Norwegian Embassy

Capacity Building for Managing Climate Change (CABMACC) Programme

Annual Report

July 2015 - June 2016

Programmes Coordinating Office
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ACROYNMS AND ABBREVIATIONS

AA	Academic and Administration
ACCA	Association of Chartered Certified Accountants
AAE	Agricultural and Applied Economics
BSc	Bachelor of Science or Bachelors' degree
CABMACC	Capacity Building for Managing Climate Change in Malawi
CARE	Christian Action Research and Education
CBO	Community Based Organisations
CoM	College of Medicine
CTS	Clerical and Technical Staff
DADO	District Agricultural Development Officer
DFID	Department for International Development of UK
DoF	Department of Forestry
DRM	Disaster Risk Management
EAD	Environmental Affairs Department
EPA	Extension Planning Area
ERS	Extension and Rural Sociology
ESM	Environmental Sciences Management
FRIM	Forest Research Institute of Malawi
GPA	General Performance Assessment
IEC	Information Education and Communication
IMTR	Internal Mid Term Review
ITTN	Information and Technology Transfer Nodes
LCM	Law Commission of Malawi
LUANAR	Lilongwe University of Agriculture and Natural Resources
MoGCDS	Ministry of Gender, Children, Disability and Social Welfare
NAC	National Aids Commission
NASFAM	National Smallholders Farmers' Association of Malawi
NEAL	Network for Enhances Livelihoods Partners
NERC	National Environment Research Council
NMBU	Norwegian University of Life Sciences
NGO	Non-Governmental Organisations
NRC	Natural Resources College
OPAC	Online Public Access Catalogue
PAC	Programmes Advisory Committee
PD	Programme Document
PhD	Doctor of Philosophy
PI	Principal Investigator
RCB	Research and Capacity Building
RNE	Royal Norwegian Embassy
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Lilongwe University of Agriculture and Natural Resources (LUANAR) in collaboration with the University of Life Sciences (NMBU) in Norway is coordinating a national programme - Capacity Building for Managing Climate Change in Malawi (CABMACC). The implementation of the programme started in 2013 and will run to 2018. The programme funded by the Royal Kingdom of Norway aims to strengthen the teaching, training, research, technology development and outreach for climate change adaptation and mitigation planning.

Through critical pillars, the programmes will ensure that livelihoods and food security through innovative responses and enhanced capacity for climate change adaptation have been improved. The implementation approaches are mainly through action research, training programmes, workshops, outreach interventions, community engagement and production of Information, Education and Communication (IEC) products. These are mostly implemented by University researchers, government officials, farmers, students, NGOs and communities.

In its third year (July 2015 - June 2016), the programme has undertaken several interventions to address the targets and plans approved by the Annual Meeting of the Governments of Norway and Malawi. As such, this report aims to provide the overall achievements of the programme for the 2015/16 financial year and mid-way into the programme implementation period. Specifically, the report endeavours to (i) provide progress of achievements in the reporting period, (ii) review interventions for the remaining years, (iii) provide an overview of financial expenditure, (iv) share lessons for reprogramming of the interventions, and (v) provide work plan and budget for fourth year (2016/17).

(a) Overall Achievements

Both, annual report and Internal Mid Term Review (IMTR) processes have shown that the programme has achieved significant targets as provided in the Programme Document (PD). The Results Matrix in Table 1provides the general overview of the targets:

Table 1 Summary of Results for 2015/16

Results area	Programme Target June 2016	Achieved June 2016
Conduct exchange visits to Norway	1	1
Curriculum review workshops	1	7
Development/review of new MSc/PhD programmes	2	0
Support members of teaching staff at MSc level	7	6
Support members of teaching staff at PhD level	8	11
Support members to attend short courses at NMBU	2	0
Support mentoring session	2	3
Support members of staff at ACCA level	3	3
Support staff on Diploma/Bachelor's degree (Administration and Human Resource)	4	4
Support staff on Diploma/Bachelor's degree (Finance and Procurement)	3	3
Support Finance personnel in Project Management	0	0
Procure laboratory equipment for NRM department	Completed	Completed
Develop guidelines for mainstreaming gender in teaching and training	1	0
Support female students at BSc level	40	48
Conduct refresher courses to upgrade library skills	1	1
Create Information and Technology Transfer Nodes	3	3
Train primary and secondary school teachers on climate change	40	92
Conduct career talks	3	0
Conduct short courses on Gender for extension workers	1	0
Publish Guide Book on HIV and AIDs	1	1
Support Bunda Health Centre (equipment and long term training)	1	1
Sensitize Faculties and students, policy makers and beneficiaries on HIV and AIDS	0	0
Establish an HIV/AIDS Social Learning Platform	1	1
Connect internet optic fibre	0	0
Update library software	1	1
Maintain Internet connection	12	6
Procure library equipment		
Establish and maintain e-learning systems	0	1
Publish resource books	1	1
Procure computers	0	0
Initiate publication of University Journal	1	1
Collaborate with regional and international researchers on carbon credits	8	0
Conduct training for key stakeholders on climate change and development	1	0
Train lead farmers on climate change issues	24	24
Establish CABMACC website	1	1
Hold annual programme meeting	1	1
Hold PAC meetings	4	4

(b) Planned and Achieved Outputs

Within the reporting period, the programme achieved several outputs as follows:

(i) Capacity of LUANAR improved

The programme is supporting 10, 6 and 13 members of staff pursuing undergraduate, Masters and doctorate degrees respectively. At bachelors level, eight (8) have completed their studies and the remaining two (2) are expected to complete their studies during the 2016/17 financial year. Two (2) members of staff studying Procurement are yet to complete their diploma degrees.

At MSc level, one (1) has completed his studies and the rest are expected to finish their training by the end of 2017/18 financial year. For those supported for PhD, all are conducting their research work in Malawi. Some of the supported members have also published their work in peer-reviewed journals.

During the reporting period, the programme has supported members of staff to attend short courses on various topics in Africa, Asia and Europe. Some of the training programmes were covering relevant issues including finance, data management, climate change adaptation and planning.

One exchange visit was supported during the reporting period which involved officials from Registrar's office, Faculties, and Programmes Coordinating Office (PCO). Finally, the programme supported training of staff members in collaboration with partners from Norway on the use of MOODLE E-Learning platform for teaching and learning.

(ii) Supporting female students

The programme has supported 48 female students from Year two to Year 4 in various departments of the University. The support has been for both partial and full scholarships.

(iii) Improved information access, documentation and ICT services

The programme has supported the university library to renew its license with Library Solutions and procurement of a heavy-duty book scanner. The heavy-duty scanner will assist the library to make available relevant documents online for ease of access to more users.

(iv) Innovative research and technology

Research programmes that are implemented by Malawi researchers as well as researchers from Norway are continuing across the country. The interventions are focusing on generating new livestock feed regimes, traditional methods for treating livestock diseases, integrated soil fertility management, frameworks for enhancing

gender among female farmers, technologies for ethanol production and studies on briquettes and other alternative energy.

(v) University staff effectively participate in the outreach programmes

The programme has supported the production of the second edition of the Malawi Journal for Agriculture and Development Studies. The publication of two (2) textbooks relevant to the current teaching and learning have been supported. The first textbook is on '*Improving Rural Livelihoods: Case studies from Malawi*' and the second is "*Rethinking Development through Study Tours: Interpreting the Field and Negotiating Different Viewpoints*". The programme is also finalising the publication of (i) Guide for mainstreaming HIV and AIDs in teaching, research and outreach, (ii) Guide to promote science in secondary schools, (iii) guidebook for HIV and AIDs for higher education, and (iii) guide to implement a capacity building programme on gender and climate change. Research projects have also produced IEC materials and several interventions that have been captured in both electronic and print media.

(vi) Building capacity of key stakeholders

Through several departments, the programme has supported training sessions to primary and secondary school teachers. In addition, the programme further supported training of journalists on climate change reporting and also contributed to the development of the Disaster Risk Management (DRM) Training Manual and supported the training of officials from government, NGOs and the private sector on DRM. It also supported and facilitated the participation of LUANAR during the national conference on DRM.

(vii) Formation of Information and technology transfer nodes

The programme will be finalising the renovation of transfer nodes in collaboration with the Department of Climate Change and Meteorological Services who are providing the supervisory role.

(viii) Programme Management enhanced

The Programme Advisory Committee has continued providing policy guidance to the programme and a sub- committee on Research and Capacity Building has been engaged in all Monitoring and Evaluation (M & E) interventions.

(c) Achievements of programme indicators

It is pleasing to note that some key outputs and outcomes have been achieved under the Programme. This is confirmed by critically looking at the achievement of some specific indicators. Most CABMACC indicators are progressing well and in some cases the targets have already been exceeded. Most capacity building and once off activity indicators have been achieved and even surpassed as well as most indicators under

output 3.1 despite the fact that some will appear not to be progressing according to plan due to changing implementation strategies.

(d) Income and Expenditure Statement

To achieve the expected outputs, a total amount of NOK20,514,487.27 (US$2,488,556.00) was made available as at June 2016 including balance brought forward from 2014/2015 financial year of NOK 4,997,304.00 (US$ 624,663.00). The cost for implementing activities for this period was NOK13,487,553.20 US$ 1,685,944.15) representing 68 % of the funds available leaving unspent funds of NOK 6,420,893.73 (US$ 802,611.72). The main component of the programme - Innovative research - has spent 40% of the total expenditure.

(e) Lessons Learnt

The programme implementation and Internal Midterm Review has highlighted few things that can be used for both improving the performance of the programme as well as refocusing the interventions in the remaining years. This include:

- Need to put in place strategies that can caution challenges associated with currency exchange rates.
- The programme should involve all key stakeholders during the planning stages especially on capacity building programmes and research. The engagement of key Ministries throughout the interventions should be maintained to share lessons at national level. This also allows the programme to directly contribute to national goals and strategies.
- Innovative pathways to disseminate climate change information are required for different stakeholders including policy makers, farmers, the private sector and local leaders.
- Multidisciplinary and interdisciplinary expert engagement yield positive results in delivering interventions especiallyin producing IEC products.
- Strong partnership with the private sector and other universities is effective in addressing national challenges such as disaster risk management and it is also a cost saving mechanism.
- Joint vertical and horizontal planning within the university can contribute to achieving several interventions in the strategic plan efficiently.

(f) Conclusion

In conclusion, the programme has continued showing progress and short-term impacts. Some of the targets have been achieved whilst other targets are progressing well despite some challenges in the research grants. In terms of training, 98% of members of staff will complete their studies and some have already finished studying. Some staff supported for postgraduate studies are now conducting their research work whilst others have finished their field work.

The programme has also contributed positively for the University to access funds from other donors such as World Bank, Department for International Development (DFID) and National Environment Research Council (NERC) of UK. This has resulted in more research project that are linked to the programme objectives and further capacity building within the university.

More female students are accessing higher education due to CABMACC support and this has also encouraged competition among students. Some students have also benefitted from the programme by supporting their research projects both at undergraduate and postgraduate levels.

Research interventions have provided some of the solutions faced by farmers in relation to climate change. This has also allowed the transfer of initial findings to district officials and strengthened the relationship with the University. Some of the information from the research has been used for teaching and peer reviewed journal papers have been published.

Several stakeholders have benefited from the capacity building interventions including primary and secondary school teachers, government officials and those from the NGOs. These interventions have also resulted in identifying emerging issues that will be considered in the remaining years. There are now draft textbooks and manuals that have been generated by members of staff especially female researchers. These resource books will further build the capacity of stakeholders even after the programme has closed.

Finally, the programme has faced challenges including delayed implementation of research projects and in some cases failing to get bankable projects especially those that aim to produce tangible technologies. In addition, the exchange rate has affected the overall value of the programme.

1.0 Introduction

Since May 2013, the Lilongwe University of Agriculture and Natural Resources has been coordinating the implementation of the five-year (May 2013 to June 2018) programme titled Capacity Building for Managing Climate Change (CABMACC) Programme in Malawi. The programme is being implemented in Six (6) districts that are considered to be hot spots for climate change related vulnerability (Rumphi, Mzimba, Nkhota-kota, Dedza, Balaka and Phalombe). In Norway, the programme is being coordinated at the Norwegian University of Life Sciences (NMBU).

The programme's key activities include: (i) building the capacity of LUANAR members of staff; (ii) supporting economically disadvantaged female students; (iii) supporting publication of information, education and communication (IEC) materials; (iv) supporting internet connectivity; (v) facilitating implementation of district and community interventions; (vi) supporting HIV and AIDS related activities; (vii) empowering secondary school girls; (viii) building the capacity of other stakeholders such as teachers, extension workers, NGO officials; (ix) supporting research projects for faculty and students; and (x) supporting teaching and learning resources.

The programme has now completed its third year of implementation (July 2015-June 2016). Several activities were planned for the reporting period and were approved by the Annual Meeting of the Governments of Malawi and Norway in June 2015. The aim of this report is therefore, to provide an overview of what has been achieved during the reporting period and also presenting areas that have not been implemented successfully.

Noting that this is mid-term of the programme implementation period, this report has included some of the suggestions made by the Internal Mid-Term Review (IMTR) that took place in April 2016. These suggestions will also be included in the annual work plan for 2016/17 implementation period. The report further offers the financial statement based on the funds received from the Government of Norway, funds used during the reporting period and balances. It will highlight challenges and lessons learnt during this reporting period (July 2015 – June 2016). The report will further provide the proposed planned activities and associated budget for the fourth year (July 2016-June 2017). In addition, the report provides the Audit Report and procurement plan.

2.0 CABMACC Output Based Progress for the period (July 2015 to June 2016)

2.1 Output 1.1 Capacity for LUANAR and stakeholders enhanced

2.1.1 Conduct study exchange visits among LUANAR, Norwegian and other partners

During the reporting period, one exchange visit was undertaken to the Norwegian University of Life Sciences (NMBU), Norway. The visit involved members of staff from programme secretariat, administration and one faculty representative (See Figure 1). This was aimed at strengthening the partnership between these two institutions, LUANAR and NMBU.

Figure 1: Delegation from Malawi that visited Norway

The mission comprised CABMACC Programme Advisory Committee Chairperson (representing Government of Malawi), Faculty Dean (Natural Resources Management), Assistant Registrar – Academic, Head of Human Ecology, and M&E Officer. This team covered several issues including student data management, E-learning, Faculty Management, M&E and institutional governance.

It was learnt during the visit that climate change poses a risk for food production and consequent consumption levels. Therefore, this calls for concerted effort by the Government. It was also learnt that there is need to combine scientific and social science fields in higher learning in order to address environmental issues holistically, especially in meeting challenges related to environmental issues and sustainable development, improved health and livelihood. Using lessons learnt from these visits, the programme prepared action plans for management and summarised key findings for the University's usage.

