SPECIAL ISSUE

Kurukshetra

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Khadi and Rural Employment

The Collected Works of Mahatma Gandhi available in Electronic Version

Shri Arun Jaitley, Hon'ble Minister for Information and Broadcasting, Finance and Corporate Affairs, launches the e-Version of the Collected Works of Mahatma Gandhi in the presence of Col. Rajyavardhan Rathore (Retd.), Hon'ble Minister of State for Information and Broadcasting, Shri Sunil Arora, Secretary I & B and Ms. Dinaben Patel, renowned Gandhian scholar.

The Collected Works of Mahatma Gandhi (CWMG), a set of 100 volume books on the words and thoughts of Mahatma Gandhi, published by the Publications Division during 1956-94, is now available in an electronic version to ensure easy accessibility for people across the globe. This e-version (e-CWMG) was launched by Shri Arun Jaitley, Minister for Information and Broadcasting, Finance and Corporate Affairs on September 8, 2015, in the presence of Col. Rajyavardhan Rathore (Retd.), Minister of State for Information and Broadcasting at the Gandhi Peace Foundation, New Delhi.

The Minister also initiated the uplink of this e-version on the Gandhi Heritage Portal, which is maintained by Sabarmati Ashram Preservation and Memorial Trust with the support of Ministry of Culture, Govt. of India.

Speaking on the occasion, Shri Jaitley said that the digitized version of the Collected Works of Mahatma Gandhi would be instrumental in preserving the valuable national heritage and disseminating it for all humankind. Emphasising on the intrinsic value of the e-CWMG Project, Shri Jaitley added that this project has the collaboration of institutions that have been founded and nurtured by Gandhiji himself. Shri Jaitley also announced that the Hindi version of this monumental work, the Sampoorna Gandhi Vangmaya, would be digitized soon.

In September, 2011, Publications Division had entered into an MoU with Gujarat Vidyapith, Ahmedabad for bringing out the electronic version of CWMG. A Committee comprising of eminent Gandhian experts - Prof. Sudarshan Iyengar, Former VC of Gujarat Vidyapith (GV), Ms. Dinaben Patel, an eminent Gandhian scholar and Shri Tridip Suhrud, Director, Sabarmati Ashram Preservation and Memorial Trust (SAPMT) - supervised this meticulous work and ensured its authenticity in all respects.

The Collected Works of Mahatma Gandhi (CWMG-original-KS-edition, called so after Prof. K. Swaminathan, the chief architect of the original series) had taken about 38 years in the making (1956-1994). It is a monumental document of Gandhiji's words which he spoke and wrote, day after day, year after year, beginning with the year 1884 till his assassination on January 30, 1948. In this series, Mahatma's writings, scattered all over the world, have been collected with stringent academic discipline..

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EDITORIAL OFFICE
ROOM NO. 686,
Publications Division,
Soochna Bhawan,
C.G.O. Complex, Lodhi Road,
NEW DELHI-110003
Phone : 011-24362859
E-MAIL : kurupage@yahoo.co.in

FOR SUBSCRIPTION ENQUIRIES, RENEWALS AND AGENCY INFORMATION PLEASE CONTACT:

JOURNAL UNIT, PUBLICATIONS DIVISION
MINISTRY OF I & B, ROOM NO. 48-53,
SOOCHNA BHAWAN, CGO COMPLEX,
LODHI ROAD, NEW DELHI-110 003
TELE : 24367453
FAX: 24365610
E-MAIL : pdjucir@gmail.com
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Editorial

Through his speeches and writings Mahatma Gandhi always advocated the potential of khadi and village industries to bring about self reliance and prosperity in our villages. To Gandhiji khadi represented human value and mill cloth material value. As we salute the Father of the Nation on his birth anniversary, it is indeed heartening to note that large number of innovative programmes are in place throughout the country to further reinforce the values and concepts that were dear to Gandhiji. Recently, different initiatives have been taken both at the Centre and states to further rejuvenate khadi and cottage industries sector that provides employment opportunities and income to tens of thousands of people across the country.

Over the years, our khadi and village industries have grown from strength to strength. At present, the sector produces goods worth over Rs.21,675 crore and provides employment to 1.3 crore people annually. Besides this, the sector has considerable export potential. Together with fast increasing domestic demand for khadi products it has captured international markets like never before. India exports khadi products to more than 17 countries including all the major developed economies.

From a simple fabric closely identified with the Indian freedom struggle, khadi has attained the status of a fashion statement especially among the upper middle classes of the country. The appeal by the Prime Minister Narendra Modi to buy khadi items has provided further fillip to this sector. He urged the people to buy at least one khadi clothing and a handloom product as a tribute to Gandhiji and to encourage the industry. Sale of khadi products has more than doubled during the last one year. However, considering the vast potential of the sector to further step up both domestic demand and export , enhanced thrust need to be given to khadi and village industries. Financial institutions at the grass root level including public sector banks are expected to give further momentum in extending assistance to small scale village industries and women's self help groups.

Even though Agriculture has been the backbone of Indian economy in providing employment and livelihood to rural population, in recent years Medium and Small scale Enterprises are playing a significant role in transforming the rural landscape of India. Employment avenues are increasing in villages thereby bringing down migration to urban centres of development. Large number of socio-economic development schemes unveiled by the Centre recently has definitely added further momentum to this process. Pradhan Mantri Jan Dhan Yojana, Make in India and Start up India; Stand up India programmes are steps in this direction to enhance financial inclusion and employment avenues across the country especially in rural India. As India emerges as a global economic power, promoting all-round development and prosperity of our villages is a pre-requisite to ensure equitable distribution of income and wealth which is India's cherished goal. ❑

KHADI - FABRIC OF FREEDOM TO FABRIC OF RURAL EMPLOYMENT

Ganesh N

Khadi and village industries has truly grown by leaps and bounds as it produced goods worth Rs 26,109.08 crore by the end of 2013-14 and providing cumulative employment to 1.30 crore people. The corresponding data for the 2014-15 available till December 2014 shows production to the tune of Rs 21,675.89 and cumulative employment 1.43 crore persons.

It had all started with the humble fabric that knit an entire nation into a united struggle for freedom led by Mahatma Gandhi. Khadi - fabric of the freedom continues to play a key role in the economic independence of millions living in our villages. India, primarily being an agriculture driven economy, the Khadi industry acts as a buffer to the families of millions of landless farmers and labourers whose access to income is not certain.

Specific to Generic

The term Khadi today is not just confined to the fabric which has its origin in a hand spun charka, it has become generic denoting thousands of products of village industry that are sold at Khadi outlets across the country and also exported. The village industries have been broadly categorised into agro- based and food processing industry, forest based industry, handmade paper and fibre industry, mineral based industry, polymer and chemical based industry, rural engineering and bio-technology, service and textile industry.

Humble Beginnings, Monumental Achievements

In 1955-56 when the first overall government interventions through various programme in khadi and village industries began to bear fruit, the endeavor had resulted in production of goods worth Rs 20 crore and providing employment to 15 lakh persons in the rural region. More than half a century later, the village industries has truly grown by leaps and bounds as it produced goods worth Rs 26,109.08 crore by the end of 2013-14 and providing cumulative employment to 1.30 crore people. The corresponding data for 2014-15 available till December 2014 shows production to the tune of Rs 21,675.89 and cumulative employment to 1.43 crore persons.

Much of the sales in 2014, particularly in Delhi have been shored up following Prime Minister Narendra Modi's appeal to the citizens to use at least one item of Khadi in their daily life. Khadi and Village Industries Commission (KVIC) Chief Executive Officer Arun Kumar Jha told in an interview: "After PM's call, we prepared ourselves in a way that we have more consumer friendly and new designer products in the market. The sales at the main outlet in central Delhi have gone up by 60 percent."

If one takes into account only the Khadi segment, in its pure sense, then too it is a significant contributor to rural economy. Khadi has been a source of livelihood for more than 10 lakh rural persons, which include spinners, weavers and other artisans spread across the country. Khadi production during 2013-14 was Rs 811.08 crore, registering an increase of 6.45 % over the previous year.

Micro Macro benefits

About 45 per cent of the Micro, Small and

Medium Enterprises (MSME) are in the rural areas falling in the category of non-farm sector. The labour to capital ratio in the MSME sector is much higher than in other industries. The MSME is almost a misnomer as it contributes 9 per cent to the Indian economy, commands a 45 % share in the manufacturing output and is responsible for generating 45 % exports. Khadi and Village Industries Commission (KVIC) created as a statutory body under an Act of Parliament (No. 12 of 1987 and Act No. 10 of 2006), is focusing on the development of Khadi and Village Industries in rural areas by utilizing local skills, resources and generate employment opportunities at extremely low cost.

Demand for Khadi denims far outstrips supply as a result it has been not possible to sell Khadi denims outside of Delhi. The statement makes it clear that weavers involved in the making of Khadi denims were busy and earning a regular livelihood. According to KVIC CEO, as production increases the daily income of weavers is expected to increase from the present Rs 225 to Rs 400 per day.

Skill Development Programme

MSME through KVIC offers various Skill Development programmes which are aimed to improve employment opportunity of persons from rural regions. In 2013-14, KVIC has successfully imparted training to 91,500 persons across the country, of which 53,214 were women.

Prime Minister's Employment Generation Programme (PMEGP)

Prime Minister's Employment Generation Programme (PMEGP) is a credit linked subsidy programme implemented by Khadi and Village Industries Commission (KVIC) at the national level. It was introduced on 31st March 2008, by merging two schemes namely Prime Minister's Rojgar Yojana (PMRY) and Rural Employment Generation Programme (REGP), for generation of employment opportunities through establishment of micro enterprises in both rural and urban areas. This scheme is implemented by state KVIC, Khadi and Village Industries Board (KVIB) and District Industries Centre (DICs).

The objectives of PMEGP

1. **Generation of employment opportunities in rural and urban areas by setting up new ventures or micro enterprises.**
2. **To bring together widely dispersed traditional artisans, rural and urban unemployed youths.**
3. **To provide continuous and sustainable employment to a large segment of traditional and prospective artisans to prevent migration of rural artisan to urban areas.**

Performance of PMEGP

Labour Minister Bandaru Dattatreya informed the Lok Sabha in August 2015 that 40,915 jobs have been created under the PMEGP in the current fiscal year from 1 April 2015 to 16 July 2015. In the last fiscal year of 2014-15, PMEGP had resulted in 3.57 lakh employment generation.

Under PMEGP, general category beneficiaries can avail of margin money subsidy of 25 per cent of the project cost in rural areas and 15 per cent in urban areas. For beneficiaries belonging to special categories such as scheduled castes, scheduled tribes, OBCs, minorities, women, ex-servicemen, physically handicapped, beneficiaries belonging to North Eastern Region, hill and border areas, etc., the margin money subsidy is 35 per cent in rural areas and 25 per cent in urban area. Under the scheme, the maximum cost of project is Rs 25 lakh in the manufacturing sector and Rs 10 lakh in the service sector.

The performance of PMEGP largely depends on the state KVIC that function as nodal agencies to approve the applications made under this scheme. Moreover, the performance of the PMEGP also depends on the Public Sector Banks that has to extend the credit. **During 2014-15 (till December 2014) 3,37,070 applications have been received under the Scheme of which 1,39,410 projects were recommended to banks. Banks have, however, sanctioned 32,924 cases and made disbursement only in 18,141 cases the year. Thus it is evident that there is large gap in the applications made and those sanctioned under PMEGP.** As the name – Prime Minister's Employment Generation Programme suggests, it is intended to provide employment. However, fewer applications being approved and disbursements made in far less instances will have a direct impact on the employment. There is an urgent need to study the reasons for large scale rejections, which happens to be 41.35 per cent of the applications received and tardy disbursement of funds by the banks under the scheme which happens to be 55 per cent of the sanctioned applications for the corresponding periods. If it is lack of funds that has been dictating the fate of the applications, then appropriate provisions need to be made for allocating more funds. On the other hand, if applications are being rejected for other reasons, then the same need to be studied and addressed so that there are more beneficiaries of this flagship scheme.

Road Ahead

Though no break-up of urban and rural areas under this scheme is available for this fiscal, the overall release of funds indicate a marked departure from the past. This fiscal till July 16, the government has released Rs 1019 crore as margin money subsidy, whereas in the entire previous fiscal year the margin money subsidy amounted to Rs 1093.06 crore.

Scheme for Regeneration of Fund for Traditional Industries (SFURTI)

Government through KVIC and the Coir Board has also been implementing a cluster- based scheme named Scheme of Fund for Regeneration of Traditional Industries (SFURTI), under which khadi, village industries and coir clusters have been taken up for development by providing them with improved equipment, common facilities centres, business development services, training, capacity building and design and marketing support, etc. 101 clusters (29 Khadi, 47 Village Industries and 25 Coir clusters) have been assisted under this scheme during 11th Five Year Plan. SFURTI Scheme has been revamped in 12th Five Year Plan and it is proposed to develop 800 clusters during 12th Plan. 71 clusters with an outlay of Rs. 149.44 crore have been taken up for development in the Ist phase.

Success Stories

Magan Sangrahalaya, Wardha, Maharashtra

As the name suggests, Magan Sangrahalaya at Wardha in Maharashtra is a museum dedicated to the rural industries that had been inspired and inaugurated by Mahatma Gandhi in 1938. The museum has been named in memory of Maganlal Gandhi a close associate of Bapu. Though Magan Sangrahalaya Samiti, runs the museum, it is only one of its several successful activities that it has been undertaking. Magan Sangrahalaya Samiti is considered the epitome of success story of the organisation working in the field of upliftment of villages and its industry. As envisioned by Gandhi, Magan Sangrahalaya is now a dynamic window on evolving techniques in rural industrialization and a centre of education for the common man to impart information on new modes of production which could help the poor of the land.

MSS trained 760 women SHG members to manufacture 120 products at 50 technical centres, including Regional Research Laboratories (RRL). The enthusiasm and confidence of the trained, skilled

women groups led to the establishment of 50 new enterprises in 40 villages of Seloo and Samudrapur blocks of Wardha district. Thirty members have opened their own shops to sell products of women enterprises along with other daily use items.

These enterprises produce vermi-compost, herbal pesticides, banana fibre, solar dried food products, soyabean products, spices, brooms, milk chocolates, wooden toys, utility products, soaps, detergents, Liquid Blue, phenol, furniture, agro-waste briquettes, paper products, neem and cow dung products, leaf cups, Khadi (cotton) yarn, carpets (Dari) from waste cloth, herbal medicines and products from *amla, imli, ber, Bel, mahua,* mango, chili, papaya, tomato and seasonal vegetables.

It is heartening to note that at present, these micro enterprises are giving subsidiary employment to 875 rural women. Some of the women are raised from the status of the daily wage earners to an entrepreneur. Women who never stepped outside their villages participated in 15 exhibitions organized in four states, by Gram Panchayat, Voluntary Agencies, Government Departments and Banks.

Success of Magan Sangrahalaya's reach under its **Karigar Panchayat** programme saved 200 potters from starvation. During the last decade, the traditional mud idol of lord Ganesha had been replaced by the mass produced plaster of paris idols, which not only pollute rivers and water bodies where they are immersed in large quantities after the festivities but also rob the traditional mud-idol artisans of their livelihood. Enlightening all stakeholders about the ecologically unsound and indestructible plaster-of-paris idols and encourage the naturally disintegrating and environment-friendly mud idols which have bio-friendly solvent properties the result is non-degradation of water bodies during the immersion process. The remarkable achievement led to re-instatement of traditional artisans' craft and revival of their livelihoods.

Magan Sangrahalaya Samiti is promoting and strengthening the market of artisan products, products of women entrepreneurs run rural enterprises and organic farm produce of farmers. To support the sale of organic products and Khadi, the institution has opened three sales outlets in Wardha, Sewagram and Seloo. The other marketing channels are the 50 rural outlets in Seloo and Samudrapur blocks owned and run by women SHGs members. The exhibitions organized by CAPART, DRDA, KVIC and other NGOs also serve as a platform for marketing and promoting the products of SHGs and Organic Farmers. Some of the products are finding place in local *yatras, haats, bazaars* and *melas*. Magan Sangrahalaya is presently concentrating on developing a local market for the local produce.

Gangarathna from Nimmalakunta village in Dharamavaram city of Ananthapuram district of Andhra Pradesh is more than a wife to V. Sreenivasulu. Thanks to the Margin Money under the PMEGP, she is a successful entrepreneur. She had been sanctioned Rs 1. 40 lakh by the Andhra Pradesh Khadi and Village Industries board in 2008-09 for setting up a workshop for making leather products. Though she has been in this field for the past 15 years, the margin money enabled her to become an employer to hire artisans and churn out more products than what she could do previously on her own. With her team of six artisans, they now create leather wall hangings, leather sheets door panel, leather lamp shades, leather bed lamps, leather wall lamps, leather wall clocks, etc. Gangarathna records a sales of Rs 6 lakh per annum.

Zohra Begum, a house wife from Srinagar wanted to supplement her husband's meagre income. Zohra hailed from a blacksmith's family and felt that she could do some work in this field. She approached a bank for financing and the bank directed her to the KVIB office at Srinagar. KVIB convinced her that she would get all the help to set up her steel fabrication unit under the PMEGP. Zohra rented a place and installed machinery with the help of the loan component. Subsequently she got Rs 1.22 lakh margin money under the PMEGP. Now Zohra successfully runs a steel fabrication unit providing employment to 12 youth who previously were jobless. Zohra now comes with innovative designs for the gates and grills which are manufactured by her employees.

(The author is a Mumbai-based journalist with two decades of experience on social and political issues)

MAHATMA GANDHI AND KHADI

Ravi Shankar

"Charkha is the symbol of the nation's prosperity and therefore freedom. It is a symbol not of commercial war but of commercial peace. It bears not a message of ill-will towards the nations of the earth but of goodwill and self-help. It will not need the protection of a navy threatening a world's peace and exploiting its resources, but it needs the religious determination of millions to spin their yarn in their own homes as today they cook their food in their own homes."

Father of the Nation Mahatma Gandhi promoted the use of Khadi symbolising the importance of self-sufficiency in nation building. During his official tour to India last year Chinese President Xi Jinping visited the Sabarmati Ashram at Ahmedabad in Gujarat and spun the Charkha with great reverence as a mark of respect to Gandhiji. Both charkha and khadi had paramount importance in Gandhiji's life, thought and various movements he carried out. Gandhiji himself had described Charkha as the central theme for all his movements during the freedom struggle. In 1934 he wrote, "Khadi is the sun of the village solar system. The planets are the various industries which can support khadi in return for the heat and the sustenance they derive from it. Without it other industries cannot grow. But during my last tour I discovered that, without the revival of other industries, khadi could not make further progress. For villagers to be able to occupy their spare time profitably, the village must be touched at all points." (Harijan, 16-11-1934).

Several times Gandhiji had mentioned the three pillars of his national program of freedom movement. Khadi was not only one of them but the basic foundation. In 1925 in Young India he wrote, "What is the national programme today? Removal of untouchability by the Hindus, khaddar and Hindu-Muslim unity. I think all the three items are calculated to help a solution of your difficulties. Even Hindu-Muslim unity means more or less a solution of the untouchability question too, and khaddar can unite us as nothing else can." (Young India, 14-5-1925) Thus Gandhiji felt that Khadi has the power to bring about all the social changes required for the freedom of our country.

Khadi and Swaraj

It is a known fact that when Britishers came to India, we were the number one supplier of cotton and silk cloths in the world. Rest of the world was immensely fascinated by the Indian textiles. It is the textile industry of India that made us *Sone Ki Chidiya*. It was the major source of employment and wealth. It supplemented the agricultural life style of our people. Britishers realized that if they have to capture India, they must destroy our textile industry. Therefore, they introduced mill-produced cloth in India in a much cheaper rate. They also placed many taxes on Indian industries and production. Gradually the Indian textile industry collapsed and millions of people become unemployed.

Mahatma Gandhi was fully aware of this very fact and therefore he thought to revive India's cottage industry by promoting Khadi. In 1940 he wrote,

"The spinning wheel represents to me the hope of the masses. The masses lost their freedom, such as it was, with the loss of the Charkha. The Charkha supplemented the agriculture of the villagers and gave it dignity. It was the friend and the solace of the widow. It kept the villagers from idleness. For the Charkha included all the anterior and posterior industries- ginning, carding, warping, sizing, dyeing and weaving. These in their turn kept the village carpenter and the blacksmith busy. The Charkha enabled the seven hundred thousand villages to become self contained. With the exit of Charkha went the other village industries, such as the oil press. Nothing took the place of these industries. Therefore the villagers were drained of their varied occupations and their creative talent and what little wealth these bought them. The industrialized countries of the West were exploiting other nations. India is herself an exploited country. Hence, if the villagers are to come into their own, the most natural thing that suggests itself is the revival of the Charkha and all it means." (Harijan,13-4-1940)

Economics of Khadi

In 1918 Mahatma Gandhi started his movement for Khadi as relief programme for the poor masses living in villages. Gradually, spinning and weaving was elevated to an ideology for self-reliance and self-government. He visualised that every village shall plant and harvest its own raw-material i.e. cotton for yarn, every woman and man shall engage in spinning and every village shall weave whatever is needed for its own use. It is a fact that nowadays farmers have not enough work to earn their living through out the year. In the four months of summer agricultureal practices come to halt. Spinning would thereby not only provide occupation but it also fulfils one of the basic needs (Food, Cloth & Shelter) of humans i.e. clothes.

Gandhiji dreamt that every household would do spinning for their own use as they cook food for themselves. He wrote in 1921, "Charkha is the symbol of the nation's prosperity and therefore freedom. It is a symbol not of commercial war but of commercial peace. It bears not a message of ill-will towards the nations of the earth but of goodwill and self-help. It will not need the protection of a navy threatening a world's peace and exploiting its resources, but it needs the religious determination of millions to spin their yarn in their own homes as today they cook their food in their own homes." (Young India,8-12-1921) He never supported the idea of Indian mills replacing the Foreign Mills. The '*swadesh'* concept of Gandhiji spreads the decentralised economic system. Khadi was its brand ambassador.

