

Why science centres? An appraisal of the rhetoric and activities of the National Council of Science Museums, India

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With the emergence of nationalism in the period of decolonisation after the Second World War, museums came to be recognised as powerful tools for radical socio-economic transformation (Ghose 1992; Venugopal 1995). The first two science museums in India came up, around 1953, in Pilani (in the Indian state of Rajasthan) and New Delhi, soon after the independence. In the former case, it was the initiative of the Birla Institute of Technology and Science to open a central museum on campus, and in the latter, it was the effort of the National Physical Laboratory to house a museum.¹ The first governmental attempt at defining India's scientific heritage and to promote science education was the establishment of Birla Industrial and Technological Museum (BITM hereafter) in Calcutta in 1959, in the decade following India's independence. As Saroj Ghose, erstwhile director of the National Council of Science Museums (NCSM) and president of the International Council of Museums (ICOM), explained in a personal interview, the need was felt by the central and state governments, and especially by the then Chief Minister of West Bengal, Dr Bidhan Chandra Roy, to preserve artefacts of historical significance in the newly formed state with diverse people. He was to a great degree influenced by the set-up at the Deutsches Museum which he personally visited and from this institution, he drew inspiration to form a similar one in India.

Soon however, the opening of the Exploratorium in 1969 in San Francisco challenged the existing science museum space. The Exploratorium model of hands-on approach to science communication strongly favored science education and active participation in understanding of science. As Ghose explained further, for a young country with its policies firmly grounded on the needs of it becoming self-sufficient, and to educate its large rural masses, the choice of model of science communication had to be one where education was foregrounded rather than science appreciation. The success of Exploratorium and the growing interest in activity-based science training also to cater to the needs of the rural population combined to create a major motivation for science museum professionals in India to propose this new institution as the preferred model of science communication, which resulted in the formation of the National Council of Science Museums (NCSM hereafter) in 1978.

The formation of NCSM

What were some of the reasons why the science museum specialists and state policies favoured the establishment of a centralized body, the NCSM, which controls science communication activities in the country through the management of a large number of science museums and centres? What were the events leading up to the creation of NCSM and its opening in 1978? The first science museum, Birla Industrial and Technological Museum (BITM), Kolkata under CSIR (Council of Scientific and Industrial Research, which is an organization functioning under the Department of Science and Technology, Ministry of Science), was opened in 1959. In July 1965

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the second science museum of the country, the Visvesvaraya Industrial & Technological Museum (VITM) was inaugurated in Bangalore. After Kolkata and Bangalore, the work for the third centre at Mumbai was taken up in 1974. As the popularisation of science and technology through the science museums grew in scope and size, the Planning Commission of the Government of India constituted a Task Force in early 1970's to assess the activities of the science museums. The Task Force recommended to set up science museums in different parts of the country at national, state and district levels and also recommended formation of a central coordinating agency. In 1978, it was decided by the Government of India to delink, from CSIR, the two science museums already operating at Kolkata and Bangalore and also the one being set up at Mumbai and put them under a newly formed Society registered in April, 1978 as National Council of Science Museums (Mukherjee 2003). It is interesting to note here that the two operational science museums before the formation of the Council were being managed by the CSIR. Thus it is evident that the role of science museums was perceived as crucial for the "wide educational purposes that it could serve" (NCSM Annual Report 78/79). After the transfer of management of the museums from the CSIR to the NCSM, the Ministry which was governing the science communication activities through the various tasks carried out by the museums also changed: from the Ministry of Science, then it would be under the Ministry of Education and Culture. At present, the Ministries of Education and Culture are two distinct entities and the NCSM is governed by the Ministry of Culture.

Understanding the rhetoric of NCSM

The aim of the first annual report was to clearly position the NCSM as an authoritative entity in charge of popularizing science and technology and promoting scientific thinking among a large population, many of whom have very little or no access to education. One of the issues that was mentioned multiple times in my interviews (that I carried out between June and September, 2015) with the top management of the Council, was that of outreach to various sections of the society, especially the rural population who would otherwise not have access to museums. It is evident that for a country with as large and diverse a population as India, with varied degrees of access to formal education, science museums and centres can play roles of social change, even if very slowly. However, as we will see, the Council has proliferated its activities massively through its current centres at the national, regional and district levels, and the mobile science exhibitions.

For example, the NCSM Society was created with three constituent museums under it. In 2013-14, that number had grown to 25 museums and centres, which is a huge increase in a matter of 35 years. Further to these, the Council is also creating other science centres as per the demands of the various states inside the Indian Union, whose management is then handed over to the state governments. Secondly, from the list of community engagement programmes that the Council has conducted in conjunction with schools, universities, specific ministries of state governments, private companies and a whole range of stakeholders, it is evident that the goal of promotion of scientific temper/attitudes among people is being pursued relentlessly. Activities range from the comparatively ordinary (like science fairs, quizzes, demonstrations), to special (child marriage prevention programme and street drama on eradication of superstition, to name two). As the 2013-14 report states, "In NCSM we believe that our mandate is to create a scientifically literate nation by showing what science is, what it means, why we need it. We remain ever committed to this task."

To build a scientifically conscious nation, the key component is the population which has to be receptive to the ideas disseminated by the science communicators. In interviews with the Council's top management, almost every official mentioned the need for promotion of science and

technology, from basic principles of natural sciences to knowledge of cutting-edge research in fields like robotics and nanotechnology, as they are the building blocks for the billion plus population of India, a vast majority of whom is under 30. As Emdadul Islam, Director of the BITM (one of the national-level museums of the Council) mentions in a personal interview, the need to sustain the drive for development was felt strongly as early as in the first decade after the independence, and this could only happen if the population was stimulated to take up science not only as a career, but also as a hobby. This is precisely why the Council was created: to provide the ‘...resources on the ground in India to translate lofty aspirations into material form.’ (Bassett 2009).

