ECOSYSTEM SERVICES IN CLIMATE CHANGE ADAPTATION STRATEGIES IN WEST AFRICA

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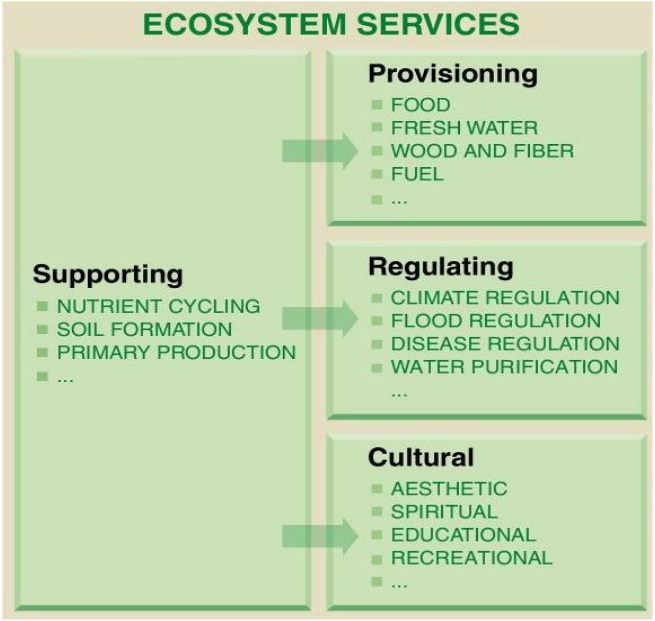
Problem statement

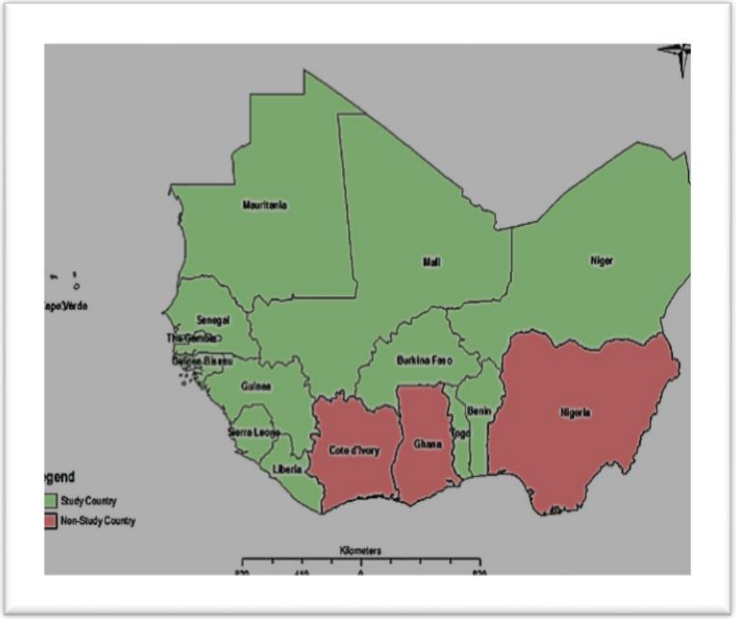
- Ecosystems support life through providing ecosystem services. These are benefits that natural ecosystem provide to the society
- Despite their crucial roles, ecosystems are under threat globally due to anthropogenic factors
- Globally ecosystem degradation on increase in the last 50 years (Munang, 2012)
- 60% of global ecosystems being used unsustainable, threated to extinct (MEA,2005)



Problem statement Cont'd

West Africa

- Among the world's least developed region
- High poverty levels leads to high dependence / unsustainable use of ecosystems then high degradation / unproductivity translating to high poverty level
- High climate change effects e.g. recurrence of droughts, irregular rainfall patterns, increased desertification, crop failure etc
- 13/16 counties listed in the UN list of least developed countries (LDC)
- Reviewed 168 projects listed under NAPA in 13 countries
- Need for more climate change adaptation projects and strategies to reverse this trend
- Question, Are the projects addressing the community needs? Are they promoting or demoting ES?



Objectives

To assess ecosystem services in climate change adaptation projects in West Africa.

i. To assess the land use land cover changes in rural West Africa

ii. To assess the trends in the adaptation projects in rural areas in West Africa

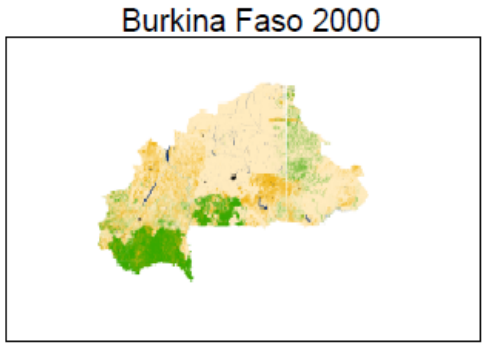
iii. To evaluate the extent to which the climate change adaptation projects have incorporated ecosystem services

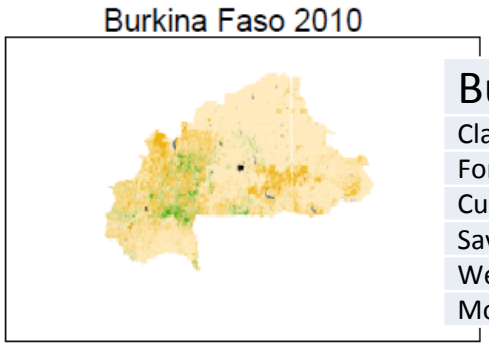
iv. To explore areas of redesigning and improving adaptation projects to enhance ecosystem services in selected projects.

