

India Science OTT and Vigyan Prasar Radio: A Stride to Promote Sustainable Development

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ABSTRACT

Over-The-Top (OTT) platforms for entertainment are immensely popular in contemporary times. The Department of Science and Technology (DST), Government of India, in collaboration with Vigyan Prasar, in a much notable and visionary initiative, launched the India Science OTT channel for promoting and popularising scientific knowledge and awareness in 2019. It aims to communicate the traditional and latest developments of science and technology among the masses and, consequently, inculcate the spirit of a scientific mindset. Another exemplary and praiseworthy step is the introduction of an online radio channel named 'Vigyan Prasar Radio' in the India Science OTT platform. This radio channel exclusively propagates the idea and need for sustainable development for effective management of natural resources and improved quality of living standards. The increasing rates of the global population, industrialisation, urbanisation and consumption have increased the odds of imbalance in society and nature. The present article carried out a qualitative content analysis of the Vigyan Prasar Radio programmes that address the concerns and opportunities for sustainable development in the Indian context.

KEYWORDS: India Science, SDGs, Radio, OTT, Sustainable Development

The ever-growing technological advancements and evolution in modern society have brought a paradigm shift in the way of delivering information and entertainment programmes. Over-The-Top (popularly known as OTT) platforms are emerging as

convenient and affordable sources for educating and entertaining the masses (Pandey, 2022; Bhattacharjee, 2022). It refers to the streaming of audio and video content over the internet anytime and anywhere with a seamless operating experience. In addition to the widespread progress and proliferation of internet-based devices, the COVID-19 pandemic is also an impetus for bringing a shift in the mindset of the audience from popular mass media television to OTT services (Gupta, 2022).

As a remarkable and visionary step, the Department of Science and Technology (DST, Government of India) in association with Vigyan Prasar launched the India Science OTT channel in 2019. It is a unique 24x7 digital platform with free and easy accessibility on any internet-based devices such as smartphones, laptops, desktops, smart TV, etc. (indiascience.in, *Press Information Bureau*, Govt of India, 21 January 2021). The exclusive aim of this OTT channel is to broadcast science and technology programmes to propagate scientific awareness among our citizens and keep them abreast of the latest science and technological developments across the world. It covers a wide spectrum of science and technology topics spanning agriculture, wildlife, environment, engineering, health, scientific heritage, science policy, latest scientific discoveries, etc., which are of immense interest to the general public. As of now, there are more than 4,000 programmes on the channel and almost 62,000 subscribers and 45 lakh views of the programmes of India Science OTT on the Youtube channel.

In a recent study, it was derived that young learners are very enthusiastic about such platforms (Deka, 2022). In another first-of-its-kind initiative, Vigyan Prasar in collaboration with All India Radio (AIR) has launched Vigyan Prasar Radio on India science OTT channel (vigyanprasar.gov.in). It broadcasts online radio serials exclusively on sustainable development with an aim to promote and popularise the essence of sustainable development and its manifestation in our daily way of living. As per the United Nations Brundtland Commission (1987), sustainable development is defined as the development that meets the needs of the present without compromising the ability of the future generation to meet their own needs. However, while chasing the path of growth and development, human

activities across the globe are posing unprecedented threats of serious and sometimes irreversible damage to our delicate ecosystem (Matson 1997; Tilman 1999; Houghton 1996; Vitousek 1994). In view of it, the United Nations adopted 17 Sustainable Development Goals (SDGs) intending to eradicate poverty, improve health and hygiene, reduce inequality, mitigate climate change, environmental degradation, and protect the earth by 2030 (sdgs.un.org). The Vigyan Prasar Radio serial entitled 'Life Must Go On' educates us on it. Till now, a total of 13 episodes (out of the proposed 52 episodes) with diverse themes and programme formats have been successfully aired.

