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Gender Mainstreaming, the Strategy in Odisha Through Panchayati Raj

This Principle of gender equality is enshrined in the Indian Constitution in its preamble such as fundamental rights, fundamental duties and directive principles. The Indian Constitution is one of the most progressive Constitutions in the world and it guarantees equal rights for men and women. The Constitution not only grants equality to women but also empowers the state to adopt measures in favour of women empowerment. The National Commission for Women was set up by an act of parliament in 1990 to safeguard the rights and legal entitlements of women. The 73rd and 74th Amendments (1993) to the Constitution of India have provided for reservation of seats in the local bodies of Panchayats and Municipalities for women, laying a strong foundation for their participation in decision making at the local level.

Historical development

The concept of gender mainstreaming was first proposed at the third world conference on women in Nairobi in 1985. Then it has been developed in the United Nations Development community and was formally adopted in 1995 at the fourth world conference on women in Beijing. The roots of the gender mainstreaming are found in the global network of women's movements, feminist movements and discussed about it in different forms and approaches in the developmental policies. More recently the Economic and Social Council adopted a resolution on gender mainstreaming which calls on the Economic and Social Council to ensure that gender perspectives are taken into account all its work.

Women who constitute half of the total population of the world, are known as a household object whose works are to reproduce and raring and caring. They are totally ignored in the decision making process in and outside the families. The World Bank discovered this invisible power and empowered them from reproduction to play a productive role in both the family as well as in the society. The development and modernization policy aims at the integration of women's development. To carry out this objective, development policy institutions are set up for women. The central strategy is to increase economic productivity and marketability of women by means of bank lending and income generating activities. It means that its aims are to

improve the social status of women and to bring gender equality.

While gender mainstreaming is clearly essential for securing human rights and social justice

d) Capacity building of all project beneficiaries (both women and men)

e) Building on women's network and their strength to counsel the households in

institutions.

Odisha has a population of 41.9 million and is the eleventh longest state in the country. About 50% population are female. From 1984

action.

c) The policy should be committed to include all women who are vulnerable and have been historically marginalized.

d) The policy should encourage and solicit participation of girls, boys, women and men with a view to translate the vision into reality. It should strive to draw and leverage the knowledge, expertise and resources of civil society organizations and other stakeholders including public, private and the corporate sector on issues pertaining to girls and women.

e) The Policy should recognize the regional diversity based on caste, class, ethnicity and geographical locations.



for women as well as men, it is also increasingly recognized that incorporating gender perspectives in different areas of development ensures the effective achievement of other social and economic goals. Mainstreaming can reveal a need for changes in goals, strategies and actions to ensure that both women and men can participate in and benefit from development process. Thus gender mainstreaming is a comprehensive strategy aimed at achieving greater gender equality. Gender mainstreaming is not only a question of social justice but is essential for ensuring equitable and sustainable human development. The long term outcome of gender mainstreaming will be the achievement of greater and more sustainable human development for all.

Odisha is one of the pioneering states to formulate policy for women development in 1994, when Panchayati Raj system came into existence. Odisha is the first state to conduct election in 2002 to bring social justice to women. A distinguishing feature of the Panchayati Raj System in Odisha is that either the Chairperson or Vice Chairperson of all the 3 tiers for PRs is a woman.

OBJECTIVES

- To create equal opportunities and a conducive environment for women.
- To promote equal representation and participation in decision making process (economic, social and political.)
- To reduce inequality in access, control over resources and sharing benefits of development.

distress.

Hence the entire contour of the democratic decentralization has completely changed by the 73rd Amendment Act. It is considered now as a very important department not only for the quantum of funds it handles but also for the fact that its activities have a direct bearing on rural development and poverty alleviation. Political education and training to the representative of the PRs thus required without which they cannot function effectively and participate actively in the democratic system. As such traditionally various training institutions i.e. state institute for Rural Development, Panchayati Raj training institutions, Extension training centre are involved in delivering specific training programmes including those aim at improving capacities of women representative. A number of NGOs too have been working in this area either directly or in partnership with the training

representatives but also enabled them in acquiring the knowledge in the implementation of programmes of rural and social development. The capacity building is aimed at fighting ignorance and deprivation.

Suggestion

Most of the scholars have suggested certain suggestions in their research field that the Odisha Govt. must follow certain principles which will serve as the framework for implementation of the polices to bring about gender equality in the state.

a) The policy should be based on the principle of non-discrimination where women are treated fairly as equals. Further the policy should adopt special measures to ensure equality in income.

b) The policy should lay out processes and goals for social, political and economic empowerment of women to achieve gender equality through affirmative



CONCLUSION

Thus the study reveals that by the implementation of the gender mainstreaming there will be promotion of democracy, social equality and social justice. It increases gender competition and improves corporate culture. Above all it shapes the society equally. Simply making law is not sufficient. Rather proper implementation of the policies is very important. Social justice can be prevailed only when there is gender equality and gender equality is possible when there would be proper implementation of policies on socioeconomic development. Gender refers to the social classification of men and women into masculine and feminine pattern and reflects the existing power relationship in any given society. Women have been historically given a lower socio-economic and political status in society and this continues in the modern society. Democracy and development are two main areas by which the state has to progress in order to modernize the society and institutions and to guarantee equal and legal rights to both men and women. Their different behaviour and aspirations should be valued and favoured equally and they would be treated fairly according to their respective needs. Development is seen as an important way to achieve this. In this respect women too have to put in their effort in the movement for restoration of democracy and subsequent development.

Hence the PR in Odisha have played an important role in this regard. Ideally when the women become equally efficient in decision making process, then democratic institutions are more democratic.

THE CINE COLUMN

Sala Budhar Badla

Sabysachi Mohapatra's National award winning movie 'Sala Budhar Badla' to be released afresh across India

Already declared a super hit, national award winning movie 'Sala Budhara Badla' will have a pan India release soon with a fresh makeover.

The film made in Koshali language has been directed by eminent filmmaker Sabysachi Mohapatra. It was part of the third film of a trilogy, which also comprises Sala Budha and Adim Vichar.

The film reflecting authentic Odia culture and way of life won the award for best Odia film at the 67th national awards in 2021.

Those who have seen the movie with a fresh makeover like sound mixing and Odia language dubbing at a private screening were moved by the story, screenplays, dialogue and photography. They went gaga over the film. 'It is going to be a superhit', was the aloud reaction.

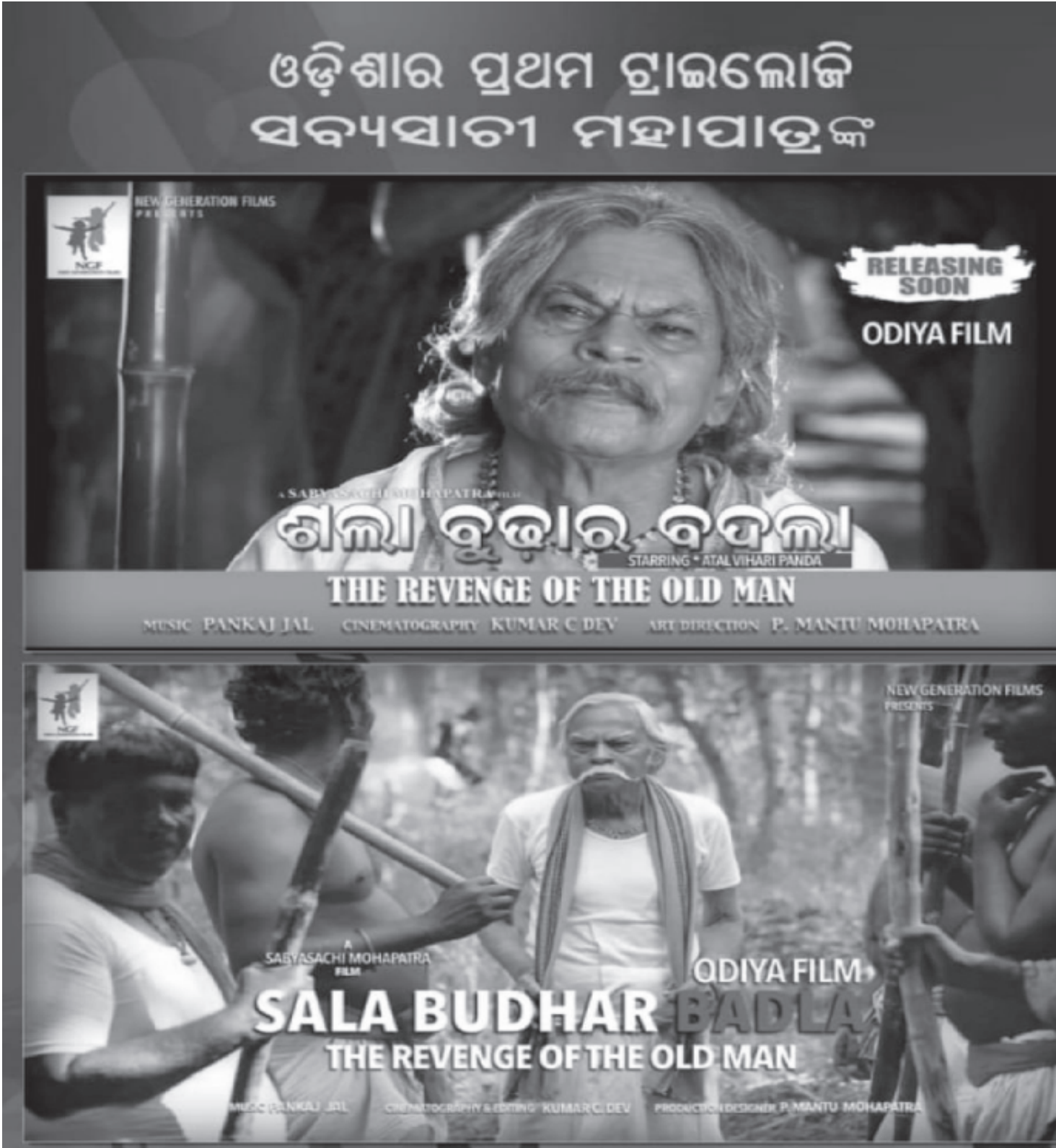
"Sala Budhar Badla' was released in Western Odisha two years back. The movie made a record by running six weeks at a stretch in different

halls. It was also planned then that the movie will be released across Odisha," said Mohapatra.

"However, the outbreak of Covid-19 shattered our plans then. But now we have made a fresh makeover of the movie with sound mixing and Odia language dubbing. The movie will hit several halls across India in May. Hopefully, people will like the movie with authentic Odia cultural flavor," Said Mohapatra.

Well, Mohapatra was the first to break the barrier between commercial and art film in Ollywood industry. His art films like Bhukha, Sala Budha, Adim Vichar and Sala Budhar Badla won several national and international awards in various categories.

