

Review of
Convenient Action
Gujarat's Response to Challenges of Climate Change
By Narendra Modi
Reviewed by
Prof. D. T. Shete

During the interview on Close Up channel at 2104 on Jan 17th, 2011, Dr. David Karoly – Lead author on the International Panel for Climate Change – linked the flash and severe floods in Victorian towns in Australia, severe snow storms in the U S and Europe, unprecedented heat wave in Russia, floods in Brazil, Pakistan and Sri Lanka to that one and only one culprit – Climate Change.

Russia has sweltered under an intense heat wave since mid July, 2010, recording its highest ever temperature. The heat has caused wide spread drought, ruined crops and encouraged wild fires that have blanketed Moscow in smog and now threatens key nuclear sites. According to the Head of Moscow's Health Department, city's daily death rate has doubled upto 700 from the usual average of 370. The primary cause was “ Blocking Event “ a static atmospheric pattern that has trapped a high pressure bubble over western Russia since mid July pulling in hot air from Africa.

As the New Year 2011 rolls in, the price of wheat is setting an all time high in the U. K. Food riots are broken across Algeria. Russia is importing grains to sustain its live stocks. India is reeling under the impact of 18 % annual food inflation rate. China is looking abroad for potential massive import of wheat and corn. The Mexican Government is buying corn futures to avoid unmanageable Tortilla price hikes. And on Jan 5th 2011, the U N Food and Agricultural Organization announced that its food price index for December 2010 hit an all time high.

Climate change could cause nearly one Million deaths / year from 2030 onwards, according to a report released at that U N Climate Change Conference (COP 16) in Cancun, Mexico, “ Climate Vulnerability Monitor 2010 : The State of the Climate Crisis “ examined individual vulnerabilities of 184 countries to the short term impacts of climate change in four key areas : Economic stress, Habitat loss, Health and Weather disaster. It found that climate change impacts are on the rise worldwide affecting mostly the children and the poors.

The impacts will challenge development but they also present a major opportunity – since tackling them results in poverty eradication and improvement of living standards, says the report.

Moreover, as climate change mostly affects water and food security, the strategies to be adopted by the policy makers to face the challenges are : Rights of water, Water markets, Virtual water imports, Water metering and pricing, Reduce tariffs on efficient

technologies, Local watershed management, Providing information, Seasonal forecasts, and Education.

As a coincidence, when I was studying this report, I came across an unique compendium of action a “ Green Autobiography “ of Narendra Modi, Chief Minister of Gujarat explaining how he led Gujarat’s response to challenges of climate change.

Out of the various strategies to be adopted by the policy makers, Narendra Modi adopted and discussed majority of the strategies barring Rights of water clarifying legal entitlement to access water resources and Virtual water imports.

The policy brief published by the Overseas Development Institute (O D I) examines the relationship between climate change, water and food security states that climate change is expected to exacerbate and add to the problems of agriculture in developing countries. For example, estimates predicts that for each degree Celcius rise in average temperature, profits in dry land farming in Africa will drop nearly 10 %.

Against this backdrop, despite average increase in temperature of 0.1 to 0.9 degree Celcius across Gujarat during the last couple of years agriculture in Gujarat is growing at the rate of 9.6 % / annum. International Food Policy Research Institute has specially commended Gujarat’s recent growth in cotton, fruit, vegetables and wheat productivity. Farm income in Gujarat substantially increased from Rs 181,150 M in 1995 / 96 – 1999 / 00 to Rs 343,980 M in 2003 / 4 – 2007 / 8. Thus there is an increase of around 90 % during the last five years. How it is possible ?

It is made possible by the initiatives and innovations undertook by the Government of Gujarat under the dynamic leadership of Narendra Modi, during the last eight years. To tackle the problem of increase in rainfall variability and in the frequency & intensity of extreme events such as droughts and floods due to climate change Modi realized that to deal with water scarcity in parched lands of Saurashtra in particular ,only a mass movement supplemented by financial and technical support could create a sustainable network of micro irrigation and recharge structures. Thus needs of drinking and irrigations waters were answered by recharging depleted ground water resources and reviving surrounding ecology . In Modi’s own words “ In retrospect within a climate change paradigm , this has definitely improved water availability and quality , increased soil fertility and there by agricultural productivity (from a single rain fed crop a year to three crops per annum) and led to betterment in air quality by arresting the trend of desertification of lands. This initiative of development of community based infrastructure for water harvesting has reduced vulnerability and empowered people to cope with Climate Change impacts in my State and has come in for a special mention in UNDP Human Development Report 2007 – 8.