The serials emphasised the following important points:

- (i) Protecting and managing the natural resources
- (ii) Ensuring food security production, access and nutrition
- (iii) Ensuring sustainable energy for all
- (iv) Ensuring universal access to potable water and sanitation
- (v) Sustainable cities and safe secure human settlements
- (vi) Climate Change and creating resilience
- (vii) Fostering disaster risk reduction and resilience, and
- (viii) Protecting the ocean and marine ecosystems.

This article attempts to highlight the important issues addressed under the Sustainable Development Goals in Vigyan Prasar Radio. The following table summarises the episodes.

Table 1 — Summary of the episodes

Episode No.	Episode Title	Mode of delivery	Topic of discussion
1.	Curtain Raiser	Panel discussion	Sustainable development goals
2.	New Approach to Managing Disasters	Narrative drama	Causes of depletion of natural resources
3.	Small is Beautiful	Narrative drama	Sustainability and industrial revolution
4.	How Much Do We Need?	Narration	Sustainable way of living

5.	Awakenings	Interactive session	Need for sustainable development
6.	Let's Come Again	Narrative drama	Ancient Indian ways for a sustainable society
7.	In Reverse Gear	Narrative drama	Importance of organic farming-learning from the past
8.	Rays of Hope	Narrative drama	Government's role in achieving sustainability
9.	Interactive Episode	Panel discussion	Reinforcing the idea of sustainable development
10.	Fossil Fuel and Environment	Narrative drama	Impact of fossil fuel on the environment
11.	Efficient and Rational Use of Fossil Fuel as Energy Storage	Narration	Importance of fossil fuel in our society
12.	Towards the Bright Future	Narrative drama	Government and citizen's role in clean energy
13.	Enhancing Energy Efficiency	Drama and discussion	Importance of preserving electricity

The present article carried out a qualitative content description of the 13 episodes on sustainable development that were aired on Vigyan Prasar Radio. The following section illustrates the main contents of the 13 episodes. It is to be noted here that the analysis of the episodic content of Vigyan Prasar Radio is exclusively based on the narrations used in the programme.

Episode 1: This curtain raiser episode introduces the radio serial "Life Must Go On". It contains a panel discussion on the theme of 'sustainable development'. The discussion emphasised the dire need of connecting sustainable development with all facets of life, the judicious use of natural resources, effective management of wastes, mitigating manmade disasters and the

importance of reviving traditional but sustainable cultivation practices. An important aspect of the discussion is to increase the handprint rather than the footprint. Handprint refers to the impact of our corrective measures for bringing positive change in the world. It also highlighted the engagement required by the citizens in attaining the Sustainable Development Goals (SDGs) laid down by the United Nations.

Episode 2: The title of this episode is “New Approach in Managing Disasters”. Though a drama, the essence of sustainable development and sustainable philosophy are eloquently introduced. It discusses how a lush green and water-rich area transforms into a barren land due to the mismanagement of the natural resources by the inhabitants. The traditional rainwater harvesting method known as ‘paar and agor’ adopted by the dwellers of the Thar Desert region of Rajasthan is discussed. Examples of the wiping out of an entire civilisation due to soil erosion, deforestation, overgrazing, and conflicts are also illustrated. The discussion highlighted the need for the careful use of the earth’s natural resources and adopting a holistic approach to agriculture to protect the land and conserve water and avoid the heavy use of harmful pesticides and chemical fertilizers.

Episode 3: “Small is Beautiful” is the title of this episode. It tries to connect sustainability and the industrial revolution. Through a dramatised family discussion, the perils of modern-day industrialisation which is growing in a rampant manner are showcased. The ever-increasing population is demanding large-scale production of commodities in industries. Therefore, the growth of industries is essential to meet the unique demands of modern society. The concomitant serious problems with increasing industrialisation are the increase in the environment pollution and tremendous stress on natural resources.

