

CAUSES AND CONSEQUENCE OF SHORTAGE OF MILK IN KERALA; WHO GAINS?

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There are many unaddressed questions about the Milk controversy in Kerala. The Hon'ble Minister Mr. C. Divakaran had rightly expressed his strong opposition to hike in price as it neither enhanced the local procurement nor helped farmers. The decision to raise the price to Rs. 19/- litre, had enabled the milk marketers and feed traders to exploit both the producers and consumers. Co-operative milk supplies established opposite the YMCA and Secretariat of Trivandrum was perhaps the forerunner of milk marketing organizations in Kerala. It was taken over by TRIMS and then KLD Board/ MILMA. The primary objective of MILMA is to help the unorganized dairy owners to sell their surplus milk "at will". It collects surplus milk through milk unions, and markets it to make enough profit to manage the institution; this includes crises management.

Dairy co-operatives of India handle less than 15% of the total milk produced. Despite this, over the years MILMA won the trust of consumers and now has no problem in marketing its milk or (some) milk products. In fact to meet its growing demand, MILMA was buying (cheap) milk from other states. Though this enabled MILMA to make profit and optimise the capacity of its milk plants, this action diverted its focus from milk production within Kerala. If MILMA/ KLD Board had studied the unorganized and private milk marketing system, (which handles 85% of milk market), it could have anticipated the present shortage. The shortage forced MILMA to procure milk costing nearly Rs. 19/- per liter and incur a heavy loss. While MILMA found it difficult to procure milk, private operators are still procuring milk from the neighboring states and are marketing it in Kerala. The private agencies now exploit the shortage of milk and the higher price fixed by MILMA/ government. Though MILMA has earned the trust of consumers, the local milk unions of Kerala do not uniformly enjoy similar trust from dairy cattle owners. The difference between sale price and procure-

ment price of milk goes beyond Rs. 7/- per litre. Both producers and the public of Kerala feel that an overhead of nearly 100% is high (The price that milk unions give to local producers is far less than what meets the eye. Although milk unions claim to provide a procurement price of Rs. 14.50 per litre to producers, in reality most farmers end up receiving between Rs. 10-12 per litre as the milk is presumed to be priced and procured on the basis of fat content and SNF. Milma reconstitutes the procured milk at 3.00% and 1.5% fat levels and sells them at Rs. 19/- per litre. In many cases the margin may go up to 100% if not more).

"Advices" made during the debates in the media, like opening more collection centres, selling the collected milk locally, removing the social stigma from dairy farming, import of better animals etc. need to be studied scientifically to identify the real reasons for shortage and low procurement. MILMA has assumed a unique and effective role in controlling the market price of milk, to the advantage of both the producers and consumers. This positive role of MILMA was obliterated by the recent action, of MILMA/ government and has opened a flood gate for price hike all over Kerala. A (scientific) study of the unorganized sector, could have helped MILMA to anticipate the shortage of milk in Kerala and/or identify the role of various factors like growing urbanization, consumerism, low production, poor factor productivity (the difference between input and output), reduction in the number of dairy animals, risks involved, social stigma attached to dairying or anything else? It could have also enabled preparedness and "crisis management". By allowing the price hike the government has leased out MILMA from applying its management skill to tackle a crisis. There are some other questions that remain unanswered.

The logic behind allowing all MILMA units to increase the price, when only one local (Trivandrum)

unit of MILMA was making loss is still unclear. A temporary loan from government or from any sister unit was a fair possibility. Writing off the loss as was done for sick mills, state transport corporation etc. was also possible, though in principle it is not a healthy method. By selling 7- 10 lakh litres of milk daily on a hike of Rs.3/- per liter, MILMA can make an additional gain of one crore rupees in three or four days and Rs.8-10 crores in a month's time. With rains the shortage of milk would be over all over India (as green grass grows); but it may not be possible to reduce the price or regain MILMA's power to control milk market. Though some organizations opposed it, the proposal to make-up the loss by selling "MILMA rich" would have been a better alternative. It affected limited consumers and did not disturb the price line. Though milk products were not "loss making", all organizations including the "Ksheera" (not part of MILMA) had increased the price of "value added products".

