

Dr M Chenna Reddy Memorial Lecture

Agriculture in an Era of Climate Change

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It is a privilege to deliver a lecture in honour of the late Dr M Chenna Reddy whose contributions to the economic, social, and agricultural development of our country are truly monumental. As early as 1953, he established the Hyderabad Farmers' Forum to give farmers a voice in policy formulation. He also published "Kisan" a monthly farm journal in Telugu, English, Marathi and Kannada. He served the cause of agriculture with dedication and distinction both as Minister as well as a farm leader. His contributions to the development of the Telengana Region are particularly noteworthy.

During nearly 60 years of political life, he combined dignity and divinity in his personal life and official work. As Chief Minister of Andhra Pradesh, he paid special attention to rural development and agrarian prosperity. His concern for the socially and economically under-privileged sections of our society will be clear from schemes like "Uri Kid Bus" (bus to every village) and "infiniti Deepak" (Electric light to every house), launched by him. Also, his concern for women and children will be evident from the establishment of Andhra Pradesh Women Cooperative Financial Corporation and Jawaharlal Baal Haven.

I have had the privilege of knowing Dr Chenna Reddy for nearly 40 years. I recall his concern for disaster management following the killer cyclone of 1977. I am particularly happy that his illustrious son Shri M Shashidhar Reddy is now continuing his father's work in the field of disaster management by taking on the heavy responsibility of Vice Chairman of the National Disaster Management Authority of the Government of India. In a lecture dedicated to the memory of Dr Chenna Reddy I wish to combine his commitment to agriculture and his concern for disaster management into an integrated theme.

I would like to discuss briefly the following five issues – climate volatility, price volatility, population pressure and ecological footprint, attention to Mahila and Yuva Kisans and ensuring agrarian prosperity.

Climate Volatility:

The recent very heavy rains in several districts of Andhra have done much damage to crops and have caused much loss to farmers. Unseasonal rains and other climatic variations including drought are likely to become more serious and frequent in the future.

Farming is the riskiest profession in the world and hence we should take anticipatory action to insulate farm families from the adverse impact of unfavourable weather. At the recent UN Climate Change Conference held at Cancun in Mexico , it was agreed that the global community should try to restrict the rise in mean temperature to below 2 degrees Celsius. I pointed out nearly 25 years ago that a 1 to 2 degree centigrade rise in mean temperature will result in a loss of over 7 million tonnes of wheat in the North West part of our country, which is also the heartland of the green revolution. Climate risk management is therefore is an area of urgent priority. The Government of India has already developed a National Action Plan on Climate Change and has established an Indian Network for Comprehensive Climate Change Assessment. An expert group has also been set up on Low Carbon Strategy for inclusive growth. At the global level, \climate change will have both common but differentiated impacts. For example, a 1 to 2 degree centigrade increase in temperature will actually help to improve crop yield in the countries falling under Northern Latitudes, by extending the growing season.

In India, we should insulate our farmers and farming to the extent possible from damage to livelihoods through pro-active measures. In this connection, the following steps are urgently needed.

- We should establish in each of the 128 agro-climatic zones, an interdisciplinary **Climate Risk Management Research and Training Centre**. Such Centres

should develop computer simulation models on various weather probabilities and develop and popularize drought, flood and good weather codes in the region. The aim should be to maximize the benefits of good seasons and minimize the damage caused by unfavourable monsoons.

- We are fortunate to have democratic institutions at the grass root level. We should train one woman and one male member of every panchayat, chosen by the Gram Sabha as **Climate Risk Managers**. Such Managers should be trained in the science and art of climate risk management. When implemented with the help of the Gram Sabhas all over the country, we will have the world's largest cadre of Climate Risk Managers.