Methodology

	Objective	Methodology
1	Land use land cover changes in rural West Africa	Spatial data analysis using ArcGIS 10.3
2	Assess the trends in the adaptation projects in rural areas in West Africa	**NAPA project review and analysis** - Developed database of the review projects (country, projects, thematic area….) - Inclusion / exclusion criteria for ES in projects
3	Evaluate the extent to which the climate change adaptation projects have incorporated ecosystem services	
4	Improving adaptation projects to enhance ecosystem services	Project analysis using CRiSTAL tool

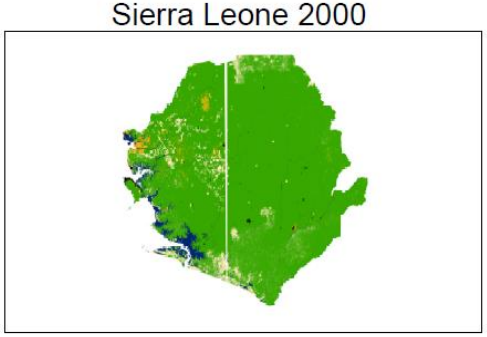
Land use land cover change

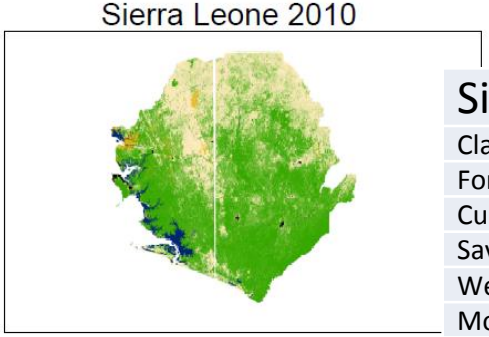




Burkina Faso

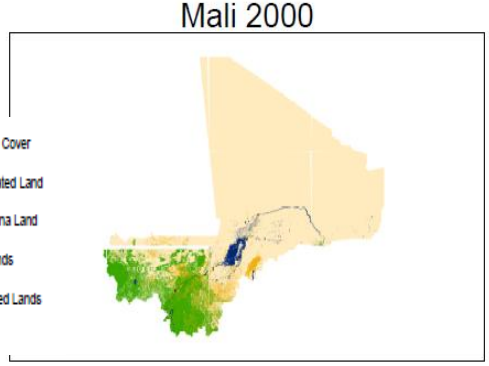
Class	2000 (%)	2010 (%)	Net Change (%)
Forest Cover	15.27986177	3.577451705	-11.70241006
Cultivated Land	13.1167257	15.4295112	2.312785499
Savanna Land	70.57804942	80.411196	9.833146583
Wetlands	0.838534246	0.334637368	-0.503896878
Modified Lands	0.186828871	0.24720373	0.06037486

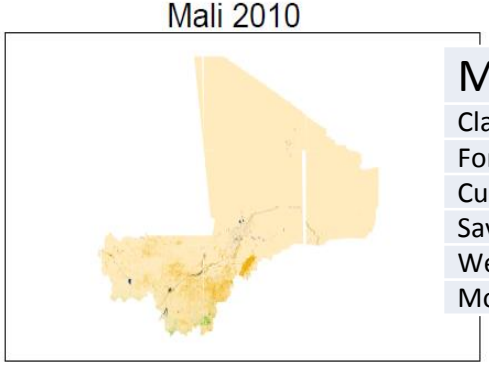




Sierra Leone

Class	2000 (%)	2010 (%)	Net Change (%)
Forest Cover	88.83868572	57.89815812	-30.94052761
Cultivated Land	1.453983315	1.307625744	-0.146357571
Savanna Land	6.302510128	37.28656286	30.98405273
Wetlands	3.071810484	3.107142296	0.035331812
Modified Lands	0.33301035	0.400510986	0.067500636





Mali

Class	2000 (%)	2010 (%)	Net Change (%)
Forest Cover	44.50812842	2.143421687	-42.36470674
Cultivated Land	16.52405183	28.22737763	11.7033258
Savanna Land	32.17140394	66.74210381	34.57069987
Wetlands	6.543901945	2.353562168	-4.190339777
Modified Lands	0.252513854	0.533534703	0.281020849

30 m resolution Global Land Cover datasets by National Geomatics Center of China.