Globally production of liquid milk is considered uneconomic; the profit lies in products. Many developed countries provide subsidy to encourage the sale of liquid milk. India's milk unions under the initiation of the great stalwart Padma Bhushan (Dr.) Verghese Kurien has adopted a novel way of buying milk at a reasonable cost, extracting its fat or Solid Non-fat (SNF) or reconstituting milk with milk powder to meet the growing urban consumer demand and making profit in the process. But MILMA's option to procure milk from other states when small holders facing unfavorable market conditions withdrew from milk production fired back, when supply from other states were reduced during the summer (non-rainy season). It had no option when those states diverted milk for better returns. KLD Board/ MILMA could not (or did not?) study the impact of their policy on the local dairy development. The KLD Board's primary objective of livestock development first failed, when dairy owners preferred to bring animals from Tamil Nadu and Karnataka, to replace low yielding, infertile, old or diseased animals. Reasons for this are many.

The sequence of events of 2007 indicates that increased procurement price has not only, not,

helped farmers but has also harmed them. When the procurement price of milk was increased by Re.1/ litre in 2007 the cost of government/ MILMA feed was raised by Rs 1.50/ Kg. This not only took away any gains from reaching the dairy owner, but also gave an opportunity for private feed vendors and suppliers to raise the price of their feed and other feed inputs. Gingiy cake (Idayam brand) which was sold @ Rs.12-13/ Kg in retail shops sold at Rs 14.50 when the milk price rose by Re 1/- (now it is being sold at Rs 20.50/ Kg); ground nut cake sells at Rs.22/ Kg and coconut cake sells at Rs.14-15/ Kg. The paddy straw bundle gets smaller with each rise in milk price. Oil cakes, paddy straw and green fodder cover nearly 70-85% of the cost of inputs. The real benefit went to traders of feed & fodder and the private suppliers of milk from Tamil Nadu and Karnataka. Any government or milk union concerned with dairy owners' welfare, should reconsider their action. (There is a nominal supply of green grass to very few dairy owners. This involves heavy overhead, reaches very few who usually are made to wait hours to get the erratic supply. It is such disincentives, not lack of dignity, that discourage people from dairy farming)

Kerala Livestock Development Board (KLD Board) is established for the holistic livestock development in Kerala under the aegis of National Dairy Development Board (NDDB) an "institution of national importance". In 1982 KLD Board decided to separate milk marketing from its main activity. The KLD Board never had a breeding policy pragmatic to the conditions in Kerala, nor the one suitable for the type of dairy farming prevalent in the state. A number of seminars and conferences organised in Kerala focused only on import of high yielding animals and their breeding material. It would be pertinent to realize that in Kerala many, if not most, of the new born calves (and invariably all male calves) are sent to the butcher within 15 days of their birth. This action being cruel, the circumstances that lead to slaughter of freshly born calves need be considered. The expense for raising a calf would be Rs.500/- per month. Rearing a calf for 10-12 months could cost the owner nearly Rs 5000/-. It is possible to buy a 8-10 month old calf from either Tamil Nadu or

Karnataka for Rs. 2000/-. Obviously, if Tamil Nadu or Karnataka imported elite animals, (in place of KLD Board), Kerala may get some benefit (?)

Pre-independence records reveal that the then Animal Husbandry Commissioner of India Sir Arthur Oliver had advised the British rulers against introducing British breeds into India. Kerala had been importing bulls and "embryos" of elite animals in the past. In 80's expert panel of FAO/ UNEP had observed that cross breeding over 3-4 decades (now 5-6 decades) has not resulted in a wide spread improvement in performance at grassroots level. In many cases cross-breeding has been carried out without initial characterization or evaluation of indigenous breeds and with no effort to conserve local strains. Uncharacterized breeds are disappearing in some rapidly developing regions of the world where climatic, parasitic or disease pressures could have produced important genetically adapted breeds."

With the report of "Mad cow disease" in England and Europe, government of India imposed a ban on import of biomaterial. Even when it is lifted, import can be done only from countries that are declared "free of disease" by the international agency "Office Internationale Epizootie" (O.I.E.). The exporting country should be free from any incidence of Mad Cow Disease for the past 5 years. In the interest of Kerala it is important to verify how the permission from central government was obtained?

The debacle in the milk front is just an early result of misconceptions, long negligence, poor management and wrong prioritization. If all stake holder institutions of animal sector are recognized and roped in as associated institutes of the proposed veterinary university, one can work out a synergy that dovetail research with service for sustainable and holistic development in the best interest of the community.

II

SHORTAGE OF MILK IN KERALA: THE CURRENT PERSPECTIVE

Time has proved that materials or technology lifted from elsewhere can not solve Indian problems. Even within India what is relevant to one State or a

region within a State need not be relevant to another. One may consider a "ship to Mouth" policy (ie. bringing milk from out side) only as a temporary relief measure to meet crises. It would be pertinent to discuss the perspective of dairying in Kerala where the land, water and energy sources vary widely.

