“Support to the implementation of an integrated Water-Energy-Livestock project for the Dairy Value Chain in the municipalities of Petté and Wina in North Cameroon.-Monitoring & Evaluation Plan and CTCN Impact Description

UNIDO

Climate Technology Center Network (CTCN)

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Monitoring & Evaluation Plan				
(A) Outputs and Activities as described in the Response Plan	(B) Indicator	(C) Expected results	(D) Method and frequency for data collection	(F) Comments (Assumptions)
Outcome 1: Development of implementation planning, reporting and communication documents				
Activity 1.1: A detailed work plan of all activities, deliverables, outputs, detailed estimated budget, deadlines and responsible persons/organisations (before the start of the TA)	• Total number of deliverables produced: o Number of tools and technical documents strengthened, revised or developed.	• Production of 1 detailed work plan (at the end of Activity 1, before the start of the TA). (Deliverable 1.1)	• Preparatory meeting, launch meeting among consortium members • Validate and adapt the data collection tools to the context: • Identify possible time constraints that can alter the smooth implementation of the project.	• Gender and youth dimensions are integrated in the data collection tools
Activity 1.2: A Monitoring and Evaluation plan for the TA implementation, to evaluate the timeliness and appropriateness of the implementation		• Production of 1 monitoring & Evaluation Plan and Impact Statement (at the end of Activity 1, before the start of the TA). (Deliverable 1.2)	• Analyze the different stages and steps of the project, and identify the different Indicators for the proper Monitoring and following of the project implementation.	•
Activity 1.3: A two-page CTCN Impact Description from the TA drafted at the start of the implementation and revised at closure		• Production of 1 two-page CTCN Impact Description document anticipating and describing the expected impacts. (Deliverable 1.3)	• Update/revise the Impact Description at the delivery of the TA	•
Activity 1.4: A TA Closure and Data Collection Report	• Development of 1 Closure and Data Collection report that will be preceded by three different Progress Reports that will properly monitor the project implementation.	• 1 Closure and Data Collection Report (at the closure of the TA; following the CTCN model). (Deliverable 1.4)	• List of tools and technical documents strengthened, revised or developed. • To conduct a Closure and Data Collection Report based on the M&E Plan presented in the Inception Phase. For this purpose, we will use the indicators identified and contrast them with the information monitored. Furthermore, we will reflect on challenges and recommendations for future replications	•

Outcome 2: Analysis and data collection on dairy value chains in the communes of Petté and Wina			
Activity 2.1: Data collection from dairy farmers in the communes of Petté and Wina	• Total number of policies, strategies, plans, laws, agreements or regulations identified in the Water-Energy-Livestock dimension, that will include relevant variable such as title, actors, beneficiaries, conditions to benefit, level of implementation and monitoring. Can be on the following fields: o Adaptation related o Mitigation related o Both Adaptation & Mitigation related • Total number of tools or technical documents strengthened, revised or developed, that will consist in an Excel spreadsheet identifying: o Total number of heads of cattle o Total Annual amount of milk production o Total number of Key basic dairy value chain components identified in both communes, comprising three different groups (those just selling, those producing and selling and those that produce for self-consumption). o Total number of Storage systems (traditional or modern ones) o Total number of transforming centers. o Total number of selling points. o Characterization of the technologies employed for on-site milk production and conservation o Satisfaction of users with employed technologies	• Identify at least: • 4 related projects in the Far-North region o 2 Mitigation related o 2 A& M related • 7 related projects in Cameroon o 2 Adaptation related o 3 Mitigation related o 2 A & M related • 4 related projects in Central African Region. o 2 Mitigation related o 2 A& M related • 7 related projects in African continent o 2 Adaptation related o 3 Mitigation related o 2 A & M related • Production of 1 Excel spreadsheet with the following information (Deliverable 2.1) identified : o Updated number of heads cattle contrasted with the Plan Communal du Developpement data o Updated amount of milk production (at households and commercialization levels) contrasted with the Plan Communal du Developpement data o 15 components that just sell o 25 components that produce and sell o 25 components that produce for self-consumption o 3 storage systems o 3 transforming centers o 14 selling points o All technologies employed in the dairy value chain o 65 questionnaires with qualitative responses	• List of technical documents strengthened, revised or developed • Use the integrative approach developed by the gender expert to check the presence of minority or maginalised groups, such as women and youth. • List of stakeholders identified. • List of dairy value chain components identified. • List of meetings conducted. • List of questionnaires done • List of zones where the local teams have operated • Consider past experiences by other international organizations in the same field in similar regions (under-development, volatility, climate risk) • MINUTES of the Presentation Workshop • List of Participants in the presentation Workshop disaggregated by gender.

