NEEDS ASSESSMENT REPORT

CapCET NA 001/2022

"ENHANCING THE CAPACITY OF TECHNICAL INSTITUTIONS INVOLVED IN THE PROVISION OF CLIMATE CHANGE EDUCATION, TRAINING AND SCIENTIFIC RESEARCH SERVICES IN THE COMESA REGION (CapCET)" PROJECT

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SUMMARY

Climate change is a challenge that the continent has been confronting for years through different initiatives at local, regional and global level [12]. However, there have been some setbacks through the process. Aside from issues related to climate finance limited institutional capacity has been persistent. Several initiatives have been put in place to build capacity however, more needs to be done to empower institutions to tackle climate change with confidence[3]. The contextual nature of climate change needs an understanding as the needs of one region/institution may not be the need for another region.

With this in mind the Capacity building of Technical Institutions involved in climate change education, training and research (CapCET) initiative involving African Center for Technology Studies (ACTS), Institute of Climate Change and Adaptation (ICCA), Tetralink & Taylors Associates (TTA) commissioned by COMESA aimed to build their capacity in climate change. Through this Ethiopian Environment and Forest Research Institute (EEFRI) and Environment, Climate and Sustainable Development Institute (ECSDI) were selected on a competitive bid to be part of the CapCET initiative. A demand assessment and institutional needs was conducted using semi-structured online questionnaires sent to key informants in the climate change space and validated by stakeholder discussions. For the institutional assessment both managerial, giving insight on the enabling institutional structures and individual assessment, giving overview of climate training needs were conducted.

Analysis of the qualitative data was done using ATLASti and the quantitative using Microsoft Excel. The findings show that most of the respondents have already received training on climate change in the continent, Ethiopia and Zimbabwe. However, there are still climate training needs including: climate resilience-building (Climate change education to vulnerable communities) ; climate mitigation and adaptation actions (Alternative and/or renewable sources of energy other than coal which is widely used); Climate monitoring (Calculation of GHGs and inventory); climate leadership and advocacy; climate-smart agriculture ; climate-smart natural resource management; climate modeling, Disaster risk management; Climate financing; carbon markets; and Climate modeling using GIS.

The identified needs serve as a basis for the development of modules that will be trained to the trainers and the trainers train other trainees. While the initiative would like to train on all the gap areas two modules have been suggested: Climate mitigation and adaptation mainly in the energy sector through alternative sources of energy and management of natural resources was a common need in the two countries. Climate finance to give an understanding of finance mechanisms and contribute to climate sustainability through grant and proposal writing and climate modelling to give trainers practical skills. The modules will be co-developed and co-delivered together with EEFRI and ECSDI respectively to deliver contextual modules.

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ABBREVIATIONS

ACTS	African Center for Technology Studies
CapCET	Capacity Building of Technical Institutions involved in Climate Change Education, Training and Scientific Research
CC	Climate change
COMESA	Common Market of East and Southern Africa
CSA	Climate Smart Agriculture
ECSDI	Environment, Climate and Sustainable Development Institute
EEFRI	Ethiopian Environment and Forest Research Institute
ICCA	Institute of Climate Change and Adaptation
KII	Key Informant Interviews
UoZ	University of Zimbabwe
ZIM	Zimbabwe

SECTION 1: INTRODUCTION

Capacity building initiatives aim to enhance knowledge sharing and coordination and their results are evident globally, regionally, and nationally. Climate education, training, and research at the local, national and regional levels is a prerequisite for better implementation of climate mitigation and adaptation strategies that are demand-focused[4]. Local communities, climate professionals, trainers, and other stakeholders have been empowered to contribute to climate ambition through capacity-building initiatives at different levels[2]. The Capacity building of Technical Institutions in the provision of climate education, training, and research (CapCET) project aims to contribute to bridging capacity gaps contributing to climate action. The project will build capacity in the COMESA region on climate change-related training gaps (including Implementation of the Paris Agreement; climate change-related transparency and reporting; ecosystems-based Climate-Smart Agriculture (CSA) solutions; climate change adaptation and mitigation actions; disaster risk management; and building climate change resilience and leadership among other capacity needs).

The dynamics of institutions regarding the structure vary and evolve in a world of constant change. With the changes, institutions struggle to fulfill short, medium, and long-term goals. As the staff and board evolve, so does the institutional structure and the relevant skill need to accomplish their mandate. To keep up with the changes, institutions are faced with the increasing challenge of how to adapt to the changes to fulfill the organizations' mission. For this to be successful institutional development process is necessary. Institutional assessment is a process that is conducted by an external expert or consultant, however, a new concept of organizational self-assessment has been adopted by many facilitators[5]. The CapCET consortium developed an institutional tool to determine the current level of development in the Ethiopian Environment and Forest Research Institute (EEFRI) Environment, Climate and Sustainable Development Institute(ECSDI), University of Zimbabwe. Both managerial and individual assessments were conducted to get an overview of the structural strengths and weaknesses of the institutions, the training skills available, and the climate capacity needs required to contribute to climate action. The main aim of this exercise was to assess the market demands, the organizational and individual capacity in climate change education, training, and scientific research. Specifically, the exercise was to:

a. Identify an action plan, detailing best approaches for meeting improvement targets
b. Identification of climate training needs for development and delivery of the curriculum
c. Contribute to adequate planning for future growth, sustainability, and ultimately climate action
d. Contribute to development that utilizes the current strengths and supporting the identified limitations for the institutional structures and training capacity

The key questions on why this assessment, the target, and the methodology are captured in the following sections

1.1 Why conduct this institutional Self-Assessment?

An entity and/ or individual that demonstrates the openness to examine itself and subject itself to constructive self-criticism stand to:

- Better identify organizational/individual priorities as well as institutional shortcomings;
- Improve organizational/individual effectiveness in achieving its mission in line with climate change goals;
- Revisit and review the effectiveness of the organization's strategic plan and personal objectives;
- Demonstrate a higher degree of professionalism to donors and external allies;
- Improve documentation and monitor institutional progress;
- Highlight areas for organizational/individual learning and improvement;
- Increase ability to undertake strategic alliances with other climate change professionals and/or organisations;
- Have a more proactive attitude among staff and volunteers.