The work of animal husbandry and veterinary service in Kerala is shared by a number of agencies each of who operate independently without complimenting each other. Decentralization following the 73rd amendment of constitution, had given panchayats the authority of animal resource development in Kerala. But except the state department of animal husbandry all agencies handling animal husbandry are operating independent of panchayat system making a holistic action a far cry.

For example, consider the areas critical to milk production that needs support from government. One reason for the low milk procurement or low production can be the dwindling number of livestock in Kerala which can be due to poor livestock development, under the KLD Board.

Requirements of Bio-Safety for Milk Production

In developed countries where natural resources are ideal, the major thrust of live-stock production was adopted after most of the contagious and infectious disease had been eradicated by adopting mass slaughter and burial policy. But, import of animals and transport of biomaterials from across the world introduced newer diseases. When animals were imported to India where natural resources are limited and bio-safety is poor, a number of new diseases of livestock and poultry have been introduced.

Certain exotic diseases such as Rift Valley fever, avian influenza (Bird flu) or Bovine spongiform encephalitis (mad cow disease) may pose even greater threat as they affect both livestock and men in India. Since these can be studied only in highly sophisticated laboratories of P3-P5 levels, High security animal disease laboratory etc they are unlikely to be promptly identified till mass deaths precipitate.

Livestock, Environment And Development

Countries like Israel (from where KLD Board claimed to import elite animals) maintain their cattle on a "high input high output" with very high bio-safety. Israel grows animals on succulent grass of good digestibility and on high energy food grains (mainly maize). Adopting the system in India may put animals to compete with man for food. The high input systems need large amount of water, waste disposal measures, sensitive market management and risk prone cutting edge technology. As per US experience, their high input system consumes 2,500 gallons of water to produce 1lb beef and 15,000 litres of water to produce a gallon of milk. Despite possessing large grassland, the U.S.A. is finding it increasingly difficult to dispose animal waste resulting in large nitrogen rich patches in ranches where animals graze (lagoons). Animal wastes have already been identified in drinking water in some states of USA. Animal waste is ranked among the top pollutants in US. 'Spills' is implicated for causing memory loss, confusion, acute skin burning etc. Animal waste dumped to the sea in 10 states alone, have killed more than 13 million fish.

On the contrary, India became the highest milk producer in the world through the endeavor of millions of small holders who rear animals in their backyard essentially on Crop residues (CR) and common property resources (CPR). A steady market by NDDB to milk produced by the unorganized farmers could usher in White revolution in India. India perhaps produces the cheapest milk in the world.

By a modest estimate, Indian cattle and buffaloes produce more than 800 MT (million tons) of fiber rich dung every year. Of this around 300 MT's are burned as dung cakes for cooking energy and the rest is used as manure. Nearly 90% of cooking energy of India's rural areas comes from crop residues and cow dung cake (78%+11.5% respectively). Disposal of animal waste through the cow dung gas plants (human waste can be added to it) is low in "water use". But operational problem varying from region to region and season to season need be seriously addressed.

Land, Water and Energy in Kerala

It is pertinent to verify if Kerala has the land, water and energy to produce feed for the elite cows before funds (be it Central government fund or State fund) are wasted for yet another import. We know fully well that in the past import has not produced any positive impact. The land availability of Kerala is low. A book entitled the "Natural resources of Kerala" published by WWF (Kerala state office) shows that the per capita land holding of Kerala is 0.13 hectare and per capita cultivable land is 0.1 hectare. The cropping percentage of Kerala is 125 (%). Water is plenty during monsoon; but is wasted into the sea and washes off minerals, depleting the soil. Concrete drain along with sand mining and land filling has destroyed many water holes that retained soil water content and reduced the loss of precious water needed for summer days. During the dry spell between January and May even a blade of grass is hard to get in many parts of Kerala especially in Trivandrum district, where MILMA's first symptoms of milk crisis was seen.

We may discuss whether western system of grain based animal production where our animals may compete with man for food grains is adoptable? The cost of cattle feed and oil cakes in the state are much higher than the cost of rice especially the one from our ration shops (the BPL rice costs only a fraction of the cost of cattle feed). Can we overrule the low cost rice being used as animal feed by frustrated farmers (?) Civil supplies minister who happens to be the minister for Animal husbandry may not concern himself with animal feed. But can he ignore the possibility of misuse of ration where majority of cattle owners are landless or are small holders.