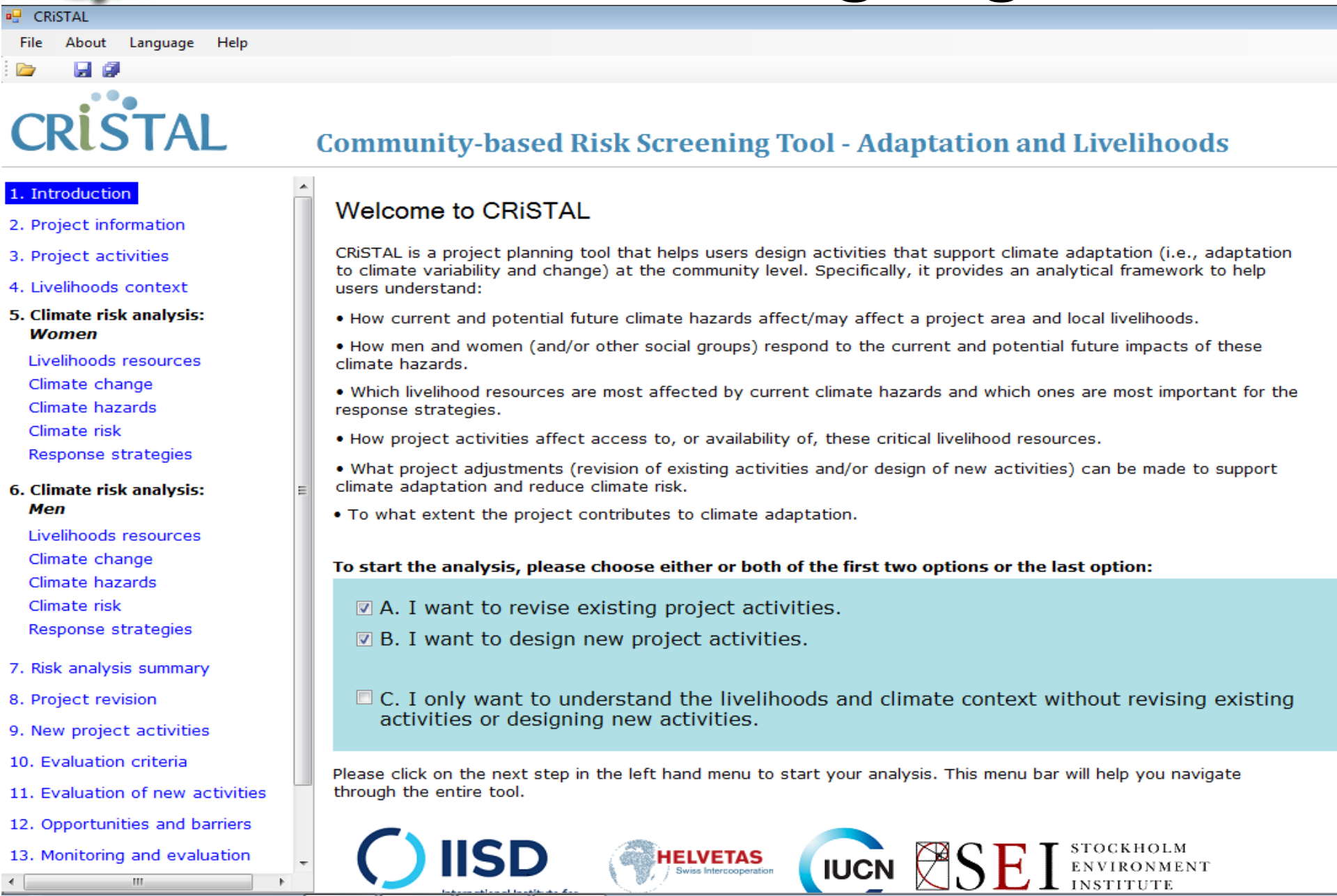
Trends in the adaptation projects in rural areas in West Africa

- Sectorial variation - Agricultural (32%), water (19%), forestry sector (10%)...cross cutting themes 10%
- Budgetary allocation – 63% <1M, 16% 1-2M USD, 9% over 4M USD.
- Geographical/spatial coverage – 49%, 28%, 29% sub-national, national, local
- Duration 46% 3 years, 30% 2 years, 15% 5 years.

Ecosystem services in the adaptation projects

- 55% direct, 36% indirect, 9% no mention
- Type of ES – 50% provisioning, 16% supporting, 31% regulatory, 3% cultural
- 67% single ES, 33% multiple services

Areas of redesigning



Areas of redesigning

Adaptive capacity

- Increasing Natural Resources Management
- Alternative livelihoods that are less dependent on natural resources
- Sustainable resource usage
- Financial incentives
- Human resources capacity development

Areas of redesigning (Cont'd)

Mitigation capacity

- Increasing carbon sinks – forest cover, soils
- Financial incentives – REDD+, carbon credit
- Sustainable energy

Main Recommendations

What to how……

- Community involvement in project design/implementation – CRiSTAL
- Scientific approach in project design – ArcGIS
- Project contextualization (social, economic, environmental dynamics)
- Integrated approaches:-
  - Landscape approach – multi-functionality of ecosystems,
  - Climate smart approaches
  - Evergreen Agriculture