2.1.2 Conduct curriculum review workshop to feed into the capacity plan

The programme facilitated an experts' meeting for all departments that were supported to review their academic programmes. The aim of the meeting was to identify critical challenges and gaps that LUANAR faces when reviewing or developing new academic programmes to feed into the university's capacity building plan. The meeting drafted an outline/guideline that could be adopted at university level for developing or reviewing programmes including identifying new teaching staff. The guidelines also included issues to consider when developing degree programmes by research or those that are practically oriented.

It is imperative therefore, that heads of departments (HoDs) should share and link the curriculum review outcomes to the capacity building plan in relation to identification of new teaching staff, improve skills in curriculum review and development.

2.1.3 Development of academic programmes and curriculum review

The programme supported the Department of Agricultural and Applied Economics (AAE), Extension and Rural Sociology (ERS) at Bunda Campus, Department of Land Resources and Department of Horticulture at Natural Resources College (NRC) Campus in curriculum reviews. The AAE Department has reviewed and finalized two (2) PhD programmes in Agricultural Resource Economics and Agricultural Applied Economics by research and are waiting for Senate approval.

The ERS Department has reviewed two (2) programmes, Bachelors of Science in Agriculture (Extension) and Bachelors of Science in Agricultural Extension and merged them to become Bachelors of Science (BSc) in Agricultural Extension. The NRC campus has reviewed Diplomas in Agriculture Extension, Horticultural Crops and Land Administration. In addition, the programme supported the Department of Aquaculture and Fisheries Sciences to review their PhD Programme. The Agricultural Education and Development Communication reviewed its curriculum to incorporate new modules and content. The programme supported the Department of Veterinary Sciences to review and develop its programme for undergraduates. Further to this, it is proposed to develop new postgraduate programmes.

2.1.4 Supporting training for members of staff at MSc Level

During the reporting period, the programme continued supporting six (6) members of staff at MSc level. Three (3) have completed and three (3) are continuing. Most of the postgraduate staff have completed their course work and are now conducting research and/or laboratory work. Their progress reports show that they will finish in good time. Table 2 provides information on their research work and status at the time of reporting.

Table 2:Members of staff at MSc level

Name of beneficiary	University	Research title	Current status
Josephine Zimba	Dar-Es-Salaam	Analysis of the benefits of conservation agriculture in improving livelihoods in a changing climate in Balaka District	Data analysis
Herbert Kathewera	Egerton	The role of an institutional repository in the creation and use of local content by staff and students at LUANAR, Malawi	Yet to defend

Duncan Nkolokosa	Dar-Es-Salaam	Techno-Economic Analysis of Biomass fuel Briquetting Technologies in Malawi	Thesis is still in the hands of an external examiner.

There is need to follow up on research work and its relevance to CABMACC programme goals. In this case, there is need to review their research outputs. It is also important to continue supporting the remaining students and use remaining funds (if any) to support further areas that will enhance professional development.

2.1.5 Supporting training for members of staff at PhD Level

At PhD level, the programme is providing various support to 11 members of staff (7males and 4 females) including those studying at NMBU. Of the 11, seven (7) have been supported for research activities. Within the reporting period, two (2) have completed their studies and have resumed their duties. Table 3 below provides a summary of the status as of June 2016.

Table 3: Members of staff at PhD level

Name of beneficiary	**University**	**Research title**	**Current status**
Mphatso Mchakulu	Pretoria	Implications of rural Malawi households' consciousness of climate change amidst global concern about their energy consumption practices and demands for alternative resources: the case of Balaka and Phalombe districts	Data analysis
Chikondi Makwiza	Stellenbosch	Modelling outdoor water use for assessing the impact of climate change on homestead gardening	Ongoing
Numeri Geresomo	Egerton	Effects of aflatoxin contamination mitigation practices in complementary food processing on nutritional status of children in Dedza district	In Progress and over 80% done
Experencia Chisoni	Rhodes	Investigation and expanding learning across activity system boundaries in Energy efficient cook	Research work completed

		stove innovation adoption in Malawi	
Gregory Chingala	Stellenbosch	Prediction of beef production and quality of Malawi Zebu steers fed rangeland diets	In progress
Jane Mwenechanya	Capetown	Understanding Dynamics of Water Governance Systems and its Responsiveness to Environmental, Social and Climate Change in Developing Countries.	In progress
Thomson Sanudi	Stellenbosch	Genetic characterization and introduction of walk-back selection in *Oreochromis shiranus* towards sustainable aquaculture development and biodiversity management in Malawi	Second phase data collection
Hastings Chiwasa	University of Natural Resources & Life Sciences, Vienna (BOKU)	Assessing facilitation of participatory video in promotion of sustainable soil fertility technologies	Semester II
Ron Mvula	Witswatersland	Reverse causality of organisational performance and employee behaviour in the agricultural manufacturing sector	Collecting research data
Moses Limuwa	Norwegian University of Life Sciences	Effects of Malawi fisheries and aquaculture development initiatives on small scale fisheries livelihoods under a changing environment	Collecting research data
Trust Donga	Norwegian University of Life Sciences	Reduced environmental pesticide load in sugarcane production through introduction of new integrated pest management strategies in a changing climate	Collecting research data

2.1.6 Support eight (8) members staff to attend short courses at NMBU in Climate Change

During the reporting period, the University of Life Sciences (NMBU) did not offer short courses that were targeting areas of concern by LUANAR. As such, the programme continued to provide various support to members of staff to attend short courses both in Africa and other regions. Table 4 provides a summary of short courses attended by members of staff.

Table 4: Members of staff supported to attend short courses

Position of staff	Type of short course	Venue and duration
Sibongile Zimba Chimzinga (Horticulture Department)	Modern technology for sustainable agriculture systems	Naresuan University, Thailand 7 – 23 July 2015
Dr TM Sanjika (Agriculture Engineering Department)	Agricultural mechanization for developing countries	Ministry of Commerce, Peoples Republic of China 28 July to 17 August 2015
Prof. George Kanyama Phiri	RUFORUM	Namibia 27 – 30 August 2015
Prof. Emmanuel Kaunda	RUFORUM	Namibia 27 – 30 August 2015
Vincent Mlotha (Food Science & Technology)	Mycotoxin/Aflatoxin in food and feeds	Kenya 2 – 4 September 2015
Dr Grivin Chipula (Engineering Department)	Waternet Symposium	Mauritius 28 – 30 October 2015
Alice Chalemba (Mrs)	Information & Electronic Record Management	Mananga, Swaziland 2 – 20 November 2015
Moses Limuwa (Aquaculture & Fisheries Department)	Paper presentation on Challenges facing artisanal fishers to acquire sustainable livelihoods in a changing environment	World Food Prize in Iowa, USA 11 – 18 October 2015
Dr Moses Maliro (Crop & Soil Sciences)	Paper presentation of plant growth and grain yield of quinoa (Chenopodium quinoe wild) under irrigated conditions	Minneapolis, USA 15 – 18 November 2015

Position of staff	Type of short course	Venue and duration
Emanuel Likoya (CABMACC Intern)	Africa Climate Change and Sustainable Development	Zimbabwe 28 – 30 November 2015
Jacinta Nyaika (Horticulture Department)	Fellowship short course on impact of research on development	Kenya 2 – 28 November 2015
Harold Chisale (Forestry Department)	Short course on climate change and green low-carbon development	Beijing, China 2 – 22 December 2015
Mr Mayamiko Kakwela (Extension Department)	Workshop on strengthening capacities for gender analysis	Dakar, Senegal 7 to 10 December 2015
Dr David Mkwambisi (Programmes Coordinating Office)	Regional meeting on Climate Change, Agriculture and Food Security	Nairobi, Kenya 21 – 24 December 2015
Dr Tasokwa Kakota (Basic Science) Dr Isaac Mambo (Extension Department) Ms Mirriam Matita (Extension Department) Mr Chrispin Kambani Banda (Environmental Science Management Department) Mr Andrew Joabe (Food Science & Technology Department)	Research Methods and Data analysis course using ATLASi	African Doctoral Academy, Stellenbosch University, RSA 11 – 22 January 2016

The above short-courses have provided technical platform for various members of staff to acquire new skills for the improvement of performance in their respective fields. Some of the academic members of staff have been using the acquired skills and resources in their various teaching programmes including facilitating short courses. Some of these resources have also benefited government as inputs in various policies, plans and strategies.

Consequently, the participants in 2016 academy at Stellenbosch University have been requested to design and deliver a similar training for other University staff due to the speciality of the courses. The courses covered included: (i) Research Methods and (ii) Data Analysis using ATLASi. Further to this, there is need to support tailor-made

short courses for more members of staff to benefit and to consult NMBU to facilitate the courses.

2.1.7 Conduct eight (8) mentoring sessions for proposal development, scientific writing and publications

The programme conducted three (3) mentorship sessions resulting in submission of research proposals. This has resulted in five (5) projects/programmes to be funded. The three (3) mentoring sessions have resulted into funding the following programmes/projects:

i. The Open and Distance Learning (ODL) programme funded by World Bank.
ii. United States Agency for International Development (USAID) has further supported the LUANAR Innovation Scholars Programme.
iii. DFID/NERC have supported two research projects (a) Supporting smallholder farmers' decision making: Managing trade-offs and synergies for sustainable intensification will be implemented in Burkina Faso and Malawi worth £799,000 with £45,000 to LUANAR; and(b) the Agricultural Climate Resilience to El-Nino in sub-Saharan Africa (ACRES) worth £240,000 (with £55,000 to LUANAR) to be implemented in Malawi and Kenya.

Special mentorship sessions were organised to submit a proposal to the NORHEARD and NORPART Programmes funded by the Government of Norway. These sessions have encouraged young female members of staff to produce relevant research proposals and have benefitted from the experience of the senior members of staff whilst promoting a multi-disciplinary approach to proposal writing and submission.

To further improve the capacity of LUANAR staff in proposal development, it is essential to design a mentorship-training programme and identify trainers to facilitate capacity building programme.

2.1.8 Identify and train three (3) members of staff for MBA

Three (3) members of staff were identified for support under this initiative. Initially, it was planned that these members would pursue MBA but due to reassessment of the university needs, these were converted into professional training in Association of Chartered Certified Accountants (ACCA) and Chartered Institute of Management Accountants (CIMA). Currently, all these members are pursuing ACCA/CIMA studies which have three (3) levels (Operational, Management and Strategic).The progress status is provided in Table 5.

Table 5:Members of staff pursuing CIMA/ACCA

Name	Institution of learning	Level
Fred Kalengamaliro	Standard Financial Services	Operational (CIMA)
Petersen Nachanje	Standard Financial Services	Operational (CIMA)
Jarvis Kamwetsa Mbewe	Malawi College of Accountancy	Professional (ACCA)

The programme intends to use the unspent funds from this vote to upgrade the accounting system since there is need to link to various software systems at the university including that of students' data management, fees account and registration systems to that of the library.

2.1.9 Support six (6) members of administration and support staff to attend short courses

Under this activity, funds, which were meant for short-term courses, were converted to support four (4) members of staff on long term training. Out of these, two (2) have completed their studies and the other two (2) are still pursuing their degree programmes and are expected to finalise their training in the next reporting year.

2.1.10 Train five (5) Finance and Procurement staff in Accountancy and Procurement

Six (6) members of the finance section benefitted in pursuing degree programmes in accountancy and three (3) members graduated in their fields, two (2) have completed and awaiting graduation, while one (1) is still pursuing his course.

In addition, two (2) members of the Procurement section are benefitting by pursuing courses in procurement (Chartered Institute for Purchasing and Supply, one diploma and the other certificate). These beneficiaries have not yet attained the required qualifications and anticipate to finish their studies in the next reporting year (2016/17).

2.1.11 Train six (6) finance personnel in Project Management

During the reporting period, the programme has not supported any member of staff in this budget line item. However, those that participated have skills that have shown an improvement in the way research projects are financially managed.

With respect to overall staff training, the Programme has made significant strides in capacity building as evidenced by the statistics in Table 6 with targets and achievements of training course for members of staff supported under the programme since 2013.

Table 6: Mid way targets and achievements for supporting LUANAR members of staff training

Category	Programme Target	Actual Number			Over/ Under targets	Total Number Completed
		Male	Female	Total		
Academic and administration staff on PhD	8	7	4	11	+4	2
Academic and administration staff on MSc. training	7	4	2	6	-1	1
Finance staff on ACCA/CIMA training	3	3	0	3	0	0
Staff on Diploma/Bachelor's degree (Accountancy and Procurement)	5	6	2	8	+3	3
Staff on Diploma/Bachelor's degree (Administration and Human Resource)	0	1	3	4	+4	2
Staff on Diploma/Bachelor's degree (ICT and Library)	0	2	0	2	+2	2
Staff on Bachelor's degree (Medical studies)	0	1	0	1	+1	0
TOTAL STAFF	**23**	**24**	**11**	**35**	**13**	**8**

The programme has supported 35 members of staff (24 males and 11 females) representing an over-achievement of 52 % on the target. Some members of staff targeted for diploma training (Library staff) have further been supported for bachelor's degree. In terms of gender representation, 31% of the beneficiaries are female members of staff while 69% are males. It is should be noted that these statistics do not include staff being supported at NMBU in Norway.

2.1.12 Procure laboratory equipment for ESM Department

The laboratory is now functional and the department has started conducting research together with students. The programme has supported the department of Agribusiness in the procurement of computers for their laboratory. In addition, the programme has also supported other departments with various laboratory equipment and chemicals including Department of Human Nutrition, Department of Agricultural Engineering.

2.1.13 Develop guidelines for mainstreaming gender into teaching, research and outreach programmes

The programme has supported the drafting of the LUANAR Gender Policy. The policy has several sections including the current situation at the university, policy goals, guiding principles, rationale for the gender policy, policy statements and strategies and how the implementation of the policy will be monitored and evaluated. In addition, the implementation plan for the policy has also been developed. The guidelines for mainstreaming gender into teaching, research and outreach will be developed after approval of the gender policy by Senate and Council.

2.1.14 Provide 25 BSc scholarships for female students

During the 2015/16 academic year, the programme supported 48 BSc female students. Progressively, the programme has supported 25, 59 and 48 students in 2013/14, 2014/15 and 2015/16 financial years respectively. This support has provided the required environment for learning as disadvantaged students have more time to concentrate on educational demands and requirements. The increased number of beneficiaries has increased as compared to planned due to different support provided to the students and also the subsidised fees that are still relative low compared to regional universities.

In the absence of the policy and guidelines, CABMACC scholarships will be provided to Year 2 students and continue the support based on performance. Those to be supported in the second half of the programme life shall be informed that the scholarship will expire in 2018. The internal review further proposed that there is need for an independent unit to oversee the scholarships management in the University Registrar's office.

2.1.15 Conduct refresher courses to upgrade library skills for library staff

Under this activity, funds which were meant for short-term courses were converted to support two (2) members of staff on long-term training who have completed their diploma courses in Computer Sciences. Due to excellent performance at diploma level, both are now pursuing a degree programme in Computer Sciences. One (1) is continuing to be sponsored by CABMACC while the other is using university funding.

