SUSTAINABILITY HORIZON

A Salute to the Father of the Nation

CONTENTS

"What we are doing to the forests of the world is but a mirror reflection of what we are doing to ourselves and to one another"

– Mahatma Gandhi
(2 Oct 1869 – 30 Jan 1948)

(Sketch by Prof. Vithal Sukhathankar)

EDITORIAL

I am very happy to present before you this 4th issue of our newsletter that focuses on Gandhian Sustainability, with a special focus on Goa. I hope you will enjoy reading this issue and your comments and reflections are welcome. Gandhi once said, "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 have seen and ask yourself: If the step you contemplate is going to be of any use to him. Will he be able to gain anything by it? Will it restore to him control over his own life and destiny? In other words, will it lead to Swaraj for hungry and spiritually starving millions? Then you will find your doubts and yourself melt away". We need to recollect these words of the Mahatma every moment.

Goa is a small state with 15 lakh population and an equal number of tourists visiting. Being a small State has its own advantages and disadvantages. The main economy of the State rests on 1. Mining 2. Tourism and 3. Pharma industry. National and international tourists visit Goa round the year. They consume the Goan space and hotels, generate waste, and need water and power, thus necessitating these resources to be careful handled. The Government of Goa has taken many measures to be the best on these fronts.

There is a need to relook at various aspects of development such as public toilets, waste management, plastic handling, power consumption and loss, water quality, etc. through the lens of circular economy, scale of measurements, international standards and technology development. Goa needs state-of-art and self-sustaining solutions. Gandhi believed in *Sarvodaya* and therefore the welfare of all was the basis of his thinking; hence his community-centred approach towards sustainability emphasized on 'betterment of human life' and 'ensuring fulfilment of basic needs of all human needs'.

In this issue, we have tried to include articles from invited guests, GIM faculty members and students. These articles bring out different issues, which are of great concern for Goa and India at large. These articles articulate how simple and realistic solutions were construed by Shri Mahatma Gandhi for us in the yesteryears. These articles find application in different areas of concern for Goa. The articles from three Practitioners focus on the live issues that are of immediate concern for the State for social good. Students' articles focus on the topics which are of current concern. Fun corner adds light moment for reading and helps to regenerate energy for further reading. In total, this issue of the newsletter will bring lot of fun and addition of few grey cells.
Goa is progressing well with respect to the performance against SDGs, but we can definitely do more to conserve the pristine environment of the State.

Prof. Vithal S. Sukhathankar
Associate Professor
Information Technology & Operations Management,
Goa Institute of Management

TRENDS IN RESEARCH

Prof. Avik Sinha

Assistant Professor
General Management & Economics,
Goa Institute of Management

While the flavor of sustainable development lies in the concept of maintaining intergenerational equity, the Gandhian philosophy might cater to this objective. The Gandhian philosophy talks about the inclusive growth approach, where people across all the socio-economic strata will be benefitted by the growth trajectory. Taking a drift away from the market-driven value system, this philosophy binds the economic, environmental, and social pillars of sustainability. In this context, the Higher Education for Social Responsibility in South Africa needs a special mention. Following the Gandhian philosophy, the African indigenous community-based knowledge systems can be found to gain prominence [1]. This value-based education system relies more on the social responsibility, rather than focusing solely on the corporate imperatives. On the similar lines, the concept of economic justice and equality outlined in Gandhian philosophy are also being imbibed in the corporate social responsibility scenario. The incorporation of "Trusteeship" in driving the voluntary activities by business ventures is expected to shape the future of the CSR activities [2].

Lastly, in the wake of Industry 4.0, the egalitarian commitment of the technological advancements can be viewed from this philosophical lens. In light of this philosophy, the politics of technology should be able to distinguish between control, care, and conviviality, while looking at the plural objective rather than aiming at autonomic fulfillment [3]. The future direction of research in this domain can consider the interactions between SDGs, as the Gandhian principle can showcase a holistic roadmap for policy realignment towards greater good.