	○ Historical trends of milk loss ○ Total number of milk sale points (distance travelled and frequency of journeys) ○ Transportation: employed methods and expected losses ○ Climate change impact ○ COVID-19 impact ○ Gender-specific data: number of women producers, historical trends • Total number of training organized by proponents and implementing partners • Number of participants in trainings organized by proponents and implementing partners: ○ Number of male attendants ○ Number of female attendants	regarding satisfaction of users with employed technologies and identifying different climate change impacts on their daily activities. ○ 90% of total historical trends of milk loss. ○ 5 transportation means ○ 20 transportation actors ○ 10 Women Producers ○ 5 Women associations ○ 15 Community leaders ○ 5 Youth associations • 1 Report of the presentation workshop with participant list, photos, summary of presentations and questions posed, etc. • 50 stakeholders participating in the presentation workshop : ○ At least 30 men ○ At least 20 women	
Activity 2.2: SWOT analysis of the data	• Total and specified number of commune specific and holistic, strong and weak points identified: ○ Number of specific strong points in Wina and Pette ○ Number of weak points in Wina and Pette ○ Number of holistic strong points ○ Number of holistic weak points • Total and specified number of commune specific and holistic opportunities and threats identified: ○ Number of specific opportunities in Wina and Pette ○ Number of specific threats in Wina and Pette ○ Number of holistic opportunities ○ Number of holistic threats	• 60 commune specific and holistic strong and weak points: ○ 10 specific strong points in Wina and Pette (20 in total) ○ 10 specific weak points in Wina and Pette (20 in total) ○ 10 holistic strong points ○ 10 holistic weak points • 30 commune specific and holistic opportunities and threats: ○ 5 specific opportunities in Wina and Pette (10 in total). ○ 5 specific threats in Wina and Pette (10 in total). ○ 5 holistic opportunities ○ 5 holistic threats ○ 5 extra opportunities and 5 extra threats of the current energy sources	• List of commune specific and holistic strong and weak points • List of commune specific and holistic opportunities and threats •

Activity 2.3: Diagnosis of the technological needs of the dairy value chain	• Total number of tools and technical documents strengthened, revised or developed. • Total number of major issues and roadblocks identified in the different phases of the dairy production and conservation process related to technology and energy • Total number of technological producers' needs identified in Petté and Wina, including technological needs • Total number of barriers for women in the livestock and food sector: o Livestock sector related o Food sector related • Total number of opportunities and threats posed by the use of technologies identified, after an analysis of the role of technologies and access to energy to promote the participation of vulnerable populations in livestock production. o Number of opportunities o Number of threats	• Production of 1 report with the diagnosis of technological needs based on the SWOT analysis. (Deliverable 2.2) • 10 major roadblocks in the different phases of the dairy production related to technology and energy • 8 technological needs of producers in Pette and Wina (16 in total) • 10 barriers for women in the livestock and food sector: o 5 barriers for women in livestock sector o 5 barriers for women in food sector • 20 opportunities and threats of using technologies for facilitating the access to energy identified: o 10 opportunities o 10 threats	• List of technical documents strengthened, revised or developed • List of major roadblocks identified • List of producers' technological needs • List of barriers for women in the livestock and food sectors • List of opportunities and threats identified for the use of technologies for facilitating access to energy and consequent report developed.	•
Outcome 3: Market study of technologies applicable to the local context				
Activity 3.1: Identification and selection of the technologies and methods for sustainable and resilient dairy value chains	• Total number of tools and technical documents strengthened, revised or developed. • Total number of bottlenecks identified in the whole supply and distribution chain: o Number of bottlenecks in the supply chain o Number of bottlenecks in the distribution chaing • Total number of clean technologies identified with advantages and disadvantages: o Number respective advantages each	• Development of 1 technical and detailed report on existing clean technologies to ensure the conservation of dairy products at the production, storage and transport phase and adapted to the local context (Deliverable 3.1). • 6 general bottlenecks identified in the whole supply and distribution chain: o 3 bottlenecks in the supply chain. o 3 bottlenecks in the distribution chain. • At least 3 clean technologies with advantages and disadvantages:	• List of technical documents strengthened, revised or developed • List of assessment parameters for the dairy value chain phases matrix, which will clearly define each of the parameters, and identify the indicators used • List of bottlenecks identified • List of technologies identified • List of recommendations	•

