

Government of Kerala Department of Dairy Development

A Proposal for Strengthening the Quality Control Activities in Kerala so as to ensure production and consumption of pure & safe milk

(Under the State Plan- Strengthening Quality Control Labs)

Head of Account: 2404-00-109-95

2015-16

Continuing schemes without modification

Total Outlay – Rs 179.00 Plan Outlay - Rs. 154.00

Lakh

(Out of Total Plan Outlay of Rs 400.00 lakh)

1. EXECUTIVE SUMMARY & FINANCIAL OUTLAY

Rs.400 lakh has been earmarked to the Dairy Development Department under the State Plan for 2015-16 (Head of Account 2404-00-109-95 (Plan) - Strengthening Quality Control Labs). To strengthen the Quality Control activities in Kerala the department proposes the following ongoing schemes of 2014-15 with a total outlay of Rs 179.00 lakh and Total Plan Outlay of Rs 154.00 lakh

STRENGTHENING QUALITY CONTROL LABS

H/A: 2404 - 00 - 109 - 95

Continuing Schemes without modification Plan Outlay - Rs 154.00 Lakh

		No. of	TOTAL UNITS		
SI.No	PARTICULARS	Proposed	Total	Total Subsidy	
		Units	Rs in Lakh	Rs in Lakh	
1	Special quality control testing drives	1	4.000	4.000	
2	Assistance to existing labs for modernization, strengthening & well equipping, NABL accreditation and ISO 9001 accreditation expenses	1	75.000	75.000	
3	Need Based Assistance to DCS with BMCC for improving the quality control activities	35	17.500	13.125	
4	Setting up of advanced milk testing facility and completion of missing link for DCS with BMCC	72	72.000	54.000	
5	Assistance for installing fly traps, U.V light, improving the effluent disposal mechanism of the DCS with BMCC 21		10.500	7.875	
	GRAND TOTAL		179.000	154.000	

2. INTRODUCTION

Various factors such as rising incomes, urbanisation, changing food habits, increase in population and new entrepreneurs in this field fuel the demand for milk. Based on planning commission's estimates and subsequent corrections in align with elevated GDP growth rate, it is expected that the demand for milk is likely to be about 155 million tonnes by 2016-2017. The current production status is in the tune of 139 million tonne in 2014-15.

The enactment of FSSAI since 2006 created awareness among consumers regarding the concept of 'good food every day' and the law affirmed food business operators to ensure the best to their consumers. In 2011, FSSAI has introduced new food safety standards for milk and milk products and also enacted new regulations for licensing and registration of food businesses.

The Director of Dairy Development Department is the State Registering authority of Dairy Co-operative societies in Kerala. In align with FSSR 2011, department has initiated various awareness programmes to producers, food business operators and consumers regarding importance of hygiene, sanitation and assuring milk and milk products quality. Department conducted intensive training programmes in connection with new FSSR regime. Since the Dairy Development Department is the competent authority for quality maintaining agency in the matter of milk and milk product, the department should have sufficient testing laboratories with adequate and modern testing equipments. There are 3560 societies registered under this Department. The department has 14 quality control units working in the districts. Each Quality Control Unit is attached with a lab for physical, chemical and microbiological analysis of market milk. It is the duty of the Dairy Department to ensure safe and wholesome milk to the consumers in the state. The Department safeguards the public health through continuous monitoring of the quality of milk and milk products marketed in the state during the last so many years. The present quality control labs at the districts are to be upgraded to meet the testing requirements under FSSR, 2011.



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Kerala's milk production has increased over the last few years from the annual production of 26 lakh metric tonnes in 2010 -11 to almost 29.78 lakh metric tonnes in 2014-15. However the microbial quality of the milk produced in the state is low compared to that produced in the developed countries and even in comparison to some milk producing states.