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GANDHIAN SUSTAINABILITY

Prof. Ajay Vamadevan

Professor, Healthcare Management
Member, Centre for Excellence in
Sustainable Development (CESD)
Goa Institute of Management

The UN 2030 Agenda for sustainable development envisages changing the way we live, produce and consume to balance the three dimensions of human development: the economic, social and environmental to protect life and our planet[1]. The core of the 2030 Agenda is to eradicate poverty and hunger, protect our planet from degradation, ensuring prosperity for all human beings, foster inclusive and peaceful societies, and develop global partnership among all countries towards the Agenda[2]. Goa has advanced the 2030 Agenda remarkably well by moving from seventh to third place in the SDG India Index. However, growing tourism, unregulated construction, and mining are significant concerns endangering the future of its people, threatening the precious biodiversity in the Western Ghats and its rich water bodies. More than half a century before, our father of the nation, Mahatma Gandhi, underlined the importance of sustainability by interrogating modern civilisation, which is primarily driven by the greed for material goods and services[3]. Gandhian approach envisages the harmonious existence of humankind and nature and building our civilisation by giving importance to our duties, adherence to moral values and limiting greed.

More importantly, the Gandhian approach emphasises equity, justice and harmony of all cultures[4]. Clearly, the UN Agenda resonates very well with the Gandhian Approach. Therefore, Goa needs to fully commit to the path shown by our Father of Nation adopting the Gandhian concept of development, stressing the overall development of individuals and society in relation to nature involving all the members of the community. Beyond the shadow of a doubt, we can say Gandhi is the way to fulfil the present needs of Goa without compromising the needs of future generations.
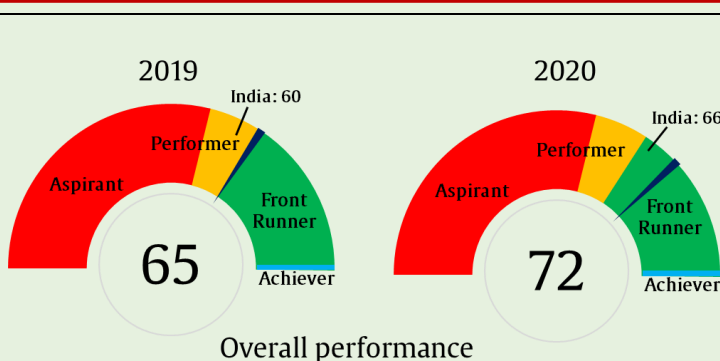
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[4] https://www.mkgandhi.org/articles/gandhian-relevance-to-environmental-sustainability.html

2019 — India: 60 — Aspirant, Performer, Front Runner, Achiever — 65 — Overall performance

2020 — India: 66 — Aspirant, Performer, Front Runner, Achiever — 72

Goa fares well in the SDG India Index

SDG India Index 3.0 published by the NITI Aayog gives the State-wise performance across 17 Sustainable Development Goals. The Index has been designed in such a way that it is accessible to everyone - policymakers, civil society, businesses, and the general public.

The overall SDG performance of Goa has improved from 65 in 2019 to 72 in 2020, and Goa now stands 6th in the country (Ref: SDG INDIA Index & Dashboard 2020-21)

SUSTAINABLE DEVELOPMENT WITH FOCUS ON VILLAGES AND COMMUNITIES

Prof. Arpita Amarnani

Associate Professor (Finance) & Chair, Centre for Excellence in Sustainable Development, Goa Institute of Management

Recently, I was going through the writings of Mahatma Gandhi, the father of our nation to understand its relevance in the present-day context and realised that his book, 'Hind Swaraj', written in 1909 that talked about the civilization and development of India is relevant in today's world too. His emphasis on local communities, self-sustaining development, Ahimsa, *Swadeshi* (self-reliance at a national level) could help India in achieving the targets for many if not all of the seventeen United Nation's Sustainable Development Goals (SDGs).

I would like to take delve upon the concept of sustainable communities further. Since the emphasis of this newsletter is environmental sustainability, let us consider only this aspect of the SDGs i.e. SDG 13. According to United Nations data, approximately 3.5 billion people are living in cities today and 5 billion people are estimated to live in cities by 2030. 95% of this urban expansion in the coming years will take happen in developing countries like India. The world's cities today account for just 3% of the land on this planet, but are responsible for 60-80% of energy consumption and 75% of carbon emissions[1]. This fast rate of urbanization is exerting pressure on fresh water supplies, sewage, the living environment, and public health.