In a public meeting in Poona in 1924 he said, "You have asked me why wearing of Indian mill cloth does not amount to boycott of foreign cloth. This is colossal ignorance. For fulfilling the boycott it is not enough if we wear mill cloth. The Bengalis even today complain of the exploitation of Bengal by the mill-owners at the time of the partition. Their experience should teach us that boycott cannot be achieved with the help of only mill cloth.

The propaganda should, therefore, be in favour of khadi only. It is obvious that mill cloth has no place in the house of the Congress." (Collected Works of Mahatma Gandhi Vol. 25 page 87). Thus Khadi is also a symbol of tradition of ancient decentralised economy of India. It is also an opposition of the centralised economic system evolved in Europe and which causes the inhuman exploitation of the labourers. In fact, in ancient India concept and practice of labour was very restricted.

Instead of developing heavy industries, India in the past had developed only agriculture based cottage industries which provided enterprenurship for the masses. Gandhiji too was promoting that idea by promoting Khadi. That is why he symbolised Khadi for Swaraj. He wrote in 1935, "The mission of khadi is not merely to supply the towns people with fashionable khadi that will vie with the mill manufacturers and thus like other industries supply a few artisans with employment, but it is to become a supplementary industry to agriculture. This mission still remains unfulfilled. In order that it may fulfil this mission, it has to be self-sustained and its use must spread in the villages. Just as the villagers cook their own roti or rice, so must they make their own khadi for personal use. The surplus, if any, they may sell." (Harijan, 6-7-1935).

Skill Development

Gandhiji always emphasized that for betterment of human kind decentralised and self-sustainable village economy must be encourged. Whenever he spoke about khadi he meant that it must be consumed where it is produced. Nowadays this formula is known as zero mile theory. Gandhiji never wanted to make khadi a luxary as it has become today. In fact he wanted that it must be like free as an individual has to produce his own requirement. Gandhiji never advocated developing the Khadi industry as a supplier to towns.

Secondly, Gandhiji wanted to use khadi as a weapon of skill development. He wanted to train the villagers to produce khadi. To serve the purpose villagers must be trained to produce cotton and for that they must learn to make the farm fertile enough for cotton. He wrote in Harijan in August, 1935, "Without decentralization of cotton cultivation, universal manufacture in villages may not be possible. We have authentic examples of deserts having been turned into smiling gardens by judicious manipulation of the soil. It ought not, therefore, to be impossible to grow enough cotton in every village for local use. Not only will this cheapen khadi for the villagers, but it will also improve the durability of khadi." (CWMG Vol. 61 page 305-6.)

Gandhiji wanted to make villages and villagers self-relient. To achieve this goal he started khadi movement. Khadi was the foundation of cottage industries. Khadi symbollises the connection between agriculture and industry. Both requires certain set of skills and Gandhiji wanted the villagers must be trained accordingly. He wrote in Navajivan in April 1929, "The boycott of foreign cloth will succeed only when the twenty-two crores of our peasants begin to use khadi. And to convert them to the use of khadi means to explain to them the science of khadi, to show them the advantages of self-help and to teach them the entire process of khadi production. For this we need volunteers, mobile schools and preparation and distribution of booklets describing the processes of spinning, carding, etc." (CWMG Vol. 40 page 268-69.)

Insteade of heavy industries Gandhji wanted to promote small scale industries. He saw it as a remedy to unemployment. Gandhiji wrote in his book Village Industries, "I have no doubt in my mind that we add to the national wealth if we

help the small-scale industries. I have no doubt also that true Swadeshi consists in encouraging and reviving these home industries. That alone can help the dumb millions. It also provides an outlet for the creative faculties and resourcefulness of the people. It can also usefully employ hundreds of youths in the country who are in need of employment. It may harness all the energy that at present runs to waste. I do not want anyone of those who are engaged in more remunerative occupations to leave them and take to the minor industries. Just as I did with regard to the spinning wheel, I would ask only those who suffer from unemployment and penury to take to some of these industries and add a little to their slender resources."

Gandhiji also listed a number of village industries that could be started. He had listed khadi production, tanning, dairying, gur and khandsari production Hand-made paper production, Bee-keeping, Ghani Oil production etc. All these requires skill development.

Civilisational Aspect of Khadi

Khadi also symbolises the Indian concept of civilisation. In 1909 Gandhiji had called the English civilisation a monstrous civilisation. He strongly believed that our civilisation is the greatest civilisation on earth. He further explained that core of our civilisation is simplicity in every walk of life. He symbolised Khadi as a civilisational tool. In 1927 in Young India Gandhiji clearly mentioned it in these terms, "If we have the 'khadi spirit' in us, we would surround ourselves with simplicity in every walk of life. The 'khadi spirit' means illimitable patience. For those who know anything about the production of khadi know how patiently the spinners and the weavers have to toil at their trade, and even so must we have patience while we are spinning 'the thread of Swaraj'. The 'khadi spirit' means also an equally illimitable faith. Even as the spinner toiling away at the yarn he spins by itself small enough, put in the aggregate, would be enough to clothe every human being in India, so must we have illimitable faith in truth and non-violence ultimately conquering every obstacle in our way.

The 'khadi spirit' means fellow-feeling with every human being on earth. It means a complete renunciation of everything that is likely to harm our fellow creatures, and if we but cultivate that spirit amongst the millions of our countrymen, what a land this India of ours would be! And the more I move about the country and the more I see the things for myself, the richer, the stronger is my faith growing in the capacity of the spinning wheel." (Young India, 22- 9-1927)

Thus Gandhiji saw khadi as a symbol of our civilisation and by establishing it in our life he was trying to re-establish our ancient civilisation. He was well aware of the fact that Britishers are not only looting this country but also destroying its age old civilisation. Therefore, he opposed the heavy mechanisation, railways, doctors and advocates. He advocated Nature Cure throughtout his life and opposed modern medicine. Today, we can understand the importance of his ideas, as nowadays we are suffering from acute shortage of health services in rural areas while new deseases are emerging. Side effects of modern life style are also quite obvious. Gandhiji had comprehended this situation in the early stage of this mechanisation. He wrote, "Khadi stands for simplicity, not shoddiness. It sits well on the shoulders of the poor, and it can be made, as it was made in the days of the yore, to adorn the bodies of the richest and the most artistic men and women. It is reviving ancient art and crafts. It does not seek to destroy all machinery but it dies regulate its use and check its weedy growth. It uses machinery for the service of the poorest in their own cottages. The wheel is itself an exquisite piece of machinery. Khadi delivers the poor from the bonds of the rich and creates a moral and spiritual bond between the classes and the masses. It restores to the poor somewhat of what the rich have taken from them." (Young India, 17-3-1927)

Thus we can see that Khadi was not merely a cloth for Gandhiji. It was a weapon of our freedom struggle, it was a symbol of swaraj, it was heart of our decentralised rural economy and it was also a representative of our ancient civilisation. By reviving Khadi Gandhiji actually was trying hard to revive the real swaraj and to save our civilisation. Years before Samuel P. Huntington announced the Clash of Civilisation, Gandhiji had documented it in his book Hind Swaraj written in 1909.

(The author is Research Director at Center for Civilisation Studies, New Delhi. He is also a freelance journalist)

KHADI: FABRIC FOR MAKING SOFT 'HANDPRINT' ON MOTHER EARTH

Sudarshan Iyengar, Nimisha Shukla

Human footprint on the mother earth has become conspicuous and malignant. Conclaves and parleys are on how to reduce carbon emission. In midst of this, nature based ecofriendly and relatively simple technologies have not received worthy attention. Efficiency in energy utilisation can also be achieved by adopting a technology that uses low energy and renewable energy inputs. *Khadi* – a cloth made by hand spinning and hand weaving is an example of production using low and renewable energy. The fabric that had once captured the imagination of the nation has a renewed potential to address the carbon footprint problem. The mother Earth needs a soft 'handprint'. *Khadi* is one of the soft 'handprints'.

We begin by a brief review of the current trends in energy use. Human species has been utilising external energy sources since oraganised production systems evolved. Agricultural civilization witnessed use of animal energy in plenty and to a limited extent mechanical energy. Inventions and innovation leading to use of steam, coal and oil energy revolutionized the production system and humanity entered the era of industrial revolution. In the present times energy is the prime requirement for meeting the basic needs of the ever growing population and the growing demand for range of comfort and luxury goods. Fossil fuels have continued their dominance in the world energy use scenario. Out of the total primary fuel supply of the world[2] crude oil and coal are the most important sources of energy. In 1973, the World was consuming 76.5 per cent of the total primary energy supply; it has come down to 68.7 per cent as a result of economic crisis in 2008-09. Most industries are energy intensive and the energy used is based on fossil fuel. Out of the total energy consumed, 33 per cent was being consumed by industry in 1973. It declined to 27.8 per cent in the year of beginning of economic meltdown.[3] It is thus established that industry based voluminous economic activity is possible only by increased energy use. Industry based economies have larger carbon footprint. Schumacher has termed such technologies as 'inherently violent, ecologically damaging, self-defeating in terms of non-renewable resources, and stultifying for human person'[4].

Textile industry is one of the most energy intensive and polluting industries. During the industrial revolution, machines were powered by waterwheels and steam-engines. Crude oil revolutionized the Small cottage based non-agricultural production into factory based assembly-line mass production. Assuming that the world population will grow to 10 billion in 2050, and to 11.6 billion in 2150, when it is expected to become steady, the total textile consumption would double, even using the current figure of per capita annual average textile consumption (8kg/person).[5] India produces 21.5 per cent of all the cotton produced in the world. China leads and India is second[6]. Within the country, the textile industry contributes about 14 per cent of national industrial product and about 11 per cent of total export earnings[7] . It provides direct employment to over 45 million and to 60 million people indirectly. Almost 60 per cent of overall consumption in textiles and more than 75 per cent in spinning mills is cotton. Out of 1425 lakh bales world production, Indian production was 353.26 lakh bales and out of world consumption of 1477 lakh bales, India's share was 273.4 lakh bales[8]. Indian textile industry was well known in medieval times. The deliberately distorted policy of the British government had adversely affected the textile industry of India. In fact, Dadabhai Navroji[9] portrayed poverty of Indian population and proved and held the British rule as responsible. R.C. Dutt[10]too showed that exploitation by British and its rule was responsible for Indian situation. Bipin Chandra Pal, Ranaday and Tilak also advocated for native production. Gandhi reinvented *Charkha* and it became a symbol of prosperity and freedom.*Swadeshi* became not

only a *mantra*, but also *dharma* for him.[11] His main intention then was to provide work to the hands of thousands and a dignified livelihood. The hand spun and hand woven cloth was named *Khadi.* It became a wonder fabric that helped in boycotting the British cloth and in bringing back the dignity of Indian cloth producers.

Presently, India's textile industry is a mix of organised sector with spinning mills and composite units and unorganised sector with power looms, handlooms and garment sectors. The textile industry retains record of the lowest efficiency in energy utilisation and is one of the major energy consuming industries. It generates negative externality to environment and human health. India thus would need to focus on appropriate technologies. Interestingly, Gandhiji's *Khadi* in the present context has potential to become a low and renewable energy using clean technology.

By 1947 when India gained Independence, factory based cloth production was well-established. However, *Khadi* was recognised as a significant part of village industry. *Khadi* had an emotional hangover because of Gandhiji and hence the Government of India supported it with subsidy. There was also a case for justifying subsidy. *Khadi* was an important decentralised sector for generating non-farm employment opportunities in rural areas at low per capita investment. It has not been limited only to rural areas, but one can see labour employed in *Khadi* production in urban areas, too. The production data in physical units are not easily available. However, the available data on value in rupee terms show that *Khadi* lost its importance within 25 years of Independence. By 1970 the share of value of *Khadi* had come down to 12 percent from 56 percent in 1960. In 2009-10 the share was mere 3 percent. The figures suggest that value added by the *Khadi* workers declined very sharply over time.[12] This needs to be considered carefully when a proposal for revival is being made.

Khadi faces a number of problems while competing with mill cloth.

- Mill cloth with fast colours and wrinkle free quality available at relatively lower price.
- Prone to shrinkage, fabric stretch and a limited range of colours.
- Relatively high financial cost of production
- Government organization with good intentions end up impeding its spread and growth.

The mindset of consumers

Henry Ford[13] had said that 'the way to liberty, the way to equality of opportunity, the way to empty phrases to actualities, lies through power: the machine is only an incident'. From engineering and economic point, any machine that utilises solar energy to better energy transformation is feasible and viable. *Charkha* is a medium that converts solar energy to mechanical energy. *Charkha* is used by human hands and human being survives on solar energy. In the process, it saves energy and provides employment. This, perhaps, the quickest and cheapest way to transform solar energy into mechanical energy is in abundant supply in India. The artisans need no special training, there is no need for foreign capital and interest payments, the maintenance at almost negligible cost with no special supervisory skill, no addition in the fuel cost, minimum of transportation cost as cotton is available at almost all local markets and can be sold at local market. Above all the product is eco-friendly and generates no social or environmental externality.

About *Khadi* Production and Energy Saving

Cotton Production: Modern agriculture uses agro-mechanical and bio-chemical energies. Humanity has a choice to shift to organic agriculture where human and animal energy is used. With the advent of Bt. Cotton, the chance appears to have been almost lost. But there is hope. Kala cotton of Kachchh and some indigenous cotton varieties grown in Assam and other North East states can bring back low energy using cotton producing traditional methods.

Pressing and Ginning: The process was based on human energy long time before the industrial revolution. Presently, most of the pressing and ginning process uses electricity. This is one stage where energy saving is possible.

Making of Cotton slivers for *Ambar Charkha*. Ambar is a mechanical device that has one to ten spindles that spin cotton into yarn. As

production of cotton slivers for *Ambar Charkha* uses electricity, it cannot be said to be fully energy conserving. But once produced, Ambar uses human energy. Experiments are on to use solar power to run Ambars.

Spinning and Weaving: Traditional system of spinning had various forms. *Takli* and *Charkha* provided employment and gave pride. Attempts were made to provide monetary return to spinning and weaving by the All India Charkha Federation. The *Charkha* reintroduced by Gandhi has limitations in producing adequate output.

Dyeing: Traditional dyeing communities provided services to the weavers. The British almost killed the entire industry. *Khadi* production brought back their employment to some extent. In the present context, in addition to employment, the process will promote decentralisation. The dyeing used vegetable colours and hence the base is organic. There is pollution, but it is decentralized and spared major water bodies from getting polluted.

Some calculations

Out of one kilo of cotton, considering 10 per cent wastage, one hank of 1000 yarn can be produced on *Ambar Charkha* with two spindles with human energy. The process would take 50 minutes. For producing one meter *Khadi*, 6 to 7 hanks are required. To weave one meter of *Khadi*, 1.33 human hours are required. In all, it takes 2.25 human hours to produce one meter of *Khadi*. If we apply human work output in agriculture that is equal to 0.1 HP or 0.074 KWh[14], to *Khadi* production we would get 0.225 horse power or 0.17 KWh energy-equivalents for producing one meter of *Khadi*. Hence, assuming that a labour uses only 1/100th of power, the estimate would give us 11.1 million meters of charkha yarn production from population employed only in agriculture. As against *Khadi*, to produce one meter mill cloth 0.45 to 0.55 KWh electric energy is required[15]. This means that *Khadi* is approximately 3.24 times energy efficient than mill cloth.

India's population was 1.21 billion in 2011[16]. Assuming average consumption of 8 meters of cloth, India requires 9.68 billion meters of cloth production. In 2002, Khadi contributed less than half per cent of Indian textile market[17]. In 2008-09, textile production was 54.20 billion square meters, with per capita availability of 39 square meters[18]. The recent survey shows that Khadi production was 1.11 billion square meters[19]. Hence, people should be motivated to Khadi production to provide at least the average cloth consumption. If the average requirement of 8 meters of cloth is produced as Khadi in the country, 1.36 KWh power of renewable energy would be spent in a year. The Mill is today producing 39 square meters using 17.55 KWh. India can save at least 16.19 KWh person. In all, it can end up saving 19.6 billion KWh of energy. This is the potential to reduce the carbon footprint.

The logic of *Khadi* may appear convincing, but its adoption has not been easy. It appears that but for Gandhi's personal *charisma*, adoption of *Khadi* production even in pre independence would have been difficult. Sustainable consumption is reinterpretation of Gandhian concept of limited wants. Poor people in vulnerable regions are going to be hit by the swindling of the natural resources by the large industries. Gandhi's choice for decentralised production system means more control people will have on their destiny.

Today the world is in energy crisis and carbon emission is assuming seriousness. Decentralised production of *Khadi* using human energy appears as sustainable solution. It is clear that *Khadi* will not be able to meet the total clothing requirement of the world's population, but even if one fourth demand is met through this low and clean energy technology of *Khadi*, humanity's contribution to slow down the global warming will be substantial. There is only one necessary condition for Gandhian solutions. It has to begin with self. We wish and hope that we all respond and take the call.

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[3] International Production Cost Comparison

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[18] www.texmin.nic.in, retrieved on 25/04/2011

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(Sudarshan Iyengar is a renowned Gandhian scholar and former Vice Chancellor of Gujarat Vidyapith, Ahmedabad and Nimisha Shukla is a Professor of Economics at GV)

GANDHIJI'S VISION ON SANITATION

Dr John Chelladurai

An young man from the central Maharashtra who cleared ICS preliminary met Gandhiji at his Sewagram Ashram to seek his blessings. Gandhiji asked 'why do you want to be ICS?' 'To serve India' responded the young man. 'Going to village and doing sanitation work' is the best service to India, advised Gandhiji. And the ICS aspirant Appa Patwardhan turned out to be one of the finest freedom fighters, specializing in the art of *'Safai'.*

Courtesy: Gandhi Research Foundation, Jalgaon , Maharashtra

In the school of freedom struggle, *'safai'* and *'swachchata'* was the test to graduation. Vinoba Bhave, Thakkar Baba, J C Kumarappa and innumerable youngsters with sparkling brilliance, joined the freedom struggle and took to *safai* and *swachchata* root to independence.

As a searcher of Truth, Gandhiji maintained meticulous life style and accorded highest importance to cleanliness. As Father of the Nation, he realized the indispensable place of sanitation in nation building and stated 'Cleanliness is only next to Godliness.'

Development pre-requisite

Development has been a faithful companion of human civilization. From a prehistoric hunter gatherer to the sophisticated urbane human, we have improvised life a great deal. Development is seen as a betterment that innovation brings about in any facet of life. The notion of human development incorporates all aspects of individuals' well-being[1]: food security, clean and fresh air, safe drinking water, health and sanitation, access to wherewithal, to assure all these quality education and freedom of choice.

Much of these components of development can be classified as physiological need fulfillment, as Abraham Maslow would put it.

As developing community, we have taken great pain to build mechanisms to take care of one side of the physiological need, the supply side, to the utter neglect of another side, the disposal. Disposal has scarcely been in the scheme of development agenda.

As the saying goes 'a good beginning is half success.' Concerning the other half, the saying continues ' It is not how you start that is important, how you finish.'

Humanity that masters the art of cooking, making instruments of development should also master the art of disposing what are its byproducts.

Sadly, be it human excretion, industrial refuse, consumer litter or development junk, humanity continues to give if at all, a reluctant attention.

Incivility

This has resulted in our railway stations, bus stand, market, even temple premises appearing to be a junkyard infested with houseflies, mosquitoes and rodent. Gandhiji called it 'stinking den.'[2] We

1 'Beyond Economic Growth: Meeting the Challenges of Global Development', Book On Line, Oct, 06, 2004, http://www.worldbank.org/depweb/english/beyond/beyondco/beg_01.pdf, P. 04

2 CWMG., Vol.13, P.213

have turned even the holy Ganga into mega sewage.

About the callous attitude towards public hygiene of city people, Gandhiji commented "it is not comforting to think that people walk about the streets of Indian Bombay under the perpetual fear of dwellers in the storeyed buildings spitting up them.'[3] He deemed open-air defecation as 'uncivilized', for, "we avert our eyes if anyone happens to pass at that moment."

Truth Realization

For Gandhiji, sanitation is not just a biological requirement; it is a way of life, an integral part of Truth realization. His understanding of cleanliness stems from his realization of the universal oneness of Truth. Gandhiji who worshipped Truth as God, saw the Absolute, the all encompassing Truth as Pure and hence equated 'Cleanliness with Godliness'. He accorded 'sanitation' the status of an essential step to freedom incorporating it into the list of eighteen Constructive Programme.[4]

Courtesy: Gandhi Research Foundation, Jalgaon , Maharashtra.

The seeker after Truth, saw life as the closest manifestation of Truth, therefore he equated life with Truth or God. All the processes that are part of life and its conduct are also part of the Truth realization. In this sense, Gandhiji believed, sanitation, cleanliness of inner and outer self are means of God realization. "We can no more gain God's blessing with an unclean body than with an unclean mind. A clean body cannot reside in an unclean city."[5]

Swaraj

Gandhiji's holistic perspective about freedom of India led him to understand the unique place of sanitation in India's pursuit of swaraj.

Demanding the right of Indian Home Rule, Bal Gangadhar Tilak roared, "Swaraj is my birth right'. For Gandhiji, the term Swaraj is more profound in its implication. He stated in Young India, "Swaraj is a sacred word, a Vedic word, meaning self-rule, self-restraint, and not freedom from all restraint which 'independence' often means."[6] Self restraint from all indulgence, not to mention, from littering public places. He went on further, 'Swaraj of my dream is the poor man's swaraj', and the self-restraint need to seep up to the last man.

Addressing the grand audience on the occasion of the inauguration of Banaras Hindu University, he referred to the filth that smothered the holy city. "No amount of speeches will ever make us fit for self-government (freedom). It is only our conduct that will fit us for it."[7] Cleanliness has been a *'swarajya yajna'* for him.