Milk being the perfect food which has to be produced and handled under hygienic conditions to ensure the safety of the consumers as well as to prevent spoilage. The food safety and standards regulations 2011 has also laid down several measures to ensure the safety of the milk produced in the farms. The scheme envisages assisting the dairy farmers of the state to purchase hygiene kits and renovate their cattle farms especially the floor which would enable to ensure that the microbial load of the milk is minimized and would prevent losses to the farmers through spoilage of milk. Department is also focusing various steps to keep the milk as fresh as possible, when it reaches dairy plants in the organised sector and thus to the consumer. Department is taking steps to assure quality of milk through BMC units installed across the state.

Besides being a health hazard, contamination of milk can lead to huge economical losses. Contamination occurs at different levels: at farm level, during collection and storage, and at processing centres. Milk contains many essential nutrients, such as carbohydrates, proteins, lipids, minerals and vitamins and therefore acts as an ideal medium for rapid proliferation of harmful micro-organisms. Milk needs to be protected from all possible sources of microbial contamination and various types of disease organisms.

Milk testing and quality control is an essential component of any milk processing industry irrespective of its handling volume. Milk being made up of 87% water and is prone to adulteration by unscrupulous middlemen and unfaithful producers for getting higher value. Moreover, its high nutritive value makes it an ideal medium for the rapid multiplication of bacteria, particularly under unhygienic production and storage at ambient temperatures.



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Daily around 14.5 Lakhs litres of milk have been procured through 3560 Dairy Cooperatives, and estimated that around 3 lakhs dairy farmers are engaged to meet the milk requirement in Kerala. 12 Dairy Plants are involved to chill, process, market and supply the milk to the customer through 2 Lakhs of retailers under three Cooperative Milk Producers Union of Milma (KCMMF). At Production level, 14 Quality Control officers are responsible to ensure the quality of milk in Kerala.

3. OBJECTIVES

The proposed scheme is aimed to

- Assurance of quality of milk and milk product especially during festival season to ensure consumer well being
- Assist modernisation and strengthening of existing laboratories in the state and to create new testing labs
- ➤ To improve the infrastructure and testing facilities of State Dairy Labs
- ➤ Accreditation of existing laboratories under IS 17025 (NABL)
- ➤ Improve testing facility at DCS with Bulk Milk Chilling Centres
- Improve the overall hygiene of BMCC
- Provide assistance to DCS for purchasing BMCC cleaning and sanitising agents
- Provide assistance to DCS for completing missing link in the procurement line
- ➤ Provide need based assistance to DCS with BMCC for ensuring quality milk procurement, chilling, storing and transportation.
- Providing assistance to DCS with BMCC for ensuring effective effluent treatment mechanism



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4. FINANCIAL OUTLAY

STRENGTHENING QUALITY CONTROL LABS

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Continuing Schemes without modification

Total Outlay: Rs 179.00 lakh Total Plan Outlay - Rs 154.00 Lakh

			ONE	UNIT	TOTAL UNITS	
SI.No	PARTICULARS	No. of Proposed Units	Total	Unit Subsidy	Total	Total Subsidy
			Rs in Lakh	Rs in Lakh	Rs in Lakh	Rs in Lakh
1	Special quality control testing drives	1	4.000	4.000	4.000	4.000
2	Assistance to existing labs for modernization, strengthening & well equipping, NABL accreditation and ISO 9001 accreditation expenses	1	75.000	75.000	75.000	75.000
3	Need Based Assistance to DCS with BMCC for improving the quality control activities	35	0.500	0.375	17.500	13.125
4	Setting up of advanced milk testing facility and completion of missing link for DCS with BMCC	72	1.000	0.750	72.000	54.000
5	Assistance for installing fly traps, u.v light, improving the effluent disposal mechanism of the DCS with BMCC	21	0.500	0.375	10.500	7.875
	GRAND		179.000	154.000		

5. PROJECT DETAILS

5.1 SPECIAL QUALITY CONTROL TESTING DRIVES

UNITS	NO OF UNITS	UNIT COST (Rs)	UNIT SUBSIDY (Rs)	TOTAL COST (Rs in Lakh)	TOTAL SUBSIDY (Rs in Lakh)
Lump sum	1	400000	400000	4.00	4.00

During festival seasons, especially during Onam, the demand for milk in the state increases and lot of milk reaches the state from neighbouring states. Unscrupulous traders take this as an opportunity to make huge profit by supplying inferior quality and adulterated milk. This is a major threat to public health, as many of the chemicals added to milk as adulterants or preservatives are hazardous in nature. In order to prevent such practices, special quality testing drives are conducted throughout the state during Onam season. Milk Quality Information Centres are also set up in all districts head quarters where the quality of all brands of milk marketed is tested. Facilities are provided for daily testing samples of milk brought by public and providing results then and there.

