

Empowerment of Rural Youth through Sericulture in Andhra Pradesh - present scenario and prospects ahead

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Abstract

The youth are considered as the backbone and cream of the nation. Youth are the primary productive human resource of socio-economic development. It is therefore, essential to locate the role of youth in mainstream development. Youth are the important asset of a nation but they are being exploited by different agencies and their capabilities and competencies are not fully utilized by the nation. Rural youth are not only the future of food security but also for the growth of agriculture and development of allied enterprises. Rural youth face many hurdles while trying to earn a livelihood. While most of the world's food is produced by (ageing) smallholder farmers in developing countries, older farmers are less likely to adopt the new technologies needed for sustainable increase in agricultural productivity and ultimately feed the growing world population. The focus should be on how to make agriculture and allied enterprises such as Sericulture, Animal husbandry etc., more attractive and rewarding to the younger generation. Being a rural agro-based labour intensive industry, the sericulture sector plays a vital role for checking the migration from rural to urban areas. The very nature of this industry with its rural based on-farm and off-farm activities and enormous employment generation potential attracted the attention of policy makers to recognize the industry as one of the most appropriate avenues for socio-economic development of a largely agrarian economy like India. Hence, we need to engage youth in agriculture and allied enterprises like sericulture.

Keywords: Rural youth, Agriculture, Sericulture, Enterprise, Prospects, Empowerment.

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Introduction

Global population is expected to increase to 9 billion by 2050, with youth accounting for about 14 percent of this total. The age of an individual youth makes him mentally mature and able to take rational decisions. The youth are considered as the backbone and cream of the nation. Ours is a land of youth and this happens to be our greatest asset. Young minds are creative minds and youth are capable of achieving seemingly impossible tasks. Youth are the primary productive human resource of socio-economic development. It is therefore, essential to locate their role in mainstream development. The youth of India is diverse in ethnicity, religion, and socioeconomic backgrounds. Such diversity necessitates customized initiatives to meet needs and activate their untapped potential.

Majority of Indians live in villages and real progress is not possible, unless rural development takes place at a rapid pace. The population of youth in India in the age group of 15 - 35 years is around one third of the total population. Out of this total youth population, 20 per cent of them constitute the urban sector while the remaining 80 per cent are from the rural sector. There is evidence from various studies that more than 70 per cent of the poor people live in rural areas and the reduction of rural poverty continues to be a primary goal of developing countries like India. The socio-economic development and prosperity of the country depends to a considerable extent on the type of youth the country possesses.

Present Scenario

For healthy rural development, directional utilization of youth energy is very essential as the Indian social system is having bulk of educated but untrained and unskilled youth. They are conscious of their social responsibility and willing to render dedicated service to the community. Thus they can play a pivotal role in rural development. However, majority of the rural youth are living in an environment confronted with many problems including the sluggishness of village life, economic and social insecurity, village factions, lack of skills and limited work opportunity.

Youth and agriculture are the twin pillars of sustainable growth in developing countries. The primary aim for youth to engage in a meaningful occupation is to have sufficient regular income. Hence, if agriculture and allied enterprises are enabled by policy and practice to be a respectful, meaningful and profitable engagement, youth will definitely be attracted to it. Agriculture is the backbone of India and the best agricultural practices, a combination of traditional agricultural

methods reinforced by modern technology and innovations can play a leading role in rural development.

Rural development has been a major factor of sustainable livelihood by using available resources, manpower and technology. The Father of the Nation, Mahatma Gandhi said that the “Real progress in India can be achieved only through village development programs”. The women and unemployed youth are to be taken as the driving force of any sustainable development in rural India. Strong rural urban linkages will not only help farmers stay back in villages pursuing profitable enterprises, but also improve access to quality produce by urban consumers. It is noteworthy to mention the views of late Dr. A.P.J. Abdul Kalam, who has advocated his concept of PURA (Providing Urban facilities in Rural Areas). So far, various policies have been pursued to address this concern and among the major ones is rural employment creation.