Price Volatility:

The World Bank Food Price Index rose by 17% between August and November 2010 and is now 11% below its June 2008 peak in nominal terms and 8% below the peak in real terms. Adverse weather conditions in major cereal producing countries have contributed to price rises in wheat, maize and rice. Anticipatory action is needed for meeting the challenge of price volatility. Our country is fortunate to have large grain reserves, thanks to a programme which Indira Gandhi initiated in 1970. We have also the world's largest Public Distribution System. Fortunately we are moving away from a patronage approach to a rights approach in relation to the major needs of the citizen. For example, we already have Acts for conferring the Right to Information, Employment and Education. Also we have an Act providing Lands Rights to scheduled tribes and forest dwellers. The country is now engaged in preparing an Act which will confer the Right to Food on all the citizens of our nation. This will be a path breaking Legislation and when enacted will result in the fulfillment of Mahatma Gandhi's hope that in Independent India the God of Bread will prevail in every home and hut. Gandhiji also wanted food for all without compromising on human dignity.

The National Food Entitlements (or security) Act, a draft of which is currently being developed by the National Advisory Council headed by Smt Sonia Gandhi, is likely to have the following four major components.

Legal Entitlements:

- Legal Entitlements to a specific quantity of wheat or rice or millet to all the families needing support; Millets including *bajra*, *jowar* and *ragi* are to be included in PDS for the first time.
- Legal Entitlements to nutrition support to all needing such support **on a life cycle basis**, ie, starting with pregnant women and ending with old and infirm persons. **The first 1000 days in the life of a child, including child development in the womb of the mother, is a very critical period.** Much of brain development takes place during this period. Maternal and foetal under nutrition results in the birth of babies characterized by low birth weight. Such children face many handicaps in their later life such as impaired cognitive ability.
- All orphans, destitutes and those affected by leprosy, tuberculosis and HIV/AIDS will all be entitled to essential nutrition support, so that a Food cum Drug Approach is adopted in the cure of such diseases.

Enabling Provisions:

- The important enabling provisions will include attention to agricultural renaissance leading to small farm management revolution, clean drinking water, environmental hygiene, sanitation, primary health care and nutrition literacy.

Governance

- The governance issues will relate to the reform of the PDS and the adoption of appropriate technologies which can help to eliminate corruption and pilferage.

Infrastructure

- The most urgent need is a national grid of ultra modern grain storages where we can preserve atleast 50 million tonnes of food grains all the time. This decentralized grid will help to eliminate transient hunger arising from disruption in communication during natural disasters.

The proposed Food Security Act will be a comprehensive one addressing the availability of food which is a function of production, access to food which is a function of purchasing power, and absorption of food in the body which is the function of clean drinking water, sanitation and primary health care. If implemented properly, such an Act should help to provide every child, woman, and man in our country, an opportunity for a productive and healthy life.

Population Pressure and Ecological Footprint:

The population supporting capacity of the ecosystem has already been exceeded in many parts of the country. Partly this is due to the enlargement of our ecological footprint, ie, the per capita consumption of natural resources. The Ecosystem services are being destroyed due to the loss of biodiversity and damage to the life support systems of land, water, biodiversity and climate. A Committee on National Population Policy, which I chaired, in its report submitted in 1994 had recommended the development of a **socio-demographic charter** for every village and town. Such Charters are to be prepared by the local Schools, Panchayats and Nagarpalikas. The aim of the Charter is an educational one and an aid to sensitise local communities to the different components of environment stability. In particular, attention has to be paid to the concept of **Children for Happiness** propounded by the French Mathematician, Marques De Condercet over 200 years ago. Children should be born for happiness and not just for existence and this will call for attention to the population supporting capacity of the ecosystem. Unfortunately, the recommendation for the preparation of Socio-Demographic Charters has not been implemented so far. If implemented, it will be an effective tool for every citizen to

understand the need for sustainable lifestyles and for achieving a balance between the ecological footprint and the bio-capacity of the ecosystem.

Mahila and Yuva Kisans:

President Barak Obama, President of the United States of America mentioned during his recent visit to India that one of India's great blessings is the preponderances of young women and men in the country. Over 50% of our population is below the age of 30. We should take steps to achieve benefit from this demographic dividend.

