



**Food and Agriculture
Organization of the
United Nations**



COUNTRY WORKSHOP REPORT, APRIL 2024

Private sector roundtable on climate action in Egypt's livestock and dairy sectors

Cairo, Egypt

**Workshop Report developed under the “Scaling up
Climate Ambition on Land use and Agriculture through
NDCs and NAPs” (SCALA) programme**

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ABBREVIATIONS AND ACRONYMS

BMUV	Federal Ministry for Environment, Nature Conservation and Nuclear Safety (Germany)
CEO	Chief Executive Officer
FAO	Food and Agriculture Organization of the United Nations
GHG	Greenhouse Gas Emission
IKI	International Climate Initiatives
NDC	Nationally Determined Contributions
PSE	Private Sector Engagement
RT	Roundtable
SCALA	Scaling up climate ambition on land use and agriculture
UNDP	United Nations Development Programme



EXECUTIVE SUMMARY

- FAO organized a roundtable with the Egyptian dairy industry in Cairo to discuss the impacts of climate change and to discuss how joint action can enable and accelerate the implementation of agrifood priorities in Egypt.
- 60 Participants, including stakeholders such as producers, associations, cooperatives, feed manufacturers and companies in the dairy value chain, highlighted climate-related challenges such as the impact of heat stress on the dairy industry and livestock, as well as the increased costs due to climate-induced changes in price of input, feeds, amongst others. Private sector stakeholders also shared innovative practices that companies are adopting to mitigate emissions.
- Producers and businesses shared examples of climate solutions, such as ventilation infrastructure and changes in feeding practices, improved forage production and manure management, all aimed at addressing productivity and emissions issues. Financiers reported how they offer green financial products to support businesses and farmers in the form of a combined package of technical assistance and low-cost loans.
- However, several barriers to scaling up were also cited, including policy constraints that hinder the adoption of certain practices, problems related to the operation, maintenance and expertise of technologies, and the inadequate ability of smallholder farmers to access finance to adopt some of these climate solutions.
- Some key highlights, and entry points are summarized below:
 - *Need for strengthening the role of co-operatives in climate action and strengthening farmers' climate resilience and action.* This means that co-operatives need to be strengthened as aggregators, financial intermediaries and capacity providers through climate training and know-how on climate-relevant technologies, so that they can support provision of climate smart technologies to farmers, enable access to finance by providing collateral, ensure operation and maintenance of technologies and improved access to markets.
 - *Enabling investment, technology development and innovation in livestock shelter to minimize the impact of heat stress on milk production,* which is the main cause of the decline in milk production. Establish demonstration projects that show economic and climatic benefits.
 - *Support the establishment of climate criteria/standards for financiers* and develop bankable climate projects in the dairy sector that financiers can finance.
 - *Expand inclusive business models* that ensure farmers are not set back economically by climate-smart transitions.
 - *Need to remove policy constraints that hinder the adoption of certain innovative practices,* as well as cause challenges related to operation, maintenance, and know-how of technologies.
 - *Advance innovative ways to enable access to finance for smallholder farmers* that have insufficient access to finance to adopt some of the available innovative climate solutions.
- A private sector survey was conducted to collect quantitative information about the livestock industry's role in climate action. As part of the survey, the stakeholders were requested to express interest in future engagements in the programme. The survey-based approach allows transparency in engaging private sector actors, thus, to avoid giving pre-competitive advantage to any one company.
- As next steps, SCALA Egypt is hiring a service provider to conduct an economic analysis of these climate interventions in the Egyptian dairy value chains to identify the barriers and risk mitigation needs that can help in developing appropriate investment solutions for scaling up climate smart practices.



INTRODUCTION

Objectives of the workshop

The aim of the meeting was to explore how livestock and dairy sector actors are affected by climate change, what climate-friendly practices they are pursuing, what barriers exist to implementing such practices, and what kind of support is needed to encourage them to invest in climate action. The discussion aimed to survey financing options available from investors and financiers to support climate change adaptation and mitigation actions in the livestock and dairy subsectors in Egypt.

The focus of this session was to discuss and unpack how livestock industry, farmers, cooperatives and value chains are affected by climate change, the extent to which they are adopting or investing in climate-friendly practices, the barriers to implementing climate action, and how barriers can be removed. At the end of the session, private sector companies were asked if interested in continuing to participate in the development of climate investment schemes that have access to finance from climate finance sources. The general agenda for the session is listed in section 4.

The meeting was organized under the Scaling up Climate Action for Land Use and Agriculture through Nationally Determined Contributions and National Adaptation Plans (SCALA) programme, jointly led by FAO and the United Nations Development Programme (UNDP). SCALA supports Egypt and 11 other countries in Africa, Asia and Latin America in implementing climate actions with the potential to trigger transformative systems change in agriculture and land use.

The livestock sector is considered among the main contributors to the increase of sectoral greenhouse gas (GHG) emissions. Simultaneously, it is significantly affected by climate change, as global warming poses challenges for the sector in terms of growth, milk production and animal welfare. All these factors are particularly affecting livestock production in Egypt, where, livestock rearing is a source of livelihood for many, including a large proportion of smallholder farmers. This is why addressing the impact of climate change on the livestock sector in Egypt is a national priority, as indicated in the last update of Egypt's Nationally Determined Contribution (NDC).

Expected outcomes

The workshop produced the following key outcomes:

1. **Understanding Vulnerabilities:** Participants identified how climate change impacts the sector, focusing on production, livelihoods, and the environment.
2. **Priority Climate-Friendly Practices:** Feasible and impactful practices were identified based on local context.
3. **Barriers Analysis:** Challenges to adopting these practices were analyzed, leading to the design of targeted interventions.
4. **Prioritized Support Needs:** A list of critical support needs was developed to guide tailored assistance programs.
5. **Financing Options Catalogue:** A catalogue of available funding sources was created to help stakeholders access funds for climate action projects.