2.1.16 Create technology transfer nodes among rural communities

The programme has supported renovation of three (3) existing buildings to be converted into information technology transfer nodes in Nkhota-kota, Phalombe and Rumphi.

In Phalombe, the programme has supported the renovation of the whole EPA building including replacing the renovation of the roof, fixing of ceiling boards, doors and security bars, provision of office chairs and tables. Several rooms were painted and some iron sheets replaced.

For Nkhota-kota, the programme completed renovating an old building by engaging a contractor who carried out several works including extensions, plastering, plumbing, tiling, and provision of all finishing works. The works were managed and supervised by the district council officials (Figure 2).

Figure 2: Building under renovation in Nkhotakota

In Bolero, the programme has assisted the EPA in improving the drainage system and fixed book shelves. Further to this, the programme has replaced the roof, ceiling boards, doors and painted the whole building. The programme has enhanced the security of the place by installing security bars and locks.

2.2 Output 1.2: Gender mainstreamed into teaching and research programmes

Several interventions were ear marked for the promotion of gender into teaching and research programmes to the extent that some notable achievements have been registered.

2.2.1 Train primary and secondary school teachers on climate change in relation to gender

The programme has supported trainings of teachers in Lilongwe, Phalombe, Dedza and Balaka. In total, 112 primary and secondary school teachers (79 male, 33 females) have been trained in climate change in relation to gender. Participants were drawn from primary and secondary schools in the CABMACC impact areas. Figure 3 shows some of the participants attending a training In Balaka facilitated by the Department of Agricultural Education and Development Communication

Figure 3: Teachers Training Participants

The training was facilitated by the Department of Agricultural Education and Development Communication. During these training, female participation was low in rural areas compared to urban because most women follow husbands to the urban areas. Critical issues covered during the training include:

(i) Identification of critical research questions,
(ii) Skills and knowledge of managing climate,
(iii) Inter disciplinarydialogueandproblem solving,
(iv) Relationship between curriculum and climate change, and
(v) Strategies for promoting communication and advocacy in climate change

To ensure wider sharing of knowledge there is need to facilitate follow-up visits including review of all training reports. In addition, there is need to facilitate meeting with Malawi Institute of Education to feed into their curriculum review. This process should lead to publishing a handbook on gender and climate change for primary and secondary school teachers.

2.2.2 Conduct career talk to promote science among girls in secondary schools

The initial phase for this activity was to publish a Mentorship Guide for Promotion of Science Education among girls. The programme has supported the drafting of the guide and is currently under review for further guidance. Upon publication and receiving feedback from the Ministry of Education Science and Technology, the guide will facilitate the developing, implementing and evaluating mentorship programs for girls in secondary schools. The team took a participatory approach whereby officials from NGOs, Ministry of Education Science and Technology, secondary teachers and learners were engaged. The guide has several sections including:

- Understanding the girl child
- Designing mentorship programme
- Action planning
- Implementing the mentorship programme
- Evaluating the mentorship programme

To enhance impact, a linkage between the developed tool kit and proposed girl-to-girl secondary school science mentorship programme should be explored. In this case, programme secretariat will facilitate the publication of the tool kit and speed up identification of secondary schools where career talk should be conducted.

2.2.3 Conduct short courses on gender and climate change for extension workers

The programme has facilitated a meeting among experts from LUANAR and College of Medicine to design and implement a training on gender, health and climate change for extension workers in the agriculture and health sector. The meeting covered several issues including training needs assessment, module content, delivery approached and expected outcomes.

2.3 Output 1.3 HIV/AIDS Issues are mainstreamed into teaching and research programmes across LUANAR

2.3.1 Publish guide book on HIV and AIDS for higher learning institutions

The findings of the needs assessment study to identify HIV and AIDS issues was completed and key findings have been shared with authors to start building on the relevant chapters.

The results of the needs assessment are very peculiar in some instances and sublimely against the national perspective. It is pleasing to note that only 0.6% said they knew nothing about HIV, 13.3% had very little knowledge, 46.6% had adequate knowledge and 38.6 % had quite a lot of knowledge. This means that there is a significant population of students who do not have adequate knowledge of HIV and AIDs issues though it can be observed that the majority have had access to some information. The positive responses are mostly in favour of female students meaning that there is need for more education on male students. Most students suggested that unprotected sex (6.2%) is the factor that leads to HIV spread and some significant peer pressure (2.2%).

On Human Rights the assessment observes that 29.3% of the students had some very little understanding (many of them from LUANAR and Lilongwe Teachers College) while 1.2% didn't seem to understand anything on human rights and HIV and AIDs. This is against 30.2% who understood a lot of human rights in relation to HIV and AIDs while 38.3 % had an adequate understanding. Further to this about 31.8 % indicated that students lack emotional support when they are HIV positive while 35.5% feel that students face stigmatization. It further shows that 2.2% indicated that HIV positive students face instances of violence from various players while a significant 18% indicated that they have heard or witnessed a rape case within the 12 months prior to the assessment and again with significant responses from LUANAR.

With respect to sources of HIV and AIDs information 67.9% reported that the Media was their main information source while 21.3% got information from guardians and family. Only 17.3% said that their institution was the source of information about HIV and AIDS; 41.4% reported that they got information about HIV and AIDS from course work and 14.5% said they got HIV and AIDS information from the youth clubs.

2.3.2 Support to Bunda Health Centre

In an effort to address health related challenges affecting the university community, CABMACC programme has supported Bunda Health Centre by procuring Chemistry Analyser, Sterilisation Equipment (Autocrave, distiller and Sterilisation Drum), and Oxygen Concentrator. The Chemistry Analyser is enabling the health centre analyze blood samples instead of referring the samples to other hospitals. The Oxygen Concentrator is assisting in providing oxygen to patients at the health centre and those

in transit to referral hospital. Sterilisation equipment has reduced the workload of health centre staff who were previously sterilizing the equipment more than three times per day.

Additionally, the programme is supporting one (1) member of staff for MBBS in Surgery. Other interventions supported include facilitating peer educator awareness campaign on HIV/AIDS.

2.3.3 Develop guidelines for mainstreaming HIV in teaching, research and outreach programmes

The programme has facilitated the development of a Guidebook to mainstream HIV and AIDS in teaching, research and outreach. The assignment is led by the Department of Agriculture Extension. Some of the contents of the guiding tool include:

(i) Concepts, rationale and approaches for HIV & AIDs;
(ii) Mainstreaming guidelines;
(iii) Mainstreaming interventions; and
(iv) Process of mainstreaming.

Once published, the tool will effectively guide the institutions of higher learning in how to mainstream HIV in teaching, research and outreach. It is expected that this tool will benefit more students in higher learning institutions.

2.3.4 Sensitizing faculties, students, policy makers and beneficiaries on the HIV/AIDS in teaching, research and outreach programmes

The programme achieved this output by supporting an open day commemorating HIV/AIDS World Day. The programme is in consultation with a student grouping that is proposing to establish a centre to address several health and HIV related challenges among students. Imperatively, the university should put in place strategies to further commemorate HIV/AIDS World Day and other interventions that will address issues of HIV and AIDS.

2.3.5 Establish an HIV/AIDs Social Learning Platform

The programme is supporting the Department of Human Nutrition and Health to develop an e-based student's HIV and AIDS Social learning model on HIV and AIDS. In this intervention, the department partnered with University of Malawi (Kamuzu College of Nursing) and Natural Resources campus to test and finalise the portal. The HIV/AIDS Social Learning Platform will allow students to discuss and share personal challenges and life styles that are linked to HIV and AIDS. Key issues will be summarised by the Platform moderator for the attention of management. It is expected that management will be devising several strategies to address the reported challenges.

2.4 Output 1.4 Improved information access, documentation and ICT services

2.4.1 Connect optic fibre Internet

The bandwidth increment has allowed for faster internet connectivity and easier access to learning materials by both students and members of staff. Now that there are two internet service providers to the institution, this has negated the problems of overreliance of this service on one service provider if connectivity challenges are experienced.

2.4.2 Update library software

The programme is supporting this budget line by paying for subscription fees in relation to the library software. This has ensured a continued better service to library users.

2.4.3 Maintain Internet connection

The programme is supporting internet connectivity by paying monthly bills. However, there is need for the University to put in place sustainability mechanisms especially looking at the projected student and staff increase. Current interventions supported by the government of Malawi on internet connection could be explored.

2.4.4 Procure library equipment

The programme supported procurement of various equipment to support delivery of library services including the heavy-duty book scanner. The programme further supported a stakeholders' consultative meeting organised by Natural Resources Campus Library. The meeting was attended by officials from Malawi National Library, National Commission for Science and Technology, Kamuzu College of Nursing Library, Bunda Campus library staff, and officials from NRC. Among other important resolutions, the meeting agreed that a proposal for a book grant and new library building be documented and sent to a number of stakeholders including CABMACC for possible funding. The Bunda library team have been asked to come up with other essential library equipment to be procured.

2.4.5 Procure library books and subscribe E - Journals across LUANAR Libraries

The books that have been procured through CABMACC funding have assisted in easing the pressure on library resources by both the students and lecturers. In addition, the programme has supported subscription to e-journals that are being accessed by LUANAR libraries. Currently the programme is exploring ways of migrating e-learning platforms including increased access to e-book, journals among others.

The library books budget will be reviewed and a way forward will be decided thereafter. It is further proposed that there is need to migrate to e-learning platforms including increased access to e-book, journals among others.

2.4.6 Establish & maintain E- Learning system

The programme co-funded a MOODLE training to 24 LUANAR Academic and ICT staff facilitated by Norwegian Partners. However, the actual e-Learning system has not been fully in operational despite that some members of staff are using both the OLAT and Moodle e-Learning systems.

To ensure effective delivery of services, it is recommended that the Secretariat should consult management on ICT considering that other programmes such as ODL, AIP and LUANAR subvention have also budget-lines on ICT. It is further suggested that there is need to have one standard mode of E-learning that the University can embrace.

2.4.7 Publish resource textbooks

A resource book by LUANAR academicians has been finalised pending publishing by Dzuka Publishing House. The programme has procured the ISBN numbers from the National Archive Department to use when publishing this books. The other books to be published include guidelines developed on secondary school teachers' education on climate change, HIV and AIDS mainstreaming, HIV and AIDs guidebook, and Gender and Climate Change to be published among others.

Another resource book titled "Rethinking Development through Study Tours: Interpreting the Field and Negotiating Different Viewpoints" is also being supported for publishing. This resource book will assist in ensuring that skills acquired during study tours are put to more usage by relevant LUANAR students, staff and key stakeholders.

2.4.8 Procure computers and accessories for ICT services

The programme supported procurement of 60 computers that were distributed to various department and sections at LUANAR Bunda campus. These computers have assisted members of staff in delivering their teaching materials with comfort.

2.4.9 Produce University Journal on Agriculture and Environment

The programme has supported publication and printing of the University Journal: Malawi Journal of Agriculture, Natural Resources and Development Studies, ISSN: 2412-2505 Volume 1, Issue 1, December 2015. The programme also facilitated the production and distribution of the journal to key stakeholders and institutions. The journal has the following contributions:

a) Sizes and Geometrical Characteristics of Watercans Used in Dimba Bucket Irrigation in Malawi: *Wiyo K A., Mtethiwa JTK and. Kanyamuka J S*
b) The potential for using anaerobic digester effluents in recirculating hydroponics system for lettuce production: *Kamthunzi W M*
c) Characterisation of breeding systems for Malawi Zebu cattle in Mzimba District, Northern Malawi: *Nandolo W, Gondwe T N and Banda L J*
d) The breeding potential of local maize varieties as source of resistance to the maize weevil and larger grain borer in Malawi: *Matewele M and Singano C*

e) The interactive effect of water temperature and salinity on yolk absorption rate, growth and larval survival of African catfish Clarias gariepinus (Burchell 1822): *Ssenfuma R, Kassam D, Gondwe T N, Mtethiwa A H and Sikawa D*
f) Biogas production from potato peelings using an anaerobic phased solid (APS) bioreactor: *Kamthunzi W M*
g) Productivity and marketing efficiency of small scale dairy enterprises in Malawi: A case study of Dwale and Emfeni extension planning areas: *Lockie D, Gondwe S R, Banda L J, Ng'ong'ola D, Gondwe T N and Thondolo M*
h) **Review:** Mass Fish kills in aquatic ecosystems: A review of the dynamics and their potential relevance for Lake Malawi: *Rusuwa B, Mwatsetedza J and Changadeya W*

2.5 Output 2.1 Innovative research and technology development – Competitive Research Grant

2.5.1 Collaborate with regional and international researchers on carbon credits

This activity has not been implemented as planned due to lack of capacity at national level and challenges to identify international collaborators. However, the draft Green Carbon Standards (agriculture, forestry and energy) have been developed in partnership with Tearfund, Department of Forestry, Department of Environmental Affairs (EAD) and Forestry Research Institute of Malawi (FRIM). These have been submitted to the Directors of EAD, Agriculture and Forestry for initial endorsement.

2.5.2 Establish six competitive grants to address knowledge gaps in climate change led by Malawi

This is an on-going activity that is supporting three (3) research projects led by Malawian researchers. These include:

(i) **Mzuzu University: Sustainable Environment and Enterprise Development for Climate Change Adaptation in Fisheries (SEED-Fish) Project**

The project will experiment the drying of fish using different methods, fish species and include the aspect of value addition by packaging the fish and compare its market value versus traditionally dried fish sold without packaging.

During the reporting period, the project has fully engaged three (3) MSc students. The first student is working on a research that aims to *test performance of fish smoking technologies and fish frying technology in the small scale fishery of Lake Malawi in Nkhotakota district*. She completed the baseline survey and construction of the smoking kilns (traditional and improved) on station (Bunda College Fish Farm) and at the project site in Nkhotakota.

She has presented and defended her proposal to the faculty and has advanced with data collection. She has since submitted her draft report on the work done so far with well presented data (results) from which will produce at least two papers for publication in peer reviewed journal as a way of disseminating findings to the wider public. Currently, she is now working on auxiliary objectives like *determination of polycyclic aromatic hydrocarbons (PAHs) in smoked fish*.

Figure 3: Fish drying technologies being constructed in Nkhotakota

The other two students are both registered with the Department of Fisheries Science at Mzuzu University. Both students presented concept notes and draft proposals to faculty at MZUNI and are currently polishing their proposals for a final presentation in mid June, 2016. Mr. Mwadzaangati's research objective is to develop a governance framework for sustainable fisheries management and adaptation to climate change while Mr. Mbamba aims to build a business model for small-scale fisheries in Nkhotakota district.