This 'self-restraint' he evoked in individual conduct of personal and public life, both physical and attitudinal facets of living. Talking on the disposal mechanism Gandhi stated, 'Swaraj is not *Poorna*

3 Speech at Banares Hindu University, CWMG, Vol.13, P.213
4 Constructive Programme: Its meaning and place, Navjivan, Ahmedabad, 1941.
5 Young India 19/11/1925
6 YI, 19 -03 -1931,p. 38
7 Ibid, P.212

Swaraj, until all the ordinary amenities of life are guaranteed to every human under it.'[8]

Sanitation an act of Nation building

Spearheading freedom struggle, he explained the dimensions of freedom and highlighted the importance of 'clean behavior'. In this context he stated 'before we think of self-government, we shall have to do necessary plodding.'[9]

From the stand point of health, Gandhiji termed the condition of villages as deplorable. "One of the chief causes of our poverty is the non-availability of this essential knowledge of hygiene.[10] In this sense he stated Swaraj is not 'freeing India merely from the English yoke… but from any yoke whatsoever.'[11]

On another occasion he stated, Swaraj will be a fruit of incessant labour and intelligent appreciation of the environment.[12]

Sanitation as an act sublime joy

Gandhiji who saw nonviolent living as the best means to worship God, Truth, saw every act that serves life as a way to God. He deemed cleaning as an act of purification and drew immense joy.

Pyarelal, Gandhiji's secretary gives an interesting anecdote on this, from Noakhali where Gandhiji was walking length and breadth to build harmony between Hindus and Muslims.

He writes, "Even for Noakhali, it had been an exceptionally dewy night, and the narrow footpath by which Gandhiji was to proceed had been rendered extremely slippery when on the morning of 19th January 1947 he left Badalkot for Atakara. Twice Col. Jiwan Singh accustomed to difficult marches, lost his foothold and rolled over. Laughingly Gandhi offered him the end of his walking stick to pull himself up the slippery slope.

The footpath was narrow so that the party could walk on it only in single file. All of a sudden the column came to a dead-stop. Gandhiji was removing excreta from the footpath with the help

8 YI 26 – 03 – 1931, P.46
9 Speech at Banares Hindu University, CWMG, Vol.13, P.213
10 Shikshan Ane Sahitya, 18 -08 – 1929; 41:295
11 YI 12 -06 – 1924, p.195
12 YI 05 01 1922, P.4 and YI 27 08 1925, P.297, MoMG P. 319

of some dry leaves. The footpath had again been dirtied by some communal urchins.

"Why did you not let me do it? Why do you put us to shame like this?" Manu asked.

Gandhiji laughed: "You little know the joy it gives me to do such things."[13]

Gram-Rajya

Village, the centre of all primary produce, sustenance, "is the heart of India." In the life of villages rests the life of India, Gandhiji believed. Hence, he equated Hind-Swaraj – Indian Home Rule, with '*Gram-Rajya*'.

Visualizing villages of free India, Gandhiji stated, 'That village may be regarded as reformed, which has every kind of village industries to produce each of her requirements, in which nobody is illiterate, where the roads are clean, there is a fixed place for evacuation, the wells are clean…"[14]

Gandhiji proposed "An ideal Indian village will be so constructed as to lend itself to perfect sanitation. It will have cottages with sufficient light

13 Pyarelal – The Last Phase
14 Letter to Munnalal Shah, 4-4-1941; 73:421

and ventilation built of a material obtainable within a radius of five miles of it. [15]

Lamenting over the present despicable state of village, he wrote, "If sanitation in villages can be improved, lakhs of rupees will easily be saved and the condition of people improved to that extent. A sick peasant can never work as hard as a healthy one".[16]

Response to Sanitation issue

Responding to sanitation woe, he proposed 'Every village should have the most inexpensive water-closets built at one place.[17]

The whole subject (sanitation) is unexplored; the profession, far from being a dirty one, is a purifying, life-protecting one. Only we have debased it. We have to raise it to its true status.

Gandhiji called Satyagraha and Constructive programme as two wings of the same bird, without one the other has no sense. The irrevocable connection Gandhiji built between constructive programme such as sanitation and freedom struggle was evident all over the country. Toilet cleaning and "sanitation work became the qualification of a *satyagrahi*." Every public meeting, whether a call for satyagraha against the British or a initiative of social reform, the meeting had 'village cleaning' as an inalienable beginning.

A section of Indians known as scavengers were engaged for generations in the task of removing night soil from the old-style basket-type (dry) latrines, and who were therefore looked down upon. Gandhiji was very concerned with the suffering of these people because he felt that though they were considered to be at the bottom of society, they executed the most important tasks of organizing community sanitation and health.

Following Gandhiji's vision, innumerable institutes took up on Gandhiji's call and started '*safai*' campaign; Safai Vidyalay - Dehu Road, Nrimal Gram Nirman Kendra, Nasik are some of them that took it religiously.

Harijan Sevak Sangh established Safai Vidyalaya ("sanitation institute") in 1963 at the Sabarmati Ashram, Ahmedabad, Gujarat, with the purpose of liberating the scavengers from this kind of work. The primary objectives of Safai Vidyalaya are: upliftment of sweepers and scavengers; upgradation of rural and urban health and sanitation.

Conclusion

Gandhiji worshipped Truth as God and non-violence as the way. It is the 'way of living.' Between the 'way' and the 'goal', Gandhiji said, because the former is in my command, I would consider the 'way' more important in the functional sense, than the end. 'If you take care of the means the end will take care of itself', he stated. In that sense, India as a nation that marches towards glory in the world arena must take up the ways of making her pure and clean, and the end 'glory' would follow suit. "The splendor of the spring is reflected in every tree, the whole earth is then filled with the freshness of youth. When the Swaraj spirit has permeated the society, there is an energy in every walk of life." he maintained.

(The author is Gandhian scholar and Associate Dean at the Gandhi Research Foundation, Jalgaon, Maharashtra)

15 Harijan 18-08-1940
16 Shikshan Ane Sahitya, 18 -08 – 1929; 41:295
17 Harijan, 05 – 12 – 1936: 64:105

START-UPS IN RURAL INDIA TO TRIGGER EMPLOYMENT BOOM

Deepak Razdan

The Pradhan Mantri Jan Dhan Yojana saw the opening of bank accounts by 17 crore Indian poor in just a year. While the bank employees worked hard to reach the poor, the poverty-stricken people making their ends meet with difficulty, responded and deposited their hard-earned money in the accounts. This proved the poor were willing to join the mainstream, if there was faith in their capacity.

Start-Ups in tribal India! Why not? Why should they be confined to big cities or economic centres. Tribal India has vast talent. What is needed is just the resolve, and determination to let every citizen of this country show his or her talent. Rural India and its vast tribal pockets can do it, only if they are given a helping hand.

This is what the Prime Minister, Shri Narendra Modi conveyed in his Independence Day speech. He thanked the banks and their employees for their remarkable performance in opening savings accounts for more than 17 crore poor across the country, mostly in rural areas. This achievement gave hope, he said, that the banks could do more. He said 1.25 lakh branches of the banks could select an *Adivasi* each from a tribal habitation in its area, and if there was no such habitation, a *Dalit* in his place, and help him with financial loan to launch his own Start-Up.

This could take India towards becoming Number One in the world in the area of Start-Ups, the name by which newly-launched manufacturing and business ventures are known today. The units, spread across the country, in every district and block, covering Adivasis and Dalits, would give employment to some workers each, and thus not only boost employment and manufacturing, but completely transform the country's economic life. A brilliant idea, no doubt. Start-Up India, Stand-up India, the Prime Minister said.

Inspired by the idea of financial inclusion, the Prime Minister said this could not be achieved unless there were concrete schemes to implement it. The *Pradhan Mantri Jan Dhan Yojana* saw the opening of bank accounts by 17 crore Indian poor in just a year. While the bank employees worked hard to reach the poor, the poverty-stricken people making their ends meet with difficulty, responded and deposited their hard-earned money in the accounts. This proved the poor were willing to join the mainstream, if there was faith in their capacity.

The 1.25 lakh Start-Ups could be small but there could be another way to employ the

untapped potential of the country's vast rural and tribal population to boost economic activity. Each of these Start-Ups could employ one to two, or even four, generating unprecedented economic activity. While the economy could see a jump in manufacturing, the new ventures could eliminate unemployment and under-employment from rural India. The proposal was that the Start-Ups should not remain a monopoly of urban India.

The suggestion was for a nationwide campaign to launch Start-Ups in the country. People of India, whom PM calls Team India, have given a mandate that the country's resources, systems and schemes be utilized to empower the poor to come out of their poverty. The Centre knows that creating jobs and launching new businesses cannot be done by the Government itself. The whole Team India has to be involved in it. If India is to progress in the 21st century, he said, the country's youth have to be given a chance. They have to be given help to become manufacturers and producers and launch their own Start-Ups. Obviously, the Prime Minister wants the youth to become job-creators and not remain just job-seekers. The strategy would spread the burden of starting productive activity and utilize the nation's whole talent potential. Rural India, particularly rural youth, will be the main beneficiary.

At one time, opening of a bank branch was considered proof of development in an area. Bringing 17 crore poor within the banking system by opening their accounts, had surprised many by attracting total deposits of Rs 20,000 crore in just a year. This development will surely generate many more developmental changes.

Making his suggestions, the Prime Minister rejected the thought of some people that efforts at increasing financial inclusion only create burden for the Government and due to that, the system has to bear the pressure of poverty.

The foundation of the pyramid would stand firm amid any crisis, and if this pyramid of development is based on economic strength, it would increase the purchasing power of these people to a great extent, the Prime Minister believes. Indian economy's resilience in the face of global crises in recent years has confirmed the

validity of the PM's belief. **When the purchasing power of the poorest of the poor in the society increases, nobody can stop that economy to flourish and move ahead. It takes the country swiftly to the newer heights of development and therefore it was intended to give impetus to that. Several schemes like Pradhan Mantri Suraksha Bima Yojana, Atal Pension Yojana, and Pradhan Mantri Jeevan Jyoti Bima have been already launched to empower the poor.**

The Union Budget 2015-16 too proposed to help the launch of Start-Ups. The Government said the spirit of entrepreneurship was to be encouraged in India and new Start-Ups supported. This could **turn the Indian youth from being job-seekers into job-creators. India is one of the youngest nations in the world with more than 54 per cent of the total population below 25 years of age. The young people have to be both educated and employable for the jobs of the 21st Century.** With rural population still forming close to 70 per cent of India's population, enhancing the employability of rural youth is the key to unlocking India's demographic dividend.

India was marching ahead only because its 125 crore people were working as Team India. People's participation is the biggest strength of democracy.

The Government is obviously trying to involve "Team India" in doing whatever it does. The Government systems are trying to empower the poor in their arduous efforts to get rid of poverty; the need is now to spread this message across and remove any doubts that stop the poor from coming forward.

Declaring the Government's resolve to extend financial inclusion through bank accounts in a time-bound manner to each and every citizens of the country, *'Pradhan Mantri Jan Dhan Yojna'* was announced on 2014 Independence Day only because even after 68 years of Independence and in spite of nationalization of banks, 40 per cent of the people were without a bank account till recently. The Government resolved that this blot had to be erased and the poor should be provided a solid base of financial inclusion. The target was achieved surprisingly within the time frame. The Government's resolve to make the change possible was evident when it decided to bear the banks' operational costs in the process. Summing up the Government's philosophy to utilize the banking system to usher in an economic revolution, the PM said "after all, what for the banks exist? They should be for the poor and that's why we had decided to open accounts with zero balance." The Government wants to utilise the presence of the bank branches all over the country for the Start-Up campaign.

Skill India and Make in India are two other programmes which will benefit the youth across the country, including rural areas, by improving their skills and ensuring proper jobs for them. Two-thirds of India's population is below 35. The Government has launched the 'Make in India' campaign and combined it with a detailed process and policy re-engineering to make India a Global Manufacturing Hub for creation of job opportunities for millions of youth. With some modifications, Make in India can be made inclusive for the benefit of the rural poor. Production units in rural areas can cover farm and non-farm activities, which will generate employment and diversify income sources, besides checking migration. Dairy farming, food processing and handicrafts can be specially encouraged. The Centre and the states have been helping rural entrepreneurs and their enterprises, but with limited outreach. The Make in India link can have a strong impact, bringing more investment and enterprises into rural India. Youth and women can be involved for sustainable large ventures.

Make in India was launched to encourage multinational and domestic companies to manufacture their products in India. **The major objective behind the initiative is to focus on 25 sectors of the economy for job creation and skill enhancement. Some of these sectors are: automobiles, chemicals, IT, pharmaceuticals, textiles, ports, aviation, leather, tourism and**

hospitality, wellness, railways, design manufacturing, renewable energy, mining, bio-technology, and electronics. The initiative hopes to increase GDP growth and tax revenue. It also aims at high quality standards and minimising the impact on environment. The initiative hopes to attract capital and technological investment in India. There are several sectors where the educated rural youth can find suitable employment. The initiative aims to provide a congenial environment to the business community so that they can devote their effort, resources and energy in productive work. A number of steps have been taken by the Government to improve ease of doing business. Rules and procedures have been simplified and a number of products have been taken off licensing requirements. 'Make in India' does not target manufacturing sector alone, but also aims at promoting entrepreneurship in the country.

India has a strong resource base of agriculture to justify diversion of investment towards rural India. It is a major producer of fruits & vegetables and the top producer of milk with the largest cattle population. Data shows enough scope for food processing industry. India is third in the world in marine landing, and fifth in poultry production. India's domestic market is over a billion population and 300 million strong middle class consumers. The Indian consumers spend more than 30 per cent of their income on food products. Food and food products are the largest consumption category in India.

India is poised for a big take off in the production and consumption of processed food products. India's food processing sector has been growing annually around nine per cent during the last five years. Given the size of processed food market, there is enough space for more investment in food processing sector in India. Rural India can be converted into a manufacturing hub through appropriate understanding of the local resources, raw materials or skills. An extensive network of food processing training, academic and research institutes spans the country. Mega food parks are being set up in public-private partnership. The cost of skilled manpower is relatively low, compared to other countries, to justify investment.

On its part, the Government is working to create a conducive business environment for sustainable economic growth and various reforms have been undertaken to modernise labour market. Labour Minister Bandaru Dattatreya told the recent G20 Labour and Employment Ministers' Meeting (LEMM) that a number of labour law reforms have been undertaken to rationalise and modernise the labour market regulations and working conditions so that large excluded segment of workforce can be brought into the ambit of labour regulatory framework, and provided with basic labour rights including social security and wages.

The tax proposals would take care of job creation through revival of growth and investment and promotion of domestic manufacturing and 'Make in India'. A series of steps have been taken in this direction to attract capital, both domestic and foreign. In indirect taxes, the rates of basic customs duty on certain inputs, raw materials, intermediates and components have been reduced so as to reduce the manufacturing cost in several sectors. Make in India has all the basic requirements met and can completely transform the Indian rural economy if it gets the right priority in investments.

(The author is a Delhi-based journalist with over 40 years of experience. He has also served in NITI Aayog as consultant on Rural Development)

FACTORS INFLUENCING DEMAND FOR RURAL LABOUR UNDER MGNREGA

Bharati Sahu & Dr. Joseph Abraham

The MGNREGA is different from the erstwhile schemes in terms of being a demand driven programme. Hence, efforts have been made to assess whether the rural employment generation has remained supply-driven, or has become a demand-driven process.

The role of employment as the principal link through which economic growth is transmitted to the poor and enable them to overcome poverty has been increasingly emphasized in the analysis of development policy in recent years. It is also recognized that there is no automatic and predetermined relationship between economic growth and employment and that not all growth is equally employment intensive. Nowadays increasing attention has thus been directed to measure and look for ways to enhance employment intensity of growth.

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The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) aims at fulfillment of the right to work, as it assures employment at the household level to individuals, and guarantees a maximum of 100 days of wage employment in an year. Nevertheless, it signifies a landmark development in the sense that it highlights the confidence of the state in its economic capacity to convert justifiable rights provided in Part IV of the Indian Constitution into justifiable ones. The NREGA was passed by the Parliament of India in its monsoon session of 2005. It came into force in 200 selected backward districts of the country on February 2, 2006, and was extended to 130 more districts from April 1, 2007 onwards. It has since been extended to all the districts from April 1, 2008, extending its universal coverage.

Labour Demand, Poverty Reduction and Employment

Human labour is a resource in which the poor are relatively abundant. They own little physical capital and when they have access to such capital, it is used as a factor that facilitates the use of their labour as an asset to supplement their income. Numerous studies have established that poor households are less able than richer ones to take advantage of the opportunity of domestic and international migration, which limits their access to source of income. For the poor, the productive use of their plentiful factor, labour, is the principal way to overcome poverty.

Several previous studies on MGNREGA identified that demand for labour is highly influential to persondays generated. The jobless growth of the 1990s, stagnation or even decline in the growth of agricultural productivity, distressed farmers committing suicide in various parts of the country and increased migration from the rural to urban areas was the larger socio-economic contexts of (NREGA). It is also considered as an attempt to

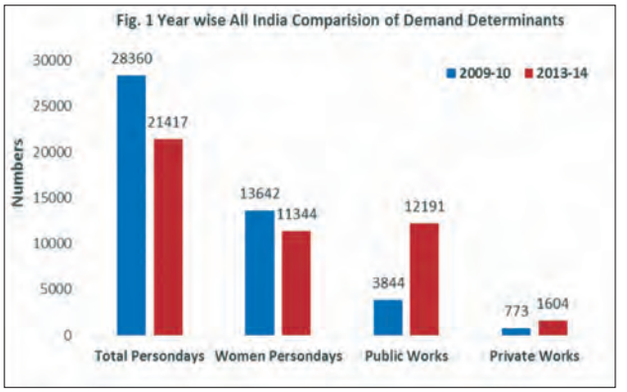
moderate the consequences of economic growth which has increased income and regional inequality in the reform phase. There is a constitutional context as well. V.N. Shukla (2008) stress that Article 41 of the Indian Constitution provides a justifiable right to work under the Directive Principles of State Policy and proclaims, "the State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work in case of unemployment."

The MGNREG is different from the erstwhile schemes in terms of being a demand driven programme. Hence, efforts have been made to assess whether the rural employment generation has remained supply-driven, or has become a demand-driven process. The realization of entitlements and the process and difficulties entailed have also been examined. It is also important to consider the nature of works undertaken and the quality of assets created. The other areas that have been examined in detail include the institutional arrangements, planning process, and transparency and accountability mechanisms of MGNREGA.

Wage employment and poverty reduction linkage can be analyzed addressing certain core concerns. One of them is low wage work, especially in terms of its welfare implications. It increases the survival risks out of poverty, in spite of a person being employed and working. The relationship between poverty and low pay is not straightforward, primarily due to the different definitions and the resulting differences in measurements.

Labour Demand Determinants

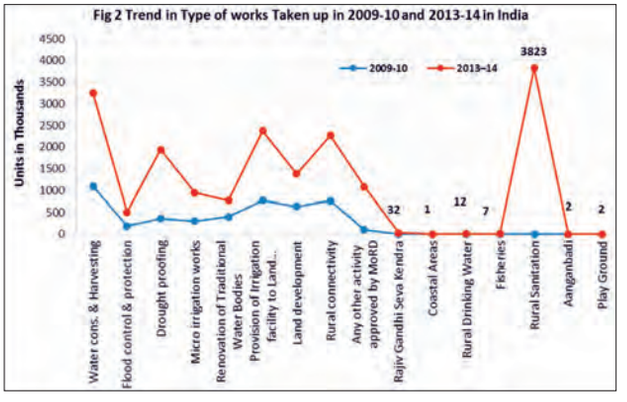
The number of total works taken up consists of both public and private ownership types. In 2013-14 the total number of person days of work taken up on ST household's private land holdings is found to be significantly influencing the creation of jobs as against that on public work sites. This indicates that for ST households the MGNREGS has given a significant additional opportunity to find self-wage employment on own land also thereby to improve the land quality and farm incomes, both direct and indirect. Whereas such was not the case for SC labourers being a major weaker section group,



covered under MGNREGS. From the alongside figure1 it can be seen that the total and women persondays generated has declined at a rate of 24 percent and 17 percent respectively from 2009-10 to 2013-14. Whereas, the number of works taken up in public and private land has achieved more than two fold increase during the period.

Category of Works

For the sixteen categories of works undertaken in MGNREGS, the behavior of such activities in 2009-10 and 2013-14 is illustrated in figure 2. While comparing it can be seen that major progress has been made in Water conservation & Harvesting, whereas lowest in case of Flood Control & Protection works and Rural sanitation works show remarkable progress in 2013-14 compared to 2009-10. On the contrary, under Rajeev Gandhi Seva Kendras and Rural Drinking Water, Fisheries seems with mere 32, 12 and 7 thousand numbers of works respectively and Coastal Areas, Anganwadis and Playgrounds show minimum progress with close to 2 thousand only. Hence there is a need to make a statistical analysis of these to find their significant relation with the persondays generated.



Status of Labour Demand Determinants in Low Performing States in 2013-14

States	Average Persondays Generated	Rural BPL Population	Persondays Generated				Works Taken up	
			Total	SC	ST	Women	Public	Private
Gujarat	40	109.8	229.88	17.51	94.35	101.05	0.82	0.12
Uttarakhand	39	8.9	142.05	26.98	4.04	62.24	0.61	0.01
Jharkhand	38	117	435.3	55.96	161.42	138.86	1.45	0.44
West Bengal	37	188.6	2260.35	748.61	214.04	800.78	4.78	

Regression Analysis

A multiple regression analysis has been carried out to investigate strength of causal association between labour demand determinants as the predictor and rural labour utilized as dependent variable. As the study intends to identify the moderating roles of kinds of works taken up viz. on public land, private land, of persondays generated, these moderators were grouped by splitting them into specific sub-categories. Likewise, broadly three categories of works (rural connectivity, renovation of traditional water bodies, and land development) have been taken into consideration.

As the results of the correlation analysis suggested that the predictor or independent variables are significantly correlated, thus the estimation of the tolerance and the VIF Variance Inflation Factor were necessary to confirm the collinearity among the predictor variables. For any statistical analysis there is a confidence interval which covers a population parameter and to cover a fixed proportion of the population with a stated confidence there is an interval called "tolerance interval" with its end points as tolerance limits. Whereas, VIF specifically indicates the magnitude of the inflation in the standard errors and computationally it is the reciprocal of tolerance: 1 / (1 - R2). Any value of the tolerance less than 0.10 and any value of the VIF more than 10 would suggests high degree of multi-collinearity among the predictor or independent variables. The results of the regression analyses of the study indicated that both the tolerance and the VIF values are within the cutoff points.