"Now the subtle barrier between art movie and commercial movie has been broken. People have now started loving only 'good movies'. Hopefully, Odia people will shower their love on 'Sala Budhara Badla' when the Odia dubbed version of the movie will be released across Odisha," said the producer of the movie Kumar C Dev.



Coming together is a beginning; keeping together is progress; working together is success.

THE WOMEN EMPOWERMENT COLUMN

Woman – Guardians of the Race

Prabhu Prasad Gadnayak

Do never toss the females, rather be regardful, modest and serviceable to them, - because they are the mothers and nurturers of humanity, - caress and solace in sufferings, the keen conscientious good of the people. Chastity is the consummation of womanhood with every pious personality, - that makes the couple active with devout zeal to the service of the Love-Lord, and a woman who performs thoroughly the mission of love - is a true devotee.

Chastity, chaste service and chaste dealings are the effulgent aura of females that makes the people up and enlightened.

- Sri Sri Thakur, Message 5

It is difference of nature, an organic difference, alike in body in mind, in feeling and in character - a difference, which it is the part of evolution to develop and not to destroy, as it is always the part of evolution to develop organic differences and not to produce their artificial assimilation. A difference, as I have said, but not a scale of superiority or inferiority. Who can say whether it is nobler to be husband or to be wife, to be mother or to be son? Is it more blessed to love or to be loved, to form a character or to write a poem? Enough of these idle conundrums, which are as cynical as they are senseless. Everything depends on how the part is played, how near each one of us comes to the higher ideal - how our life is worked out, not whether we be born man or woman.

To be a true woman means to be yet more mother than wife. The Madonna conception expresses man's highest comprehension of woman's real nature. Sexual relations are brief, but love and care of offspring are long. The culmination of maternity is one of the great calamities, if not disease, of our age.

- Stanley Hall.

Physical organization of women is more rapidly matured and yet more viable (more likely to live and to live longer); it is more delicate, in all senses of the word, more sympathetic, more elastic, more liable to shock and to change.

The life of every man and woman now alive, or that ever lived, has depended on the mother's love or that of some woman who played a mother's part. It is a fact so transcendent, that we are wont to call it an animal instinct. It is, however, the central and most perfect form of human feeling. It is possessed by all women, whether moths or not, from the cradle to the grave.

- Harrison.

Guardians of the Race:

The true function of woman is to educate, nor children only, but men, to train to a higher civilization, not the rising generation, but the actual society. And to do this, by diffusing the spirit of affection, of self-restraint, self-sacrifice, fidelity and purity; and this is to be

effected, not by writing books, nor by preaching sermons, but by manifesting them hour by hour in each home by the magic of the voice, look, word and all the incommunicable graces of the woman's tenderness.

- Frederic Harrison.

The souls of women so admirably calculated to receive suggestions. Nature has so constituted woman that her active power and yearning centre primarily on the forming of a child. And so long as woman is woman it must remain so.

- Havelock Ellis

Women are the Guardians of the Race, their life centres in motherhood, all their instincts and desires are directed consciously or unconsciously to this end. It must be admitted it is very desirable from the point of view of the Nation.

- Bertrand Russel.

The family is the real social unit, and what society has to do is to promote the good of the family. And in the family women is as completely supreme as is man in the State. To keep the family true, refined, affectionate, faithful is a grander task than to govern the State.

The more exhausted men become, the more they lose the power to lead women or to arouse her nature which is essentially passive.

- G.S.Hall

• **When marriage and maternity are off less supreme interest there are various results the chief of which are as follows:-**

Woman grow dollish; sink more or less consciously to man's level; gratify his desires and even his selfish caprices, but exact in

turn luxury and display, growing vain as he grows sordid; thus while submitting, conquering and tyrannizing over him, content with present worldly pleasures, unmindful of the past, the future of the above.

Failing to respect herself as a production organism, she gives vent to personal ambitions, seeks independence, comes to know very plainly what she wants; perhaps becomes intellectually emancipated; she perhaps even affects mannish ways, unconsciously copying from those not most manly, or comes to feel that she has been robbed of something; always expecting but never finding she thus successively turns to art, science, literature and reform; craves especially work that she can not do and seeks stimuli for feelings which have never found their legitimate expression.

- G. S. Hall.

Large numbers of men and women are condemned to the society of an utterly uncongenial companion, with all the embittering consciousness that escape is practically impossible. Such relations have some inevitable drawbacks. They are liable to emphasize sex unduly - to be exciting and disturbing and it is hardly possible it should bring a real satisfaction of the instinct.

- Russel.

Often & often a marriage hardly differs from prostitution except by being harder to escape from. Neither money pays, nor name, nor fame, nor learning. It is character that can cleave through adamant walls of difficulties. Man must learn to tame by science the nescient

waywardness which lays waste his stock.

The kind of mind is irrevocably decided before the child is born. The mental power of the child will be the same whether he has a good education or not. A woman can give birth both Ravan & Bibhisana, Male & Female and God & Satan, so on.

Man's power is active, progressive, defensive. He is eminently the doer, the creator, the discoverer, the defender. His intellect is for speculation and invention, his energy for adventure... for conquest... - Ruskin.

Man should run after glory & woman after Man. - Napoleon.

Man's love is of man's life a thing apart. It's woman's whole existence.

• **The great Egyptian people, wisest of the nations, gave to their spirit of wisdom the form of a Woman. - Ruskin**

The all sided impressionability - characteristic of her sex which when cultivated is so like an awakened child. Variable as the light, it may take the colour of all that it falls upon, and exalt it. Girls are more sympathetic than boys, they are also more easily prejudiced.

It is an eternal truth - that the soul's armour is never well set to the heart unless a woman's hand has braced it; and it is only when she braces it loosely that the honour of manhood fails.

• **Catastrophe:-**

Lord Ramakrishna enjoined on everyone to remain far, far, far away from Kamini-Kanchan (Woman & Gold).

If 'Kam' (lust) be dropped from 'Kamini', 'ini' (she) becomes 'Ma'. Poison becomes elixir. And 'Ma' is always mother - never 'Kamini'.

To add 'gi' to 'Ma' is catastrophe. Beware! Don't lose thyself taking 'Ma' as 'Magi' (fallen woman).

Everyone's mother is the mother of the world. Every woman is another form of one's own mother. Think in this fashion.

If filial thoughts be not heartfelt, one should not touch women. The farther away from them one remains, the better. Not to look upon their faces is better yet.

Any kind of enticing conversation on 'Kamini-Kanchan' can bring attraction for them. So, the farther one stays away from such talks, the better.

- Sri Sri Thakur, Satyanusaran

Looking to the feet of a woman will generate filial thoughts in every man.

Kneeling before a woman for lust and beauty is woe to man and blasphemy unto the creator. Offer of himself by a man to a woman is the sole disqualification to be a husband.

• **Conclusion:**

According to Ruskin, she must be enduringly, incorruptibly good; instinctively infallibly wise - wise, not for self-

development but for self-renunciation; wise, not that she may be herself above her husband, but that she may never fall from his die; wise, not with the narrowness of insolent and loveless pride but with the passionate gentleness of an infinitely variable, because infinitely applicable, modesty of service - the true changefulness of woman.

Each has what the other has not; each completes the other and is completed by the other ... The happiness and perfection of both depends on each receiving from the other what the other only can give. The loftiest and most sacred relation of human life, that upon which the social economy must rest or go asunder - is the marriage relation - in which the complementary relation of the sexes is shown ... having a significance beyond the earthly life ... Union in marriage constitutes the complete man.

It is the woman who watches over, teaches and guides the youth ... She saves him from destruction - saves him from hell. He is going eternally astray in despair; she comes down from heaven to his help, and throughout the ascents of Paradise, is his teacher, interpreting for him the most difficult truths divine and human; and leading him with rebuke upon rebuke, from star to star.

Wherever a true wife comes, this home is always round her ... but home is yet wherever she is; and for a noble woman it stretches far round her ... shedding its quiet light far, - for those who else were homeless. This I believe to be the women's true place and power.

Man ... not only her protector and provider but her priest. He not only supports and provides but inspires the souls of women so admirably calculated to receive suggestions. - G.S.Hall.

The redemption, if there be any, is by the wisdom and virtue of a woman; failing that, there is none. Take lastly the evidence of facts, given by the heart itself. In all the Christian ages which have been remarkable for their purity or progress, there has been an absolute yielding of obedient devotion by the lover to his mistress. I say obedient - entirely subject, receiving from the beloved woman, however young, not only the encouragement, the praise and the reward of all toil, but... the direction of all toil. Where rapturous obedience to the single love of his youth, is the sanctification of all man's strength and the continuance of all his purpose.

It is the type of an eternal truth - that the soul's armour is never well set to the heart unless a woman's hand has braced it; and it is only when she braces it loosely that the honour of manhood fails.

The man and the woman are each organs, parts of the other. And in the strictest scientific, as well as in a mystical sense, they together are a single unit, an individual entity. There is a physiological as well as a spiritual truth in the words. They twain shall be one flesh.



Green crusaders from Cuttack village on a mission, create 5 forests in 5 years

Due to climate change and global warming, our beloved mother earth is changing before our eyes. Sea level is rising due to melting of glaciers and oceans are becoming hotter. As a result, people across the globe are reeling under natural disasters like flood, drought, heat waves and forest fire.

warriors chipping in to accomplish this mission.

Concerned over global warming and its impact on the climate, a group of committed youth under

A REPORT

Green Crusaders

light and polythene pollutions by observing various festivals with fanfare. But we realised that youth are the change makers of the society and there is a need to

work and persistent effort paid off and after a few months, the saplings not only survived, they

drive is the protection of the plants from cattle, forest fire and natural disasters like flood and cyclone.

“Strong fencing is the most essential factor before undertaking plantation drive. Planting saplings is easy. But to take care of those plants, nurture



The whole humanity needs to be alert to reduce global warming and mitigate environmental pollution to deal with climate change. However, this goal is certainly not achievable without expanding the earth's green cover. Thousands of activists,

the banner of Bhubaneswari Club from Brahman Sailo village under Kantapara block in Cuttack district, have been working tirelessly to expand green cover in their area to mitigate the adverse impact of climate change.

do something unique rather than celebrating grand festivals in an extravagant way. So we decided to have roadside plantation and create mini forests in our area.”



work and persistent effort paid off and after a few months, the saplings not only survived, they

and grow them into huge trees is really tough. It takes utmost care and attention on a 24x7 hour basis throughout the year to grow plants outside,” said Rautray.

As per the club members, plantation drive should not be confined within a club or few sensitive and aware members, rather a participative approach from one and all is the need of the hour.

“To fulfill the purpose of participative approach from all, more and more awareness programmes need to be conducted to educate people about the importance and benefits of plantation,” said Prafulla Kumar Mohanty,” a member of the club.

“We feel that not too many people are aware about the benefits of plantation. Making people aware about climate



cutting across national boundaries and cultures, are working relentlessly to recover the greenery of earth. Back home, we have also some of our

Talking about the motto of the club, Secretary Abhijit Patnaik said, “In the name of celebration, youths are hell bent on creating more and more sound, water,



Initially, the club members planted 2,000 saplings along the roadside. However, soon they realised that planting saplings was an easy task. However, taking proper care of those plants, nurture and grow them require herculean effort.

grew into a mini lush-green forest.

