



# Science for Villages

A Newsletter of Centre of Science for Villages

## Editorial

“Centre of Science for Villages” (CSV), a science and technology based voluntary organization, is engaged in activities which were initiated by Mahatma Gandhi from Maganwadi, Wardha, through All India Village Industries Association (AIVIA). AIVIA was established in 1934. For paying respect to Father of Nation, CSV has planned year long activities to mark 150th Birth Anniversary of Mahatma Gandhi.

We commemorate “Gandhi 150 Anniversary” from 30th January 2018 and it will continue till 2nd October 2019 and even extended afterwards.

Following proposed programs will be carried out during this phase:

Seminars, workshops and debates amongst students and villagers on “Gandhi’s Thoughts on Science and Technology and its Relevance in Present Times” twice in a month during 2018 and 2019. This initiative will facilitate

Cultivating innovative and result oriented ideas.

Highlighting various obstacles faced by common citizen.

Aspirations of creating atmosphere of positive thinking and

Enhancement self confidence to handle challenging situation of any degree and extent.

CSV will organize “Rural Knowledge Fairs” at clusters of village level in association with local educational institutions /science and technology based institutions /cultural institutions /people’s voluntary groups. This initiative will emphasize on local resources, scientific traditional and modern technologies or skills so that the idea of self reliance (at village or cluster of village level) can be imbibed amongst people. The process is aimed to create local enterprises capable enough in exploring possible scope of development depending upon locally available resources and input of technologies.

CSV will organize number of training/orientation programs to generate traditional and / or innovative job opportunities (self employment) for 150 youths in rural, semi-urban and urban out pockets of the area of focal attention. These enterprises will predominantly use local resources from agriculture, forest, minerals etc.

CSV will promote environmentally friendly and culturally relevant initiatives like

✍ Waste land management techniques through afforestation.

✍ Watershed or Cover Management –

✍ Organic Farming- promotion and extended activities through support services to be availed to fellow farmers of the focal area.

✍ Promotion of Renewable Energy Resources.

✍ Taking up and providing technical assistance to the other doer organisations on Total Sanitation Campaign for making villages Clean and Open Defecation Free (ODF)

✍ Promotion of ethnic biodiversity (vegetables, pulses, millets, wild fruits etc.) and

✍ Promotion of “Artisanal Trade”



✍ CSV is planning to construct 150 houses by using local resources like mud (Kachhe Mitti Ke Pakke Makan) and / or bamboo (Poor Man's Timber) for the poorest of the poor by generating funds from local community.

All the proposed activities are planned in such a way that the collective result of these initiatives will enhance the confidence level of fellow villagers, artisans, youths and women so as to empower them with fundamental Gandhian values that Mahatma aspired for. It will also enhance the level of prosperity through opening up the possible spheres of technologically sound rural economic practices for making the village life more and more result oriented as well as peace centric. It must not drive a villager toward a complicated lifestyle, but, can equip the rural youth with modern and simplest mechanism of instrumentation for enhancing their skills and competence.

### Research Component of the Project

The entire project is also aimed collectively toward focusing upon some of the research components through pilot initiatives. Some of such initiatives will be as follows:



- ✍ Identification of Critical Competencies creating obstacle in the prosperity of rural youths as well as neo artisans.
- ✍ Exploring possibilities of developing some of the rural industrial practices for enhancing critical competencies duly identified during the study.
- ✍ Preparing Close User Group of the technology for examining grass root level obstacles and probable limitations.
- ✍ Studies on success indicators and rectification of the Training as well as Product Diversification flow charts.
- ✍ Programs mentioned above will be incorporated in the life style of people.

You can help “Centre of Science for Villages” by

- ✍ Providing human resource to work with CSV in the field.
- ✍ Inviting CSV staff in institutions for delivering a lecture.
- ✍ Help CSV in organizing seminars, workshop, rural knowledge fairs etc.
- ✍ Sharing successful Technology having rural application.
- ✍ Sponsor training kit for trainees.
- ✍ Sponsoring number of training programs in selected villages for entrepreneurship development.
- ✍ Sponsoring a cluster of houses for the poor.
- ✍ Providing vehicle (four-wheeler) for movement in the villages.
- ✍ Publishing activity based articles, news, books, pamphlets etc. in print and electronic media.