For instance, the lowest estimated tolerance was 0.61 and the highest VIF was 1.63 when renovation of traditional water bodies was considered as a demand determinant for total persondays generation. The results for two other categories of works (rural connectivity, land development) in relation to tolerance and VIF were within acceptable and suggested values. As collinearity exerts, "…direct effect on the variance of the estimate" (Mason and Perrault, 1991), so the results suggest that the independent variables of the study exert acceptable influence on the variances of the regression estimates when three categories of works are independently working as determinants.

Among the key determinants of demand for rural labour as reflected by the total person days generated in the MGNREGS, the influence of number of persons living below poverty line has been very significant. This holds true for the base and end years 2009-10 to 2013-14 considered for study. The poor households are the main beneficiaries of this demand driven scheme of rural labour market interventions. It was suggested that if the number of works taken up were to be more, then the days of work availed by labourers would have been much more than present levels. Whereas, the number of works taken up in the scheme does not establish significant relationship with demand for labour. Thus the presence of constraints to initiate new works seems not adversely affecting the total labour days created.

Regional Variations

To highlight the regional differences it has been tried to portray the situation zone /region

wise. The type of works taken up and its effect on the persondays generated in 2013-14 and in particular, within the low performing states has been analyzed.

Low Performing States

The low performing States based on the average persondays generated in 2013-14 are in descending order Gujarat, Uttarakhand, Jharkhand, West Bengal, Haryana, Uttar Pradesh, Punjab, Nagaland, Arunachal Pradesh, Assam and Manipur. Among these states as one would naturally expect the reason for low work day turn out as that of non-positioning of works to the advantage of BPL population or because the works initiated are not near to the labor households demanding employment. These outcomes point to the persistence of lack of proper planning in the awareness creation and in the selection of work sites.

(Bharati Sahu is a Research Scholar Berhampur University, Odisha and Dr. Joseph Abraham is Social Scientist in SECC unit, Rural Development Ministry)

MORE DAYS OF EMPLOYMENT UNDER MGNREGA

The Union Cabinet has given ex-post facto approval to provide an additional 50 days of unskilled manual work under MGNREGA, over and above the 100 days assured to job card holders, in rural areas where drought or natural calamities have been notified.

This will enable states to provide additional wage employment under MGNREGA to the rural poor in drought affected areas. The poorest rural households will benefit from this, as it will help in immediate absorption of rural seasonal unemployment, and reduce rural distress.

NREGA was passed by the Parliament in 2005 and came into force in 200 backward districts of India on February 2, 2006. The scheme was further extended to 130 districts in 2007 and to all the districts of the country by April 2008.

A household is entitled for 100 days of work in a financial year under the scheme. The work can be divided among the adult members of the family. One is entitled to get employment within 15-days of giving the application or from the day work is demanded. The duration of work shall be at least 14-days continuously with not more than 6-days a week. If eligible applicant does not get employment within 15-days he shall be provided unemployment allowances as per laid down terms and conditions.

EMPLOYMENT AVENUES IN BEEKEEPING AND FISHERY

Vijay Gaikwad

Honey and beekeeping have a long history in India. Honey was the first sweet food tasted by the ancient Indian inhabiting rock shelters and forests. India has some of the oldest records of beekeeping in the form of paintings by prehistoric man in the rock shelters. With the development of civilization, honey acquired an unique status in the lives of the ancient Indians.

They regarded honey as a "magical" substance that controlled the fertility of women, cattle, as also their land and crops.

In India beekeeping has been mainly forest based. It is said that several plants provide nectar and pollen to honey bees. Thus, the raw material for production of honey is available free from nature. Beehives neither demand additional land space nor do they compete with agriculture or animal husbandry for any input. The beekeeper needs to spare few hours in a week to look after his bee colonies. Beekeeping is therefore ideally suited to be a part-time occupation for a person engaged in other occupation. Beekeeping constitutes a resource of sustainable income generation to the rural and tribal farmers. Not only does it provide them with valuable nutrition in the form of honey, protein rich pollen and brood. Bee products also constitute important ingredients of folk and traditional medicine.

The establishment of Khadi and Village Industries Commission to revitalize the traditional village industries, hastened the development of beekeeping.

Alongwith with the development of apiculture using the indigenous bee, apis cerana, apiculture using the European bee, apis mellifera, gained popularity in Jammu & Kashmir, Punjab, Himachal Pradesh, Haryana, Uttar Pradesh, Bihar and West Bengal. Wild honey bee colonies of the giant honey bee and the oriental hive bee have also been exploited for collection of honey. Tribal populations and forest dwellers in several parts of India have honey collection from wild honeybee nests as their traditional profession. The methods of collection of honey and beeswax from these nests have changed only slightly over the millennia. The major regions for production of this honey are the forests and farms along the sub-Himalayan tracts and adjacent foothills, tropical forest and cultivated vegetation in Rajasthan, Uttar Pradesh, Madhya Pradesh, Maharashtra and Eastern Ghats in Odisha and Andhra Pradesh.

World Scenario in Beekeeping

Beekeeping is practised over a greater area of the earth surface than perhaps any other single branch of agriculture. Honeybee, originally belongs to the old world Europe, Africa and Asia and the bees later spread to the new world

after 1638 in America, 1822 in Australia and 1842 to New Zealand.

The Present Day Beekeeping Pattern

In the contemporary scenario, beekeeping is generally a means of livelihood as average honey yield in most countries ranges from 10 to 20 kg/ colony and the average yield in the best beekeeping district ranges from 100 kg to 150 kg or even 200 kg, contrary to this in the past.

Race of Honeybees

The most predominant species of hive honeybees in the world is Apis mellifera whose race can be divided into three, they are:-

1. European race
2. Oriental race and.
3. African race.

Market

About 10,000 tonnes of forest honey are produced annually. Forest honey, mostly from rock beehives is usually collected by tribals in forests and is procured by forest or tribal corporations as a minor forest produce. Quite a large quantity is also collected by groups or individuals on their own. Forest honey is usually thin and it contains large quantity of pollen, bee juices and parts, wax and soil particles. The honey collector gets between Rs. 10 and Rs. 25 per kilogram of the forest honey. Forest honeys are mostly multifloral.

Apiary honey is produced in bee hives and is harvested by extraction in honey extractors. Other types of beekeeping equipment like queen excluder, smoker, hive tool, pollen trap, honey processing plant are also used. In many parts of India, the beekeeper gets a much higher price if he sells it directly to the consumer. Apiary honeys are usually multifloral when marketed by state-level marketing organizations, because honey from different sources are mixed while pooling, storage and processing. Several unifloral honeys are available in markets restricted to small areas within the state where it is produced.

Much of the forest honey is sold to the pharmaceuticals, confectionery and food industries, where it is processed and used in different formulations. Apiary honey is usually processed at the producers level. This consists mainly of heating the honey and filtering. A few beekeepers or honey producers co-operative societies have better processing facilities that involve killing of honey fermenting yeasts. About 50 per cent of the apiary honey under the KVI sector is graded and marketed under AGMARK specifications. Honey has so far been consumed mainly as a medicine and for religious purposes. A small quantity has been used in kitchen as an ingredient of pickles, jams and preserves. With the increasing production in recent years, there is an increasing trend to use honey in food. This is obviously the case with the affluent segments of the population.

One often finds a good demand for local honey like honeys from Mahabaleshwar in Maharashtra. People in Maharashtra have a strong liking for jamun, hirda or gela honey which have acquired special individual medicinal significance. Similarly, kartiki honey in Kumaon, Uttar Pradesh is locally much favoured. Some honey have an essentially non-local market. Rubber tree honey can only be sold in non-local markets. Coorg honey with its characteristic flavour was well-known during 1950s and 1960s. Shain or sulah honey from Kashmir has been very popular. Presently litchi honey from Bihar and other

northern states is in great demand. The price structure is regulated by the market forces of supply and demand. Beekeepers in well-known hill stations and other places of tourist attraction take advantage of the popularity of honey and can market their produce at remunerative prices.

Indian honey has a good export market. With the use of modern collection, storage, beekeeping equipment, honey processing plants and bottling technologies the potential export market can be tapped.

Beekeeping requires long term loans at easy rates of interest. The bee colony produces honey only after almost a year initially and then seasonally. Beekeepers need help to be able to get finance for bee colonies and equipment.

Insurance of bee colonies needs to be done at a reasonable premium so that beekeepers can recover their losses in case of disease or the loss of bees due to other factors.

No tax or other monetary benefits for Beekeeping

Beekeeping is neither considered an industry nor an agricultural activity and there is no tax benefit on beekeeping income.

No Control on Use of Pesticides by Farmers

Leading to Death of Bee Colonies in Field Locations. The indiscriminate use of pesticides leads to the destruction of bee colonies in the field.

There is no legislation restricting the farmer from using pesticides that are harmful to bee colonies.

Pricing Structures for Honey

There is a lot of lobbying by farmers beekeepers and beekeeping societies to give the beekeeper high prices for honey. Bee Keepers should get a reasonable price for their products.

Fishery

Fisheries in India is yet another important economic activity especially creating employment in rural sector. This flourishing sector has varied resources and potentials. Only after Independence, has fisheries together with agriculture been recognized as a vital sector with regards to generating income. The vibrancy of the sector can be visualized by the eleven–fold increase that India achieved in fish production in just six decades, i.e. from 0.75 million tonnes in 1950-51 to 9.6 million tonnes during 2012–13. This resulted in an unparalleled average annual growth rate of over 4.5 percent over the years which has placed the country on the forefront of global fish production, only after China. Besides meeting the domestic needs, the dependence of over 14.5 million people on fisheries activities for their livelihood and foreign exchange earnings to the tune of US $ 3.51 billion (2012–13) from fish and fisheries products, amply justifies the importance of the sector on the country's economy and in livelihood security.

India is also an important country that produces fish through aquaculture in the world. India is home to more than 10 percent of the global fish diversity. Presently, the country ranks second in the world in total fish production.

As the second largest country in aquaculture production, the share of inland fisheries and aquaculture has gone up from 46 percent in the 1980s to over 85 percent in recent years in total fish production.

The freshwater prawn farming has received increased attention only in the last two decades due to its high consumer demand. The giant river prawn, macrobrachium rosenbergii, the largest and fastest growing prawn species, is cultured either under monoculture or polyculture with major carps. Culture for mariculture species has been initiated in the country and is presently carried out to a limited extent for seaweeds, and mussels as a commercial activity and some fish species like seabass and cobia on an experimental basis to standardize the technology.

India's aquaculture production basically can be classified into freshwater and brackish water production. There are 429 Fish Farmers Development Agencies (FFDA) and 39 Brackish water Fish Farmers Development Agencies (BFDAs) for promoting freshwater and coastal aquaculture. Some of the important species cultured in India are the Indian major carps and shrimp. Besides these, ornamental fish culture and seaweed farming, are slowly gaining importance in the aquaculture scenario in the last few years as alternative livelihood supporting sectors as small-scale activities.

Aquaculture in India has evolved as a viable commercial farming practice from the level of traditionally backyard activity over last three decades with considerable diversification in terms of species and systems, and has been showing an impressive annual growth rate of 6-7 percent. While the carp-based freshwater aquaculture, mainly constituted by the Indian major carps, such as, catla, rohu and mrigal, has been contributing over 90 percent of the aquaculture production satisfying the domestic need, the shrimp-based coastal aquaculture contributes to only about 5 percent of the export earnings.

As the second largest aquaculture producer in the world, aquaculture in India is also considered as a thriving sector for meeting the increasing fish demand in the coming years.

The development of protocol for ornamental fish breeding and management has provided important livelihood options for marginal and landless farmers in certain localities. Promotion of trout and mahseer farming in the upland coldwater region has also shown significant potential for aquafarming.

Brackish water aquaculture in India is concentrated around the giant tiger prawn as the single most important species. Recently, the culture of exotic, whiteleg shrimp, Penaeus vannamei, however, has attracted the farmers' attention because of its fast growth, low incidence of native diseases, availability of Specific Pathogen Free (SPF) domesticated strains and culture feasibility in wide salinity range. With the production levels of 10–12 tonnes/ha/crop of 3-4 months duration the production of these species has reached to a level of 10,470, 516 tonnes during 2012–13.

Mariculture in India, although limited to the farming of mussels and edible oysters undertaken in some coastal region of Kerala over the years, has successfully produced sea cage farming in recent years, initially with seabass and most recently cobia, which has shown the prospects of commercial mariculture in the country.

History and general overview:

Aquaculture in India has a long history, with references to fish culture in Kautilya's Arthashastra (321–300 B.C.) and King Someswara's Manasoltara (1127 A.D.). The traditional practice

of fish culture in small ponds in eastern India is known to have existed for hundreds of years; significant advances were made in the State of West Bengal in the early nineteenth century with the controlled breeding of carp in bundhs (tanks or impoundments where riverine conditions are simulated). Fish culture received notable attention in the state of Tamil Nadu (formerly Madras) as early as 1911, and subsequently, states such as Bengal, Punjab, Uttar Pradesh, Baroda, Mysore and Hyderabad initiated fish culture through the establishment of Fisheries Departments and support to fishers and farmers for expansion of the sector.

Freshwater Aquaculture

As stated earlier, carp culture forms the backbone to freshwater aquaculture practice in India. Carp culture in India was restricted to as homestead backyard pond activity in West Bengal and Odisha until late 1950s, with seed from riverine sources as the only input resulting in low level of production. Importance of fish culture as an economically promising enterprise was gradually implemented in India. By then, non-availability of quality fish seed and lack of scientific culture know-how constrained the growth and further development of carp culture.

Fish, has retained its prime position as the principal export item in quantity terms and the second largest export item in value terms, accounted for a share of about 37.05 percent in quantity and 17.59 percent in US $ earnings. Unit value realization of fish decreased by 8.79 percent. Chilled items have shown a positive growth in quantity (26.27 percent), rupee value (50.27 percent) and US $ (34.91 percent). The unit value realization also increased by 6.84 percent.

South-east Asia continued to be the largest buyer of Indian marine products with a share of 23.12 percent in terms of US$ value realization. The European Union (EU) was the second largest market with a share of 22.14 percent followed by the United States of America (21.29 percent), Japan (10.61 percent), China (7.67 percent), Middle East (5.96 percent) and other countries by 9.22 percent. The Marine Products Export Development Authority since its inception has played a key role in formulating guidelines, as well as periodically modifying and implementing the development plan for export promotion in the country.

Post Harvest Infrastructure:

The country has the following post harvest infrastructure facilities for promotion of processing and exports of fishery products:

Table 1. Main institutions involved in aquaculture research and education in India.

Sl. No .	Infrastructure component	No.'s / capacity
1	Registered Exporters	1 060
2	Processing Plants	456
3	Total Installed Capacity (MT/day)	18 495
4	Frozen Storages	551
5	Frozen Storage Capacity (MT)	212 854
6	Pre-processing centres	614
7	Pre- processing capacity (MT/day)	11 483
8	EU approved Processing plants	262

Contribution to the economy

The fisheries sector contributes to the national income, exports, food and nutritional security and employment generation. As per the estimates of the Central Statistical Organisation (CSO), of the Government of India, the value of GDP from fisheries sector at current prices during 2011–2012 was Rs 65 541 crores, which is 4.47 per cent of the total GDP of agriculture and allied sectors.

Fish contributes substantially to the domestic food security of India which has a per capita consumption of more than 6.00 kg per annum. With freshwater aquaculture being a homestead activity in several parts of the country, besides adding to the nutritional security it also helps in bringing additional income to rural households.

[The author is a senior journalist with Sakal Daily with specialisation on agriculture writing)

SCOPE FOR SECOND GREEN REVOLUTION

Ratnajyoti Dutta

Rice production can be raised in eastern parts of Uttar Pradesh by leveraging fertile soil of the Indo-Gangatic plains. With sustained focus in states like Assam and Jharkhand, the eastern region has the potential to share more than half of the country's annual rice production. The eastern India shares about 53 percent of the country's rice area and produces around 47 percent of the nation's rice output. The external dependence on edible oil and pulses for imports costs the exchequer in terms of huge import bills. The strategy to reclaim fallow lands for cultivation of soyabean, sunflower, mustard and pulses will reduce the burden of imports to meet growing domestic demand.

India witnessed the first Green Revolution in the late sixties and early seventies, making the nation self-sufficient in grain production in subsequent years. Now, the nation gears up for a Second Green Revolution in agricultural production, after over five decades since the first revolution. This revolution is the need of the hour to ensure higher level of income in the countryside in days ahead.

Indian economy is at a crossroads after sixty eight years of independence. The country's economy has to grow at a sustainable way by ensuring a balanced regional growth. The farm sector is the backbone of the national economy as majority of the population is still dependent on the primary sector, directly or indirectly. Farming continues to be the main source of livelihood for an overwhelming majority.

Prime Minister Narendra Modi has put high priority to usher in a Second Green Revolution, involving eastern Uttar Pradesh, Bihar, West Bengal, Jharkhand, Odisha and Assam. This revolution, based on a balanced and comprehensive integrated plan, will be able to change lives of farmers by ensuring stability in income against the erratic monsoon season, marked by frequent drought and flood, if the rains turn deficient or surplus.

The next revolution will raise productivity of the Indian farmers who still lag behind in terms of availability of good quality seeds, adequate water, power, right price and market for their produce. **The second Green Revolution ought to take place in eastern India where water, sunlight, fertile soil are in abundance.**

The first Green Revolution aimed at promoting mass production, while the Second Green Revolution is required to create sustainable livelihood security for the poor and eradication of poverty by generating gainful employment avenues. This focus ensures Mahatma Gandhi's philosophy of empowering the poor for an equitable distribution of the nation's prosperity, which the Prime Minister repeatedly highlights.

India's First Green Revolution refers to a series of research and development and technology transfer initiatives during the sixties in the northwest region under the leadership of Norman Borlaug, an American biologist. The first revolution in the farm sector saved Indian masses from starvation by raising production of grains through development of high-yielding varieties, expansion of irrigation infrastructure, adoption of modern farm management techniques, and distribution of hybrid seeds, synthetic fertilisers and pesticides to farmers' doorsteps. In 1970, Borlaug was awarded the Nobel Peace Prize for his contribution to promotion of world peace by ensuring food supply in Mexico and Indian sub-continent.

The Indian government selected Punjab to be the first site to try the new crops because of its reliable water supply and a history of agricultural success. India began its own Green Revolution programme of plant breeding, irrigation development, and financing of agrochemicals in the sixties.

The first farm sector revolutionised production scenarios. In the sixties, India's rice yields were about

Area (million ha) under Rice Cultivation eastern states

STATE	YEAR				
	2008-09	2009-10	2010-11	2011-12	2012-13
Assam	2.48	2.50	2.57	2.54	2.49
Bihar	3.50	3.21	2.83	3.32	3.30
Chhattisgarh	3.73	3.67	3.70	3.77	3.78
Jharkhand	1.68	1.00	0.72	1.47	1.41
Odisha	4.45	4.37	4.23	4.00	4.02
West Bengal	5.94	5.63	4.94	5.43	5.44
Eastern UP	3.16	2.99	3.13	3.13	3.16
Total	**24.94**	**23.37**	**22.12**	**23.66**	**23.6**
India	**45.54**	**41.92**	**42.86**	**44.01**	**42.75**

two tonnes per hectare; by the mid-nineties, yields rose to six tonnes per hectare. In the seventies, rice cost about $550 a tonne; in 2001, it cost under $200 per tonne. India became one of the world's most successful rice producers, and even turned a major exporter of the grain, shipping nearly 4.5 million tons in 2006.

But the almost stagnated agricultural production during last couple of decades has to grow again to ensure supplies to feed and sustain the increasing population in the world's second most populous country.

Initiated measures like 'Soil Health Card' scheme and government's theme of 'per drop, more crop' will be aggressively put into action at the farmer's field under the scheme of operations for the next revolution in the farm sector.

Under the scheme of plan to usher the next revolution, the government plans to put thrust on raising productivity of crops like rice, wheat, coarse cereals, pulses and oilseeds in the eastern region. Through applications of improved technology interventions like use of high yielding seed varieties, efficient use of water resources, timely dose of fertilisers and micro nutrients, the production of food crops such as rice and wheat can be raised substantially.

It has been found that in a state like Bihar, rice production can be doubled with the use of combination of factors like use of improved seed varieties, timely irrigation and fertiliser shots, adoption of modern farm practices.

Rice production can be also raised in eastern parts of Uttar Pradesh by leveraging fertile soil of the Indo-Gangatic plains. With sustained focus in states like Assam and Jharkhand, the eastern region has the potential to share more than half of the country's annual rice production. The eastern India shares about 53 percent of the country's rice area and produces around 47 percent of the nation's

Production (mt) of milled rice in eastern states

STATE	2008-09	2009-10	2010-11	2011-12	2012-13
Assam	4.01	4.34	4.74	4.52	5.13
Bihar	5.59	3.60	3.10	7.16	7.53
Chhattisgarh	4.39	4.11	6.16	6.03	6.61
Jharkhand	3.42	1.54	1.11	3.13	3.16
Odisha	6.81	6.92	6.83	5.81	7.30
West Bengal	15.04	14.34	13.05	14.61	15.02
Eastern UP	6.99	5.84	6.73	7.32	7.59
Total	**46.25**	**40.69**	**41.72**	**48.58**	**52.34**
India	**99.18**	**89.09**	**95.98**	**105.31**	**105.24**

Area, production and yield of Wheat in eastern states

State	2010-11			2011-12			2012-13			2013-14		
	A	P	Y	A	P	Y	A	P	Y	A	P	Y
Assam	40	50	1179	53	60	1147	34	44	1304	31	40	1290
Bihar	2100	4100	1948	2142	4725	2206	2208	5357	2427	2009	4738	2358
Chhattisgarh	107	1225	1144	109	133	1227	101	141	1396	103	134	1301
Jharkhand	100	160	1642	159	303	1908	164	319	1944	174	370	2126
Odisha	1.4	2.04	1458	1.46	2.4	1644	1	2	1894	1	1	1000
Uttar Pradesh	9640	30000	3113	9731	30293	3113	9734	30302	3113	9839	29891	3038
West Bengal	320	870	2760	316	873	2765	322	896	2786	332	928	2795

Area in 000 ha, Production in 000 tonnes and yield in kg/ha

rice output. The government aims at popularising adoption of stress tolerant rice varieties, both for drought and flood in the eastern belt.