To meet this objective, the focus should be on how to make agriculture and allied enterprises such as Sericulture, Animal husbandry *etc.*, more attractive and rewarding to the younger generation. In India, agriculture continues to be at the mercy of the monsoon and the markets. In such circumstances, it will therefore be useful if the State Government launches a special programme for enabling youth to remain in villages and take to scientific agriculture. In order to ensure food security, agriculture and allied occupations need to be made intellectually and economically attractive and more consistent for the younger generation to take it up. With this in mind, farming and allied professions must be promoted aiming at involvement of youth. We need the growth of a strong services sector in rural India for ensuring regular and stable livelihood in the villages. Agri-business centers with allied enterprises and agri-clinics are needed on a big scale to promote agriculture and allied enterprises. Farm schools will have to be established in the fields of young farmers, in order to promote farmer to farmer learning. Value addition will have to be done to primary products in order to increase income.

A good crop of certain agriculture and horticulture products *viz.*, tomato, onion, mangoes, grapes *etc.* results in drastic fall in rates and wastage of such items. Establishment of infrastructure like cold storage, warehouses, food processing units, training and basic knowledge of food processing would make agriculture and horticulture more consistent, viable and a profitable occupation with stable and regular income. Similarly, the cocoon rates in India are greatly influenced by legal and illegal import of silk from China.

Objectives

Unlike earlier, when the average yield per unit was hardly 30 kg and crop uncertainty was higher than agricultural crops, Sericulture is now more attractive and rewarding with a consistency in cocoon yield and better income. There is a problem of growing unemployment and most of the youth today want to join a white collar job, even though the salaries offered are meager. There is lack of awareness among them. They do not know the type of avenues and opportunities available in the field. The present article is an attempt to create awareness among youth and motivate them to take up any of 21 various activities in the field of sericulture, as an occupation. Such awareness and motivation would ultimately help in promotion of sericulture and earning foreign exchange for the country.

Status of Sericulture and Constraints of Entrepreneurs in the State

Andhra Pradesh has the unique distinction of producing three varieties of silks *i.e.* Mulberry, Tasar and Eri silks out of the four silk varieties available in India. The state possesses a very strong and traditional weaving base with more than a lakh hand looms. Andhra Pradesh occupies the 1st position in unit productivity and 2nd position in the country next to Karnataka in production of Silk. As a rural agro based industry, Sericulture has now expanded to almost all districts in the state. Ever since its introduction, it is playing a pivotal role in the development of the rural economy of the state (Seshagiri *et al.*, 2003). In the last decade a number of cotton weavers have taken to silk weaving in centers like Rayadurg and Proddatur because of better income in silk weaving. In Andhra Pradesh, Anantapur district ranks on top for having the largest mulberry acreage and high cocoon production. Presently sericulture is the main occupation of the farming community in the Rayalaseema region particularly in Anantapur and Chittoor districts absorbing the rural labor, giving direct and indirect employment to the other communities through silk reeling, twisting, dyeing, weaving and block printing, sericulture industrial equipment and input manufacture (Seshagiri and Ganapathi Rao, 2002). The Government of Andhra Pradesh has a separate department to promote Sericulture industry both in on-farm and non-farm sectors. The present status of sericulture in Andhra Pradesh (2016-17) is presented in Table 1.

Table 1. Present Status of Sericulture in Andhra Pradesh (2016-17)*

Sr. No.	Component	Unit	Present Status
1	Mulberry acreage (cumulative)	Acres	82889
2	No. of sericulture farmers	Nos	67871
3	Employment generation	Lakhs	4.97
4 a	Bivoltine cocoon production	M.Ts	6603
4 b	CB cocoon production	M.Ts	35625
4	Total cocoon production	M.Ts	42228
5 a	Bivoltine raw silk production	M.Ts	1056
5 b	CB raw silk production	M.Ts	4914
5	Total raw silk production	M.Ts	5970
6	Productivity per 100 dfls	Kg	70
7	Multi end reeling units	Basins in Nos.	1620 (240 units)
8	Automatic Reeling Machines (ARM)	Basins in Nos.	120 (1200 ends)