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**No human heart is denied empathy. No religion can demolish that by indoctrination. No culture, no nation and nationalism - nothing can touch it because it is empathy. Dayananda Saraswati**



## **Bees and honey everywhere for everyone**

### Benefits from bees

Demand for honey and other bee products is high in Zimbabwe. Besides a food and sweetener, honey is used in making confectioneries such as Willards Foods and Crystal Sweets, in the pharmaceutical industry, and as a medicine by religious groups. There is also a strong market for beeswax for making cosmetics, antiseptics, and for floor, furniture and shoe polish. Farmers also make their own candles, wax, soap and skin lotions at the household level. Honey has health benefits, as a detoxifier, and vitamins E, D, C, and K help strengthen the body's immune system. Honey and beeswax are also growing export commodities along with bee venom, propolis and royal jelly. These show great potential for employment generation in rural communities.

Bees also play a significant role by pollinating crops and so contributing to increased food production. Bees pollinate wild plants including forest trees and so play a priceless ecological role in biodiversity conservation and the maintenance of attractive landscapes.

There are more than 50,000 beekeepers in Zimbabwe. A field workshop arranged by the Ruzivo trust in February 2014 brought some of them together to share their knowledge on the practices and benefits of beekeeping.

Mr Moyo from Mhondoro amazed people when he told how he harvests 15 kg from each of his 15 hives every six months, or 450 kg per year. Mrs Manyowa of Mazowe was also very happy to share her experiences since she started keeping bees only a year earlier, and that she has already harvested 340 kg of honey and now has 20 hives. She says: "I strongly believe that my community must have access to honey, and the surrounding areas must have greenery where bees can thrive and people can access not just honey but also water and other resources provided by nature".

In Mazowe, beekeeping has already helped to bind rural communities by becoming a social phenomenon where families work together to develop more sustainable farming practices.

### Bees in the service of the environment

Deforestation and unregulated pesticide use are major

threats to beekeeping in Zimbabwe as well as to long-term environmental sustainability in general. Today, trees and woodlands are being cut at an ever-faster rate due to demands for fuel and more land for growing input-intensive cash crops such as tobacco. The Ruzivo Trust works with family farmers to promote beekeeping-centred agroforestry, maintaining tree cover by promoting the protection and planting of trees. This also helps to ensure a regular and ample supply of bee forage, and contributes to the design of interventions that help people and their environment.

An unexpected outcome is that beekeeping increases the participation of communities in conservation. When farmers learn about the value of trees as a source of bee forage, they are also less likely to continue with destructive activities such as charcoal burning and hunting and even begin to plant more trees. They recognise that protected environments are good for bees, and the growing of bee-friendly crops like sunflower and alfalfa could further increase honey production.

Climate change, unpredictable droughts and floods are contributing to crop failures. Yet, beekeeping has proven to offer a valuable adaptation strategy. During droughts, bees can forage in the wild vegetation and still produce honey and beeswax. While farmers such as Mrs Manyowa invest in beekeeping, she is equally investing for a future environment in which her community and physical surroundings are more resilient to climate shocks. Her efforts are not lost, because in the process of conserving nature for her bees, cash is also coming into her pocket and so helping her family and her community break out of poverty.



### Golden Words :

***Your beliefs become your thoughts. Your thoughts become your words. Your words become your actions. Your actions become your habits. Your habits become your values. Your values become your destiny.***

.....Mahatma Gandhi



### ***GM crops are not the answer to pest control***

***G. V. Ramanjaneyulu argues that insect-resistant crops will eventually require an increased use of pesticides, and that farmers around the developing world will suffer as a result.***

*Thousands of farmers in the Indian state of Andhra Pradesh have committed suicide since the 1990s, and many of these deaths have been blamed on so-called pest disasters. This refers to the way farmers' heavy use of pesticides has led to increased resistance in pests, which in turn has caused substantial crop losses and a slide into crushing debt.*

*Given this situation, what should be the response to those suggesting that we apply high doses of toxins over extended periods, irrespective of whether the pests are present? After all, this is what supporters of genetically modified (GM) insect-resistant crops are encouraging farmers to do.*