RESULTS REPORT

To address the challenges facing Egypt's livestock and dairy sectors in relation to climate change and explore potential opportunities, the discussion focused on specific issues within dairy and milk production or commercial practices. The discussion centred on the importance of maintaining a climate action-oriented approach by identifying practical solutions and recommendations for adaptation, market congestion, and mitigation strategies.



The discussion kept a balanced approach, covering both adaptation and mitigation strategies. To encourage open dialogue and participation, an interactive format where all panellists were engaged was adopted. A clear agenda with specific questions or topics guided the conversation. Appropriate time management was ensured by allocating sufficient time for each topic, while allowing for some flexibility. Finally, a skilled moderator facilitated the discussion to keep it on track and ensuring everyone had the opportunity to contribute.

The workshop was launched with the attendance of 64 participants from different value chain nodes including: milk producers, owners of milk collection units, feed companies, milk processing companies, governmental entities, national and private banks, NGOs, academia, dairy private companies. A complete list of these actors is available in section 5 (list of participants).



1. DISCUSSION PANEL REPORT

1.1. Opening Remarks

Speaker: Dr AbdulHakim Elwaer
Assistant Director-General, Regional Representative for Near East and North Africa

Participants welcomed to the roundtable discussion.

Introduced the context of the workshop, introducing how the Food and Agriculture Organization of the United Nations (FAO) has launched this roundtable discussion with broad multistakeholder engagement, bringing together representatives from various platforms within Egypt's livestock private sector. This includes milk producers, agrifood companies, associations, financiers, academic consultants, and other key private sector stakeholders. Presented the goal and agenda of the day.

Dr. Elwaer introduced the FAO UNDP SCALA Programme and its objective in Egypt, adding that the workshop purpose is to explore how actors in the livestock sector have been affected by climate change, the climate-friendly practices they are currently pursuing, the barriers to implementing such practices, and the types of support needed to encourage investment in climate action. He pointed out that the discussion would survey the financing options available from various financiers to support climate change adaptation and mitigation efforts in Egypt's livestock and dairy subsectors.

Finally, he wished the participants successful and fruitful discussions, expressing hope that these talks would lead to transformative changes enabling the milk industry to take effective climate action.



Figure 1: Dr AbdullHakim Elwaer, Assistant Director-General, Regional Representative for Near East and North Africa

1.2. Keynote remarks

Speaker: Dr Ahmed Abdel Khalea, Head of Livestock and Poultry Sector, Ministry of Agriculture

His Excellency highlighted the government's role, particularly through the Animal Wealth Department, in overseeing the livestock sector. The Ministry of Agriculture issued the Ministerial Decree No. 220 of 2020, which mandated veterinary supervision of livestock and poultry barns to ensure proper animal wealth. Additionally, scientific and technical committees within the Animal Wealth Development Sector were restructured to prioritize the interests of both farmers and consumers while also supporting industry professionals.

To enhance oversight, inspections of feed production and distribution had been intensified, involving joint teams from the Animal Wealth Development Sector, the Regional Food and Feed Institute, the Environmental Police, and the relevant governorate's agriculture directorate. The ministry had also established mechanisms to verify sustainable development plans for the livestock sector. The ministry's efforts could be summarized in three major national projects:



1. **The National Beef Cattle Project:** This project, initiated with an allocation of 100 million Egyptian pounds in 2017, has now provided loans totaling 8.6 billion Egyptian pounds to over 43,000 beneficiaries in villages participating in the Decent Life initiative, supporting the rearing and fattening of approximately 550,000 calves.
2. **The National Genetic Improvement Project:** This project aims to develop high-performance breeds that can adapt to local conditions and climate change through crossbreeding programs between foreign high-quality breeds and Egyptian breeds adapted to local environmental conditions.
3. **The National Milk Collection Centers Project:** These centers are being established with soft loans and in accordance with international standards.

In conclusion, his Excellency expressed hope that the session would result in effective recommendations and insights to address the negative impacts of climate change.



Figure 2: DR Ahmed Abdel Khalea , Head of Livestock and Poultry Sector, Ministry of Agriculture

1.3. Introduction to the SCALA Programme and overview of climate risks and climate smart solutions in the livestock subsectors (Introduction to SCALA programme)

Speaker: Ms. Fatma AbouzeidAhmed, Climate Change Expert, FAO Egypt

Ms. AbdouzeidAhmed mentioned that the SCALA project is a collaborative effort between the UNDP, FAO, and Egypt's Ministry of Agriculture, is being implemented across 12 nations to bolster climate resilience in the agricultural, water, and land use sectors. Egypt, as one of the participating countries, is actively involved in this five-year initiative set to conclude in 2025.

The project is structured around three core components:

1. **Vulnerability Assessment:** This component aims to solidify the evidence base demonstrating the heightened vulnerability of agricultural sectors to climate change. By collecting robust data and statistics, the project seeks to pinpoint the specific threats posed by climate change to agricultural systems.
2. **Strengthening Adaptation Plans:** The second component focuses on enhancing national plans for climate change adaptation. This involves developing strategies and projects that can be implemented to mitigate the impacts of climate change. The goal is to transform national commitments into tangible actions that can be supported through increased investment and public-private partnerships.