The government aims to bring around seven million hectares of fallow land under cultivation in the eastern region. These fallow lands can be used for the cultivation of pulses and oilseeds, promising high returns to small and marginal farmers in these regions where land holdings are small and scattered.

The first green revolution brought in food security in grains production but did not result in self-sufficiency in oilseeds and pulses production. The next revolution aims at reducing import dependency for edible oil and pulses through promotion of domestic production.

India is the world's top edible oil importer as supply falls far short of demand. The country is also one of the world's leading importers of pulses. The external dependence on edible oil and pulses for imports costs the exchequer in terms of huge import bills. The strategy to reclaim fallow lands for cultivation of soyabean, sunflower, mustard and pulses will reduce the burden of imports to meet growing domestic demand.

Another strategy to raise production from a piece of farmland is to promote second cropping technique. The strategy relates to promoting sowing of wheat crop just after the harvest of

Constraints for low productivity of crops in Eastern India

- Low spread of hybrid and high yielding varieties
- less adoption of improved agronomic practice
- Imbalance use of fertilizers
- Salinity in coastal areas and acidic soil in lateritic belt
- Low level of farm mechanization
- Small and fragmented land holdings
- Lack of infrastructure for seed production, certification and seed storage
- Large area is under rainfed conditions
- Occurrence of natural calamities (frequent floods and droughts).
- Lack of marketing & transport infrastructure, primary processing and storage

Source: Agriculture Ministry, GoI.

paddy wherever the field is under assured irrigation facilities. Intercropping of horticulture crops will also be encouraged for extra income.

Strategies for the Second Green Revolution also include creating irrigation structures like farm ponds, lift irrigation point to improve irrigation potential and cut excessive dependence on monsoon rainfall.

Every year, the monsoon retreat from the western region from September after remaining active for four months from June. The country witnessed two successive deficient monsoon since 2014. But the resilience of the Indian farm sector was demonstrated when the monsoon rainfalls were deficient by 12 percent last year, but the grain production dropped only by 4.7 percent in the crop year to June, 2015.

In 2015, the June to September monsoon season also set to be deficient though a healthy distribution over main crop growing areas had helped evade a widespread drought.

The summer rains are the lifeline of the rural economy as the agriculture sector shares around 14 percent towards the national economy. The success of the monsoon is critical for consumer demands in rural areas for goods like cycles, refrigerators. If the monsoon fails in a year, then that year usually witnesses distress in rural areas, reflected in terms of slide in income, rise in unemployment and in extreme case resulting in farmers' suicides. The excessive dependence on the monsoon rains has to be minimised by raising productivity in rainfed areas through technology intervention by using drought or flood resistant seed varieties.

Farmers will also be encouraged to adopt farm machineries and implements that are suitable for small land holdings. The strategies also include creating infrastructure such as warehouse, procurement centre, marketing infrastructure. Farmers in the eastern region will be provided with global research experience at their fields with tailor made advisories from Central Rice Research Institute (CRRI), State Agricultural Universities (SAUs) and Indian Council of Agricultural Research (ICAR) affiliated institutions.

Prime Minister Narendra Modi has already set an agenda for making India a developed nation in near future. This agenda for growth is based on balanced and equitable regional growth. On several occasions, he has highlighted the need to have a higher growth in the eastern region for ensuring the balanced growth of the nation. It is necessary to ensure a higher growth in the farm sector to sustain a double digit growth for the entire economy.

A Second Green Revolution will ensure higher production of grains by realising higher productivity for rice, wheat, maize, oilseeds in the eastern region. Another revolution in the farm sector is unlikely to take place in the north-western grain bowl region of Punjab and Haryana where production and productivity for most of the food crops have been saturated with not much room left for increasing overall output.

The next green revolution has the mandate to ensure food security for the world's sizeable population that live in the South Asian country where children suffer from malnutrition and hunger.

The second revolution is vital for ensuring green a balanced regional growth in the country, an agenda dear to the Prime Minister. In fact, the next agricultural revolution is a necessity for India to feed growing number of mouths. This should happen at the earliest to give a cushion against any spurt in food prices due to supply shortage that may even lead to social unrests. Everything can wait, but not the next green revolution.

(The author is a Delhi based senior freelancer. He has worked with Reuters, PTI & Dow Jones)

DAIRY DEVELOPMENT : GEARING UP PRODUCTION AND PRODUCTIVITY

Dhurjati Mukherjee

India is world's largest producer and consumer of milk with a global share of about 18 per cent. Another factor that makes India leading producer in milk is the technology, which enables it to increase productivity. According to reports, the dairy sector is one of the highest contributors in the country's economy, as the milk production grew at a rate of 4 per cent per annum vis-à-vis world growth rate of 1.5 per cent.

India has drawn up a plan to create a 'white grid' or a milk grid in South Asia that will seek to replicate the success of the white revolution launched in the 1970s. The proposed regional milk grid will benefit dairy farmers in the region by linking milk surplus countries with the deficit ones. India will also push for tariff reduction to less than 5 per cent under the South Asia Free Trade Area (SAFTA) agreement to facilitate the grid.

It is understood that just like the energy grid there would be milk grid to facilitate liquid milk trade between the SAARC countries so that the dairy farmers benefit. Earlier SAARC countries had agreed to a South Asia electricity grid to trade power within the eight nations at the summit Kathmandu in 2014.

According to reports, the dairy sector is one of the highest contributors in the country's economy, as the milk production grew at a rate of 4 per cent per annum vis-à-vis world growth rate of 1.5 per cent. With this it has also emerged that India is world's largest producer and consumer of milk with a global share of about 18 per cent. Another factor that makes India leading producer in milk is the technology, which enables it to increase productivity in the field, and this needs to be transferred to build supply capabilities, so that there is enough milk for the region as a whole.

India produced 140 million tonnes of milk in 2013-14 as against 132 million tonnes in 2012-2013. It is also said that going by the existing rate of growth in milk production, in next ten years, India may have the potential to export. This steady growth of milk production has helped to boost the nutritional status of the population of the country. According to projections by the National Dairy Development Board (NDDB) the country's demand for milk is expected to be around 155 million tonnes in 2016-17 and 200 mt in 2021-22.

It is heartening to mention that the purchasing power of the Indian consumers is on the upswing with growing economy and continually increasing middle class population. In fact, milk production in the country is a regular part of the dietary programme – specially of children and lactating mothers – irrespective of region and thus demand is likely to rise steadily. The increased production of milk has

improved the per capita milk availability to 250-255 gms, but it still falls short of the recommended nutritional requirement of 284 gms by the Indian Council of Medical Research (ICMR).

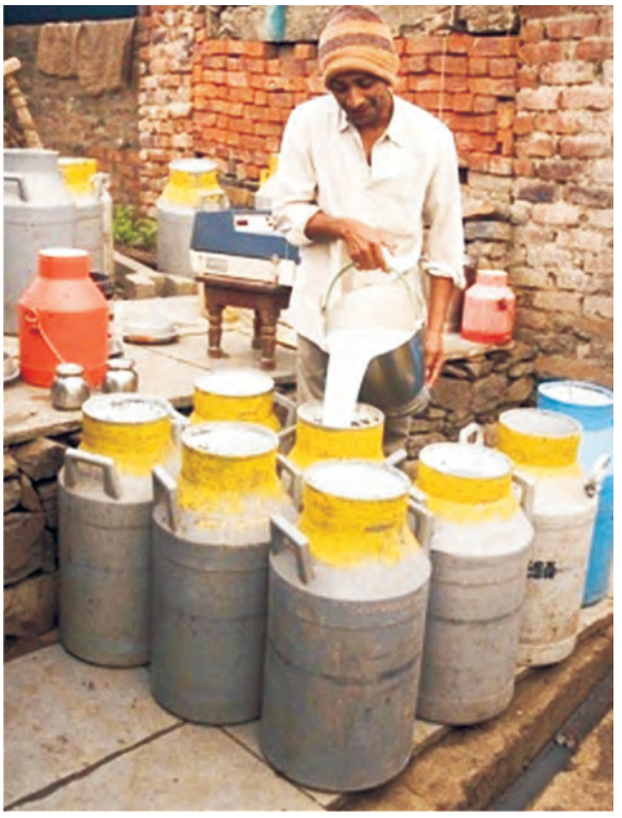
As of now, the trade in dairy products within the SAARC countries is considerably low. The country's top milk brand Amul, which is part of the Gujarat Cooperative Milk Marketing Federation having 17 milk cooperatives, exported Rs 250 crores in 2014-15 and the firm plans to focus on the SAARC countries in the coming years. Thus milk grid would be highly beneficial to the company to expand its export base.

An agricultural country like India with majority of the population living in villages, in spite of high GDP growth has been fighting poverty and social injustice. Although the economic conditions of the people have substantially improved and the standard of living changed to a large extent, the country continues to face economic problems of great magnitude. Among the various development programmes on the economic front is the plan to exploit further the natural resources in the production of milk and go in for commercial dairy farming.

It is also noteworthy to mention that the dairy sector was in some time back because of focus reports of milk adulteration. As per the Food Safety Standards Authority of India (FSSAI) national milk survey, which found that nearly 70 per cent of the 1791 samples, picked up from different states failed to conform to FSSAI standards. Even some leading private companies in the dairy sector did not conform to national standard norms, thereby making it mandatory for milk manufacturers to adhere to certain tests, specially e- coli.

Another study conducted recently by Bengal Engineering and Science University (BESU) found adulterants like rice starch, raw sugar and salt as also detergents and pathogens like e-coli in milk by the major suppliers.

Intensive cross breeding implemented throughout the country over the past one or two decades has helped in the country's emergence as a premier dairy nation. There are tremendous opportunities for large-scale investment and scope for specialized commercial dairy farming. The entry of big business houses in the dairy sector and setting up of a large number of milk processing plants –each handling around 10 lakh litres per day -- could lead to further enhancement in milk processing capacity.



Keeping this in view, the government decided to increase production by developing indigenous breeds of cows. Two national centres would be set up to develop new breeds of *'desi'* cows and support a network of Integrated Indigenous Cattle Centres – called *Gokul Gram* -- across the country. One centre will be in a northern state and the other in the southern part of the country and work to improve the genetic makeup of *desi* breeds of cows and also increase their stock.

The centres would be established under the National Gokul Mission, aimed at enhancing production of indigenous breeds of cows through professional farm management and better nutrition. During the 12th Plan, the Mission received Rs 500 crores and an additional Rs 150 crores has been allotted during the current financial year.

The genetic improvement of our dairy stock is imperative keeping in view the needs of the country. It is well known that Artificial Insemination (AI) technology has been utilized the world over for improving the genetic merit of the stock and for higher reproductive efficiency. Nevertheless, in India, AI coverage is dismally low – below 20 per cent. There is need to boost up AI services utilizing the semen of high genetic merit bulls. The state animal husbandry departments should take a lead in this matter and motivate farmers to adopt AI technology. Private firms may also be encouraged to set up their field insemination services and charge the farmer a fixed amount for each pregnancy. Efforts have to be made for AI coverage to be increased to over 60 per cent within the next 4-5 years or so.

Obviously, the germplasm of exotic breeds of cattle namely Holstein Frisian (HF) and Jersey breeds will continue to be the choice for crossbreeding indigenous breeds of cattle. The cattle breeding policy should be guided as the National Project for Cattle & Buffalo Breeding (NPCBB) for enhancing the productivity of cows for milk and buffaloes for both milk and meat. It also needs to be pointed out here that efforts for genetic improvement of nutrient requirements of improved cows and buffaloes need proper attention in order to realize their high production potential.

The advent of green revolution in the country had been credited largely to the establishment of a strong and vibrant agricultural service network. However, such an extensive service is virtually non-existent in case of animal husbandry or specifically dairy development. Over the years, the concerned government departments have not been successful in imparting relevant knowledge to the farming community though the scenario has started changing in recent times.

Thus, considering the importance of the dairy sector in socio-economic development of the country, it is imperative for proper planning and policy formulation so that the second white revolution could be ushered in. The dairy sector has in-built strengths, which can be harnessed for propelling further growth. The vast dairy animal production could prove to be a vital asset for the country and, unlike many other natural resources, which will deplete over the years, dairy production will continue to propel the Indian economy.

Amul Experiment

The example of Amul, which is part of the Gujarat Cooperative Milk Marketing Federation having 17 milk cooperatives, exported Rs 250 crores in 2014-15 is recognized the world over as a unique success story where a cooperative has helped transform the dairy sector. Not only that, it has helped in improving the livelihoods of those involved in the trade. It has demonstrated that a near-arid environment is no hindrance, animal husbandry, including scientific breeding can do wonders for milk productivity.

Various types of Amul's dairy products have not only been a monopoly in the domestic market but also exported to many Asian markets, earning valuable foreign exchange. It is gratifying to note that the Company now plans to focus on the SAARC countries in the coming years.

(The author writes on environment and developmental issues. He is presently working as a freelancer)

TERRACOTTA: THE AGE-OLD HANDICRAFT

HENA NAQVI

Terracotta craft is almost as old as the human civilisation itself. The humans learned to make earthenware, as soon as they started living in the form of community. The famous Sanskrit drama by Shudraka "Mrichhakatikam" ('Mitti ki Gari' in Hindi) is titled after a toy cart made of terracotta. It flourished during Buddhist period. Gorakhpur, a small town in Eastern Uttar Pradesh and very near to Buddhist circuit is known as the birthplace of this age-old handicraft. The art nurtured and matured over the ages, has now emerged as a combination of traditional and modern artefact. There are five generations of terracotta artists in a village called Aurangabad of Gorakhpur who have taken the art to international level and won several awards from the union and state governments. As Prime Minister Narendra Modi has put forth a vision of ***"Making India a Skill Capital of the World" and has launched "Pradhan Mantri Kaushal Vikas Yojana",*** *the terracotta products of Gorakhpur also need attention, patronage and revival to attain a sustainable existence in the competitive market.*

There are many skills and crafts that need proper attention and skill development to make them sustainable and a profitable vocation. Terracotta, an age-old clay-craft is one of them.

Terracotta is practised in many parts of the country, including Gorakhpur in Uttar Pradesh, Dhubri in Assam, a few districts of West Bengal (Bankura Horse, an exclusive produce of Bankura district is quite famous), Bastar (Madhya Pradesh), Gujarat, Tamil Nadu (Aiyanar cult pottery), Odisha and Haryana (*Chilum* and *Hookah*). In all places, it has strong regional influence, but much variety is seen in Terracotta craft of Gorakhpur where it survived over the passage of centuries and has been successful in retaining its original form apart from adopting innovations.

Gorakhpur, the land of famous Urdu poet Firaq Gorakhpuri and the seat of the *Guru Gorakhshanath* is also known for terracotta. Terracotta of Gorakhpur is not just a means of livelihood or a skill, it is an art nurtured for generations in the rural areas of the district. The ornately decorated terracotta items manifest artists' hard work and creative excellence. The art has matured over the ages and come ahead to include the innovations to make the items more and more presentable and saleable. Appliqué, ornamentation, natural saffron colour and experiments with innovative shapes are some of the features that make this art different in Gorakhpur.

Terracotta has a religious tradition in this region. Horses or elephants of terracotta are offered to the deities once the *mannat* (wish) of the family is fulfilled. The terracotta deities particularly Lord Ganesha can be found in almost all the Hindu households of Gorakhpur and adjoining areas. With the passage of time, the art has witnessed a combination of tradition and innovation. This is evident in the decoration pieces like lanterns as a modern electric lamp, decoration *hookahs*, tea/coffee cups, hanging lamp shades, *Suryarath*, *Krishnarath* etc.

Aurangabad, a village of Bhatahat block of Gorakhpur district may be a non-entity for the rest of the world but it is the proud nurturer of pre-Christian era art of terracotta. Situated 19 km away from the city on Gorakhpur, the village is fortunate to have '*gudai*' or moist alluvial soil, the basic ingredient of terracotta in abundance. The village is also known for five-generations of

The Roots

The word 'terracotta' means the baked earth. In practice it implies clay based unglazed ceramic but the range has expanded itself to include glazed ceramic as well as ceramics where the fired body is porous and red in colour. The term is also used to refer to items made out of this material and to its natural, brownish orange colour. Its uses include flower vases, decoration pieces and figures of the deities.

terracotta practitioners. Gulabchand, the well-known artist glorified his village Aurangabad when he received President's award in the year 1979 for his artefact-*Mahabharat Rath*. Shyamdev Prajapati, another renowned artist received the national *'Siddhahasta Shilpi'* award in the year 1980. But much before that, his art and excellence was noticed and honoured when the Postal Department issued a stamp on one of the idols produced by him in the year 1966. The year 1966 brought another honour for the village as Smt. Sukhraj was honoured with nation level award for her artistic excellence in terracotta. Gulabchand participated in *Bharat Mahotsava* in Britain in the year 1982 to represent his artistic excellence. Interestingly enough, nine sacks of the special gudai soil of the pond of Aurangabad village also travelled to Britain along with Gulabchand which was used by him during the Bharat Mahotsava to exhibit the artistic excellence of his village. Gabbulal, another artist of the village received the national award for his *Suryaratha* in the year 1983. At present, this Suryarath is preserved in the state museum of Karnataka. The list of award laureates from this village does not end here. There are several other artists like Shiv Shankar and Shiv Nandan who have received national or state level awards for their contribution towards this field. There are several unsung heroes of this field who have contributed very significantly for establishing terracotta in the international market and for making it an export-quality product.

The required support given by the district administration and other government bodies has been a supportive factor which reflects on their faces as well as their village. The Varanasi branch of the Handicrafts Board, New Delhi has prepared a panel of master trainers. These trainers have trained the potential candidates of the neighbouring villages like Saraiya, Bharwalia, Gulariha Bazar, Hasanganj, Hafiznagar etc. of Bhatahat block. The district administration, Gorakhpur has taken a lead to construct a workshop for a panel of 12 reputed artists of the Aurangabad village. A self-help group called *'Lakshmi Swayam Sahayata Samuh'* has also been formed in the village to foster the art and reach the artefacts to other parts of the India and abroad. There are also exhibitions organised by units of the Government of India like National Small Scale Industries Corporation Limited, Ministry of Textile, Office of Development Commissioner (Handicrafts) etc. These exhibitions provide a platform to the artists of Aurangabad to exhibit their skills. "There is not much difficulty in

Terracotta in history

*The Prime Minister Narendra Modi recently visited the **"Terracotta Warriors Museum"** in XI'an during his state visit to China. The museum showcases a collection of terracotta sculptures depicting the armies of Qin Shi Huang, the first Emperor of China. These were buried with the emperor in 210–209 BC supposedly to protect the emperor in his afterlife.*

The figures include warriors, chariots and horses, the majority of which remained buried in the pits nearby Qin Shi Huang's mausoleum.

*Some terracotta samples found along the **River Nile** are dated back close to 10,000. There are many such stunning examples of terra cotta works from Egypt dated to be as early as 5,000 BC.*

Terracotta has been practiced in Nepal from the beginning of the Christian era. The samples of terra cotta found in Kathmandu Valley date back close to that time. Large number of terracotta figurines has been discovered from the Indus Valley sites.

*A large sized mother goddess of terracotta is one of the best discoveries of **Mohenjodaro** excavation.*

getting loan from banks for the business...." says Deepchand, a recipient of consolation prize in the district level exhibition *Technology Fair* conducted by National Small Industries Corporation Limited, Allahabad in 2007.

"Our children have been studying in schools/ colleges but manage time for this traditional art...." says Gulabchand. His son Samrendra Kumar now teaches the art in the famous Dehradoon school. "Our products do not have a demand in the local market, we send our products to other cities of Uttar Pradesh as well as other states...", says Pradeep Kumar, a young artist of the village. Absence of a showroom at district level is the only shortcoming which pricks the villagers. They say, "There should be at least a showroom in the city for the passing tourists who have no time to visit Aurangabad."

The practitioners of terracotta have been striving to protect this art from the onslaught of modernity, erosion of culture and people's growing craze for sophisticated high-tech decorative items. The old generation of artists hopes to see a new height of the art after a full time engagement of the next generation in the coming years. However, unlike other age-old arts and craft that became extinct in course of time, the future of terracotta is very bright. It is profitable, well protected by the government and even more, it is so much in demand that the artists need more hands to fulfil the ever-growing demand, as Deepchand says, "there is no difficulty in persuading the next generation to adopt the skill as they are already

Terracotta: Development initiatives by the Government

- Infrastructure facilities like workshops, road connectivity to the villages, solar lighting and powered wheels (*Chaak)* are being provided by the State and Central Handicraft Boards.
- Self Help Groups and clusters are being created through Non-Government Organisations and Voluntary organisations for production and marketing.
- Marketing channels are being formed through SARAS outlets.
- Exports of terracotta items are being facilitated by Export Promotion Council for Handicrafts, New Delhi.
- The artisans would insurance cover the umbrella of "Aam admi Beema Yojana". Kins of beneficiary would be entitled to get Rs. 30,000 in case of natural death and Rs. 75,000 in case of accidental death. Apart from this, a maximum of two children of beneficiary get scholarship of Rs. 100 per month. The premium of the insurance is Rs. 200 per annum; of which the beneficiary is to pay only Rs. 100 while the remaining amount will be met out from Social Security Fund. The scheme is being run by the Ministry of Finance and Life Insurance Corporation of India.
- The artisan may get facilities like training and finance from National Skill Development Corporation (NSDC), National Skill Development Agency (NSDA) and National Skill Development Fund (NSDF).
- The artisans may get further details from website *www.skilldevelopment.gov.in* for availing various facilities for their skill enhancement.

doing it seeing the bright future of the global trade in this craft."

