

## MODERN TECHNOLOGY

The progress of research has established the history of science, technology and ecology as viable branches of the discipline of history. This has added new and important dimensions to general history. At the same time, detailed research has demonstrated the close inter-relationship between the histories of science, technology and environment. All this has altered the shape of history.

After Independence studies of technology acquire an analytical historical perspective. A preliminary venture in this direction was a series of lectures by leading scientists and technical educators. Technology was treated in such preliminary works as part of the history of science. It took some time to give more complex and critical attention to technological history on its own.

Many historians in the West continued to emphasize the progress brought about by technology transfer from the West to non-Western societies.

An important article in this collection, 'The Building of India's Railways: the- Application of Western Technology in the Colonial Periphery', by Ian Derbyshire, pointed out that railway development in India, unlike UK, secured few direct, 'backward linkage' benefits. Labour market conditions discouraged greater mechanization.

Forward linkage effects, on the other hand, mean the stimulation of demand for other products resulting from the new product. In and the ease of railway construction in India, a forward linkage benefit might have come about with the construction of locomotives.

The emergence of environmental history added a new dimension to the existing criticism of the role of technology and science.

At the same time, he has not forgotten to emphasize the positive benefits of railways in particular and technology in general. One aspect of science and technology is the import of Western medicine in India. Here, too, recent research has highlighted not merely the positive effects, but also some of the negative developments.

Over all, the new research, even when at its most critical has still not dislodged the impression that technology brought important benefits. Without science, technology and modern medicine, India's vast and growing population would have been more (and not less) vulnerable to famines and epidemics.

Pathways by which science ministries can address issues and specific technology needs of the states and ways to strengthen the centre-state co-ordination for the socio-economic development of the nation.

Top scientific administrators across Ministries and departments discussed pathways. They highlighted the need for adequate investment in research and development from the private sector.

Some states have received substantial foreign direct investment, and some like Karnataka and Uttarakhand have made exemplary efforts in some areas like One Health Mission.

DST has supported startup incubation centres in places like Hyderabad and Vadodara.

We are working for catalysing Science Technology Innovation (STI) ecosystem in the States by facilitating human resources, S&T infrastructure & socio-economic development through appropriate partnerships and strengthening of the S&T-based delivery system.

Indian researchers at all corners of India should pursue scientific research for the benefit of society with practical application-driven innovations.



### Walking on the path of Devotion

If you want to walk on the path of Bhakti [ devotion ], then learn to keep your temperament cool. Learn and try to be simple, prevent yourself from doing cunning activities. Nowadays, people pretend to be more knowledgeable and learned than they actually are.

According to Manu, the greater a person is in his artificial behavior and attitude, the more restless he will be. Wealth brings such an addiction to it that the more you have the more is the craving to add to it. A person who does not have hunger or lust for anything is the richest of all. A simple and modest person with peace of mind is referred to as 'Saumya Saumya'. According to Maharishi Ved Vyas, Lord Krishna had three major attributes, which we all should try to adopt.

The first attribute is Happiness for Loyalty

If you want to walk on the path of Bhakti, don't let smile disappear from your face. If you encounter any problem, do not worry it. Smile and you will gather strength to face the problem. If you smile, your problem will not be a problem anymore, you will solve on its own. When clouds of sorrow envelope you and you find someone very dear approaching you, tears roll down your eyes.

So was the case when Draupadi saw Lord Krishna towards the end of the period when Pandavas were in exile. Krishna comforted Draupadi and advised her neither to think about the past nor to worry about the future. The best is to think about the present and gather your strength.

To this Draupadi remarked that it was easy for him to say all this because he himself had not seen sorrow. How could he understand her state of mind? Lord Krishna smiled and asked Draupadi how she could

think that the person who had taken birth behind the four walls of a prison had seen less sorrow. The only difference was that he never treated sorrow as sorrow.

The second attribute for devotion.

The second attribute is that one should not lose one's balance of mind when one encounters a problem. When problem comes on our head one after the other, we human beings have a tendency to say: "O Lord, why only me? What have I done?" Or, we start having depression out of fear and frustration and several unhealthy thoughts like revenge, suicide, etc. crowd our minds. We have to face problems firmly and boldly rather than sit and crib about them.

If you harm somebody, you cannot escape the harmful consequences of your deed for steadfastness.

The third attribute is that one should maintain one's poise and calm. One must not lose sweetness of voice. Do not sound bitter and rude to people nor should you be harsh in your words. Be polite.