* Source: Department of Sericulture, Andhra Pradesh

Sericulture is not only a tradition but also a living culture in India in general and Andhra Pradesh in particular. It is both an art and science of raising silkworms for silk production and ensuring livelihood. However, the entrepreneurs are facing various challenges for their sustainability in the industry. Fair prices and timely availability of quality seeds and other inputs are the major constraints of the farmers. Their knowledge base is influenced by the R & D support/Technical guidance by different agencies. Low rainfall and depleting ground water table is a major challenge not only for cultivating mulberry but also all agricultural crops in many states of India. The prevailing environmental factors viz., high temperature-low humidity or high temperature-high humidity in coastal areas of the state and socio-economic status also influences the success of the crops. All these factors are the reasons for low productivity per unit, when compared with China. At present, availability of skilled labour has become a thrust among the farming community in continuing with the sericulture enterprise. Various other factors such as finance and support of other line departments also play a major role in the continuity of the entrepreneur in the industry. Considering the needs and constraints of the entrepreneurs, Govt. of Andhra Pradesh supports them financially for various activities.

Opportunities in Sericulture - Regular income with minimum gestation period

Sericulture is an agro-based labour intensive industry which provides gainful employment to the rural and unemployed youth and helps to uplift the socio-economic status of small and marginal farmers. It could be an attractive regular income oriented enterprise for rural youth as the silk and silk products are intermingled with the

country's culture and civilization. No ritual of any community is complete without silk as a wear in one form or the other. India has the unique distinction of producing all the four known commercial varieties of silk. The silk industry has emerged as one of the major employment providers in the state of Andhra Pradesh which leads to poverty alleviation and inclusive development. Being a rural agro-based labour intensive industry, the sericulture sector also plays a vital role for checking the migration from rural to urban areas. The very nature of this industry with its rural based on-farm and off-farm activities and enormous employment generation potential has attracted the attention of policy makers to recognize the industry as one of the most appropriate avenues for socio-economic development of a largely agrarian economy like India. The various activities in the field of sericulture are listed below and one can choose an area of his/her interest depending upon the finance and infrastructure requirement and availability (Table 2).

Table 2. Opportunities in the field of Sericulture

Sr. No.	Mulberry Cultivation, Seed Production and Silkworm Rearing	Post Cocoon Sector	Allied activities
1	Kissan Nursery - mulberry saplings	Reeling units (Charkha, Multi-end and Automatic Reeling Unit)	Production of disinfectant chemicals
2	Production of bio-fertilisers and/or vermi-compost	Twisting Unit	Production of bio-control agents
3	Silkworm egg production	Dyeing Unit	Production of rearing equipments-mountages <i>etc.</i>
4	Chawki Rearing Centre	Printing on silk	Computer Aided Textile Designing (CATD)
5	Commercial Silkworm Rearing	Weaving Units (Handloom/powerloom)	Placements at corporate sericulture offices
6	Compost from silkworm rearing waste	Preparation of garlands, flowers <i>etc.</i> from waste cocoons	Job in Department of Sericulture, Laboratory Assistant
7	--	Waste pupae trading/ Pupal oil and powder extraction	Marketing of sericulture products <i>etc.</i> , (Disinfectants, mountages, heaters, humidifiers, micro-nutrients <i>etc.</i>)
8	--	--	Placements in graineures, sales counters, reelers, weavers and quality assessment centers

Mulberry sericulture is a land based activity, which is labour intensive and provides good returns to the farmers. It has special significance for young women as silkworm rearing, an indoor activity, is not physically laborious and can be

simultaneously taken up by the women and unemployed youth along with other household activities. Mulberry sericulture has both agricultural components relating to mulberry plantation as well as industrial components relating to reeling, twisting and weaving. Because of its multifarious advantages such as high employment potential, rural base, relatively low capital requirement, minimum gestation period, very small crop duration, regular income, checking migration to urban areas, meeting raw material needs of the silk weaving industry sericulture has been attempted in several countries but it could sustain only in a few countries and India is one of the successful countries. Considering the merits of the sericulture industry for inclusive growth and the activities aligning with the Millennium Development Goals, the Government of India and the State Governments have taken up various developmental programmes for the development of sericulture and silk industry in India (Table 3A & 3B).