1.2 Key actors and target group

The demand assessment targeted the climate professionals within the continent. This was to give an overview of the continental needs in terms of climate change education, training and scientific research. The target for the management questionnaire was core staff members in management positions within the institution. Further, the respondents were people who have a clear understanding of the processes and governing structures employed to support different aspects. The key areas of interest were ranging from strategic planning, financial capacity, and resource development. The individual survey on the other hand targeted respondents who are directly or indirectly involved in climate change training within the institutions. In ECSDI persons from different departments within the institution were selected i.e. soil science, biology, wildlife and geoparks, agricultural economics, community and social development, and more. Further in persons from different directorates within the institution were selected i.e. natural resource, gender, climate change etc. The questions aimed to give a view of the existing trainers' capacity and gaps/needs in climate change education, training, and research.

SECTON 2: METHODOLOGY

2.1 Data collection

2.1.1 Demand assessment

A questionnaire with questions that target climate professionals in the region was used to collect the data. The questions ranged from demographics, climate topics, trainings received, training needs and preferred delivery model. Data from different parts of the continent was collected including Algeria, Botswana, Ethiopia, Malawi, Mozambique, Nigeria, Kenya, Tanzania, Zambia, Zimbabwe. Therefore, all the regions in the continent were fully represented.

2.1.2 Institutional assessment

2.1.2.1 Key informant survey

The assessments were conducted in different approaches cognizant of the current COVID19 situation. The approaches involved individual and management online self-interview. Key informants were selected by the institutional heads to respond to the assessments. The tool was informed by the nature conservancy institutional assessment tool for non-profit organisations[5]. The individual assessment encompassed both quantitative and qualitative questions that gave an overview of the general information of the selected trainers, the relevant training they have received, their capacity to deliver climate change training in different climate areas and capacity needs to better climate change training in EEFRI and ECSDI. Therefore, the core areas in the individual assessment included: general information, existing training capacity, training needs, and delivery models.

The management survey had open-ended questions that were structured within eight institutional indicators categories:

- Strategic Vision and planning
- Leadership
- Organisational management
- Human resources
- Resource development
- Financial management
- Constituency building/outreach
- Programmatic capacity

For consistency, a rating of 1-5 was employed to enable the institutions to identify the key areas of capacity that will be critical to improving progress as an entity.

2.1.2.2 Focus group discussions

Key informants from the list of survey respondents were selected to take part in the group discussions. The group discussions were to validate and reinforce the responses in the questionnaires, get relevant institutional information that supports the improvement of the institution and suggest possible/explore possible trainers. Aside from clarification of the different questions posed to the respondent, during the small group discussions focus was put on aspects that will enhance the sustainability of the courses that will be developed after the needs assessment. Partnerships, resource mobilization, and possible commercialization of the developed executive courses were some of the talking points. The key finding from both the individual and management questions are highlighted below.

2.2 Data analysis

The individual assessment data were analyzed using Microsoft excel to establish the relevant training undertook, training needs, and climate change topical issues as preferred by the respondents. The institutional assessment was analysed using ATLASti a qualitative data analysis tool to explore some of the keywords that came up within the 8 structural indicators.

88 responses from the demand assessment were analyzed out of which 12 were from Zimbabwe and 40 from Ethiopia. For the training needs assessment 37 and 39 responses from Ethiopia and Zimbabwe respectively were analysed to show the climate and training needs highlighted from the institution. Finally, for both institutions 7 responses from the management questionnaire were analysed using ATLASti since they were purely qualitative. A report showing the institutional structures and arrangements was generated and used to structure and represent the responses as much as possible. Additionally, the key stakeholder discussions reinforced the assessments and added more information that was not captured in the assessments.

SECTION 3: DEMAND ASSESSMENT

3.1 Key findings and discussion

The findings of both the individual and management assessments were contextual to EEFRI. Some of the concepts that will be heighted in the results:

1. The structures and capacity that are available in the institutions
2. The training skills that the climate change individual have
3. The capacity gaps at the institutional and individual

The results will lead to several outcomes that will lead to the improvement of the institutions and individuals:

1. Recommendations to improve the institutional structures
2. Co-development of climate modules that can improve the skills of the lectures
3. Training of trainers on the delivery of the modules

3.2 African context

3.2.1 Gender distribution and climate change capacity

Out of the 88 respondents from the continent the number of male respondents was conspicuously higher than that of the females (Figure 1). 83% of the respondents were male with a lesser 17% of then being female. Out of the 88 respondents a majority of 42 respondents were extremely confident in addressing climate change issues with only two respondents being not at all confident and not so confident respectively. Additionally, around 63.6% of the respondents affirmed they had very professional climate change capacity and lesser 5.6% didn't have or had very limited capacity in climate change. This goes to show that the knowledge on climate change is widespread in the continent with initiatives being undertaken by different individuals to address the climate change crisis. The gender gap in Ethiopia is pronounced in the number of respondents in the demand assessment. Out of the 47 respondents from Ethiopia 95.7% (45) were male while only 4.3% (2) were female.