Whatever you achieve, learn to share it with others. If you have been doing misdeeds in your life and have simultaneously been generous enough, you shall bear Devotion the fruits of both. Also, treat others as you would like to be treated yourself. But always remember one thing: your actions are constantly being viewed and monitored by God.

Every person has to bear his share of sorrow. To save himself from the consequences of his misdeeds, he uses various products – stones, threads, metal pieces etc. But why? Do you think by doing all these, your share of sorrow will get reduced? Rather, if you have done something wrong, you should pray to God and ask for forgiveness and Devotion.

-Dr Archika Didi

## SUBSISTENCE TO SUSTAINABLE Towards Holistic Development of Agriculture in J&K

■ DR. PARVEEN KUMAR

The Union Territory of Jammu and Kashmir falling in the great north-western complex of the Himalayan ranges having a geographical area of 42,241 Km<sup>2</sup> is predominately agriculture based economy. About 70% of population is directly or indirectly engaged in agricultural and allied occupations. About 60% of area under agriculture in the UT is rainfed with frequent moisture stress. The size of holdings in this region is largely marginal and small (less than two ha). The two regions of the UT have a distinct climate and cropping pattern. The average land holding in the erstwhile state of J&K a few years back was 0.67 ha. While the major cropping systems in the valley are rice-mustard and rice-oat (fodder); in Jammu region, the predominant cropping systems are rice-wheat and maize-wheat in irrigated and rainfed areas respectively. The farming systems in Kashmir are mostly horticulture based and the important fruits grown here are apple, walnut, apricot, etc. With a vast natural resource base, varied agro-climatic conditions and an ideal climate for different crops, agriculture and allied sectors have played and a lot to play in its economy, employment and livelihood security of its populace.

The consumption requirements of food grains exceed the total production of food grains in the UT as a result of which it has to depend on food grains from other states. The productivity of crops here is low as compared to national average. A host of factors can be attributed to this low productivity. The agriculture sector here is constrained by its rainfed regions, its hilly terrain, predominance of small and marginal holdings, fragile soils, low level of farm mechanization, mono cropping pattern more so in temperate and high altitude areas, low level of food processing and value addition, a chemical intensive agriculture, farmers' exclusiveness and many others.

To overcome these constraints and to devise a roadmap for holistic development of Agriculture and allied sectors in Jammu Kashmir, Administration of Union Territory has come up with an Apex Level Committee (UTALC) for holistic development of agriculture and allied sectors. The eight member committee assisted by different Technical Working Groups (TWG) is being headed by Dr. Mangla Rai, Former DG, ICAR and comprises of Dr. Ashok Dalwai, CEO, National Rainfed Area Authority (NRAA); Atul Duloo (IAS) FC/ACS, APD UT of JK, Dr. P. K. Joshi, Secretary, NAAS, Pusa, New Delhi, Dr. Prabhat Kumar, Horticulture Commissioner, Agriculture and Farmer Welfare Department, MoA & FW GoI, Dr. H. S. Gupta, Former Director, IARI. The high level committee also includes the Vice chancellors of two farm varieties of UT of Jammu and Kashmir Prof. (Dr.) J. P. Sharma, HVC, SKUAST-Jammu and Prof. (Dr.) Nazir Ahmed Ganai, HVC, SKUAST-Kashmir. Prof. (Dr.) N. A. Ganai is the member secretary of the high level apex committee.

The goals and targets for next five years set up by UTALC include doubling contribution of Agri-GDP in next five years from \$4 billion to \$8 billion, meeting 100% SRR with quality seeds, doubling resource use efficiency from 30% to 60% in respect of nutrients and moisture by bringing in advance technologies; reducing food wastage to 1/3 (10%) through

proper post harvest management by building suitable infrastructure (CA stores, pack houses, refrigerated transport) and food processing; tripling of food processing from 5% to 15% by focusing on secondary agriculture; building capacity to meet the requirements of the quality planting material; establishment of 300 functional and profitable FPOs in 20 districts of J&K; avail Agriculture Infrastructure Fund of rupees 900 crore reserved by GoI for JK UT; vocational skill trainings to 2000 youth annually for next five years; build state data banks using artificial intelligence and ICT tools for Apple, Dairy and small ruminants in next five years; reduce the use of agrochemicals by 25% in next five years. The deadline for this is five years.

Doubling Resource Use Efficiency: Resource use efficiency means using the limited resources in a sustainable manner and at the same time minimising impacts on the environment. It creates more with less and delivers greater value with less input. Doubling resource use efficiency from 30% to 60% will need modification of agronomic practices along with adoption of conservation agriculture practices like system of rice and wheat intensification and organic/natural organic farming, crop residue management, water conservation, development of climate tolerant crop varieties etc. Use of ICT and Precision Farming technologies also aid in doubling resource use efficiency in agriculture and allied sectors.