*We do not have to look far to find well-established and credible alternatives, namely the use of integrated pest management (IPM), or even non-pesticidal management and organic farming.*

*These strategies are based on the farmers' own knowledge, management skills and labour, rather than external farm inputs. Their demonstrated effectiveness shows that farmers can manage insect pests successfully and affordably without resorting to chemical pesticides — or to insect-resistant GM crops.*

*The experience of these farmers suggests that widespread use of such GM crops violates the principles of sound pest management.*

#### ***Weighing the costs***

*It is generally accepted that under IPM, insecticides should be applied only when the projected cost of damage from pests is greater than the estimated cost of control measures, and only after all other effective insect-control techniques have been considered.*

*Furthermore IPM practitioners look at the entire range of pests associated with a crop, rather than individual insect species. They seek to understand all the factors*

*regulating pest populations within a particular context. Finally, they devise and implement strategies to keep the pest population below level at which growing the crops becomes uneconomic — known as the 'economic threshold level' (ETL).*

*Among the many positive aspects of this combination of strategies is that it effectively prolongs the useful life of a pesticide by ensuring that insects do not rapidly develop resistance to it. Such resistance can develop in two ways.*

*The first is via 'selection for resistance'. In any natural population of pests there is normal genetic variation, which includes variation in the genes that deal with pesticide resistance. Pesticide use inevitably favours the survival and reproduction of individual pests bearing the genes that confer increased resistance. The second mechanism is 'induced selection'. Even if the insect population has no naturally resistant insects, high doses of a pesticide causing mutations could increase the probability of resistance emerging.*

*Both of these are known to occur with chemical pesticides, and it is likely that insect-resistant transgenic plants — such as those producing the *Bacillus thuringiensis* (Bt) toxin — will have the same effect. Unlike sprays, however, insect-resistant GM plants maintain constant levels of the Bt toxin over an extended period, regardless of whether the pest population is at economically damaging levels. The selection pressure with insect-resistant GM crops is therefore likely to be much more intense than with pesticide sprays.*

*Toxin consumption In order to slow the emergence of insecticide resistance, IPM strategies seek to avoid the use of pesticides altogether, unless the pest population reaches the economic threshold level. If this happens, farmers using IPM try to ensure that pesticides are only applied in doses that are appropriate for the severity of pest problem.*

*By contrast, insect-resistant GM crops aim to eliminate pests by encouraging them to eat high doses of toxins. ....G. V. Ramanjaneyulu*

**Source: SciDev.Net**



## **Bee Keeping: A Best Alternative**

Most rural development initiatives attempt to improve the farmers' livelihoods. We have observed that when crop production alone cannot provide adequate food security, beekeeping provides a feasible diversification option. It is low cost, low risk and requires minimal land and labour, making it viable for young and old alike, and other disadvantaged groups irrespective of their socio-economic and political status.

Bees are self-sufficient and do not need constant attention. Beekeeping does not compete for resources with other types of agriculture. Most of the necessary equipment, hives, smokers, protective clothing and veils can be made by local carpenters, tinsmiths and tailors and this adds to the rural economy.

In Mazowe District, most families now practise a mix of activities combining beekeeping with raising crops and cattle. Local farmer Clemence Machoto said "I can now better cater for my growing family needs and improve my quality of life. Beekeeping supplies me with an additional non-perishable food and it is not time consuming." A neighbour Mr Musiwo explains, "I have upgraded from using reed baskets and log hives to using improved 'Kenyan top bar' hives which make it easier to harvest honey without impurities".

**Beekeeping for income, pride and independence**

To family farmers in Mazowe, beekeeping is becoming much more than a renewed rural occupation, but an integral part of a new and much broader agriculture with diversified income sources. A survey of 26 farmers previously trained on beekeeping by Ruzivo, showed that nine out of ten farmers improved their incomes as a result of keeping bees, diversified their diets, invested in education for themselves and their children, and reinvested in their farm to make it a more productive enterprise. Input costs are relatively low at less than 50% of the income generated, making beekeeping a thriving business that acts for many as a way out of poverty. One beehive can produce honey with a street value of almost US\$100 per year, with up to 15 kg of raw honey processed into 12 kg of pure honey that is decanted into 375 g bottles and sold for US \$3 each.