The age-old craft of Terracotta has been able to change the living standards of the families engaged in it for generations. The generation is getting online orders to fulfil the global demand of the terracotta. 'SARAS' outlets have

been established to facilitate marketing of the produce. Recently, solar power generators have been installed in Aurangabad village for lighting of these shops and to run water lifting pumps. While majority of population in 10 villages of two development blocks (Bhathat and Chargawana) in Gorakhpur are directly engaged in production of terracotta, many of the progenies having MBA and BBA degrees are engaged in export and domestic marketing of the produce. **The Skill India Programme will surely enhance their skills and endeavour to preserve and promote the**

age-old craft. There are 4 President awardees and 5 state level awardees in the area. The younger generation will surely fetch more and take the art to a new height. At present, there are approximately 30 self help groups engaging terracotta artisans whose livelihood is based upon terracotta.

The number of artisans engaged in it and the revenue earned through this craft is expected to increase with the patronage-initiatives of the Union and State governments. As per ASSOCHAM's estimates, the total export of handicrafts is expected to become nearly double to US$ 2.7 billion in FY 2015-16 and further increase to US$ 3.8 billion by FY 2020-21. The export of terracotta items to various countries is picking up gradually. However, it has a meagre share in total handicraft exports.

With new initiatives taken by the government for skill enhancement, the residents and artisans of Aurangabad and its surroundings have got a ray of hope that the union as well as state government would come forward to enhance their age-old skills and the profession would get a new push.

(The author is a state Programme Manager with 'SAKSHAM', Department of Social Welfare, Government of Bihar)

PAYMENTS BANKS: THE LAST MILE CONNECTIVITY PUZZLE

B.K. Rajaram

RBI has recently given "in principle" approval to 11 players to start what it termed as Payments Bank. These Payments Banks will have a vast potential to tap the unbanked or underbanked consumers in the country. Since August 2014, banks have opened 181.8 million accounts under the PMJDY, making it the largest program to tap the potential of the unbanked or underbanked populace.

Gauri Mohan Thakare, 33, is like any other rural homemaker staying in a newly carved district of Palghar in Maharashtra. This district is predominantly tribal, and Gauri is an inhabitant of a small village called Beriste. In her entire life, she did not see how a bank looked like or what kind of services it provides to people like her. It was not that Gauri and people in her family never required any basic financial services. She earns her wages from daily labour, and her farmer-husband sells farm produce from his small piece of land. They spend their cash mostly in weekly transactions in the market. A little money that they can save in a month runs into a few hundred rupees and Gauri stores them in the form of cash in her home only. She has her gold bangles and Mangalsutra – a sacred neck thread that Hindu women wear – as the only form of financial security.

When *Pradhan Mantri Jan Dhan Yojana* (PMJDY) was started in last August, one of the competitive PSU banks set up a camp in Palghar and people from Beriste village – including Gauri's husband - first time opened a savings account. They were excited to see what a bank branch looks like because they never entered the premise before as they were totally unbanked in their financial life. When Mohan opened his savings account, he was not sure how it will help him in daily lives but as a young farmer he was willing to experiment with his life. The bank branch is at a tehsil place and far from his home; hence they frequently do not go to this bank branch. The post-opening awareness camps are also being run in few places, and Gauri and Mohan attended one such camp to know the concept of interest. They were enthused to know that interest is a kind of extra income they never had. They have now started saving small amounts for future needs, hoping to benefit from banking.

Mohan and Gauri are now beginners in their banking journey, which have just started. This journey has a potential to transform their lives from being a completely unbanked population to minimally banked category. There are still several major hurdles in improving banking participation for Gauri and Mohan. For example, the nearest bank branch is 15 kilometres away from their home, and they have to spend at least 50-100 rupees to go to the branch, transact and come back. Although, Mohan has a simple mobile phone, he is ill-equipped to operate SMS banking on his own. Also, there is a trust deficit for such types of transactions in the rural areas, where human beings are not involved. Mohan and his likes have been doing financial transactions all their life in person. Be it getting money from money-lender, selling their farm produce to middlemen

or buying household items from a shopkeeper in a market place. It is not yet convenient for them to use any form of impersonal transaction forms like SMS banking, online banking or social networks-based banking, etc. It is in this challenging scenario that Mohans and Gauris of rural India are going to be the face of the newly-banked population.

People in rural India and urban slums are the most important stakeholders to widen the banking net for their better financial stability and security. There is an attitudinal change that is needed to be achieved for the Indian unbanked population towards financial life. But this attitudinal change is not likely to yield major positive transformation as long as banking infrastructure remains inadequate to cater to the bottom of the pyramid. Paucity of branches in the rural, interior and tribal areas; low penetration of banks in the customers from rural India; lack of technological and peripheral support systems to establish impersonal forms of banking and lack of qualified banking professionals in the interior parts of the country are some of the issues that have traditionally prevented banks from connecting to the customers from bottom of the pyramid even after 69 years of independence. This last mile connectivity is a jigsaw puzzle that the Reserve Bank of India is trying to solve through institutional level reforms, changes and policy decisions in the banking industry for several decades now. One of the major steps in addressing this issue was to conceptualize a framework of Payments Banks, which was done by NachiketMor committee. This major conceptual framework is now on the verge of being operationalized by accepting to issue licenses to interested players to start Payments Banks. Payments Banks is one such instrument in the hands of banking regulator to solve this Jigsaw puzzle of last mile connectivity and improve banking access to people.

What Are Payments Banks?

RBI has recently given "in principle" approval to 11 players to start what it termed as Payments Bank. According to NachiketMor committee (Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households, set up in September 2013; submitted report in Jan 2014), Payments Banks will be allowed to collect deposits from people, will invest this money in government securities and give interest to consumers, and can issue ATM and debit cards to its customers. However, they can not lend their money to customers. These new age banks will be similar to the pre-paid instrument providers (PPI) operated by telecom companies at present. The customers of PPI use digital wallets to deposit their money into it and spend it wherever required without having to carry credit cards, debit cards or a chequebook.

But major difference between a PPI and a payments bank is that a PPI doesn't offer interest on the money deposited in the digital wallet, while the Payments Bank will offer interest on the money in the wallet. This marriage of telecom technology with the banking operations will be utilized to bring in last mile connectivity into the system. This reliance on telecom is the reason for many of the Payments Banks licenses have been given to mobile operators, wallet companies, etc. Although all Payments Banks are not likely to devise the same business model, RBI is encouraging them to experiment and achieve their objectives; hence it has not recommended any particular business model to these banks. These banks will take on the mandate to improve last mile connectivity with the small businesses and low-income households. Some companies like telecom players have mobile-based technology as their strength, backed by their banking partners. While others like India Post has a vast branch network, which not even the largest lender State Bank of India can even imagine.

These Payments Banks will have a vast potential to tap the unbanked or underbanked consumers in the country. Since August 2014, banks have opened 181.8 million accounts under the PMJDY, making it the largest program to tap the potential of the unbanked or underbanked populace. Ideally speaking this is the identical target group for the new Payments Banks. Plus there will be other savings account holder who would like to enjoy the technological empowerment to indulge in convenience banking. All this will help widen the banking access to people. Most of the Indian economy is a cash economy. There are all out efforts by the policy makers at the RBI, Government of India to make it a less cash-dependent economy for the benefit of the unbanked or underbanked population. The setting up of Payments Banks is a small step in this direction. The universal banks, which operate under full-fledged banking license from the RBI and can lend to people, are also likely to deepen its penetration in the same markets out of competitive reasons.

Once Payments Banks are operational, then Gauri and Mohan can technically avail the services of any of the payments banks or universal banks. These banks will offer them convenient banking options at minimal costs. Mohan need not go to taluka place and can now use his non-smart mobile to use his money in a prudent way. Or he can be helped by a payments banks correspondents/retail representatives to do his transactions. He can deposit his money and continue to earn some interest but also will be linked to the marketplace through value-added services provided by these banks. He can access the latest prices of his farm produce, contact the buyer and settle the transaction through a bank. Gauri will get a safe place other than her home to deposit her small savings and be more assured about her future. They may also get a chance to use their debit card, chequebook for some select transactions. As Gauri and Mohan become matured in their banking transactions, they will generate a trail of their financial transactions, which can then be analysed by other lending institutions with the help of established credit bureaus. Although Payments Banks won't be able to lend through their books but their relationships with banking partners will enable them to facilitate loans.

Thus, Payments Banks is a step in the right direction that is going to further government's financial inclusion agenda in a much more efficient manner. They will bring in much needed last mile connectivity into the vast unbanked or underbanked areas. This connectivity will further improve engagement of the bottom of the pyramid in the financial system. These population groups will slowly get hooked to methods of financial savings. This will inculcate the culture of financial savings in them. They will be able to transact via banking channels and new-age, simple-to-use technology platforms such as mobile wallets. This will create a whole lot of new virtual market places in the rural areas. Unlike virtual urban market places, these virtual rural market places will have a strong connect with the real rural world through vast retail networks of Payments Banks. The retail network will also create new jobs in rural areas. It will boost consumption in a direct and indirect manner further strengthening the rural economy in the country. The competition within Payments Banks and with the Universal Banks will ensure that people like Mohan and Gauri get their banking and allied financial services at their doorstep, at lowest possible prices and in a much efficient way than the past. This will be a step towards creating a financially well-connected nation, with rural as well as urban population enjoying the benefits of banking services.

(The author is a Mumbai-based freelance journalist writing on financial and policy matters)

IMPACT OF FALLING OIL PRICES ON RURAL ECONOMY

Kailash Rajwadkar

The impact of the declining crude oil prices needs to be seen in light of the changing landscape of the country's rural economy, which is no longer limited to agricultural income. Within the agri-segment, cheaper diesel to run machinery, trucks and tractors will certainly ease the pain for the rural community as the decline in the petrol and diesel prices by 11% and 18.3% respectively will no doubt bring down the transportation cost

India's crude oil basket has dropped by 57.8% to $ 42.63 a barrel now in August from $101.7 a barrel in August last year aiding a substantial decline in the country's import bill and thereby curbing fiscal deficit to a large extent and improving macro-economic indicators of the nation.

In rupee terms, the crude oil basket has declined by 53.8% to Rs 2,820.4 a barrel due to depreciation of rupee by 9.4% during the same one year period.

However, despite the substantial decline in crude oil prices, the petrol and diesel prices have dropped by 11% and 18.3% to Rs 63.2 a litre and Rs 44.95 a litre, respectively.

Nevertheless, the economy at large has benefited by way of lower fiscal deficit and lower inflation that has triggered the Reserve Bank of India to cut policy interest rates by 75 basis points or 0.75%. While the commercial banks are yet to pass on the entire benefit, the same is expected to drip down in the next few months.

Particulars	August 2014	August 2015	% change
Crude Oil in $	101.07	42.63	-57.8
Crude Oil in Rs	6111.70	2820.40	-53.9
Rupee value vs $	60.47	66.16	+9.4
Petrol	71.00	63.20	-11.0
Diesel	55.00	44.95	-18.3

Overall benefit to the economy, both urban and rural, according to estimates by a recent report by rating agency - Crisil that suggests the sharp fall in fuel and food prices generated savings of Rs 509 billion for Indian consumers in 2014-15 and that this will expand to a whopping Rs 1.4 trillion by 2015-16. CRISIL expects this to deliver a big thrust to consumer spending.

Rural Indian economy

Before we enter the nitty gritties of India's rural economy, let us understand its landscape. According to a study undertaken by MART – a consultancy firm in rural markets states that rural India has three times more disposable income in the hands of a village household than that of an urban household due to distinct cost advantage.

In India, spending by over 80 crore rural residents in the recent past has reached $69 billion,

which is 25% more than their urban counterparts spent over the same period and the savings from fuel expenditure will boost this economy further. According to a recent Nielsen estimates, consumption

in rural areas is growing at 1.5 times the rate in urban areas, and today's $12 billion consumer goods markets in rural India is expected to hit USD 100 billion by 2025.

Though the stocks, currency and commodities markets have global linkages, the Indian economy has relatively lower linkages with largely intrinsic growth. Commodity prices are back to 2004 levels as demand has slowed earlier than many suppliers expected, but capacities continue to get added, according to global investment banking firm – Credit Suisse.

Rising Rural Income

The impact of the declining crude oil prices needs to be seen in light of the changing landscape of the country's rural economy, which is no longer limited to agricultural income. According to the Central Statistical Organisation (CSO) data for 2004-05, the share of non-agriculture in the rural net domestic product (NDP) stood at 61.1% while the estimate of India Ratings and Research shows that it has reached 71.1% in 2011-12. Higher growth of the industrial and services sector in rural areas over the years than of agriculture has increased the share of non-agriculture in rural NDP. This shift in rural income away from agriculture means that rural income is now less vulnerable to monsoons.

While agriculture still accounts for about 14% of India's gross domestic product and more than half of its employment, it is "no longer the predominant source of rural income" and its contribution to the rural net domestic product has been consistently declining, a report by India Ratings said.

As a result, the rural landscape of the country has undergone vast transformation over the past 10 years with more than two-thirds of income now coming from non-farm activities, the report said.

According to official data, the share of agriculture in rural net domestic product has dropped to 38.9% during fiscal year ended 2005 from 70.5% during fiscal year ended 1971 and it is expected to fall further to 29.9%.

In contrast, non-farm activities that include all economic activities ranging from handicrafts and processing to construction and repairs contributed 61.1% to the rural net domestic product in the fiscal year ended 2005, as per official data.

According to the recent GDP data for Apr-Jun 2015, though indicated a fragile overall economy, agri-growth has turned positive after unseasonal rainfall in the previous quarter. A Religare Institutional Report said that the agriculture sector grew at 1.9% (-1.4% in fourth quarter of 2015 due to unseasonal rains and hailstorm). Around 41% of the Gross Value Added (GVA) of this sector is based on the livestock product, forestry and fisheries, which registered a combined growth of above 6% during first quarter of 2015-16.

Weak Rupee

Some of the benefits that would have accrued to the Indian economy has been taken away by the sliding rupee against the US dollar. According to Nikhil Gupta, financial analyst a persistently weaker currency does more harm to India's economy because while it fails to boost exports - more linked with weak global demand - it offsets the benefits of a lower bill for imports which primarily comprise commodities. Calculations show that the rupee not weakened since FY12, India could have saved - on a net basis - US$80bn on trade in goods and services. This implies that India's current account deficit (CAD) would have been 0.5% of the GDP in FY14 and 0.3% of the GDP in FY15 against actual CAD of 1.7% and 1.4%, respectively. Such savings would have not only boosted corporate profitability, but a partial transmission of lower costs would have also resulted in lower retail inflation, thereby allowing the authorities to ease monetary policy faster. **Therefore, a weaker rupee pushes the economy into a vicious circle by keeping inflation high and rendering exports less competitive, which in turn increases the clamour to weaken the rupee further. It is the responsibility of the policy-making authorities not to fall prey to this vicious circle. A stronger rupee, on the other hand, will fasten the adjustment process by allowing the inflation to fall.**

Lower transportation cost

Within the agri-segment, cheaper diesel to run machinery, trucks and tractors will certainly ease the pain for the rural community as the decline in the petrol and diesel prices by 11% and 18.3% respectively will no doubt bring down the transportation cost apart from movement of fresh farm produce and thereby help them improve their margins and add strength to their purchasing power. According to industry sources, a farmer needs to travel 12 kms to reach the nearest mandi and more than 50 kms in NE India. According to the recommendations by National Farmers Commission, availability of markets should be within a 5 km radius. As a result, the diesel cost will certainly benefit the rural populace as the revenue from fresh farm produce remains attractive going by the high component of food inflation.

Petrol	Rs/litre
Aug-14	80.60
Sep 2014	76.41
Oct 2014	75.73
Dec 2014	70.95
Jan 2015	66.36
Feb 2015	64.81
Mar 2015	68.14
Apr 2015	66.69
May 2015	70.84
Jun 2015	74.78
Jul 2015	74.52
Aug 2015	68.24

Diesel	Rs/litre
Aug-14	66.63
Sep-14	67.26
Oct-14	63.54
Nov-14	61.04
Dec-14	60.11
Jan-15	55.47
Feb-15	52.99
Mar-15	57.08
Apr-15	54.26
May-15	59.86
Jun-15	58.37
Jul-15	55.15
Aug-15	51.29
Sep-15	49.51

Lower Fertilizers

Globally, natural gas is a key raw material to produce nitrogenous fertilizers including ammonia, urea, ammonium nitrate. Needless to say, the price of natural gas is generally correlated to crude oil and hence a drop in their production cost.

Also fertilizer consumption and crude oil consumption are both closely related to global economic activity and wealth, hence subject to similar demand shifts at the macro level. As a result, the decline in global natural gas prices in sync with crude oil prices, have brought down the urea prices in some parts of the world and the imports into India would hence be logically cheaper.

Edible Oil

Declining crude oil prices also had a significant impact on palm oil prices as the later was used in bio fuels when the crude oil prices were at its peak. However, with the crude oil prices now languishing, the palm oil prices too have dropped as there are few takers from the biodiesel industry. According to industry sources, crude palm oil prices have dropped by 40% to $490 a ton over the past one year which is believed to be six-year low. This could add to the purchasing power of the rural Indian economy, as India is the world's top importer of cooking oil and has become a dumping ground for cheap Indonesian and Malaysian palm oil.

Rural Rating

Amid all these positive noises, there is a general mood of disappointment as a report by another rating agency Moody's that states India's rural economy has weakened considerably in recent quarters. This has been attributed to slower income growth and rural demand that is likely to remain subdued in the current year.

"A sustained soft patch for India's rural economy would weigh on private consumption and non-performing assets in the agricultural sector, a credit negative for the sovereign and banks," said the rating agency.

However, there is always a lag effect between price cut and the benefit reaching the end consumer, be it fuel price cut or interest rate cut. Hence, RBI Governor Raghuram Rajan has pointed out that Indian economy is picking up, adding rural economy may see a pick up if monsoon improves and sowing is good.

"You may see rural demand coming back more strongly, and that would be a very tremendous bonus to the economy compared to we are," Rajan said.

Rise in Plan Expenditure

Lower crude oil price has given the government enough cushion to raise its plan capital expenditure that was up 84% year-on-year and 66% month-on-month. As per the quarterly GDP data for Apr-Jun, Total expenditure was 34% of the budget estimate vs. last two year's average of 30%. On the other hand, receipts were higher at 18% vs. last two-year's average of 15% due to a pick-up in tax and non-tax revenue, which was a positive. Gross tax revenue growth was 18% — income tax growth contracted 4.6%, corporate tax growth was a muted 6%, while strong growth/pick-up was seen in customs (+23%), excise (+80%) and service tax (+17%) collections.

Date	India CPI Rural Inflation %
Aug 2014	7.67
Sep 2014	5.87
Oct 2014	4.76
Nov 2014	3.15
Dec 2014	4.16
Jan 2015	5.34
Feb 2015	5.79
Mar 2015	5.58
Apr 2015	5.37
May 2015	5.52
Jun 2015	6.07
Jul 2015	4.44

Demand Drivers

According to the Bank of America Merrill Lynch report, discretion spend could jump over 40% over the next three years from the current level through a mix of boost from the 7th pay commission, lower interest rates and rise in household savings from lower crude oil prices. Moreover, this recovery in demand is independent of monsoon, based on the macro-economic indicators.

Bargain hard

In the Union Budget, the Government had allocated Rs 5,300 crore for irrigation projects including Rs 1,800 crore for micro irrigation. While the pipes and other irrigation inputs that go into drip irrigation are made out of plastic, which are derivatives of petrochemicals and thereby crude oil, the prices of the same for the farmers has to come down.

To facilitate hard core bargaining and ensure better realization, the rural economy must deploy the surplus realized from the savings of their fuel expenditure by establishing co-operative institutions in the form of equity.

(The author is a consultant for Media Advocacy and content assignments. He has more than two decades of journalistic experience on financial matters)

IMPACT OF MODERN TECHNOLOGY ON AGRICULTURAL PRODUCTIVITY

Dr. Shailendra Bhushan Sharma and Dr. Babita Chaudhary

Agriculture is one of the most important sectors in the Indian economy. Modern technological trends play an important role in agriculture output of India. Access to new technology is crucial in maintaining and improving agricultural productivity. Farmers' changes of technology use are influenced by technical training, meeting, oral transmission, and trust on technician and belief level on technology. Factors that trigger adoption of new technologies comprise of progressive, young and educated male farmers. Though farmers have positive perception of technology, they faced problems in technology application due to lack of capital, direction and compensation policy. In this context, Government is providing facilities to farmers in increasing their agriculture yield through several schemes.

It is a fact that the agricultural sector for every country is the basic catalyst and accelerator of growth of the industrial and services sectors notwithstanding the overall economic growth of that nation. Agriculture is the most important sector in the Indian economy given its contribution to employment, foreign exchange, food and its linkages with other sectors.

Technology refers to how to cultivate a crop successfully. This success can be obtained by knowing how to apply fertilizer, control pests, and take care of plant for its healthy and good growing. A farming system is the result of a complex interaction of a number of interdependent components – soil, water, crops, livestock, labor and other resource within an environmental setting. The total environment can be divided into two elements: technology and human. Technology determines the type and physical potential of livestock enterprises, and includes the physical and biological factors that can be modified through technology development. The human element is characterized by exogenous (community structures, external institution, etc.) and endogenous factors, which can be controlled by the farm household. It is the household which ultimately decides on the farming systems on whether or not to adopt technologies and how to assign resources to support it. The decision of use of technologies is dependent on how farmers perceive of technology.

The Role of Modern Technology on Agricultural Development of India

Over 68 years since its independence, India has made immense progress towards agricultural development. There has been substantial increase

in available food-grain per capita. Prior to mid 1960s, India relied on imports and food aid to meet domestic requirements. However two years of severe drought in 1965-66 convinced India to reform its farming methods.