In addition, there is a drastic change in the use of land because of the construction of factories and buildings which consequently reduced the quality of agricultural land. There are associated social issues with rapid industrialisation. The urban areas are flooded by the countryside population in search of jobs in the industries with ramifications of inadequate housing facilities and sanitation. Therefore, this episode highlighted the importance of innovation either in the products or in the manufacturing process.

The concept of ‘Cillage’, which means a city in a village, as the term coined by Dr Kakodkar is introduced (*The Times of India*, 28 March 2017). With the citations of entrepreneurs and innovations from rural areas, the episode stressed the merits of small-scale productions in troubleshooting detrimental social and environmental issues. Invoking the words of Mahatma Gandhi, it is reiterated that small innovations can make big impacts.

Episode 4: The title of the episode is “How Much Do We Need?”. It narrates that sustainability is interlinked with the earth’s natural resources and their effective and efficient use. Due to the growing population and the choice of our lifestyle, there is increased demand for goods. But it is to be noted that the earth’s resources are large but not infinite. In fact, some of the resources like oil reserves, coal, natural gas, etc. are not replenishable. Our consumption pattern is generating more and more waste causing irreparable damage to the environment.

To mitigate the challenges, the citizens must embrace the eco-friendly and green way of living that we practised traditionally in ancient India. Rather than ‘use and throw’ type of goods, we must learn to reuse and recycle for minimising waste. There is a depletion of groundwater levels due to excessive and inefficient use of water either in irrigation or households. The use of plastics, thermocol and packaging materials which are not biodegradable is causing land degradation and deforestation. Therefore, it is urged that resources must be used wisely and optimally for a sustainable society and better economic growth in India.

Episode 5: The episode titled ‘Awakening’ defines the concept and meaning of sustainable development. The interactive session highlights the need for embracing sustainable development by every individual and group by taking corrective measures such as the controlled use of renewable and non-renewable resources. By the early 70s, the concerns about protecting and preserving natural resources were felt by most of the developing and developed nations of the world. This radio episode traces the journey of major landmarks undertaken at national and international conventions on the environment and human development. Here is the brief timeline:

S. No.	Year	Major landmark	Issue and concern
1.	1972	United Nations Conference on Human Environment, Stockholm	Environment
2.	1978	The Great Lakes Water quality agreement (GLWQA), Ottawa	Water quality
3.	1985	Helsinki agreement	Long-range transboundary air pollution
4.	1988	Montreal protocol	Substances that deplete the ozone layer
5.	1989	Basel convention	Control on transboundary movements of hazardous waste and disposal
6.	1992	Rio Earth Summit	Sustainable Development

The interactive session emphasised the necessity of collaborative efforts for social, economic and environment development which are considered as the three major pillars of sustainability.

Episode 6: This episode titled ‘Let’s Come Again’ initially discusses the prevailing level of pollution in New Delhi during the festival of Deepawali. It was later emphasised that collective and concerted efforts are the need of the hour for the development of a society without harming nature and striking a healthy balance with it. In this context, we can learn from the rich Indian heritage, culture and art which entrench the ethos of sustainable development. It teaches us to be respectful to wildlife, animals, trees, plants, rivers and nature as a whole. We must learn from the philosophy of Samrat Ashoka, Chanakya, Gautam Buddha, Chhatrapati Shivaji, etc. for the conservation and restoration of our nature. The philosophy of Mahatma Gandhi on sustainability was invoked which was beautifully summarised in his statement “Earth provides enough to satisfy every man's need, but not every man's greed.”

Episode 7: The episode “In Reverse Gear” reflects on the importance of organic farming and the use of bio-fertilizers that our predecessors practised for a long and sustainable journey. The green revolution was a necessity to enhance the food production process for meeting the need of the growing population. However, an unprecedented problem also simultaneously mired us. The excess and unthoughtful use of chemical fertilizers, pesticides and machinery has resulted in an unharmonious relationship with nature. The microorganisms are depleted, the carbon level in the soil is getting disturbed and the pH of the soil is uncontrollable due to the unscientific usage of harmful chemicals. The modern method of farming failed to replenish the essential nutrients naturally in the soil. Therefore, it is causing an imbalance in our food chain. As our ancestors skillfully adopted, the philosophy of co-existence with nature must now be revived and embraced.

