

# ANNEX 1

## 1.9 DEFINATIONS OF CONCEPTS

Adaptation-Adjustment in natural or human systems in response to climatic effects, which moderates harm or exploits beneficial opportunities.

Adaptation-Change or adjustment to improve principles or make it suitable to different situation

Capacity building- In the context of climate change, the process of developing the technical skills and institutional capability in developing countries/people/ economies in transition to enable them to address effectively the causes and results of climate change.

Carbon sequestration-the process of removing/reducing carbon from the atmosphere and depositing it in a reservoir, such as soil or trees.

Climate smart Agriculture- is the dairy farming practice that sustainably increases productivity, enhances resilience and mitigates Green House Gases (GHGs) where possible to avoid climate change

Greenhouse gases-The atmospheric gases responsible for causing global warming and climate change.

The major GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O).

Mitigation- the action of reducing the severity, seriousness, or painfulness of something: disaster/calamity

Silage-Animal feed harvested and conserved under anaerobic conditions

**ANNEX 2: Certificate curriculum in Dairy Technology and Management**

Department/ Unit Code		Unit Title	TLH	TPH	TH
DAIRY	1	Fluid Milk Processing	32	32	64
DAIRY	2	Fermented Milk Processing	32	32	64
DAIRY	3	Cheese Making	40	40	80
DAIRY	4	Fat Based Products Processing	32	32	64
DAIRY	5	Quality Control of milk and milk products	48	48	96
DAIRY	6	Operation and Maintenance of milk processing equipment and systems	24	24	48
ANPD	7	Dairy Cow Production	32	32	64
ANPD	8	Dairy Goat Production	32	32	64
ANPD	9	Dairy Camel Production	32	32	64
EXTN	10	Entrepreneurship	32	0	32
EXTN	11	Agricultural Marketing	32	0	32
DAIRY	1	Introduction to Dairy Technology	48	0	48
ANHE	2	Introduction to Anatomy and Physiology	24	24	48
ANHE	3	Introduction to Animal Health	24	24	48
EXTN	4	Agribusiness management	32	0	32
BASIC	1	Mathematics	16	0	16
BASIC	2	Computer	0	32	32
EXTN	3	Communication Skills	24	0	24
EXTN	4	Extension Education	24	0	24
BASIC	5	HIV and AIDS	16	0	16
		ATTACHMENT	0	320	320
			576	704	1280

### Annex 3: Curriculum in dairy production and management

Department/unit Code		Unit Title	TLH	TP H	TH
ANPD	1	Pasture and Fodder Production and conservation	48	48	96
ANPD	2	Dairy Cow Production	32	32	63
ANPD	3	Dairy Goat Production	32	32	64
ANPD	4	Dairy Camel Production	24	24	48
ANPD	5	Feed Formulation and Milling Technology	48	48	96
ANPD	6	Maintenance of farm structures and Equipment	48	48	96
Dairy	7	Milk Bulking and Processing	24	24	48
EXTN	8	Entrepreneurship	32	0	32
EXTN	9	Agricultural Marketing	32	0	32
Dairy	1	Introduction to Dairy Technology	48	0	48
ANHE	2	Introduction to Anatomy and Physiology	24	24	48
ANHE	3	Dairy Herd Health Management	24	24	48
ANHE	4	Reproductive Health and Neonatal Care	24	24	48
ANHE	5	Introduction to Dairy Herd Diseases and Parasites	24	24	48
EXTN	6	Agribusiness Management	32	0	32
Basic	1	Mathematics	16	0	16

**Annex 4: Certificate curriculum at baraka college**

CODE	TITLE	CONTACT HOURS	CREDIT RATING
GM 110	Introduction to SARD	30	3.0
GM 112	Our environment	30	3.0
GM 113	Integrated Morality	45	4.5
GM 114	Family Sustainability	45	4.5
GM 115	Community Development	40	4.0
GM 116	ICT for Rural Development	40	4.0
GM 117	Work Experience	-	
GM 118	Projects	-	
GM 119	Field Attachment	-	
CP 210	Principles of Crop Production	50	5.0
CP 211	Agroforestry	35	3.5
CP 212	Vegetable Production	30	3.0
CP 213	Annual and Perennial Crops	50	5.0
CP 214	Floriculture	30	3.0
CP 215	Fruit Crop	30	3.0
CP 216	Indigenous Plants	20	2.0
AP 310	Principles of Animal Production	35	3.5
AP 311	Animal Health	30	3.0
AP 312	Livestock Feeding	20	2.0
AP 313	Ruminants:		
	• Dairy cattle	30	3.0
	• Sheep	25	2.5
	• Dairy Goat	25	2.5
AP 314	• Non- Ruminants		
	• Pigs/Rabbit / Fish Poultry	20	2.0
AP 315	Bee-keeping	30	3.0
		25	2.5
AE 410	Soil and Water Management		
AE 411	Farm Mechanization		
AE 412	Farm Structure		
BM 610	Farm Management	60	6.0
BM 611	Start Your Own Business	40	4.0
BM 612	Processing of Farm Produce		
BM 613	Agricultural Marketing	35	
		25	
FS 710	Organic Farming	40	4.0
FS 711	Dryland Farming	25	2.5
EAC	Social/spiritual/cultural	-	-