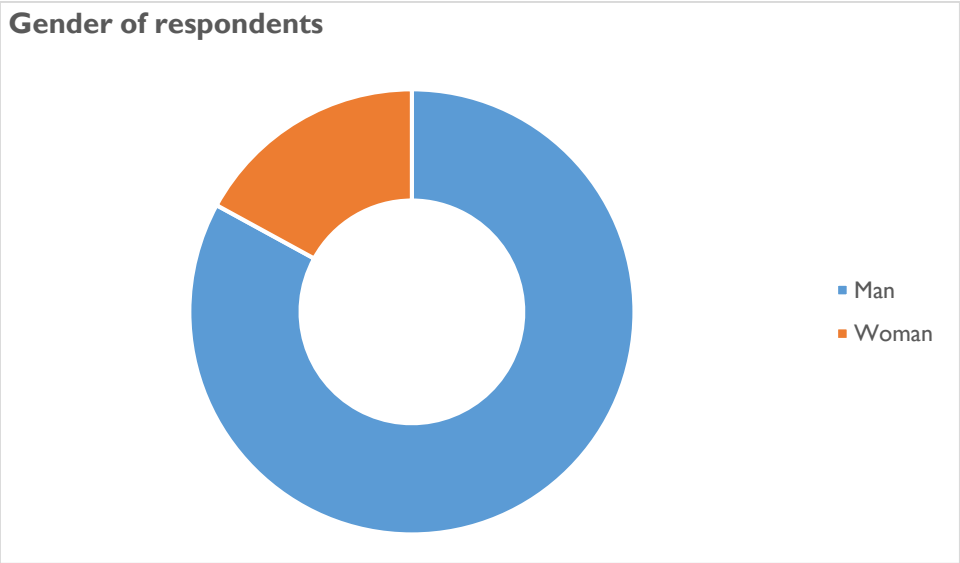

Figure 1: Gender distribution of respondents

3.2.2 Climate change training needs

Out of the 88 respondents 51 (64.7%) have received some form of climate change training at different levels and different ways. The top 3 priority topics were listed by the respondents to have a picture of demand areas in the continent. Most of the respondents (20 respondents) mentioned climate adaptation especially through ecosystem based climate smart agriculture. Reason being most African countries rely on agriculture as their source of livelihood and due to climate change effects in this sector more needs to be done to promote CSA. Other topical issues that surfaced as priority climate topics include implementation of the Paris agreement (12 respondents); Climate mitigation (7 respondents); disaster risk management (6 respondents) due to the fact that climate calamities have presented themselves in different forms and many a times lack the of capacity for preparedness on the issue is a challenge therefore more education, training and research needs to be done; climate finance (3 respondents) as climate funding is important to ensure implementation of climate initiatives and strategies; and climate transparency and reporting (3 respondents) which is part of the Paris agreement values.

In as much as most of the respondents have received some training on climate change and related topics there is still need to capacity build. The respondents listed some of the topics that they would need more training. The top 7 (

Table 1) topics listed as the first topical need that can be considered included:

Table 1: Continental climate demand topics

Climate topic	Number of respondents
CSA	22
Implementation of the Paris agreement	17
Climate finance	11
Climate leadership	7
Climate transparency and reporting	6
Climate mitigation	6
Climate adaptation	5
Climate modeling	1

3.2.3 Status of climate change education, training and scientific research for climate action

In the respondents view the continent is still in need of climate change education, training and scientific research especially at the community level. There have been training within the universities however the knowledge still remains theoretical with most yet to be applied. Practical skills in terms of technology transfer and climate change issues would be a great step to actualizing climate goals.

The issue of gender intersectionality with climate change also needs to be a priority as the gender dynamics within the continent need to be understood and put into consideration during implementation of climate activities. Finance has been a challenge especially local resource mobilization leaving the continent to depend solely on the developed countries. Without finance, activities are null and void, climate funding both at the local and the international scale is therefore key. Strategies need to be in place to mobilise resources locally and regionally even with the global funding coming in.

SECTION 4: CASE OF ETHIOPIA

4.1 Management assessment

A report generated from ATLAS ti gave an overview of the status institutional structure and arrangement in EEFRI. The structures show the strengths of the institution to build individual capacity as well as some areas that can be improved for better climate action

Capacity indicator			
Strategic Vision and Planning	**The presence of a clear purpose and direction of an institution is key to achieving goals and future planning.**		
	Institutional status according to most respondents	**rating**	**So what/recommendation**
Organizational Mission	EEFRI's Mission is to adopt and generate relevant information and technologies in the areas of forestry, environment and climate change adaptation and mitigation; Communicate and pre-scale up the generated and approved technologies and information to users and relevant stakeholders and build capacity of institutions, researchers and users at wider scale. The mission is well highlighted in the 10-year strategic plan of EEFRI and emanates from the Regulation of the Council of Minsters that established it.	5	The strength of the strategic plan can be tapped on in the improvement of the different climate change programmes, resource mobilization, and multistakeholder engagement. The plan can be updated based on the current and upcoming needs
Strategic planning, operational planning, and impact assessment	The operational plans of the institute are developed by different research and administrative directorates. They are derived from and guided by the institutes ten-year strategic plan. The different research programs include forestry program and the environment program. The results obtained are due to the strong commitment of the staff based on 1-5 year plans that are monitored regularly. The strategic plan including long-term institutional financial plans is updated periodically. Staff members are aware of the plan and make annual work plans in line with the plan thematic areas. The advisory committee consults from time to time on the climate needs and strategies to address them based on the reports on implementation and financial capacity.	5	
Leadership	**Involves the leadership structure of the institution, how decisions are made, and the values and ethics that are resourceful in climate change education, research, and training**		

Governing entities	The Director General (DG) and the Deputy Director General (DDG) are the top leadership of the institute. Then there is an adviser to the Director General and an Office Manager of the DG. There are eight research directorates and two coordination units accountable to the DDG. There are 7 research centers in different places of the country which report to the institute and led by center directors. Each research and support directorate and center has its own annual plan that is derived from the strategic plan.	5	
Decision making	Decisions related to Climate change research is at least at three level. Firstly, at research review forum conducted at research centers; Secondly, at a research review forum conducted at division level by representatives of climate change researchers and the thirdly, research review forum conducted at country level where both researchers and relevant stakeholders from different parts of the country are gathered	5	
Key values and ethics	The key values include: integrity, loyalty, transparency, confidentiality, responsiveness, honesty, accountability, fairness and inclusiveness, rule of law, effectiveness and efficiency.	5	
Organisational management	**Involve the policies and procedures within the institution and communication channels used to pass the message on climate change leadership**		
Internal communications	The institution employs different communication channels that are used among the including emails, letters and virtual conversations, government and private medias like TV, newspaper, radios, posters, web site, journals, proceedings, research reports etc. Research outputs are communicated in peer-reviewed and reputable scientific journals as well as through workshops, proceedings and other forms of publications.	4	This can be improved by ensuring frequent communication through the different channels, informal methods can also be employed but professionalism should be key. The input is as important as the output and viceversa.
Policies and procedures	There are different policies and procedures (guidelines, directives, policies, etc.) by which research directorate including climate change research are guided in planning, implementing, evaluating and reporting research activities e.g. Climate Resilient Green Economy (ECRC) strategy.	3	Policies that govern climate change training, education, and research need to be formulated better evidenced-based researches e.g. development of transparency, gender, and operational policies in line