But is it all 'honey' that flows?

At the Ruzivo Trust, we have identified constraints to the further development of apiculture in Zimbabwe.

Small scale farmers face uncertainties over access to finance, advice, information and reliable markets. Some beekeeping family farmers in Goromonzi district, have not yet been able to make a decent living from selling their own produce since they do not sell directly themselves and still rely on middlemen. Often, raw honey is sold to middlemen at low prices whereas pure honey and its by-products could fetch much more. Furthermore, we found that 90% of the beekeepers would benefit from improved technical knowledge at all levels of the honey value chain: in processing and value addition, record keeping and provision of coordinated market information systems.

The importance of beekeeping and its links with trade and food security must form a critical area of attention for government and international agencies, policy makers, environmentalists and entrepreneurs. We believe that beekeeping farmers have the potential to transform Zimbabwe's agricultural sector. The challenge is a crisis of knowledge and more resources are needed to enable the necessary training and knowledge sharing, and we are confident of being able to help in covering the gap.

Source:

Bees bring a new buzz to family farming in Zimbabwe Written by Chipso Gono

Demonstration plot of Cotton Cultivation by using a straight line variety is going on at Sevagram Wardha under the direct monitoring of the active Scientists of Centre of Science for Villages, Wardha Maharashtra. November 2017, Wardha



If I have the belief that I can do it, I shall surely acquire the capacity to do it even if I may not have it at the beginning.

----- Mahatma Gandhi



### AAJEEVIKA (National Rural Livelihood Mission)

NRLM is the flagship program of Govt. of India for promoting poverty reduction through building strong institutions of the poor, particularly women, and enabling these institutions to access a range of financial services and livelihoods services.

NRLM is designed to be a highly intensive program and focuses on intensive application of human and material resources in order to mobilize the poor into functionally effective community owned institutions, promote their financial inclusion and strengthen their livelihoods. NRLM complements these institutional platforms of the poor with services that include financial and capital services, production and productivity enhancement services, technology, knowledge, skills and inputs, market linkage, etc. The community institutions also offer a platform for convergence and partnerships with various stakeholders by building environment for the poor to access their rights and entitlements and public service.

#### Women SHGs and their Federations

- Women SHGs under NRLM consist of 10-15 persons. In case of special SHGs i.e. groups in the difficult areas, groups with disabled persons, and groups formed in remote tribal areas, this number may be a minimum of 5 persons.
  - NRLM will promote affinity based women Selfhelp groups.
  - Only for groups to be formed with Persons with disabilities, and other special categories like elders, transgenders, NRLM will have both men and

women in the self-help groups.

- SHG is an informal group and registration under any Societies Act, State However Federations of SHGs formed at village level, cluster level, and at higher levels are to be registered under appropriate acts prevailing in their States.

#### Financial Assistance to the SHGs

**1. Revolving Fund (RF):** NRLM would provide a Revolving Fund (RF) support to SHGs in existence for a minimum period of 3/6 months and follow the norms of good SHGs, i.e they follow 'Panchasutra' regular meetings, regular savings, regular internal lending, regular recoveries and maintenance of proper books of accounts.

– Source : IECIT Web Portal

#### Decentralised Planning for Rural Development

Based on the Sivaraman Committee report, the Planning Commission issued guidelines to all the State Governments in 1987 to consider the block as the unit for planning. The task of planning at the district level was entrusted to the District Planning and Development Council or District Planning Board which had wider representation of the society. This body consisted of elected as well as nominated representatives headed by a Minister or District Collector or a non-official. It was responsible for setting up policy guidelines apart from coordination, monitoring, review, finalisation of annual plans and Five Year Plans and collection of data.

#### An appeal:

Centre of Science for Villages (CSV) started functioning in 1976 by its founder Chairman and Director Late Dr. Devendra Kumar from the premises of Maganwadi in Wardha from where Mahatma Gandhi began the “All India Village Industries Association” (AIVIA) in 1934 and Dr. J. C. Kumarappa gave shape to Gandhian concept of Rural Economy. The idea behind the centre was to establish a place, which could act as a centre for transfer of technology and be a bridge between the portals of National Laboratories and doors of the Rural Mud Huts. We expect your cooperation and support.

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