Quality Planting Material: Planting material is a basic and critical input for agricultural production. Inadequate availability of quality seeds, planting materials and germplasm are major constraints limiting productivity. Quality Planting Material is 'the production of uniform, healthy, disease-free planting material raised through seed or vegetative methods with an overall goal to raise the physiological and Phyto-sanitary quality of the plant available to stakeholders to increase productivity'. In order to meet the demand of quality planting materials it is necessary to upscale the production of planting materials from the departmental farms or by involving private stakeholders.

Reducing Food Wastage: About one third of food produced is spoiled or squandered before it gets consumed. This also represents a waste of the human labour, water, energy, land and other inputs that went into producing that food. In the next five years the food wastage has to be brought down to one third of the present through proper post harvest management by building adequate infrastructure and food processing. This will require creation of adequate infrastructure related to storages, pack houses, refrigerated vans and conveyance. The GoI has also recognized the need for this and is providing various type of support for infrastructure development. Operation Green launched by GoI also provides subsidy to the producers in transport charges for perishable items. Funds under Agri-infrastructure Fund can be utilized for this purpose also.

Doubling Contribution of Agriculture in GDP: The Agri-GDP in the UT has to be increased from \$ 4 billion to \$8 billion in the next five years. In Jammu Kashmir over the last five decades, the share of primary and secondary sectors in the GDP has declined while as the share of service sector has increased. This may be due to the agriculture sector not receiving the impetus or scale of finance as

required for its growth. Now with liberal funding from the centre and roll out of various farmers and pro-farming policies and programmes like PMKISAN, PMKBY, PMKSY; things are definitely going to change. The only thing is to ensure inclusiveness.

Availing Agri Infrastructure Fund (AIF): AIF is a medium long term debt financing facility by Government of India for investment in viable projects relating to post-harvest management infrastructure and community farming assets through incentives and financial support in order to improve agriculture infrastructure in the country. The government of India has reserved an amount of rupees 900 crore under AIF for UT of Jammu and Kashmir. Post harvest processing is very low in the country. Fund under the AIF can be used to augment the food processing infrastructure to increase the level of Food Processing in the UT from 5% to 15% as envisaged by the apex level committee.

Data Banks: The data forms the basis for effective planning and prioritising. We have abundance of data regarding agriculture sector collected from an array of diverse sources, but unfortunately we have not been able to generate reliable knowledge effectively out of this data to use it for furthering the development of communities engaged in this profession. We need to organize, synthesize, categorize and systematize the data pertaining to the farming community in an order where it would have been easier to identify them, to ensure that they are well informed and are benefitted. All this also need to be done with the aim to increase farmers' income by leveraging the available data and developing solutions based on the data so that the input costs are reduced, ease of farming is ensured, quality is improved and farmers get better price for their farm produce. The Ministry of Agriculture and Farmers' Welfare, Government of India is already working on an innovative solution to the problems of the farming community based on the data of the farming community through 'Agri-stacking'. Similar sort of approach can be taken for agriculture and allied sectors in this UT.

Seed Replacement Rate (SRR): Seed constitute a very critical input for improving the production and productivity on a sustainable basis, improving SRR is must. Desirable SRR of 25% for self pollinated crops, 35% for cross pollinated crops and 100% for high yielding varieties at the national level has now been revised to 33% for self pollinated crops and 50% for cross pollinated crops. In case of Jammu and Kashmir the data available reveals a SRR of 33% in Kashmir and 26.2% in Jammu for rice, 24% in Kashmir and 32.1% in Jammu for Maize, 32% in Kashmir and 35% in Jammu for fodder grown in 'rabi' season. More can be done by creating 'seed villages' building seed multiplication chains in Public Private Partnership mode or through creating a pool of private entrepreneurs.

Farmer Producer Organizations (FPOs): Giving equal representation to each district in the formation of FPOs means formation and promotion of 15 FPOs in each district of the 300 FPOs to be formed in next five years. It is definitely a good move to mobilize the farming community and connect them to the markets. As the FPOs will also be formed on 'One District, One Product' approach, there is a lot of scope for branding, certification and promo-

tion of many niche, traditional and forgotten crops. This in turn will definitely prove to be a milestone in augmenting farmers' income ultimately leading to their empowerment.