Gandhiji in his book talks about development at the village level and I feel it is time for us to focus on the role our villages can play in taking the agenda of sustainable development forward. A bottom-up approach could work better for us. The State Governments can look at adopting Net-Zero[2] targets at the taluka or block level and explore possibilities of decentralisation with respect to water, waste and energy management at various levels.

I think this concept could work well for the state of Goa in India because of the unique culture that exists here. Goans are warm and social with high affiliation to their local communities and this could help in getting the communities to work constructively towards reducing their carbon foot-prints. Sustainability indicators can be set for the village and taluka levels. These indicators will need to be developed keeping in view the community level goals and objectives to make them relevant and since some of them are likely to be intangible, training will need to be given to the various members of the community to help them understand the relevance.

Youth of the village can be involved in creating awareness about the 4Rs of environmental sustainability- Refuse, Reduce, Reuse and Recycle. Self-help groups can be encouraged and supported to set up units for recycling and remanufacturing of the solid waste into marketable products wherever possible. This will ensure increased employment and also a sense of ownership towards sustainability initiatives. One major advantage of this community-oriented sustainable development is that it is sensitive to the changing needs and expectations of the community with passage of time and incorporates them in the process. This will ensure that various initiatives started by the community/village will sustain over a longer period of time.

Mahatma Gandhi said, 'The soul of India lies in its villages' and so let's empower the soul and be ready to witness the change.

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[2] 'Net Zero' means achieving a balance between amount of emissions produced and those removed from the atmosphere in order to reduce global warming.

TOWARDS SUSTAINABLE INDUSTRIES

The CESD team had the privilege to interact with Shri Vaikunth Dempo, who is the Co-Chair of the CII Young Indians Goa Chapter and the Founder (Vaikunth S. Dempo Ventures) to understand his views about how the industry can contribute to environmentally sustainable development.

Vaikunth Dempo
Co-Chair, CII Young Indians Goa Chapter

How the Goan industry can contribute to environmentally sustainable development in Goa: Industries are our backbone for economic development for our state which in turn has been helping our people to achieve their basic daily needs. Growth of any industry is always encouraging because it leads to overall development of our state. However, in recent times, exponential growth has been harming our environment so much so that phenomena such as Climate Change are causing devastating consequences like Flooding, Cyclones, Heatwaves etc.

In order to protect our environment and at the same time have sustainable growth, I feel industries should promote and concentrate on zero plastic policy, promote car-pooling between its employee, work with authorities for safer waste management policies and limit their Carbon Emissions to sustainable levels. With each industry working mindfully, we shall be able to achieve environmentally sustainable development for Goa.

How young entrepreneurs can imbibe the concepts of environmental sustainability in their businesses: Young entrepreneurs should become more mindful of the environment and focus their efforts towards coming up with solutions that are friendly for our Mother Earth. Buyers are becoming mindful in their purchases every day. Organic Foods, Digital adaptation, Reusable product's, Upcycling and various other sustainable concepts are taking good shape. As a young entrepreneur, one should be fearless to try new business innovations that are in line with environmentally sustainable policy and growing business prospects.

FUN CORNER 1   Can you identify these Government Departments in Goa?

1) Nodal Agency for Geographical Indicator applications	6) Nodal Department for sustainable wastewater management
2) Nodal Department for Energy Efficiency activities	7) Nodal Agency for People's Biodiversity Register preparation at local level
3) Agency in-charge for subsidy for solar PV systems	8) Agency notifying the Goa Non-biodegradable Garbage (Control) Act
4) Nodal Agency for People's Biodiversity Register at State level	9) Agency issuing Consent to Establish and Operate for various Projects
5) Nodal Agency for garbage solutions	10) Nodal Agency for implementing scheme for rainwater harvesting

(Answers appear elsewhere in this newsletter)

SUSTAINABLE WASTE MANAGEMENT: DERIVING INSIGHTS FROM THE GANDHIAN PHILOSOPHY

(Image source: http://digitalgoa.com/)

The CESD team had the privilege to interact with Mr. Levinson Martins, who is a senior officer of the Goa Civil Service. Mr. Martins has extensive experience in the domain of public administration and has held several important positions including the Collector (North Goa). Presently, he is the Director of Science and Technology and the Managing Director of Goa Waste Management Corporation, which are both very crucial offices in the field of environment.

