

## 264. Multipronged Approach for Popularization of Science and Technology among the public

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**Abstract.** The rate at which Science and Technology is advancing in the world is simply unimaginable. It needs superhuman efforts to communicate Science and Technology to the public. However a large number of steps are already being taken by Govt. and Non-Govt. organisations in this regard. Yet it is inadequate. One solution appears to be to make it a mass movement. For this a multipronged approach may be made to expose and train the heads/leaders of various groups who can take Science and Technology down to the individuals at grass-root level.

**Keywords:** Mass movement, MP, MLA, Multipronged approach, NCSC, Panchayat raj, People's representatives, Science centres, Student

### Introduction

A glimpse at the steps taken in the past for popularisation of science by Govt. and Non-Govt agencies would indicate that, perhaps no stone has been unturned in this regard. Some are useful, some very useful and some are excellent.

Pamphlets, Leaflets, Articles in Print Media; Books, Magazines, Radio, Television, Talks, Debates, Jathas, Slogans, Morchas, Posters, Flagmarch with placards, Exhibitions, Museums, Quiz Competitions, science based Cultural programs and Folk art etc; are only indicative and not exhaustive. Prizes are also awarded as incentives for all these.

Yet, it appears, there is much more that can be done.

Can this be converted to a mass movement - a movement to which people from all walks of life can be roped in? They can be made to be actually involved and contribute significantly in their own way.

### Multipronged approach

Yes! It is possible. For this we can have a multipronged approach. We have to identify the groups, create awareness among their leaders/heads and train them. An approach can be to identify them by their age group, level of education, their pursuits of daily life, vocation, profession etc. For example, we have students, teachers, doctors, politicians, peoples' representatives, administrators, assistants, scientists, business people, corporate houses, social workers/self help groups, women groups, tribal groups, industrialists, labourers in organised and unorganised sectors; armed forces of all wings and paramilitary forces etc.

These different groups have different levels of education, understanding, exposure and interest. Hence, while taking science to them, we have to adopt different approaches, strategies, methodology, techniques and mediums.

One can design and distribute leaflets, booklets, documents for different groups, organise meetings, training programs, workshops and interactive sessions. The duration of the programmes can be varied, from a few hours to a few days and spread in different locations. For top echelons, we may choose Secretariat Conference Room, Administrative Academies; for MLA's, Assembly or suitable Halls; for MPs, Conference Halls; for Collectors/Block Level Officers, collectorate conference halls and so on. For the grass root level, there are respective Panchayati Raj office premises. These meetings or workshops can be replicated for similar groups at other locations.

The leaders in turn can take suitable steps for bringing science to the groups they head, formulate programs within their scope for inculcating scientific temper, removal of superstition and blind beliefs as well as appreciation of scientific activities & achievements at different levels.

### Experience

The approach indicated above is based on some experience we had in Orissa, way back almost three decades hence, in the Department of Science, Technology and Environment when a massive program was launched for creating awareness on Environment - various issues involved, steps to be taken at different levels, the roles to be played by the various groups and individuals, policies to be advocated for adoption by Govt. etc. A number of incentives and awards

were instituted. These have since become a part of the system and have done yeoman service for creating an impact on protection of the Environment in the State.

Another program recently organised by the P S Planetarium, under the aegis of DST, GOO is 'Scientific Exposure Visit' for students selected from 254 schools under Tribal Sub Plan of the state. Students were brought to Bhubaneswar, accompanied by some teachers and camped for four days. During this period, talks by eminent scientists and visits to scientific institutes, like Institute of Physics, IMS, PSP, RSC, RMNH etc; were organised. Participants made notes on their observations and had interactive sessions at the end of the day. Selected students were awarded prizes at the Valedictory function. This has been done for 2 years in succession. The participants had a rich experience which was communicated to their school mates.

*Let us analyse some of the groups:*

## Students

Students constitute a major part of the society. As the future generation of the country, this group deserves maximum attention. Rightly so, a large number of programmes are being implemented. Besides science as a part of the curriculum, the other programmes implemented are Science Exhibition, talks or lectures, various competitions, National Children's Science Congress – starting from individual schools, through Zonal level to National Level, participation with a focussed theme; visits to Science Centres under NCSM, though a very few in number; observation of various National Days like NSD, World Environment Day, Technology Day, visit to Science Express, though only a small section is benefitted; special programmes on TSE, Olympiads and so on.

Yet a few more things can also be done. More science based programmes can be broadcast by Radio, which can reach remote corners, where there is limited scope for TV. The scope of students from remote areas to visit Science Centres, Planetaria may be increased. The no. of Mobile Science vans and Mobile Planetaria and their frequency of visits can be increased. Popular Science Magazines in local languages, already available at subsidised rates, may be sent to interior schools, possibly at highly subsidised rates.

### *People's Representatives:*

India is a democratic country. Policies are made by People's Representatives. Government Machinery is run by a vast network of committed Bureaucracy, overviewed by People's Representatives. They are the persons who interact with people whom they represent. Hence Science should reach them first so that they can appreciate the programmes and in turn take them to the people. They should be briefed about the issues involved and progress in S&T made and achieved. That is the way their outlook will change, at least to a limited extent, help overcome superstition and blind belief, as well as create awareness of Health, Hygiene and Sanitation and protection of the environment.