	The policies are derived from the agreement Ethiopia has entered into concerning climate change which also addresses the local agenda on climate change. Policies and procedures emanate from the federal constitution through different policy institutions. The staff are made aware of the policies through short term training, medium term training, and long term training within the staff members as it needed.		with the national climate agenda
Human resources	**Describes the process of recruitment at different levels and how their achievement of the objectives is monitored**		
Recruitment process	Before a staff is recruited, application requirements and qualifications are considered and that satisfy the requirements shortlisted. During recruitment, the best candidates are chosen by their performance on a combination of oral presentation as well as written exam evaluation results. After recruitment, the research staff is evaluated twice a year.	5	
Performance management	Business Score Card (BSC) is used to evaluate the performance of each researcher and staff member. Each individual prepares a BSC plan based on annual plans and will be evaluated accordingly. The performance is evaluated monthly, quarterly and annually and feedback and recommendations are relayed. Reports are also used to inform the implementation of activities and the objectives met.	5	
Resource development	**Highlights the ability of institutions to source finances for climate change activities from the international, regional and local entities**		
Fundraising and development plans	Funding comes from both the federal government and external sources. Grant proposals are developed on the basis of arising opportunities.	4	Even through the response to calls, fundraising processes need financial administrative systems that are monitored and adjusted periodically. More effort needs to be put on resource mobilization other than depending on the federal governments resources.

Diversification of funding sources and long-term investments	The institute is not allocated long term investments because the budget allocated for all research directorate is for administrative purpose due to this the research budget that ensure the financial sustainability in climate change education, training and research is very low and entirely depends on donor funds.	2	Long-term investment mechanisms and sourcing for funds in other forms eg. Venture in business, endowment funds need to be put in place
Financial management	**Describes the financial capacity of ECSDI, their monitoring and auditing strategies in ensuring transparency and effectiveness in line with the Paris Agreement values**		
Accounting systems	EEFRI implements the IFMIS system put in place by the Ministry of finance to monitor and report the financial expenditure. Moreover, the institute is governed by the financial policy of the Ministry of finance. Internally quarterly financial reports are presented to contribute to transparency and reporting. Therefore, finances are audited both internally and externally.	5	
Financial reporting	The financial reports are availed to the government and to the public when necessary.	5	
Outreach	**Highlights relations with the press, government, and other organisations.**		
Press and media relations	The institute uses press/media required and the fiscal capacity allows.	4	Exploring different forms of communication channels is important to ensure as much information is getting to the public and stakeholders.
Working relations with other organisations	The institute is working in close collaboration with national, regional and global environment, forest and climate change education, research and development institutions guided by MoUs	5	
Working relations with government	The institute works with the government at different levels through research, advisory and other activities. Some government agencies include with ministry of finance, Civil service commission, Environment Forest Climate Change Commission, Ethiopian Agriculture institute, Ethiopian Biodiversity Institute	5	
Legitimacy	The institute's standards on climate achievements is appreciated and respected within the institute. Actors involved include: the management bodies, employees, the other stockholders, communities and governments.	5	

Programmatic capacity	**Capacity to implement activities within the institute**		
Program management	Guided by the institutional strategic plan and by the five-year plans of the Ethiopian government problems are identified. After identifying priorities and research problems in consultation with different stakeholders who identify emerging issues, the institute develops research projects that are often evaluated before and during implementation by stakeholders. The projects are implemented in the seven research centers it has in different parts of the country.	5	
Monitoring of progress	The institute has a monitoring and evaluation framework. Periodic monitoring is done through quarterly reports and annual reports. In addition, the ongoing research projects are evaluated in annual review forums. Field evaluations are also made by center, directorate and institutional level monitoring and evaluation teams	5	

The institutional structure of EEFRI is great and the strengths need to be capitilised on to lift the weak areas like resource mobilisation strategy. A plan on applying for funding needs to be laid out and researchers to work in collaboration with other institutions to develop proposals. The working relationships with the government and other organisations need to be build further by joint proposal development to increases the chances of getting financial support.

4.2 Individual assessment

A total of 37 respondents gave their institutional view/status of climate change education, training and scientific research in EEFRI at the individual level. All departments in the institution were represented to give a general view of climate change needs that are important and contextual.

4.2.1 Climate training undertaken

EEFRI being natural resource and forestry institution, most of the individuals have knowledge on climate change and related issues. The climate change department is fully composed of climate change experts who often share their knowledge with other departments. The top 3 trainings that the individuals have had were updated with the level of satisfaction rated. Table 2, Table 3 and Table 4 show the climate courses that the different respondents have undertaken and their level of satisfaction.

Table 2: Training I received in climate change

Last three climate change area training/s you have undergone (Training I)	**Respondents**			
Level of satisfaction	**Highly satisfactory**	**Satisfactory**	**Unsatisfactory**	**Grand Total**
Agriculture, forestry and land use, and urban emission measurement		I		I
CIRI tools for managing and reporting city GHG inventory data		I		I
Climate Change & Development in Africa, " Advancing Knowledge, Policy & Practice in Climate Change & Development"		I		I
Climate change mitigation and adaptation strategies	I			I
Climate Change modeling		I		I
Climate Change Modeling (Statistical downscaling)			I	I
Climate change prediction scenario Models		I		I
Climate change vulnerability, adaptation and mitigation in Ethiopia		I		I
Climate modelling	I			I
Crop-livestock-environment interactions	I			I
EX-ACT Carbon Balance tool		I		I
Foundation in Greenhouse gas accounting for agriculture	I			I
GHG emissions in AFOLU sector		I		I
Global protocol for community scale		I		I
Greenhouse gas measuring and reporting	I			I
low carbon development and resilience	I			I
R Statistical package	I		I	2
Grand Total	**7**	**9**	**2**	**18**

Table 3: Training 2 received in climate change

Last three climate change area training/s you have undergone (Training 2)	**Respondents**			
Level of satisfaction	**Highly satisfactory**	**Satisfactory**	**Unsatisfactory**	**Grand Total**
CIRIS software			1	1
City Inventory reporting and information system		1		1
climate change adaptation	1			1
Climate change forum		1		1
Climate change policy	1			1
Climate related software	1			1
Climate smart soybean agronomy	1			1
EX-Ant carbon balance tools		1		1
GHGS emissions in transport sector		1		1
Greenhouse emission (carbon balance tool)			1	1
How to build climate change resilient economies		1		1
Measuring GHG emissions	1			1
forestry and other land uses: a mechanism for measurement, reporting, and verification	1			1
Statistical downscaling modes		1		1
SWAT	1	1		2
SWAT Climate model analysis			1	1
Grand Total	**7**	**7**	**3**	**17**