Table 3A. Financial Assistance provided by the Government for Sericulture Farmers

Sr. No.	Item / Activity	Cost (Rs.)	Subsidy/ Incentive (Rs.)
Mulberry Propagation			
1	V1 saplings/ acre	14,000	10,500
2	Tree mulberry plantation/ acre	45,000	22,500
3	Soil enrichment (Organic fertilizer like Neem Cake)	10,000	5,000
4	Micronutrients (growth promoter)	1500	750
5	Drip Irrigation/ one acre (APMIP)	1,50,000	1,35,000
Rearing Shed, Veranda, Equipment, Disinfectants etc.			
6	Model-1: Rearing Shed (50 x 20 x 12-15 feet)	2,75,000	82,500
7	Model-2: Rearing Shed (30 x 20 x 12-15 feet)	1,75,000	87,500
8	Model-2: Rearing Shed (for SC farmers)	1,75,000	1,57,000
9	Model-2: Rearing Shed (for ST farmers)	2,00,000	1,80,000
10	Low cost shed including shoot stand	2,75,000	1,37,500
11	Construction of Veranda to a Rearing Shed	--	22,500
12	Rearing Equipment	70,000	35,000
13	Rearing Equipment (SC and ST farmers)	70,000	63,000
14	Brush Cutter (Farm Mechanization)	24,090	10,000
15	Secatures (1 big and 1 small)	1,400	700
16	Disinfectants	5,000	3,750
17	Establishment of Chawki Rearing Centre & Equipment	6,00,000	4,20,000
18	Incentive on Chawki silkworms (Bivoltine)/100 Dfls	--	750

19	Plastic mountages (300 Nos.)	20,720	19,330
20	Plastic Trays (10 Nos.)	6,000	4,500
21	Production incentive for CB cocoons (per Kg)		10 (20)
22	Production incentive for Bivoltine cocoons (per Kg)		50

Table 3B. Financial assistance provided by the Government for post cocoon sector (Reeling, Twisting, Weaving, Pupae Processing)

Sr. No.	Item / Activity	Cost (Rs.)	Subsidy/ Incentive (Rs.)
Reeling Units			
1	Multi-end reeling machine -6 basin	11,88,500	8,91,000
2	Multi-end reeling machine - 10 basin	14,86,000	11,14,750
3	Construction of Multi-end reeling shed (6 basin)	5,40,000	2,70,000
4	Construction of Multi-end reeling shed (10 basin)	7,20,000	3,60,000
5	Multi-end reeling machine -6 basin (SC & ST)	11,00,000	9,90,000
6	Construction of Multi-end reeling shed- 6 basin (SC/ ST)	5,40,000	4,86,000
7	Construction of Multi-end reeling shed- 10 basin (SC/ ST)	8,00,000	7,20,000
8	Improved Cottage Basin Reeling	3,88,200	2,91,000
9	Automatic Reeling Machine (ARM) - 400 ends	1,28,20,000	96,15,000
10	Automatic Reeling Machine (ARM) - 200 ends	72,57,000	54,42,000
11	Additional equipment (ARM)	3,63,000	2,72,250
Twisting Unit/ Pupae Processing Unit			
1	Twisting Unit (480 spindles)	7,78,000	5,83,000
2	Pupae Processing and Drying Unit	13,60,000	10,20,000
Production Incentives - Reeling and weaving			
1	Production of Charkha Reeling silk (per kg)		35
2	Production incentive for crossbreed silk (per kg)		80
3	Production incentive for Bivoltine silk (per kg)		130
4	Handloom Weavers @Rs. 250/kg (Max. 4 kg/month)		1000