(ii) **Malawi University of Science and Technology (MUST):Techno-Economic feasibility of decentralised production of Bio-ethanol using wastes from Cassava Processing in Nkhotakota**

The project lead by Robert Mkandawire, conducted consultations with District Executive Committee as well as the Area Development Committee in Nkhotakota district to introduce the project objectives. They have also completed the baseline survey and they are currently undertaking laboratory experiments on Hydrolysis process. The project team received ethanol stoves and these have been distributed in the target communities. Currently, the stoves are using fuel from Ethco in Dwangwa. The current challenge to the beneficiaries is the price of the fuel.

(iii) **LUANAR: Evaluating feeding and breeding technologies for optimal dairy productivity and reduced carbon emissions**

The project team led by Dr Liveness Banda presented the project aims and expected outcomes to the District Executive committee as well to the extension workers. Pasture seed was procured to facilitate studies on feed regimes in collaboration with Milk Bulking Groups. The project has been collecting data on pasture productivity and management systems to inform capacity building and other project initiatives. The team has also designed experiments on feeding management. They have further assessed processing and leadership capacities of farmers that will require capacity building interventions. The initial publication for ongoing data has been submitted for peer review.

2.5.3 Implement four (4) research projects on climate change led by UMB

The programme supported the Norwegian partners to provide technical support on four (4) CABMACC research projects (ISFM, Gender, Livestock and Biomass projects).

(i) **LUANAR AND NMBU: Framework for enhancing adaptive capacity of female farmers to climate change Project**

The project completed a baseline survey and produced IEC information for extension workers. The findings of the baseline survey were presented at the district level to officials from agriculture and environment departments as well as administrators. In addition, the project further conducted a stakeholder's consultations to understand the Lead farmer model from the organisations' perspectives especially in terms of capacity building and training materials. The report was produced and the project team is drafting a paper on sustainability of the lead farmer model. The project also engaged two masters' students who have since collected data and are in the process of writing a thesis.

(ii) **LUANAR AND NMBU: Biomass Inventory and Carbon Assessment for Miombo Woodlands and Agroforestry Fields in Malawi**

The project has two (2) Masters students who have completed and passed their coursework – one (1) in Agroforestry and another in Forestry. They have now embarked on research studies. The PhD candidate at the Norwegian University of Life Sciences is in his final year of study and finalizing manuscript from the research study. In addition, 300 farmers in Mpherembe have been trained in climate change adaptation and mitigation and the team is promoting adoption of agroforestry and conservation agriculture in the area.

The first set of Geographic Information System (GIS) and Remote Sensing data was collected using the Unmanned Aerial Vehicle (UAV) procured by partners in Norway. Using the newly acquired e-Bee Unmanned Aerial Vehicle remote sensing equipment, the team acquired aerial photography. The aerial photos were acquired at a precision of 3cm/pixel resolution.

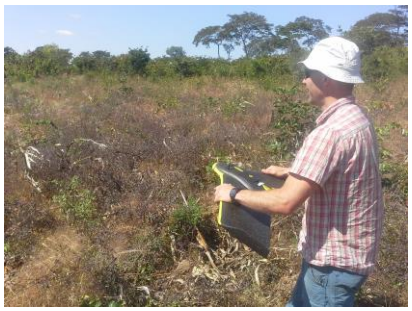

Figure 4: The Unmanned UAV ready to fly in Mpherembe

The images were extracted to 3D data and processed. Manuscript entitled '' *Estimation of above and below ground biomass of miombo woodlands using Unmanned aerial vehicles (UAV) in Mpherembe, Northern Malawi* has been developed ready for submission to a journal for publication. The second phase of aerial photography took place in the later weeks of May 2016.

(iii) **TAPP AND NMBU: Livestock Value Chain, Food Security and Environmental Quality: Transforming Rural Livelihoods through Community-Based Resilience Indigenous Livestock Management Practice**

During the reporting period, the project team led by Prof Leonard Kamwanja commissioned a study which is involving the testing of viability of leguminous leaves mixed with maize bran on production and reproduction of cow during prolonged dry spells.

Figure 5 provide the ground situation of water challenges in the area

They are also experimenting the use of maize bran, Grilicidia and leucaena for feed trials. In this component, farmers have been training how to produce the feed mixture. They have also conducted an environmental impact assessment for construction of reservoirs as well a study to understand the challenges that farmers face due to climate change related risks.

Currently, students from NMBU attached to this project have submitted some preliminary results on the study on “Factors influencing reproduction in Zebu cattle in Malawi”. The aim of the study was to identify factors related to reproductive performance in fall calving Zebu cattle in northern Malawi. The objectives of the investigation was fourfold: (1) Study characteristics of the oestrus cycle in fall calving Zebu cattle, (2) Study associations between lactation length, and energy and protein feeding during the dry season, (3) Study associations between water availability, reproductive function and lactation length, and (4) screening the study population for Foot and mouth disease (FMD)*, Neospora, Brucella Spp, Coxiella Spp, Theileria, Babesia* andendoparasites.

The results of the study show that Malawian zebu cows have a lower number of days from calving to onset of luteal activity than previously reported from Tanzanian zebu cows. Median number of days from calving to onset of luteal activity (n=93) was 52 days. Cessation of luteal activity after onset of luteal activity (OLA) was observed to be higher than previously reported. Cows having a short distance to water took significantly longer (P<0.05) before cessation of milk yield. The results prove that water is vital for the milk and meat production from smallholder farmers and improving access to water will be of importance to adapt to prolonged dry periods caused by climate changes. A relatively short period from calving to OLA, as observed, points towards a potential to increase reproductive performance in the Zebu cattle of this region.

(iv) **LUANAR and NMBU: Scaling Out Integrated Soil Fertility Management (ISFM) Approaches To Improve Crop Resilience To Climate Change**

The baseline survey was completed and the findings have been shared with the district officials. The Project is being implemented in Ulongwe Extension Planning Area (EPA) in selected sections of Chibwana-Nsamala, Chitseko, Mlambe and Hinda Hinda.

During this period all planned inputs for learning centres for lead and follower famers were procured, received and distributed. The rainy season suffered from erratic rains and dry spells of 7 to 14 days, causing significant crop wilting in many cases. However, the legumes, which are a focal point for this project, shows inherent resistance traits such that leaf wilting are not prominent symptoms in groundnut and pigeon peas. Additionally, radio programmes have been developed with farmers and were aired on various radio stations.

2.5.4 Promote efficient and effective renewable energy technology for sustainable livelihood

Under this activity, the programme is supporting two (2) projects that are being led by the Department of Agricultural Engineering. The first project has submitted a baseline report and the other is registering slow progress.

2.6 Output 2.2 Implement Commissioned Research in Collaboration with UMB

2.6.1 Implement commissioned research on carbon credits and other financing mechanisms

This intervention has not been implemented. Refer also to section 2.5.1

2.6.2. Identify other research areas as per demand

The programme supported a research on the impact of El Nino on smallholder farmers in Malawi. The results have been shared with the public through Bunda website and the Nation Newspapers. Two (2) manuscripts have been drafted on (i) Decision making in uncertainty weather conditions: Challenges for short term investments by smallholder farmers in Malawi and (ii) Seasonal Impact of 2015/16 El-Nino on smallholder farmers in Malawi: The role of climate information.

The programme further supported consultative meetings to undertake a national study that will understand factors that are making Malawi vulnerable and develop a Resilience Programme. This assignment was curtailed to incorporate other ideas from the donor community in Malawi. The programme has further supported two studies. The first one is looking at best practices from previous Norwegian funded projects. This will identify practices that can be up scaled. The second study is looking at traditional innovative technologies that be modelled on student entrepreneurship programme.

2.7 Output 2.3 Implement Post Graduate Research Grants

2.7.1 Develop new technologies and systems for enhanced climate change adaptation and mitigation

During the reporting period, the programme is supporting two (2) members of staff from LUANAR registered for PhD programme at NMBU and are continuing with their research projects. The programme further supported three (3) LUANAR staff doing their PhD and two (2) MSc research activities.

2.7.2 Conduct training on promotion of conservation of indigenous crops and landraces

The programme supported Department of Horticulture to promote indigenous vegetables in Nkhotakota and at Bunda campus. In addition, the programme supported community indigenous gardens in two CABMACC project sites. During the reporting period, the project conducted training on agronomical challenges faced by farmers. They further identified some of the areas that require participatory research. The Project has produced seed that will be marketed to other farmers.

2.8 Output 2.4 Research grant effectively managed

Most of the activities for this output were completed in Year one. The programme in collaboration with the Director of Research and Outreach is facilitating the development of the research agenda for the University rather than for the CABMACC Programme specifically.

2.9 Output 3.1 Capacity of key stakeholders enhanced for climate change adaptation and mitigation

2.9.1 Develop IEC materials

The programme secretariat as well as other project teams have produced several IEC materials. The first programme newsletter was published in June 2015 and covered several issues including: Managing climate Change through innovative ideas; LUANAR building capacity through teaching, teaching, training, research and outreach; CABMACC scholarships raise hope in female students; and Norway increases climate change community resilience in Malawi. The Second newsletter is in the draft form and will be published in July 2016. CABMACC has also been features in several radio programmes covered by various radio stations. The CABMACC website has also features more than 10 articles pertaining to CABMACC and its related interventions including that of Indigenous Crops and other research interventions.

TAPP produced their project newsletter which covered: Tobacco stems to control tick attacks; Innovation at play in livestock value chain; Olav Reksen Professor of Large Animal Reproduction at UNMB; and Synergies needed in climate resistance – Editorial.

The Gender, Cassava Waste Project and the ISFM projects also produced several IEC materials including fliers, radio programmes, handouts and leaflets for ensuring visibility of the project. The indirect reach with respect to CABMACC visibility is now over one million people countrywide.

2.9.2 Conduct three (3) short courses for policy makers on climate change issues

This has not been achieved. However, initial consultations were made with three Members of Parliament (representing women caucus in Parliament) and the

Department of Agriculture Extension at LUANAR has been mandated to facilitate a training on climate change and development for the women MPs. In addition, the programme facilitated consultations at Traditional Authority level in all CABMACC sites to understand how local leaders are involved in the development of area and district development plans.

2.9.3 Hold dissemination conferences

This has not been accomplished and it is planned for December 2016.

2.9.4 Develop policy briefs

This has not been achieved and consultations have taken place with International Food Policy Research Institute to support mentorship programmes that will build the capacity of LUANAR researchers to publish policy briefs for key Ministries and departments.

2.9.5 Produce bi-annual newsletters

See Section 2.9.1

2.9.6 Disseminate programme & research findings through radios and TV slots

The programme engaged media experts from Zodiak Broadcasting Station, Malawi Institute of Journalism and a private consultant. These have produced videos and radio programme for some of the CABMACC projects. In addition, some of the research projects have also aired their activities on both the radio and TV. The information from these audios include: Project briefs, project interventions, project beneficiaries and project expected results.

2.9.7 Train officials from government and NGO on climate change issues

This activity was not undertaken but the programme in collaboration with the Environmental Affairs Department has developed a proposal to host the 2016 LUANAR Academy on Climate Change Adaptation. In addition, the programme supported the training of 11 journalists from Nation Newspaper Limited on science reporting in general and specifically covering issues of climate change.

The programme in partnership with the Department of Disaster Management Affairs (DODMA) has facilitated the development of a DRR Training Manual and supported the training for officials from government, NGOs, the civil society, media and local leaders on Disaster related issues. Some of the topics covered during the training include (i) Understanding risk management (ii) Contingency Planning (iii) Participatory Learning Approaches and Tools in Disaster Risk Management Work (iv) Participatory Learning Approaches and Tools in Disaster Risk Management Work (v) Mainstreaming Crosscutting Issues in DRM.

2.9.8 Develop knowledge management systems for policy processes

This has not been accomplished as it builds on the intervention in section 2.9.2

2.9.9 Train lead farmers on climate change issues

This has not been planned for the reporting period.

2.9.10 Develop open learning and short courses for policy makers

See section 2.9.2

2.9.11 Establish CABMACC website

The website was fully developed and has been hosted under the LUANAR web portal. During the reporting period several issues were shared with the public including the articles on training of LUANAR staff on MOODLE platform; visit by the Norwegian counterparts to Malawi; handover of ethanol stoves to beneficiaries in Nkhotakota; planning meeting for the diary production research project in Dedza and capacity building for LUANAR staff.

3.0 Programme Monitoring

Several monitoring and evaluation activities were done in the reporting period. Most important ones were field visits to ensure that activities are being implemented according to plans. The Research and Capacity Building Subcommittee of PAC was fully involved with some reviewers coming from the Environmental Affairs Department.

3.1 Conduct mid-term and end of programme evaluation and annual surveys

The Programme Mid Term evaluation is to be conducted before the end of the financial year. The purpose of the evaluation is to assess the achievements of the programme against the goals, purpose, objectives, outputs and expected results as specified in the contract and programme document. It will also provide an independent assessment of the programme implementation in relation to efficiency and effectiveness thus far, with the aim of helping redefine the course of the programme (if needed) as to (1) enhance the likelihood of achieving the targets set for the programme and (2) help maximize the impact of the programme activities to the beneficiaries.

In preparation of the programme mid-term review, the University organised an internal review process to identify challenges that might or have hindered the implementation of specific project activities. The process involved key financial officials and management of LUANAR. Key issues that came out were documented in the final internal evaluation report and have also been included in this report as recommendations in various sections.

3.2 Develop M&E system and conduct regular technical and financial monitoring and evaluation.

The University has been working on ensuring that the CABMACC M&E framework is fully operational with relevant supporting databases and disseminations windows. The

Research &Capacity Building (R&CB) Subcommittee of PAC and LUANAR conducted M&E field visits on regularly basing on agreed work-plan. The first visit was conducted in October 2015, the second in January 2016 and the third was in April 2016.

(a) Consolidation of the M&E System

The M&E Officer in liaison with Research Project teams consolidated all the indicators into respective key performance databases and indicators have been uploaded on the M&E section of the LUANAR site.

(b) Project/field visits by the University and stakeholders

Several field visits to all the project impact districts were conducted with the main aim of assessing the usage of the respective project indicators that could feed into the CABMACC M&E Framework. This is because some of the information is being gathered continuously, especially if the number of beneficiaries is involved in CABMACC research projects. These beneficiaries are categorised into direct and indirect beneficiaries.

Table 7 summarised the direct and indirect CABMACC research project beneficiaries based on information collected during various M&E visits to project sites:

Table 7: Research Project beneficiaries

Name of Project	Location	Direct beneficiaries	Indirect beneficiaries	Number of students involved
Livestock Value Chain	Bolero, Rumphi	120 farmers (with 110 animals and 5 dams)	600 farmers	2
Biomass Miombo Forestry	Mperembe Rumphi	300 community members on flight sensitisation and 280 farmers.	1,700 around forest	2
Production of ethanol from Cassava Waste	Nkhotakota	36 on stoves	180 house-holds	4
Seed-Fish	Nkhotakota	40 members in 4 BVCs.	200 fisher people	3
Diary Farming	Mayani and LinthipeDedza	15 in Mayani and 87 in Linthipe	510	3
Integrated Farming Practices ISFM	Ulongwe, Balaka	333	1665 farmers	None

Gender Project	Naminjiwaa and Kansongo, Phalombe	30	150 farmers	2

It was also observed that there is vast information that the research projects are gathering but not being shared with CABMACC and relevant stakeholders. The University and the Research Project teams agreed that each research project will be regularly collecting information as agreed in their respective project M&E plans and report accordingly in quarterly basis.