India adopted significant technological reforms focused on the goal of food grain self-sufficiency. This ushered in India's Green Revolution. It began with the decision to adopt superior yielding, disease resistant wheat varieties in combination with better farming knowledge to improve productivity. A hectare of Indian wheat farm that produced an average of 0.8 tons in 1948 produced 4.7 tons of wheat in 1975 from the same land. Such rapid growth in farm productivity enabled India to become self-sufficient by the 1970s. By 2000, Indian farms were adopting wheat varieties capable of yielding 6 tons of wheat per hectare. With modern technological policy success in wheat, India's Green Revolution technology spread to rice and other crops. As with rice, the lasting benefits of improved farming technologies now largely depend on whether India develops infrastructure such as reliable electricity production, irrigation network, flood control systems, all season transportation and competitive buyers of produce from the Indian farmer.

Why Farmers do not adopt modern technology:

There is a risk element for farmers in new technology packages. Agronomically the package may seem attractive but he may not be willing to accept the financial risk involved largely because of the increased investment required. The provision of appropriate credit facilities may sufficiently reduce the risk element to make the package more attractive. Followings are the reasons why farmers do not adopt modern technology:

- If the farmers are illiterate or less educated.
- If the technology is new to the farmers do not believe it.
- They have not yet seen the demonstration fields.
- Worry of low yield
- Old age farmers do not believe new technology and only believe in their past experience.
- Old behavior of cultivation practices embedded in farmers for long period.
- Large land holding farmers think that if the

yield is lost due to the use of new technologies in larger field, the amount of loss will be greater.

- Lack of capital
- Lack of skilled labor

Factors Affecting use of Modern Technology in Indian Agriculture

In general, several factors have been identified in the present study as the most important sources for the use of modern technology in agriculture. These issues have been analyzed by linking the strength or weaknesses of the stated technological applications to find out if they help in meeting the objectives.

Research and development

The results of agricultural research include higher yielding crop varieties, better livestock breeding practices, more effective fertilizers and pesticides and better farm management practices. Agricultural research and development is required not only to increase productivity, but to keep productivity from falling. For example, yield gains for a particular plant variety tend to be lost over

time because pests and diseases evolve that make the variety susceptible to attack. Thus, a large share of agricultural research expenditures is devoted to maintenance research.

Education

Farmers can have general skills through education to solve problems. Education is thus an investment in "human capital" analogous to a farmer's investment in physical capital. Education hastens the rate of development of new technologies by training scientists. Education also speeds the rate of adoption of new technologies by farmers. Farmers who have more education may be better able to assess the merits of and successfully adapt a new technology to their particular situations.

System Independence

It is the ability of the technological device to stand alone for doing the required job. Whether the technology will require relatively more capital or labor will be analyzed to check system independence of the technology. As India is a developing country with high population pressure and unemployment, labor intensive technology will

be system independence on the ground of cost. It is also kept in mind that required input for the technology is available or not.

Individual Technology vs. Collective Technology

It is the criteria to look into the societal/ cultural standards in which the technology operates. In other words, it is the careful assessment of the technology that is based on group approach and becomes more system dependent. A society geared towards individual or single family unit will need more system independent technology. Collective technologies are more easily adopted as collective action reduces transaction cost.

Cost of Technology

Affordability of the technology is an important indicator for their wider use since cost is the major factor in encouraging or discouraging the application of appropriate technology in developing economies.

Although the level of cost is high or low is a relative concept, in India labor is relatively cheaper than capital, and therefore, labor-intensive technologies are less costly.

Risk Factor

It is an important factor to find out how smoothly technology works in the local production system and the supportive system that explains to what degree is the technology system dependent or system independent. This indicates the need for understanding two types of risk- both the internal and external risk. Although analysis of risk is necessary before applying new technology, it is almost impossible to remove all risks.

Evolutionary Capacity of Technology

If the chosen device is static it will relatively reflect the short-lived solutions to a much larger problem. The technology, which supports the continuation of development by enhancing capability to expand, can be expected to compete at the regional, national and international level.

Infrastructure

A significant positive relationship between infrastructure and Indian agricultural productivity is very much essential to boost agricultural productivity. The most obvious example of how public investment in infrastructure might affect agricultural productivity is through investment in public transportation. An improved highway system can reduce the farmers' cost of acquiring production inputs and of transporting outputs to market.

Current Performance

Performance of the technology is explained on the basis of their success and failure stories. The current performance has also been assessed on the basis of percentage share of population adopting particular technology.

Conclusion

The role of modern technology in the quest for the best method of improving the yield of crops, protecting crops against diseases and pest, making livestock healthy all the time, designing the best method of crops storage and even helping in predicting the climate conducive for agricultural practice can not be over emphasized. The use of agricultural equipment and machineries help to making farming and other agricultural practice easier for the farmer. In the developing countries like India agricultural mechanization is the order of the day. Promotion to technology with social wisdom can help in checking migration of youth from rural to urban areas), mitigate the adverse impact of climate change and rejuvenate/ revive India's agriculture so very essential for sustainability of India's growth.

On the basis of the results of this analysis it may be concluded that the process of adoption of new agricultural technology in India has been slow and interrupted mainly due to constraints like lack of capital, low price of agricultural produce, problem of insufficient cold storage, inadequate institutional credit, problem of soil and water testing facility, inadequate irrigation facility, high cost of fertilizers, high rental charges of implements and machines.

[The authors are Associate Professor and Head in Department of Management and Assistant Professor in Department of Education at Noida College of Physical Education, Dhoom Manikpur, Distt. – Gautam Budh Nagar, U.P. respectively]

ELEGANT & COLOURFUL LEGACY OF INDIAN HANDLOOM

Handloom fabrics and handloom weavers form an integral part of the rich culture, heritage and tradition of India. Apart from providing one of the basic needs of human beings, along with a sizable contribution to GDP and export, this Industry provides direct and indirect employment to lakhs of people in the rural and urban areas. Handloom is one of the largest employment providers after agriculture in India. This sector provides employment to 43.31 lakh persons engaged on about 23.77 lakh handlooms, of which 10 % are from scheduled castes, 18 % belong to the scheduled tribes, and 45 % belong to other backward classes. Production in the handloom sector recorded a figure of 7,116 million sq. meters in the year 2013-14. During 2014-15, production is reported to be 3,547 million sq. meters (April-September-2014).

Handloom sector contributes nearly 15 % of the cloth production in the country and also contributes to export earning of the country. Ninety five percent of the world's hand woven fabric comes from India. It has been sustained by transferring skills from one generation to another. The strength of the sector lies in its uniqueness, flexibility of production, openness to innovations, adaptability to the suppliers' requirement and the wealth of its tradition.

However, handloom industry needs to reorient itself for meeting the challenges being posed by rapid economic, social and technological changes. Efforts are required to produce defect free high quality handloom fabrics according to contemporary consumer preferences, and also to ensure reasonable wages so that younger generation opt for this occupation. With a view to promote this industry on a sustainable basis, it is deemed necessary to produce quality fabrics with new design for winning the trust and confidence of the consumers.

"India Handloom Brand" is an endorsement to quality of the handloom products in terms of raw

material, processing, embellishments, weaving design and other parameters besides social and environmental compliances for earning the trust of the consumers. Prime Minister Narendra Modi launched the India Handloom Brand at Chennai recently as part of the First ever National Handloom Day celebrations. It seeks to ensure this by giving particular attention to the following:

- Production of high quality, defect free, hand-woven, authentic "niche product".
- Zero defects.
- Authentic traditional design.
- Zero impact on environment.
- Social compliance.

Advantages

- Customer will be assured of the quality of the product as per specification
- Bulk buyers and exporters will be able to source quality fabrics as per his/her design produced in time and establish a distinct market positioning for authentic hand-woven fabrics of India.
- Weaver will be able to get bulk orders and higher wages by interacting directly with the market.
- Weaver entrepreneur (younger generation) will take up traditional profession of production of quality handloom fabrics in bulk and marketing within and outside the country.
- It will empower women and disadvantaged segments

Products identified for Branding

1) SARI:-

Cotton: Jamddani, Tangail, Shantipiri, Dhaniakhali, Bichitrapuri, Bomkai, Kotpad, Pochampalli, Venkatgiri, Uppada, Siddipet, Narayanpet, Mangalagiri, Chetinad, Balaramapuram, Kasergod, Kuthampally, Chendmangalam Dhoti

Silk:- Baluchari, Mugasilk, Sulkuch silk, Khandua, Berhampuri, Bomkai Silk, Benares Brocade, Tanchoi, Benarasi, Butidar, Jangla, Benarasi Cutwork, Pochampally, Dharmavaram, Kanchipuram, ArniSilk, Molkalmuru, Paithani, Patola, Champasilk, Ashawali Silk, Salem Silk (Dhoti), Uppada, Jamdani

Cotton Silk Sari:- Chanderi, Maheswari, Kota Doria, IIKal, Gadwal, Covai Kora Cotton

2) DRESS MATERIAL;-

Cotton: Odisha Ikat,Pochampalli Ikat

Silk : Tanchoi, Benarasi, Cutwork, ,Odisha Ikat, Pochampally Ikat, Tassar Fabric, Muga Fabric, Mekhala/ Chadar

3) BED SHEET

Odisha Ikat, Pochampally Ikat

4) SCARF/SHAWL/CHADAR

Kani Shawl, Kinnori Shawl, Kulu Shawl, Tangaliya Shawl, Kutch Shawl, Wangkhei Phee

BRANDING PROCESS:-

The following entities will be eligible to apply for 'India Handloom' brand registration:

Genuine firms/institutions dealing with production of handloom fabrics including

a) Primary Handloom Cooperative Societies

b) Self-Help Groups (SHGs), Consortia, Producer companies, Joint Liability Groups (JLGs)

c) Weaver Entrepreneurs

b) Producers of garments and made-ups with the condition that they will use 'India Handloom' branded fabric and also comply with additional quality parameters regarding stitching, standard sizes etc., as may be laid down by the Development Commissioner for Handlooms.

Courtesy: Press Information Bureau

Feature written by Jacob Abraham

PARTICIPATIVE COMMUNICATION FOR BETTER RURAL LIVELIHOOD

Dr. Aparajita Suman

Globally, approx. 75% of the poor people in developing countries live in rural areas and in 2020, when the majority of the world population is projected to live in urban areas, about 60% of the poverty would still be rural poverty. In India, the Ministry of Rural Development [with its two Departments of Rural Development and Land Resources] plays a pivotal role in rural upliftment. The mission of the Ministry of Rural Development is "sustainable and inclusive growth of rural India through a multi-pronged strategy for eradication of poverty by increasing livelihood opportunities, providing social safety net and developing infrastructure for growth and improvement of quality of life in rural India". The Ministry has devised different programmes to meet primary needs of rural population such as National Rural Livelihoods Mission (NRLM) to transform rural livelihoods by improving productivity and living conditions and reducing poverty.

Poor are Partners in Implementation not Beneficiaries

The critical distinction between NRLM and the previous poverty eradication measures is the core belief about the poor and the operationalizing of this belief in the implementation. Previously, poor were seen as incapable and in need of patronage and doles. But, NRLM's core belief is that the poor are highly capable and the task of the govt. is to unleash their full potential by organizing them and capacitating them through their institutions. This is done very effectively by targeting rural women. The programme's unique proposition is that this process is best managed and owned by 'transformed and empowered' women and not by 'external entities' such as the state missions or even N.G.Os. The external entities, no matter how good they are, cannot replace these internal women champions. The main role of these external entities is to catalyze this process and enable community champions to emerge from among the poor and to take over the process. The Mission therefore plays the role of a 'facilitator' and not an 'implementer'.

Community Champion: The Custodian of Experiential Knowledge

The real torchbearers of NRLM are the 'Community champions' fondly called as Community Resource Persons (CRPs). NRLM believes that the 'transformed and empowered' women can best manage and own the programme.

The 'Knowledge Managers':

- ✓ Are members of mature SHGs and are living testimonies of the success of the programme.

- ✓ Have good communication skills and relevant experience as members in their groups and have improved their standard of living.
- ✓ Gained knowledge and experience in management of groups and have clarity on the role and function of Community Activists.
- ✓ Have the ability to organize training programmes by drawing lessons from their personal experiences and the best practices.
- ✓ Have the ability to use innovative information and communication tools and technologies (including their folklore) in the trainings and facilitation.
- ✓ Are able to document the case studies and best practices of members and use them as training material.

It is amazing to see a poor underprivileged rural woman transform to a community leader - a change agent with the evolution of leadership qualities, training skills, passion to help other poor women come out of poverty. **This 'community best practitioner' not only serves as the most efficient channel of 'tacit knowledge management', but also becomes the 'most effective medium of behaviour change communication'. It is then that NRLM- the 'programme for the poor' becomes a 'programme of the poor' and more importantly 'by the poor.'**

Participatory communication leads to participatory development

The government's communication efforts for eliciting participation of the people, community and local institutions are not new, but mostly they are unable to deliver on the objectives. Communication, especially development communication requires constant renewal matching with the complex contours of a rural society: application of innovative strategies, custom made to local needs and opportunities.

Participatory Communication is the best way forward

A real and vibrant community can't be imagined without communication. The core of NRLM being development of community a Participatory Communication strategy is the best way forward.

Managing knowledge for the people, by the people

Knowledge (including technology) is recognised as a critical resource – on par with and distinct from financial and human resources. The challenge has been in building a learning organisation – that learns from communities, its own experiences in implementation, and constantly uses this learning to improve programme outcomes on a continuous basis.

In NRLM, Knowledge Management is implicit as a strategic framework through which most appropriate actions can be taken by the rural poor to amplify their livelihoods and get empowered.

Amplifying Rural Livelihoods

NRLM reaches out to the rural poor women and help them come out of poverty by promoting and supporting collectives towards Sustainable Livelihoods of the Poor. This is done by stabilizing and promoting existing livelihood portfolio of the poor and focussing on 'vulnerability reduction' with 'livelihoods enhancement'.

The programme believes that ICT based innovations can reduce the learning curve by showing a different pathway out of poverty. The innovations, which have the potential for maximum impact with limited resources are preferred and supported for knowledge dissemination and effective capacity building.

Innovation in Agriculture through Video-based Learning

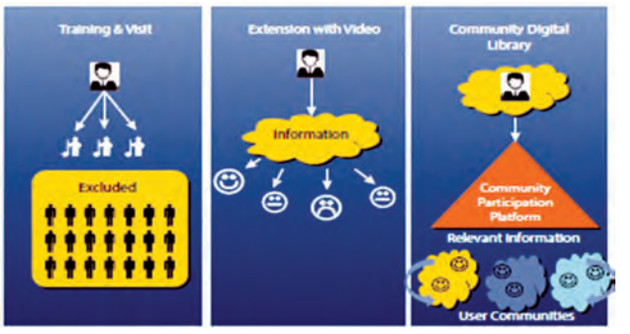
Digital Green (DG) has been engaged for information dissemination in the community, by the community. It works with the existing, people based extension systems, aiming to amplify their effectiveness through an ICT enabled approach. The DG intervention is based on the strategic intent that local language and local context specific communication is most effective.

Community Members (Video Resource Persons- VRPs) are trained for group facilitation, videography and basic video production. 10-15 videos are prepared each month by modularizing agricultural and related practices into short, 8-10 minute segments. The videos feature local farmers on topics including testimonials and demonstrations of improved production techniques, market linkages, and government schemes.

Small groups of 10-20 farmers (SHG members or their family members) participate in weekly screenings of the videos. The screenings are mediated by the service providers (Video Resource Persons- VRPs) from the community in an interactive, reflective forum. During moderated discussion, VRP asks questions about the previous sessions as well as doubts about adoption of the practice discussed. After the dissemination, VRP collects the information from interested community members, wanting to replicate the practice exhibited in the Video.

The digital content thus created highlights both internal and external best practices. The videos are stored at the village level (and also uploaded on youtube) creating a local and online digital library. These libraries combine the institutional platform with a digital knowledge platform to create multiple nodes of communication and learning in rural communities across the country. Digital Green's website provides a platform for institutional sharing of the videos produced in the field and tracks each video's reach, feedback, and the adoption of the featured practices and technologies.

Unlike some systems that expect information or communication technology alone to deliver useful knowledge to marginal farmers, this model works with existing, people-based extension systems and aims to amplify their effectiveness. The thrill of appearing "on TV" motivates farmers. The Digital Green technique has increased the adoption of certain agriculture practices multi-fold over a classic Training and Visit-based (T&V) extension approach. With a significant number of small and marginal farmers in India participating at village-level video screenings, rural digital libraries offer a promising solution for faster and more accessible livelihood knowledge sharing and extension in geographically dispersed communities.



Culture as Livelihood: Bangla Natak.com- Arts based communication

Another interesting innovation is creating sustainable livelihood opportunities for the socially excluded non-farm sector (skilled in traditional arts and crafts) and empower them to participate in the development process by facilitating development of cultural enterprises. These enterprises at grass roots generate economic resources and meaningful engagement, offer recognition to their skills and provide the larger community aspirations for quality life.

The strategy is two pronged: exploring and establishing newer markets for the art form and capacity building of the artists as development communicators. Popular performing art forms existent in the intervention state are identified along with the rural traditional folk practitioners. Market linkages for the artists is created through promotion and exposure visits, archiving the folk heritage through audio visual documentation, forming cultural enterprises/societies at Block level, supported by need based capacity building.

The artists are clubbed together to form Common Interest Groups (CIGs) comprising of 10-20 members and basic training is provided to the artists. The skill level of artists is further strengthened with specialized training. Trainings are held on folk art forms and the special training is aimed at sensitizing and capacitating the artists as well as developing the theatrical aspect of the form for behaviour change communication. In Tribal song and dance form, the artists are trained on choreography and composition involving new dance movements, training on painting focuses on story based painting, natural color making, wall painting and diversified product making. The performing art artists are trained in presentation, musical synchronization, harmony, pitch and voice modulation etc. These producer groups are provided with instruments and costumes. As part of marketing and promotion, brochures are developed and distributed among Government organizations / NGOs / private organizations / event managers and other festival organizers. Cultural Festivals are held at national level and regional levels to build linkages.

The intervention has alleviated their social status from 'beneficiaries' to 'artists' and facilitates the transfer and management of traditional knowledge/ wisdom in a *'Guru-Shishya Parampara'*. The artists (mostly marginalized groups including women) are confident by receiving exposure at both national and regional level. The increased confidence and exposure encourages them to explore different formats of presenting the art form, travel to new places and vie for more recognition.

Gram Vaani - an innovation in Communication

Gram Vaani started in 2009, aims to reverse the flow of information, that is, make it bottom-up instead of top-down. Using simple technologies and social context to design tools, the intervention is impact the knowledge flow in rural communities. *Gram Vaani* provides cutting-edge mobile and IVR solutions to automate processes and applies best practices in the field.

Since, SHGs require continuous communication among members, trainings and platforms to bring them income opportunities. *Gram Vaani* is offered as a low-cost, scalable mechanism to continuously engage with SHG members. This provides an innovative, community-focused "radio over telephony" platform that is well-suited to their needs:

90% of the content on Mobile Vaani is community sourced. The content comprises of Local news, Interviews and informational services, Opinion on topical issues, Guided discussions and campaigns, Grievances and feedback on government schemes, Cultural artifacts including folk songs and poems etc. The virtual platform (backed by an IVRS based mobile station) helps the community members to share their experience, best practices, issues, problems.

Agriculture Channel

The SHG members call on the toll free no. and the IVRS system calls back the number and offers various information services. In this channel, content is focused on the community's experience and the answers are recorded in voice of Community members with the help of CM, CRP and other community cadre. This platform is unique in terms where both producers and users are from the community.

During the interaction with the SHG women it has been found that the women keenly follow the services and program offered by these channels. They find the engagement and reaching out of their own voices as a very empowering exercise. They much appreciate the process and the recognition that their voices get. The channel provides them information about local issues and degree of ownership is much larger, leading to the desired behaviour change.

Community Radio: giving voice to the voiceless

Since community radio stations already work with poor communities and actively involve them in programming, some pilots in the programme have used them to develop radio programmes around the themes of NRLM – social mobilisation, financial inclusion, unified social action, institution building and livelihood promotion.

These community radio stations with their focus on women and women's issues are creating a cadre of women as change agents for the betterment of society. This medium of communication through radio not only opens an interactive medium of rural communication, also offers another livelihood option. The focus throughout the radio programme is on the community, wherein the programmes are conceived, reported and produced by the community members themselves; the radio station is only a medium for the community voices to be heard.

The episodes focused on the following:

1. Community stories of empowered women in Self Help Groups (SHGs)
2. Profiling Community Resource Persons (CRPs) in the project as role models for other women
3. Stress on the concept of collectivization which brings women together and creating community leaders
4. Highlighting stories of women who overcame poverty and built social capital
5. Showing how community based media can effectively strengthen the functioning of these women
6. Covering stories of successful Village Level Organisations: Social action, Bank linkage, role as secondary bank etc.

Popularizing folk art through community radio

Effective processes have already been established for developing aspects of culture as means for livelihoods. Vocalists belonging to SC and other marginalized group are used by the programme to disseminate information on issues of social importance. The trained community

radio communicators also help in creating 'SamwadSamuhs': selected community members with good vocal communication skills create functional groups to disseminate information and create awareness about various issues and processes pertaining to the programme implementation.

Community radio provides to the folk artists 'their own platform'. The performance on these radio stations prepares the local artists for bigger performances on other commercial channels (A/V stations) for a sustainable and better livelihood. The skills of these artisans also get effectively utilized for generating awareness and dissemination of key information, especially pertaining to regional context.

Conclusion

In NRLM, the 'rural poor women' themselves become the main and best medium for creating, managing and disseminating knowledge leading to the way out of poverty. The process of 'an inclusive development' initially catalysed by the external facilitator becomes self-propelled. The holistic programme also demonstrates that local beliefs, culture that used to be looked upon as a barrier to change communication could also be a powerful tool in the hands of a 'community

communicator'. A well preserved and propagated 'traditional knowledge' can help in amplification of rural livelihoods to marketable services and products. One of the most notable aspects of this approach is that there are no missing link in the chain of communication and commercial exploitation of 'community wisdom' for generating sustainable livelihoods. The important lesson to be learned here is that one needs to use people's assets and available knowledge bases for taking things forward to build capacities and add value to the existing potential and not just be guided by the modern or new technologies.