“We formed a WhatsApp group of 70 members and entrusted them with responsibilities of taking care of those plants. Thanks to the consistent effort by the committed members of the club, all the saplings grew into big trees,” said Bikash Ranjan Mohanty, President of the Club.

However, the members of the club didn't want to sit on their laurels. Buoyed by their success, they decided to experiment on creating several mini forests in their area. In the next year, they started another project in an unproductive patch of land near Balikhama. It was a huge challenge to grow vegetation on a



Since then, they have never looked back. In the last five years, they have successfully created as many as five forests. As per Kishor Kumar Rautray, a senior member of the club, the main challenge in plantation

change and global warming and educating them about spreading green covers to mitigate the adverse effects of climate change is the need of the hour,” said Soumya Ranjan Rautray, another senior member of the club.



Odisha is one of the fastest growing economy of the country. Odisha has transitioned to middle income category states in terms of Gross State Domestic Product (GSDP). Odisha is on course to become USD 1 trillion economy by 2030. Odisha has over 5,30,000 units and 113 industrial estates. Industry sector contributes around 41 per cent of GSDP. Odisha has received over Rs. 10 lakh crore of letter of intent of investment in Make in Odisha Conclave 2022. The state has become favourite destination for investment and industrialisation.

Odisha is endowed with vast resources of a variety of minerals and occupies a prominent place in the country as a mineral rich State. Abundant reserves of high-grade Iron ore, Bauxite, Chromite, Manganese ore along with other minerals such as Coal, Limestone, Dolomite, Tin, Nickel, Vanadium, Lead, Graphite, Gold, Gemstone, Diamond, Dimension & Decorative Stone etc. are extensively available in the State. This has opened up immense possibilities for locating mineral based industries for manufacture of Steel, Ferro-alloys, Cement, Alumina/Aluminium, Refractories, Thermal Power etc., along with setting up other auxiliary and ancillary downstream industries.

Odisha is one of the most mineral rich states in India. Key minerals found in the state are iron, coal, bauxite, manganese, nickel, chromite, limestone, dolomite, graphite, decorative stones, beach sand, China clay, tin ore, etc. For the record, Odisha has about 28% of India's iron ore, 24% of coal, 59% of bauxite and 98% of chromite.

Odisha accounts for over 59% of India's bauxite reserves, making it an ideal location for setting up aluminium and aluminium-based companies. The state ranks first in the country in terms of both production capacity and actual output of aluminium.

Odisha is one of the favoured investment destinations for domestic and international iron and steel players as well as one of the largest producers of iron and steel in India. The total production of iron ore in Odisha was recorded to be 80.87 million tonnes during 2015-16.

Between 2004-05 and 2015-16, Gross State Domestic Product (GSDP) expanded at a compound annual growth rate (CAGR) of 10.25% to US\$ 50.8 billion whereas the Net State Domestic Product (NSDP) expanded at a CAGR of 10.37% to US\$ 44.92 billion.

In the energy sector, independent power producers (IPPs) have invested Rs. 32,991 crore on proposed coal-fired projects after entering into MoUs with the state government. Among the 28 power companies, only three – Sesa Sterlite, Jindal India Thermal Power and GMR Kamalanga Energy Ltd – have commenced commercial production in the last 15 years. The IPPs have a combined capacity of 37,000 MW.

In the steel sector, out of Rs 222,862.63 crore investment proposed in 50 projects, Rs. 109,638.90 crore has been invested till today, said Mishra. Then, Rs.66,444 crore has been proposed in the aluminium sector by three companies – Vedanta, Aditya Aluminium and RSB Metaltech.

Odisha is amongst the top ten states accounting for the highest number of MSME enterprises. Odisha government also launched its startup policy 2016 that aims to create 1,000 startups in the state by 2020. The policy will aim at providing incentives, support and assistance to start ups at all stages of development including idea or prototype stage, commercialization stage as well as the marketing stage.

The state has sector-specific policies for IT and micro, small and medium enterprises. The state government has constituted "Team Odisha" to help with investment promotion.

The state government has constituted "Team Odisha" to help with investment promotion. The Odisha Industry is going places with excellent industrial infrastructure and presence of top national and international companies. The state has witnessed an industrial upsurge due to the favorable industrial atmosphere in the state. The state government of Odisha has invited major industrial houses of the

EMPLOYMENT SECTOR Make in Odisha

Pradeep Kumar Panda, Economist, Bhubaneswar

country and abroad to invest in the state. It has achieved a considerable amount of success and several prime companies have set up their plants in the state. The industrial structure of Odisha mainly consists of four categories: Medium industries, Cottage industries, Large scale heavy

- Paradeep area (fertilizer, sea food processing, petroleum coke)
- Khurda Tapang area (stone crusher)
- Joda Barbil area (iron, sponge iron, ferro alloys, iron ore crusher, mineral processing).

established with a capital investment of Rs.3000 lakhs in 1985. At present 391 employees are working in the unit. The plant is primarily meant for supplying Ferro-Manganese for TISCO's own plant at Jamshedpur. Besides the reserves of major minerals like chromite, nickel, bauxite, iron-ore



industries and Large scale industries. **Mineral Based Industries**

Occupying an important position on the country's map, Odisha's rich mineral reserves constitute 28% Iron ore, 24% coal, 59% Bauxite and 98% Chromite of India's total deposits. The state's comparative advantage on this account has attracted the attention of many mining and metallurgical companies. In Odisha, industrialization started shortly after independence. The oldest mines in the state were coalmines at Talcher and Ib valley. After nationalization of coal in 1975 and the national policy on energy sector, many power plants have come up in the state. Major industries in Odisha at the moment include an integrated steel plants at Rourkela, Kalinga Nagar, Jharsuguda and Angul NALCO (National Aluminium Company Ltd.) with its Alumina Plant at Damanjodi & Aluminium smelting complex at Angul; Thermal power plants Talcher & Ib valley area etc. in addition to Fertilizer plants, Pulp and paper industries, Ferro alloys plants, cement plants etc. elsewhere in the state. The industrial growth in the state has mostly taken place in the areas where raw materials, water and power are available. The state can be divided into twelve industrially active zones / areas based on minerals namely:

- Rajgangpur Area (Iron & Steel, Sponge Iron, Cement, Secondary steel, Melting and rolling mill & refractories and chemicals).
- Ib valley area (Thermal power, Sponge iron, refractories, and coal mines)
- Hirakud area (Aluminum & rolling mills)
- Talcher-Angul area (Thermal power, Aluminum, Coal washeries, Ferro alloys, Coal mines).
- Choudwar area (Ferro alloys, Thermal power, pulp and paper, coke oven)
- Balasore area (pulp and paper, ferro alloys, rubber industries)
- Chandikhol (stone crusher, coke oven)
- Duburi (Integrated steel, ferro alloys, rubber industries)

- Rayagada area (pulp and paper, ferro alloys).

Keonjhar is one of the premier minerals producing districts in Odisha. The district occupies a prominent place in the mineral map of the Country. Iron ore formations occupy most part of the district which can be traced from the Bihar boarder in the north to the Jajpur boarder in the South. Extensive deposits of Manganese ore are found in Thakurani and Joda East hills of Barbil. The two important mineral based industries in the district are the "Kalinga Iron Works" Barbil and the "Ferro-Manganese Plant", Joda. Good deposits of Chromite, an important and strategic mineral are found in Boula area near village Nuasahi of Anandapur subdivision. There are also some other mineral deposits in the district such as Quartzite, Bauxite, Gold, Pyrophyllite and Lime stone.

Kalinga Iron Works, Barbil: The Kalinga Iron Works was initially named as the Kalinga Industries in the private sector with technical collaboration of M/S. Fried Crupp of West Germany having one low shaft furnace with a capacity to produce 30000 M.T. of pig iron per annum. It was taken over by the Industrial Development Corporation of the Government of Odisha on 01st April 1963. It has since been named as "Kalinga Iron Works". Presently the Kalinga Iron Works produces 100000 M.T. of foundry grade pig iron by three low shaft furnaces. Besides, it has a power generating plant of its own which supplies power to the GRIDCO, Odisha to the extent of 2.3 M.W. This industry was running with a capital investment of Rs.1,011.27 lakh in 1985. At present 1,320 persons (both skilled and unskilled) are working in the unit. Under the diversification programme Kalinga Iron Works is also giving to undertake the production of Ductite Iron Spun pipes in close collaboration with TOR-STEEL and MECON. Ductite Iron Spun pipes have a tremendous marketing potential in foreign countries.

Ferro-Manganese Plant, Joda: The Ferro-Manganese plant at Joda was taken over by the Tata Iron And Steel Co.Ltd. in December 1957. It was

and coal; other minerals like china clay, fire clay, limestone, quartz, precious and semi precious stones, copper, manganese, graphite, vanadium etc. are also available in the state. Iron ore is abundantly available in the districts of Mayurbhanj, Sundargarh, Keonjhar and Jajpur. While chromite is confined to Jajpur, Dhenkanal and Keonjhar districts, manganese deposits are available in Sundargarh, Keonjhar, Rayagada and Balangir districts and Dolomite is available plentifully only in the district of Sundargarh. There are two major coal bearing area in the state which are currently being exploited namely Talcher and the Ib valley.

Aluminium industries

Odisha is the highest producer of aluminium in the country today. To further enhance the production of aluminium, NALCO has planned to expand its aluminium smelter in Angul district by 0.5 MMTPA at an estimated investment of INR 10,000 crore. Besides, it is also expanding its alumina refinery at Damanjodi from 2.275 MMTPA to 3.275 MMTPA with an investment of more than INR4,000 crore. The State also has seen private sector large scale investments from large companies in the sector including Hindalco and Vedanta. Hindalco Industries Limited is setting up a 0.375 MMTPA Aluminium Flat Rolled Product plant at Lapanga with an investment of INR5,000 crore. Similarly, Vedanta is expanding its alumina refinery capacity by 5 MMTPA at Kalahandi and its aluminium smelter capacity by 0.2 MMTPA at Jharsuguda with an investment of INR 7,500 crore which will create employment for about 7,700 people. To promote downstream and ancillary industries, NALCO has committed 50,000 tonnes of hot metal to the Aluminium Park at Angul, which has been established in Joint Venture (JV) mode with IDCO. The Park is one-of-its-kind facility in the sub-continent.