Episode 8: The episode “Rays of Hope” elaborates on the roadmaps adopted by the Government of India in achieving the SDG to foster economic, social and environment growth. As part of the narrative drama, the concept of sustainable cities is introduced with an insight into the Smart Cities Mission that aims to facilitate sufficient fresh drinking water, strong information and technology facilities, health and hygiene, efficient public transportation, sufficient and affordable houses to select 100 Indian cities in the first phase following the basic principles of sustainable development. The government’s efforts to promote the use of solar energy, LED lights, renewable and non-conventional energy are lauded.

Episode 9: This is an interactive session which summarises the topics discussed in the previous episodes on sustainable development.

Episode 10: This episode entitled “Fossil Fuel and Environment” highlights the impacts of excessive use of fossil fuel on our environment. Fossil fuels such as coal, diesel, petrol, etc. are very commonly used in our society. However, rapid urbanisation and industrialisation are demanding excess use of fossil fuels which consequently resulted in the enhanced release of toxic gases such as carbon monoxide, carbon dioxide, nitrogen oxides, etc. The nitrogen oxides in combination with

other volatile organic compounds in sunlight form smog or ground-level ozone. This is known to be very harmful to human health. This problem is not only faced in India but in other developed countries too. Therefore, to minimise the use of petrol or diesel, we shall inculcate the spirit of sharing vehicles instead of using individual cars. If possible, modern hybrid cars should be used.

Episode 11: The title of this episode is “Efficient and Rational Use of Fossil Fuel as Energy Storage”. It is reiterated that electricity is the backbone for the development of the society. It is also emphasised that our life will come to a standstill if there is complete depletion of fossil fuel. Therefore, it is the responsibility of every citizen, organisation, industries to rationally utilise petrol, diesel, coal, LPG, CNG, etc. Advanced technological equipment should also be used for its efficient use. In this regard, the awareness and guidelines provided by the Petroleum Conservation Research Association (Ministry of Petroleum & Natural Gas, Government of India) should be followed (pcra.org). For example, one can contribute to the saving of fossil fuel if a bicycle is used whenever possible, uses public transport, drives car at an optimum speed of 40-50 km/h, etc.

Episode 12: The episode on “Towards the Bright Future” discusses the steps and measures to be undertaken for fulfilling the sustainable development goal of ‘Affordable and Clean Energy’. It is noted here that efforts and schemes are being implemented by the Government of India to provide clean energy to all. To effectively utilise land and solar energy, solar panels are installed in the Narmada canal to generate electricity in Gujarat. In addition to solar energy, other sources of renewable and nonconventional energy sources such as wind, tidal, and geothermal are also getting priority for clean generation of electricity. It is noted that a good quality of life is impossible without electricity in modern society. Therefore, the production and utilisation of electricity should not contribute to global warming.

Episode 13: The title of this episode is ‘Enhancing Energy Efficiency’. In this episode, the importance of energy saving in nation-building was discussed through a drama. It is a discussion between a school-going kid and his father. While trying to

understand the primary cause of power failure or load shedding at their house, the father-son duo unravels the essentials of saving energy for the national interest. It is discussed initially that the inefficient use of electricity is one of the major reasons for the shortage of power. For example, tubelights, halogen and CFL bulbs consume more electricity. It is argued that the use of LED bulbs can dramatically reduce electricity wastage by minimising the consumption rate.

The initiative 'Prakash Path (Way to Light)' undertaken by the Government of India to popularise the use of LED bulbs is also highlighted. The discussion also tried to establish the relationship between climate change and energy efficiency. It is noted that thermal power plants generate electricity by burning fossil fuels such as coal, gas, and diesel which subsequently release greenhouse gases and place a huge carbon footprint on the environment. Therefore, it is urged to judiciously use the electricity.