Construction of 353,937 check dams and village ponds across Gujarat changed the ground water scenario. Whereas average ground water depletion in May 1998 to 2002 was 2.51 m , there was 4.01 m rise in average ground water level during May 2003 to May 2007. Around 357,000 ha of land has been covered under Participatory Irrigation

Management leading to yield increase and water, fertilizer, labour and energy savings. It has been estimated that about 74.1 M kwh energy has been saved in just year due to adoption of drip irrigation by Gujarat Green Revolution Company.

When people are still discussing and studying the feasibility of interlinking of rivers in India , Modi supervised the interlinking of Heran, Orsang, Karad, Dhadhar, Mahi, Saidak, Mohar, Shedhi, Watrak, Meshwo, Khari, Sabarmati and Saraswati rivers by interbasin transfer of Narmada waters using the Sardar Sarovar Canal Project. Due to rapid implementation of Sardar Sarovar Project during the last eight years , drastic change in power consumption pattern is achieved. In 2000 – 1, power consumption was 45.12 % and 28.59 % in agricultural and industrial sectors respectively. But in 2008 – 9 , the scene changed. Whereas agricultural sector consumed 21.10 % power , industrial sector's share rose to 35.26 %. The saving in energy in agricultural sector was due to the combined effects of a) no more need to pump ground water and b) lower pumping requirements due to recharge of aquifers. Ultimately this saving in terms of equivalent saving in CO2 emissions comes to 15,459 M tones

As has been mentioned earlier that tackling the challenges posed by the climate change creates new avenues of development, a 1,500 km long High Pressure Gas Pipe line (HPGP) was laid and commissioned. This pipeline passes through 15 districts of Gujarat and caters to the requirements of power sector, fertilizers, chemicals, small and medium industries, ceramic and glass industries, etc. Additionally 800 km long HPGP is under construction and Gujarat is the only state in India to have a State wide Gas Grid. Gujarat State Petroleum Corporation embarked upon a distinctive plan of city gas distribution to households, automobile segments, commercial establishments and small scale industries in Gujarat. This ambitious step encouraged by Modi results in 23,438,110 tCO2 emission reduction.

Clean Development Mechanism (CDM) addresses Gujarat's socio – economic aspirations. The total no.s of Certified Emission Reductions (CERs) earned by Gujarat are 32.896 M . Being not comfortable with Carbon Credit system (as this reflects “ Wrong Doer's Penance ‘ in monetary terms) Modi exhorted his officials to develop the innovative scheme of Green Credits.

For any socio- economic and infrastructure development project, it is mandatory while acquiring lands declared as protected under Forest Conservation Act, 1980, to develop compensatory afforestation , which may take many years during which there are bound to be adverse impacts on environment.

Therefore under the Green Credit scheme the Forest Department of Gujarat Government would identify, in advance, possible areas that could be developed as forest and then the Department would sign a MOU with potential user agencies, which in turn would provide funds at the disposal of the Department for afforestation.

Since this afforestation will take place on private lands under controlled supervision and monitoring of the Department, the latter would then provide Green Credits which can be

used in future at the time of applying under the Forest Conservation Act, 1980, for the use of forest land for non forest purposes.

It is heartening to see Modi'S Gujarat zeroed on the children by making them Child Energy Guardians, motivating them to oversee the responsible and restrained use of energy in their homes, schools and communities.

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ABOUT THE REVIEWER

Prof D T Shete is former Director , Water Resources Engineering and Management Institute, Maharaja Sayajirao University of Baroda, Vadodara. He is former member of Working Group on “ Integrated Land and Water Resources Management “ of International Congress on Irrigation and Drainage from 1 / 6 / 2005 to 31 / 5 / 2007. He was Member of Special Committee on “ Mechanised and Micro Irrigation “ of Indian National Committee on Irrigation and drainage from 4 / 8 / 1993 to 31 / 8 / 1996, Member of Working Group on “ Drainage “ of Indian National Committee on Irrigation and Drainage from 1 / 9 / 1991 to 3 / 8 / 1993, Member of Working Group on “ Micro Irrigation “ of Indian national Committee on Irrigation and Drainage from ! / 9 / 1991 to 3 / 8 / 1993. He is consultant to Narmada, Water Resources, Water Supply and Kalpsar Department of Government of Gujarat since 1 / 4 / 2005. He is Executive Member of I W R S during 2005-7 and 2009-11. He is Executive Member of AHI from 2004 onwards. He is Fellow of Institution of Engineers (India) , Indian Water Resources Society and Indian Society for Hydraulics.