Fostering scientific approach/temper: some examples

The promotion of scientific temper, a crucial clause which finds frequent mention in the rhetoric of science popularization in India, is, I argue, enshrines the NCSM’s primary goal of creating a science-conscious public. Historians of science Carol Harrison and Ann Johnson (2009) discuss Jawaharlal Nehru’s phrase ‘scientific temper’ in the context of the nation-building process of independent India, and his emphasis on creating an environment where people’s actions are governed by scientific approach. Two specific activities of the Council will be discussed briefly in order to understand what is implied by the promotion of scientific temper. The first set of activities include the Mobile Science Exhibitions, where exhibition buses with displays on various topics of everyday science and technology are sent out to the rural areas, whose audiences include some of the most disadvantaged sections of the population. Apart from challenging the idea of a museum space confined within four walls, these exhibitions support large scale dissemination of scientific facts in order to promote rational thinking among the poorest sections of the society. The second set includes informal laboratory sessions at the Innovation Hubs of select museums of the Council. These innovation hubs are targeted to serve the need of curious young students from schools and undergraduate degrees who want to gain hands-on experience in participating in wide-ranging technological projects like developing eco-bikes and line following robots to generating electricity from plant tissues.

In the narrative on scientific temper and how it is being promoted, the history of the Mobile Science Exhibitions (or MSEs) and how it became operational deserves substantial space, especially because the MSEs were a huge success with the rural population. This further strengthened the need for a dedicated institution to manage the diverse science communication activities in the country, spearheaded by the science museums. In the 60s and early 70s, the two major science museums of that time, BITM and Visveswaraya Industrial and Technological Museum (VITM) in Bangalore in South India, started carrying out the first MSEs. These travelling exhibitions ventured out into small towns and villages to create scientific awareness. Each exhibition comprised the following resources and persons: a bus, a number of simple exhibits focusing on various everyday scientific phenomenon and uses of science and technology in daily life, a person to repair exhibits (technician), an explainer and a driver. These travelling exhibitions on the Museobus also proved to be immensely popular and also created a target group of visitors distinct from school students (Mukherjee 2003). The present management of the NCSM however is quick to point out the sheer ambition of the MSEs, given that they manage to reach out to 2% of the entire population. Their aim is to ensure universal awareness of science and technology and that scientific and technological facts and narratives need to percolate down to the common individual.

The Innovation Hub, one of the new projects of NCSM, on the other hand caters to the young population of India, especially school and undergraduate students. In a conversation with S Saha, the curator of the Innovation Hub at BITM, he explained the innovation networks that are being created under the aegis of various ministries of the central government. From our discussion, the idea of nurturing the inventive, or more accurately, the innovative citizen became prominent, and this rhetoric is one of the most commonly used in modern nationalism (Edgerton 2006), and I argue that India at the cusp of unprecedented economic and technological growth, has to make use of it. The fact that the process of creating a contemporary scientific nationalism is ongoing is evident from the following summary of the discussion with Mr Saha. He explained that the National Innovation Council (NInC) was a think tank set up in 2010 by the then President of India, Pratibha Patil, to chalk out plans regarding how to access the vast untapped innovative potential of a young country and address the persisting social problems in areas like health, education, energy and agriculture, to ensure better future to much larger section of the population. As the science centres already have an efficient system in place promote public understanding of science and technology, they were felt to be optimal for popularizing the concept of innovation among visitors and the larger civil society by the NInC. In 2012, the NCSM started working on the project of creating Innovation Hubs, initially, at the national level science centres. The facility at the BITM was completed in July 2013 and was opened to the public in August 2013. This example also tells us that the various organisations of the government network with each other to use existing know-hows and facilities.

Concluding remarks

From the pace of activities, it can be said without any doubt that the idea of a future where more people have access to scientific knowledge and thinking, at least for what concerns young India, is not just a long-range, long term vision. It is also being implemented at a frantic pace to cope with the demands of contemporary society. In fact, some top officials say that they aim to create at least one science centre in each district of every region in India. The NCSM is increasing the number of constituent museums under its ambit by creating new centres to improve efforts in science popularization and reach every section of the Indian society. It is also evident that the construction of science as a positive narrative of progress, specifically its importance in the direction that the nation will take in the future, is considered a secure and foolproof narrative. However, what is different in this construction is the absence of the rhetoric of knowledge deficit in a high-tech approach towards problem solving. Focus instead is on ideas like grassroots innovation, local needs and inclusive growth. In the essay "Do Artifacts Have Politics?" (1980), Langdon Winner paraphrases the American sociologist and urbanist, Lewis Mumford, "...two technologies have existed side by side: one authoritarian, the other democratic, the first system centered, immensely powerful, but inherently unstable, the other man centered, relatively weak, but resourceful and durable". Is the NCSM slowly yet surely moving towards the second system? Only time will tell.

The purpose of the postcolonial science museum, at least what concerns the Indian scenario, has definitely undergone a drastic transformation, aided by the changes inside the museum spaces and the approaches to science communication. If in the beginning (the 50s), the interest was to preserve the historic heritage of the empire, in the present the Indian science museum is more a science centre dedicated to provide affordable scientific education, and the creation of scientific citizens who will be able to address social needs innovatively. This opens up multiple avenues for further research regarding the communication strategies required to harness the innovative potential of a large young population.

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