CESD Team: As we celebrate the 152nd Birth anniversary on 2nd October 2021, we are exploring how the Gandhian philosophy addresses the topic of environmental sustainability in today's times. Based on your rich experience, which Gandhian principles do you think, are applicable for the waste management efforts in the State of Goa? Also, which waste management problems faced by the State of Goa need urgent attention and how can the Gandhian principles of Environmental Sustainability come to the rescue in finding solutions to these problems? Following are excerpts from Mr. Martin's answer to the above questions.

Relevance of Gandhian principles in the context of waste management efforts in Goa

एक कदम स्वच्छता की ओर

(https://swachhbharat.mygov.in/)

Gandhiji gave immense importance to cleanliness and sanitation. In the State of Goa, the Government is making consistent efforts to maintain the State clean. In fact, it is going beyond this to ensure that waste is not only collected effectively but also disposed in a scientifically safe manner instead of resorting to landfilling of garbage.

The Gandhian philosophy speaks about sustainable consumption and production and has a focus on cleanliness and sanitation. While the context in which these principles are applied has changed over time, the principles still remain relevant. The problem of ever-increasing consumption is one of the major reasons behind the mounting problem of garbage, and the major factor contributing to this is the ever-increasing population. Unless people make wiser choices and consume sustainably, all efforts in waste management shall be insufficient. For supporting this ever-increasing waste, we need a robust waste collection and management mechanism and the Government of Goa has put in a lot of thought to put such a system in place. In addition to the collection done by the local bodies, the Government has given out contracts for collection of garbage from the beaches and highways in the State.

The Government of Goa has moved one step further to answer the important question of "what should be done with the collected garbage?". The State has tied up with cement companies for disposal of non-recyclable waste through co-processing and till date, 40,000 tons of waste has been scientifically disposed through this mechanism. In order to provide a scientific way of disposal and to minimize the dumping of garbage, especially since Goa is a land-starved State, the Government has set up a state-of-the-art waste management facility at Saligao (SWMF). In addition, similar facilities are planned at two more locations in the State. In addition, the Government has set up a common biomedical waste treatment facility at Kundaim, which shall be soon inaugurated and a common hazardous waste treatment facility at Pissurlem. A unique decision taken by the Government of Goa is that the existing legacy garbage dumps will be remediated and the reclaimed land shall be used to set up garbage treatment plants. This has already been translated into action with the SMWF at Saligao being set up on a 30-year-old garbage dump which had around 50,000 tons of waste dumped and around 60% of the legacy waste at Sondoddo waste management site in Margao been screened and remediated.

On the policy front, Goa has been a pioneer, as it enacted the Goa Non-biodegradable Garbage (Control) Act in 1996 much before the formulation of the Municipal Solid Waste Management Rules by the Government of India in 2000. The Government of Goa has been undertaking training programs for school teachers in which more than 400 schools have been reached out.

While smaller packaging ensures affordability, it brings in problems of waste management owing to the difficulty in collecting such small packaging. It is important to seek the balance between affordability and environmental sustainability.

Waste Management Challenges in Goa

The State of Goa has a high rate of literacy and very good connectivity with people generally having a higher standard of living. Thus, there is a lot of disposable income at hand that brings in patterns of high consumption. Higher consumption means higher waste generation and this implies a need for larger waste management systems. While the Government is doing its best to provide infrastructure for the management of waste, people's cooperation is imperative in the segregation and safe storage of the collected waste till it is handed over to the local body. Ensuring waste segregation at source and a responsible behavior w.r.t waste management is a challenge. There is another challenge – a particularly tricky one to handle. In order to ensure affordability for all sections of the society, companies now come up with smaller packaging that costs less. However, this causes a huge problem w.r.t waste management, as retrieving this smaller packaging is a challenge. The manufacturers need to find sustainable alternatives for such packaging and people need to dispose such waste with care. Thus, we need both policy level intervention as well as conscious action on part of citizens to ensure that waste enters the waste collection mechanism and is safely and scientifically disposed. The third major challenge is the problem of waste caused by the huge influx of tourists in the State. Educating tourists on responsible waste management is a humongous task. Creating mass awareness about sanitation and bringing in a philosophy of sustainable consumption and production are the Gandhian principles that come handy to address these challenges.

