence that objectives and indicators are mapped in a hierarchical order. For example, the text lists indicators under headers that contain objectives; or tables/figures map one or more indicators to specific objectives. 0 indicates no linkage or no mention of objectives and/or indicators
16 Are indicators linked to actions?	ActionIndicator	Select	1; 0	1 indicates presence of a linkage, <i>i.e.</i> , the structure of the document provides clear evidence that actions and indicators are mapped in a hierarchical order. For example, the text lists indicators under headers that contain actions; or tables/figures map one or more indicators to specific actions. 0 indicates no linkage or no mention of actions and/or indicators

249 Questions, variables, definitions, and instructions to collect information on linkages between
 250 adaptation elements, as an indication of coherence of the information. In the data collection
 251 sheet, each row represents a policy document (NDC or NAP) for a specific country. Variables
 252 4-18 record information on the presence (1) or absence (0) of a linkage between two pairs of
 253 elements.

254 **Table S8: Data analysis codebook: instructions, codes, and definitions (including search**
255 **terms) for characterizing adaptation elements**

Question	Variable	Instruction	Code	Definitions, search terms
1	What sector is featured?	Based on the sector identified (Question 7 in Table 1), select one option. Search terms provided in "definitions" column are suggestions and should be adapted	Food, fiber and other ecosystem products	Search terms: "agri", "agro", "food", "crop", "livestock", "animal", "fish", "fisheries", "aquacultur", "seed", "irrigation", "value chain", "land use", "land tenure", "land and forestry"
			Terrestrial and freshwater ecosystems	Search terms: "forest", "environ", "ecosystem", "biodiversity", "natural", "ecology", "wildlife", "REDD", "peatland", "protected area"
			Ocean and coastal ecosystems	Search terms: "ocean", "marine", "coast", "coastal land use", "coastal zone", "blue carbon", "mangrove"
			Water, sanitation and hygiene	Search terms: "sanitation", "water and sanitation", "sewerage", "hygiene"
			Cities, settlements and key infrastructure	Search terms: "city", "cities", "urban", "settlement", "infrastructure", "housing", "habitat", "industr", "waste", "transport", "energy"
			Health, wellbeing and communities	Search terms: "health", "well-being", "wellbeing", "nutrition", "culture", "territorial communit", "local knowledge"
			Livelihoods, poverty and sustainable development	Search terms: "social", "poverty", "people", "econom", "capacity", "education", "employment", "tourism", "rural development", "sustainable development", "economic and social infrastructure"
			Crosscutting	Search terms: "cross-cutting", "cross cutting", "cross-sectoral", "innovation", "research", "R&D", "integration", "empower", "gender", "women", "youth", "disaster", "risk", "climate", "meteo", "warning", "governance", "legislation", "policy", "policies", "institution", "M&E"
			Not specified	Select this option if the sector has not been defined in the source document
2	What type of hazard is featured?	Only applicable if the element identified is a "Hazard". Select one option	Extreme temperature	Reference to a meteorological event related to extreme temperature or higher temperatures compared to usual, including heat wave/excessive heat, and severe winter conditions (snow/ice, frost/freeze)
			Storm	Reference to a meteorological event such as storm, including tropical storm, hail, lightening, thunderstorm, heavy rain, windstorm, sand/dust storm, tornado
			Drought	Reference to a climatological event such as drought, drought cycles, prolonged droughts
			Wildfire	Reference to a climatological event such as wildfire, including forest fires and land fire (bush, pasture, etc.)
			Landslide	Reference to a climatological event such as landslides
			Flood	Reference to a hydrological event such as coastal floods, riverine floods, flash floods, ice jam floods
			Change in temperature	References to consistent alteration in average temperature, either a rise or a drop, typically observed over multiple years or decades.
			Change in precipitation	References to alterations in precipitation patterns, including shifts in timing, amount, intensity, frequency, typically observed over multiple years or decades
			Salinization	Reference to a process by which salt content in soil or freshwater systems increases due to sea level rise, changes in precipitation patterns or increased evaporation rates
			Land degradation	Reference to declines in quality and health of natural land resources caused by human-induced processes including anthropogenic climate change
			Sea level rise	Reference to increase in global and local average sea level, including coastal flooding and coastal erosion
			Sea temperature	Reference to changes to the temperature of the top layer of the ocean.
			Ocean acidification	Reference to reductions in the pH of the action, over an extended period (decades or longer)
			Pest and disease	Reference to climate-induced biological events such as pests and diseases, epidemics, insect infestations, etc.
3	Which type of system at risk is featured?	Only applicable if the element identified is a "System at risk". Select one option	Crop	Reference to observed and/or projected climate-related impacts and risks on cropping systems and crop value chains, including crop production losses and damage to productive assets and infrastructure related to crops
			Livestock	Reference to observed and/or projected climate-related impacts and risks on livestock systems and livestock value chains, including reduced animal and livestock health and productivity losses, as well as damage to productive assets and infrastructure related to livestock
			Fisheries and aquaculture	Reference to observed and/or projected climate-related impacts and risks on fisheries and aquaculture systems and value chains
			Forest	Reference to observed and/or projected climate-related impacts and risks on forests and forest ecosystem services and products, including non-timber forest product value chains
			Terrestrial	Reference to terrestrial ecosystems (including drylands) and their services, including changes in ecosystem structure, in provisioning services, in timing, etc.