Table 4: Training 3 received in climate change

Last three climate change area training/s you have undergone (Training 3)	**Respondents**				
Level of satisfaction	**Highly satisfactory**	**Satisfactory**	**Unsatisfactory**	**(blank)**	**Grand Total**
Bioenergy for climate change adaptation and mitigation	1				1
Climate change adaptation	1				1
Climate Change Adaptation and mitigation	1				1
Climate impacts				1	1
Ex-Act			1		1
GHG emission measurement in different sectors (Agriculture sector)		1			1
How to ensure food security in Ethiopia	1				1
Minitab	1				1
Grand Total	**5**	**1**	**1**	**1**	**8**

From the above tables at least 18 respondents out of the 38 have received a minimum of one training in climate change with 8 receiving 3 trainings. As highlighted in the tables above some respondents have taken similar courses but with different level of satisfaction. This goes to show that the climate knowhow is good in the institution for them to implement climate strategies and initiatives. Additionally, it shows the potential of having good trainers that will train other climate change and related professionals.

4.2.2 Climate training needs

Climate training will continue to be a need as a lot is yet to be learnt with the ever evolving climate change impacts. EEFRI climate change and related issues professionals gave an overview of what they think would be contextual and beneficial to their institution and in turn Ethiopia. Below (Table 5)is a list of climate needs highlighted.

Table 5: Climate training needs

Category	Climate need area
Climate modeling	• Climate change modeling related to land use change, and bioenergy • Advanced level training on hydro-climatic models, Trend & Projection Land Use-Climate model, Forest &Climate • An in depth understanding of methodologies to tree-crop-soil interaction studies. • Reliable climate model data acquisition, Climate change simulation and calibration, Climate impact assessment using analytical softwares
Climate adaptation	• Long term training on climate change adaptation and mitigation areas • nexus Climate change and sustainable development • The way to addresses food insecure issue in specific area and adaptation strategies in smallholders farmers.
Climate mitigation	• Bioenergy development in agroforestry system • Rehabilitation of degraded lands and reducing their emission through bioenergy development • Long term training on climate change adaptation and mitigation areas • nexus Climate change and sustainable development • GHG monitoring.
Climate finance/Resource mobilization	• Grant proposal writing

Conspicuously, out of the 21 respondents who answered the climate related need question a majority, 10 respondents, mentioned climate modelling and analysis as their greatest need. Reason being most of the research works are mainly focused on mitigation and adaptation activities require latest models and subject-specific training to capacitate the researcher. They have received most theoretical training and practical trainings are necessary to be a great step to implementation of climate change. Training on grant proposal writing would give an opportunity to source for funding on equipment like GHG measurements tools, large computers and software's for climate modeling and other climate related equipment's. These needs were supported in the stakeholder conversations with the need for practical skills being pronounced.

4.2.3 Preference of climate change topics

All climate change topics are always desirable depending on the context and need. The respondents highlighted climate change broad topics and rated them from the highly preferred to the least preferred. All the topics ranged from highly preferred to moderately preferred with none being least preferred. Below is a table showing a list of climate topics with the number of respondents that highly prefer the topic.

Table 6: Highly preferred climate topics

Topic	Number of respondents that highly prefer the topic
Climate mitigation and adaption actions	27
Ecosystem based Climate Smart Agriculture (CSA)	25
Disaster Risk management (DRM)	23
Implementation of the Paris Agreement	22
Climate resilience building	20
Climate transparency and reporting	19
Climate leadership	18

These broad topics together with the individual topical needs will inform contextual development and delivery of the curriculum. For the delivery most respondents prefer delivery through online platform unless physical methods are necessary.

4.2.4 Exchange programs

100% of the respondents are interested in climate change exchange programme including learning from other institutions on how they run things and sharing ideas in the climate change space. It is clear that seeing what other institutions have done, are doing and their future projections would motivate and inform the activities that EEFRI would incorporate in Ethiopia while appreciating their strengths.

4.2.5 Link between demand and needs assessment

From the demand and individual assessment climate training needs are related directly or indirectly. The topical needs in the demand assessment are specified in the individual assessment therefore showing that even as CapCET builds institutional capacity the continental needs will also be met. Climate adaptation and mitigation strategies, climate finance, transparency and reporting and climate modeling are some of the related topics in the African and EEFRI context that will ensure not only local but national and regional climate action. Table 7 below shows the match between the demand and the training needs that were highlighted by the respondents. Linking the two is important to ensure not only institutional development but Africa's climate needs are met.

Table 7: Match between the demand and training needs

Continental Demand topic (respondents)	EFFRI training needs	Climate need area
Climate modeling (1)	Climate modeling	• Climate change modeling related to land use change, forestry and bioenergy • Advanced level training on hydro-climatic models, Trend & Projection of Land use-Climate model, • Reliable climate model data acquisition, Climate change simulation and calibration, Climate impact assessment using analytical softwares
Climate adaptation (5)	Climate adaptation	• Long term training on climate change adaptation and mitigation areas • nexus Climate change and sustainable development • The way to addresses food insecure issue in specific area and adaptation strategies in smallholders farmers.
Climate mitigation (6)	Climate mitigation	• Bioenergy development in agroforestry system • Rehabilitation of degraded lands and reducing their emission through bioenergy development • Long term training on climate change adaptation and mitigation areas • nexus Climate change and sustainable development • GHG monitoring.
Climate finance (11)	Climate finance/Resource mobilization	• Grant proposal writing

4.2.6 Further discussions

Climate change education, training and scientific research is a need that the institute of climate change and environmental studies are keen on developing. The climate change department being the youngest institute that is continuing to establish itself in the climate change space mainstreaming climate change into the other departments. The aforementioned climate training needs are contextual to the EFFRI which is a research institution as well as the national space. The multidimensionality of the same is also clear in the different subtopics highlighted and other aspects that includes institutional arrangements, gender distribution and supportive instruments like finance.

