

## HAS THE NORTHEAST MISSED THE ICAR BUS?

Research beyond tokenism

By K.N.Kumar

Nov 30, 2021

'The synergy between technology and public policy made the first green revolution possible', said Dr M.S. Swaminathan, in 2015 at a function organized in Delhi to commemorate the golden jubilee of the green revolution. A year later, the Hon'ble Prime Minister made a statement at Guwahati that the North-East could trigger the next Green Revolution in the country. There is no gainsaying that the country will benefit immensely if the North-eastern region (NER) develops. It is also undeniable that the ICAR will have to play a critical role, as the principal technology provider if such a Mission were to be ever conceptualized. But is the ICAR primed enough to take the North-eastern region (NER) to the next level?

I want this article to be seen as a critique and not as criticism. Criticism is judgmental and attempts to find fault, while critique gives a balanced perspective even when the drift is negative. The overall contribution of the ICAR to the nation is undeniably positive. As citizens of the country, we will need to acknowledge and appreciate the phenomenal work done by countless scientists who made us food-secure and gave us the room to focus on other pressing issues ahead of us. That said, it would also be necessary to scrutinize the ICAR's functioning and its impact on the NER if for nothing else, to impel mid-course corrections and trigger structural reforms.

Many enlightened citizens of the region are concerned about the ICAR's impact, or the lack of it on the NER, and some even say that its footprint is minimal, if not negligible. Is that so? Has the North-east missed the ICAR bus? This somewhat subtle implication that the NER has not received the benefits of the ICAR is based on a two-fold argument: (1) that the institutional presence of the ICAR in the region is not adequate to make any transformational impact on the region and (2) that the research prioritization of the ICAR is not in conformity to the region's geography, topography, and socio-economic requirements. I want to analyze these two premises with facts in two articles. The ICAR's organizational structure and how it has ramified institutionally into the NER will broadly point us toward how effective it can ever be. The ICAR has 113 administrative units in the country. They come in various names and forms – 65 are defined as institutions – only one of which is in the NER (the North-eastern Regional Research Complex, Barapani). None of the 4 Deemed universities of the ICAR is in the NER. ICAR has 13 Directorates/Project Directorates – again, none in the NER. Of the 15 National Research Centres (NRC), four are in the NER. There is only one Central Agricultural University (CAU) at Imphal. The other one promised at Kyrdemkulai has been reneged.

How can the ICAR ever significantly impact the NER's agriculture and allied sectors with such limited and near non-existent institutional presence? That would be one fundamental and central question.

And, why do we require deeper presence of the ICAR in the NER? Because, mountain agriculture is qualitatively different from plains-centric agriculture. So, the research has to be specific to the needs of the hills. Of the nearly 40 lakh hectares under cultivation in the NER, 39 lakh hectares— (over 97%) are set aside for food-grain production. 85% of the cropped area is under Rice (that is, in the valleys). So if we seek to trigger any crops-based revolution, where will the additional land come from? Hills, obviously. But NER is one of the 36 biodiversity hotspots of the world.

Preserving biodiversity will, therefore, be non-negotiable. So, it is a delicate and sensitive job to promote cultivation without destroying the diversity of flora and fauna. Unquestionably, mountain agriculture needs different technologies, crops, diverse approaches, and far more research sensitivity than currently rendered, even at a pan Indian level. The sub-Himalayan foothills from Arunachal to the Aravallis, Western Ghats, and the Eastern Ghats present different research challenges, and I don't believe the ICAR has enough institutional presence to undertake such hills-specific research. How many institutions have been set up by the ICAR to research mountain agriculture? I could count six (out of the 113) – (1) Central Potato Research Institute (CPRI), Shimla, (2) Central Institute of Temperate Horticulture (CITH), Srinagar, (3) Indian Institute of Soil & Water Conservation (IISW), Dehradun (4) Central Plantation Crops Research Institute, (CPCRI), Kasargod, and (5) Vivekananda Parvatiya Krishi Anusandhan Samstha (VPKAS), Almora and of course, (6) the NE Regional research complex, Barapani.

North-east India is predominantly small farm agriculture. Small landholders (<2ha) constitute 76 per cent of the rural households and 82% of these small-holders rear livestock to supplement their livelihoods. 19% of the rural households in NER are landless and being the most disadvantaged of the population, rely heavily on livestock. Smallholders have more income and employment opportunities in livestock and fisheries production than in land-intensive crop production. Lesser the landholding more is the inclination of the people to move into the livestock and fisheries sectors. And the Livestock sector is growing at a much faster clip than the crops sector. The crops sector grows at about 3.4%, while the livestock sector grows at 8.24%, and the contribution of livestock in the GVA (Gross Value Added) of the agriculture and allied sectors has now touched 28.63%. Yet, the livestock sector does not have either the policy or the financial or research support it deserves. The sector receives only about 12 per cent of the total public expenditure on agriculture and allied sectors, which is disproportionately small considering its contribution to agricultural GDP. Likewise, fish production in India has reached an all-time high of 14.16 million metric tonnes during 2019-20,

contributing to 1.24 % of the total GDP and 7.28 per cent of the agricultural GDP. The fisheries sector is growing at an annual growth rate of 11%. NER is a water-rich region and accounts for 236 edible freshwater fish species.