*Source: Department of Sericulture, Andhra Pradesh

Employment potential through Sericulture with low investment

Sericulture generates employment @11 man days per kg of raw silk production (in on-farm and off-farm activities) throughout the year. This potential is par-excellence and no other industry generates this kind of employment, especially in rural areas, hence, sericulture is used as a tool for rural reconstruction. It is obvious that mulberry sericulture can be an effective tool in solving the problems of unemployment and poverty alleviation in the rural areas. The labour force participation rate in silk industry is the highest in comparison to any other avocation

in the country. Sericulture consists of two phases, one is mulberry cultivation which is basically agriculture in nature through which mulberry leaf, the food of the silkworm is produced and the other one is rearing of silkworms for cocoon production. Mulberry garden requires a low gestation period of six months and continues to yield for 15-16 years with little expenditure on maintenance. The sericulture crop is harvested in 22-28 days unlike other crops which take about four months to harvest. More interestingly, if planned properly, a farmer can get regular handsome monthly income from sericulture. By adopting stipulated package of practices, a farmer can attain net income level up to Rs. 1,00,000 or more per acre per annum. Thus the industry plays a major role in empowerment of youth and employment generation. The economics of sericulture is presented in Table 4.

Table 4. Sericulture Economics (One Acre Plantation under irrigated conditions)

Sr. No.	Particulars	Rate (Rs.)	Amount (Rs.)
A. Expenditure			
1.	Cost of leaf production for 28 MT. of leaf per kg	Rs. 2.28	63840.00
2.	Cost of dfls (Multi x Bi.) 1250 dfls	Rs. 400 per 100 dfls	5000.00
3.	250 Man days for rearing [@ 20 man days per 100 dfls per 1250 dfls]	200/-	50,000.00
4.	Non recurring expenditure (approx.)		57,387.00
5.	Recurring expenditure (approx.)		6520.00
	Total Expenditure		182747.00
B. Return			
6.	Returns by selling 750 kgs cocoons @ 60 kg cocoons / 100 dfls (1250 Dfls/ year)	400/- per kg	3,00,000.00
	Net Return in Rs. : (B-A)		1,17,253.00
Cost Benefit Ratio is 1 : 1.64			
<i>Assumptions</i>			
Mulberry variety	V1		
Silkworm Hybrid	Multi x Bi		
Average leaf yield / acre @70 MT/ha/yr	28 MT / acre		
No. of Dfls brushed / acre/year	1250 dfls		
Average cocoon yield / 100 dfls	60 kg		
Average rate of cocoon / kg	400.00		

The new innovations of mulberry cultivation, silkworm rearing and improved hybrid silkworm seeds have brought an unparalleled revolution in the silk industry. They do not call for any special heavy investment as the same are developed to suit the existing socio-economic conditions of the farm households. The simplicity in adoption of these technologies and attractive income thereof have great appeal to the farmers with the result that sericulture is spreading fast in new areas covering practically almost all the districts. It is also helping in rapid transformation of the poor sericulture villages into reasonably prosperous rural areas. The new sericulture technologies are very much farmer oriented and have, in fact, transformed sericulture which used to be a subsidiary rural occupation in the past, into a full time highly remunerative agricultural activity better than any other cash crops. Due to these advantages sericulture is a priority and gets major attention in rural development programmes. Keeping in view the advantages of silk in promoting inclusive development, promotion of sericulture will continue to be an important factor in the coming days. Sericulture is also recognized for its transfer of income from richer to poorer classes, use of marginal land without affecting food grains production and high export potential (Seshagiri and Ganapathi Rao, 2002).

Challenges of Youth in Sericulture

In general, rural youth continue to face challenges related to unemployment, underemployment and poverty. Despite having ample potential to provide income-generating opportunities for rural youth, challenges related specifically to participation of youth in agriculture and allied enterprises are detailed here.

1. Insufficient access to information and skills: Access to information and skills is often worse in rural areas than in urban areas, and this discrepancy is observable as early as in primary school. Among the farming community, agricultural knowledge and farming know-how are passed on by tradition from parents to children. To ensure successful participation of youth in the agricultural sector and allied enterprises, access to both information and skills is crucial. In addition to knowledge of agricultural production and processing techniques and the relative know-how, the young farmers need access to information about finance, land, market rates and latest technologies in the field of water conservation and utilisation, food processing and preservation of harvested crop.