Textiles and Apparel

Apparel, being a high employment generating sector, is a focus sector of the State. A dedicated Apparel policy has been promulgated by the State for the development of the sector. As a

result of investor friendly policy in this sector, the State has seen significant investments from apparel sector companies in recent times. Shahi Exports has setup an apparel manufacturing unit at Khordha with an annual capacity of 3.6 million pieces. Aditya Birla Fashion has received approval for setting up an apparel manufacturing unit at Rayagada. Besides, a textile park is being developed at Bhadrak. This park is expected to generate significant employment in the sector through development of an ecosystem for synthetic fibres in the State. Due to pro-industrial Policy of the State and investor friendly eco-system created by the state, the industry sector has shown tremendous growth. As per latest data released by CSO, in 2017-18 (P), number of factories in manufacturing and wearing apparels has risen by 33.33% from previous year. Growth of Fixed Capital, Workers and emoluments are increased by 1890.72% (2nd highest), 613.07% (4th highest) and 409.32% (3rd highest) respectively in comparison to previous year.

Chemicals, Plastics and Petrochemicals

Chemicals and Petrochemicals is also one of the identified focus sectors of the State. Indian Oil Corporation is operating a 15 MMTPA refinery at Paradip and is planning to further expand its capacity. Besides, it has also commenced commercial production from Polypropylene unit which will supply raw material to the Plastic Park at Paradip Mono-Ethylene Glycol (MEG) unit and Paraxylene-PTA units which are at different stages of implementation and will help create a large downstream ecosystem for chemicals and textiles sector in the State. The State has also received investment intent from various other national and international companies in the sector.

Food processing including sea food

The State is blessed with ten agro-climatic zones and more than 60 lakh hectares of cultivated land. It is one of the largest producers of rice, vegetables, fruits, sea food, spices, oil seeds and various other crops in the country. Keeping this in consideration, the State has also promulgated an exclusive Food Processing Policy 2016, providing competitive incentives to units setting up in the State. The State has also a conducive ecosystem for investments in the sector in the form of food parks at Khordha and Rayagada and a dedicated sea food park at Deras. As a result, the Gross Value Added in manufacture of food products has increased from INR 49,089 lakhs in 2016-17 to INR 1,48,100 lakhs in 2017-18. Further this has resulted in creation of additional employment of 2,623 number in 2017-18 over 2016-17.

Electronics Manufacturing

A 215 acres ready-to-use dedicated Electronic Manufacturing Cluster has been developed close to Bhubaneswar. An attractive incentive framework of Special Package Incentive Scheme over and above the m-SIPS Programme of Government of India has been promulgated to facilitate investments in this sector. Odisha is emerging as a manufacturing hub of the east as occupies significant place in the mineral map of India producing mineral costs of INR78,754 crore (up to February, 2020), produced more than 50% aluminium in India, major Steel producing state contributing half of steel production in India.

Micro, Small and Medium Enterprises (MSME)

The Micro, Small & Medium Enterprises (MSMEs) contributes significantly to value addition, employment generation, export promotion and overall growth & development of States' economy. Next to agriculture this sector generates maximum employment with minimum investment. Therefore, the State Government creates adequate space for MSME development in IPR-2015 and also in MSME Policy 2016.

During 2019-20, around 57,651 MSME units were set up with an investment of INR 2659.69 crore, leading to employment generation for 1.63 lakh persons. Altogether 4,49,352 MSMEs have been established with an investment of INR 21,801.51 crore and employment of 16,92,298 persons till March 2020.



Continued Page 7

AN INTERVIEW

Yoga provides remedies to all diseases

When the Covid-19 is mutating itself into multiple variants, Odisha's Bijoylaxmi Hota, a yoga therapist with over four decades of experience, provides hope to beat this illness and many more. An author of nearly a dozen books on the ancient yogic science and diets, Hota provides remedies to keep the bug at bay.

Q: Yoga conjures up different things to different people. To some, it is asanas and pranayamas. Others believe its meditation. What is actually yoga in its totality?

A: Yoga is devised for a higher purpose - transcending ourselves to attain Godhead. The main yogas are - Raja, Gyana and

continues for a long time, organs will naturally break down. So, tension is the prime culprit. It needs to be ticked out first from our body.

Q: How does yoga deliver the antidotes to stress?

A: Yes, it is the physical postures (asanas) that play the pivotal role here. The asanas optimize the circulatory system of the body. Organs keep getting the required blood to function in a natural way. This is how yoga runs the body machine harmoniously.



Yoga Therapist Bijoylaxmi Hota

for which disease. Just select that and follow all the rules like sequence, speed, duration and number. Doing yogasanas rhythmically can drive out diseases. If yoga workouts don't prove helpful to you in curing some diseases then the fault doesn't lie in the asanas. It lies in the selection of the proper yogasana. I have cured my mother's high blood pressure within three days by yoga. Modern medical science has limitations, but yoga does not. It can cure all kinds of chronic and lifestyle diseases.

Q) Diabetes is afflicting people in a big way. Data shows 4.5% deaths in Odisha were due to this disease. Can you suggest any specific yoga to get relief from diabetes?

A: First learn the root cause. Diabetes shows you are stressed.

stress oneself, relax the blood vessels and make the pancreas function again to get rid of the disease. There is no particular asana or pranayam against diabetes. Asanas are there to strengthen the pancreas and pranayams are there to get more 'prana' or energy to the body. You also need to do 'sathkarmas' to detoxify your body. Everything is connected and you have to select your practices properly to get rid of the disease.

Q: Even back pain is bothering people these days...

A: Back pain is the consequence of a sedentary lifestyle. Earlier, people did physical work. Now we sit a lot due to advances in technology and as a result the back muscles do not get enough exercise. When the muscles become weak, the ligaments become slack and the nerves in the vertebra get stretched. With the practice of the right kind of asanas, you can strengthen the back muscles, pulling the vertebra to set the nerves free.

Q) People have a very hectic schedule these days and they don't have time to practice so many asanas and pranayamas...

A. Yoga nidra (yogic sleep) opens all the blood vessels in the body and relaxes the body and

A) Yes. But you need a good teacher for this. Otherwise, it can have adverse effects. Yoga is not as simple as it's assumed to be. This science has its rules and nuances. If overlooked, it can herald irreversible damages to the system.

Q) Tell us how and when did your yoga journey start?

A) I was in my twenties when I suffered bouts of illness. I was in and out of hospitals most of the time. I had a cervical spondylosis and visited hospital daily for physiotherapy. There was a library where I often visited to pick up books to find solutions to my ailments. Once, the librarian suggested I learn yoga. Once his wife came to my home and helped me get out of spondylosis. But it didn't do much to my systemic problems. My body was not absorbing calcium and iron. I had developed anemia, a very bad insomnia and many more calcium deficiency syndromes.

Situation turned bad. Someone just asked what will happen if the contraction happens in my heart? Shuddering at this, I couldn't sleep for the whole night. It affected my body, mind and psyche. My mother prodded me to go to Swami Satyanand's ashram in Sambalpur as she was cured of diabetes there. I resisted initially, but later went there. To my surprise, all my ailments, except back pain, vanished within 15 days. The back pain persisted for two-three years. But ultimately I was cured. My tryst



Bijoylaxmi Hota conducting a Yoga camp

Mukti. They are meant for building better human beings. However, one can't practice yoga unless one has good health, and that is why 'Hatha Yoga' started evolving. 'Hatha Yoga' has the components of asanas, pranayamas, shatkarma, bandh and mudra. For holistic health, working out in mind is paramount as it is the mind that lords over the body. Mind primarily conditions humans to lead a healthy life through physical yoga. Stress sows the seeds of all afflictions.

Q: How does stress play itself into our system and trigger illness?

A: Stress creates tense moments. Science shows how blood vessels get constricted making one tense. This constriction impedes flow of blood to cells. It is the red blood cells that carry oxygen and nutrients to our cells. They sometimes go in a single file to reach the tissues as the blood capillaries are so thin. Sometimes they even have to twist themselves to reach the target areas. When the capillaries get narrowed down, blood flow is affected. Remember, unless tissues get their quota of nutrients and oxygen, they malfunction. If such bio-chemical change

Q) We are witnessing another surge of Covid-19. We see a sudden upturn in the number of new cases in India and elsewhere in the globe. Does yoga have a cure?

A: Ye, very much. A good immunity will fight out the virus. Stress is dominating the human-scape now. In a state of stress, Vitamin A fast disappears from our body. This in effect weakens the immunity level. You will then become vulnerable to infection. Since yoga works out mainly on de-stressing, practicing asanas properly aids the blood flow to different organs optimally. And this will give a boost to immunity and render people less vulnerable to infection.

Q) Modern medical science has no answer to diseases like cancer, diabetes, blood pressure, arthritis and back pain. But you claim yoga can cure such ailments in a very short span of time...

A: There is a famous book called 'Hatha Yoga Pradipika'. The book details how all kinds of diseases can be cured by yoga and 'pranayama'. However, it all depends on pin-pointed practice. You need to know what asana is



Bijoylaxmi Hota addresses participants during a seminar on Yoga

Stress is not a modern word. Primitive man was also stressed. But they had either run away from danger or battled with it. For that he had to burn a lot of energy (calories). This is how nature has carried the stress management. Since, much of calorie is burnt in fighting and running, energy is spent and post this exercise, the body system gets rebooted to normalcy. But when they happen to a modern man, he does not spend energy. Subsequently, the high blood sugar remains in the blood and you develop diabetes.

Once you become diabetic, your pancreas malfunction for want of blood. Therefore, one has to de-

the mind together. This can be practiced on bed. It helps the body relax, repair and rejuvenate the system. There are various kinds of meditations and you can practice those while walking and moving as well. Some particular actions could also be practiced while sitting at the office or doing any work. The crux of the matter is you have to select your asanas as per your needs and prepare a routine accordingly. You could also break the routine into different segments and practice as per your convenience.

Q) Can yoga be learnt virtually - television or through social media platforms?

with yoga started from then. I had tried allopathy, homeopathy et al but in vain. It is yoga that has cured me.

- Books Authored By Hota**
- Yoga And Diet For Ailments
 - Yoga For School Children
 - Yoga For Healthy Heart
 - Yoga For Cancer
 - Yoga To Prevent Youth And Beauty
 - Yoga And Meditation For All Ages
 - Yoga To Banish Backache
 - Yoga For Busy People
 - Healthy Oriya Cuisine



Bijoylaxmi Hota with her Guru Swami Satyanand

SCIENCE & TECHNOLOGY COLUMN

Earth-sized Planet Discovered

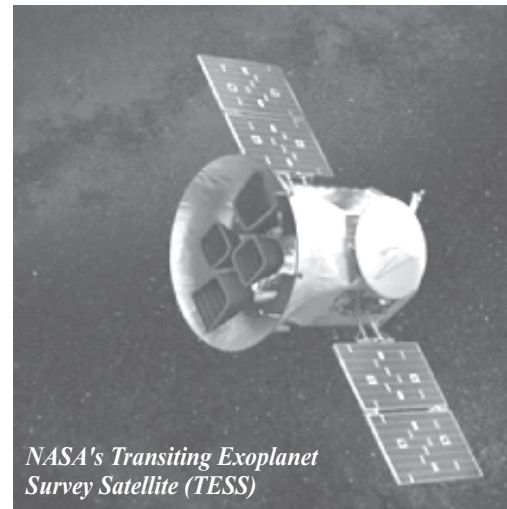
Er. Mayadhar Swain

Are we alone? This question most often perplexes scientists. Even the general people wonder on it. The question is about the existence of life other than the Earth. We hear about the extraterrestrial lives, most often called aliens, in science fiction books and science-based films. But do they really exist? Nobody knows. The universe consists of millions of galaxies and there are millions of stars in each galaxy. Our Sun is not extraordinary, but a general star in the Milky Way galaxy. Many stars must have planetary system like our solar system. Thus, technically it is possible that there may be civilizations in other star systems. But the stars are far away from us and so we are not able to locate them. For example, our nearest star Proxima

But our aim is to find a planet in the habitable zone of its star. Astronomers have now found about a dozen exoplanets that are likely rocky and orbiting within the habitable zones of their respective stars. NASA recently announced the discovery of a new, Earth-sized planet in the habitable zone of a nearby star called TOI-700 for which the prefix TOI means "TESS Object of Interest." It is only 40% as large as the sun and also has around 40% of Sun's mass.