In normal course, it would be difficult to raise cattle with an average daily milk yield of 60 litres in Kerala. According to a known animal nutritionist in Kerala late Dr. Kuruvilla Verghese, the type of grass available in Kerala by and large is of poor quality (it is because of impoverished soil and peculiar climate). We may not be able to (economically) maintain animals yielding more than 15 Kg milk daily. Exces-

sive feeding of poor quality grass or use of large quantity of concentrates (prepared feed, oil cake etc.) to compensate for the grass of poor quality, can impair digestion in rumen (the fore-stomach of cattle where fermentation of fodder takes place) and impair the papillae formation (projections inside the wall of rumen). (Energy available from roughage is expressed as Qm ie. Metabolizable energy/ Gross Energy; normally this has to be <1 . Materials with $Qm \Rightarrow 0.9$ is good and is used as human food. Materials with $Qm = 0.2$ is poor. Grass generally available in Kerala has Qm value less than 0.2)

Papillae provide additional surface area for microflora, present naturally in the rumen, to lodge and function. Management of calves in the first 12 months is important. Calves can be allowed access to small quantities of grass right from second week of birth to enhance salivation, which in turn will help the development of papilla. It is seen that poor management in young age can reduce the production by 30% in spite of good management during later part of (productive) life. Calf starters (special calf feed) is very important for early growth and optimal expression of the genetic qualities of the calf. Growth of calf is also influenced by care of its Mother (dam) during pregnancy.

"An adult animal should ruminate at least for 8 hours a day" says Dr. Kuruvilla. Wrong feeding can exhaust the rumen, reduce pH (cause acidity) and decrease the efficacy of digestion (digestibility) by 63% to 50%. Rumen functions optimally when pH of stomach is maintained between 6.27 and 6.3. Studies reveal that 80% of the dairy cattle in Kerala have rumen pH 6.2 or less. So, individual success stories with high yielding animals in Kerala may not be generalizable.

"...getting one calf a year is essential for economic dairy farming. [infertility is frequent in Kerala]. According to Dr Kuruvilla Verghese nearly 50% of the infertility is due to energy deficiency; 25-30% is caused by mineral deficiency. (essentially manganese, cobalt and zinc) Minerals must be available in a form that is absorbable by animal." Data also indicate that nearly 28% of the infertility may be related to wrong Artificial Insemination (A.I.) by untrained persons.

III

SOME POSSIBLE REMEDIES

It would be unfair to close the note without suggesting some possible remedial measures. There is need to clarify role of MILMA an organization of public importance. Even though the Kumbashree system introduced in marketing banana & vegetable cultivation had taken the cue from milk unions and "Grameen bank" of Bangladesh, it surely has a good impact and better participation than Milk unions. However, the Kudumbashree institutions have obligation only to the farmer and not to the customer community. However, a unique role being played by MILMA in controlling the milk market need be recognised. The Kudumbashree's institutions do not handle processing; but their over head is more direct and stays around 2-5%. The entire (selling) price is given to the producer. Kudumbashree is only in its primary phase of development and they may learn from MILMA's experience (and crisis) for their future functioning. It is not impossible to work out a good combination for a sustainable mission mode (turn key) program using good management tools like PERT, CPM or Gantt chart after a proper work break down study. I am discussing some possible action plans.

The constraints before the dairy farmers are mainly five (a) lack of dependable and economic feed ie. Oil cakes, grains and compounded feed (b) lack of green and dry fodder, especially from December to June (most acute from January to May) (c) the deadly Foot and mouth disease (FMD) and mastitis, a disease that damage udder (d) infertility or delayed maturity that deny one calf per year (e) absence of transparent functioning of milk unions and assuring a fair marketing opportunity and moderate income.

1. As per a raw data Kerala has nearly 70 lakh (L) families, of this nearly 30 lakhs keep animals (16 L keep poultry; 8L keep goats; 8L keep cows; 2L keep both cattle and goats). Even if each dairy owning family produces 10-15 Litres of milk per day all families of Kerala may get 1 to 1.5 Litres milk. India's status as the highest milk producer indicates that a Low input- low output system for milk production is not impossible.

2. Individual success stories of "High input high output regimen" can not be generalized though individual (private) efforts to generate congenial situation for futuristic hi-tech dairy should not be discouraged. MILMA do not collect milk from such private dairy farmers, though NDDB is a staunch advocate of privatization.

3. So far as MILMA is concerned, the organisation must try to be self sufficient and its milk unions be made transparent in their dealing. MILMA can generate a reserve fund to tide over any crisis like the one it is facing now. One way to generate more funds is to diversify. Producing purified water, providing space for advertisement in milk pouches. Producing "MILMA rich" or new products must be encouraged. But such market strategies may have to be worked out during flush season when road blocks are minimal.