To prevent the entry of adulterated and low quality milk into the state, special camps with laboratory facilities are set up at the five major check post (Walayar, Meenakshipuram, Kumili, Aryankavu and Parasala) of the state through which majority of the milk flows into the state. The samples from vehicles are taken and those found adulterated or of low quality are denied entry into the state and actions can be initiated against the offenders. For the above activities an amount of Rs. 4.00 lakh is to be set apart from this plan fund. Components under this category are appended below.



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SI no.	Particulars	Amout (Rs)
1	A room at the check post for arranging lab facilities. Rent @Rs.1000/day x 7days	7000
2	Conveyance for transportation of equipments, samples, officials etc. vehicle hiring charges @Rs.2000/day x 7 days	14000
3	Camp office near the check post for the use of officials on duty. Rent @Rs.1500/day x 7days	10500
4	Purchase of testing kits for preservatives and adulterants @Rs.2100, Glass ware (test tubes, pipettes, sample bottles), Chemicals and reagents for various tests, vessels for storing water, mixing and heating samples etc	16000
5	Miscellaneous, printing formats, internet (USB Modem with 3G SIM card & recharge amount), stationary, fax, phone courier charges, food & refreshment charges etc	15000
6	TOTAL OUTLAY FOR ONE CHECK POST	62500
7	FOR 4 CHECK POSTS	250000
8	For setting up milk quality information centres at all district head quarters Rs 10000 x 14 districts	140000
9	Preparation, Monitoring and supervisory charges including arranging of conveyance for directorate officials	10000
	GRAND TOTAL (7+8+9)	400000

^{*}Any saving on the above component may be utilized for any other component *Check posts details are as follows

- 1. Walayar
- 2. Meenakshipuram
- 3. Kumili
- 4. Aryankavu
- 5. Parasala

5.2 ASSISTANCE TO EXISTING LABS FOR MODERNIZATION, STRENGTHENING & WELL EQUIPPING, NABL ACCREDITATION AND ISO CERTIFICATION EXPENSES TO THE 2 STATE & 14 DISTRICT LABORATORIES

UNITS	NO OF UNITS	UNIT COST (RS)	UNIT SUBSIDY (Rs)	TOTAL COST (Rs in Lakh)	TOTAL SUBSIDY (Rs in Lakh)
Lump sum	1	75,00,000	75,00,000	75.00	75.00

The department has two State Labs (Alathur lab and State Dairy Lab, Tvm) & 14 District Quality Control laboratories. These District Quality Control Labs are controlled by District Quality Control Officers under the Rank of Assistant Directors. All Quality Control Officers of the department are ISO 22000:2005 & HACCP Lead Auditors.

All regular milk tests such as estimation of fat%, SNF%, TS% and detection of adulterants, neutralizers, preservatives are carried out at District Quality Control Labs. But through the State/Central/LSGD schemes some of the District Quality Controls Labs are upgraded to perform Microbiological Test. Department have strategy to promote & unify all District Control Labs and enable to conduct all necessary Microbiological Tests.

The fresh samples taken by the Quality Control officers of the department are sent to any of 2 State Labs for analysis and the results are forwarded to the government to initiate actions against defaulters. State lab at Trivandrum has some of the latest



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sophisticated instruments and therefore NABL accreditation activities are carried out with help of Central Institute of Fisheries Technology (CIFT), Kochi. The state dairy lab is presently strengthening its infrastructure and testing facilities so as to facilitate the authentic testing for milk, milk products, water and cattle feed subsidy. The state dairy lab attached to directorate is presently on the verge of applying for NABL accreditation.