There is increasing feminization of agriculture and poverty. Women farmers whose number is growing, generally neither possess title to land nor access to water, technology, credit and markets. The poor are poor since they have neither assets like land, livestock, or fish pond, nor a marketable skill and often they are uneducated. Gandhiji wanted us to attend to the following four basic needs of the poor – education, nutrition; healthcare and sustainable livelihood. Even after sixty three years of independence we have not been able to bring together these vital ingredients for the eradication of poverty. This is why MSSRF started nearly twenty years ago the Biovillage Model of the Gandhian pathway for food with dignity. The Biovillage model of sustainable human security and wellbeing involves the following three mutually reinforcing activities :

- Conservation and enhancement of natural resources like land, water and biodiversity
- Improvement of on-farm productivity through integrated attention to technology, training, techno-infrastructure and trade
- Generation of non-farm employment opportunities which can help to convert biomass and natural resources into jobs and income

MSSRF initiated four years ago in Vidharbha a **Mahila Kisan Shasakthikaran Paroyojana** for the technological, skill and knowledge empowerment of the widows of

the farmers who had committed suicide as well as other women farmers. Fortunately, this small initiative has been converted into a national programme under the same name in the Union Budget for 2010-11. Both Mahila Kisans and Yuva Kisans need urgent attention if we are to launch an ever-green revolution leading to enhancement of productivity in perpetuity without associated ecological harm. We should also help to develop the services sector in rural India, since this is an effective way of creating remunerative non-farm employment.

Ensuring Agrarian Prosperity:

Based on a draft provided by the National Commission of Farmers (NCF), which I chaired during 2004-06, a National Policy for Farmers was placed in Parliament by the Union Minister of Agriculture and Food in November 2007. This Policy calls for a paradigm shift from an emphasis on measuring agricultural progress only by production figures to one of measuring progress in the real income of the farmers. Such an income orientation will involve steps for enhancing the productivity and profitability of small farms as well as value addition to primary products through improved post-harvest technology. We have enormous opportunities for value addition to primary produce including biomass through modern science and technology. We will soon be producing nearly 250 million tonnes of food grains and 300 million tonnes of fruits and vegetables. Post harvest spoilage is at an unacceptable level even now. Therefore, no further time should be lost in improving the post-harvest infrastructure. We have programmes for the establishment of Super Food Parks and other forms of value addition. We should help every Home Science College to establish a Training Food Park for building the capacity of self-help groups in processing and marketing. **Assured and remunerative marketing opportunities hold the key to sustaining farmers interest in farming.** Therefore the NCF recommendation that the minimum support price should be $C2 + 50\%$ should be adopted without further delay.

Conclusion:

Dr Chenna Reddy was a visionary and farsighted leader. When he was Governor of Tamil Nadu, he invited Dr Federico Mayor, the then Director General of the UNESCO, to stay with him in Raj Bhavan and help in launching an Ecotechnology Movement. Ecotechnology helps to combine the best in modern science with traditional wisdom and ecological prudence. Ecotechnology, some times referred to as green technology, is the pathway to sustainable human well being and security. I am glad that at the Cancun Conference, it was decided to establish a Green Climate Fund for providing long term finance to developing countries for initiating adaptation and mitigation measures. One area which requires attention is the marrying of intellect and labour in the Mahatma Gandhi National Rural Employment Guarantee Programme. The programme specifies that the workers will belong to the unskilled category. However areas like water harvesting, aquifer recharge and watershed management require a combination of brawn and brain. All our research and educational institutions in agriculture could help the country to derive full benefit from the enormous labour resource available through MGNREGA. In this manner we can add value to time and labour. We should recognize the contributions of the “unskilled workers” under the MGNREGA through awards like **Water Security Saviour Award**. Such steps can make all our citizens, literate or illiterate, skilled or unskilled, to contribute to building a prosperous and happy nation.

During 2011, global population will reach 7 billion. In India, we will have to ensure food availability for 1.2 billion and also fodder and feed for 1 billion farm animals. Acts like the Right to Information can be implemented with the help of files. The Food Security Act can however be implemented only with the help farmers.

In an era of climate change, the future will belong to Nations with grains and not guns. Food for All and For Ever will be the best tribute we can pay to the life and work of Dr Chenna Reddy.