	○ Respective disadvantages each • Total number of useful and efficient recommendations formulated	○ 5 advantages each ○ 5 disadvantages each • 8 useful and efficient recommendations		
Activity 3.2: Survey consultation with involved stakeholders to validate the report about clean technologies to offer in value chain	• Total number of participants in the survey consultation organized by proponents and implementing partners: ○ Number of men ○ Number of women • Total number of questions present in the survey consultation • Total number of conclusions and recommendations extracted: ○ Number of conclusions ○ Number of recommendations	• 50 participants in the survey consultation ○ 25 men ○ 25 women • 40 questions present in the survey consultation • 10 conclusions and recommendations extracted: ○ 5 conclusions ○ 5 recommendations.	• List of participants in the survey consultation disaggregated by gender • List of questions of the survey consultation with the main topics approached, the development of the discussion, • List of conclusions and recommendations extracted.	•
Activity 3.3: Finalize report according to stakeholders' comments and recommendations	• Total number of tools and technical documents strengthened, reviewed or developed • Total number of conclusions and recommendations included in the Final Report: ○ Number of conclusions included ○ Number of recommendations included	• Development of 1 Final Report on green technologies for the dairy value chain. (Deliverable 3.2). • 10 conclusions and recommendations included in the Final Report ○ 5 conclusions included ○ 5 recommendations included	• List of tools and technical documents strengthened, reviewed or developed • List of conclusions and recommendations included in the Final Report	•
Outcome 4: Elaborate a master plan for the conservation of dairy products (production, storage, transport) with the support of clean technologies for the communes of Petté and Wina				
Activity 4.1: Define the operation of a pilot project, in the commune of Petté	• Total number of tools and technical documents, strengthened, reviewed or developed • The Mater Plan for the Conservation of dairy products in Pette would include: ○ Estimated annual yield from the current technologies ○ Number of proposed new technologies	• 1 Master plan for the conservation of dairy products with the support of clean technologies from the commune of Petté. (Deliverable 4.1) • The Master plan is expected to have the following results: ○ 2 years annual yield from the current technologies ○ 4 proposed new technologies ○ 2 appropriate conservation methods presented for the dairy value chain	• List of technical documents strengthened, reviewed or developed • In-depth pilot project review. • Analytical matrix with proposed new technologies, conservation methods, green energy sources. • Listing and definition of logistical methods to the point of sale.	• Consider the recommendations drawn from the market study • Foster complementarity with the state of the art of PRODEL • In close relation with the Communal Development Plan of Petté

	○ Number of appropriate conservation methods presented for the dairy value chain ○ Number of appropriate green energy sources for the conservation of dairy products ○ Existence and Number of intermediate storage point and its appropriate equipment ○ Number of logistical methods to the point of sale (zones of commerce) • Number of training organized by proponents and implementing partners. • Number of participants in training organized by proponents and implementing partners: ○ Number of male participants ○ Number of female participants	○ 2 appropriate green energy sources for the conservation of dairy products ○ 1 intermediate storage point and its appropriate equipment ○ 2 logistical methods to the point of sale (zones of commerce) • Organisation of 1 Workshop for the development of the Master Plan of Petté • 50 Participants in the workshop: ○ 30 men participants ○ 20 women participants	• Identification of intermediate storage points. • List of participants in the workshop disaggregated by gender	
Activity 4.2: Define the operation of a pilot project, in the commune of Wina	• Total number of tools and technical documents, strengthened, reviewed or developed • The Mater Plan for the Conservation of dairy products in Wina would include: ○ Estimated annual yield from the current technologies ○ Number of proposed new technologies ○ Number of appropriate conservation methods presented for the dairy value chain ○ Number of appropriate green energy sources for the conservation of dairy products ○ Existence and Number of intermediate storage point	• 1 Master plan for the conservation of dairy products with the support of clean technologies from the commune of Wina (Deliverable 4.2). • The Master plan is expected to have the following results: ○ 2 years annual yield from the current technologies ○ 4 proposed new technologies ○ 2 appropriate conservation methods presented for the dairy value chain ○ 2 appropriate green energy sources for the conservation of dairy products ○ 1 intermediate storage point and its appropriate equipment ○ 2 logistical methods to the point of sale (zones of commerce)	• List of technical documents strengthened, reviewed or developed • In-depth pilot project review. • Analytical matrix with proposed new technologies, conservation methods, green energy sources. • Listing and definition of logistical methods to the point of sale. • Identification of intermediate storage points. • List of participants in the workshop disaggregated by gender	• Consider the recommendations drawn from the market study • Foster complementarity with the state of the art of PRODEL • In close relation with the Communal Development Plan of Wina