As per NABL, the procedures, guidelines & Testing Methods shall be documented and based on these documented procedures/guidelines/testing methods, all testing methods and related process shall be carried. But the above system cannot be follow due to lack of required Technical officers as per the prepared NABL documents. Presently it is running with one Technical Officer. So this Project also envisages recruiting 2 Qualified Analyst on contract basis.

The State Lab at Alathur is attached to the Dairy Training Centre, Alathur in Palakkad district, approved under MMPO by the Central Government. It is one of the oldest Labs and requires renovation and purchase of modern equipment. So this Project also envisages strengthening and initiating the NABL accreditation activities of the State Lab at Alathur. The sampling and preservation of milk is very important for all Microbiological test. Presently most of the samples are not being handled as per the requirements, so it is essential to maintain a cold chain from the sampling point to the testing point. So the project also proposes to purchase a vehicle to carry the milk and milk products from the sampling point to the Lab. This fund shall be utilised by existing labs for development of infrastructure, extension of existing lab facilities, for undertaking Aluminium roofing over truss work for improving the testing facilities and for any other development activity that directly or indirectly improve the testing facility.



5.2.1 COMPONENT BREAK UP

	_	Amount
SI.No	Components	(Lakhs in Rs)
1	Establish 2 Microbiological Labs at 2 District Quality control Units , Rs.3 lakhs /Unit for purchase of required equipment, civil work, wiring , cabling etc	6.00
2	Milk Testing chemicals, equipments, calibration, AMC, Milk Analyser, computer with accessories, repair and maintenance of lab for 14 District Quality Control Units etc (@Rs 1 Lakhs / Unit)	14.00
3	Renovation, NABL Consultancy activities, repair , AMC , Maintenance , chemicals, glass wares, Training, civil work, calibration purchase of adequate equipments , instruments etc for State Lab, Alathur	4.00
4	2 Analyst on consolidated pay in the tune of Rs. 20,000/Month for 9 months for Sate Dairy Lab, Thiruvananthapuram.	3.60
5	Renovation, NABL Consultancy activities, repair, AMC, Maintenance, chemicals, glass wares, Training, calibration purchase of adequate equipments (for the testing of cattle feed samples/milk samples), purchase of instruments for mobile quality checking lab etc for State Dairy Lab, Thiruvananthapuram.	37.40
6	Mobile Quality Control Vehicle (Mahindra Xylo A/C on DGS & D rate) for Quality Control Unit (1 No.)	10.00
	Grand Total	75.00

^{*} Saving on any one component may be utilized for any other component mentioned above



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The assistance sanctioned for the State Dairy Lab shall be utilised for the following items (Rs 37.40 lakh)

SI.NO	Equipment/component	Equipment/component Purpose					
1	Maintenance and repairs including AMC	To meet the expenses pertaining to breakdown maintanance and preventive maintanance of laboratory equipments in State Dairy Lab	5.00				
2	Chemicals , media, plastic ware and Glasswares (inclusive of calibration)	To enhance the testing facility of State dairy lab for analysis of milk, milk products, cattle feed and water	5.00				
3	Equipments:For testing cattle feed samples, milk and milk product samples.	To support analytical functions.	10.00				
4	Renovation: Purchase of furniture, storage Racks, Almirah	Keeping laboratory media, hazardous chemicals and alcohol under lock and key condition. To undertake revonations activities to hold new testing equipments, storage of chemicals etc in the lab	3.00				
5	NABL/ISO accreditation audit expenses including training, PT and ILC (NABL)	For meeting expenses pertaining to mandatory NABL / ISO accreditation activities of the lab	8.00				
6	Preparations of signage of lab informations, and necessary documentation work	Public awareness and Lab information management system	0.40				
7	Modification of Lab Vehicle (Xylo) for transporting milk and products sample in required storage condition (4 Deg C) and to perform basic platform tests	To enhance the testing facility of State dairy lab via sample collection and transportation of test sample	3.00				
8	Antibiotic testing kit with heating unit	3.00					
	TOTAL COST						