Question	Variable	Instruction	Code	Definitions, search terms
			Freshwater	Reference to observed and/or projected climate-related impacts and risks on freshwater ecosystems (including inland wetlands) and their ecosystem services, including availability and quality of freshwater resources and changes in the hydrological cycle (e.g., water scarcity)
			Biodiversity	Reference to observed and/or projected climate-related impacts and risks on biodiversity (flora, fauna)
			Coastal	Reference to observed and/or projected climate-related impacts and risks on coastal, marine and ocean ecosystems and their services
			Food and nutrition	Reference to observed and/or projected climate-related impacts and risks on food security and nutrition outcomes of the population, including malnutrition in all its forms (undernutrition, overnutrition, obesity) and food safety risks
			Gender and inclusion	Reference to observed and/or projected climate-related impacts experienced disproportionately amongst vulnerable groups, including women, the elderly and children in low-income households, Indigenous Peoples, minority groups, small-scale producers, pastoralists, fishing and forest-based communities and people in high-risk regions, contributing to gender inequity, inequality and social exclusion.
			Livelihoods and poverty	Reference to observed and/or projected climate-related losses of livelihoods and income.
			Health	Reference to observed and/or projected climate-sensitive water- and vector-borne infectious diseases, heat morbidity, mental health and other adverse impacts on human health and health systems.
			Infrastructure and services	Reference to observed and/or projected climate-related damage to key infrastructure such as roads, bridges and critical services, including electricity, water, sanitation and hygiene, and education.
			Human security	Reference to observed and/or projected climate-related migration and displacement, armed and organized conflict and other risks to human security.
4	What is the tracking function of the indicator?	Indicator Type	Select one option	Input
				The indicator measures resources needed to implement an adaptation action, including financial resources (e.g., amount of finance), human resources (e.g., number of people required for implementing the activity), or technical resources (e.g., existence of risk analyses, maps, data).
				Process
				The indicator measures progress in designing or implementing adaptation policy processes (e.g., existence/ number of policies and plans to enable adaptation; existence of institution/ mechanism to promote adaptation or to ensure coordination). Here, institutions are interpreted as rules (regulations, policies), structure (fund, ministry) or systems (early-warning systems)
				Output
				The indicator measures immediate results (or outputs) from the implementation of activities, without assessing if these results lead to changes in the baseline condition. Output indicators measure an immediate result of an activity, which might be expressed in terms of: number/ type of product or service developed or disseminated, such as trees planted, improved cookstoves installed; seed varieties disseminated, etc.; coverage (area) of the activity or the output; beneficiaries or adopters of the activity or the product, including beneficiaries or adopters of an improved technology, individuals trained, etc. "Area reforested" is considered an output indicator if it is a direct result of a reforestation activity.
				Outcome
				The indicator measures intended or achieved effects of an output on human and natural systems and/or the level of success of specific adaptation measures in relation to a climate risk. In addition, coverage and uptake indicators are also considered outcome indicators if they refer to the change in condition emerging from an activity. Examples of outcome indicators might include agricultural productivity improvements, water use efficiency rates, livelihoods and wellbeing scores, food security rates, farmers recovering from extreme events, participants with improved knowledge, etc.
				Climate parameter
				The indicator measures manifestations or changes in climate hazards. It is used to create baselines for assessing implementation and effects of climate actions. Examples of indicators that measure climate parameters might include annual precipitation (mm), temperature (degrees Celsius), number of hot days per year, etc.
5	Is the indicator specific?	Specific	Only applicable if the element is an "Indicator". Select one option	Yes; No; Blank space (not applicable)
				The indicator provides sufficient and unambiguous information on what needs to be measured OR links to an adaptation element that provides the level of detail required. In addition, the indicator must not use any acronyms in its formulation and must only measure one aspect at a time. For example, the indicator "Number of policies integrating climate change" is not considered specific because it does not provide sufficient detailed into what aspects of climate change should be considered or what integration means. The indicator "amount of funding available" is considered specific because the indicator is linked to an objective that states "increase funding for NAP implementation". The indicator "Number of farmers trained and campaigns conducted" is not specific because it attempts to measure two distinct aspects of capacity building (number of campaigns and beneficiaries of campaigns). "Area of wetlands restored" is not considered specific, because neither the indicator nor the activity that links to provide sufficient information on what constitutes a restored wetland (i.e., whether it refers to physical, chemical, biological, or functional restoration).