(c) M&E Field Visits R&CB subcommittee of PAC

In order to improve on action and research projects delivery of agreed results, the Programme has been involving some members of the Research and Capacity Building Sub-committee of PAC and other co-opted technical people to assist research teams in their work. Quarterly visits have been taking place to projects in all sites covering the six impact districts. The visits have encouraged research teams to produce some publications and articles about their work.

Several issues were observed during the field visits and the following were the key issues**:**

i) There is need to improve information sharing especially on the scientific outputs;
ii) There is need to improve communication with farmers when changing some land and animal husbandry practices to avoid confusion with existing practices.
iii) There is need to ensure that all projects have field officers or dedicated students to ensure the timely implementation of activities.
iv) Construction of Information Technology Transfer nodes has to meet specifications as provided by the Department of Climate Change and Meteorological Services.
v) There is need for another orientation to project teams on the use of Indicator Tracking Tables for their respective projects
vi) There is need for improved data collection and storage improvements by different research project teams at site level.

3.3 ACHIEVEMENTS OF PROGRAMME INDICATORS

For the last three years, some milestones have been achieved and this section provides a brief outline on the progress of the programme based on the indicators. Generally, most of the CABMACC indicators are on track and in some instances some of the targets have already been surpassed. Most capacity building indicators have been achieved and even surpassed. So too most indicators under output 3.1. Other achieved indicators were as follows:

i) For the overall goal of the programme, the status of food security for households has improved.
ii) In terms of retention of LUANAR staff, the indicators show that over 98% of staff supported by the programme have been retained.

iii) Overall adoption of technologies generated by the programme is in progress and over 900 farmers have been trained in several interventions in general and specifically in the agricultural sector.

Table 8 shows progress with respect to the original and revised/refined indicators. The table is a simplified version of the Programme Indicator Tracking Table that shows progress against the baseline values as obtained from various sources in the early period of programme commencement. The analysis below each table gives a clear indication on the status of each indicator. Overall, most indicators will be achievable by the end of the programme.

3.3.1 Staff Capacity Building

The Programme has made significant strides in capacity building for LUANAR staff members as evidenced by the results figures in Table 8.

Table 8: Mid-way targets and achievements for supporting LUANAR members of staff training

Category	Programme Target	Actual Number			Over/ Under targets	Total Number Completed
		Male	Female	Total		
Academic and administration staff on PhD	8	7	4	11	+4	2
Academic and administration staff on MSc. Training	7	4	2	6	-1	1
Finance staff on ACCA/CIMA training	3	3	0	3	0	0
Staff on Diploma/ Bachelor's degree (Accountancy and Procurement)	5	6	2	8	+3	3
Staff on Diploma/Bachelor's degree (Administration and Human Resource)	0	1	3	4	+4	2
Staff on Diploma/Bachelor's degree (ICT and Library)	0	2	0	2	+2	2
Staff on Bachelor's degree (Medical studies)	0	1	0	1	+1	0
TOTAL STAFF	**23**	**24**	**11**	**35**	**13**	**8**

So far, the programme has supported 35 members of staff (24 males and 11 females) representing an over-achievement of 52 % on the target. Some members of staff targeted for diploma training (Library staff) have further been supported for bachelor's degree. In terms of gender representation, 31% of the beneficiaries are female members of staff while 69% are males. It is should be noted that these statistics do not include staff being supported at NMBU in Norway.

3.3.2 CABMACC impact indicators progress

Table 9 summarises the programme impact indicators and shows that part of food insecure farming families from December to March has also been affected by the current erratic rains in most districts. However, there have been some significant improvements in yields to most farmers who have been provided with research project inputs such especially from Mzimba, Rumphi and Dedza districts.

Table 9: CABMACC impact indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
GOAL: Improved livelihoods and food security through innovative responses and enhanced capacity for climate change adaptation and mitigation in Malawi.	Increase in technical, human, infrastructure capacity for climate change adaptation and mitigation by the end of the programme.	Proportion of food insecure farming families December to March.	Mzimba 87.8 Rumphi 84.1 Dedza 79.2 Nkhotakota 63.3 Balaka 92.9 Phalombe 85.4	0%	Mzimba 7% Rumphi 14.4% Dedza 21% Nkhotakota 6.5% Balaka 49% Phalombe 16% (Information from EPAs as of March 2016)
		Proportion of LUANAR staff retained after being trained.	N/A	100%	98.9%
		No of beneficiaries adopting CABMACC technologies.	0	2500	961 farmers participating in all research projects.

Number of beneficiaries adopting CABMACC technologies will increase as the Programme products start to increase. This indicator is likely to be surpassed once the CABMACC products such as publications and technologies are getting disseminated and adopted.

3.3.3 CABMACC Outcome indicators progress

Table 10 provides outcomes indicators and show that proportion of staff engaged or participated in climate change activities has improved compared to baseline values. However, there is need to include new staff in issues of climate change and effectively engaging them in climate change related activities.

Table 10 CABMACC Outcome 1 indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
PURPOSE/OBJECTIVE 1. Enhanced capacity of the University towards emerging local and global climate change perspectives.	60% of staff engaged /participated in climate change curriculum development by the end of the programme.	Proportion of staff engaged /participated in climate change activities.	0	113 (60% of 188)	31
	40% of academic staff participate in secondary school outreach programme on climate change by the end of the programme.	Proportion of academic staff participate in secondary school outreach programme on climate change	0	75 (40% of 188)	5
	10% of academic staff trained on short courses on climate change related issues by the end of the programme.	Proportion of academic staff trained on climate change related issues.	0	18 (10% of 188)	2 (Namodwe, Mbendera and Kazembe) at UMB and 24 in various institutions using the same vote.
	50% of academic staff developing teaching	Proportion of academic staff developing teaching	0	94 (50% of 188)	74

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
	materials on climate change issues by the end of the programme.	materials on climate change issues.			
	20% of academic staff trained up to MSc & PhD by the end of the programme.	Proportion of academic staff trained up to MSc & PhD.	0	37 (20% of 188)	17
	25% of administrative staff completing MBA by the end of the programme	Proportion of administrative staff comple-ting MBA	0	19 (25% of 76)	3
	50% of administrative staff attending short by the end of the programme.	Converted to long term courses	0	38 (50% of 76)	0
		Number of technical, administrative staff trained on long term.	N/A	N/A	4
	80% LUANAR staff retained after being trained by the programme.	Covered above	N/A	150 (80% of 188)	100%
	50% of staff participated in research grant under CABMACC	Number of staff participating on research grants	0	94 (50% of 188)	39 (7 gender, 6 ISFM, 2 Seed fish, 5 Redcap, 5 Indigenous Crops, 2 Renewable energy, 5

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
					Elnino, 7 Resilience),
	10% of female students supported with scholarships by the end programme.	Number of female students supported with scholarships	30	134 (10% of 1345)	158

Whilst the initial design was to engage more staff in secondary school career talk, the approach was to allow five female members of staff to design, develop and implement a Girl mentorship programme. The Guide book has been completed and it is expected that more staff and students will be involved in the implementation of the programme. In addition, four (4) members of staff have participated in the training of secondary teachers and have developed a hand book for building the capacity of teachers on climate change and gender.

Proportion of academic staff trained on climate change related issues has been achieved through short courses, long term training and attendance of workshops. More staff have been sent for training both locally and regionally. Proportion of academic staff developing teaching materials on climate change issues is being achieved through book publication, development and publication of guidebooks, tool kits, study materials and other resource materials.

Table 11 shows that a number of new technologies generated and approved by government target is not yet achieved but will be achieved once results of new technologies starts coming in. Number of beneficiaries adopting CABMACC technologies may be achieved with time as more beneficiaries get sensitized. Number of peer reviewed journal articles published is likely to be achieved as many projects have drafted papers and some have published.

Table 11: CABMACC Outcome 2 indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
2. Increased knowledge, technologies and systems for climate change mitigation and adaptation	5 new technologies generated under CABMACC by end of the programme.	Number of new technologies generated and approved by government	0	5	6 (1 for Ethanol Cassava, 1 for Diary, 1 briquette and 3 for seed fish) not yet approved
	2,500 beneficiaries adopting	Number of beneficiaries adopting	0	2,500	961 farmers participating in all research projects.

	CABMACC technologies.	CABMACC technologies.			
	5 of peer reviewed journal articles published by end of the programme.	5 of peer reviewed journal articles published.	0	5	8 articles now in Majands, 1 on TAPP, 1 on Cassava Waste and 1 on Seedfish
	5 books, 20 pamphlets, 10 newsletters, 50 news articles, 1000 leaflets, 5 policy briefs, 10 posters, 15 banners produced by end of the programme.	Proportion of people reached with IEC materials in targeted areas.	0%	80% of population in Impact EPAs	
		Number of IEC materials produced	0	5 books, 20 pamphlets, 10 news-letters, 50 news articles, 1000 leaflets, 5 policy briefs, 10 posters, 15 banners	1 book, 2 newsletters, 12 insights, 2 banners, 15 articles
	5 study circles established by end of the programme.	Number of farmers capacitated for climate change adaptation and mitigation.	0	66,000 (in all 6 districts)	5,005 (research project indirect beneficiaries)
	5 technologies approved by the government by end of the programme	Number of technologies approved by the government.	0	5	3 (1 for Ethanol Cassava and 3 for seed fish) not yet approved

Proportion of people reached with IEC materials in targeted areas will be surpassed with the use of electronic and print media. Number of IEC materials produced target will easily be surpassed with the funded projects also producing own materials. Number of farmers capacitated for climate change adaptation and mitigation has now reached close to 1000.

Table 12 shows that number of policy decision making government officials participating in climate change policy planning target is not yet achieved. This has been planned for the remaining years. Number of government departments / organizations with climate change issues in their strategic plans target is likely to be achieved. This will be confirmed with a rapid assessment. Number of manuals produced and being used, target is also likely to be surpassed with three (3) more manuals being finalised for publication.

Table 12: CABMACC Outcome 3 indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
3. Increased capacity on advocacy, networking and mainstreaming of climate change within policies/plans	50 % of policy decision making govt. officials participating in climate change policy planning by end of programme	Number of policy decision making govt. officials participating in climate change policy planning		100	0
	20 govt. depts. / organizations with climate change in place their strategic plans by the end of the programme.	Number of govt. depts. / organizations with climate change issues in their strategic plans.	10	20	Almost all government departments have strategic plans and 80% have climate change issues imbedded.
	5 field manuals produced on technologies by the end of the programme.	Number of manuals produced and being used	0	5	1 manual on Gender project not yet published
	10 public debates conducted by the end of programme.	Number of public debates conducted	0	10	3
	10 community based dialogue forums/technology transfer nodes formed by the end of the programme.	Number of functional community based dialogue	0	10	3 in Mpherembe, 5 in Bolero, 6 in Nkhota-kota, 3 in Dedza, 4 in

		forums formed			Balaka and 3 in Phalombe
	40% of stakeholders/institutions carrying out climate change outreach and advocacy work by the end of the programme.	Number of stakeholders or institutions carrying out climate change outreach and advocacy work.		40%	Almost all CABMACC stakeholders are climate change related institutions.
	5 functional study circles, research and technology transfer nodes, committees and other innovative structures instituted by the end of the programme.	Number of functional study circles, research and technology transfer nodes, committees and other innovative structures instituted.	0	5	3 Information transfer nodes and 18 committees

Number of public debates conducted target might not be achieved if a deliberate effort is not employed. Number of functional community based dialogue forums formed target has already been surpassed though the information technology transfer nodes constructed are currently only three (3). Number of stakeholders or institutions carrying out climate change outreach and advocacy work is likely to be achieved. There is need for a rapid assessment to prove the achievement. Number of functional study circles, research and technology transfer nodes, committees and other innovative structures instituted target is likely to be surpassed.

Table 12 further shows that the number of study exchange visits between LUANAR and NMBU conducted and number of mentoring sessions for proposal development conducted target is not yet achieved but will be achieved by the end of the programmes since more mentoring sessions are yet to be conducted. The number of library staff offered long term courses target was achieved and the number of primary and secondary school teachers trained on climate change related issues will definitely be surpassed.

3.3.4 CABMACC Output 1 Indicators

Annex 1 shows that number of students using the HIV and AIDS guide book target is not yet achieved since the book is not yet produced. The Guidelines for mainstreaming HIV in teaching research and outreach programmes were developed and a final product to be published before the end of the financial year. Number of sensitization meetings conducted to the university wide community was a once off activity at the start of the programme. The HIV/AIDS Social Learning Forums was established and just awaits formal launching. The optic fibre cable was installed and up in usage

through this was a once off activity. The Library software is regularly being updated since installation. The text books purchased target is already been surpassed and so too is the number of E-journals subscribed to. The number of resource books published target is likely to be achieved since two are already published. The programme managed to procure computers as planned. The number of articles in the university journal target is likely to be achieved with the next call to be issues in this financial year.

3.3.5 CABMACC Output 2 Indicators

Annex 2 shows that the number of collaborators on carbon credits and the number of project proposals developed and implemented with international collaborators targets has not been achieved. The number of project proposal developed and implemented for efficient and effective renewable energy target may not be achieved with scaled down budget. However, research activities on carbon credits commissioned target may not be achieved due to budget scale down. The number of projects on new research areas for emerging issues target has been achieved though there was no target.

3.3.6 CABMACC Output 3 indicators

Annex 3 shows that number of IEC materials distributed and number of people attending the dissemination conference targets will be achieved. The number of policy makers trained on climate change and number of policy briefs produced and disseminated has faced some challenges. These will be achieved with concerted efforts. The number of research findings disseminated through radio and TV target is on-going and will be achieved even beyond the programme. Number of farmers, government officials and NGOs trained on climate change target will be achieved with the involvement of research teams.

The number of indigenous vegetables promoted was achieved with a changed strategy. The number of publications from research grants target will be surpassed.

Knowledge management systems for policy processes developed target might be achieved with more efforts and the number of lead farmers trained is likely to be achieved. The open learning and short courses for policy makers target is yet to be achieved while the CABMACC website was developed.

4.0 Norwegian Contribution to CABMACC

There has been strong support from the Coordinator in Norway and other partners. This has been manifested through participation in research projects, joint publication, supporting library interventions, contributing to University Communication strategy and engagement of students.

4.1 Exchange Visit

During the year, researchers and students from Norway have visited Malawi to participate and work on several activities. The delegation from UNMBU comprised of Bishal Sitaula, Gry, Mike and Liv had a chance to meet Embassy officials in Lilongwe where they were briefed on some recent developments in Norwegian policy related to development cooperation. In turn, the Norwegian team gave a briefing on some of the programme activities including progress and challenges on project activities.