LEVERAGING ECOLOGICAL AND ARCHEOLOGICAL HERITAGE OF GOA FOR ENVIRONMENTAL SUSTAINABILITY

The CESD team had the privilege to interact with **Shri Rajendra Kerkar**, a well-known environmentalist from Goa who is best known for his extensive work of protecting the biodiversity of the richly biodiverse Western Ghats area of Goa. He is a member of several key bodies, including National and State Boards of Wildlife and the Goa Environment Protection Council. He is the founder of the Vivekanand Environment Awareness Brigade that has been persistently working to protect the Goan forests and ecology. He is also a well-known author, having several books and newspaper articles to his credit. Following are excerpts of this interaction.

(Image source: http://gx.elytra.wordpress.com)

CESD Team: Can you please explain how the principles of Gandhian philosophy become applicable in the context of environmental sustainability in Goa?

Mahatma Gandhi was a great visionary and his philosophy can help human beings to live in a sustainable way. If we see the Gandhian philosophy, it is one that is developed to beautifully merge with the Indian culture and traditions. He took inspiration from non-violence and it was Jainism which actually emphasized on non-violence. If we wish that Goa, a pristine land located between western coast and the western ghats, prospers, then we have to follow the principles of Gandhiji.

In Goa, we have a beautiful institution called "Sacred Groves" that resonates with the Gandhian principle of non-violence and living in peace with nature. These are called by various names in different parts of the State: "*Devarano*" in Canaconca, and "*Rai*" in Sattari and Bardez. The trees in these sacred groves were provided protection by the people. The sacred groves actually supplied decayed organic matter that acted as compost, providing nutrients to the fields. Also, the groves helped conserve water and this area never faced a shortage of water. Thus, people's lives were closely related to nature and Gandhiji was supportive of such institutions that helped conserve nature. The sacred grove offered protection not only to the trees in the area, but in turn, to all the living creatures in the area. The sacred groves supported an entire ecosystem ranging from birds, butterflies and insects to leopards. Thus, nature was satisfying people's basic needs, and people too were using the resources only as required. This is a finest model demonstrating a Gandhian principle: peaceful co-existence. Gandhiji, after his return to India from South Africa, closely studied the prevalent situation by living among the people and his analysis went on to the creation of the model of "Gram Swaraj". This concept was centered around strengthening the cottage industries and traditional craftsmen. In Goa, such a model did exist with a host of traditional occupations, where people from various religions and castes lived harmoniously with each other and with nature. Gandhiji's sustainability principles helped India awaken from its deep slumber of ignorance and encouraged people to move towards a self-reliant, peaceful life in perfect harmony with nature.

CESD Team: The Gandhian philosophy and principles point to another interesting concept: Gandhian Engineering, which Dr. Mashelkar has very beautifully spoken about. "More from less for more" is the underlying theme in this. Also, we know that India resides in its village. With all the focus now cities and "smart cities", could you briefly speak about how Goa can leverage the Gandhian principles in its journey towards environmental sustainability?

We have many examples of sustainable villages in Goa. E.g.: a village in Quepem taluka falls in the mining area; but has managed to set up a successful model wherein people protected the forest in the name of a local nature deity. This has resulted in the village having potable water all around the year and does not require piped water. These cases have shown that if people protect the environment, setting up such successful models is still possible. While thinking about development, it is essential that our thoughts are based on the indigenous knowledge and practices followed in the area. In most of the forest-dominated villages in Goa, there were families traditionally engaged and expert in carpentry, iron smithy, pottery, etc. Thus, the basic needs of people were satisfied within the village itself. Pali village once upon a time, was known for the *kunbi* saree with the traditional artisans providing for the clothing needs of the local people. Thus, the traditional cottage industry, local arts and crafts helped the economy to survive and grow. Today, there is a need to identify the potential of each village. Nagargaon, the largest village panchayat in Goa blessed with a thick forest cover and perennial waterfalls, has a lot of potential for eco-tourism. However, we need to ensure that the correct model of eco-tourism is adopted, failing which our natural resources shall be seriously affected. Local people should be allowed to take decisions about what mode of development they wish to adopt. It is imperative to study the carrying capacity of a region before making it open for tourists. A sustainable model of tourism is the need of the day. In Goa, we have a beautiful blend of ecological and archeological heritage and this can be leveraged in our journey towards sustainable development.