3. **Private Sector Engagement:** The final component underscores the critical role of the private sector in driving climate action. By concentrating on the livestock and dairy sector, the project seeks to leverage the private sector's capacity to implement climate-smart practices. The selection of the livestock sector is underpinned by a 30-year assessment that identified it as one of the most vulnerable sectors due to challenges such as heat stress and the impact on food quality. The project aims to facilitate knowledge sharing and promote the adoption of effective climate solutions both locally and internationally. Moreover, it seeks to incentivize banks and corporations to finance climate-friendly initiatives.



Figure 3: Ms. Fatma AbouzeidAhmed, Climate Change Expert, FAO Egypt

1.4. Role of private sector in climate action in agriculture and land use sector and in NDC/NAP implementations

Speaker: Ms. Neha Rai, Climate Change and private sector expert, FAO, Rome

Ms. Rai intervention focused on the Role of private sector in climate action in agriculture and land use sector and in NDC/NAP implementation. Her presentation delved into the intricate relationship between climate change and the livestock industry, highlighting the challenges posed by rising temperatures, altered precipitation patterns, and extreme weather events. It explored the economic implications of these changes, emphasizing the urgent need for adaptation and mitigation strategies.

The intervention covered multiple subjects including

- **The impact of climate change on livestock production:** Climate change poses significant challenges to livestock production, including increased heat stress, altered precipitation patterns, and the spread of diseases.
- **Economic implications of climate change for the livestock industry:** The economic consequences of climate change for the livestock industry are substantial, affecting both producers and consumers.
- **Mitigation strategies to reduce the livestock industry's carbon footprint:** Outlined strategies to reduce the livestock sector's carbon footprint, including feed additives, manure management, and sustainable land use practices.



- **Adaptation strategies to build resilience in livestock systems:** clarified practical steps to help livestock producers cope with climate impacts, such as improved heat management, drought-resistant breeds, and early warning systems.
- **Policy and financial incentives to support climate-smart livestock practices:** policies and financial incentives that can encourage climate-smart practices, such as carbon pricing, subsidies for sustainable technologies, and research funding.
- **Collaborative approaches for addressing climate challenges in the livestock sector:** collaboration among stakeholders is crucial for developing and implementing effective solutions.

By focusing on these key areas, Ms. Rai created a comprehensive and informative discussion on the challenges and opportunities presented by climate change in the livestock sector.



Figure 4: Ms. Neha Rai, Climate Change and private sector expert, FAO, Rome

1.5. Overview of climate risks and climate smart solutions in the livestock subsectors

Speaker: Dr Adel Khalil, livestock expert at FAO Egypt, Professor of clinical pathology faculty of veterinary medicine, Cairo University.

Livestock: Victims and Contributors to Climate Change

Dr Khalil delivered a technical overview of climate risks and climate smart solutions in the livestock subsectors.

Climate change is posing significant challenges to the livestock industry. Rising temperatures are subjecting animals to extreme heat stress, leading to decreased feed intake, reduced milk production, and impaired reproductive health. These conditions also increase susceptibility to diseases, lower milk quality, affecting both farmers' livelihoods and consumer health.

Milk quality is deteriorating, with lower fat content and increased hormonal imbalances. Beyond milk production, climate change is causing a decline in growth rates and increasing susceptibility to diseases. Water scarcity, exacerbated by climate change, is driving up production costs. Moreover, heat stress induces elevated cortisol levels, compromising vaccine efficacy. Optimal vaccination timing is crucial, avoiding days with high Temperature Humidity Index (THI) values. These challenges, combined with rising costs, are eroding profitability for livestock farmers.

To address these issues, accurate, and consistent data on milk production is crucial for understanding the extent of the problem and developing effective strategies. Implementing climate adaptation measures, such as improved shelter, feeding practices, and genetic selection for heat tolerance, can help mitigate the negative impacts of climate change.



Additionally, exploring alternative cooling techniques and water management practices can contribute to animal welfare and productivity.

To ensure the long-term sustainability of livestock farming, a comprehensive Climate Smart Livestock (CSL) approach is necessary. This involves implementing strategies to adapt animals and farms to changing climatic conditions while minimizing methane emissions and maximizing returns. By investing in research and development, the livestock sector can find innovative solutions to reduce methane emissions, enhance feed efficiency, and improve overall sustainability. This will not only help combat climate change but also ensure the long-term viability of the industry and provide a stable income for farmers.



Figure 5: Dr Adel Khalil, livestock Expert, FAO Egypt

2. ROUNDTABLE DISCUSSION WITH AGRIFOOD COMPANIES

2.1. Purpose and moderators

The focus of the roundtable was to address the complex relationship between the livestock sector and climate change. The questions of the discussion groups highlighted the dual role of livestock, as both victim and contributor to climate change.

By bringing together stakeholders from across the livestock value chain, the roundtable focused on sharing innovative solutions to reduce the sector's environmental impact while enhancing its resilience. Specific focus has been put on manure management practices (exploring effective ways to handle livestock waste to minimize greenhouse gas emissions and pollution), feed production (discussing sustainable methods to cultivate animal feed, reducing reliance on resource-intensive practices) and improved ventilation (sharing techniques to enhance livestock well-being and reduce emissions through better air quality in animal housing).



Moderators of the session and discussion groups were:

- Theresa Wong, FAO Near East and North Africa Regional Office
- Adel Khalil, FAO Egypt Country Office
- Neha Rai, FAO Office of Climate Change, Environment and Biodiversity
- Fatma AbouzeidAhmed, FAO Egypt Country Office

2.2. Key questions to discuss

2.2.1 Key discussion topics

The key discussion topics per discussion group were:

1. How is your business exposed to climate risks or causing climate change. What are the climate impacts?
2. What are the climate solutions your business/network currently adopting or practicing?
3. What are the barriers hindering your business to transition to or invest in climate-smart practices?