**Annex 5: Diploma curriculum at baraka college**

DC101 Introduction to Biological & Physical sciences.  
 DC102 Mathematics and Statistics for SARD.  
 DC103 Rural Sociology.  
 DC104 Development Economics.  
 DC105 Development Education.  
 DC106 Community Development.  
 DC107 Communication for Rural Development.  
 DC108 Social Ethics.  
 DC109 Community Health.  
 DC110 Foundations of Sustainable Agriculture.  
 DC111 Integrated Natural Resource Management.  
 DC112 Agriculture Engineering.  
 DC113 Crop Enterprise Management.  
 DC114 Livestock Enterprise Management.  
 DC115 Farm Management.  
 DC116 Rural Business Development.  
 DC117 Community Research Project.  
 DC118 Social/Cultural/Spiritual Activities.

**Annex 6: Master of Climate change and adaptation**

<b>Degree Code:</b>
<b>Degree Name:</b> MASTER OF CLIMATE CHANGE ADAPTATION (MCCA)
<b>Degree Type:</b> MASTERS
<b>Degree Duration:</b> 2
<b>Level:</b> Non-Specified
<b>Semester:</b> Non-Specified
<b>Course Name (All courses have 45 hours)</b>
<u>Impacts of Climate Variability and Change</u>
<u>Vulnerability and Adaptation</u>
<u>Climate Change and Adaptation Policies, Legislations and Treaties</u>
<u>Climate Change Mitigation</u>
<u>Research Methods in Climate Change and Adaptation</u>
<u>Foundations of Climate Change Science</u>
<u>Resource Use Efficiency</u>
<u>Critical Debates in Global Climate Change and Adaptation</u>
<u>Resilient Agro-ecosystems</u>
<u>Land Management and Governance</u>
<u>Climate Sensitive Agro-ecological Zones</u>
<u>Climate Change and Food Production Systems</u>

<a href="#"><u>Climate Change Implications For Fisheries And Aqua-culture</u></a>
<a href="#"><u>Overview of Climate Risk Management</u></a>
<a href="#"><u>Drivers of Risk, Policies and Approaches, Tools and Practices</u></a>
<a href="#"><u>Decision Support Tools for Reducing Climate Risks</u></a>
<a href="#"><u>Regional Focus</u></a>
<a href="#"><u>Urban Areas, Climate Change and Adaptation</u></a>
<a href="#"><u>Economics of Climate Change and Adaptation</u></a>
<a href="#"><u>Livelihoods, Poverty, Human Security and Climate Change</u></a>
<a href="#"><u>Infrastructure and Industry Adaptation for Climate Change</u></a>
<a href="#"><u>Climate Change and Health</u></a>
<a href="#"><u>Health Vulnerability to Impacts of Climate Change</u></a>
<a href="#"><u>Climate Change And Climatotherapy</u></a>
<a href="#"><u>Health Statistics And Climate Change</u></a>
<a href="#"><u>Health Interventions In A Changing Climate</u></a>
<a href="#"><u>Integrating Climate Change Policies At Multiple Levels</u></a>
<a href="#"><u>Policy On Technologies</u></a>
<a href="#"><u>The Politics of Water</u></a>
<a href="#"><u>Principles of Communication</u></a>
<a href="#"><u>Strategic Communication for Influencing Environmental Behaviour</u></a>
<a href="#"><u>Process and Structure of Mass Communication</u></a>
<a href="#"><u>Climate Change Information Packaging</u></a>
<a href="#"><u>Information Dissemination and Advocacy</u></a>
<a href="#"><u>Greening the Built Environment</u></a>
<a href="#"><u>Technologies for Climate Change Adaptation in The Urban Environment</u></a>
<a href="#"><u>Technologies for Climate Change Adaptation in The Rural Environment</u></a>
<a href="#"><u>Renewable Energy Technologies</u></a>
<a href="#"><u>Technologies for Carbon Foot-print Reduction</u></a>
<a href="#"><u>Early Warning Systems and Communication</u></a>
<a href="#"><u>Climate Change and Water Policy</u></a>
<a href="#"><u>Water Resources and Climate Change</u></a>
<a href="#"><u>Water Pollution and Rehabilitation</u></a>
<a href="#"><u>Water Resources Management</u></a>
<a href="#"><u>Prediction and Management of Droughts and Floods</u></a>
<a href="#"><u>Early Warning Systems and Communication</u></a>
<a href="#"><u>Ecosystems, Climate Change and Adaptation</u></a>
<a href="#"><u>Bio-geophysical Impacts of Climate Change</u></a>
<a href="#"><u>Air, Soil and Water Pollution Abatement</u></a>