TOI-700 first made headlines when NASA announced the discovery of three small planets

the fourth planet, TOI-700 e. TOI-700 e is 95% the size of the Earth and orbits on the inner edge of the star's habitable zone, between planets c and d. The discovery of this planet makes TOI-700 as one of only a few known systems with two Earth-sized planets orbiting in the habitable zone of their star. The fact that it is relatively close to Earth also makes it one of the most accessible systems in terms of future characterization. TOI-700 e is just over 100 light years from Earth – too far away for humans to visit – but we do know that it is similar in size to the



NASA's Transiting Exoplanet Survey Satellite (TESS)

Earth, likely rocky in composition and could potentially support life. Its mass is 0.818 Earths, it takes 27.8 days to complete one orbit of its star, and is 0.134 AU from its star. Its discovery was announced in 2023. The fact that it is relatively close to Earth also makes it one of the most accessible systems in terms of future characterization.

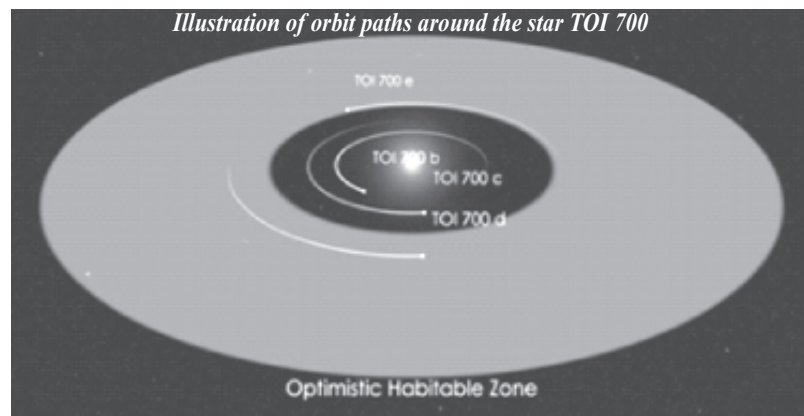
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Centauri is 3.2 light years away from us. The present day spaceships would take more than 30000 years to reach there.

Scientists are first trying to find Earth-like planets in the Universe where there is possibility of development of life. Here comes the uniqueness of our Earth. Life can develop in a planet if it lies in the habitable zone of the star. Habitable planets are those that are just at the right distance from their star to have a surface temperature that could sustain liquid water. Earth is at the right distance from the Sun so that we have liquid water here.

Astronomers discovered the first exoplanet around a Sun-like star in 1995. The field of exoplanet discovery and research has been rapidly evolving ever since. At first, astronomers were finding only a few exoplanets each year, but the combination of new cutting-edge facilities focused on exoplanet science with improved detection sensitivity have led to astronomers' discovering hundreds of exoplanets each year. Scientists are also now able to study their atmosphere. Today, there are more than 5,000 known exoplanets, ranging from gas giants to small rocky worlds.

orbiting the star in early 2020. Using a combination of observations from NASA's Transiting Exoplanet Surveying Satellite (TESS) mission and the Spitzer Space Telescope these planets were discovered by measuring small dips in the amount of light coming from TOI-700

The innermost planet, called TOI 700 b, is almost exactly Earth-size, is probably rocky and completes an orbit every 10 days. The middle planet, TOI 700 c, is 2.6 times larger than Earth — between the sizes of Earth and Neptune — orbits every 16 days and is likely a gas-dominated world. TOI 700 d, the outermost known planet in the system and the only one in the habitable zone, measures 20% larger than Earth, orbits every 37 days and receives from its star 86% of the energy that the Sun provides to Earth. All of the planets are thought to be tidally locked to their star, which means they rotate once per orbit so that one side is constantly bathed in daylight.

The TESS observed TOI-700 for another year, from July 2020 through May 2021, and using these observations NASA found



An artist's view of the newly discovered planet, TOI 700 e.

From Page 05 (Make in Odisha...)

Sector-wise disaggregation indicates that repairing services account for the majority share in MSMEs, with almost 62% share of total MSMEs setup in the State and generating 49% of the total employment opportunities created through MSME units (Table 3.23). A possible reason for the high concentration of MSMEs in the repairing services can be attributed to challenges related to literacy, skills, opportunities, marketing, credit facility etc., pushing young entrepreneurs to engage themselves in repairing services units. Food and Allied sectors follow the Repairing services in terms of units, investment and employment generation.

Major Government initiatives in MSME Sector

1,77,503 MSME Enterprises have 'gone into production' with total investment of INR 8181.28 crore and employment to 5.05 lakh persons in the last three years. Thus, altogether 4,49,379 MSMEs have gone into production with an investment of INR 21,816.75 crore and employment to 16.92 persons till March, 2020. 35,219 youth have been provided Entrepreneurship Development Programme (EDP) in 1135 batches during last three (3) years including 11773 youth during 2019-20. In order to boost systematic development of MSMEs, Food Processing industry and Start-ups, Odisha MSME Development Policy, Odisha Food Processing Policy and Odisha Start-up Policy have been operationalized since 2016. 1,021 MSMEs have been provided financial assistance of INR 129.20 crore under Govt. Policies from 2017-18 to 2019-20. As regards food processing sector, MITs Mega Food Park at Rayagada has already become operational, Infrastructure Development in Marine Food Park at Deras is at advance stage of development. 9 MSME Multi-product Parks in Sambalpur, Sundargarh, Angul, Cuttack and Khordha districts have been approved to provide land with developed infrastructure to MSMEs. Similarly, new Food Parks in Bargarh, Bolangir, Ganjam, Kalahandi & Nabarangpur have been taken up through IDCO.

Odisha Steel

Odisha Steel is an emerging sector that will supplement the industrial sphere of Odisha. The developing industries producing steel will dominate the economy of the state. The presence of raw materials in abundance in the region has resulted in attracting the big investors to the region. The large scale steel enterprises have opted to invest in the state of Odisha. The reasons behind the sudden interest of the steel plants like TATA Steel and Ruia's Essar Steel are the large iron ore deposits in the districts of Keojarh. The state mines 58 percent of iron ore which is an important raw material for making steel. The state also has a ready market for the steel products. Labor and electricity in the state are cheap which account for a low cost of production. The infrastructure of the state is also well developed that facilitates the industrial sector. These factors have lured the reputed steel companies of the country to the state. With the global demand for steel growing, the Union Cabinet recently unveiled a new steel policy that seeks to shore up the per annum steel production from 38 million tonnes to 100 million tonnes by 2019-20. But going by the current rush for iron ore in Odisha, the country may achieve the target well before the deadline. The State Government assigned 49 MoUs with various domestic and foreign companies for production of more than 75 million tonnes of steel in the state thereby bringing investment to the tune of 198,149 crore rupees. Similiar MoUs have been signed by the state Government for alumina-aluminium and cement projects in the state.

A new Steel Directorate was set up on 15th of July 2016 as a composite Directorate under the administrative control of Steel and Mines Department. The Directorate will focus on Iron Ore based Industries located in Odisha with following key activities.

- To coordinate with the steel industries in the state to assist in addressing the issues relating to such investments, in coordination with the IPICOL
- To monitor the implementation of MoUs signed steel industries for expediting the investments.
- To regularly interact with the existing steel units with a view to identifying the problems and issues relating to optimal capacity utilization.
- To maintain a database on investments, production, employment etc. of Iron ore base industries in Odisha.
- To monitor the availability of assured supply of raw material to the steel industries.
- To assist the Department in policy matters relating to steel industry.

Make in Odisha Conclave

Industrial Promotion & Investment Corporation of Odisha Ltd (IPICOL) has constantly and consistently increased the visibility of the State in National & International level by participating and organizing events, seminar and workshops across the globe. The brand "Invest Odisha" is being promoted as the best Investment destination through various modes. Make in Odisha is the flagship biennial event organized in Bhubaneswar to showcase the prowess of Industrial ecosystem in the state.

The Government organized the first conclave in 2016 which attract 84 proposals worth Rs. 2.03 lakh crores of Investment. 50 out of those proposals were approved, 29 of those projects are under construction. 6 out of those projects have already started production. The second edition of the conclave was organized in 2018 which attract Rs. 4.23 lakh crores of investment across 17 diversified sectors. 202 investment intents were received during the event and 100 proposals were approved. 58 of those projects have already started construction and 5 have already started production. The third edition of the conclave was organized in 2022 which attract Rs. 10.17 lakh crores of investment across 22 diversified sectors.

Major initiatives taken by the government to promote Odisha as an investment destination:

The Government of Odisha unveiled a strategic action plan for the implementation of the 'Vision 2025' which lays a road map for industrial growth in the state over the next decade during the recently concluded Odisha Investors meet in Bengaluru. The state has identified five focus sectors that include agro and food processing, chemicals and petrochemicals, textiles and apparel, downstream and ancillary industries in metal sector and electronic system design and manufacturing and IT/ITes. The plan covers policy, infrastructure, investment promotion and skilling interventions that the state government plans to undertake for industrial development in these focus sectors.

The state government also launched an advance version of its industrial portal for land use and services i.e. GOPLUS. The GOPLUS Version 2.0 provides information about the entire land bank available in the state for industrial use and works as a onestop portal to provide information about all land related queries of an investor. Using the portal, an investor can get information about availability of land parcel in the vicinity of preferred infrastructure utilities such as airport, port etc.

Odisha government also launched its startup policy 2016 that aims to create 1,000 startups in the state by 2020. The policy will aim at providing incentives, support and assistance to start ups at all stages of development including idea or prototype stage, commercialization stage as well as the marketing stage. The Odisha government has also set up a startup capital infrastructure fund upto Rs 25 crore that will be used to support development of startup ecosystem in the state.

In order to increase the employment opportunities in the state, Odisha government has announced plans to invest US\$ 28.69 billion in the manufacturing sector generating nearly three lakh job opportunities by 2020.