2. Limited access to land: Due to growth in population and division of land among growing family members, access to agriculture land has come down drastically making agriculture a non-viable occupation. Land is the basic and

primary requirement around which the rural economy revolves. In rural areas, land not only contributes to household food security but is a means to employment creation and income generation. A good crop in rural areas also provides business in the urban markets and industries.

3. Inadequate access to financial services: Access to financial services such as crop loan is much more difficult for farmers than the loan to industrialists. Interest rates on tractor are much higher than on cars. Defaulter farmers commit suicide due to pressure and reminders from the bank and also in case of crop failure. On the other hand, the industrialists easily escape by declaring themselves bankrupt. If youth have access to land, minimum finance is needed to cover the initial costs to start sericulture activities. In order to meet these needs, Financial Service Providers (FSPs) have to play a crucial role. While financial services have become increasingly available to poor farmers, there is still much to be achieved to improve the availability of finance at low interest rate to young people in agricultural and rural enterprises.

4. Difficulties accessing green jobs: There is enormous potential for growth in the creation of new green jobs and for upgrading existing jobs contributing to sustainable development, poverty reduction and better inclusion of young people in society. Mere academic qualification without technical knowledge and skills is not enough to generate employment to youth passing out every year from various institutions. Even agriculture/sericulture graduates and post graduates wish to go for jobs instead of taking up agriculture or sericulture as an occupation. It is increasingly clear that investments must be made in technical training and skill development so that the youth can go for self-employment and also create jobs for others. Such training would also be useful in upgrading their skills.

5. Limited access to markets: Market access for farmers means the ability to acquire farm inputs and farm services and the capability to deliver agricultural produce to buyers. Easy access to markets is vital for boosting productivity and increasing incomes. Limited access to market paves the way for middlemen, who due to their financial strength enjoy the maximum benefit and the small and marginal farmers, reelers, dyers, weavers *etc.* get the minimum out of their produce.

6. Limited involvement in policy dialogue: Participation of youth has an important role in decision-making and policy dialogue. At times, the policy-

makers unilaterally frame policies without understanding the field realities and requirements. Since, the policies are usually framed at the top most level; there is lot of pilferage till it reaches the grass root level. Due to these reasons the policies and schemes do not yield desirable success. However, there is still a long way to go to ensure the active participation of youth in policy processes and too often their participation remains token or passive.

Inspire youth for better prospects in sericulture

Globally, most young people (around 85%) live in developing countries, where agriculture provides the main source of income and therefore, it is vital that young people are brought to the mainstream of agriculture and allied enterprises. However, in the recent past, retaining youth in agriculture has been identified as one of the major problems. Today's agriculture reflects a poor social image and hence, rural youth are moving towards the urban sector for alternative and better opportunities. The future challenges are complex in nature and magnitude especially due to shrinking natural resources, declining profitability and adversaries of climate change. Obviously, these challenges are not only posing a threat to agriculture and food and nutrition security but also creating wider socio-economic gaps within the society. Overall, the current agricultural policies do not provide attractive and sufficient avenues for engaging youth in agriculture.

Youth have the capability and capacity to make significant changes in agriculture but need right policies and proper grooming. The past glory of "Green Revolution" was achieved due to policy support and infrastructure as well as human resource development of youth. There is an urgent need to involve youth in decision-making processes at all levels to reorient agricultural research for development. Each country needs to develop long-term, consensus-based and integrated youth policy, for which there is a great need to share experiences at national, regional and global level. There is a high potential for cooperation among agri-stakeholders, particularly through networking of youth at different levels. The future of agriculture warrants impact oriented efforts at scale by involving youth to play a catalytic role in establishing 'Plough to Plate' chain. This depends on greater involvement of youth through effective networking for knowledge sharing and out scaling of innovations. It is through their active involvement that we can move forward to make agriculture an agri-business oriented profession which is very crucial for the prosperity of our farming communities.

It is our responsibility to get young people energized about the challenge of

research institutes should conduct mobile camps in rural areas to teach professional techniques to make the farming and sericulture in particular, more viable and profitable. Frequent youth-participatory realistic feedback is to be collected for monitoring and evaluation on the above aspects to ensure timely reforms and updates of the knowledge-systems and structures. National policies should be youth friendly to promote small scale farming and protect young farmers from the adverse effects of corporate farming and illegal dumping of silk from China.

