

**Farmer to Farmer East Africa**

**Volunteer Assignment Scope of Work**

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| **Summary Information** |
| Assignment Code: | KE90 |
| Country: | Kenya |
| Country Project: | Dairy  |
| Host organization: | Tarakwo Dairies Limited  |
| Assignment Title: | Designing of waste disposal system for Tarakwa Dairy Processing factory  |
| Type of Volunteer Assistance: | Technology Transfer (T)  |
| Type of Value Chain Activity: | Processing (P) |
| Preferred assignment dates: | October – December 2016 |
| Objective: | Facilitate Tarakwo Dairy processing plant in designing an appropriate waste disposal system  |
| Desirable Volunteer Knowledge and Skills:  | Practical knowledge and experience in designing waste disposal systems in food processing industries; experience in the dairy processing sector is desirable |

1. **BACKGROUND**

Tarakwo Dairies Limited is a farmer owned company established to promote the interest of dairy farmers in the area and contribute to the development of the dairy sector. Formation of the dairy company was envisaged to provide a platform to articulate and represent the interest of milk producers in the area and more important nationally. The company was registered on 22nd February 2010. The company is located in Bayete shopping centre along Eldoret - Nakuru highway and draws its membership from twenty-four group farms in Ainabkoi and Kesses Division in the Uasin Gishu County, covering 16 administrative locations. The company has a team of professionals with backgrounds in business management, accounting, dairy processing and quality management who are in of charge managing the company businesses. Tarakwo Dairies Limited collaborates with several partners including East African Dairy Development Project- EADD, Ministry of Livestock and Fisheries Development, Ministry of Agriculture, Ministry of Cooperative and Marketing Development, Banks and other like-minded organizations.

The core business of the organization is collecting, bulking and chilling and selling fresh, chilled milk which is mainly sold mainly to New Kenya Cooperative Creameries (KCC) and through their milk kiosks in Eldoret town. The company also offers Artificial Insemination (A.I), Agro vet, Financial Services (FSA) and clinical services. The company meets the farmers’ need for reliable and organized milk marketing systems that ensure sustainable income streams and spur further development in the dairy sub-sector. The company started milk collection on the 1st October 2010 collecting 1,688 Kgs of raw milk on the first day of operation. This has gradually increased to over 2,842 Kgs per day with the trend expected to continue as the co-operative progresses. The average milk production per cow in the area is 8 Kgs where 3 Kgs sold to buyers. Tarakwo dairies installed milk pasteurization facility to add value and earn more income by selling milk directly to consumers through installation of milk dispensers in Eldoret town; in March 2016, F2F volunteer Heid Kassenborg assisted the company in milk processing and safety assessment and training that led to improved quality. However, the company still lacks appropriate waste management system to address challenges being experienced by increased affluent. Therefore, the company would like to engage an expert to facilitate in designing waste management system and provide recommendations for implementation

1. **ISSUE DESCRIPTION**

Potential environmental issues associated with small scale dairy processing activities in Kenya include the significant consumption of water for processing and cleaning, the discharge of wastewater with high organic loads, unpleasant odours and the consumption of energy. Water has many uses in dairy processing including cooling, washing, heating and cleaning. In Tarakwa milk processing plant, most of the water is used for cleaning processing equipment and work areas.

Although Tarakwa Dairy processing plant is in the process of expanding its operations by installing additional pasteurization unit, its current liquid disposal system is not adequate to accommodate all the effluents from the plant due to increase in the operations after conversion from a mere cooling plant to a mini processing factory. The company has plan to to put up an efficient waste disposal system that will effectively manage the current and projected increased load of effluent which will not only have the company meeting the desired and acceptable statutory requirements, but which is also efficient, conserves the resources and is environmentally sound.

Tarakwa dairy has so far not yet completed the annual mandatory National Environmental Management Authority (NEMA) audit due to the challenges the processing plant is now facing. It is for this reason that Tarakwa Dairies Company has requested CRS for a F2F volunteer expert to assist the company on designing an appropriate waste disposal system that will be able to treat and allow for reuse and recycling of the waste water.
The company will mobilize the resources required to install the new system, with the technical assistance from the volunteer.

1. **SPECIFIC OBJECTIVES OF THE ASSIGNMENT**

The objective of this assignment is to assist Tarakwa dairy facility in designing an appropriate waste disposal system. This system is expected to enable the company adhere to the environmental regulation and further acquire certification from National Environmental Management Authority (NEMA)

Specific activities will include the following

1. Meeting with the processing team to gain more insight of the facility for both current and future plans
2. Touring of the processing unit to gain more clarity of the facility and the surrounding environment
3. Identification of possible location(s) for the construction of the waste disposal system
4. Evaluation of future needs - changes in resource use, waste quantity or waste quality anticipated
5. Estimated waste characteristics and quantities and applicable regulations
6. Design waste disposal facility based on the following criteria but not limited to implementation and sustainability, cost (capital and operating), environmental benefits, reliability, and public acceptance.
7. Produce drawings showing the layout of proposed facilities.
8. Conduct detailed sizing calculations and produce preliminary plan and profile views of the processes.
9. Produce a refined cost estimates (including capital and operation/maintenance)
10. Recommend best processes for waste treatment.
11. Identify gaps for future F2F volunteer training