^{*} Saving on any one component may be utilized for any other component mentioned above

5.3 NEED BASED ASSISTANCE TO DCS WITH BMCC FOR IMPROVING THE QUALITY CONTROL ACTIVITIES

In order to ensure microbiological quality of milk, maintenance of cold chain has to be ensured from farm to consumer points. With a view to improve the bacteriological aspect, the dairy department with the help of the regional unions have upgraded numerous Dairy Co-operatives to Bulk Milk Chilling Centres (BMCC). The BMCC's have ensured that the milk collected at farm level is to be chilled to a temperature below 4°C meeting the guidelines of FSSR. This helps to arrest the bacteriological multiplication and thereby ensuring the quality of milk. This cold chain will be ensured subsequently by chilling and storage of milk in DCS, transportation of milk to processing dairies in insulated tankers, marketing the packed milk by maintaining the cold chain.

In order to improve the quality control activities, the quality testing facilities available at the BMCC has to be improved. An improved lab facility has to be established at the BMCC's. This will help to continuously monitor the quality of milk received from farmers and also milk received by route from the nearby cluster DCS. At present the DCS with BMCC is incurring huge amount for purchase of cleaning and sanitising agents. Also the effluent treatment mechanism presently available at BMCC has to be improved.

In order to meet the FSSR requirements and ensure safe milk consumption, the quality of milk at farm level has to be improved. Progressive farmers have to be motivated for ensuring the hygiene level at production level. Assisting farmers for purchase of farm cleaning cum sanitising materials will ensure production of milk with superior quality.

The scheme envisages assisting the DCS with BMCC and also progressive dairy farmers of the state for improving the milk testing facilities, maintaining hygienic environment at farm level and BMCC's and also other aspects which will enhance the physico-chemical and microbiological aspects of milk.

This scheme is aimed at providing need based assistance for improving the overall functioning of the cluster BMCC



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Need based assistance for following components shall be included.

- ✓ Breakdown / regular maintenance of BMCC
- ✓ Installations for up gradation of existing facilities of BMCC
- ✓ Purchase of cleaning / sanitising agents
- ✓ Meeting electricity charges
- ✓ Non recurring wages connected with operation of BMCC
- ✓ Other overhead charges
- ✓ Meeting AMC charges of BMCC
- ✓ Meeting expenditure for implementing FSSA requirements in BMCC
- ✓ Any other item not specified above, but with the approval of The Deputy Director of concerned district

(A detailed project report shall be submitted along with application detailing the justification for the item requested for assistance)

BENEFICIARY

The beneficiary shall be those BMCC which handles more than 1000 lpd. Preference shall be given for Cluster BMCC's

FINANCIAL

Scheme is meant for assisting 35 DCS with BMCC. Preference shall be given to those DCS having higher installation capacity and that links more neighbouring DCS. The assistance shall be 75 % of the cost incurred subject to a maximum of Rs 37,500 per BMCC.

NO. OF	ONE UNIT (Rs in lakh)			TOTAL UNITS (Rs in lakh)		
PROPOSED UNITS	TOTAL	UNIT SUBSIDY	BEN. CONT	TOTAL	SUBSIDY	BEN. CONT
35	0.500	0.375	0.125	17.50	13.125	4.375
GRAND TOTAL				17.50	13.125	4.375

5.4 SETTING UP OF ADVANCED MILK TESTING FACILITY FOR DCS WITH BMCC

In order to improve the quality control activities, the quality testing facilities available at the BMCC has to be improved. An improved lab facility has to be established at the BMCC's. This will help to continuously monitor the quality of milk received from farmers and also milk received by route from the nearby cluster DCS.

A lab with advanced facilities in the DCS with BMCC will ensure quality of procured milk from farmers and also from cluster societies that pour milk in to that particular BMCC. A fully fledged lab will equip to test the sensory, physicochemical and microbiological quality of milk.

The scheme envisages at assisting DCS with BMCC for establishing milk testing lab / improving the milk testing facilities available at BMCC.