In June 2015, in an effort to increase the traffic of foreign airlines in the state, the state government exempted the Value Added Tax (VAT) imposed on aviation turbine fuel.

In July 2015, the state government announced plans to frame a rural Business Process Outsourcing (BPO) scheme under which subsidies are planned to be offered for establishing BPO units. In places where STPI (Software Technology Parks of India) stations are situated, employment opportunities are expected to be generated in the state. STPIs in the state are located in Bhubaneswar, Balasore, Rourkela and Berhampur.

As per budget 2016-17, US\$ 39.71 million has been proposed by the state government for developing new railway projects such as the ongoing KhurdaBolangir line, new JayporeMalkangiri, Jaypore-Nabarangpur railway lines, etc. in the state through direct state funding.

As per state budget 2016-17, the state government allocated US\$ 1.52 million for development and enhancement of eco-tourism in Odisha. A biopharma IT park at Bhubaneswar is being established under the public private partnership (PPP) model over a land area of 64.68 acres. A mega food park is being established near Bhubaneswar over 282 acres through the PPP mode. Odisha Industrial Infrastructure Development Corporation (IDCO) is the nodal agency for the establishment of this park.

In order to strengthen the artisan-based enterprises in the handicrafts sector, 19 handicraft training centres are functioning in different districts.

Focus Sectors of Odisha Government

The Government of Odisha has recognised six sectors as its focus sectors for sustainable growth of industries and economy. Of these, five are manufacturing sectors, as indicated below. These sectors were highlighted during the Make in Odisha Conclave 2018. Three of these six sectors are labour intensive in nature and are expected to generate large employment opportunities in the State.

Agro Food Processing including Seafood: To support these agro-based industries, the State government has established Mega Food Parks at Rayagada and Khurda and a sea food park at Deras.

Textiles including technical textiles: Odisha is a leader in skilled and quality workforce for the textile sector, with immense opportunity to invest in this field. Dedicated apparel parks have been established at Ramdasapur and Chhatabar.

Ancillary and Downstream Industries in Metal Sector: Odisha is the mineral hub of India and the largest aluminium, steel and stainless-steel producer in the country. To facilitate growth of ancillary and downstream sectors, a National Investment and Manufacturing Zone has been set up at Kalinganagar along with downstream park at Angul and Jharsuguda

Chemicals, Plastics and Petrochemicals: One of the four Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIR) in India has been established at Paradip. The PCPIR is anchored by a 15 MMTPA refinery set up by IOCL.

Electronics Manufacturing: To enhance electronic manufacturing in the State, a dedicated electronics manufacturing cluster has been established near Bhubaneswar. A revised special incentive package has also been introduced to facilitate investments in the sector.

Odisha is one of the fastest growing economy of the country. Odisha has transitioned to middle income category states in terms of Gross State Domestic Product (GSDP). Odisha is on course to become USD 1 trillion economy by 2030. "New Odisha, Empowered Odisha" has become favourite destination for investment and industrialisation.

SELF KNOWLEDGE

Challenging 'I' - the toughest challenge

Swami Suddhananda

Constantly fed by the vague the miraculous, the bizarre and the unsubstantiated statements and information, the average man seems to have gone crazy. Especially in the matters of religious faiths and practices one can encounter the lunacy of the worst kind. If a person is vague about a scientific information, one can or may convince him by various experiments open for all to see. But the religious practices and their results are usually not available for being challenged and experimented upon.

As a result centuries of traditions have been established and not many can dare to challenge the practice. In case the whole religion is based on pure unverifiable faith then, one has the freedom to accept or reject the tradition that he encounters. But when I see people born and brought up in Hindu tradition either accepting or rejecting without any questioning, then it becomes very frustrating. This is a tradition of teaching and learning where there is no one way traffic. One does not have to accept just because a teacher or scriptures declares a view. One has the full authority to challenge it as no book or the person is the authority for the existence of anything. A thing does not 'exist' because a book or a person says so. Rather, because 'a' thing exists, the book or the person talks about it. That is why the teacher or the books reveal what is already existent and in case of Vedanta, it goes from the finite to Infinite, from mortality to Immortality. The book of geography is a collection of information gathered about the world around. And the book also has a map that gives an authentic shape and picture of the planet. While going about in our small village and town and then looking at the map, we know that the map has a very authentic picture or representation of the area. That gives us hope that the rest of the map and atlas must be truth and we follow it to reach different places on the planet earth. Slowly to-day we are mapping the ocean, the ocean floor, the mountains, the valleys, the jungles, the desert and also the distant stars and galaxies in infinite space. When the map as well as the planet - both belong to the same physical world, the man finds it easier to believe the map and the immediate verification.

On the other hand, the Upanishads, the Vedas that represent a beautiful map of the both gross and the subtle

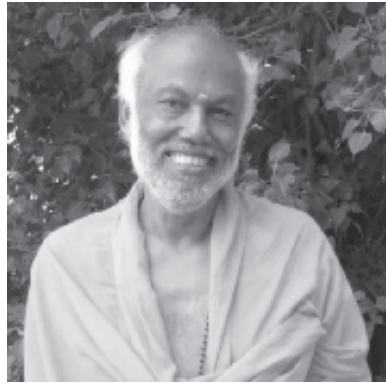
universe, are doubted because of the limitation of the perception. When the eyes read the book, the mind must see the inner landscape! And the greatest difficulty in the map that represents that it is the inner landscapes is not read as it should be read, but with many preconceived notions. The individual has already picked up various notions about his own thoughts and the identities and thereafter strives to find a similarity with the map that is the Vedas or the Upanishad.

That is how many march on to discover the Truth with very many preconceived notions, biases and prejudices. They read the Upanishads not to see it as it is but to see that their notions have a place in that body of descriptions. That is how many pick up vague notions about the food, dress, rituals, experiences almost bordering on rigidity, permissiveness or lunacy. Extreme behaviours become the hall mark of such vague misunderstandings. Nobody can tell for sure as to when or where exactly the Vedas started or were compiled. That line of enquiry becomes redundant if somebody is interested in finding the solution, the apparent mysteries of the existence. If it solves our problem that should be our greatest concern and not when or where it started or who started it.

The inner landscape that is described in the Vedas or Upanishads deals with the most extensive view of the human mind as it apparently begins with the finite, the limited, to end up with the Infinite, limitless. That helps one to discover that even the apparent beginning is made in the beginningless, endless expanse called Infinite.

Most of the learnings in the schools and the universities deal with the perceived creation and sometimes very elaborately to discover the hidden physical laws. Then those are exploited to add to the human comforts and conveniences of the physical kind.

But 'the perceiver' always remains unknown or is vaguely known. When 'the knower' or 'the perceiver' is vague about himself, all his interpretation and emotions involving himself will also be vague. If the perceiver does know himself, his perceptions will not be vague or the eyes will see what the eyes can see. And the interpretation of that perception will also be authentic if the person is not biased by a version of the



perception already picked up.

That is how a Galileo must have blacked out the concept of a geocentric universe to question and understand the planets and the stars. No authentic discovery can be made with the prejudiced minds. Similarly nobody can understand the inner landscape as it is, with a preconceived notion about the thinker himself. That notion about the 'I', the thinker apparently becomes the most insurmountable obstacle. Saddled with the notion about himself, the 'I' the thinker goes on 'interpreting' the thoughts and information. There is nothing to interpret, but to see the whole map of the mind or the inner landscape as it is. There 'the seeing' is 'being'. The Upanishad reveal the nature of the creation, the body, the sense organs, the organs of action, the thoughts, the emotions of various kinds, the thinker, the happiness that is the Absolute freedom, the God the Infinite. The child begins with a clean slate knowing nothing about the creation. He can grow up and die like an animal too. But that will be a waste of a magnificent potential that can help the man to discover the Infinite in himself.

We all have started that travel with education of various kinds. But unfortunately the educational system as prevalent now, does not take the learning to an appropriate end. The man begins with no identity because of total ignorance about himself. In between, while trying to remove various types of ignorance through perceptions and learning, the individual picks up different roles and the crisis begins within. The learning therefore must logically end in an awakened non-identity, transcending all the relative identities. But this learning seems to be very difficult as the individual gets infatuated with one or the other picked up identities and loses himself in the sensations and the perceptions of various kinds. The tragedy is that no child ever begins with a sense either of limitation or of limitlessness, but seems to

surrender to the notions of limitations in time and never consciously looks for limitlessness!

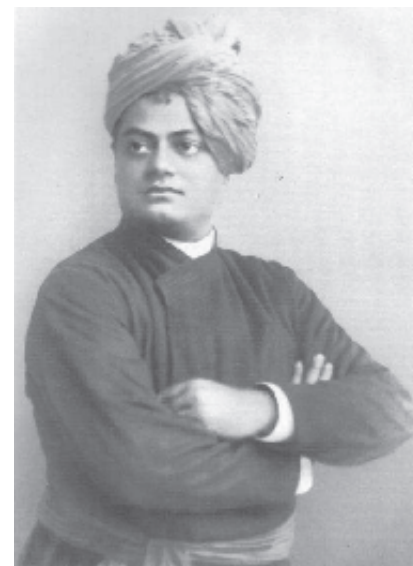
That is where a tradition like a Vedantic tradition can help the individual at least to be aware of the "possibility" of discovering the limitlessness, happiness or God right here and now. How does one look for something without being aware of the possibility? In a physical world, one may stumble on many things while searching for something else. But, how does one stumble on Infinite if later on it is not authenticated by the information already existing about the Infinite! In fact, everybody is always being himself - the limitless, infinite, immortal existence without ever knowing about it! But the person can never believe it as such possibilities are not talk

I have met such people all over the world who are either deceived by many faiths or charmed by 'their' intelligence that deciphers everything according to the information that it has picked up, but is never open to the new possibilities. They pick up ideas from various sources and wish to pass it on as their own. Never have they questioned the source. Neither questioned the source. Neither have they, most importantly, questioned the questioner himself. The individual questioner indulges in the luxury of questioning everything except himself or finds comfort in various notions as long as that does not disturb his material securities, food habits, drinks, dresses or other physical conveniences and comforts. God or some such faith comes handy to pass on the buck in case of failure or frustration in life. Both the belief and the disbelief can keep the 'I', the individuality in a suspended animation and that is how millions can sleepwalk through life. But once their

beliefs in the belief and the disbelief are challenged, the individual feels disturbed. Everybody avoids as far as possible disturbing the individuality himself and that itself shows the weakness of the turf on which the individual stands.