Yet, despite the paramount importance of Livestock and Fisheries to the NER, hardly any impactful research is going on in the NER in either of these sectors. The DDG (Animal Sciences) and the DDG (Fisheries) of the ICAR report to the D.G. from the crop sciences division. How can a D.G. with a background in crop sciences be aware of the research priorities of the Animal Sciences and Fisheries? It is not about individual competence; it is about the structural flaw in the organization about which I am writing. If the carving out of a separate Department for Fisheries at the national level acknowledges the need to give exclusive attention to the Fisheries sector, why isn't the same principle applied to fisheries research? Or, for that matter, to Animal sciences research? Most original work of the ICAR generally focusses on crops and issues applicable to the national context and not specific to the NER. That is not to say that the ICAR in the region has done no work, but nothing so substantial happened as to believe that ICAR is now ready for take-off or trigger the next revolution. I am willing to stretch the argument deeper and provide a ground for unbundling the ICAR itself to let certain divisions like the Animal Sciences and Fisheries to unshackle themselves from the clutches of the crop sciences. Why aren't there Indian Councils for Livestock Research and Fisheries Research in our country? Why are there turf wars between the ICAR and the Veterinary Council of India? Why should these two Government of India organizations go to courts to resolve even relatively minor issues? There are not many satisfactory answers to such questions.

Given the importance of the livestock, including Fisheries, to the NER, was it rocket science that the ICAR in the last 75 years did not realize the need to develop human resources in the region by establishing a central Livestock University to cater to the NER? The Government of Meghalaya recently decided to establish a Meghalaya State Veterinary, Dairy and Fishery Sciences University at Kyrdemkulai. It will become operational in two years. Because the ICAR/DARE never rose to the occasion, the state government now must stretch its limited resources to establish one such university that the NER could have immensely benefited had the ICAR decided to do it by itself. The limited point is that the overall impact of the ICAR institutions in the region is perceivably minimal, and its research prioritization at the best of times, is indifferent. The notional physical presence and the unimpactful research outcomes point us toward some perfunctoriness in the NER. The inclination to expand the footprint too appears to be nominal. Tokenism won't make any difference either to the emotions or to the livelihoods of the people. In my next article, I will place a few thoughts about the research prioritization of the ICAR. Or, the skew of it, or worse, the lack of it!

## ICAR NEEDS AN INTELLECTUAL AND PRAGMATIC MAKEOVER

A behemoth to a dinosaur

By K.N. Kumar

I went through the vision 2050 of the ICAR, a well-written 46-page document, to find if any emphasis had been laid on regionally focussed research, but I couldn't find any. Not a single sentence about the NER in that document, but since it is a general vision document, one does not need to read much into it. But its overall emphasis on food grain production heavily favouring two crops – Rice & Wheat surprised me. The collective memory of the country of the days of the ship to mouth (PL-480 funds of USA) when the country waited for the next ship for its food grains has long faded. Things have changed since. We are a different and more confident country now, but it appears the ICAR cannot shake off the memory of the past. As someone said, 'cages are made of thoughts, not steel'.

ICAR may have indoctrinated itself into believing that Rice and Wheat are the only crops India needed and became a predominantly Rice and Wheat-centric research body sometime during the sixties and continues to be so, decades later. This obsession with the Rice & Wheat system can be gauged by the fact that nearly 25% of the scientists within the National Agricultural Research System (NARS) work in Rice or Wheat. Contrast this with only 40 scientists working for the Indian Institute of Millets Research, Hyderabad – the organization of the ICAR that exclusively works on the Millets. A quick retort from the ICAR would be that these two are our main food crops, so if you want food security, we have no option but to continue to work on Rice and Wheat. Right? Wrong, in the present context.

Only four crops contribute to 60% of the world's food– Rice, Wheat, Maize and Soybean. Since the 1900s, about 75% of crop diversity has been lost forever from the farmers' fields. Whatever has happened to the nutritionally dense Millets, our pre-eminent food before the green revolution? It is not always about production or productivity; it is also about nutritional security. Ignoring other food crops, especially Millets, that were our staple and nutritious diet across the country, including the NER, was a mistake. The scientists very well knew that millets were C4, and therefore, climate-friendly, water-efficient, and suitable for semi-arid and rain-fed tracts of the country. The decline of Millets corresponds with the Green revolution – between 1966-2006, the millet area in the country came down by 44%. The area under Millets was 53.35 lakh hectares in 1955, which came down to 6.82 lakh hectares by 2013-14. Likewise, the millet production came down from 20.7 lakh tonnes to 4.29 lakh tonnes, and in the process, the food habits of the people of the country have changed drastically toward the gluten-rich C3 plants like Rice & Wheat. The rats that chase only cheese die of obesity!