	and its appropriate equipment o Number of logistical methods to the point of sale (zones of commerce) • Number of training organized by proponents and implementing partners. • Number of participants in training organized by proponents and implementing partners: o Number of male participants o Number of female participants	• Organisation of 1 Workshop for the development of the Master Plan of Wina • 50 Participants in the workshop: o 30 men participants o 20 women participants		
Activity 4.3: Analyse the possibility of optimising costs by defining storage areas and supply chain common to both communes	• Total number of tools and technical documents, strengthened, reviewed or developed • Number of guidelines presented for optimizing costs on the supply chain • Number of storage areas presented • Number of recommendations for the possibility of optimizing costs	• Production of 1 report with recommendations to optimize the implementation costs between the 2 communes (Deliverable 4.3). • 2 of guidelines presented for optimizing costs on the supply chain • 3 of storage areas presented • 8 recommendations for the possibility of optimizing costs	• List of technical documents strengthened, reviewed or developed • Review of the report presented for the optimization of costs during the implementation of a common storage system for both communes. • Guidelines review. • List of recommendations • List of storage areas presented	•
Outcome 5: Socio-economic impact study of selected technologies and methods				
Activity 5.1: Socio-economic study of the proposed master plan for the commune of Petté	• Total number of tools and technical documents, strengthened, reviewed or developed • Features of assessment parameters for dairy value chains in the phases of production, intermediate stockage and transport to the sale point. (Qualitative) • Features of social groups implicated. (Qualitative) • Number of identified direct economic beneficiaries from the master plan. o Number of men o Number of women	• Development of 1 Socio-economic study, including the gender impact of the proposed master plan for the commune of Petté (Deliverable 5.1). • Assessment parameters that will focus on: gender, value links, national frameworks and local particularities. (Qualitative) • Inclusion of varied cultural groups that will include minorities (women and youth). (Qualitative) • 200 identified direct economic beneficiaries from the master plan. o 100 men o 100 women	• List of technical documents strengthened, reviewed or developed • Review of assessment parameters • Matrix of social groups implicated explaining the specific participation in the master plan • List of identified direct economic beneficiaries from the master plan disaggregated by gender • List of civil society and labor union groups implicated in the master plan • Review formulas used for quantifying the economic	