2.2.2. Description of the outcomes

Barriers and solutions suggested in roundtables during discussions

Barriers	Some roadmap solutions for adaptations
Price Instability and Profitability Both milk price (profit) production component are variable value (cost)	Contract farming: Partnership with farms directly to secure a stable supply at a fixed price. [High initial investment] Diversification: Increase product offerings beyond just milk (cheese, yogurt, etc.) to extent income across different markets [Market saturation] Value-added products value-added dairy products (organic milk, milk and meat from grass-fed animal) that can command higher prices
Environmental Influence Water scarcity, Energy cost, waste management	Sustainable practices: Adopt practices like manure management, renewable energy sources, and water conservation to lessen ecological footprint Carbon balancing: Invest in initiatives that offset carbon emissions generated by dairy farming. (Reuse agriculture waste). [Implementation cost] Transparency: communicate sustainability efforts to consumers to build trust and brand loyalty. [Consumer uncertainty]
Future of Plant-Based Replacements Biodiversity of feeds and feed additive limitation in feed sources	[Modernization costs]: Marketing and education: Highlight the nutritional value and unique qualities of dairy products compared to plant-based alternatives [Consumer awareness]: Develop innovative dairy products with improved taste, texture, and health benefits to compete with plant-based options. Explore partnerships with plant-based producers to offer blended or complementary products
Maintaining High-Quality Standards	[Technology affordability]: Investment in technology: Utilize advanced technologies for automated milking, herd health monitoring, and real-time quality control [Training logistics]: Training and education: Provide ongoing training to farmers and staff on best practices for animal welfare and hygienic milking procedures [Traceability]: Implement robust traceability systems to track milk from farm to consumer, ensuring transparency and building trust



<p>Labor Shortages Lack of skilled labor, old machines,</p>	<p>[Automation costs]: Invest in automation technologies to streamline processes and reduce reliance on manual labor. [Skilled labor struggle]: Competitive wages and benefits: Offer competitive wages and benefits to attract and retain skilled workers. Improved work environment: Promote a safe, positive work environment to improve employee satisfaction and reduce turnover.</p>
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2.2.3. Four main suggestions for helping livestock sector in Egypt

1- Price Unpredictability

Due to price unpredictability and profitability risks, Egyptian farms lose between 20-35% of milk all over the milk season due to saturation of processing plant store.

Price instability and profitability are controlled by processing plant's financial policy. Therefore, there is a strong demand for establishing contracts with a respected legal framework between farms and processing plants. Any excess milk should be processed into milk powder without delay. Additionally, the production of market milk should be regulated by law to ensure a fair market for all parties, including consumers.

2- Solving financial barriers

Taking out loans, especially for livestock investments, requires risk mitigation. All those involved in livestock farming need financial support at various stages of the production chain. In recent years, a national project has offered milking animals with low-interest loans from several banks. However, these loans need to be made safer by developing a system of technical support that includes both veterinary and management assistance for these farms. This could involve creating a follow-up hub staffed with specialists who are registered with the bank. Follow-ups should be conducted under strict, accurate measures to ensure safe and effective production.

Funding could be partial or complete, covering the importation of animals with high genetic potential for production and heat tolerance, as well as importing feed components. The animals and feeds would be stored by companies with strong management and reliable profiles. For small and medium-sized farmers, the funds would be allocated for animals, animal feed, vaccines, consumables, and consultation services. The sale of animal products would be tracked to reflect the performance of all partners involved.

More tailored solutions for risk mitigation could be developed for each part of the value chain, helping to create a more secure funding environment.

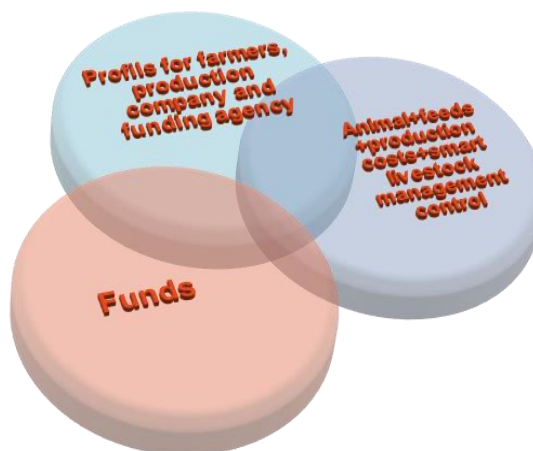


Figure 6: funding control through production cycles with de-risked funding process.



3- Livestock waste valorization

A large-scale sustainable manure management model converting animal waste into energy could apply to the 30% of national livestock which is produced in farms ranging from 500 to 5,000 animals. These farms can adopt a large-scale model that can generate enough energy to supply the electricity grid. This is particularly beneficial for rural areas where energy supply is unreliable or scarce. There are no governmental or institutional barriers to implementing these models, but they do require training and access to technological solutions to overcome any technical challenges in operating biogas stations.

Economically, these farms present a strong investment opportunity. For instance, a farm with 1,000 cows can produce 29,500 kg of manure per day. This amount can generate 1,327.5 cubic meters of biogas and 3,717 kWh (3.7 MWh) of electricity. This means that each farm can generate more electricity than it needs, with the excess being available for other uses. Additionally, the leftover slurry from anaerobic fermentation can be used as a safe bio-fertilizer for new land and sustainable agriculture.