A few important examples are turning off all electronic gadgets while not in use, use of air conditioners between 24-26°C, use of star-rated gadgets such as refrigerators, washing machines, air conditioners, microwave ovens, etc. The discussion also focuses on the harvesting of solar energy not only for the generation of electricity but also for heating water and drying process. It is informed to the listeners that the solar tree developed by scientists at the Council of Scientific and Industrial Research, India, has the unique ability to harvest maximum sunlight in the least possible area. At last, it is discussed how green buildings use natural light to brighten the interior space of a building which consequently reduces electricity consumption.

Qualitative analysis of the Vigyan Prasar Radio episodes

It is undeniable that the efforts rendered by Vigyan Prasar in creating the radio programmes are worth applauding. While the radio programme ambitiously aims to strike a chord among the masses to infuse the idea of sustainable development, the qualitative analysis of the 13 radio episodes of Vigyan Prasar Radio led the researcher to identify the strengths and weaknesses of this digital radio initiative.

The following are the strengths of the programme:

1. A unique digital media platform and initiative for creating awareness and education on sustainable development.
2. The radio content deals with pertinent socioeconomic, environmental and global issues relevant to the larger section of society.
3. The radio contents are well-researched. It introduces new terminologies like handprint, cillage, etc.
4. The contents provide in-depth knowledge and value-added resources that are easy to understand and relatable to contemporary times.
5. It can be accessed by anyone, anytime and anywhere.
6. No prior knowledge of the subject is required to grasp the ideas.
7. Since the programme is recorded, it could be accessed multiple times by a listener.
8. Each episode is complemented by quizzes at the end of the episode.

The following are the weaknesses of the programmes:

1. Overlapping of contents and repetition of certain concepts in radio programmes.
2. The duration of each episode is comparatively longer. It might be difficult to retain the attention of the audience.
3. Panel discussions by field experts bring more liveliness to the content and it could be more in number.
4. Interviews with real-life practitioners of sustainable development may be incorporated to add more value to the programmes.
5. The programmes are broadcast only in English. It should also be translated into Hindi and regional languages to attract broad audiences.
6. Comments and discussion spaces may be created on the platform for wider discourses among the listeners.
7. The visibility of the Vigyan Prasar Radio channel is not prominent.

8. All the topics related to sustainable development are not covered.

Limitations of the study

The present study focused on the qualitative analysis of the content of the Vigyan Prasar Radio to find out the issues addressed, the radio programme format, the purpose and the message for the audience. The programme comprises 13 episodes which describe mainly the utilisation of natural resources and the protection of the environment. However, other related aspects of sustainable development such as hygiene and sanitation, clean drinking water, etc. are yet to be covered. It is duly felt that a survey or interviews could have extended the findings of the qualitative analysis more comprehensively. It would also have assessed the impact of the programmes. Therefore, there is ample scope for future research to carry out audience reception studies.

Discussion

Overall, the Vigyan Prasar Radio unequivocally stressed upon the dire need for establishing harmony with nature by human beings for a sustainable society. It reverberates the philosophy that collective obligations, efforts and actions to protect mother earth are the only way for the rise of humanity. The concept of sustainable development is relatively new among the educated and non-educated population in our country and many may not be familiar with the Sustainable Development Goals.

This innovative radio serial is loaded with comprehensive and lofty resources beneficial not only for the children but also for the common people. However, in order to measure the reach of the programme by evaluating the number of listeners, visitor counter can be assigned in each episode similar to youtube views. With the varied content formats and audience feedback facility, the user-friendly digital portal can be watched and listened to by anyone, anywhere and anytime. Therefore, Vigyan Prasar Radio acts as a catalyst and propeller in diffusing and adopting the concept of sustainable development for unprecedented social, environmental and economic growth of India.

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