IV. Access to rural finance and market: Most of the time, accessing credit remains difficult for young people. Financial institutions often have the perception that youth form a risky client category as they cannot give collateral guarantee and as a consequence, youth frequently find access to private finance at unusually higher interest rates, which they find very difficult to repay later. All this leads to the failure of their newly established enterprise. In such circumstances, loans should be provided, without many formalities, to youth as working capital in sericulture enterprise which would give confidence to entrepreneurs in the sericulture industry. With reference to sericulture in non-traditional areas, to encourage the farming community, marketing facility for cocoons needs to be arranged on priority basis. Information on market rates and climatic conditions would help farmers in harvesting a good crop and higher returns.

V. Sericulture crop insurance: Keeping in view the constraints of the large number of farmers across the country, the Central Government and various state governments have introduced crop insurance to safeguard their interests and lives. Silkworm being a very sensitive insect, silkworm rearing is highly prone to diseases leading to crop loss and failure. Sericulture may also be brought under crop insurance to protect the interests of sericulture farmers.

VI. R & D Support: R&D support is the back bone of any industry for quality improvement and higher returns with the help of new technologies. It is also important to stimulate agricultural R&D for youth for which the 'Young Professionals Platform for Sericulture Research ('YPPSR') has to be organized. Such a network may focus on exchange of knowledge among young professionals and contribute their inputs during policy debates; to promote sericulture among young people. Further, the use of information and communication technologies (ICTs), agricultural education systems and new technologies by research institutions should be developed to respond to the needs of young entrepreneurs in the field of sericulture.

feeding the world and then provide the opportunities to become the leaders of the next generation in the field of agriculture, sericulture and allied enterprises. For the future of agriculture, the responsibility of preparing today's youth for tomorrow is not an option but a must for the older generation. Likewise to ensure participation of rural youth in sericulture, focus should be on motivating the rural youth. Special programmes need to be framed on priority basis for attracting rural youth to Sericulture for better prospects and upliftment of their financial status.

I. Study of market trends and identification of rural youth: Within the greater framework of policy making, the study of market trends and requirements has to be considered. The rural youth are to be identified and trained in sericulture for their long sustenance with the enterprise.

II. Capacity Building of youth in Sericulture activities: Sericulture is considered as a skill oriented activity. There is a need for training and skill-building opportunities for young people that can mould them for active participation in sericulture. Youth platforms (Rural youth and young farmer's platforms and councils) have been created to determine training and capacity building needs. Need based innovations such as shoot rearing, plastic mountages, tree plantation & drip irrigation, rearing of bivoltine silkworm, use of foggers for disinfection, humidity and temperature maintenance, sprinklers on roof-top for temperature maintenance have been made to meet the challenges viz., labour shortage, water shortage, to maintain optimal rearing conditions *etc.* The Technical staff of Department of Sericulture and scientists of Central Silk Board and APSSRDI are shouldering the responsibility of capacity building through transfer of technology to sericulture farmers in the field.

Andhra Pradesh State Sericulture Research and Development Institute (APSSRDI), in its pursuit for Human Resource Development (HRD) in Sericulture has ambitiously established a study centre for "*Certificate course in Sericulture*" under the ambit of Indira Gandhi National Open University (IGNOU), New Delhi. The Institute is continuously training an enthusiastic array of Graduates, Post Graduates, Entrepreneurs and a few farmers, with a view to convert the pass outs into Registered Silkworm Seed rearers and Licensed Chawki Rearers. This effort would result in the development of skilled manpower in Sericulture.

III. Professional farming approach in Sericulture: After youth are engaged in sericulture, special programmes need to be designed to inculcate professional farming approach among the sericulture farmers. Agricultural universities and

VII. Seri Poly Clinics: Input supply at farmers' door steps through establishment of Seri Poly Clinics (One Stop Shops) may be established and popularised amongst rural youth to provide all the required material at reasonable rates.