Sacred Grove at Mharinganachi Rai
(Pic.: http://www.epreecenvis.nic.in/)

Sculpture inside sacred grove at Puravatali Rai, a Biodiversity Heritage Site
(Pic.: https://gsbb.goa.gov.in/bhs/)

GOA GARNERS GI TAG FOR ANOTHER LIST OF ITS BIODIVERSITY

Needless to say, that Goa is located at an amazing geographical location. The conglomeration of hills, mountains, highlands, and ghats have all added to the scenic beauty and biodiversity of the place. With such a rich culture and biodiversity, Goa holds a few geographical indicators or GI tags. It also has India's first GI store at the Dabolim airport [1]. The Goa State Council for Science & Technology is the nodal agency for registering GI tags for the state of Goa. The logo and tagline for all GI tags were launched in 2018 by the Union Ministry of Commerce and Industry [2]. Products like feni and kholla chilli are registered in the GI tag registry, while Harmal chilli, Goan khaje and Myndoli (Moira) banana are in the process of registration [3].

Why are GI tags important: A GI or geographical indicator tag has largely to do with the protection and preservation of famers' produce. It can be broadly classified into two categories: The rights of a specific brand for the local producers are protected [4]. It assures them as to even if any other producer tends to grow or copy a similar product, they cannot claim it to be their product and have to give the credits to the original producer at all times. Secondly, a higher chance of inculcating environmentally sound practices is instilled among people through GI tagging of farm produce. This, in turn enriches the biodiversity of a region to a large extent [5].

The GI tagging also debars others from calling by the same name when they produce a similar product. Hence, the popularity of the original brand or product is preserved, thereby providing the local farmers or producers with a higher chance of increasing their revenue through enhanced sales. Altogether, a GI tag adds to the overall development of a region.

What's next: Goa is an exotic place, and it is full of richness in terms of flora and fauna [6]. In this regard, the state government has left no stone unturned in raising the bar through a series of GI tags. Therefore, Goa is up with the next list of products which are – Goan cashew, Goa Mankur mango, Goan Bebinca and Agassaim Brinjal [3]. It is hoped that the products will be granted the tag soon, thereby fulfilling the objective of increasing revenues for both farmers and entrepreneurs.

Jeenia Bhadra
PGDM-BIFS, 2020-22

अतुल्य भारत की अमूल्य निधि
Invaluable Treasures of Incredible India

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ENERGY USAGE AND THE POTENTIAL OF RENEWABLES IN GOA

Goa has been reporting to be one of the highest per capita energy consumption state in India. Most of this requirement is fulfilled by grid electricity. A land of 3702 km^2 that is blessed with exuberant sunlight for 8-9 months in a year, can ideally be telling a different story. Well, if the energy production were independent, probably this article would have been a little different, but that independence is less than 5 MW of renewable energy. By 'independent' I mean, entities like, households, or an association of apartments, or clusters coming together should generate their own energy, might just save our coming generations a home.

Goa currently depends highly on the western grid that flows energy from the Kolhapur-Mapusa 400kV line and a 220kV line from the south [1,2]. With an increasing trend in the last 10 years in the energy demand, waiting for the Goa-Tamnar transmission project to complete, might result in compromise and a larger carbon footprint. A state which voices its energy requirement of 540 MW during the day should think of fulfilling it through rooftop solar [3]. To begin with, installation of rooftop solar panels on large commercial bodies of Goa can help in taking down the load from over the state. Goa Institute of Management, a premier B-School, situated at Sanquelim, has installed a solar facility of 675 kW and should now be inspiring the aforementioned to walk the same path.

The scope of renewables is immense, and perhaps a necessity for the survival of all the species that are homed on this planet. Energy independence is the only way by which coal electricity can be shut and curtains for a greener tomorrow can be opened.