4 - Non-traditional animal feeds

In Egypt, the total amount of non-edible agricultural waste ranges from 30 to 35 million tons per year, but only 7 million tons are recycled. These crop residues, including leaves, stems, and husks left after harvesting, are coarse, large-sized by-products with low protein and fat content, but high lignin and cellulose content. These residues pose a significant problem for Egypt's economy, environment, and public health.

However, these agricultural wastes can be utilized in various applications, such as producing animal feed, organic fertilizers, and materials for small industries like wood and paper production. For instance, in 2019, only about 38% of the 30 million tons of agricultural residues were recycled.

To address the shortage of feed in the market, collecting agricultural waste such as tomato and bean plant residues, handling them properly, and producing nontraditional feeds could be a cost-effective solution. This would allow for the production of strong and durable cattle feed pellets using partial replacements, helping to make better use of these otherwise wasted resources.

2.3. Discussion groups

Raw output from working groups (6 groups)

Discussion group 1

Table 1: Group 1 Carbon emission

PARTICIPANTS CATEGORY	GENDER		
	F	M	Total
Academia	3	1	4
Civil society	2	3	5
Private/public institutes	1	2	3
TOTAL	6	6	12



Key discussion outcomes and needs expressed:

- Move towards using clean energy to reduce the risks of climate change.
- Using modern technologies to reduce carbon emissions, such as converting animal waste into fertilizer.
- Interest in growing plants with lower carbon emissions (C4 vs. C3).
- Conducting applied research studies to estimate the carbon print of different feed materials.
- Identify animal breeds with the lowest carbon print.

Discussion group 2

Table 2: Group 2 capacity building for climate action

PARTICIPANTS CATEGORY	GENDER		
	F	M	Total
Academia	3	2	5
Civil society	2	1	3
Private/public institutes	2	2	4
TOTAL	7	5	12

Key discussion outcomes and needs expressed:

- An increase in grants and subsidies for green infrastructure (loans).
- Establishing policies and regulations to ensure the successful operation and continuity of production safety.
- Establishing a union of entities working to support dairy producing entities.
- Capacity building through awareness programs for workers in the field of dairy production (workshops, seminars, etc.).

Discussion group 3

Table3: Group 3 Dairy livestock necessary action

PARTICIPANTS CATEGORY	GENDER		
	F	M	Total
Academia	2	3	5
Civil society	2	2	4
Private/public institutes	1	2	3
TOTAL	5	7	12



Key discussion outcomes and needs expressed:

- Establishing dairy drying factories to confront the problem of excess production in certain seasons.
- Transporting manure to desert areas to prepare it for cultivation as a natural fertilizer.
- Raising the quality level of dairy products factories so that they are able to export and meet the specifications for these products that are required by different countries, which reduces the problem of weak consumption in the local market.

Discussion group 4

Table4: Group 4: Climate impacts on livestock:

PARTICIPANTS CATEGORY	GENDER		
	F	M	Total
Academia	2	3	5
Civil society	1	2	4
Private/public institutes	2	2	3
TOTAL	5	7	12

Key discussion outcomes and needs expressed:

- Direct effects:
 - Animal health
 - Animal nutrition and reproductive performance
 - Reproductive performance and immunity
- Indirect effects:
 - Soil fertility
 - Mutations in the ecosystem
 - Increased competition for resources
 - Outbreak of some diseases
 - Overcoming risks by creating a long-term database.
 - Establishing guarantee or insurance programs against the risks of climate change.
 - Support for renewable small grids in energy supply.



Discussion group 5

Table5: Group 5: proposed solutions to confront the challenges of climate change

PARTICIPANTS CATEGORY	GENDER		
	F	M	Total
Academia	2	3	5
Civil society	2	1	3
Private/public institutes	2	2	4
TOTAL	7	5	12

Key discussion outcomes and needs expressed:

Some proposed solutions allow to confront the challenges of climate change and its impact on financing projects in the field of animal and dairy production:

- Expanding the cultivated areas of fodder crops (corn - soybeans) and thus providing fodder.
- Financing solar and clean energy projects at a low interest rate and with various financing incentives.
- Animal insurance → new insurance products that suit climate change.
- Industrialization → increasing the number of meat and dairy factories to reduce risks.

Priorities identified:

- Interest in improving veterinary services in the Egyptian state
- Combating antimicrobial-resistant microbes
- Concern for animal welfare
- Paying attention to animal and fish health
- Stress factors associated with climate change:
- High temperatures lead to a sharp decline in animal immunity, resulting in losses and challenges facing veterinary services in their work in the areas of animal health and welfare and antimicrobial control.
- suggested solutions:
 - Financial support and cooperation with all sectors interested in animal health to confront climate change.
 - Supporting working human capacity and training it to follow global strategies in this regard.
 - Guidance seminars for Egyptian farmers and veterinarians to improve veterinary services and raise farmer awareness.



- The spread of epidemic, infectious and re-emerging diseases in the field at high rates compared to previous years.
- As a result of high temperatures, it led to an increase in the incidence of mastitis in dairy animals, which led to the use of medications and antibiotics, and this leads to the presence of drug residues in the milk.
- Increasing the adoption of model dairy collection centers nationwide in need of financial support.
 - The female breadwinner who owns a dairy animal in the villages needs priority follow-up, continuous care, financial, veterinary, counseling and awareness support to protect herself and her family from common diseases.

The existence of a clear and explicit system by the government and the relevant ministries to limit the licensing or renewal of farm licenses in the event of non-compliance with one of the provisions for reducing climate problems, such as the lack of a treatment system for cow waste.