From the training needs highlighted by the respondent's climate modeling courses have been taught to a number of individuals in the institution. However, the courses have mostly been theoretical and more needs to be done in this space. Huge data that has been collected over the years by different institutions including the meteorological department require expertise in different modeling spheres. Therefore, a practical course on the important modelling softwares will open the space for expertise in the analysis of huge mitigation and adaptation data within the region.

Delivery of modules need to be dynamic and relevant to the changing times. Covid 19 has presented uncertainties that have changed the way things are operating. From the assessment most respondents suggested online platforms and offline models when necessary especially the exchange programmes. Therefore, having a blended system that ensures no knowledge sharing/ capacity building initiative is compromised is important.

SECTION 5: CASE OF ZIMBABWE

Table 8: Management assessment of the Institute of Climate, Environment and Sustainable Development

Capacity indicator			
Strategic Vision and Planning	The presence of a clear purpose and direction of an institution is key to achieving goals and future planning. The mission of the University of Zimbabwe (UoZ) is identified through the active participation of the management staff. The group was able to articulate how the strategic direction is translated to annual plans linked to the resources available to aid the achievement of the plans		
	Institutional status according to most respondents	**Rating**	**So what**
Organizational Mission	UoZ has a specifically focused mission that is readily articulated by staff and board and directs activities including research and innovation. Their mission is in line with their core actions: Kuziva (knowledge of how to deliver activities), Kuita (Acting on the knowledge), Kugona (being able to deliver the strategic mission). The mission is reviewed periodically to meet upcoming needs.	5	The strength of the strategic plan can be tapped on in the improvement of the different climate change programmes, resource mobilization, and multi-stakeholder engagement. The plan can be updated based on the current and upcoming needs.
Strategic planning, operational planning, and impact assessment	The strategic plan including long-term institutional financial plans is updated periodically. Staff members are aware of the plan and make annual work plans in line with the plan thematic areas. Reporting is done periodically using the UoZ strategic plan template. The staff are subjected to a performance agreement which is assessed annually to evaluate the achievements of the mission.	5	
Leadership	**Involves the leadership structure of the institution, how decisions are made, and the values and ethics that are resourceful in climate change education, research, and training**		
Governing entities	The institution has a sitting Director and Deputy Director overseeing the daily operations in line with the management framework of the institute. There is an existing board of management	5	

	responsible for establishing the direction, strategic plan, programmes, and staffing of the institute. It also monitors the progress of the Institute's programmes and reviews budgets, work plans, and audited accounts. There is also an advisory board responsible for assisting in the formulation of medium and long term strategies while sensitizing the institute of topical and relevant issues.		
Decision making	Key decisions are mainly made top-down however there is collective action among the board of directors, management team, and staff. The climate research gaps are identifying through these collective processes and a way forward in addressing them is highlighted and implemented. Therefore decisions are made through a multidisciplinary development approach informing research concept development.	5	
Key values and ethics	The values include: Knowledge, Diligence, Integrity, Innovativeness, creativity, and Professionalism	5	
Organisational management	**Involve the policies and procedures within the institution and communication channels used to pass the message on climate change leadership**		
Internal communications	Formal communication channels both physical and virtual are used for communication	4	This can be improved by ensuring frequent communication through the different channels, informal methods can also be employed but professionalism should be key.
Policies and procedures	There are no well-laid policies and procedures that govern climate change education, training, and research at the institutional level but there are rules that the institution follows with regards to decision making, research, and gender inclusivity. However, the policies at the national	1	Policies that govern climate change training, education, and research need to be formulated better evidenced-based researches e.g. development of

	level including all climate policies inform the running of the institution		transparency, gender, and operational policies in line with the national climate agenda
Human resources	**Describes the process of recruitment at different levels and how their achievement of the objectives is monitored**		
Recruitment process	No staff has been specifically employed for climate change training, education, and training within the institute however all recruitment considers qualification, experience, publications. The lecturers in the other departments that have climate change-related training expertise are often consulted.	2	Having staff that is knowledgeable and specifically deal in climate change is important for focused and impactful research. The institution should consider engaging individuals who are well versed in climate change issues
Performance management	A performance agreement showing the work plan is formulated and quarterly reports of activities implemented are submitted against the work plan. This is often submitted and reviewed annually	5	
Resource development	**Highlights the ability of institutions to source finances for climate change activities from the international, regional and local entities**		
Fundraising and development plans	The institute of Climate, Environment and Sustainable Development, responds to calls that are relevant to the institute to mobilize financial resources as per the institution's goals and achievements as well as the call's objectives	4	Even though the response to calls, fundraising processes need financial administrative systems that are monitored and adjusted periodically.
Diversification of funding sources and long-term investments	The institute sources funding from different donors locally, regionally, and internationally. The institution also gets funds through consultancy activities done at different levels be it advisory or research at the national and regional scales.	4	Long-term investment mechanisms eg. Venture in business, endowment funds need to be put in place
Financial management	**Describes the financial capacity of the institute, their monitoring and auditing strategies in ensuring transparency and effectiveness in line with the Paris Agreement values**		

Accounting systems	When funding permits annual financial audits are done both internally and externally. The accounting information is utilized in decision making on how to better manage and raise funds	5	
Financial reporting	Financial reports are done and availed to the relevant parties	4	
Outreach	**Highlights relations with the press, government, and other organisations.**		
Press and media relations	Is rarely explored unless necessary. It also depends on the purpose.	3	
Working relations with other organisations	The institute has a great working relationship with other organisations nationwide and regionally. A strategic partnership is emphasized for the achievement of the strategic mission	5	
Working relations with government	The institute works with the government at different levels: advisory, research, and policy development. It has helped the government to develop the national adaptation plan, National Climate Change learning strategy, and other climate-related policies in ZIM. The institute has been represented in climate steering committees within the Ministry of Environment, Climate, and Natural resources	5	
Legitimacy	The institute's standards about climate achievements are highly appreciated and respected within ZIM.	5	
Programmatic capacity	**Capacity to implement activities within the institute**		
Program management	The plans and activities are implemented based on the work plan as governed by the national policies. The institute can bring multidisciplinary capacity teams.	4	
Monitoring of progress	A performance contract is used to ensure the objectives of programs are met.	5	

5.1 Individual assessment

A total of 39 respondents gave their institutional view/status of climate change education, training and scientific research in ECSDI at the individual level. All departments in the institution were represented to give a general view of climate change needs that are important and contextual.