Skill Development: According to the Centre for Monitoring Indian Economy (CMIE), the UT of Jammu and Kashmir has the greatest unemployment rate in the country. It was 25 percent for the month of March, 2022. This was despite the national unemployment rate witnessing a decline. The rising unemployment rate in the UT continues to be a lingering problem for the youth. Government jobs cannot be given to all and as such skilling the youths followed by their handholding to enable them to set up their own ventures seems to be the most promising option. The two farm varieties of the UT are already on the job providing skill related training in agriculture and allied sectors through various programmes like Skill Training of Rural Youths, Agri clinics and Agri business centers, Attracting and Retaining Youths in Agriculture, Agri business incubators and others.

Reducing the Use of Agro-Chemicals: The use of agro-chemicals has posed severe threat to agriculture and allied sectors; environment and its resources and to the human health. Their abundant use has also deteriorated soil health and its texture. Himalayas in India are mostly rich in horticultural products and during 2015-16, it was recorded that over 20,000 people died due to pesticide self-poisoning by committing suicide. The use of agriculture in the UT has to be reduced by 25% in the next five years. The UT is already on the move towards making it organic. At once it cannot be done as it runs the risk of getting food scarce. Of course it can be done in stages. In the first stage a certain percentage of area where agro-chemicals can be substituted by various organic control treatments can be taken up.

Food Processing: The poor infrastructure and investment in agro-processing sector hinders the overall output of various high value crops in this UT. In the new paradigm, the level of food processing has to be tripled to 15% from present 5%. It has to be done by focusing on secondary agriculture. Agriculture generates raw materials that meet basic human requirements and is considered as a primary economic activity. When the raw produce is processed, it gains additional value and is referred to as secondary agriculture. The largely small and marginal farmers dominated agro-processing sector in this UT is characterized by labour intensiveness and small unorganized industries that lack capital investment and are devoid of any market linkages. Food processing, fruit and dry fruit processing, cereal processing provide enormous scope for income augmentation, employment generation and creation of community assets. There is a good scope for setting up of food processing units for saffron, basmati rice, honey, sericulture, red chillies, Cumin, Walnut, Almonds, Apricot and many other crops.

The transformation from subsistence to sustainable agriculture in the Union Territory of Jammu Kashmir has to come up through investment of knowledge, technology and capital. Hopefully the committee with members having vast field experiences and intellect will steer the agriculture sector in the UT to a new path of sustainability, remunerativeness and empowerment.

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## Visiting India and belying anti India propaganda

■ SHIV KUMAR PADHA

Indian Prime Minister Narendra Modi, during his address in one of the auditoriums of Copen Haigon, the capital of Denmark on 3rd May 2022, called upon the citizens of Indian origin to inspire and motivate at least their five non Indian friends to visit India every year under the slogan Chalo India.

Emphasizing upon the slogan, he called the Indian citizens as, the real national Ambassadors who can translate his suggestion in reality better than the official diplomats of India in the world.

Though the slogan Chalo India appears like a simple sentence but it conveys the depth of thought and far sightedness of our visionary Prime Minister on the soil of Denmark. The rationale behind his slogan was to negate and counter the anti India narrative being propagated by the hostile countries, self proclaimed Nuclear powers expansionists and the countries globally divided into different blocks on the basis of political ideology and ethnicity.

The main objective of these countries is to tarnish the image of India at global level. Different surveys of the self styled advanced countries defame India as a most communal, intolerant and perpetrator of human atrocities in the world. Prime Minister Modi, in order to apprise the world community about India, called upon the non Indian citizens to visit the country and get first hand information about the culture civilization, traditions and actual unity in diversity, so that they are not swayed away by the false and vicious propaganda and narrative by some hostile and jealous countries of the world. These countries cannot digest easily the progress and development of India in the field of defense, diplomacy and economic reforms.

There are many developed countries like America France, UK and China which do not have peace of mind, true happiness in spite of huge wealth and natural resources. The youth of these countries is frustrated and have nothing to achieve in

their lives. They are fed up of their purposeless lives. India needs military strength to protect her freedom and not to rob her neighbours. India wants wealth to feed her masses who are poor but this cannot be the ideal of the nation. India needs something more which will bring peace along with wealth and power. If we go through our ancient history we find how India was great in power; wealth and happiness during the times of Ashoka, Chander Gupt Mauriya, Kanishak and others.

During the Vedic and the Budhistic period we had great ideals which made India so great in the past. This truth has been endorsed by the travelogues of many travelers from other lands who visited India from time to times. Their travelogues talk in detail about the rich culture, traditions, educational and administrative set up pervading thousands of years back. According to the travelogues India had been the pivot of knowledge, spiritualism, non violence, free from atrocities on human beings and animals. All these virtues made India Jagat Guru which was acknowledged and endorsed at global level.