- There is no state oversight at all regarding the idea of greenhouse gases from using traditional generators.
- Lack of awareness programs on the quality of each of the assembly centers and small factories.
- Supporting the idea of environmental preservation in education.
- Supporting solar panels for farms.
- Supporting biogas stations for large breeders to use manure.
- Disseminating the idea of methane production stations on farms through licensing from the Ministry.

Financial:

- Funding
- Insurance
- Guarantee
- Soft loans

Non- Financial:

- Training.
- Awareness.

Access to finance through new approaches respecting the farmers' culture and needs (e.g. new fin tech solutions like AgriCash, which is working as a buffer between banks and farmers).



3. QUESTIONNAIRE DISTRIBUTION

Questionnaire title: Climate action in the livestock industry of Egypt

1. **Name of the Agrifood company/financial institution and Person: Regarding to attendance positions in different value chain components**

Position	Type of bussines	Number
Owner	Milk farm/ MCU/ feed comp	6
CEO	Milk processing, farm. Feed comp	6
Production manger	Milk processing	14
Director	Comp/ GOV/ bank	14
Official	Govs/ organization,/ ministry	12
consultant	NGO, academia, ministry, private	12

2. **Core business profile.** Frequency of different business components sharing in roundtable

	producers	Input provider	Retailer	Processor	Cooperative	Financier	Dairy consultant	Govern officials
Number	12	12	8	8	4	6	6	8
%	18.75	18.75	12.5	12.5	6.25	9.3	9.3	12.5

Core Business profile of roundtable participants

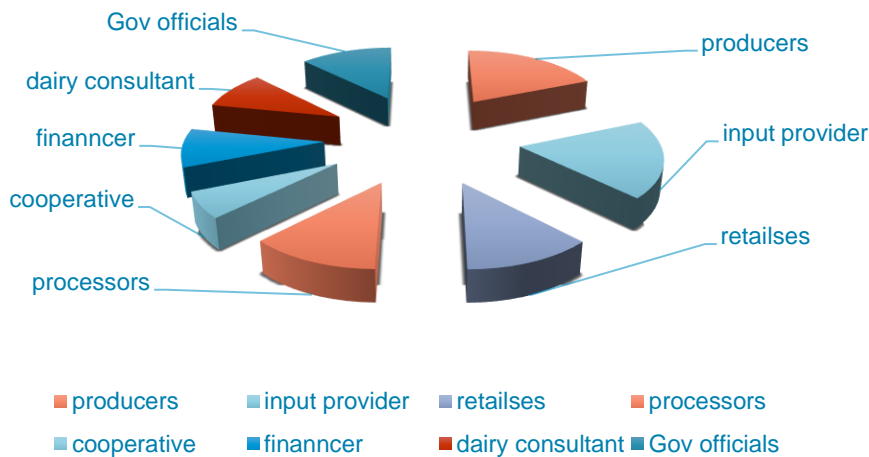


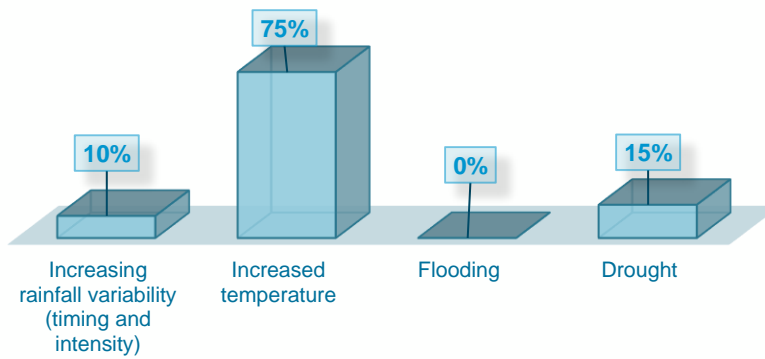
Figure 7: Composition of the business profile of roundtable participants



3. **Climate Risks:** participants described that increased temperature is main effective points causing climate risk in all milk value chain with a frequency of 75%.

	<i>Increasing rainfall variability (timing and intensity)</i>	<i>Increased temperature</i>	Flooding	Drought
Number	4	30	0	6
Frequency%	10 %	75%	0 %	15 %

CLIMATE RISKS ACCORDING TO RT

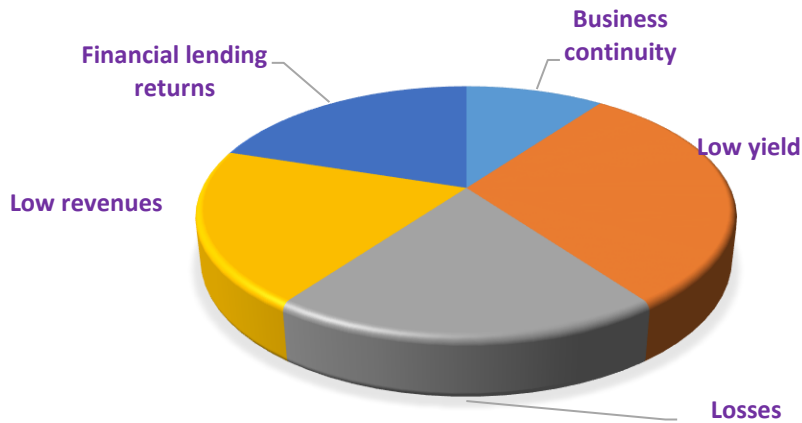




4. **Climate impacts:** 10% of participant mention that they may stop and go out of business due to climate changes while 20% were distributed equally for each losses in milk production, reduction in business revenues and financial lending returns while 30 % describe they suffer from low milk yield

	Business continuity	Low yield	Losses	Low revenues	Financial lending returns
Number	4	12	8	8	8
Frequency%	10 %	30%	20%	20%	20%

FREQUENCY % CLIMATE IMPACTS ON LIVESTOCK



5. **Contribution to climate change:** Out of participant, a frequency of 55 % considered their activities running in a sustainable manner. 30 they considered their business is mainly climate change contributors but need more smart practice while the rest 15% mention that their work is not contributor as they are mainly consultants.