VIII. Chawki Rearing Centres (CRCs): Production of Chawki worms is an important and latest concept in bivoltine cocoon production, which has been successfully adopted in the field. The rural youth with small land holding may establish CRCs. They can play a vital role in production of good quality Chawki worms leading to a successful commercial crop.

IX. Recruitment / Outsourcing of well qualified rural youth as extension workers, support schemes to youth farmers for Chawki silkworm production, commercial silkworm rearing, Reeling, Weaving and access to markets, engagement in value chain activities like garment making, fashion accessories and marketing of value added products through a chain of Silk Mark outlets will further enhance the participation of rural youth in the Sericulture sector. Awards are to be given to sericulture youth to gain confidence of youth to share their experiences and replicate the successes.

The role of youth in transforming the face of Indian sericulture is very crucial. They are the vectors of new ideas and imbibe the necessary impatience and excitement needed to spur all round development. The youth are more receptive to new ideas, ready to spend on ideas and take risk. Hence there is a need to kindle their energies for fruitful purposes and develop them in the desired direction. Sericulture involves various aspects and farm youth are actively involved in all these aspects. They participate in most of the sericulture operations like field preparation, application of manure and fertilizers; inter cultivation, disinfection, feeding the silkworms *etc.* Indian silk industry has registered a phenomenal growth over the years and presently accounts for more than 18 per cent of the global silk production. Such spectacular growth could be attributed to the involvement of youth in sericulture. India has emerged today as the second largest producer of mulberry raw silk besides producing all the varieties of commercially exploited silks of the world.

The Indian silk industry is suffering from two major constraints *i.e.*, low productivity and high production cost. In these circumstances, if youth are brought into this sector, productivity could be increased by adoption of new technologies as the youth are ready to accept any new technology. Further the production cost could be brought down by effective utilization of resources which could happen with the involvement of rural youth. Bottlenecks in the field of cocoon production

have been identified and addressed to a great extent. Needless to mention that, there is still more to be done in achieving the target of enlarging the production base of bivoltine in the larger interest of the sericulture industry in the country and also to compete in the international market.

Conclusion

Most rural youth do not foresee a prosperous future for themselves in the agriculture or sericulture sector mostly because of uncertainty of weather, lack of stability and profitability and lack of infrastructure in rural areas. At the same time, rural youth is very aware of this situation and full of hope and energy to turn the tide and create a 'new rural reality'. Rural youth are trying to mitigate the low profitability of agriculture. They aspire to become agri-preneurs / seri-preneurs who are involved in all links of the value chain from production to transformation and marketing. Conscious of the effects of climate change on the environment and depletion of natural resources, rural youth are excellent environmental stewards who promote sustainable agriculture. Many of them are farming in the agricultural high-season but migrate to the cities during the low season, keeping close ties with their relatives in rural areas and thus enhancing rural-urban linkages. Rural youth are willing to become modern farmers and are taking advantage of new ICTs to learn about new agricultural techniques and to facilitate the marketing of their produce.

It can be concluded that youth are the important asset of a nation but they are being exploited by different agencies and their capabilities and competencies are not fully utilized by the nation. Rural youth are not only the future of food security but also for the growth of agriculture and allied enterprises development. Rural youth face many hurdles while trying to earn a livelihood. Youth often also lack access to credit, and many other productive resources necessary for agriculture. While most of the world's food is produced by (ageing) smallholder farmers in developing countries, older farmers are less likely to adopt the new technologies needed for sustainable increase in agricultural productivity, and ultimately feed the growing world population and protect the environment at the same time. Hence, we need to engage youth in agriculture and allied enterprise like sericulture.

Future Prospects

There is a strong demand for silk in the country, which is expected to continue for another two decades and the country is fast becoming the largest consumer

of silk in the world. Hence, there is a strong prospect for horizontal and vertical expansion to meet the increased domestic and export demand for silk products. The onus now lies with the policy makers and industry stakeholders to introduce and steer the industry into uncharted areas. In these circumstances if youth are brought into the main stream of agriculture and to the allied enterprises there is scope for much more betterment in agriculture based enterprise as the youth are ready to accept new technologies and implement them successfully.

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