Ameya Ambike
PGDM-BDA, 2020-22

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FUN CORNER 1 ANSWERS (from page 3)

(1) Goa State Council for Science & Technology
(2) State Designated Agency: Goa Electricity Department
(3) Goa Energy Development Agency (GEDA)
(4) Goa State Biodiversity Board
(5) Goa Waste Management Corporation
(6) Sewerage and Infrastructural Development Corporation of Goa
(7) Biodiversity Management Committee
(8) Department of Science, Technology and Environment
(9) Goa State Pollution Control Board
(10) Department of Water Resources, Goa

WATER SCHEMES AND REFORMS IN GOA

Shiwang Agarwal
PGDM- BDA, 2021-23

Water is a necessity for human beings for their survival. Water occupies approximately 71% area of the earth[1]. The State of Goa receives an average annual rainfall of 300 cm and is blessed with 11 rivers providing plenty of water[2]. The Mandovi and Zuari rivers are the lifelines for Goa[3], as they provide majority of the water for drinking and agricultural needs. Goa is situated in high precipitation zone but still receives the lowest per capita freshwater availability because of the narrow width of the state, steep slopes of Western Ghats, non-uniform distribution of rainfall over time.

The irrigation projects namely Selaulim, Anjunem, and Tillari and the minor irrigation tanks namely Amthane, Panchawadi, Chapoli and Gaunem, provide water for various activities in the State of Goa[4]. Goa ranked 1st in Per capita Net State Domestic Product[5], showcasing efforts of the government for the growth of the state. The initiative of the government of Goa of supplying food to government hospitals, prisons at a price lower than the market price, led increase in agricultural demand and helped farmers for adopting different techniques like Horticulture[6].

Though Goa is surplus with water still it faces water scarcity because of bad sanitation facilities, ongoing large mining activities, and also lack of awareness among people about the importance of conserving water. For instance, in a survey conducted in Salcete that has relatively good water supply, 67% of the respondents reported experiencing water shortage[7]. Many initiatives are going on which include the *Nital Goem Nital Baim* scheme, introduced by the Water Resources Department to repair existing wells in Goa[8], Surface Runoff Harvesting where streams are designed to water the village wells located in the periphery of the plateau and maintained by local people of Goa. As per a PIB report of March 2020, "Goa has earned itself the unique distinction of becoming first 'Har Ghar Jal' State in the country as it successfully provides 100% Functional Household Tap Connections (FHTCs) in the rural areas covering 2.30 lakh rural households". Recently Chief Minister Pramod Sawant promised to provide 16,000 liters/month of free water to every household in Goa in order to incentivize conservation of water[9].

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[9] https://www.goa.gov.in/wp-content/uploads/2021/09/FREE-WATER-SUPPLY-SCHEME.pdf

THE MASK MENACE

Dr. Anjali Prabhu Chodnekar, PGDM-HCM, 2020-22

The Covid-19 pandemic hit Goa hard. We had to deal with a large domestic population as well as the continuous influx of tourists who flocked to Goa. The extensive awareness by all agencies led to widespread use of masks. Masks being a preventive measure, were worn by the infected as well as the healthy. Suddenly we had them in various shapes n textures, branded, non-branded, matching our outfits and all cartoon characters featured on masks. While choosing masks, the following three things are important: the fabric, the fit and the thickness

- Fabric: From the perspective of effectiveness, the tighter the weave of the mask, the better it is. Studies have shown that tightly woven 100% cotton have better filtering performance than most synthetic materials. Washable masks permit reuse thereby reducing piles of waste from being generated.
- Fit: The fit of the mask is very important, in addition to the choice of the fabric. A good mask fits tightly to the face covering both nose and chin properly without any gaps.
- Thickness: It is recommended to have masks with at least two layers of good quality, closely woven fabric. If a filtering layer is present, it enhances the efficacy.

Everyone told us about wearing masks but no one told us how to dispose them.