Question	Variable	Instruction	Code	Definitions, search terms
6 Is the indicator measurable?	Measurable	Only applicable if the element is an "Indicator". Select one option	Yes; No; Blank space (not applicable)	The indicator can be counted, observed, analyzed. It typically includes reference to "number of", "rate of", "percentage of", etc. If described through a qualitative variable such as "level of", "degree of", the indicator is still considered measurable if the document provides sufficient detail on the qualitative categories/rankings used for measuring the indicator. For instance, "accuracy of meteorological information (90%)" is considered measurable as it provides information on how it will be measured (percent) and a target for desired levels (90). Similarly, "Level of implementation of health NAP" is measurable because the document specifies a desired level (50%). These indicators are, however, not specific about what "accuracy" or "implementation" mean, which might create ambiguity when interpreting results.
7 Is the indicator achievable?	Achievable	Only applicable if the element is an "Indicator". Select one option	Yes; No; Blank space (not applicable)	The indicator has a data source, i.e., the document provides information on means of verification for the indicator and/or lists institution(s) responsible for collecting the data for the specific indicator. The criteria of achievability indicates that the indicator can be realistically measured, based on data resource available. This information is typically provided in results framework tables, where indicators are listed. If the text provides general information about the existence of a monitoring and evaluation system, this is not considered a data system in this case, as it is not specific enough.
8 Is the indicator relevant?	Relevant	Only applicable if the element is an "Indicator". Select one option	Yes; No; Blank space (not applicable)	The indicator is explicitly linked to or relevant for one or more elements in the document, measuring progress or changes in hazards, actions, objectives. The criteria of relevance indicates the validity of an indicator, i.e., the indicator represents the concept (hazard, action, objective) that it is supposed to measure. For instance, "yield of major food crops" is considered a relevant (valid) indicator of productivity, if the country aims to increase productivity of major food crops.
9 Is the indicator timebound?	Timebound	Only applicable if the element is an "Indicator". Select one option	Yes; No; Blank space (not applicable)	The indicator has an associated timeframe for achievement/ monitoring or an associated time-bound target. For instance: "number of meteorological stations built by 2030", "percentage increase in renewable energy contribution by 2030", "hectares of crop under insurance by 2025 and by 2030".

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