4.2 Library and E-Learning

NMBU librarian discussed extensively with LUANAR Library staff and other members of staff on various issues including Digital Information Literacy. During the discussion, the LUANAR Assistant Librarian planned an outline for a digital Information Literacy course in preparation for Moodle training that received feedback from both Malawian and Norwegian experts.

Figure 6: NMBU Librarian and LUANAR Library Staff sharing information

The Norwegian counterparts facilitated a Moodle training participated by LUANAR staff members from various academic departments, ICT, faculties and library.

4.3 Moodle and ODL

It was agreed that at least five courses based on the Moodle training be offered to students at the start of the semester (end of March 2016). This assumes that technical challenges that might prevent from reaching this goal are solved accordingly. ICT to take charge of the process to get the chosen courses in place, both with respect to course content and student administration. The ICT unit will also explore the use of the mobile app for Moodle. When technical challenges are sorted out, the Program Coordinator should promptly establish a program site on Moodle where both program and project documents can be accessed by everyone involved in the program. This would be a big step toward transparency in the program.

The Open and Distance Learning initiative at LUANAR opens for interesting possibilities to disseminate CABMACC content/results. The common use of Moodle

strengthens this connection. It was agreed that ODL Coordinator, Dr Joshua Valeta will deliver the Climate Change Adaptation short course through the ODL system in April 2017. Target groups will be extension officers and NGOs. I would suggest that Dr. Valeta is included in the next Malawian delegation coming to Norway. He could study the design and delivery of ODL courses in Norway.

4.4 Professor Trond Storebakken and PhD student Moses Limuwa

This part covers activities conducted in Malawi by Professor Trond Storebakken (TS) of the Norwegian University of Life Sciences (NMBU). The activities include supervision of SEED-Fish project, which is being implemented by NMBU in collaboration with Lilongwe University of Agriculture and Natural Resources (LUANAR), Mzuzu University (MZUNI), Malawi's Department of Fisheries and World Fish Center Malawi Office. supervision of graduate students namely: Moses Limuwa (PhD Research Fellow at NMBU), Zione Makawa (MSc. Student at LUANAR), David Mbamba (MSc student at MZUNI), George Mwadzaangati (MSc student at MZUNI). Finally, the visit included investigation of other collaboration opportunities in the sector of fisheries and aquaculture.

4.5 Gry Synnevåg activities with the Gender Project

Gry Synnevåg is working on a CABMACC research project called: Enhancing Adaptive Capacity of Female Smallholder Farmers to Climate Change. The projects overview of activities and results are as follows:

4.5.1 Most conducted activities and results are related to Output 1 and 2. Baseline conducted in three (3) districts, Phalombe, Nkhotakota and Dowa, in 139 households. Some key results:

i) Current state of adoption and dis-adoption of CSA technologies were documented
ii) Level of adaptive capacity among male and female farmers established
iii) Existing information channels for dissemination CSA technologies documented
iv) Capacity of extension workers and lead farmers in disseminating CSA technologies determined

4.5.2 Dissemination meetings for sharing and discussing baseline results conducted in Phalombe (December 2nd 2015). 50 participants attended. And in in Dowa (December 11nd 2015). 60 participants attended.

4.5.3 A Report of stakeholder consultation on the lead farmer approach was shared and comments were given by the development fund and Noragric. Improved report will be delivered and shared. Additionally, a Report from focus groups held at Chibala EPA, Funsani section was delivered and shared

4.5.4 Some leaflets were produced and disseminated on the following:

i) Capacity of Extension workers and lead farmers in Disseminating CSA Technologies
ii) Current state of adoption and dis- adoption of climate smart agricultural technologies
iii) Existing information channels for disseminating CSA technologies
iv) Level of adaptive capacity among male and female farmers

4.5.5 A Field research being conducted by Malawian MSc student January 2016: Title of work: “Effectiveness of Communication Channels in Disseminating CSA technologies” Supervisor: Dr Masangano. This is related to Output 2

4.5.6 Another Field research being conducted by Noragric MSc student in January 2016. Supervisor Gry Synnevåg. MSc thesis: Increased Adoption of Climate Smart Agriculture (CSA) Technology among Female Small Holders in Malawi. 3 districts, 300 Households surveyed. This is related to Output 1. MSc thesis writing and publication is in progress.

4.6 Trust Donga – Student at NMBU

i) From September 2015 to December 2015 Trust travelled from Malawi to Norway, registered and successfully completed course work. She was involved in Philosophy of Science and Research Ethics Population Genetics and Molecular Evolution. Total credits acquired: 20 credits.
ii) Trust Donga attended a ICIPE training to gain practical training in isolation and characterization of fungal entomopathogens. She reported at ICIPE on 2nd March 2016 and attended the training.
iii) From December 31, 2015 to January 30, 2016 she started data collection on paper two and also hosted my major supervisor, Prof Richard Meadow and he visited a few study sites.
iv) From 4 to 8 April 2016 Completion of quantification of fungal spores for insect bioassays; Harvesting spores for bioassays using spread plating techniques; Visual identification of entomopathogenic fungi and entomopathogenic fungal contaminants and Storage of fungal spores in silica gel, distilled water and glycerol Recovering fungi stored in silica gel, distilled water and glycerol.

4.7 Tron Eid, INA

Trod has been working with the project “Developing methods for biomass and carbon assessment for miombo woodlands and agroforestry fields in Malawi” under the CABMACC-LUANAR programme of collaboration between the Norwegian University of Life Sciences (NMBU) and Lilongwe University of Agriculture and Natural Resources (LUANAR), Malawi started autumn 2014.

Activities from the Norwegian side June-December 2015

(1) Data collection in Malawi
The field sample plot inventory for the forest reserve (miombo woodlands), where the eBee Remote sensing equipment was tested, was finalized by June.

(2) Analyses and article development in Norway
Two papers, the first one on models predicting tree volume and the second one on models predicting above- and belowground biomass for trees of miombo woodlands in Malawi (data and models covering wide ranges of geographical and ecological conditions of miombo woodlands in Malawi), have been published in international per review journals.

Based on the developed volume and biomass models the team has started analyses of both the data from the sample plot inventory and the data from the eBee Remote Sensing equipment. Images and extracted necessary information from the images as bases for biomass estimation have been processed. A full draft on a paper have been developed where the aim is to understand and document whether applying the eBee Remote Sensing equipment is applicable and useful regarding accuracy for biomass estimation in miombo woodlands.

Drafting of another paper where the aim is to test different options and their applicability in biomass estimation for miombo woodlands based on data from the eBee Remote Sensing equipment when considering different plot sizes, different numbers of plots, different flying altitudes and different camera types.

The team has also started preparation (planning) of similar exercise with the eBee remote sensing equipment as done for miombo woodlands also on agricultural land and trees outside forests. The field work for this is planned to take place in May 2016.

5.0 ACHIEVEMENTS OF PROGRAMME INDICATORS

5.1 Introduction

For the last three years, some milestones have been achieved and this provides a brief outline on the progress of the programme based on the indicators.

5.2 Outlook on Indicators

5.2.1 Overall Achievement

Generally, most of the CABMACC indicators are on track and in some instances some of the targets have already been surpassed. Most capacity building indicators have been achieved and even surpassed. So too most indicators under output 3.1. For the overall goal of the programme, the status of food security for households has improved. In terms of retention of LUANAR staff, the indicators show that over 98% of

staff supported by the programme have been retained. Overall adoption of technologies generated by the programme is in progress and over 900 farmers have been trained in several interventions in general and specifically in the agricultural sector. Table 1 shows progress with respect to the original and revised/refined indicators. The table is a simplified version of the Programme Indicator Tracking Table that shows progress against the Baseline Values as obtained from various sources in the early period of programme commencement.

The analysis below each table gives a clear indication on the status of each indicator. Overall, most indicators are achievable by the end of the project.

5.2.2 Staff Capacity Building

The Programme has made significant strides in capacity building for LUANAR staff members as evidenced by the results figures in Table 13..

Table 13: Mid-way targets and achievements for supporting LUANAR members of staff training

Category	Programme Target	Actual Number			Over/ Under targets	Total Number Completed
		Male	Female	Total		
Academic and administration staff on PhD	8	7	4	11	+4	2
Academic and administration staff on MSc. Training	7	4	2	6	-1	1
Finance staff on ACCA/CIMA training	3	3	0	3	0	0
Staff on Diploma/ Bachelor's degree (Accountancy and Procurement)	5	6	2	8	+3	3
Staff on Diploma/Bachelor's degree (Administration and Human Resource)	0	1	3	4	+4	2
Staff on Diploma/Bachelor's degree (ICT and Library)	0	2	0	2	+2	2
Staff on Bachelor's degree (Medical studies)	0	1	0	1	+1	0
TOTAL STAFF	**23**	**24**	**11**	**35**	**13**	**8**

So far, the programme has supported 35 members of staff (24 males and 11 females) representing an over-achievement of 52 % on the target. Some members of staff targeted for diploma training (Library staff) have further been supported for bachelor's degree. In terms of gender representation, 31% of the beneficiaries are female members of staff while 69% are males. It is should be noted that these statistics do not include staff being supported at NMBU in Norway.

Table 14 has programme impact indicators and shows that part of food insecure farming families from December to March has also been affected by the current erratic rains in most districts. However, there have been some significant improvements in yields to most farmers who have been provided with research project inputs such especially from Mzimba, Rumphi and Dedza.

Table 14: CABMACC impact indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
GOAL: Improved livelihoods and food security through innovative responses and enhanced capacity for climate change adaptation and mitigation in Malawi.	Increase in technical, human, infrastructure capacity for climate change adaptation and mitigation by the end of the programme.	Proportion of food insecure farming families December to March.	Mzimba 87.8 Rumphi 84.1 Dedza 79.2 Nkhotakota 63.3 Balaka 92.9 Phalombe 85.4	0%	Mzimba 7% Rumphi 14.4% Dedza 21% Nkhotakota 6.5% Balaka 49% Phalombe 16% (Information from EPAs as of March 2016)
		Proportion of LUANAR staff retained after being trained.	N/A	100%	98.9%
		No of beneficiaries adopting CABMACC technologies.	0	2500	961 farmers participating in all research projects.

Number of beneficiaries adopting CABMACC technologies will increase as the Programme products start to increase. This indicator is likely to be surpassed once the CABMACC products such as publications and technologies are getting disseminated and adopted.

Table 15 provides outcomes indicators and show that proportion of staff engaged or participated in climate change activities has improved compared to baseline values. However, there is need to include new staff in issues of climate change and effectively engage them in climate change related activities.

Table 13: CABMACC Outcome 1 indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
PURPOSE/OBJECTIVE 1. Enhanced capacity of the University towards emerging local and global climate change perspectives.	60% of staff engaged /participated in climate change curriculum development by the end of the programme.	Proportion of staff engaged /participated in climate change activities.	0	113 (60% of 188)	31
	40% of academic staff participate in secondary school outreach programme on climate change by the end of the programme.	Proportion of academic staff participate in secondary school outreach programme on climate change	0	75 (40% of 188)	5
	10% of academic staff trained on short courses on climate change related issues by the end of the programme.	Proportion of academic staff trained on climate change related issues.	0	18 (10% of 188)	2 (Namodwe, Mbendera and Kazembe) at UMB and 24 in various institutions using the same vote.
	50% of academic staff developing teaching materials on climate change issues by the end of the programme.	Proportion of academic staff developing teaching materials on climate change issues.	0	94 (50% of 188)	74
	20% of academic staff trained up to MSc & PhD by the end of the programme.	Proportion of academic staff trained up to MSc & PhD.	0	37 (20% of 188)	17
	25% of admini-strative staff completing MBA by the end of the programme	Proportion of administrative staff comple-ting MBA	0	19 (25% of 76)	3

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
	50% of administrative staff attending short by the end of the programme.	Converted to long term courses	0	38 (50% of 76)	0
		Number of technical, administrative staff trained on long term.	N/A	N/A	4
	80% LUANAR staff retained after being trained by the programme.	Covered above	N/A	150 (80% of 188)	100%
	50% of staff participated in research grant under CABMACC	Number of staff participating on research grants	0	94 (50% of 188)	39 (7 gender, 6 ISFM, 2 Seed fish, 5 Redcap, 5 Indigenous Crops, 2 Renewable energy, 5 Elnino, 7 Resilience),
	10% of female students supported with scholarships by the end programme.	Number of female students supported with scholarships	30	134 (10% of 1345)	158

Whilst the initial design was to engage more staff in secondary school career talk, the approach was to allow five female members of staff to design, develop and implement a Girl mentorship programme. The Guide book has been completed and it is expected that more staff and students will be involved in the implementation of the programme. In addition, four (4) members of staff have participated in the training of secondary teachers and are now developing a hand book for building the capacity of teachers on climate change and gender.

Proportion of academic staff trained on climate change related issues has been achieved through short courses, long term training, attendance of workshops. More staff have been sent for training both locally and regionally. Proportion of academic staff developing teaching materials on climate change issues is being achieved through book publication, development and publication of guidebooks, tool kits, study materials and other resource materials.

Table 16 shows that a number of new technologies generated and approved by government target is not yet achieved but will be achieved once results of new technologies starts coming in. Number of beneficiaries adopting CABMACC

technologies may be achieved with time as more beneficiaries get sensitized. Number of peer reviewed journal articles published is likely to be achieved as many projects have drafted papers and some have published.

Table 14: CABMACC Outcome 2 indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
2. Increased knowledge, technologies and systems for climate change mitigation and adaptation	5 new technologies generated under CABMACC by end of the programme.	Number of new technologies generated and approved by government	0	5	6 (1 for Ethanol Cassava, 1 for Diary, 1 briquette and 3 for seed fish) not yet approved
	2,500 beneficiaries adopting CABMACC technologies.	Number of beneficiaries adopting CABMACC technologies.	0	2,500	961 farmers participating in all research projects.
	5 of peer reviewed journal articles published by end of the programme.	5 of peer reviewed journal articles published.	0	5	8 articles now in Majands, 1 on TAPP, 1 on Cassava Waste and 1 on Seedfish
	5 books, 20 pamphlets, 10 newsletters, 50 news articles, 1000 leaflets, 5 policy briefs, 10 posters, 15 banners produced by end of the programme.	Proportion of people reached with IEC materials in targeted areas.	0%	80% of population in Impact EPAs	
		Number of IEC materials produced	0	5 books, 20 pamphlets, 10 news-letters, 50 news articles, 1000 leaflets, 5 policy briefs, 10 posters, 15 banners	1 book, 2 newsletters, 12 insights, 2 banners, 15 articles
	5 study circles established by end of the programme.	Number of farmers capacitated for climate change adaptation and mitigation.	0	66,000 (in all 6 districts)	5,005 (research project indirect beneficiaries)

	5 technologies approved by the government by end of the programme	Number of technologies approved by the government.	0	5	3 (1 for Ethanol Cassava and 3 for seed fish) not yet approved

Proportion of people reached with IEC materials in targeted areas will be surpassed with the use of electronic and print media. Number of IEC materials produced target will easily be surpassed with the smaller projects also producing own materials. Number of farmers capacitated for climate change adaptation and mitigation has now reached close to 1000.