	• Number of civil society and labor union groups implicated in the master plan • Expected quantity of general economic benefit that the communes would receive in 5 and 10 years terms. • Number of general socio-economic positive impacts of the project	• 7 civil society and labor union groups implicated in the master plan • 100.000 USD of benefit for the communes in 5 years and 400.000 in 10 years. • 10 of general socio-economic positive impacts of the project	benefit for the communes in 5 and 10 years terms • Matrix of socio-economic positive impacts of the master plan with the correspondent explanation of each impact.	
Activity 5.2: Socio-economic study of the proposed master plan for the commune of Wina	• Total number of tools and technical documents, strengthened, reviewed or developed • Features of assessment parameters for dairy value chains in the phases of production, intermediate stockage and transport to the sale point. (Qualitative) • Features of social groups implicated. (Qualitative) • Number of identified direct economic beneficiaries from the master plan: o Number of men o Number of women • Number of civil society and labor union groups implicated in the master plan • Expected quantity of general economic benefit that the communes would receive in 5 and 10 years terms. • Number of general socio-economic positive impacts of the project	• Development of 1 Socio-economic study, including the gender impact of the proposed master plan for the commune of Wina (Deliverable 5.2). • Assessment parameters that will focus on: gender, value links, national frameworks and local particularities. (Qualitative) • Inclusion of varied cultural groups that will include minorities (women and youth). (Qualitative) • 100 identified direct economic beneficiaries from the master plan. o 50 men o 50 women • 3 civil society and labor union groups implicated in the master plan • 60.000 USD of benefit for the communes in 5 years and 280.000 in 10 years. • 10 of general socio-economic positive impacts of the project	• List of technical documents strengthened, reviewed or developed • Review of assessment parameters • Matrix of social groups implicated explaining the specific participation in the master plan • List of identified direct economic beneficiaries from the master plan, disaggregated by gender • List of civil society and labor union groups implicated in the master plan • Review formulas used for quantifying the economic benefit for the communes in 5 and 10 years terms • Matrix of socio-economic positive impacts of the master plan with the correspondent explanation of each impact.	•
Outcome 6: Definition of a roadmap including regulatory instruments and financial mechanisms				
Activity 6.1: Development of a roadmap of mechanisms for the promotion and implementation of sustainable and resilient dairy value chains	• Total number of tools and technical documents, strengthened, reviewed or developed • Number and type of involved actors in the promotion and implementation • Number of entry points for the local communities	• Development of 1 Roadmap, including regulatory instruments and financial mechanisms for the promotion and implementation of sustainable and resilient dairy value chains for the communes of Petté and Wina (Deliverable 6.1) • 25 involved actors • 10 entry points in total	• List of technical documents strengthened, reviewed or developed • Roadmap review • List of involved actors • Critical matrix with scale up solutions	

	○ Entry points in Pette ○ Entry points in Wina • Number of solutions to be scaled up • Number and type of regulatory instruments • Number and type of credit sources for value chain actors • Timeline of implementation	○ 5 entry points for Pette ○ 5 entry points for Wina • 2 solutions to scale up • 5 regulatory instruments • 2 financing mechanisms • 12 months of implementation	• Timeline for illustrating the roadmap proposed implementation plan. • Definition and list of planned entry points • Critical matrix with proposed regulatory instruments and financial mechanisms	
Outcome 7: Training and capacity building of dairy farmers on the implementation of a sustainable and resilient dairy value chain				
Activity 7.1: Installation of an appropriate temporary storage system	• Total number of information materials strengthened, revised or created. • Location of the appropriate installation site • Number and type of storage technologies to be installed • Number and type of energy sources harnessed • Volume capacity of the storage system. • Number of actors involved in installation and maintenance • Number of actors involved in operations • Number of actors profiting from the storage system • Timeline of installation	• Development of 1 Report explaining the implementation of the technologies (with photos and explanation of the implementation process: place, time, present actors, steps of the installation, implementation, etc.) (Deliverable 7.1) • Specific coordinates of the appropriate installation site • 1 dairy storage tank to be installed • 4 solar panels as energy sources harnessed • Number of solar panels used time • 800L of the storage system. • 8 involved in installation and maintenance • 2 involved in operations • 30 profiting from the storage system • 1 month installation	• List of information materials strengthened, revised or created. • Identification of the proposed installation site • Detailed list of storage technologies to be installed • Detailed list of energy sources harnessed • Identification of volume proposed for the storage system. • List and organigram of actors involved in installation and maintenance • List and organigram of actors involved in operations • List and scheme of actors profiting from the storage system • Review timeline of installation	
Activity 7.2: Training and capacity building workshop for dairy farmers in the communes of Petté and Wina on the master plan, the proposed roadmap and selected technologies	• Number of information materials strengthened reviewed or created. • Number of workshops conducted • Number of participant stakeholders ○ Number of male participants ○ Number of female participants	• Development of 1 Report of the demonstration workshop (Deliverable 7.2) • 3 workshops conducted • 50 participant stakeholders ○ 25 men ○ 25 women • Main topics approached (divided according to its pertinence to different components of the dairy value chain identified in the previous activies)	• List of information materials strengthened reviewed or created • Minutes of workshops conducted • List of participant stakeholders, disaggregated by gender • List of social groups representatives (women, youth) involved in the workshops • List of main topics approached	• Follow pedagogical and capacity building principles • Both the questions and the topics will vary according to the results of activities 4, 6 and 7.1.

