

Climate Chaos:

## Rice in less rain

Wasantha RAMANAYAKE

With the beginning of Yala season from March, many a green stretches of rice fields spreads into far away distance along the Ambepussa-Trincomalee A- road near Kurunegala, indeed a pleasing sight to passers by. But only a keen observer could see the reality in the saturated fields, where green rice plants are yearning for water, their much loved life-blood, and the April rains.



D.M.  
Thilakarathne,  
Udapola, who  
would have  
abandoned  
paddy  
cultivation if  
not for the  
fertilizer  
subsidy.



Dr. W.M.W.  
Weerakoon,  
Senior  
Agronomist,  
attached to the  
Rice Research  
and  
Development  
Institute,  
Batalagoda.



H.M.C.  
Wijewardane  
of  
Hatalispahuwa,  
says that a  
farmer should  
be ready to  
cultivate his  
fields  
whenever rain  
comes.

Just as rice plants the farmers too are worried about the non-appearance of the inter-monsoonal rain after the Sinhala Hindu New Year as expected. They complain of rain coming early, in March, and of its sudden disappearance in early April, leaving them in a quandary.

Would Sri Lanka be able to produce 4.2 million tonnes of rice which is around 35% increase of the present annual production the country would need in 2020 to feed more millions of mouths? When the whether gods are angry

leaving the paddy fields with young rice plants parched, it is seemingly beyond expectation. Are the farmers helpless in their struggle against odds of untimely rain, prolonged droughts and the rising of temperature?

According to Senior Agronomist at the Rice Research and Development Institute Bathalagoda Dr. W.M.W Weerakoon, Sri Lanka at present produces 3.1 million tonnes of rice annually to feed around 20 million people whose staple food is rice, with 1.8 million farmers are involved in the rice cultivation.

### Different in future

"We are in transition," says Dr. Weerakoon. He said that so far Sri Lanka achieved near self sufficiency in rice owing to the introduction of new cultivars or

rice varieties invented through breeding, and the development of technologies, but without any major problems of water and fertilizer.



Experiments are carried out to determine the effects of the increase in the carbon dioxide concentration on rice varieties at Rice Research and Development Institute, Batalagoda, Ibbagamuwa.

countries in particular, afford to feed the ever increasing population? He noted that it would not be always possible to import rice since the rice stocks available in the international market is quite limited and very expensive. "Sri Lanka must increase its productivity."

## Challenges

Increasing the productivity poses numerous challenges unlike in the past; inadequate water, higher day and night temperature, expensive fertilizer, increased threats of weeds, pests and diseases. Dr. Weerakoon pointed out that there is evidence to show that the temperature in Sri Lanka too is on the rise. He cited that the reduction of the number of cold nights and increase in number of warm nights, the increase in the night time minimum temperature and the slight increase in the day time maximum temperature in the country as such evidence.

He said that the maximum temperature has been increased above the threshold limit of the rice cropping. The increased temperature affects the rice plant at its most important stage of flowering thus resulting in the increase of unfilled rice grains.

He said that the high temperature and the lower moisture in the air desiccate the pollen or the male cells in the flower which result in the empty grains. He said the increase in the air temperature also increases pest attacks on rice plants.

The other aspect of the climate change is the vulnerability of the rain fall pattern especially the North-Eastern monsoonal rain. The rain would not come on time;

He added that high temperature was not a serious problem and constraints such as weeds, pests and disease were controlled effectively.

"But it would not be the same in the future," he expressed concern of the country's changing scenario of climate due to the global warming and the climate change.

How does Sri Lanka just as any other developing

there are heavy rains and increased consecutive dry days in between two rains. The farmers who cultivate rice using rain water would not fetch the expected yield because of the longer dry period, he said. Farmers would lose reliability of the rain and tend to use more irrigated water, increasing its demand. "Farmers have to compete with domestic water needs and that for the electricity production."