Table 17 shows that number of policy decision making government officials participating in climate change policy planning target is not yet achieved. This has been planned for the remaining years. Number of government departments / organizations with climate change issues in their strategic plans target is likely to be achieved. This will be confirmed with a rapid assessment. Number of manuals produced and being used, target is also likely to be surpassed with three (3) more manuals already on the way.

Table 15: CABMACC Outcome 3 indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
3. Increased capacity on advocacy, networking and mainstreaming of climate change within policies/plans	50 % of policy decision making govt. officials participating in climate change policy planning by end of programme	Number of policy decision making govt. officials participating in climate change policy planning		100	0
	20 govt. depts. / organizations with climate change in place their strategic plans by the end of the programme.	Number of govt. depts. / organizations with climate change issues in their strategic plans.	10	20	Almost all government departments have strategic plans and 80% have climate change issues imbedded.
	5 field manuals produced on technologies by the end of the programme.	Number of manuals produced and being used	0	5	1 manual on Gender project not yet published
	10 public debates conducted by the end of programme.	Number of public debates conducted	0	10	3

	10 community based dialogue forums/technology transfer nodes formed by the end of the programme.	Number of functional community based dialogue forums formed	0	10	3 in Mpherembe, 5 in Bolero, 6 in Nkhotakota, 3 in Dedza, 4 in Balaka and 3 in Phalombe
	40% of stakeholders/institutions carrying out climate change outreach and advocacy work by the end of the programme.	Number of stakeholders or institutions carrying out climate change outreach and advocacy work.		40%	Almost all CABMACC stakeholders are climate change related institutions.
	5 functional study circles, research and technology transfer nodes, committees and other innovative structures instituted by the end of the programme.	Number of functional study circles, research and technology transfer nodes, committees and other innovative structures instituted.	0	5	3 Information transfer nodes and 18 committees

Number of public debates conducted target might not be achieved if a deliberate effort is not employed. Number of functional community based dialogue forums formed target has already been surpassed though the information technology transfer nodes constructed are currently only 3. Number of stakeholders or institutions carrying out climate change outreach and advocacy work is likely to be achieved. There is need for a rapid assessment to prove the achievement. Number of functional study circles, research and technology transfer nodes, committees and other innovative structures instituted target is likely to be surpassed.

Table 18 shows that the number of study exchange visits between LUANAR and NMBU conducted and number of mentoring sessions for proposal development conducted target is not yet achieved but will be achieved by the end of the programmes. These is need for more mentoring sessions. The number of library staff offered long term courses target was achieved and the number of primary and secondary school teachers trained on climate change related issues will definitely be surpassed.

Table 16: CABMACC Output 1 Indicators

Narrative (Outputs)	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
1.1 Improved capacity of LUANAR and key stakeholders on climate change adaptation and mitigation	3 study exchange visits between LUANAR and UMB conducted by the end of the programme.	Number of study exchange visits between LUANAR and UMB conducted	0	3	2 (involving 5 members in 2013 and 5members in 2015)
	8 mentoring sessions for proposal development conducted by the end of the programme	Number of mentoring sessions for proposal development conducted	1	8	3 RUFORUM proposal, UNDP proposal, Norhead
	Refresher course for Library staff	This was converted to long term as indicated below.	0	N/A	0
		Number of library staff offered long term courses.		N/A	2
1.2 Gender mainstreamed within teaching and research programmes	Train primary and secondary school teachers on climate change related issues	Number of primary and secondary school teachers trained on climate change related issues	0	100	90 (a tool kit for training of teachers was also produced and yet to be tested)
	Three (3) career talks to promote climate change among girls in secondary schools by the end of the programme.	Number of career talks conducted to promote climate change among girls in secondary schools.	1	3	0 (A tool kit for conducted career talks was produced using the same funds.)
	Conduct short courses on gender and climate change for extension workers	Number of staff trained on gender and climate change	0	N/A	18 from districts and 12 during tool kit development
1.3 HIV/AIDS issues are mainstreamed into teaching and research	One guide-book developed on HIV / AIDS and climate change by the end of the programme.	Number of students using the HIV and AIDS guide book	1	2	2

programmes across LUANAR					
	Develop guidelines for mainstreaming HIV in teaching research & outreach programmes	Guidelines for mainstreaming HIV in teaching research and outreach programmes developed	1	1	1 (a tool kit was produced)
	6 sensitization meetings conducted to the university wide community by the end of the programme.	Number of sensitization meetings conducted to the university wide community		6	1 meeting was conducted and all funds exhausted
	One HIV/AIDS Social Learning Forums established by the end of the programme.	Number of HIV/AIDS Social Learning Forums established.	1	1	1 (now hosted on the LUANAR website)
1.4 Improved information access, documentation and ICT services	1 optic fibre cable installed and used by the end of the programme.	Number of optic fibre cable installed and used	1	1	1 (Globe Internet optic fibre)
	Library software updated and installed by the end of the programme.	Number of Library software updated and installed	1	1	1 (updated and not installed)
	Steady connectivity of internet during the life span of the programme.	Increased band width. Number of hours with steady internet	8 mb 5 hours	20 mb	13 mb
	Procurement of Library equipment	Number of equipment procured	N/A	N/A	3 (Heavy duty scanner, CCTV cameras, Book detector and bar code reader)

	Purchase text books on climate change and subscribe to e-journals by the end of the programme	Number of text books purchased	100	NA	About 400 various books.
		Number of E-journals subscribed to	1,700	N/A	1,800
	E-learning system and produce e-learning resource materials and popularize	E-learning system in place E-learning resource materials produced	1 0	1	1 (Moodle)
	Learning Management system (LMS) - jointly with UMB) established and maintained by the end of the programme.	Learning Management System (LMS) established	1	1	Moodle platform is being promoted
	Publish resource test books	Number of resource books published	0	2	2 (12 lecturers involved and Dr. Kambewa)
	60 personal computers purchased by the end of the programme.	Number of computers procured	0	60	60 distributed in various departments.
	Produce University Journal	Number of articles in the university journal	0	N/A	8

Table 18 further shows that number of students using the HIV and AIDS guide book target is not yet achieved since the book is not yet produced. The Guidelines for mainstreaming HIV in teaching research and outreach programmes were developed and a final product to be published before the end of the financial year. Number of sensitization meetings conducted to the university wide community was a once off activity at the start of the programme. The HIV/AIDS Social Learning Forums was established and just awaits formal launching. The optic fibre cable was installed and up in usage through this was a once off activity. The Library software is regularly being updated since installation. The text books purchased target is already been surpassed and so too is the number of E-journals subscribed to. The number of resource books published target is likely to be achieved since two are already published. The programme managed to procure computers as planned. The number of articles in the university journal target is likely to be achieved with the next call to be issues in this financial year.

Table 19 shows that the number of collaborators on carbon credits and the number of project proposals developed and implemented with international collaborators targets has not been achieved. The number of project proposal developed and implemented for efficient and effective renewable energy target may not be achieved with scaled down budget. Number of research activities on carbon credits commissioned target will not be achieved. The number of projects on new research areas for emerging issues target has been achieved though there was no target.

The table also shows that number of IEC materials distributed and number of people attending the dissemination conference targets will be achieved. The number of policy makers trained on climate change and number of policy briefs produced and disseminated has faced some challenges. These will be achieved with concerted efforts. The number of research findings disseminated through radio and TV target is likely to be achieved. Number of farmers, government officials and NGOs trained on climate change target will be achieved with the involvement of research teams now.

Table 17: CABMACC Output 2 Indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
2.1 Innovative research, best bet practices and technologies developed on climate change adaptation and mitigation undertaken	Collaborate with leading and International researchers on carbon credits	Number of collaborators on carbon credits	0	N/A	0
	10 project proposals developed and implemented with international collaborators by the end of the programme. for CABMACC	Number of project proposals developed and implemented with international collaborators	5	10	8 (5 on research and 3 others)
	1 project proposal developed and implemented for efficient and effective renewable energy.	Number of project proposal developed and implemented for efficient and effective renewable energy.	0	1	3
2.2 Commissioned & Postgraduate Research Grants on climate change established and promoted.	6 commissioned research on carbon credits and other financing mechanisms.	Number of research activities on carbon credits commissioned	0	6	0
	Identify new research areas for emerging issues	Number of projects on new research areas for emerging issues	0	N/A	2
	5 research grants provided to PhD students on reviewed and prioritized research themes by the end of the programme.		5	5	3 (Donga and Limuwa)
	Project grantees are trained in project management.	Number of grantees trained in project management.	0	N/A	28

	Promotion of conservation of indigenous crops and landraces	Number of indigenous vegetables promoted	N/A	N/A	4
2.3 Research grants effectively managed	Stakeholders planning workshop	Number of publications from research grants.	N/A	N/A	8 (1 from Tapp, 1 on Elnino and 6 Baseline Survey Reports)
	Ratification, validation and sensitization of governance structures.	CABMACC board meeting regularly	0	2 PAC and 1 Annual per year.	2 PAC and 1 Annual per year.
	Review criteria for selection of proposals and scholarship beneficiaries				Criteria was used for research projects
	Development of research agenda	CABMACC research agenda developed	0	1	Not yet done
	Call for concept note	Number of calls for concept notes received	N/A	N/A	7 Concept notes approved and funded
	Conduct peer review meetings	Number of peer review meetings	N/A	N/A	2

The programme trained grantees in project management as planned, though without specific target attached to this indicator. The number of indigenous vegetables promoted was achieved with a changed strategy. The number of publications from research grants target will be surpassed.

Table 20: CABMACC Output 3 indicators

Narrative	Original Indicators	Refined Indicators	Baseline Value	EoP Target	Status June 2016
3.1 Capacity of key stakeholders enhanced for climate change adaptation and mitigation	Advertise for tender to print IEC materials Distribute materials	Number of IEC materials distributed	0	100	1000 copies of CABMACC newsletter, 500 Tap newsletter, 50 copies of journals, 1000 document wallets, 1000 booklets.
	Train policy makers on climate change issues	Number of policy makers trained on climate change	N/A	N/A	12 Dados and DPDs
	Hold dissemination conference	Number of people attending the dissemination conference	0	200	0
	4 policy briefs produced and dissemination forums by the end of the programme	Number of policy briefs produced and disseminated	0	4	0
	Produce Bi-Annual Newsletter	Number of bi Annual newsletters produced	0	10	2 (Second edition under development)
	Disseminate programme and research findings through radios and TVs	Number of research findings disseminated through radio and TV	0	7	1
	150 farmers, government officials and	Number of farmers, government	0	150	20 lead farmers, 24 government

	NGOs trained on climate change by the end of the project.	officials and NGOs trained on climate change			workers, 24 NGOs,
	Develop knowledge management systems for policy processes	Knowledge management systems for policy processes developed	0	1	Not yet done
	Train lead farmers	Number of lead farmers trained	N/A	N/A	20
	Develop open learning and short courses for policy makers	Open learning and short courses for policy makers	0	1	0 (Not yet done)
	Establish CABMACC website	CABMACC website developed and regularly updated	0	1	1 (Now being piloted and materials being uploaded)

Knowledge management systems for policy processes developed target might be achieved with more efforts and the number of lead farmers trained is likely to be achieved. The open learning and short courses for policy makers target is not yet achieved but the CABMACC website was developed and now on a separate hosting site.

It should also be noted that there are some indicators whose activities were not provided with budget provisions such as “study circles”, CABMACC can still be able to achieve these indicators if research projects are asked to incorporate such as part of community monitoring and evaluation. Alternatively, this can be achieved as part and parcel of the CABMACC communication strategy implementation.

It should however be noted that some indicators might not be achieved at the end of the programme if more effort is not employed to ensure their achievement. This is also as a result of changing strategies where some activities have been re-aligned without revisiting the corresponding indicators.

5.3 Conclusion

Though most indicators are likely to be achieved, there is need to put more effort to activities whose indicators are lagging behind. The emerging issues line item can be utilized more towards this kind of strategic positioning. There is need for a more proactive attitude of all players towards the monitoring of the indicators as most stakeholders seem to leave all M&E related work to M&E staff who are not always present in various research/project implementation teams. M&E staff need to be

incorporated in project activities so that critical indicators are not properly recorded. Research projects have been encouraged to report on indicators on quarterly basis using the templates that have been shared from PCO.

It should also be noted that some baseline values were collected using perception as in “Proportion of food insecure farming families from December to March.” while the status values were obtained from information collected by the AEDC and their staff in the communities. The best option is also to collect the baseline values from the EPAs as of 2013/14 growing season. The baseline values collected using perceptions will only be meaningful if a perceptions survey is also conducted at some point or at the end of the project.

6.0 Programme Management

6.1 Hold Annual Meetings

The 2015/16 Annual meeting took place on July 18, 2016 at Programmes Coordinating Office. It is expected that the Rector at NMBU, government, university and Embassy officials attended the meeting.

6.2 Hold Programme Advisory Committee (PAC) Meetings)

Two (2) PAC meetings were held during the reporting period and latest was held on June 8, 2016. The meetings have allowed the university to take strategic direction in supporting research and outreach interventions promoted by the programme. They have also allowed the university to take a leading role in implementing some of the key areas requested by the government especially on the El Nino study and contribution to the Disaster Risk Management capacity programmes.

6.3 Participation in conferences and meetings

The programme has supported management and secretariat team to participate in global conferences. The Vice Chancellor presented a position paper on Climate change and Agriculture in the House of Commons of the British Parliament. The Programmes Coordinator presented a paper on Climate change impact on smallholder farmers in Dublin, Ireland. The conference- Meeting the Challenge of Climate Change Justice- was organised by Mynooth University and Troicare.

6.4 Conduct Annual Audit

The audit report for the 2014/15 year was completed and there was no major issues raised through the management letters. The Embassy also noted that there were no major issues while encouraging the PCO to keep up with good financial management practices.

7.0 Financial Report

Financial absorption has picked up significantly during the reporting period. It is expected that more funds will be disbursed to the project this year as implementing of many activities is essentially picking up.

7.1 Income as at June 2016

At the reporting time (June 2016) the total amount of NOK20,514,487.27 (US$2,488,556.00) representing 85% of year three budget was made available including balance brought forward from 2014/2015 financial year of NOK 4,997,304.00 (US$624,663.00). In addition, an interest of NOK23,433.96 (US$ 2,857.80) gained from both foreign denominated and local accounts.