	• Number of main topics approached
	• Number of questions posed and answered
	• Total number of conclusions and recommendations extracted:
	  ○ Conclusions
	  ○ Recommendations
		• 20 Questions posed and answered (divided according to its pertinence to different components of the dairy value chain)
		• 20 Conclusions and recommendations extracted:
		  ○ 10 conclusions
		  ○ 10 recommendations
			• List of questions posed and answered
			• List of conclusions and recommendations extracted
			• Presentation used in the workshop	

Activity 7.3: Development of a technical guide (infographic) to ensure an integrated approach combining the different technical and technological solutions for the management of dairy products, translated into the main languages of the country	• Number of information materials strengthened reviewed or created. • Number of solutions included in the guide • Number of languages into which the guide is translated • Number of distributed copies	• 1 Infographic guide to the technical and technological solutions proposed for each stage of conservation (production, storage, transport) translated into 3 local languages (Deliverable 7.3) • 4 solutions included in the guide • 4 languages into which the guide is translated • 100 distributed copies	• List of information materials strengthened reviewed or created • Review of the infographic guide produced and the solutions presented in it. • List of copies distributed. • Review of the local languages in which the infographic guide has been translated.	•

Core indicator 2	Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts as a result of the technical assistance	Means of verification
Infrastructure and built environment Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets)	• The energy supply is ensured through the establishment of off-grid solar panels. • Development of dairy value chain infrastructure with energetic autonomy resilient to climate change.	• List of off-grid solar panels • List and kms of infrastructures developed within the dairy value chain • List of quantities of energy supplied to the dairy value chain • Closure Report and Mater Plans (for Pette and Wina) review
Ecosystems and biodiversity Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)	• N/A	• N/A
Economic Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)	• Creation of resilient and strong dairy value chain that will develop local small enterprises. • Foster entrepreneurship on women and youth. • Diversification of the local economy through the strengthening of the livestock sector.	• Socio Economic Impact studies for the Mater Plan in Pette and Wina review • List of local small enterprises involved in the resulting dairy value chain • Closure Report review

Health and wellbeing Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)	• Enhanced food security and resilience of local communities through the consolidation of a dairy sector with energetic autonomy. • The strengthening of the dairy value chain process will ensure the quality of the products produced and reduce the chances of food contaminants emergence.	• Socio Economic Impact studies for the Mater Plan in Pette and Wina review • Roadmap review • List of quantities of energy supplied to the dairy value chain • MINUTES of Workshop of Activity 7.2

Core indicator 3	Anticipated number of direct and indirect beneficiaries as a result of the TA	
	Quantitative value	Means of verification
Total beneficiaries	Total number to be defined after the data collection process/ activity 2.1 (August 2021)	Excel data sheet with stakeholder mapping.
Number of adaptation beneficiaries	Total number to be defined after the data collection process/ activity 2.1 (August 2021)	Excel data sheet with stakeholder mapping.
Number of mitigation beneficiaries	Total number to be defined after the data collection process/ activity 2.1 (August 2021)	Excel data sheet with stakeholder mapping.
Number of adaptation-and mitigation beneficiaries	Total number to be defined after the data collection process/ activity 2.1 (August 2021)	Excel data sheet with stakeholder mapping.