The Mahaweli River project, the country's largest project for agriculture and hydro power generation, diverts 50 % of the water flown in Mahaweli River at Polgolla towards Ukuwela, mainly for agriculture in the North and East and the rest is allowed to flow to Victoria and other reservoirs mainly for the power generation.

102,000 cubic meters of water is daily taken out of the river while it is predicted to be increased up to 221,000 cubic meters in the future. The domestic water usage too would be increased downstream of the Polgolla dam and highly polluted amount of water would be returned for cultivation, he said. "Climate change would definitely aggravate this situation," he reiterated. The demand for water for the hydro electricity generation would be increased significantly.

### **Options**

"The picture would be really gloomy, the future rice cultivation would face a severe water shortage if we do not conserve water," he argued. In order to lower the adverse impact, there is a need to develop high yielding, high temperature, salinity, disease and salinity tolerant rice varieties which could grow with the minimum of water usage, Dr. Weerakoon said. He noted that to overcome the problem, it was necessary to cultivate to short term to medium term varieties, and farmers should avoid the flowering during the high temperature periods.

"They can conserve water if they maintain saturated conditions in the field. The irrigation system too should be improved to reduce wastages," he pointed out.

The research institute is researching various cropping method such as dry land preparation and dry sowing, dry land preparation and wet sowing, and change from the flood irrigation to soil saturated irrigation.

### **Variability of N-E monsoon**

Head of Agro-Climatologic Division, Department of Agriculture, Peradeniya Dr. B.V.R. Punyawardane pointed out that the variability of North Eastern monsoon had been dramatically increased over the years as a result of the climate change. The variability is such that it would come in very high intensity over short period, in low intensity or would not come at all.

"This had not been so in the past. You can see that "Wellassa area" or "Hundred Thousand paddy fields" in Bibile area were cultivated using rain water from the

North-Eastern monsoon, but not using irrigated water as ancestors did in the Anuradhapura of Polonnaruwa areas where they made hundreds of tanks. So it shows that the rain had come regularly and systematically," he argued.

He also pointed out that during the past two years the paddy farmers in Anuradhapura complained of more wet conditions during the harvesting season than before. "There will be more rain when it is not needed and there would not be any when it is needed for cultivation," he stated.

He added that Ehala Pussa or the unfilled rice grains due to high temperatures during July had become a common feature in the dry Zone. "But it had been a rare phenomenon in the past," he said.

### **Woes of Farmers**

Farmers across many rice growing climatic zones also have felt the heat of the climate change just as the researches. G. Gunasena, (48), of Kiula, Hungama, in the southern dry zone in the Hambantota District cultivates two acres of paddy land with irrigated water. During the Maha paddy cultivation season from October to February, rice plants need a dry period in January, for grains to be filled but there was rain that resulted in unfilled grain, he explained as to how changed climate had affected him.

This year they have not still received rain which they used to receive when he was a small child. He noted that although the area used to receive some rain earlier, it has been reduced. "I feel there is a decrease in the Yala seasonal rain, from May to September.

Farmers again need rain by the end of June before the flowering or "bandi goyam" period. They use fertilizer during this and would need some rain, if they do not get it plants would become yellowish, and their grains would not be filled.

Gunasena recollects that earlier in 1970s and 1980s when their parents were cultivating, there was rain in May which was well spread throughout the second to third weeks, which was needed for the growth of plants.

"The environment is so changed that the rain too comes unexpectedly without giving any signs," he says. The sound of a bird called "Ati kukulla" is hardly heard before rain as it did in the past. "Nowadays it never says "Buk, buk," nor would chameleon or Katussa make noises before any rain."

"Now we get rain even in August and this is a topsy-turvy situation." The August rain also affects the chena cultivation. "We prepare our lands burning down the dried plants and clear it. How could we prepare the lands when there is rain,' he queried. He also agrees that when there is more rain than usual the attacks of fungus and pests too could be frequent.