Table 18:Summary of Income

INCOME	MK	MK	US $	US $
Balance b/d	274,695,636		624,663	
Grants from Norwegian Embassy	1,142,150,411		1,861,745	
Interest Receivable	1,760,406		2,857.80	
Exchange Gain	101,832,389			
Miscellaneous Income	25,000		40.58	
Total Income		**1,520,463,842**		**2,489,306**

7.2 Financial Expenditure

The cost for implementing activities for this period was NOK14,600,469 (US$1,780,545) representing an overall of 61% of the budget and 72% of funds available leaving unspent funds of NOK5,811,848 (US$708,762). In terms of expenditures for each programme component 50% has been spent on Innovative Research & Technology Development in Climate Change Adaptation. The key intervention in this output include field and laboratory experiments, community consultation desk research, preliminary publication and dissemination.

At least 20% of the expenditure has been spent on capacity building intervention for staff members which covers tuition fees, research work, living allowances and travel. Table 17 Below summaries the expenditure for other components.

Table 19:Financial Expenditures

EXPENDITURE	**MK**	**MK**	**US $**	**US $**
Improving the capacity of LUANAR & Key Stakeholders	215,322,436		348,953	
Gender Mainstreaming into Teaching & Research programmes	14,256,700		23,144	
HIV/AIDS Issues Mainstreamed into Teaching & Research	7,244,097		11,760	
Improved Information Access, Documentation & ICT Services	36,447,158		59,167	
Innovative Research & Technology Development in CC Adaptation	382,264,190		620,559	
Commissioned Research	44,424,619		72,118	
Post Graduate Research Grants	88,035,225		142,914	
Management of Research Grants	2,449,050		3,976	
Capacity of key Stakeholders Enhanced for CC Adaptation	28,633,801		46,483	
Programme Monitoring & Evaluation	40,395,420		65,577	
Programme Implementation & Coordination	237,709,931		385,893	
Total Expenditure		**1,097,182,626**		**1,780,545**
Unspent funds		**423,281,215**		**708,762**

7.3 Financial Review

At the time of programme development and approval, the programme value was NOK60million which was equivalent to US$10million at the exchange rate of NOK6/US$. However, in the subsequent years the exchange rate changed from NOK6 to NOK8 against US$. This will result into loss in programme value by US$2,473,251.05 (See Table12 below). The table shows that the first three funding tranches (1st – 3rd) were exchanged at an average rate of NOK6/US$ thereby not affecting the value of the programme budget.

Table 23: Loss/Gain of Foreign income

	BASE LINE	AMOUNT $	Amount NOK	Exchange rate	Date	Expected	Loss/Gain
0	Programme value	10,000,000	60,000,000	6			
1	First payment	687,698.79	4,000,000.00	5.816499982	30/05/2013	666666.6667	21,032.12
2	Second payment	1,128,031.58	7,000,000.00	6.205500027	10/12/2013	1166666.667	- 38,635.09
3	Third payment	567,674.97	3,500,000.00	6.165499951	16/07/2014	583333.3333	- 15,658.36
4	Fourth payment	1,153,000.08	7,600,000.00	6.591499976	30/10/2014	1266666.667	- 113,666.59
5	Fifth payment	521,954.72	4,000,000.00	7.663500006	28/05/2015	666666.6667	- 144,711.95
6	Sixth payment	842,865.74	7,000,000.00	8.305000035	02/09/2015	1166666.667	- 323,800.93
	Disbursed	4,901,225.88	33,100,000.00				- 615,440.79
	Remaining from RNE	**5,098,774.12**	**26,900,000.00**			**3,240,963.86**	
	Expected loss from future disbursement					**1,857,810.26**	
	Expected and actual loss					**2,473,251.05**	

However, in the last three funding tranches (4th – 6th) the average exchange rate increased from NOK6/US$ to NOK7.5/US$. With this outcome, the total value received {NOK33,100,000 (US$4,901,225.88)} resulted in a loss of US$615,440.79. With the current average exchange rate, the remaining amount of NOK26,900,000 will result into US$1,857,810.26 giving a total loss of US$2,473,251.05. This analysis shows that effective value of the programme now stands at US$7,526,749 which will grossly affect implementation of programme activities especially completion of LUANAR staff on long term training, competitive research grants and collaboration arrangements with Norwegian Partners.

8.0 LESSONS LEARNT

The key challenge that CABMACC has faced is the fluctuation of the exchange rate between the US$ and the NOK. It is therefore pertinent that there is need to budget in NOK in future, and cost all the interventions in NOK. The programme has also learnt the need to involve key stakeholders at all stages of implementing the programme. That has resulted in understanding key programme and strategies that Ministries are championing in line with what was planned in the CABMACC programme document. This has also resulted in engaging other experts who have special skills that are not available within the University boundaries.

Many stakeholders still require technical and basic information on climate change including policy makers especially Members of Parliament, traditional leaders and Councillors. This information is of significance especially when they are planning for relevant development plans. In addition, training programmes should all have a training manual and that the ownership of this training manuals or tool kits should be with the relevant Ministry.

There is need to have strong partnership and networks with other public and private universities in order to address real issues affecting the country in relation to climate change. For example, the delivery of different courses on Disaster Risk Management at country level can easily be achieved if the universities were addressing national gaps.

Sending more members of staff to a single training is building on their skills and creating synergies that are relevant for the university. This is also allowing to design in house training programmes for other members of staff.

At University level, there are other programmes that have similar interventions as those in the CABMACC programme especially the Open and Distance Learning Programme. There is need to have a joint planning and agree how the university can achieve these interventions in line with the strategic plan. This joint planning will reduce duplication of interventions and allow resources to be committed to equally important activities.

There is need to improve engagement of researchers and continue building their capacities to allow generation of technologies. Periodic meetings to share lessons and discuss other issues should be encouraged.

9.0 CONCLUSION

In conclusion, the programme has continued showing progress and short-term impacts. Some of the targets have been achieved whilst other targets are progressing well. Training for members of staff both for short term and long term programmes is fulfilling several strategic issues including developing the manpower. This capacity has also allowed the university to with other grants and initiation of innovative programmes including the ODL and Aquaculture Centre of Excellence. The programme has further allowed more staff members to have postgraduate degrees which is a prerequisite for higher centres of education.

Supporting female students is contributing national, regional and global agenda on girl empowerment and girl education. Over 80 students have benefited from these interventions.

Supporting research programmes is creating new knowledge that is contributing to teaching as well as supporting government by sharing information. This has also allowed university staff to collaborate closely with government departments at national and district level. The engagement of communities is another pathway of building their capacity for climate change adaptation.

Training programmes that the programme is supporting have provided the conducive platform where key stakeholders have enhanced their skills and knowledge on climate change. This has also allowed the facilitators to identify other emerging needs that the programme will address in the subsequent years.

The inclusion of development interventions such as that of indigenous vegetable seeds and supporting community level interventions is allowing farmers to appreciate technologies that can be up-scaled without significant financial investment. This is also provides the opportunity to researchers to develop better extension messages for promotion of such technologies.

The publication of resource books, guidelines and tool kits in various areas is allowing internal mentorship between senior lecturers and upcoming researchers. This is promoting publication among members of staff. It will further put LUANAR on a global map for contributing to key issues affecting the world including HIV and AIDS, climate change and gender.

The approach taken by the programme to have mentorship sessions for proposal development and publication of several IEC materials is also a unique approach to build capacity of lecturers and administrators.

However, the exchange rate between dollar and NOK has affected the value of the programme and this will further affect the effective implementation of the

programme. There is need to reconsider key interventions that could be supported in the remaining years. In addition, the programme should find better mechanisms of making sure that tangible technologies especially for alternative or renewable energy are generated.

Finally, the programme has achieved this milestones because of the support is receiving from University management, Norwegian partners, PAC members and all key stakeholders involved including district officials and communities.

10.0 ANNEXES

Appendix 1: CABMACC EXPENDITURE AGAINST BUDGET FOR THE JULY 2015 – JUNE 2016 PERIOD

Improving the capacity of LUANAR & Key Stakeholders	**Budget US$**	**Expenditure MK**	**Expenditure US $**	**Balance USD $**
Conduct Exchange Visits	25,000	12,573,684	20,412	4,588
Curriculum Review Workshop to Feed into Capacity Plan	10,000	4,158,955	6,752	3,248
Develop & Implement PHD & MSc Programmes	4,000	1,182,045	1,919	2,081
Train 7 Members of Teaching Staff at MSc Level	102,000	34,729,859	56,380	45,620
Train 8 Members of Teaching Staff at PHD Level	239,000	95,361,832	154,808	84,192
Support 8 Staff Members to Attend Short Courses at UMB	20,000	16,378,834	25,993	(5,993)
Conduct 8 Mentoring Sessions for Proposal Dev, Scientific Write shop	12,000	6,825,170	11,080	920
Train 3 Staff Members for MBA	53,000	7,530,234	12,224	40,776
Support 6 Members of Admin& CTS to Attend S/Course	10,000	3,447,388	5,596	4,404
Train 5 Finance & Procurement Staff in Accountancy & Procure	5,000	1,910,000	3,101	1,899
Procure Laboratory Equipment for NRM	34,000	8,235,057	13,369	20,631
Develop Guidelines for Mainstreaming Gender	5,000	1,586,418	2,575	2,425
25 BSc Scholarships for Female Students	60,000	11,740,809	19,060	40,940
Refresher Courses to Upgrade Library Skills for Library Staff	5,000	2,127,776	3,454	1,546
Create Technology Transfer Nodes among Rural Communities	24,000	7,534,375	12,231	11,769
Sub Total	**608,000**	**215,322,436**	**348,953**	**259,047**

Gender Mainstreaming into Teaching & Research programmes				
Train Primary & Secondary School Teachers on Climate Change	20,000	9,698,600	15,744	4,256
Career Talk to Promote Science Among Girls in S/Schools	23,000	3,482,300	5,653	17,347
Conduct Short Courses in Gender & Climate Change	20,000	1,075,800	1,746	18,254
Sub Total	**63,000**	**14,256,700**	**23,144**	**39,856**

HIV/AIDS Issues Mainstreamed into Teaching & Research				
Develop a Guidebook on HIV/AIDS	12,000	641,500	1,041	10,959
Support Voluntary & Counselling & Testing VCT at BHC	20,500	1,998,250	3,244	17,256
Develop Guidelines for Mainstreaming HIV in Teaching, Research	8,000	2,896,047	4,701	3,299
Establish an HIV/AIDS Social Learning Forum	17,000	1,708,300	2,773	14,227
Sub Total	**57,500**	**7,244,097**	**11,760**	**45,740**
Improved Information Access, Documentation & ICT Services				
Update Library Software	11,000	708,133	1,150	9,850
Maintain Internet Connection	38,000	18,971,896	30,799	7,201
Procure Library Equipment	47,000	9,311,099	15,115	31,885
Publish Resource Textbooks	19,000	4,275,465	6,941	12,059
Produce University Journal on Agriculture & Environment	17,900	3,180,565	5,163	12,737
Sub Total	**132,900**	**36,447,158**	**59,167**	**73,733**
Innovative Research & Technology Development in CC Adaptation				
Collaborate with Regional & International Researchers on CC	24,000	590,000	958	23,042
Establish 6 Competitive Grants to Address Knowledge Gabs	360,000	95,086,876	154,362	205,638
Implement 4 Research Projects on CC led by UMB	450,000	269,943,852	438,221	11,779
Promote Efficient & Effective Renewable Technology	147,000	16,643,462	27,019	119,981
Sub Total	**981,000**	**382,264,190**	**620,559**	**360,441**
Commissioned Research				
Implement Commissioned Research on Carbon Credit	70,000	4,342,437	7,049	62,951
Other Research Areas	85,000	40,082,183	65,068	19,932
Sub Total	**155,000**	**44,424,619**	**72,118**	**82,882**

Post Graduate Research Grants				
Develop New Technologies & Systems for Enhanced CC	145,500	82,447,065	133,843	11,657
Training on Promotion of Conservation of Indigenous Crops	31,000	5,588,160	9,072	21,928
Sub Total	**176,500**	**88,035,225**	**142,914**	**33,586**
Management of Research Grants				
Train & Sensitize Grantees & Beneficiaries	6,000	2,449,050	3,976	2,024
Sub Total	**6,000**	**2,449,050**	**3,976**	**2,024**
Capacity of key Stakeholders Enhanced for CC Adaptation				
Develop, produce & distribute IEC Materials	21,000	2,925,430	4,749	16,251
Conduct Short courses for Policy Makers on CC	10,000	-	-	
Hold Dissemination Conference	25,000		-	25,000
Develop Policy Briefs	7,200	340,372	553	6,647
Produce Bi-annual Newsletters	10,000	1,004,435	1,631	8,369
Disseminate the Programme & Research Findings	20,000	13,461,173	21,853	(1,853)
Train Officials from Government & NGOs on CC Issues	7,400	4,043,861	6,565	835
Develop Knowledge Management Systems for Policy Processes	10,500	2,589,300	4,203	6,297
Train Lead Farmers on CC Issues	10,000		-	10,000
Develop Open Learning & Short Courses for Policy Makers	20,000	1,809,400	2,937	17,063
Establish CABMACC Website	5,000	2,459,830	3,993	1,007
Sub Total	**146,100**	**28,633,801**	**46,483**	**89,617**
Programme Monitoring & Evaluation				
Mid-Term, End of Programme Evaluation & Annual Surveys	30,000		-	30,000
Develop M& E System & Conduct Regular Technical & Financial	86,600	40,395,420	65,577	21,023
Sub Total	**116,600**	**40,395,420**	**65,577**	**51,023**

Programme Implementation & Coordination				
Hold Annual Programme Meetings	6,400		-	6,400
Hold Programme Advisory Committee Meetings	10,860	6,316,218	10,254	606
Establish Coordination & Networking	24,500	12,650,811	20,537	3,963
Support Conferences & Meetings	8,200	3,584,959	5,820	2,380
Support Travel Costs, DSA, Per Diems & Lubricants	21,000	8,222,203	13,348	7,652
Support Communication	12,200	5,003,703	8,123	4,077
Vehicle Maintenance & Insurance	19,500	11,716,756	19,021	479
Procure Office Equipment	15,000	6,158,871	9,998	5,002
Maintain Equipment & Genset	13,200	3,020,165	4,903	8,297
Stationary & Office Supplies	12,500	5,543,292	8,999	3,501
Sundries & Bank Charges	9,700	4,180,157	6,786	2,914
Utilities	10,600	3,088,891	5,014	5,586
Audit Fees (Costs)	9,000	6,143,433	9,973	(973)
Salaries and Wages	97,800	50,129,487	81,379	16,421
Benefits & Gratuities	34,500	14,143,813	22,961	11,539
Administrative Overhead Costs	30,000	11,308,126	18,357	11,643
Norwegian Partners Coordination Costs	159,000	86,499,045	140,421	18,579
Sub Total	**493,960**	**237,709,931**	**385,893**	**108,067**
GRAND TOTAL	**2,936,560**	**1,097,182,626**	**1,780,545**	**1,146,015**