This is also been observed in many of the BMCCs lacking a dump tank in procurement line. This has led to increased manpower in handling more milk volume and also resulting erroneous sampling due to lack of a proper composite sampling procedure.

The fund shall used for

- ✓ Establishing a new lab at DCS with BMCC with milk testing facilities
- ✓ Purchase of milk testing chemicals, equipments and other lab related utensils
- ✓ Improving the infrastructure facility at existing lab of BMCC
- ✓ Assisting for purchase of advanced milk testing equipments, glass wares, utensils
 etc
- ✓ Purchase of dump tank of matching volume and pump for completing the missing link in pooling milk.

FINANCIAL ASPECT

NO. OF	UNIT COST (Rs in lakhs)			COST FOR TOTAL UNITS (Rs in lakhs)		
PROPOSED UNITS	TOTAL	UNIT SUBSIDY	BEN. CONT	TOTAL	SUBSIDY	BEN. CONT
72	1.000	0.750	0.250	72.000	54.000	18.000
GRAND TOTAL				72.000	54.000	18.000

A detailed project report shall be attached along with the application of the DCS applying for assistance

BENEFICIARY

The beneficiary shall be those BMCC which handles/store minimum of 1000 litre of milk per day. (Average of last 6 months).

IMPLEMENTATION AND MONITORING

The Deputy Director of concerned district shall be the sanctioning authority. A committee consisting of Deputy Director, Quality Control Officer and concerned dairy extension officer and president of the beneficiary society shall evaluate periodically and monitor the progress of the implementation.

5.5 ASSISTANCE FOR INSTALLING FLY TRAPS, IMPROVING THE EFFLUENT TREATMENT MECHANISM OF THE DCS WITH BMCC

This scheme intent to provide assistance to DCS with BMCC for providing fly traps, and other pest management techniques in BMCC in order to meet the guidelines of FSSR 2012. More over the BMCCs already functioning in the State are having inferior mechanisms for effluent treatment systems. This is mainly due to lack of space for disposal or the locality in which it is functioning. Improper disposal to the environment ultimately lead to ecological as well as health hazards. Hence the effluent treatment process in the BMCC has to be improved.

This scheme intends to give assistance to BMCC for installing fly traps, U.V light system, other pest control measures to assure food safety and commissioning of Effluent Treatment Plants based on volume of influent for improving effluent disposal mechanism.

BENEFICIARY

21 numbers of DCS with BMCC shall be selected. Those BMCC which handles more volume of milk shall be selected. (min 1000 lpd)

FINANCIAL ASPECTS

NO. OF	UNIT COST (in lakhs)			COST FOR TOTAL UNITS (Rs in lakhs)		
PROPOSED UNITS	TOTAL	UNIT SUBSIDY	BEN. CONT	TOTAL	SUBSIDY	BEN. CONT
21	0.500	0.375	0.125	10.500	7.875	2.625
GRAND TOTAL				10.00	7.875	2.625

IMPLEMENTATION AND MONITORING

The Deputy Director of concerned district shall be the sanctioning authority. A committee consisting of Deputy Director, Quality Control Officer and concerned dairy extension officer and president of the beneficiary society shall evaluate periodically and monitor the progress of the implementation.

6. IMPLEMENTATION AND MONITORING OF THE SCHEME

The Dairy Extension Officer shall be responsible for block wise implementation of the programme. The Deputy Director of concerned district shall be responsible for the district wise implementation of the programme. The Joint Director, SDL shall monitor, evaluate and report the progress of the activities related to State Dairy Lab. Tvm. The Director, Dairy Development shall be the authority for state wide implementation of the scheme components under this scheme.

7. CONCLUSION

The various components explained in the plan project for the financial year 2015-16 are aimed at improving the physico-chemical and microbiological quality of milk and to ensure cold chain mechanism to envisage the concept of from farm to fork of Total Quality Management system. The projects also focussed to assure the safety of consumers by assuring the quality of milk and milk products marketed in our state too.

The implementation of the programme will definitely help to improve the quality of milk procured and consumed. Also it will help to follow FSSR guidelines.

DIRECTOR