Impact Statement	
Challenge	The Far-North Region of Cameroon is highly subjected to droughts, hunger, desertification, environmental degradation and it is a zone highly exposed to climate change. Furthermore, despite having agriculture and animal husbandry as leading sectors in its economy, Cameroon is one of the countries in the world where the production and consumption of milk per capita is the lowest .Together with transport and poor economic growth, access to energy is one of the main challenges which is slowing down local development. This lack of energy derives from a poor, and even inexistent in some parts, electricity network. The Technical Assistance to Cameroon to develop the Energy-Water-Livestock project for the dairy value chain will foster sustainable local development through the use of off-grid renewable energy technologies.
CTCN assistance	To provide a Technical Assistance that will develop a Water-Energy-Livestock plan for the dairy value chain and support its posterior implementation. The project will be focused on the municipalities of Petté and Wina, in North Cameroon. Consequently, this project will entail a feasible and tailored master plan for the conservation and distribution of dairy products, together establishment of a roadmap and development of training and capacity building material. The CTCN TA will respond to an in-depth diagnosis of the whole dairy value chain in the region and will be adapted to the contextual particularities.
Anticipated impact	• Strengthen the food security of the region and enhance resilience towards against unexpected inconveniences. • Inclusion of renewable energies in the value chain that will increase the economic resources and wellbeing of local populations at the time that will reduce production losses. • Creation of a resilient local value chain through the use of varied technologies that strengthen the adaptation component. • Creation of multiple jobs, foster economic growth, specifically pursue local development in the selected communes and in generally create economies of scale at regional and national levels
Anticipated co-benefits from the TA	• The project will integrate the young people and the women to its solutions, consequently fostering a larger inclusion of these two minority groups in the rural development field. • The project will enhance the positive transformation of the local economies, the sustainable development of the region and the empowerment of the different vulnerable groups. • The consolidation of the UN Support Plan for the Sahel, accelerating prosperity by ensuring peace and development.
Gender aspects of the TA	Gender perspective will be one of the main central components that will guide the project and will be present in all its different stages. First, we will conduct an assessment of the women presence in the value and we will measure the level of awareness of gender inequalities, being able to identify all the different weak points to address and vacuums to use. After this analysis, women we will produce adapted master plans for both communes and training material. All the different outputs will need the validation of the Gender expert, in charge of ensuring the gender component, and furthermore, the workshops will have an equal representation of both men and women. The DAC Gender Equality Marker will be used to suggest appropriate interventions that address identified needs. The main benefit from this perspective will result in the empowerment of women in the region, through the acquisition of ownership in the sustainable development of local communities.
Anticipated contribution to NDC	• Improve access to electricity in rural areas through the promotion of renewable energies, and specially the application of off-grid solar technologies. • Strengthening local communities' resilience towards climate change derived hazards and effects. • Contribution to technology transfer to companies, authorities and research institutions from Cameroon, together with conducting capacity building activities to local stakeholders involved in the dairy sector, in order to correlate climate change mitigation together with development.

The narrative story	On the one side, the Far North Province of Cameroon is featured by its lack of development, vulnerability towards climate change and food security problems. Furthermore, despite the opportunities bring by the landscape and the strong human capital, the local population haven't been able to exploit its potential of building up a consistent livestock sector due to the lack of a stable energy supply system and a transportation network. Furthermore, the lack of awareness towards climate change, increases the impacts of climate hazards in the region, and hampers local development. On the other side, in its NDCs, NAMA and PNACC, Cameroon has clearly outlined its will to develop a an economic growth strategy correlated with the climate adaptation and mitigation actions. In this context, the TA designed by the CTCN will confront the food security challenge in the communes of Petté and Wina, by the strengthening of the dairy value chain. Taking into account the electricity difficulties, the team will focus in promoting the use of solar off-grid technologies that will grant independent operation and self-sustainability of the different components of the dairy value chain. Consequently, by using carbon-free technologies, the dairy sector will be optimized and enhanced creating new jobs and bolstering economic activity in the region. In order to ensure the long-term feasibility and sustainability of the solution presented. The TA will also consist in an intensive and extensive capacity building program that will make effective the technology transfer and reinforce the autonomy of the stakeholders intervened.
Contribution to SDGs	• SDG 5 : Achieve gender equality and empower all women and girls : The TA will place gender equality in its center, ensuring that all the different activities carried out represent all sectors of society and integrate the historically marginalized social groups, such as women and youth. For this purpose, women will be represented in all the stages of the project and will be integrated in the resulting value chain. • SDG 13.1: Take urgent action to combat climate change and its impacts: The technical assistance will identify the most appropriate technologies for both launching the dairy sector and at the same time strengthening the adaptation actions. At the same time, the project will focus on a technology transfer to the local population implicated in the dairy value chain, characterized by the use of solar off-grid technologies. • SDG 13.2: Capacity building will be the second component which will be covered by our team. The University of Maroua Personnel will be in charge of training and raising awareness among the local, regional and national stakeholders, regarding the sustainable management of resources and food security affected by Climate Change.
Reference to knowledge products	• Plan Communal de Developpement de Pette. • Plan Communal de Developpement de Wina. • Influence des conditions de la traite sur les qualités physico-chimiques et microbiologiques du lait cru collecté à Maroua, Cameroun (2018). • Socia-technical changes in the dairy production systems and milk marketing in Sikasso periurban zone (Mali) (2008). • Clean Energy for Productive Use in Post-Harvest Value Chains : An Integrated Literature Review with Field Work for the Kenya and Senegal Dairy Sectors (2018).