4. There has to be a review of the working of all milk unions and co-operatives. The members and the executive bodies must be actual animal/ dairy owners. Public men who deal with politics are likely to elicit criticism of political favoritism and subjective actions.

5. It is important to make the milk collection transparent and simple. Each producer who sells milk must be able to see for him or herself the evaluation and pricing. Producers should be encouraged to take turns to attend the collection, evaluation of milk and distribution of inputs. Many dairy owners hesitate to join, as milk unions lack transparency and fear that pricing may be used against them if they ask for an open dealing. Many also feel that dubious evaluation can be used by leaders to perpetuate their position in milk unions.

6. The major hindrances to economic dairy farming are feeding and health care. There has to be a provision to supply all the feed materials like oil cakes, green fodder and dry fodder (ie. paddy straw) directly to farmer as per need over and above compounded feed. Many farmers feel that they are made to wait for hours for the supply of green fodder if at all. But common dairy owner is afraid to speak out. There has to be a more efficient system evolved

after a discussion and consensus. This system must be reviewed from time to time. The department of Animal husbandry of Kerala is currently addressing the threat of Foot & Mouth Disease even though it is done at the cost of other duties and development activities bestowed on them.

7. To encourage more collection, dairy owners must be given freedom to receive total payment in cash or in kind as feed material of her/ his choice. (paddy straw, green fodder, oil cake, rice bran, mineral mixture, calf starter etc.). With use of data base, producers' requirement can be estimated and supplied in time.

8. Fungal poisoning in the prepared feed is frequent (aflatoxicosis). Though not always lethal, this toxin reduces milk yield drastically. There has to be a lab in each district where the common man can take the feed for primary testing (it is called proximate analysis). This can be on a chargeable basis, but must be quick and include analysis of any feed material, either from government or private suppliers (both branded and unbranded). Even though one may not go for litigation each time, one may be able to discontinue the use of sub-standard or toxic feed, and discuss the matter in the community to expose/boycott erring agencies.

9. Feed and fodder suitable for the soil of different regions of Kerala need be identified. Effort should be made to use government / panchayat land (surplus land?) for cultivation of suitable fodder varieties to be sold to dairy owners who supply milk to MILMA. Efforts like Ayalkootam/ kudumbashree/ Janashree etc. could identify common property, water and energy (& man power). Long ago contour bunds, and bunds around coconut plantations used to be used for Napier grass cultivation. Possibility of rejuvenation of rubber and tea estates using low yielding animals and using their dung as manure is another possible synergy.

10. If the proposed Veterinary University of Kerala can be organised by pooling the resources of all the institutions and corporations who has stake in Animal resource development, it can work for converging resources and a synergy of service.

Departments of the veterinary university can take up tasks to solve the problems of farmers in animal rearing, animal marketing, feed production, product collection, product safety and product processing. They can organize their research base in farms or institutions of each region. Divisions like Livestock Production and management, breeding, nutrition, epidemiology, extension must be directed to pursue problems of public importance in their post graduate (PG) program and training. Resources for pedagogic training and research must involve not only the large government farms and processing plants, but also the back yards of the animal rearing common man.

11. During summer, when milk is in short supply, there could be a ban on sale of milk based sweets. MILMA can save on transport if they collect milk from private dairy farms of Kerala open. If the collection is transparent it would be better than buying milk powder from other states and distributing reconstituted milk.

12. Government can provide a revolving fund to MILMA to meet any eventuality or crisis? In due course MILMA can raise its own reserves and repay this fund.

Veterinary universities must also be assigned the task to study holistically Family life style in Kerala, their food needs, special needs of dairy owning families, man power availability, any good technique they use, sustainable animal Housing and

hygienic disposal of wastes using local material. Apart from developing protocols for hygienic production of food and utilities of animal origin, they may regularly study the Milk required in each district of Kerala (normal, season-wise, during festivities or in crisis like flood, draught and landslides). Students and scholars must visit organized and unorganized milk markets, study collection, sale of animals and their bye-products. They may study the economics of the Live-stock marketing, market trends and the role of intermediaries. They may study on the current use of land, water and energy for animal husbandry, and evolve (observe, select or adopt) methods to ensure optimal use of the land, water and energy, new products for marketing, low energy implements (eg: non-electric milking machine presented in Kerala science congress).

It is high time that management skill and technical knowledge is merged at decision making forums. The role identification of each unit of animal resource development is essential to prevent duplication and overlapping and for the optimal use of resources.

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