5.1.1 Climate training undertaken

98% of the respondents have had some form of climate change training and research on different levels. This level of training gives an overview of the institution's capacity to train, educate and research on climate change issues. Below are some of the topics and subtopics that the respondents have undertaken.

Table 9: Training is undertaken that is relevant to climate education, training, and research

Topic	Subtopic
Climate mitigation	• Conservation • Basic Climate change science (Global warming, greenhouse gases, and consequences) • Climate change and its impact on natural systems • Restoration of forest tropical landscapes • Integrated Lake Basin Management • Integrated land-use design • Climate change and water resources • Global warming • Forestry
Climate adaptation	• Urban Social Development- Climate Change Course • Rain harvesting • Climate proofing • Climate relevant livestock feeding practices
Climate-smart agriculture	• Mainstreaming climate change action in sustainable development and creation of climate-proof/resilient communities • Resilience Building Outcome Monitoring Survey • Impact of climate change on livelihoods
Climate resilience building	• Mainstreaming climate change action in sustainable development and creation of climate-proof/resilient communities • Resilience Building Outcome Monitoring Survey • Impact of climate change on livelihoods
Climate modeling	• GIS in forest resources • Modeling species distribution
Climate awareness and education	• Mainstreaming Climate Change into Teacher Training in Zimbabwe • Facilitation of Climate Change Mainstreaming into Development Projects Short course
Climate transparency	• Capacity Building initiative For Transparency-Zimbabwe
Climate law and policy	• Conceptual modeling policy • National determined contributors
Climate financing	

5.1.2 Climate training needs

According to the respondents, there are several needs that they highlighted. These needs were confirmed and expounded during the group discussions with key informants. These needs are contextual to the institute regarding the national needs. Climate change is a cross-cutting issue and the topics need to inform different departments within the institute to deal with the climate change crisis. Below are topics relevant to climate education, training, and scientific research that the respondents highlighted. Climate topics that came up were:

- Climate resilience-building - Climate change education to vulnerable communities
- Climate mitigation and adaptation actions - Alternative and/or renewable sources of energy other than coal which is widely used
- Calculation of GHGs and inventory
- Climate leadership and advocacy
- Climate-smart agriculture
- Climate-smart natural resource management
- Disaster risk management
- Climate financing
- Carbon markets
- Climate modeling and monitoring using GIS

5.1.3 Preference of climate change topics based on the need

Different climate topical issues were highlighted and the respondents rated them in terms of preference. The topics included: Climate transparency, climate mitigation, and adaptation, climate-smart agriculture, climate leadership, implementation of the Paris agreement, climate resilience building, disaster risk management. The most preferred were rated 5 and least preferred 1. None of the topics was least preferred by the respondents. The pie chart below shows the number of people out of 39 respondents that prefer the highlighted topics

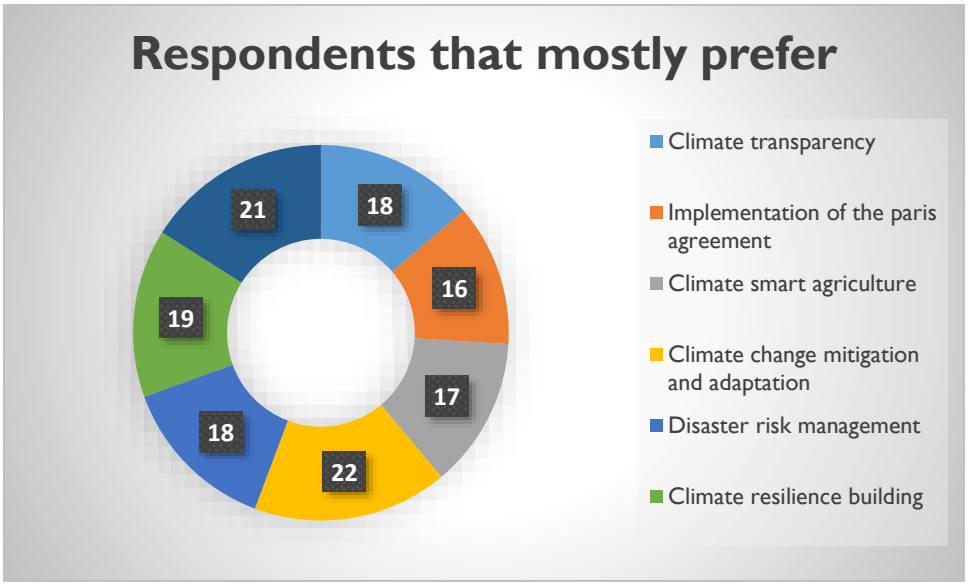

Figure 2: Preference of climate topics

During the group discussions, the key informants narrowed down on a few subtopics that would fit on some of the above topics that are relevant to Zimbabwe's climate change problems

- Climate Mitigation - Renewable and/ or alternative sources of energy from coal
- Climate adaptation – climate-smart agriculture, Climate-smart natural resource management
- Climate resilience-building – community engagement, climate education
- Climate monitoring – calculation of GHGs, biological indicators of climate change monitoring
- Climate modelling
- Climate finance – Grant and proposal writing

5.1.4 Exchange programs and delivery models

All the respondents (100%) mentioned that they would like the idea of visiting other countries for learning purposes and exchange ideas on how different countries are handling the climate change crisis. They mentioned this is highly preferred and they would be open to the idea.

98% of the respondents highlighted that they would prefer online modes (zoom, teams etc.) based on the dynamics that have been presented in the recent parts. The COVID 19 pandemic has shown that a lot can be achieved online as well as taking advantage of offline avenues where necessary. This will enable the flexibility of adapting to any changes and cutting on unnecessary cost.

5.1.5 Link between the demand and needs assessments

From the demand and individual assessment climate training needs are related directly or indirectly. The topical needs in the demand assessment are specified in the individual assessment therefore showing that even as CapCET builds institutional capacity the continental needs will also be met. Climate adaptation and mitigation strategies, climate finance, resilience building, transparency and reporting and climate modeling are some of the related topics in the African and ZIMs context that will ensure not only local but national and regional climate action.

Below is a table showing the connection of the demands in the African space and those at the institutional level that are also relevant to Zimbabwe as they align with the climate national goals.