- At National Level: Members of Parliament; Members of Rajya Sabha
- At State Level: Members of Legislative Assembly, Members of Legislative Council
- At Municipality/Corporation/NAC Level: Councillors, Mayors, Chairpersons
- At Panchayat Level: Panchayats/Sarpanch

## Panchayati Raj

The Panchayati Raj is a system which enables people to run their own local Govt in rural areas. It functions at three levels –

- The Gram Panchayat at the village level,
- The Panchayat Samiti at the block level and
- The Zilla Parishad at the district level.

In India, the system of Panchayats is very old. In 1992, the Central Govt. amended the Constitution and formulated rules for the Panchayati Raj System which became effective from April 1993.

The Gram Panchayat has various duties with emphasis on developmental activities such as agriculture, primary education, health and sanitation and responsible for implementing the Community Development Programme at village level.

- The Panchayat Samiti consists of elected members, State Legislative Members and Members of Parliament  
of that area
- Zilla Parishad, Apex body of the PR System, consists of elected body, MLAs and MPs
- These institutes of Local Self Govt. also help to bring about social change.

### Local Self Govt. in Urban Areas

A Municipality or Municipal Council is Local Self Govt. body in smaller towns and cities. The population of a town or city determines the number of members in the Municipality (usually in between 15 to 16). A head of the Municipality is called Commissioner or President.

In case of large cities, the Local Self Govt. body is called Municipal Corporation. The number of elected members is usually between 50 and 100 (may be more as in Delhi and Mumbai–134 to 221). The head is known as Mahapur or Mayor. The functions include:

1. Public Health and hygiene
2. Public conveniences
3. Registering Births and Deaths
4. Education
5. Solid Waste Management.

A Nagar Panchayat is set up for an area that is changing from a rural to an urban type – Transitional area.

### State Legislature

Legislative Assembly (Vidhan Sabha or Lower House)–The strength of State Legislature varies according to the population of the State concerned. The total strength for all States/UTs in India is 1485.

Legislative Council (Vidhan Parishad or Upper House)–The strength varies as per the population of the State, limited to 1/3rd of the strength of Legislative Assembly.

### Parliament

- Lok Sabha: Maximum strength is 550 + 2 nominated members (530 States and 20 Union Territories).
- Rajya Sabha: Maximum strength is 250.

In the preceding paragraphs, we have mentioned the People's Representatives of various categories starting from Panchayat Raj to Parliament. This indicates how effective our approach would be if they are individually and severally groomed in Science and Technology by way of exposure and training, however short they may be.

### Women's Group

Currently with the support from different programs at State and National level, several Women groups have become active and are undertaking activities for socio-economic development.

We may focus S&T communication for this group which will be very effective in achieving our objective. Once women groups are involved in promoting scientific temper, future generations will automatically develop the same attitude.

### Scheduled Caste & Scheduled Tribe Group

The SC/ST Group constitutes a significant percentage of the population in several States. Along with the development programs they may be exposed to Science and Technology in an appropriate manner to appreciate the role of S&T for Socio-Economic development and well being besides developing a scientific temper and removal of superstition.

The approach would be to start with local problems/ issues like agricultural production, drinking water, sanitation etc. offering solutions with S&T inputs.

Extract: When seeds and kernel from 5 ripe drumstick are powdered and added to 10 litres of turbid and polluted water, the water will become clean and pure 99.9% of all indicator bacteria will be free. Such proven technologies can be taken to tribal people for whom it is culturally acceptable, inexpensive and ingredients locally available. This is an extract from a book with more than 500 natural coagulants which has been published.

This approach can be followed at Village and Panchayat level.

### Corporate Bodies

In addition to the above, there is another group/section that may also be roped in. They are the officers of Major Corporations who contribute to programme of Social Relevance. In fact the Social Corporate Responsibility is now a programme built into the system/organisation. They are already doing yeoman service for the welfare of the society where they are active. All that one has to do is to groom them to bring in S&T inputs into their programs and activities.

## **Strategy**

The strategy shall be to approach different groups suitably, keeping in mind all aspects described earlier. For example, the people's representatives at National level may be groomed about Science & Technology in broader perspective so that, not only can they appreciate the S&T policies at the highest level, but they may also contribute inputs, keeping their areas in view. In turn it would help them in monitoring the efficacy of the system. This would be similar, if not identical, at the State level.

In case of R&D Institutions & Scientists, it would be exposing them to fields of Science not dealt by them, and groom them to effectively take their contributions to the common man. They may also get feedback from the people about problems and issues faced by them and find S&T intervention for solving them.

Taking another group, Doctors & Health Workers, they need not be restrained in their own profession but can be exposed to basic technologies involved in the latest equipments and methods of treatment including latest diagnostic techniques and therapy, application of Nano-technology, Nano-bio-technology, precision medicine, tele-medicine, Robotic Surgery etc. They may also be encouraged to study the unexplored areas and traditional systems etc.

A question may arise whether recruitment and training Role Models is implied in the approach. In a sense it is. Just as NCSTC supports Workshops for "Science Writers", "Folk media", to communicate Science through their arts like 'Pala', 'Daskathia', 'Puppetry' etc., people entrusted with/interested in popularisation of Science can meet, discuss and develop modules for different targeted groups and propagate S&T.

The Communication Institutes under NCSTC/DST can take the lead. Considering the wide range of groups and population involved, and the benefits that is likely to accrue over long periods, the money, manpower and efforts necessary under this strategy is well worth it.

## **Conclusion**

For effective communication of Science and Technology to the public, there should be a mass movement and a Multipronged Approach is strongly recommended.