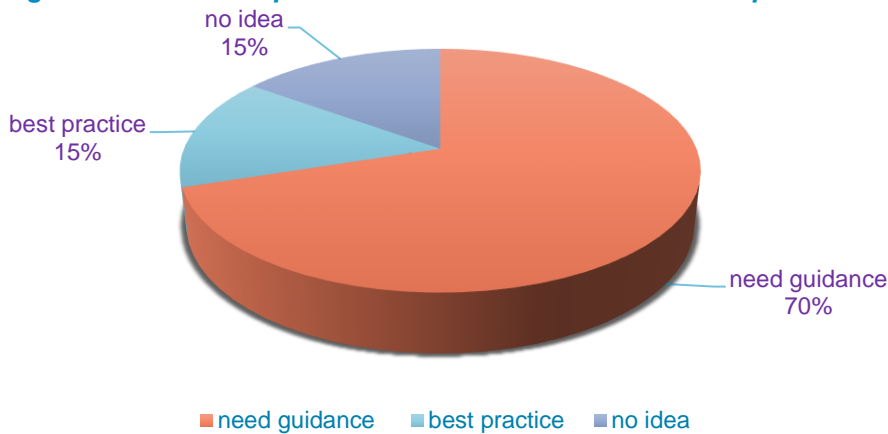
22 (55%) mention that activities is being sustainable and maintain low contribution	12 (30%) they consider as they are working in livestock they are contributors and need more smart practice
6 (15%) mention they are not contributor as they work is mainly consultation process	



6- Climate Smart Practices in milk industry aiming address climate impacts: 70% mention that they need guidance for moving toward smart practices. 15% they summering their needs and activities around livestock wast disposal while the rest 15% they were unable to cover fund for climate smart pracicies.

28 (70%) not yet : mention that their need guidance for moving toward smart practices	6 (15%) they consider as they are working in livestock waste for best disposal
6 (15%) mention they are not able to go in funding such climate smart practices	

Applying climate smart practices to address climate impacts



7- 7-7-7- 7-

7- challenges : about 40%of participant mentioned the lack knowledge about climate smart solutions while 35% have mentioned financial barriers and 25 % expressed their desire for the need of changes in legal regulations of milk market with more involvement of NGO in the market.

16 stakeholders (40%) lack of knowledge about technical smart solutions for productions problems	14 (35%) lack of financial solution for updating technology of productions
10 (25%) lack of market legal regulation through clear role for NGO REGULATION IN MILK MARKET	

8- Business or financing opportunities:

Business or financing opportunities: participants mentioned that their is a lack of knowledge about funding policy with bad condition when found 50% while tendency of improvement with asking financial support during progressed mentioned by 35% finally 15% able to fund but their need to make more safe finance but need technical advice and practice guidance

20 (50%) lack of knowledge about funding policy with bad condition when found (updating farm, improve milk quality , update milk market and collection centers0	14 (35%) they are able for initiation but need financial support during project progress change farm condition, update milk collection, transfer and storage
6(15%) able to fund but their need to make more safe finance but need technical advice and practice guidance	



9.A- Please suggest some solutions to the challenges:

Challenges	Solutions
Maintaining High-Quality Standards	<i>Contract farming</i>
Environmental Impact	<i>Adopt practices like manure management, renewable energy sources, and water conservation to reduce environmental footprint</i>
Price Volatility and Profitability	<i>Develop innovative dairy products with improved taste, texture, and health benefits to compete with plant-based options</i>
Labor Shortages	

9.B- Business or financing opportunities

Challenges	Solutions
<ul style="list-style-type: none"> • Market saturation • High initial investment • Cost of implementation • Technology affordability • Training and education 	<i>Changing policy for funding business by developing platform of verification for proper use of funding control</i>

10- Are you already involved in any climate and environment related programmes? With development funders?

<i>12 (30%) only enhance feeding, program for improve fertility, waste disposal</i>	<i>22(55%) some trails but no good results because of lack of technical accuracy</i>
<i>6 (15%) need training to start but need to safe their investment first</i>	

4. WORKSHOP AGENDA

AGENDA

Time	Title	Facilitator
	Moderator Fatma AbouzeidAhmed, Climate Change Expert, FAO Egypt	
8:30-9:10 am	Registration and coffee/ breakfast	
9:10- 9:20 am	Welcome remarks.	Dr. AbdulHakim Elwaer Assistant Director-General, Regional Representative for Near East and North Africa,
9:20 am – 9:30 am	Keynote remarks	Dr Ahmed Abdel Khalaa ,represent of Livestock and Poultry Sector, Ministry of Agriculture
	All to introduce themselves	