India has been always a source of fascination for rulers and tourists from throughout the world. The majority of these visitors to India penned down their own description of distinct focal areas. Some wrote about courts activities, others concentrated on modern architect and monuments or described social and economic aspects. Accounts of foreign travelers played an important role in determining India's destiny during mediaeval and ancient periods. Their accounts have been able to throw light on various aspects such as administration and common practices during their travels.

Megasthenes the Greek ambassador had travelled to Kerala in BC 302 during the times of Chandragupta Mourya and was first to tell the world about such a place in his reputed work 'Indica'.

Fa-Hein visited India during Chandergupt-2 which was the Zenith

Gupta empire in India. He wrote about economical prosperity where he says people were paying less taxes, he never faced any law and order problem which was the result of administration during Gupta age.

Heun Tsang visited India during Harsh vardhan time. He wrote his experiences in Si-K-Kyi where he writes about his visit to Buddhist pilgrim sites. He also wrote about the university of ancient India especially Nalanda international university and explained about educational system prevalent in India. According to his accounts the Nalanda university was internationally acknowledged. Where 2000 teachers taught 10000 students. The university was attacked three times by Gaudas, Bhaktiyas and Kulji. According to him the Library of the university was matchless in the world.

Al Bruni, first Islamic chronicler, visited India with Mohd. Gazni. He learned Indian way of life by learning Sanskrit language. He learned Vedas and sacred texts. He explained the religious conditions of Varanasi prevalent during his visit. The account is given in Kitab al Hind.

Im-b-Battuta visited India during Tuglaq rule. He mentioned the life in the deep south Pallavas.

Abdur Razaq visited Vijay Nagar during DevaRaja 2 of Sangama dynasty. He describes the richness of the Kingdom and also the relevance system of the Kingdom. According to him the Vijay Nagar was the center of appreciation for architecture and the glory of the city Hampi.

Prime Ministers Modi reposed his full confidence upon the Indian citizens by calling them the national ambassadors spread over the world by assigning them the duty of sending at least five non Indians to visit India every year so that they can travel in India from east to west and from north to south and see India by their eyes so that they can counter and belie the vicious and false propaganda against India.

## PROGRESSING J&K With implementation of FRA-2006 status of Tribal communities uplifted Extension of FRA-2006 also strengthens grassroots democracy

The implementation of Forest Rights Act is strengthening the democracy at grassroots level besides correcting the wrongs done in past by replicating the true spirit of the Act across Jammu and Kashmir. In September 2021, the Jammu and Kashmir government scripted a historic chapter when Lieutenant Governor, Manoj Sinha, handed over individual and community rights certificates to the beneficiaries of Gujjar, Bakarwal and Gaddi Sippi communities under the Forest Rights Act (FRA), 2006 at a momentous event in Srinagar. The event was hailed as a significant step with a potential to transform the lives of members of tribal communities in the UT as the rights of forest dwelling Scheduled Tribes and other traditional forest dwellers were recognized albeit a long delay. An 80-year old, Wali Muhammad of Kotrang Rajouri reveals how he was facilitated by the administration in providing FRC at the hands of Lieutenant Governor; Manoj Sinha which he had desired for all life so that he can also have rights so some forest land and its produce. After a long struggle and efforts for more than 14 years due rights have been conferred upon the tribal community through implementation of Forest Rights Act (FRA), 2006, keeping in mind the basic spirit of social equality and harmony as guided by the constitution of our country and the Parliament. Under the guidance of Prime Minister, forest rights were conferred to tribal community. J&K administration had been vigorously pursuing the ideals of establishing an equitable and just social order in the UT. The UT government had been working sincerely to empower the tribal community which remained neglected and discriminated against for decades together. Conferring rights over the forest land for these forest dwellers is poised to elevate the socio-economic status of a sizeable section of 14 lakh population of tribals and nomadic communities including Gujjar, Bakarvals and Gaddi Sippis in the Union Territory. Nasir Hussain, Sarpanch of Mandi Poonch is grateful of Prime Minister; Narendra Modi and Lieutenant Governor; Manoj Sinha for giving them rights on the forest land which was their long pending demand. Similarly, Sarpanch of Upper Puchwal Rajouri expresses gratitude to Government of India for providing livelihood to the ST community under Forest Rights Act which was pending from last 70 years. These people have been living in the forests since centuries without any right over the forest land but implementation of FRA proved to be of great help for these forest dwellers. The Act was a step towards redressing prejudice and empowering communities to participate in the management of forest and wildlife protection. The preamble to the Act itself notes that it recognizes the historical injustice to tribals and others who have been traditionally living in forest areas.