(The author has worked as a consultant in Rural Development Ministry till recently)

Prime Minister Urges Enhanced Use of Khadi

The Prime Minister Narendra Modi has urged people to purchase Khadi products. In his 'Mann ki baat' address on All India Radio he said that there would be a month-long discount for khadi products from Gandhi Jayanti. The Prime Minister called upon the people to buy at least one khadi clothing and a handloom product as a tribute to Mahatma Gandhi and to encourage the industry. Thanking people for responding generously to his earlier appeal to use khadi, the Prime Minister said, "Earlier it used to be 'Khadi for Nation', I urge you to buy 'Khadi for Fashion'." Pointing out that khadi sales had doubled during the last one year, the PM said that income from handloom and khadi sales go to the poor weavers or their widows.

The Prime Minister further added that he received a message from Pawan Acharya of Rajasthan citing uniqueness of earthen lamps. Mr Acharya in this message urged that people should use environment friendly earthen lamps during this Diwali which will benefit potters.

About the cleanliness campaign, the PM said that keeping our surroundings clean should be developed as a habit. The PM noted that for Mahatma Gandhi cleanliness was more important than freedom. He said that all of us should strive for fulfilling Gandhiji's dream of Swachhta when the Nation celebrates his 150th birth anniversary in 2019.

LOW COST RAIN WATER HARVESTING

Dr Manazir Jeelani Samoon

Tuensang district is the easternmost district of Nagaland. The Constitution of India grants special provisions to it within article 371A Constitution. It has a long and porous border with Myanmar on its eastern side.

Tuensang district is one of the least developed districts of Nagaland with very poor infrastructure like roads etc. and almost total lack of access to basic facilities like clean drinking water, sanitation, electricity and Primary health care.

There are 16 administrative circles in the district with Tuensang Sadar headed by SDM (Subdivisional Magistrate) being one of them. Tuensang Sadar has a total population of 44,640 (census 2011) with 11,119(1899 households) residing in rural area and 33,521(6292 households) residing in town. Almost entire population is tribal in nature.

The initiative of "Low Cost Rain Water Harvesting" was implemented in Tuensang Sadar a districts situated in Nagaland with further expansion to the town area. The sub-division receives an annual average rainfall of 1600-1800mm during the months of April to September. Only half the households have any form of tap water connection (with meagre 0.58%of rural population and 8.23% of the town population having access to treated tap water)[1] and that too compounded with erratic supply of once or twice in a week. Majority of the population is dependent on streams, wells and ponds for their water supply. The region also has relatively higher levels of heavy metal content especially iron in the ground water. During monsoons the problem become more severe as water becomes murky, muddy and seepage from unsanitary latrines leading to fecal contamination making it unfit for use.

In some villages of the subdivision the women folk have to travel one and half hours daily to fetch water from Streams for their households. This again becomes exhaustive because of rugged terrain and more difficult due to slippery, muddy kutcha paths during monsoon.

The problem of water supply was further complicated during intertribal clashes in early part of 2015 when there was wide spread rumor mongering of poisoning of water sources due to which people were too scared to use the water from these sources.

The Subdivision also has abundant supply of naturally occurring bamboo. So construction of low cost rain water harvesting structures in each and every household with the help of bamboo seemed very practical and feasible.

Purpose and Priority

The main purpose of the initiative was to make water available at doorsteps of each and every

household with the priority being to utilize locally available construction material especially bamboo which would have made it not only cost effective but sustainable and easily replicable too.

Implementation and Strategy

The project was started in first week of July 2015. The nominee conducted meetings at each and every village level with VCC (village council chairman), Gaon Buras, village elders and general populace to impress upon the need and advantages of having such low cost rain water harvesting structures in every household. Utilization of locally available bamboo was promoted for construction of the structures and each household was to construct such structures for themselves and in those households with no able person the community would help them for the same. The structure would consist of following components.

- Gutter made o f bamboo attached to roof.
- Storage tank with lid made of bamboo lined with tarpaulin sheet
- Connecting pipe between gutter and storage tank, made of bamboo/ rubber.

Cost of construction on an average of each bamboo structure was Rs 535/- (Tarpaulin sheet Rs 240 per piece, Nails one kg for Rs 70 and opportunity cost of 1.5 man-days' work i.e. Rs 225. Bamboo was available for free).

The community were also given flexibility to use PVC pipes and plastic water cisterns for construction as per their affordability. For such structures the cost of construction on an average was Rs 2385 (Plastic cistern(500L) Rs 2200, half kg nails Rs 35, opportunity cost of one man day work Rs 150). However, less than 10% of the total structures were made using Plastic materials.

The SDM organized mass social works in each and every village whereby all the members of the community were to participate and construct such structures for themselves. To motivate the community further, prizes were to be given to the villages with 100% coverage and those with best structures.

Average rain water harvested per household per day during =100*50/100*1.38=69 liters/day

Positive features of the initiative

Zero cost to exchequer.

Fully communitised approach:- Every household was made a stakeholder and the initiative was being undertaken by the community for their own welfare.

Traditional wisdom of community utilized:- The traditional wisdom of Naga community in making bamboo baskets was utilized while constructing the storage tanks.

Easily replicable and sustainable:- As there is no introduction of new complex technology or any unavailable/costly construction material the project can easily be replicated in other areas of the State

and Northeast in general, where there is plenty of bamboo. The average life span of each bamboo made structure is expected to be 2-3 years.

Leadership:- SDM provided leadership at each and every stage of the initiative from motivating community to undertake the project, organizing mass social works involving the whole community and rewarding the villages with cent percent coverage and best structures.

Impact

Out of 1899 households in rural area of subdivision 1574 households have constructed The "Low Cost Rain Water Harvesting" structure (i.e. 83% coverage).

Taking a cue from the rural area of the subdivision town dwellers also have started constructing such structures and already more than 1100 households have completed it. So a total of 2674 such structures have already been constructed in the Subdivision.

Quantity of water available rose from 60-80 liters per household to more than 500 liters during monsoon.

Percapita consumption of water increased from 20-25 liters/day to 50-60 liters/day i.e. more than double thereby helping better maintenance of bodily hygiene.

Women folk don't need to travel long daily to fetch water.

Quality of the water is much better and there is no coliform bacterial contamination as has been found in tap water, dug wells etc.

Declining trend of diarrhoea and other Gut related infections in the community.

In addition to households, rain water harvesting also being undertaken in Schools, Public toilets etc. thereby reducing water shortage.

Parameter	Before the initiative	After the initiative
No of households with any form of rain water harvesting in rural area of subdivision	200 (10.5%)	1574 (82.8%)
Quantity of water available in each household	60-80 liters	>500 liters
Consumption of water per capita per day	20-25 liters	>50 liters
Daily travel time to fetch water	1 hr. to 1 hr. 30min	Nil
Quality of water	Unsafe (Coliform bacterial contamination)	Safe (No bacterial contamination)

(The author is SDM of Tuensang Sadar, Government of Nagaland)

INTEGRATED FARMING: A SUCCESS STORY

Dr. Subhabrata Dutta

Against the backdrop of increasing population, decreasing productivity and loss of soil fertility, Integrated Farming System may provide a solution. Birbhum District, one of the backward districts of West Bengal has provided a success story in this respect.

Prime Minister, Shri Narendra Modi in his speech on Independence Day aptly laid a strong focus on the agricultural economy by giving impetus on productivity through enhanced irrigation facilities and improvement in soil fertility.

It is true that agricultural productivity is one of the strong foundations for the next growth trajectory. But after Independence, the dominance of agriculture sector in the overall economy has gradually declined. Today, agriculture has almost turned into a non-remunerative occupation. Data furnished by National Sample Survey Organisation shows that the percentage of non-farms households increased from 31.9 percent in 1993-94 to around 42.5 percent in 2009-10 and the contribution of non-farm sector to rural net domestic product was around 65 percent.

Against the backdrop of declining productivity ever-shrinking land-holdings and rising input costs, the Department of Agriculture and Cooperation, has recently started a new mission - "National Mission for Sustainable Agriculture" (NMSA).

The pivotal focus of the scheme is to increase production by of conserving our natural resources. The scheme covers all Government Schemes in agriculture sector. The main focus of the scheme are:- (i) Improvement of seeds, live stocks and fish, (ii) efficient management of water, (iii) organic farm practices, (iv) preventing land degradation, (v) diversification of livelihoods, (vi) nutrient management (vii) pest management , (viii) provision of markets and easy access (ix) Sufficient Institutional credit and (x) Crop Insurance.

This scheme is crucial for West Bengal which continues to grapple with agrarian crisis due to ever-decreasing land sizes, repeated crop damage and increasing population. Birbhum is one of the backward districts of the state in terms of industrialization and different social infrastructures. Moreover, it is one of the drought - prone districts. But the farmers in this district are slowly moving towards integrated farming to reduce input costs, increase agricultural output and enhance income for decent livelihood. In this respect, some NGOs are playing important role in this district. The adoption of farming practices increases the income of such farming practitioners and help them utilize every inch of land including dwelling houses and rooftop. Planting variety of trees and plants on the farm land using organic manure and bio-enzyme in soil stabilization are some of the ways adopted by the farmers for a healthy growth of crops that is safer for human consumption. They set up also fruits and vegetables

patches and build a water harvesting structure which is being used for rearing fish. A small piece of vacant land has been used as poultry shed. This ensures a steady flow of income during the lean season.

Another important concern is the rising cost of chemical fertilizers, pesticides and herbicides. Chemicals disrupt the natural process in numerous ways. For instance chemical farming kills many beneficial microbes which play an effective role in protecting and maintaining soil fertility.

Water management is one of the essential conditions for increasing productivity because of depletion of ground water as well as its pollution efficient water management has been implemented in this process. The integrated farm practitioners are using drip irrigation. Israel has proved its effectiveness in minimizing water use and increasing productivity. Reduction in water consumption due to drip irrigation system also has other beneficial effects. This system also decreases weed problems, soil degradation and cost of cultivation in a large measures.

The integrated farm practices also prevent the spread of intensive monocultures which are harmful for the long-term fertility of land. Monoculture causes depletion of soil nutrients and makes crops susceptible to pest attack. It also causes depletion of soil nutrients. The 'World Resources Report' (WRR) observes that soil under intensive monoculture crops tend to lose organic matter, and their ability to retain moisture thus becoming susceptible to erosion and ultimately losing their fertility and productivity. Land itself is a self -sufficient unit that can produce all fertilizers and pesticides required. The NGOs of the district are striving to improve farmers financial condition through the integrated practice of farming (Zero cost) and sustainable practices of irrigation. The farmers plant over 100 types of fruits, vegetables, pulses, grains and other plants in a single area of land. The abundance of fruit-bearing trees makes it possible for the farmers to earn extra by selling the surplus in local markets. The farmers are contemplating developing model farms to show the efficacy of integrated farm practices. They only need government encouragement.

Integrated Farming Practice:

Integrated Farming is a whole farm management system, which enables the farmers to identify opportunities and threats and act accordingly, and at the same time, consider consumer interests in their business. Integrated Farming is not based on a set of fixed parameters but on informed management processes.

Declining food output and increasing population have aggravated the situation. Our food output in 2009-10 declined to 218.19 million tons from 234.47 million tons in 2008-09. But the population has increased by 1.4% over the last five years. It has increased to 119.8 crores in 2009-10 from 115.4 crores in 2008-09. The following table will show the state wise annual increased percentage of food output and increasing percentage (annually) of population from 1991-92 to 2010-11.

The Indian farm sector has faced a number of serious challenges because of increasing population, rising cost, degrading natural resources, depleting underground resources, ever decreasing land holding and growing indebtedness. In recent years the stagnating yield and declining productivity are the disturbing trends. To overcome such challenges, innovative practices in farming are emerging in various parts of the country which may be in the very limited areas but the success rate of such ideas and practices are gradually adopted by the farmers from other areas.

Four blocks of Khairosol in the district of Birbhum of West Bengal have set up unique model of integrated farm system; some NGOs of the district

Table No. 1: Annual Percentage of Increasing food output and Population					
Annual increasing rate of food production (%)				Annual increasing rate of population (%)	
Names of the state	From 1981-82 to 1988-89	From 1991-92 to 1998-99	From 2001-02 to 2008-09	From 1991-2001	From 2001-2011
West Bengal	5.57	1.99	0.62	1.65	1.31
Andhra Pradesh	0.98	1.11	3.29	1.37	1.06
Bihar	3.06	3.10	0.38	2.55	2.26
Odisha	2.50	1.73	4.08	1.52	1.32
Rajasthan	0.97	2.42	3.76	2.52	1.96
UP	2.91	1.93	0.68	2.33	1.85
Madhya Pradesh	2	1.60	1.69	2.20	1.87
Punjab	3.39	1.81	1.11	1.85	1.30
Harayana	3	2.64	2.04	2.53	1.83

Source- 1. *Agricultural Statistics at a glance, Ministry of Agriculture.*

2. *Demography and Development, Economic and Political Weekly, April 16, 2011.*

lend helping hand to the small farmers of these blocks for strengthening the sustainable livelihoods. A network of community organization, most of whom are marginal farmers, farm workers, tribal and women members of Self-help groups etc. have developed. They are encouraged to adopt integrated

farm practices, methods and technologies which can increase productivity and income in different ways which are cost effective and ecologically protective. One of the most important aspects of this farming system is combine the cultivation of paddy, wheat, cereal, vegetable, fruits with fisheries and animal husbandry in such a way that various parts can be complimentary and supportive to each other. Even roof tops of some houses of these areas are used for producing vegetables and fruits. The majority of farmers this block are owners of 2 acers of land and produce diverse crops within a single cropping year by using integrated farm system. By using this method the farmers have increased their income significantly. This block is going to be among the top growers of paddy and vegetables in Birbhum district. The cultivation is done manually and used minimum mechanization. Birbhum district will witness a sea-change once integrated farm pattern is accepted all over the district.

For successful implementation of these farming schemes some suggestions are made. First of all marketing system should be strengthened. Secondly, transformation system should be improved. Thirdly, wealthy people of the locality should be engaged to set up some cottage scale, rice mills at adjoining localities, particularly in villages. This makes rice milling much easier for paddy farmers. Moreover, they will also be able to get the rice bran for using it as fodder. Fourthly, licensing for production and its sale by some local organization should be provided. For state owned seeds farms of the district are in sorry state of affairs and cannot cope with the farmers demand.

[The author is Professor & Head of Social Work Dept. and Dean of Students' Welfare, Assam Central University, Silchar]

RURAL EMPLOYMENT – WOMEN ON THE MOVE

Nirendra Dev

"She loved lying there, listening to the bees, smelling the flowers…..
She lived in a safe, protected world, surrounded by people who loved her."

'Leap of Faith' by Danielle Steel

The above has been the traditional image of womenfolk in rural India. But the image of Indian women, especially in the villages and remote corners, has changed a lot, and is still changing fast.

True, the maxim, "nothing is permanent except change" would apply to Indian women very aptly. Significantly enough; the 'rural women' in India like elsewhere have long had very different work experiences.

There has been something about the women determination as also their beliefs in traditional wisdom of share and care for their children and family members that propelled them to brave the hurdles.

Knocking at traditional bastions

Rural women in India, it's often said, are at times obstinate about surviving and moving ahead. On this backdrop, it is essential to highlight that in order to tap womenfolk's true potentials in terms of works and contribution to the village economy, there is a need for an understanding of the complex and the dynamic challenges women face. The Indian rural womenfolk as also men often face situation in which revenue or income from traditional sources has declined or at best is reaching a saturation point.

There is multiplicity of other issues confronting them. Gender discrimination has been overcome in many states and in many societies and by huge percentage than what it used to be three to four decades back, yet they do prevail.

The competition has grown manifold and at times there are issues of avoiding traditional working system.

Various surveys have revealed that in most regions and states, rural women are more prone to risk than men. Even in the tribal-dominated states like Nagaland and Mizoram where social respectability of rural and tribal women is much higher than their counterparts elsewhere, limited access to assets punctuated with lack of bargaining power constitute significant economic disadvantages for women.

However, over the years the government initiatives and various schemes charted out both at the central and at state levels have helped improve the conditions of rural employment among womenfolk. In tribal stronghold societies of Jharkhand, Mizoram and Arunachal Pradesh, as men in the past, say in early sixties, sat firmly on logs around open fire to chant softly gurgling songs, the women lay behind keeping themselves engaged in household chores.

But that world has changed now as a plethora of different world is seen in tribal and far-flung villages too. Stone crushers shatter the stillness of silence of hills and valleys as a large number of men and women jointly participate in construction of roads.

"The government of India under Prime Minister Narendra Modi recognizes the importance of the role of women in development of the society, rural India

and growth of the nation. We remain committed to give a high priority to women's empowerment and welfare," said Union Rural Development Minister Chaudhary Birender Singh.

In fact, the Ministry of Rural Development under Government of India is implementing various poverty alleviation and rural development programmes. These schemes always have special components for women. Some of the guidelines stipulate certain provisions for creation of specific facilities at the worksites for women facilitating their participation in the programme.

For instance, to increase participation rates of women workers in MG-NREGA, the Ministry has rightly suggested that individual bank/post office accounts must compulsorily be opened in the name of all women workers and wages directly credited to their account for the number of days worked by them.

The Government of India has also advised the states to identify widowed deserted and destitute who qualify as a household under the Act, to ensure that they are provided 100 days of work.

Similarly, for women Self Help Groups – under the National Rural Livelihood Mission, the affinity groups of poor women, who have come together to overcome poverty are given weightage. "Membership is voluntary and it consists of only poor women," said official sources.

The Handloom and Handicrafts sectors have played chief game-changers in rural employment overseas. So has been the involvement of women in agri and horticulture – both at the production and marketing levels.

Hence many economic and social changes have been made possible across the country especially in the far-flung northeastern region.

Firsthand experience by this writer in various states in the north east region have revealed that handlooms, handicrafts and related textile works – like weaving of shawls and basket making can contribute in:

a) Changing the social and economic status of women as well as their families

b) Bring about necessary transition in the social structure so that the interest and well-being of the poor, women and children are given priority in all forms of decision making.

Having said this, it is worth pointing out that some handloom and fashion products from northeast India and in effect works of women force have made foray into national and global market.

In quite a path-breaking measure and showing sensitivity to local sentiments, Jharkhand state government has drawn out a scheme under which every village would comprise a water and sanitation committee where in compulsorily there will be a woman member from the village. That particular member of the committee would be identified as '*Jal Sahiya*' (Water Friend) and in order to ensure her empowerment in that panel – it is also mandatory that the female member '*Jal Sahiya*' would be the treasurer of the committee.

According to officials, this committee is responsible for implementation of water supply schemes in the villages. The 'Jal Sahiyas' are imparted hand pump repairing training and also given tool kits for the purpose. This has ensured community participation and also better results.

Horticulture

In northeastern states of Meghalaya, Tripura, Mizoram, Nagaland and Arunachal Pradesh as also in Himachal Pradesh and Jammu and Kashmir horticulture is a Major occupation among a large sections of people, especially womenfolk.

Across India there's an abundance of fruits like plum, peach, orange, pineapple and berries. With more than 28.2 million tonnes of fruits and 66 million tonnes of vegetables, India is the second largest producer of fruits and vegetables in the world.

Horticultural crops thus play a unique role in India's economy as well as help improving the income of the rural people with enhanced participation of women. Cultivation of these crops is labour intensive and as such they generate lot of employment opportunities for the women population. Fruits and vegetables are not only used for domestic consumption but also are processed into various products – like pickles, jam, jelly squash, etc.

In fact, more innovative experiments are being conducted to tap potentials of fruits and fresh suggestions are pouring in. In some states in the north east, since moderate consumption of wine is considered part of culture and good for health; winemaking is being looked upon as an industry. The state of Meghalaya organises wine festivals in idyllic Shillong with enthusiastic participation of women. Reports say wine made by tribal men and women of banana brought by the wine makers from Arunachal Pradesh and the wine made of local 'Sohiong' fruits of Meghalaya are major attractions.

Switching over to winemaking with the support of modern technology can help northeast natives make fast buck, exhibit their skills and also sell out surplus local fruits, say many.

Agriculture and women

Agriculture has been the mainstay of Indian masses. But in many states and with some variations and exceptions, women are actually the major agricultural work force. Thus in the production of rice, pulses, millets and many oilseeds, women have been working in each and every aspect of crop production, preservation and storage. In states like Chhattisgarh women maintain household food security and nutrition needs outside the market system. Women by tradition in many states again are also the keepers of the seeds and play key role in all post-harvest operations.

It is not without good reason that the renowned agricultural scientist M S Swaminathan had lauded 'woman' as someone who first domesticated crop plants and thus initiated the art and science of farming.

During 1993-94 to 2004-05 employment growth in agriculture in UP was lower (1.2%) compared to non-farm employment growth (4.76%). But male activities in rural-non-farm-sector rose considerably from 18.1per cent to 33 per cent over the period 1972-73 to 2004-05; female participation in non-farm employment accounted for only a marginal change from 15 per cent to about 17 per cent.

In some regions again governmental efforts have brought in phenomenal results in improving women participation in economic exercises. Non-farm employment avenues generally have benefitted men more than women largely due to education and skill factors. Therefore, we have higher percentage of women in agriculture than men and this percentage is mostly lower in case of non agricultural sector.

However, there are regions wherein it has been found that around 60-70 per cent women of eastern UP are working in non -agricultural sector.

In states like Madhya Pradesh, Tripura and Jharkhand, field evidence suggests that MG- NREGA is providing better and more job opportunities to female workers. This has also resulted in higher work participation among female in non agricultural activity.

Importance of skills:

Slowly but certainly there is realisation in rural areas and among policy makers and administration that the higher skill requirement in non-farm sector results in decreased women participation in employment avenues.

This highlights the importance of skill development and in this context, the role of newly launched **Deendayal Upadhyaya Grameen Kaushal Yojna, an initiative of the Rural Development Ministry will play a major role.**

But in a developmental economy especially in terms of sensitive subjects like women employment and that too in a multi-cultural country, a uniform policy cannot be best mechanism to implement.

(The Author works with The Stateman, Delhi and writes on Rural Development and Women issues).

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