**Host contribution**– Tarakwo Dairies management in collaboration with the East Africa Dairy Development program team and/or Heifer International shall mobilize the staff and other key stakeholders as relevant to participate in the assignment. The host will facilitate the volunteer expert in acquiring all the necessary information required for the design and also provide meeting venue as well as meeting the participants need for refreshments and related participation costs

1. **ANTICIPATED RESULTS FROM THE ASSIGNMENT**

The anticipated deliverables include:

* Preliminary waste disposal system design developed
* Cost estimates done
* Assignment related photos
* PowerPoint presentations to Tarakwa dairies management and EADD
* PowerPoint presentation and debriefing with USAID, CRS after assignment
* Volunteer feedback
* Field trip report written, outreach activity conducted in Kenya and outreach in the US (press release and media event).
1. **SCHEDULE OF VOLUNTEER ACTIVITIES IN KENYA**

 **Note: Sundays are rest days**

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| Day | Activity |
| Day 1 | Travel from home to US international airport |
| Day 2 | Upon arrival, you will be picked by a cab driver from Europcar company. The driver will have a placard bearing **CRS logo** & **your name** and will drive you to The **Zehneria Portico** 10 Karuna Road, Westlands | P.O. Box 66249-0800 | Nairobi | Visit us at: [www. zehneriahotel.com](http://zehneriahotel.com/); Telephone: +254 731617469/264 | Mobile: +254 733988813 | Email:reservation@zehneriahotel.com |
| Day 3 | Introductions and briefing including; spe of work review, finalize with logistics, assignment expectations and anticipated outcomes. Any training material that the volunteer wishes to carry along to the field will be printed/photocopied at CRS offices. |
| Day 4 | Travel to Eldoret |
| Day 5 | In the morning CRS introduces the volunteer to EADD / County Government Travel to Tarakwa Meeting with Tarakwa management for introduction, review of the scope of work and develop an action plan.  |
| Days 6 | Visit to the processing facility and souring environment to assess possible site for construction of the waste disposal system |
| Day 7 | Rest day |
| Day 8 | Evaluation of Future Needs - changes in resource use, waste quantity or waste quality anticipatedEstimated waste characteristics and quantities and applicable regulation |
| Day 9 -13 | Designing process of the waste disposal system for Tarakwa |
| Day 14 | Rest day |
| Day 15 | Review of the preliminary design with key staff member and finaklization of the design  |
| Day 16 | Wrap up meetings, whilst emphasizing key concepts of the assignment. End of assignment presentation to Tarakwa dairies management  |
| Day 17 | Travel back to Nairobi  |
| Day 18 | Debriefing at CRS office with USAID Mission, Mercy Corps and CRS staff.Volunteer will finalize his/her reporting at CRS office and fill out all necessary M&E forms Travel back to the US |
| TBD | Outreach event back in the US. |

# DESIRABLE VOLUNTEER SKILLS

The volunteer will have the following qualifications and competencies:

* Environmental Engineering or related field with extensive experience in designing waste disposal system
* Knowledge of dairy processing facilities desirable
* Good writing and computer skills
* Sufficiently physically fit, with appropriate medical clearance
* Available for assignment ASAP
1. **ACCOMODATION AND OTHER IN-COUNTRY LOGISTICS**

While in Nairobi, the volunteer will stay at The **Zehneria Portico** 10 Karuna Road, Westlands | P.O. Box 66249-0800 | Nairobi |Website: [www. zehneriahotel.com](http://zehneriahotel.com/); Telephone: +254 731617469/264 | Mobile: +254 733988813 | Email:reservation@zehneriahotel.com or any other hotel identified by CRS and communicated to the volunteer prior to arrival. While in Eldoret, the volunteer will stay at Noble hotel or any other hotel to be communicated prior to arrival.

CRS will pay for hotel accommodation, and provide volunteer with per diems to cater for meals and other incidentals. The volunteer may get an advance which has to be liquidated before departing Kenya. For more information, please refer to country information that will be provided.

1. **RECOMMENDED ASSIGNMENT PREPARATION**
* The volunteer should prepare materials for hand-outs, which can be printed at CRS office in Nairobi before commencement of the assignment. Flip charts, markers, masking tapes can be obtained at CRS offices in case the volunteer wishes to make some illustrations. Depending on the training venue the volunteer may use a laptop and projector for power point presentations. However if the training venue is in the community, it will be difficult to use PowerPoint. In this case the volunteer will be expected to prepare training materials and have hand-outs printed at CRS offices for distribution to the participants.
* CRS strongly recommends that the volunteer becomes familiar with the maize country project description and the operation of rural financial institutions prior to arrival in the country as well as country information that will be provided.
1. **KEY CONTACTS**

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| **CRS Baltimore** | **CRS EA. Regional Office** |
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