## **Fertilizer Subsidy**

D.M. Thilakarathne (68), of Udapola in Kurunegala District, is a retired school principal who had won Presidential Awards for the Service Excellence in 1995, counted more than 40 years of experience in paddy cultivation.

He said that there has not been a time during which the climate had been so changed and chaotic. "Here the clouds comes but would not rain. But it would suddenly rain in no time, when a rain was least expected," he commented. However, in contrast earlier rain was predictable and came on time.

"There was an old man who by looking at clouds could tell whether or not it would rain today or tomorrow." He started cultivating his two acre paddy land in March because the rain had come earlier than usual, but has not received any rain since mid-April. "We just cultivate for the sake of cultivation, not for the governments fertilizer subsidy we would have totally abandoned it," he said.

## **Delayed rain**

H.M.C. Wijewardane (59) of Hathalispahuwa, Polgahawela in the Intermediate Zone counts more than 40 years of experience in the cultivation believe that now the paddy farmers should be prepared to cultivate their fields whenever the rain comes, could not do the cultivation according to any schedule. "When ever the rain comes, we should be at the field," and he says that the adaptation is the best method. He recollects that the last season had been a failure, the rain was late and rained in only in last November, had it come as expected in October they could have finished cultivation by November. They sow four month-crop, to their dismay the rain suddenly stopped in mid December, "Naththal Kunatuwa," or the Christmas Storms, as framers put it, did not turn up, the crop flowered but resulted in empty grain since the expected rain did not turned up. But the short term varieties survived, although they were vulnerable to pests.

To them the rain was crucial. The inter-monsoonal rain, after the New Year, is yet to come. Although they had started their cropping season early, they are yet to receive the mid April rain which had been sure to be there earlier. "Although mine is all right many fields are drying up because of the lack of water," he said.

## **Period of Relaxation**

Ravi Dharmasuriya (40), of Devalepole, an Air force officer, who was engaged in paddy cultivation from his childhood told that the pattern established was that they start the cultivation after the new year, towards the end of April. The Sinhala and Hindu New Year had been traditionally so fixed in mid April, in between two cropping seasons and that it was the leisure period for farmers. He said that this time there was not a period for resting as the season began in March when the rains came early.

"For our parents new year was a period of relaxation. But we could no longer celebrate the New Year in the same spirit as done by our parents and grand parents," he said. He too was worried as many others did, since the usual after New Year rain has not so far approached.

### Rice Unaffected

U.H Dayasena of Maha Arawa, Ambalantota, in the dry zone of the Deep South cultivates around 20 acres of paddy using irrigated water from the Redeegama reservoir which is fed by the waters of Walawe river diverted from the Liyangastota Anicut. Dayasena agrees that the climate had been changed.

"These days are unusually and unbearably hot, even night wind which used to be cool and comforting is no longer soothing nor wipes the sweat away from the body". These changes in the climate he attributes to the aftermath of the Tsunami in 2004.

"I believe all these changes are due to the Tsunami. After that great Tsunami we receive less rain," he expressed his belief. There used to be heavy rains in April we had only two spells of rain during this month. But his perception was that the change in the climate has not much affected paddy cultivation. He feels that there have not been many changes in the Maha cultivation season; rain comes in October as usual.

He did not agree with the views of the officials attached to the Meteorological and the Agricultural Departments that there had been a great variability in the North Eastern monsoon.

However, the majority agree that there are drastic changes taking place in established climatic pattern. The farmers alone are helpless in their struggle against the climate change. However, most of them lack better understanding; they should be educated of one of man's biggest challenges, they are yet to learn about the importance of conservation of resource including water and new technology is yet to reach them. If ever to achieve the target of 4.2 million metric tons of rice in 2020, undoubtedly, they should be better networked, so that they will not be alone in their fight against the climate change and in the rice cultivation.

*(The article was written under the aegis of the CSE Media Fellowships)*

Source: <http://www.dailynews.lk/2009/05/15/fea15.asp>