<u>Climate Dynamics</u>
<u>Application of Remote Sensing and Gis In Climate Change and Adaptation Assessments</u>
<u>Scenarios Development</u>
<u>Knowledge Management and Capacity Building</u>
<u>Institutional Mechanisms and Issues</u>
<u>Gender and Climate Change</u>
<u>Policy Development</u>
<u>The Politics of Climate Change</u>

**Annex 7: Check list of knowledge farms**

- How many animals are being milk?
- What equipment at the farm-zero-grazing
- What is the grazing system used at the farm?
- How is manure used at the farm?
- Is the farm divided in paddocks?
- What is the milk trends for six months?
- What type of animals are kept at the farm
- Does the Institute use Biogas for cooking?
- How is the feeding system?

**Annex 8: Questionnaire for the focus group for Githunguri dairy**

- 1.Name interviewee TASK/ROLE:
- 2.What is climate smart agriculture.....
- 3.How is climate smart agriculture practiced/carried out
- 4.What are the activities/ improved practices/trainings promoted by the supporters/ project/Factory?
5. How did you handle these activities in the various routes or to farmer groups within the Factory area?
6. Which fertilizers are farmers encouraged to use
7. Any trainings on Biogas in various route
8. Do you consider gender and youth inclusiveness in your trainings?
9. Do you give a priority to a particular group or to special issues like climate smart agriculture?
- 10.ADOPTION: What upgraded agricultural practices are popular among farmers? what proportion of Githunguri farmers have adopted at least one of the improved agricultural practices?
11. What do you think are the main reasons for the uptake of these improved practices?
12. BENEFITS: In your own observation are there benefits among the farmers? What are the benefits of these practices
14. BARRIERS: Any agricultural practices that were not adopted or rejected or abandoned?
- 15.Share a list of practices not adopted completely
- 16.What hindered their adoption within this farming system?.....
- 17.What reasons outside this farming system might have contributed to their unsuccessful adoption?
- 18.SUPPORT: What institutional support would enable more promotion of better agricultural practices in this cooperative area
19. Which NGOs/institutions/organizations are appropriate to the promotions and implementation of improved agricultural practices in this cooperative?

How are the above-mentioned institutions/NGOS/ supporting the promotion of agricultural practices in the in this cooperative?

20.POLICY:

What policy support could encourage successful application of improved agricultural practices in this area?

Any effort by the government (County and National levels)/cooperative that would create a favorable environment for uptake these practices

21. SUSTAINABILITY:

How prepared is the farmers within the community or other stakeholders to continue with the promotion and scaling-up of the improved practices (livestock and feed production) in this area?

What are you already doing that may empower the community to go on with the activities?

OPPORTUNITIES What opportunities are available for farmers to improve-bonus, quality payments, capacity

22. FUTURE PLANS: What are your plans in terms of improved agricultural practices (food security and efficient production

23. EVALUATION: What the greatest strengths (in your own assessment) in the implementation approach of Factory/ project/NGOSs activities within this cooperative

What are its key weaknesses?

What lessons have you learned from working in this cooperative with projects, NGOs, Governments agents

Share a success story of your experience at Githunguri.....

**Annex 9: Questionnaire for DTI -Farm manager, Ndomba farm manager,**

1.Name of interviewee.....

2. Gender. ....

3. Name of institution.....

4. Position of the interviewee.....

5. Task/Role of interviewee.....

6. What is climate smart Agriculture?.....

7. What does climate smart agriculture farming entail?.....

8. Available one day/one-week course/Certificate/diploma programs related to climate change .....

9. Gender considered in selection of candidates YES/NO.....

10, Gender in selection of staff considered.....

11. Does the curriculum include courses in climate change/environment conservation? YES/NO.....

12. If no, Is there a possibility to include in future as climate is global Agenda and key to achieving food security

13. If you yes, are they elaborate enough to impact knowledge and skills on climate change, climate adaptation and mitigation and whether all programmes (certificate and diploma) are covered?

14. The contribution of the program to the livestock sector.....

15. Internships offered for trainees/other students.....

16. Type of research conducted in the livestock sector.....

17. What agricultural policies do apply in the farm .....

18. Reason for supporting.....

19. Technology released to the smallholder farmer.....

- 20. Monitoring and evaluation of your support system.....
- 21. Climate-smart practices done by Institute.....
- 22.  
Challenges.....
- 22.Opportunity.....  
.....
- 23. Partners working together----.....
- 24. Relationships with dairy stakeholders.....
- 25. Existing gaps in the service you provide.....
- 26. Impacts of the department.....
- 27. Future plans.....