Table 10: Match between demand and institutional needs

Demand needs	Institutional climate needs	Subtopic
Climate mitigation	**Climate mitigation**	• Alternative sources of Energy
Climate adaptation	**Climate adaptation**	• Climate smart agriculture • Climate smart natural resource management
Climate resilience building	**Climate reliance building**	• Community climate outreach and education
Climate modeling	**Climate modeling**	• Climate modelling and prediction using GIS
Climate monitoring	**Climate monitoring**	• GHG measurement
Climate finance	**Climate financing**	• Grant and proposal development

During the stakeholder discussions one thing that came out clearly is that training on climate change mitigation and adaptation has been done over and over. Initiatives especially the Climate Smart Agriculture have been implemented. However, the energy sector is often overlooked. Most of Zimbabwe's population depend on firewood as a primary source of energy, but the overall energy mix is dependent on thermal powered electricity generation. With the contribution of coal to the GHGs there is need for increased awareness of alternative/clean sources of energy within the country. Therefore, the recommended climate mitigation course would be desirable and make an impact. The discussion section emphasized the key findings.

5.1.6 Further discussion

Climate change education, training and scientific research is a need that the institute of climate change and environmental studies are keen on developing. Being an institute that is continuing to establish itself in the climate change space mainstreaming climate change into the national curriculum is important. The aforementioned climate training needs are contextual to the UoZ which is a higher education institution as well as the national space. The multidimensionality of the same is also clear in the different subtopics highlighted and other aspects that includes institutional arrangements, gender mainstreaming and supportive instruments like finance.

Climate mitigation remains important in the climate change discourse as part of being pro-active, hence a need to delve deeper to alternative cleaner sources of energy. Therefore, a course on the same will not only be contextual but impactful to the institution, the trainers, communities and nation through meeting the national climate goals. The rebranding of the institution to include climate makes change finance a key concept. Implementation of strategies like the clean energy needs finances for change to occur. Therefore, a course in grant and proposal writing would also be desirable to the institution to contribute to funding from different corners and institutions in the world.

Delivery of modules need to be dynamic and relevant to the changing times. Covid 19 has presented uncertainties that have changed the way things are operating. From the assessment most respondents suggested online platforms and offline models when necessary especially the exchange programmes. Therefore, having a blended system that ensures no knowledge sharing/ capacity building initiative is compromised is important.

SECTION 6: DEMAND DRIVEN CLIMATE CHANGE TRAINING

Following the completion of the needs assessment within the two institutions demand driven climate modules will be developed in the context of Ethiopia and Zimbabwe. This section gives a summary of the highlighted training needs and how the outline of the modules will look like.

The key training need areas that came out in the during the assessment included: Climate mitigation and adaptation, climate modelling and climate finance, policy and leadership. Specifically, for EEFRI the courses that were co-agreed upon are: climate modeling for they need more practical training on climate modelling as most researches and strategies on climate change involve huge data that goes untouched due lack of this expertise; and climate finance, policy and leadership to enhance sustainability of the institution through access to funding mechanisms and partnerships. Further, climate finance is a training that most individuals in the institution have not had. ECSDI on the other hand, highlighted climate mitigation and adaptation specifically on alternative sources of energy other than coal which is widely used in Zimbabwe and the energy sector in the country is often ignored by initiatives. The second course was climate finance, policy and leadership for the same reasons mentioned above.

Therefore, the three course that the institutions will be trained on are: climate mitigation and adaptation, climate modeling and climate finance, policy and leadership. Below is a table show the three courses with specific interest areas as highlighted in the needs assessment.

Table 11: Climate training needs

Climate module	Specific training areas
Climate mitigation and adaptation	• Long term training on climate change adaptation and mitigation areas • Nexus between Climate change and sustainable development • Addressing food insecurity in specific area and adaptation strategies among smallholder farmers. • Bioenergy development in agroforestry system • Rehabilitation of degraded lands and reducing their emission through bioenergy development • GHG inventory and monitoring.
Climate modeling	• Climate change modeling related to land use change, forestry, and bioenergy • Advanced level training on hydro-climatic models, Trend & Projection • Reliable climate model data acquisition • Climate change simulation and calibration • Climate impact assessment using analytical software's • Climate modeling using GIS
Climate finance, policy and leadership	• Grant application • Climate policy, leadership and advocacy

These topical areas will form the basis of the module development. The modules will be co-developed and co-delivered with the institutions to give a contextual aspect and further fill the gaps. The course outline will include

1. The core area to be developed by the climate topic expert
2. Case studies/lessons in Ethiopia and Zimbabwe respectively
3. Tools that resonate with institution training needs

SECTION 7: CONCLUSION AND RECOMMENDATIONS

Both EEFRI and ECSDI have enough capacity to improve climate change education, training, and scientific research. The strengths of the strategic plans can elevate the standards of the institutions through multi-stakeholder engagement and frequent gap analysis in different department. In as much as the trainers have had climate change training, there is a need to train the trainers on specific topics based on the lessons and case studies in Ethiopia and Zimbabwe for better climate action as represented by the need of knowledge in the different topics. The assessments will not only inform the co-development and co-delivery of models but also development of a sustainability plan that will be as inclusive as possible.

Inclusivity being one of the ethics of the CapCET initiative will be emphasised throughout this initiative from the training, sustainability planning and dissemination. This is to contribute to gender mainstreaming by ensuring that all genders are represented.

Therefore, CapCET recommends that more training on climate adaptation and mitigation especially in the bio - energy sector and natural resource management, more training on climate modeling for practical skills. These modules were chosen based on these criteria.

1. The climate mitigation and adaptation – this was a need that was expressed during the stakeholder discussions in detail and the desire to learn more was evident despite many individuals having training on the same.
2. The climate modelling – the desire to gain practical skills was expressed in both countries
3. Climate leadership, policy and finance – this course was chosen due to many individuals having no/limited training and it is an important concept with regards to ensuring sustainability of activities including the CapCET initiative.

While in both countries the climate change equipment's especially GHG measurement equipment's is a serious need identified in the pilot stage of the CapCET initiative will not be able to meet this directly. However, through partnerships and funding opportunities this need could be met hence the importance of having a sustainability plan and training on climate finance.

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