

## SCIENCE AND TECHNOLOGY IN INDIA: WHAT CAN WE LEARN FROM GANDHI?

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### **ABSTRACT**

*Based on an in-depth examination of the original writings of Mohandas Karamchand Gandhi, spanning over number of volumes and the compendium of works by his associates J.C. Kumarappa, Einstein, Vinoba Bhave, this article focuses on the role of Gandhian philosophy on Science and Technology in India. Gandhi focused on the non-physical resources in organization of science as the Satyagrahi scientist.*

*He also had a universal message by providing a new cosmology of man-nature and fact-value relations that he articulated and put in place through his various experiments. Gandhiji has written very little directly on science and hence 'we' have to put together 'his' views of science from his writings on Khadi, machinery, modern civilization, etc.*

*In a discussion involving Prof. C.V.Raman, one gets the impression that Gandhiji approves especially the last statement, when the former remarks that "science is nothing but a search of truth...salvation lies in the instinct to sacrifice....for the sake of the species...."*

*Gandhi said," I am a firm believer in the principle of free and compulsory Primary Education for India. I also had that we shall realize this only by teaching the children a useful vocation and utilizing it as a means for cultivating their mental, physical and spiritual faculties". This is extremely important and has been advocated by most modern educationists around the world. Gandhi exemplified the true scientific spirit. He called his autobiography 'The Story of my Experiments with Truth'".*

### **INTRODUCTION**

Gandhi was a great experimental scientist and throughout his life he conducted "experiments" in various fields to arrive at truth. In fact, he lived an 'experimental life' and that was why he named his autobiography 'My

Experiments With Truth'. Gandhi's experiments were oriented to explore various possibilities of the truth. Now the questions arise: What was Gandhi's idea of truth? How was it different from 'scientific truth'? Is it possible to realize truth through experiments? What was the method used by Gandhi to discover truth? Was he following the scientific method or did he devise some alternative method to realize truth? Where do the Gandhian notion of truth converge or diverge? Of course, these are important questions in the contemporary world that is facing the crisis of global warming, pollution, depletion of resources, disparities and social conflicts- all supposed to be caused by blind application of modern science and technology.

Thus for Gandhi Ji, natural scientific knowledge would be practicable knowledge and would be concerned with such things as agriculture, medical aid and health. Therefore Gandhi Ji will make little distinction between science and technology and view that motivation for scientific activity should come from one purpose: human welfare. This view is reflected very clearly when he states: "I would prize every invention of Science made for the benefit of all" or "Take the case Singer's sewing machine, it is one of the few useful things ever invented, and there is romance about the device itself".

I will now attempt to substantiate the Gandhian view of science I present. In the article entitled "Scientific mind and Khadi" he writes "Why should the spindle be made of iron, not brass? Should it be thick or thin?" He sets out the task of "Khadi Science" as follows: "A number of processes relating to the production of khadi are in vogue....And yet a complete and detailed knowledge of all these different processes is necessary before the science can be developed....A scientific study of carding would of course include a knowledge of the construction of the carding bow...."etc. These indicate clearly his view that science and technology are indistinguishable. The same spirit shows up when he expects a Khadi worker with a scientific mind to ask himself "Why charkha, why not the spinning mill?" His concept of human welfare being the aim of science makes him expect the scientific khadi worker to arrive at the following answer to the above question: "everybody cannot own a spinning mill. If people depend on spinning mills for their clothing, whoever controls the spinning mills will control them and there will be an end to individual liberty".

Consider another example from his writing on machinery, "An improved plough is a good thing, but if by some chance one man could plough up, by some mechanical inventions of his, the whole of the land of India and control all the agricultural produce, and if the millions have no other occupation, they would become dunces....I would welcome every improvement in the cottage machine, but I know that it is criminal to displace the hand labour by the introduction of powered driven spindles unless one is at the same time ready to give millions of farmers some other occupation in their homes"

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Few quotes by Gandhiji which emphasize on importance of Science and technology were-

*“Ahimsa is a science. The word ‘failure’ has no place in the vocabulary of Science”*

*“Scientific knowledge requires constant probing into the why and wherefore of every little process that you perform”*

**M.K. Gandhi**  
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The scheme of the nature-human relationship is the foundation on which the Gandhian ideas of Science and Technology were articulated. As it was part of an integrated whole, there is a quite blurred borderline between its usage of science, technology, machine, machinery etc. Gandhians held the view that technologies are embedded in certain political values that are manifested to the society through the production process, art crafts and systems of exchange. Thus, according to the Gandhian school, the technological process is inherently a social process that is integrated into political, social and economic contexts.

While the basic tenets of the school’s orientation remained more or less the same over the period of activities, the proponents engaged in expanding the interpretative terrain of orientation as per the emerging political scenarios. We identify these areas of Gandhian ideas of science and technology to observe how the school dealt with certain themes that become focal issues of academic explorations later, with the emergence of science, technology and society studies.

The choice of technological options and content of science and technology put forward by the Gandhian school marked the distinctive techno politics it stood for. The school while proposing ‘village republics’, wanted its technological choices to embody the values of decentralized autonomy, equity, constricted chains in production

and consumption, labour-intensiveness and ecological sensitivity. Besides rejecting technological determinism and situating science and technology contextually, it emphasized the primacy of producers and users, the agency of scientists, the choice of research area and the design of the artifacts to explicate the related facts.

There are innumerable problems crying for solution, which concern the common man: water distribution and utilization, safer and comfortable public transport (three wheelers and cycle rickshaws), pollution, proper roads, use of wind power,....But hardly any attention is being paid to these at present. All that we have to do, if we are interested in the welfare of the people, is to seriously head Gandhi's Talisman:

'I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test: recall the face of the poorest and the weakest man whom you may have seen. Ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj for the hungry and spiritually starving millions? Then you will find your doubts and yourself melting away''.

Gandhi was not merely interested in technical solutions to the problem, but wanted a value (meaning) attached to it. This is precisely what every scientist in his R & D today. One cannot create anything of value using science if it does not serve some larger purpose of humanity, meaning the paying customers. To him, faith transcended reason. Faith is the function of the heart that needs to be enforced by reason.

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