Long before somebody or something challenges the individual, it is better the individual challenges himself by questioning the questioner himself. That is what the Vedanta does. It goes to the most fundamental question, answering which every question is as well answered. Thereafter, happily one can question all that one perceives and can discover millions of possibilities, but no more he remains a victim of any particular identity, role or notion. Time is ripe for millions of educated prosperous or not so prosperous people to have a look into themselves, the inner landscape without indulging in vague generalities, superficial practices, exotic notions of different kinds. Of course, none of us can escape a few notions while growing up in life, but the growing youngsters must be initiated into the direction of learning to question themselves while learning to question the objects and the people around. The deficiency of any generation will be the lack of self-enquiry and the ultimate Self-knowledge. But that does not mean the search for ultimate self-definition must continue at the cost of the knowledge of the world around. While pursuing the immediate understanding and the knowledge of the world around, the element of self-enquiry or Self-knowledge also must be inculcated so that every man finds a perfect balance - the harmony that the creation is and shall be always unconscious of, but the human being alone can discover and reflect in his life!

Let us do it!



"We are what our thought have made us; So take care about what you think. Words are secondary. Thoughts live; They travel far."

THE EDITORIAL COLUMN

Go-Between – Destroys Existential Growth.

N H Priya Garmaik

According to the Legend Painter Salvador Domingo Felipe Jacinto Dali, "Where he depicts the persistence of memory using melting clocks – an imagery that we have possibly taken out of context and put into practice in our daily lives.

Another practice of equal disrepute, according to G.R.R.Martin, "Words are wind" – no matter what some people promise, one can never rely on them to deliver – the habit of not keeping words.

Both these practices of endless procrastination and not keeping promises or going back on words together form what Sree Sree Thakur Anukulchandra terms as 'go-between' or 'dwandivritti', i.e., the trait of dualism or doubt, in the conduct of a person. Go between: The intervening factor that fails fulfillment of promise & trusted reposed.

Now, many of us may ask that the generally accepted meaning of the word 'go-between' is an intermediary or negotiator, but since Sree Sree Thakur uses it to denote this trait of dualism, there must be some connection. What we find is that the word 'between' is derived from the Old English 'betweenum' which was used to denote the space of separation or the midway of two entities. This, again, is a composite of the Old English 'be' meaning 'by' or 'about/around', and 'tweonum' deriving from the Gothic 'tweih-nai' meaning 'two each'. Thus, analysing the word 'between' in light of its roots and in conjunction with 'go' provides a clearer picture of Thakur's coinage for the enunciation and understanding of His inspired philosophy. To 'go-between', thus means the state of being suspended in a limiting space that is neither this nor that, neither the imagined ideal nor the actual reality. It is, therefore, unmistakably, a duality marked by oscillation that can never provide clarity of purpose or belief, and by extension, no establishment of the being or becoming.

Sree Sree Thakur has severe reservations against this habit and considers it a disease of endemic proportions. He states that it is far easier to be rid of habits like theft and robbery, than to cure oneself of go-between. He wants all should be checked for go-between as such people will never attain success in this field, will be more worthless than worthwhile and only create a mess wherever they venture.

Let us take a look at why this habit is so condemnable. In the human body, the sensory nerves report information regarding stimuli, and once the decision is taken, the motor nerves execute the actions. If it so happens that we regularly take decisions and then do not act, the motor nerves get trained to not act upon our sensations. In other words, the motor-sensory coordination is disrupted, and gradually even ordinary directions are not obeyed properly. As the person gradually becomes a habitual procrastinator, work keeps getting piled up and the disregard for process, planning, schedule, system and importance of the work, coupled with last minute haste lead to wastage of resources, failure, additional hassles, imperfect execution, excessive expenditure and much more.

Spiritually speaking, the Divine Will is inherently present in all of us and our sheer will-power has the

strength to upend mountains, but the more we stall action whenever a resolution is reached or a promise made, or if we tend to break promises or turn back on our words, we are harming our own will-power, that is the self-faith that anything and everything can be achieved with perseverant effort. With multiple failures and a lack of accomplishment, the person gradually develops a lack of conviction and a severe inferiority complex. An intricate web of associations start forming around, one thing leading to the other, which all results from a depreciation of the self.

If someone has go-between then inferiority sets in which is the cause as even nice words feel like taunts. Go-between wells up weakness within, that makes one feel so inferior that he might even interpret an empathetic query about one's health as a taunt towards his physical state. The person is forced to flee from one's own self which is a kind of infernal torture. Even if someone tries to give up go-between, the past acts of go-between catch up with him. However, no matter how difficult it is to persist, one must remain hardened of resolve with the thought that 'whatever may arise, I will not indulge in go-between ever again', and should take a stand and not deviate an inch from one's resolve—not even if a storm passes overhead.

One of the five pillars of Sree Sree Thakur's philosophy is Swastyayani (the path of existentially propitious living). Swastyayani has five principles of which, the second principle teaches us that any inclination of complexes that peeps out of the mind must be manipulated and regulated towards the congenial interest and establishment of Lord, the Ideal; and the third principle directs us to immediately put into practice whatever good pops in our minds. While the second principle is about the maintenance of mental harmony, the third principle is about motor-sensory coordination. Go-between is a gross violation of both. Sree Sree Thakur says that after committing go-between, even if altruism, meditation or noble deeds are done, it is still an offence.

He says that go-between may be termed as a conduct of falsity because it destroys existential growth. He calls go-between a

tremendous matter that has the vibgyor of treachery in it, and declares that whatever else may or may not be, go-between is not a part of the realm of dharma. Wherever existentially propitious conduct is concerned especially if there is a matter of personal profit involved in it, a person with go-between, He says, will inadvertently commit blundering moves, like he may possibly have an urge to defecate at that exact moment. People suffering from the curse of this malady often blame the stars whereas all they need is to look within and they would find the cursed shackles of go-between that has them gripped so hard and cut so deep, that blood pours out of their raw wounds and refuse to heal.

Sree Sree Thakur speaks of people that complain about the evil influence of planets and bad luck that make even a handful of gold they grab turn into a handful of dust, while earlier it used to be the reverse. He observes that among other flaws of such a person, past acts of go-between and current continuation of the same are often revealed upon careful inspection. He says that when the result of accumulated go-between grabs hold of a person, he keeps failing and facing obstacles at each step.

Sree Sree Thakur has given us Five Principles of Business that are inviolably required if one must succeed, and the fourth principle is avoidance of go-between. Business involves the transaction of money, goods and services. A certain degree of trust is required whether genuine or as a part of agreements. Go-between breaks this trust. Creditors, investors, customers, employees, employers, middlemen, lawyers, banks, governments and all the parties concerned generally feel slighted whenever someone breaks this element of trust and goodwill. Not only does the brand suffer, but the overall repercussion is severe and multifarious. People gradually disengage and look for other avenues to conduct business, preferably those who are more professional in approach, and this leads to a loss of customers, rise of competitors, monetary loss, souring of relations, and so much more.

Go-between reduces our inclination for work, leading to a degradation of our abilities. As activities are reduced, people tend to lose confidence and suffer from anxiety,

stress, acute depression and lack of self-esteem. As words lose their value, and as people get used to breaking promises, one other feature that develops is a lack of commitment. The severe impact of that on our personal lives cannot be exaggerated, as relations crumble and families are torn apart when the sacred vows and familial relations are treated with a similar disregard. A person loses his friends, spoils his relations and ultimately becomes an isolated individual dying inside unbeknownst to the world. Such a person may indulge in a lot of charity in search for meaning, but ultimately that too is meaningless.

In this context, a disciple of Sree Sree Thakur asks Him how would it be if a person has many talents, offers much service to people but also has the habit of go-between. Sree Sree Thakur remarks that nothing would come out of any talent or any service offered. The very person, whom the man has crippled with such service, would one day call him a thief and blame him for destroying him by providing money or he too would have established himself by then. Go-between may also bring the severe ailment of pauperism that, in the philosophy of Sree Sree Thakur, may be described as mental impoverishment irrespective of how much wealth a person has.

Is there a way to be cured of go-between? Sree Sree Thakur equates it with a ghost that would not be exercised. It is truly difficult and requires a lot of effort. Sree Sree Thakur says that a public declaration provides good results. He further says that one should not make an outright promise. "I will try"—saying this much is permissible, and one should correct their manner of speech appropriately. He observes how these have turned into national characteristics of the Englishmen. Sree Sree Thakur further advises that go-between should be avoided cautiously both in word and action. He says that whatever has been kept aside for whichever purpose, it is proper to have it spent for that purpose alone.

**To avoid go-between:
Spend money for the purpose
it has been meant for,
because it is charged with
your volitional urge accordingly
– Sri Sri Thakur, Message-5.**

Go-between also involves the element of not repaying debts on time. As the topic of repayment of loans is raised, Sree Sree Thakur says that when a creditor arrives, he must be repaid some amount, no matter how small, and even if he is not willing to take, it must be given forcibly. He says that one should not make absolute promises but should instead say "I will try to repay some by xyz days." Since saying in this manner does get one credit, Sree Sree Thakur wants us to take it into consideration and to repay before the due time. The creditor, He says, should not be given the opportunity to come knocking and one should rather visit his house and pay. Even if it's not the due date, if one has earned some money, then he must visit the creditor and give him that amount. The creditor should in no way have any impression that the debtor is trying to avoid him. If the amount that is to be repaid as promised cannot be paid in full, even then one should visit him and give as much as feasible and explaining one's situation, ask for his forgiveness. The reason He wants one to inform the creditor in advance is because if the person is informed at the eleventh hour, then he may face troubles especially if he has made promises or important plans centering on this repayment. If one acts this way, then the creditor remains sympathetic towards the person and the debtor does not lose that man. Sree Sree Thakur asserts that losing a man is like losing the world. He again tells us that if we ever lend someone money, we must assume that he will most possibly not be able to repay the sum. He wants us to only lend as much money or material as would not devastate our financial and mental lives if not repaid.

The reason Sree Sree Thakur refers to the mental life is because one may bear the loss of the money and material, but may not be able to forgive the person in time, which would manifest itself in the behavior thus distancing the person. Not only is money lost, a person is lost as well. Instead of falling into the trap of loans, Sree Sree Thakur considers it best if we simply give a person an amount that is affordable for us. Even in case of borrowing, He wants us to simply ask for it instead of taking on credit. This is why when Thakur gives to someone, He does not accept any repayments, nor does He return anything He takes, instead, He remains prepared to return much more as required when that person is in need. He advises a devotee that if someone approaches him wishing to place some amount in his care, then he must tell everything in advance, – "I may possibly spend some of this, you may not get it back in time, even then, if you wish to give, then you may give." Overall, a person basically needs to resolve to not indulge in this practice anymore, followed by months of struggle with implementation. But if after six months of struggle, someone may be able to live in a princely way throughout his life, who would want to remain a pauper instead?

**Beware of go-between,
Otherwise
The knocking shock
Of mishandling
May tear your out
With every fettered fate.
– Sri Sri Thakur, Message-5**

what are other words for go-between?

intermediary, mediator, intercessor, broker, middleman, agent, negotiator, interceder, messenger, intermediator



THE GOVERNMENT COLUMN

SDG Budgeting in Odisha

Pradeep Kumar Panda, Economist, Bhubaneswar

Sustainable Development Goals (SDGs) are globally agreed upon, non-negotiable 17 goals and 169 targets representing a blueprint for the achievement of a better and more sustainable future for all by 2030 with the commitment of 'Leaving No One Behind'. These goals and targets have been formulated in keeping with the key challenges that the world is facing, such as poverty, hunger, inequality, climate change, unemployment, etc.