9:30 – 9.40 am	Introduction to SCALA programme	Fatma AbouzeidAhmed, Climate Change Expert, FAO Egypt
9:40 – 10.00	Role of private sector in climate action in agriculture and land use sector and in NDC/NAP implementation.	Neha Rai, Climate Change and private sector expert, FAO, Rome
10.00– 10.20	Overview of climate risks and climate smart solutions in the livestock subsectors	Dr Adel Khalil, Professor of livestock at Cairo University
10.20- 10.45	Q&A, share company experiences in plenary	
10.45-11.00	Request participants to fill up the questionnaire circulated at the meeting.	
11.00- 11.20	Coffee Break	
11:20- 1:00 pm	<p>Roundtable discussion with agrifood companies</p> <p>Key questions to discuss:</p> <ol style="list-style-type: none"> 4. How is your business exposed to climate risks or causing climate change. What are the climate impacts? 5. What are the climate solutions your business/network currently adopting or practicing? 6. What are the barriers hindering your business to transition to or invest in climate-smart practices? 7. How can barriers be addressed? 	<p>Moderated Discussion</p> <p>Moderators</p> <ul style="list-style-type: none"> - Theresa Wong, FAO - Adel Khalil - Sam Tumwesigye, UNDP - Neha Rai, FAO - Fatma AbouzeidAhmed, FAO <p>Outcomes of three breakout groups</p>
1:00 pm – 2:00 pm	Feedback and share outcomes of the three breakout groups	
2:00	Close and summarise	
2:30 pm	Lunch	



5. LIST OF PARTICIPANTS

Name	Professional position	Email
Dr Abdel RAOUF AL GoHARY	Farm Owner	Drabdelraoufalgohary@gmail.com
Dr Kamel Shehata	Agriculture department Director ,CIB	Kamel.sallam@cibeg.com
Ibrahim Ali	Production manager Juhayna, Egypt	Ibrahim.ali@juhayna.com
Lucy Al Attar	Altijari Wafa bank, financial manger	lucy.alattar@attjariwafa.com
Salwa Gonium	Ministry of Agriculture	livestock-sector@agr-egypt.gov.eg
Nancy Mohamed Husein	Animal wealth dept., Ministry of Agriculture	livestock-sector@agr-egypt.gov.eg
Mady sobhy	Farm owner & member in EMPA	Maged.mady@madycofarms.com
Prof. Abeer Abdel Naser	Prof of Milk Hygiene Cairo University	ababdelnaser2010@gmail.com
Rehab Ali	CEO in Milkiys Dairy farm	Rehab.ali@milkiys.net
Ibrahim Al Sayed	GM Danone Egypt	Ibrahim.alsayed@danone.com
Chantal Sabagh	Depty manger National Bank Egypt	chantal.sabbagh@nbe.com.eg
Fransis Abadir	Farm owner & member in EMPA	fshehata@cbc.com.eg
Dr Marwa Ghader	Financial manager, Agri. Bank	Marwy.khader@abe.com.eg
Prof Ahmed A. Al-khalaa	Vice director APRI, ARC, Egypt	aabdelkhalek_apri@yahoo.com
Kamal Swillium	Farm owner	Elmaraay.misr@hotmail.com
Prof Nadia L. Radwan	Nutrition consultant, APRI, ARC, Egypt	Nadiam1410@gmail.com
Dr Amin Mohamed	Buffalo consultant APRI, ARC, Egypt	amin_ama@yahoo.com
DR Mohamed Waaer	Dairy consultant, DINA farm, Egypt	waeer93@hotmail.com
Mostafa Abdel Razak	Dairy consultant, APRI, ARC, Egypt	Khaliilmostafa22@yahoo.com
Assam Egiza	Owner in MCU in Mansoura, Egypt	Abdoageza77@gmail.com
Mohamed Ibrahim	MESMDA, Egypt	mohamed.ibrahim2@mesemda.org.eg



Taha Abdel Hameed	GM Ecommerce, Egypt	edasys@mti.gov.eg
Samoul Tumwesje	UNDP, Egypt	samoul.tumwesije@undp.org
Prof Ayman Fouad	Consultant for Many Milk Collection units	hagar_ashoo@yahoo.com
Mohamed Heisham	Feed /feed additive amgad allam	muhamed.heisham@gmail.com
Prof Adel Khalil Gohar	Livestock FAO Expert, FAOEG	adel.khalil@fao.com
Heba Al Shamy	Vet Govs, Ministry of Agriculture	dr-hebaalshamy-22@gmail.com
Amr Al Hamzawi	photodynamic com ceo	amr.hamzawi@ecseg.com
DR Hnan Abdel Azeem	Vet. GOVs., Ministry of Agriculture	water200@yahoo.com
Ahmed Mahmoud	CEO Delta group+ MCU, Egypt.	ahmedstg2000@gmail.com
Hossam Hegazi	CEO Beyti milk, Egypt	hossam.hegazi@beyti.com
Hany AL beltagy	CEO in Lamar group.Egypt	Hany.elbeltagy@alex-agri.com
Mrs. J. Dorra Fiani	K E F cofounder, Egypt	jdf@kef.com.eg
Marcil Malaak	Quality director Halawa group Lactis, Egypt	marcil.malak@becegypt.com
Ahmed Ezzat	Owner perfect wagon feed company, Egypt	ahmedezzat@perfectwagon.com
Reem Mehana	Deputy GM in National Bank Egypt	reem.mehana@gmail.com
Fathy Farouk	Quality director in Halawa group Lactis, egypt	fathyto20@gmail.com
Ziad Hosam Eldein	GM AL Qawmia Food company , Egypt	ziad.hossam99@outlook.com
Mohamed Mahmoud	CEO/Cofounder Agri Cash	ceo.pharma@yahoo.com
Mahmoud Hessein	Owner of AL Maged group Egypt	mahmoud.hessein@maged.com
Omniah Hegazy	Technical Officer National Adaptation Plan Project	
Khaled Kheireldin	Ph.D. Manager NAP Project Cairo, Egypt	
Faten Adada,	Agriculture and Rural Development Expert • FAORNE	
Abulfotuh, Dalia	ECONOMIST • FAORNE	



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based on a decision of
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Information
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