Be that as it may, I am convinced that Food security is not the same as Farmer security, evidenced by the fact that about 3 lakh farmers committed suicides in one decade even as the food grain stocks at the Food Corporation of India's (FCI) are bursting at the seams. The FCI has a stock of more than 77 million tonnes of food grains, 3.6 times the mandatory stock requirement. We have become a food secure but farmer-insecure nation. There appears to be an inverse correlation between Food Security and Farmer security. The Ministry of Consumer Affairs, Food and Public Distribution meanwhile has revealed that more than 38,000 M.T.s of food grains have rotted over the last five years.

I keep thinking that the temptation to promote Rice in the NEER will be far more than any other because it is a water-rich region. In a situation of such surpluses, would it not be correct for the ICAR to make some firm decision to cut down its work on Rice & Wheat and instead move toward crops with potential for value addition and exports for the NEER? Of course, it will seem like a horrible thought for many and may even be opposed vehemently. But the ICAR should not be enslaved by false narratives that may be slaying us as a country and instead re-prioritize its research, localize it, do market-centred research, and make it all farmer-centric.

So here is my sense of what should be the way forward to the ICAR over the next three decades. Call it ICAR's vision for the NEER, if you will. I will list five crops/trees that can change the game for the NEER – (1) Chilli (2) Jackfruit (3) Turmeric (4) Ginger and (5) Buckwheat. Each of these crops deserves a National Research Centre located within the NEER. A land with so much biodiversity and traditionally organic for the most part deserves far more NRCs than what it currently has. It is, in fact, strange that not a single commodity centric research centre in crop sciences has not been established in the region despite the impression that they have given the country better results. An NRC for Chillis: Although North-eastern India is rich in the genetic diversity of Capsicum species, there is hardly any worthwhile research to improve the chilli landraces of NE India. The scope for discovering more pharmacological applications and improving the capsaicin content is high. The demand for value-added chilli products like powder, colour oleoresins and pungent oleoresins is very high. So, an exclusive NRC on Chillies will help, and I think Manipur or Nagaland would be highly appropriate states for such an NRC.

An NRC for the Jackfruit: Jackfruit is the least demanding and the most neglected fruit of the region. 75% of our Jackfruit is wasted, meaning a vast economic opportunity waiting to be explored and exploited. We have a million trees in our state, that is Rs.500 crore economy. It is drought-resistant and is naturally organic because no fertilizers and pesticides are ever used. Therefore, it has the texture of meat and is increasingly being added to the vegan diet as a meat substitute, an emerging

economic opportunity. Globally, a vegan revolution is sweeping; the USA has seen a 600% increase in the Vegan population in the last three years. An NRC for Turmeric: Post the launching of the Lakadong Mission in 2018 in Meghalaya, the number of new farmers has gone up by 7000, the number of SHGs exclusively cultivating the Lakadong variety is now 129, the additional area brought under Lakadong is now 1075 hectares, and the total production has now crossed 14,000 M.T.s. We did the profiling of Lakadong Turmeric for curcumin in 38 villages and discovered a considerable variation in the curcumin content – from a low of 2.5% to a high of 12%. If the ICAR had researched to identify the factors that contributed to enhancing the curcumin content, it would have given our farmers an extra edge. If an NRC is established exclusively for Turmeric in the West Jaintia Hills, the heart of the turmeric land, it will take us to the next level.

An NRC for Ginger: About 36% of the total Ginger of the country is produced in the Northeast. Assam is at the top, and Meghalaya is the sixth-largest producer. Since Ginger is a shade-loving plant, the possibility of expanding the area is high in the region as an inter-crop or as a pure crop in the hills. In addition, Ginger is highly amenable for value addition. However, the local market is not large enough to absorb the green Ginger so converting a part of produce into low volume, high-value products is essential to remunerate the farmers. Therefore, an NRC for Ginger in Assam, the largest producer of Ginger in the country with close to 1.5 lakh tonnes every year, will be a significant move forward.

An NRC for Buckwheat: One of the exciting things that happened to us over the last two years is our successful experimentation with Buckwheat in Meghalaya. There are two problems concerning Buckwheat (1) the absence of frost-tolerant varieties and (2) the absence of appropriate technology for milling/dehulling. I wrote a letter to the D.G. ICAR two years ago to help us by developing a small-scale buckwheat dehulling machine. I am yet to receive an acknowledgement, what to speak of the machine. I think Meghalaya will be an excellent location for establishing an NRC for Buckwheat. The Japanese have an insatiable demand for Buckwheat and our farmers will benefit immensely through exports.

In its vision 2050, the ICAR commits “to transform itself into an organization engaged fully with the farmers, industry, entrepreneurs, and consumers at large”. If the ICAR does not match its words with deeds by making a specific and actionable blueprint for the NER, it will become irrelevant for the region and the cost to the nation will be irredeemable. A behemoth must guard itself against becoming a Dinosaur. Otherwise, questions about its relevance will continue getting asked.

*(The writer is Chairman, Meghalaya Farmers' (Empowerment) Commission)*