India, being one of the prime signatories of the SDGs, has implemented these as the guiding principle for the country's future development strategy. The country has made significant progress towards the realization of these, including the development of an SDG localization model centred around adoption, implementation and monitoring of these goals at various levels (State and district levels). India has also developed a National Indicators Framework, SDG India Index and SDG India dashboard for monitoring progress on SDG goals and targets. The accomplishment of these SDGs requires the provincial government's commitment towards adequate and judicious allocation of funds in priority sectors, improvement in the quality of spending and other resources.

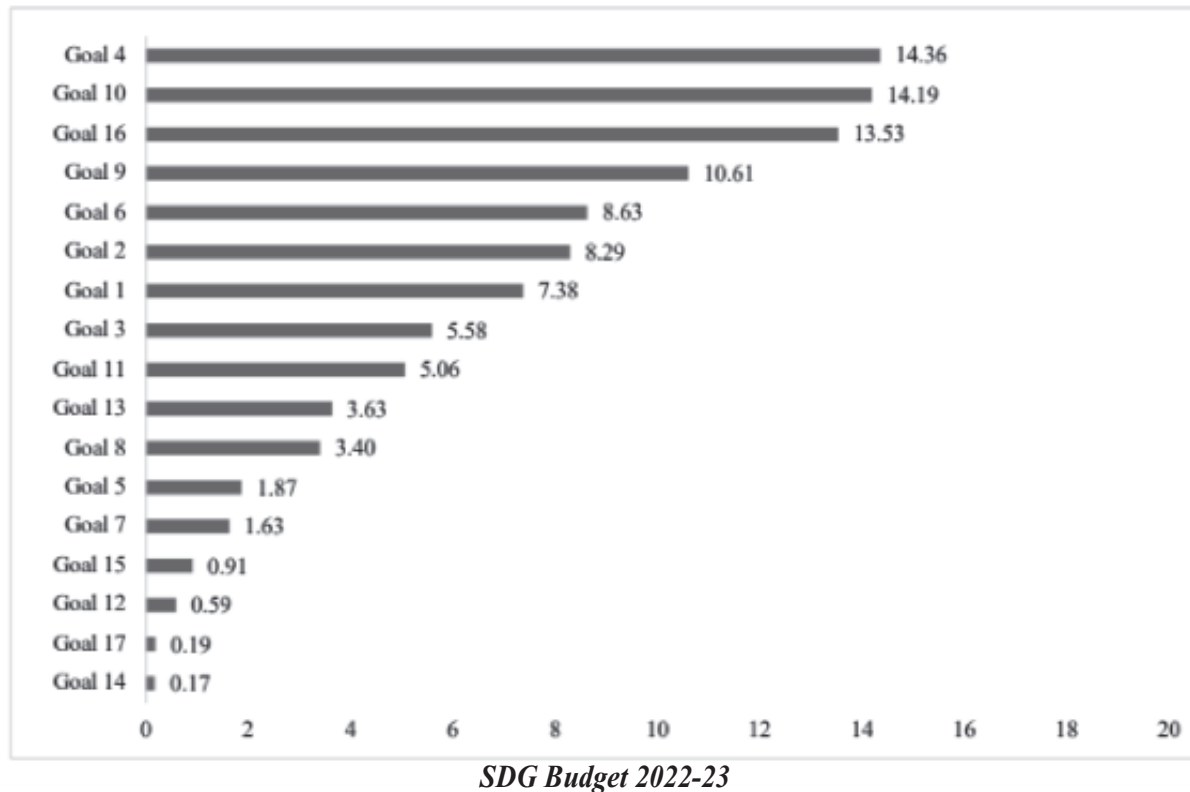
The state of Odisha is a frontrunner among major Indian states in introducing far-reaching reforms in budgeting and governance over the two past decades. The State's budget for FY2023-24 captures people's aspiration for a 'New Odisha, Empowered Odisha' by transforming 'reactive governance' to 'proactive governance'. Odisha has undertaken and initiated numerous positive initiatives for the realization of SDGs in the state – integrating these into the state's overall budget planning process, thereby, making it more comprehensive and dynamic. The Planning and Convergence (P&C) Department of the Government of Odisha is mandated with the task of coordinating the evaluation and monitoring of SDGs by adopting a synergistic approach, involving various other key stakeholders.

The state government has undertaken an exhaustive mapping of various SDG targets and indicators against the relevant government schemes and programmes (centre and state sector schemes, centrally sponsored schemes) by bringing together economic, social and environmental aspects. The Government of Odisha has also developed the Odisha SDG Indicator Framework (OSIF) for monitoring the progress of various SDGs goals and targets through mapping of outcome, output and process indicators. Further, the state is in the process of establishing a baseline for the

indicators. The approach, to date, is meaningful in paving the path towards achieving the said goals. The latest SDG India Index (2020-21) prepared by the NITI Aayog, Government of India,

state has moved from aspirant status to the performer and front-runner status. This apparent shift towards better status in almost all goals excepting 6 out of 16 reflects the success in

SDGs in terms of identifying alignment of its financial allocation with the goals, their achievement, and the challenges. It is vital to note that the SDGs budget is not a separate budget



SDG Budget 2022-23

situates the state of Odisha among few states in India identified as the fastest movers (performer state) in achieving certain goals. The motivation behind such an assessment is to recognise and reinforce the levels of commitment of the state governments towards accomplishing SDG goals and targets and in obtaining an assessment of the required investment to achieve the 2030 SDG goals. Gauging the requirement of funds towards materialising these goals may be necessary but not sufficient as prioritization and allocation by the state is equally important. In other words, mainstreaming and accelerating efforts of state governments remains vital for the SDG agenda. Prior to 2015, the state of Odisha's performance in the Millennium Development Goals (MDGs) from 2000 to 2015 was noteworthy, particularly with respect to socio-economic development.

From 2018-19 to 2020-21, Odisha has registered overall improvement in terms of increase of 6 points. Affordable and Clean Energy (SDG 7), Sustainable Cities and Communities (SDG 11), Responsible Consumption and Production (SDG 12) and Life Below Water (SDG 14) contributed most to the incremental points. As per SDG India Index (2020-21), Odisha is ranked in Front Runner Category in 9 goals namely SDG 3, SDG 6, SDG 7, SDG 10, SDG 11, SDG 12, SDG 13, SDG 14 and SDG 15.

The state's performance over the years as depicted in SDG India Index is impressive given the number of targets in which the

compliance to SDGs in the state.

Finance and P&C Department in collaboration with all other departments, the state has evolved the preparation of a comprehensive mapping matrix between goals and their associated schemes and programs implemented by the various departments and agencies. This approach is undoubtedly helpful in improving the OSIF for SDGs and in identifying prospects for further convergence and co-implementation of schemes and programmes, thereby, enabling the process of charting responsibilities of initiatives across departments and in monitoring progress clearly and state has recently launched OSIF 2.0. The state has brought out its first SDG based budgeting policy document in FY 2021-22.

The Odisha SDGs Budget document offers an overview of the approach of budget planning and management process for

but is a methodology to assist the government in aligning SDGs perspective into the budget as the key state plan for public expenditure. As reflected in the latest Odisha SDGs report, SDGs index aligned with the budgetary mandate can further serve as a critical reminder for the policy and action towards achieving the wellbeing of the people and towards the 2030 Agenda. In this way, given the nature of SDGs, the horizontal integration across sectors and institutions could help with the rationalization of existing schemes with similar objectives with optimal allocation of resources. Further, there is a need for vertical integration of monitoring and evaluation structure in alignment of SDGs in different plans and strategies of the state government.

The total budget outlay for the SDG budget for the year 2022-23 (BE) was Rs. 1,84,844 crores, spread across 17 goals and major

SDG targets with contribution from almost 40 departments and 1,568 programmes and schemes of the Government of Odisha. From among the 17 Goals considered in the SDG budget, Goal 4 has the highest share of budget allocation at 14.63% of the total SDG outlay, with an amount of Rs. 26,535 crores, followed by Goal 10 on inequality reduction has the second-highest of budget allocation at 14.19% of the total SDG outlay, with an amount of Rs. 26,226 crores.

The contribution towards the total SDG budget from the State Sector Schemes is about 36.05% amounting to Rs. 66,625 crores and from the Central Sector and Centrally Sponsored Schemes is 19.78% with a share of Rs. 36,550 crores. On the target level, Target 10.2, focusing on empowering and promoting the social, economic, and political inclusion of all, has the highest allocation, at 10.69%, followed by Target 9.1 on Develop quality, reliable, sustainable, and resilient infrastructure which has 9.71% of the total SDG share allocation. In the FY 2022-23 (BE), the Programme Expenditure and other expenses (63.2%) comprises the major share of the SDG budget outlay whereas Administrative Expenditure constitutes 36.8%.

The source of financing expenditure for various goals indicates the predominance of state-sponsored schemes in many of the goals. This in itself can be taken as the commitment of the state towards target compliance as regard SDGs. This exercise is a novel attempt showcasing an approach that evaluates allocation patterns and prioritization schemes leading to success in realising the set targets corresponding to various goals. Also, these help in setting up mid-year targets for the accomplishment of SDGs goals and targets. An exposition of this kind may be emulated by other states to recognise the shortcomings of their budgetary schemes. Reconciling budget heads with target indicators on one hand and disentangling the expenditure allocation across various departments for the same target on the other, informs the need for prioritization in achieving the 2030 Agenda of Sustainable Development. As reflected in the Odisha SDGs document 2022-23, mapping budgetary priorities in relation to the SDGs does not automatically lead to more coherent management or reorientation of resources as accounting and budgeting frameworks need to be aligned to integrate SDGs.

Odisha is a pioneer in SDG based budgeting and should stick to it for concrete results on the ground. At the same time, we need to make vision based planned SDG budgeting in order to achieve sustainable development by stipulated time period.



PHYSIOLOGICAL SCIENCE

Fasting & Havishyanna – Optimization of Hormones

Prabhu Prasad Gadnayak

Fasting is something we all do while we're asleep and whenever we don't have food in our mouths. An empty stomach is perfectly natural.

INTERMITTENT FASTING (IF):

Skipping a meal or two, also known as "Intermittent Fasting" (IF), can be downright beneficial. "Intermittent Fasting" (or "IF," typically defined as consuming nothing but water for 16 to 36 hours) has gained tremendous popularity in health and fitness circles as a way to lose fat, live longer, and even build muscle.

In fact, even **48 Hour Fasts** have been shown to have no negative effect on metabolism, cognitive performance, or fatigue. That's not to say fasting can't be a little uncomfortable — we'll get to that later.

It's time to dismantle some old myths about eating and exercise. