Mitigating global warming while providing sustainable livelihoods

Narayan G Hegde

Animal husbandry is an important and integral part of agriculture, which has been under severe neglect and totally disconnected from the agricultural sector. The livestock sector is characterized by low production, poor contribution to rural economy and suppression of livelihood of small farmers. India hosts over 17% of the world's livestock but their performance is only to the extent of 25-30% of their counterparts in developed countries. With the growing livestock population, without any serious effort for genetic improvement and increasing fodder production, there has been a severe shortage of feed and fodder resources which have been affecting their productivity further.

Livestock is being considered as a threat to eco-system and environment in many developed countries. Climate change will further impose new challenges and uncertainties. India stands third among the highest releasers of carbon dioxide in the atmosphere because of large population. India has also been contributing substantial quantity of methane, another green house gas which is released from livestock and their dung. Methane poses a more serious threat compared to carbon dioxide as it can absorb 23 times more heat. Therefore, emission of methane can be a serious concern as India owns the largest livestock population in the world. However, for over 75% of the small farmers in India, livestock is an important source of income for livelihood. For these farmers, immediate food security from livestock is the primary concern, inspite of their ill-effects on the environment.

Over the years, cattle have made a significant contribution to rural economy in the form of nutritious milk, bullock power and manure. In the absence of adequate technical services for genetic improvement, timely health care and feeding of balanced ration, the productivity of cattle and buffalo has decreased significantly over the years. Thus, the small farmers have developed a tendency

Goats provide livelihoods to millions of small farmers.

Photo: S Jayaraj

to increase their herd size to generate additional income, which has been increasing the pressure on the supply of fodder and feed resources.

BAIF's experience has shown that Dairy husbandry can generate gainful self employment even for landless and women-headed families, who could purchase crop residues and fodder from other farmers. Substantial income from crossbred cows, has weaned them from working for wages. This way, genetic improvement of cattle as well as buffaloes helped small farmers to come out of poverty, keeping a small number of animals, while significantly contributing to environmental conservation and reduction of global warming. This programme today is spread over 55,000 villages in 12 states benefitting over 3 million BPL families. With an annual budget of Rs.30 crores, the BAIF Programme is able to promote production of milk worth Rs.2500 crores (USD520 million) per annum through small farmers. Upgradation of local non-descript cattle through crossbreeding has now been adopted by most of the State Governments in the country placing India on the top slot in milk production in the world. Similarly goat rearing which is considered as a threat to the ecosystem could be handled carefully to help small farmers make a living. BAIF's experience in Rajasthan, Gujarat, West Bengal and Gujarat has proved that goat rearing could be promoted among small farmers without being harmful to the environment.

Scope for Reducing Green House Gases

Further efforts can be made to reduce emission of greenhouse gases by livestock by promoting special programmes in the sector. These include reduction of livestock population, reduction in methane production by livestock and recycling of methane generated to meet the energy needs.

Reduction of unproductive livestock should be taken seriously as they are draining our precious feed resources which are in short supply, while exerting pressure on biodiversity and environment. Awareness need to be generated among farmers about the opportunity losses by keeping low yielding animals. This is a serious problem in cattle as farmers are unable to dispose off their unproductive cattle, both female and male. While cows can be used at least for producing crossbreeds, managing bullocks is becoming a major problem, as tractors and power tillers have replaced bullock in the farming sector, turning bullocks uneconomical even for small holders. Therefore, a serious review of the livestock policy should be taken to deal with conservation of a large number of native draft breeds, their economics and utility for our farmers.

It is necessary to explore economic use of bullock power as an alternate source of energy, by designing new bullock-powered machines and tools. Development of single bullock drawn implements, water pumping system and power generation device for lighting houses may turn these bullocks economical.

The other area for mitigating global warming in livestock sector is by reducing methane emission in the atmosphere. Livestock produce methane while digesting various types of feed. Studies have confirmed that some of the feeds rich in fibre content accelerate methane emission. Thus, further techniques should be developed to process fibrous feed to break down lignin before feeding to livestock for reducing methane generation. There are techniques to degenerate fibre through physical, biochemical and microbial processes which can probably be perfected and popularised among dairy farmers.

Capturing methane gas from cattle sheds before escaping into the atmosphere can also be explored! Methane released from dung can be easily prevented by generation of biogas, by every livestock owner. Presently, this aspect has been almost neglected, inspite of shortage of other sources of energy for domestic cooking and lighting. Major reasons for poor popularity of biogas plants, which have been promoted by Khadi and Village Industries and various Ministries ever since our independence are poor design of the plant needing large space, high capital cost, poor post installation services and attractive subsidy offered for other fuels such as kerosene, electricity and biomass. Further R and D efforts are needed to develop compact biogas plants which can be installed even on roof top and operated by using biodegradable domestic wastes as well with dung.

Production of fodder to meet shortage of feed should also be taken up on priority, to produce superior quality, easily digestible fodder, instead of feeding highly fibrous roughages. Development of fodder tree plantations on degraded and dry lands and reclamation of ravine and saline lands will not only meet fodder needs but also enhance green cover and recharging of ground water table. Presently, farmers are totally ignorant of the ill-effects of livestock on global warming. Hence, a serious awareness campaign should be organised to involve them to adopt eco-friendly practices to reduce the ill-effects.

Indeed, the strategy for India should be to promote such eco-friendly activities which will help in mitigating climate change while supporting sustainable livelihoods for the poor. Development programmes should motivate common people to take active role by showing immediate benefits for them. While involving the poor in development programmes, it is necessary to ensure that the participants have opportunities to earn their livelihood, while contributing to the cause of development.

Narayan G Hegde
Trustee & Principal Adviser,
BAIF Development Research Foundation,
NH No 4,
Warje, Pune – 411 058
E-mail: nghegde@baif.org.in