Source: https://www.indiatoday.in/

The Government dutifully uploaded the guidelines for disposal of masks on the Pollution Control Board website on 17th July 2020. (Revision 4). The site mentions clear guidelines about how to dispose masks, gloves and another PPE used. It says: "waste masks and gloves from general households to be kept in paper bag for minimum of 72 hours prior to disposal of same as dry general solid waste after cutting the same to prevent reuse. At malls, institutions, offices, store in separate bin for 3 days and dispose them as dry general solid waste after cutting/ shredding". The guidelines also mention that the Common Biomedical waste treatment facility (CBTWF) operator shall ensure registration of the waste handler on COVIDBWM; the tracking app developed by CPCB. Even though these guidelines exist, not many are aware of these and we need to disseminate this information to more and more people. Well, all this indicates the gaps in implementation of the guidelines. Many of the gated communities and housing societies have been particular about these disposal mechanisms but masks are used by everyone and everywhere. We, as responsible citizens need to do our bit by ensuring these are followed in true spirit across the state by creating sensitization about the disposal measures.

REFERENCES:
[1] Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/Diagnosis/ Quarantine of COVID-19 Patients – Revision 4
[2] www.goaspcb.gov.in

ABOUT THE CENTRE

GIM has always been conscious about the impact of its decisions on the ecosystem around it and has continuously strived to reduce its carbon footprint. Along with measures like rain water harvesting, solar-powered street lamps, treatment of water for reuse, tree plantation drives and many more, the institute has expressed its commitment to this philosophy also through its mission statement which talks about sustainable business and an inclusive society for India and the world. In line with this commitment, the Centre for Excellence in Sustainable Development was officially formed in July 2018 to contribute to GIM's quest for sustainability. The Centre started working with three core objectives in mind:

1. KNOWLEDGE CREATION
- To develop a model institute for green campus in India and transform GIM community into a more sustainable community. At the same time, use these processes for action research in the field of sustainable development.
- To help develop knowledge through research in the aforesaid field.

2. KNOWLEDGE DISSEMINATION
- To increase awareness about green living and sustainable development in the community around us
- To carry out activities to try to reduce the carbon footprint of the state of Goa and India as a whole.

3. KNOWLEDGE APPLICATION
- To develop a resource Centre for sustainable development at GIM for imparting training, providing consultancy and participating in policy making.
- To contribute to the development of start-ups and ventures for sustainable development at the grassroots level.

Over the next few years, Centre plans to contribute towards the following five sustainable development goals adopted by United Nations member states in 2015:

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

11 SUSTAINABLE CITIES AND COMMUNITIES

13 CLIMATE ACTION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

CESD believes that every graduate of GIM should be a sustainability ambassador and every employee should be a part of GIM's journey towards environmental sustainability.

Some of the current projects and activities of the Centre include:
- Preparation of Campus Faunal Biodiversity Register
- Development of a Sustainability Report for GIM
- Campaign to reduce the usage of paper cups on Campus
- Green Industries Goa Initiative

MEET THE CESD TEAM

CHAIR
PROF. ARPITA AMARNANI
Email: arpita@gim.ac.in
Contact No: 0832-2366 755

MEMBERS
PROF. UMESH MAHTANI
Email: umesh@gim.ac.in
Contact No: 0832-2366 715

PROF. VITHAL S. SUKHATHANKAR
Email: visukh@gim.ac.in
Contact No: 0832-2366 724

PROF. AJAY VAMADEVAN
Email: ajay.vamadevan@gim.ac.in
Contact No: 0832-2366 700

PROF. AVIK SINHA
Email: avik.sinha@gim.ac.in
Contact No: 0832-2366 749

APOORVA APTE
Email: apoorva@gim.ac.in
Contact No: 0832-2366 922

FUN CORNER 2

Names of 11 rivers in Goa are hidden in this maze. Can you find those?

B	U	K	H	T	E	F	S	E	C
S	A	C	H	A	P	O	R	A	O
E	Z	G	E	L	M	A	G	B	L
B	U	F	A	P	S	A	H	I	V
M	A	N	D	O	V	I	I	J	A
A	R	H	F	N	M	A	N	O	L
N	I	U	S	A	L	E	R	I	U
D	A	L	A	H	A	R	M	A	L
R	O	K	D	F	G	I	F	L	O
E	R	T	E	R	E	K	H	O	L

Key: Baga, Chapora, Colval, Harmal, Mandovi, Mandre, Sal, Saleri, Talpona, Terekhol, Zuari

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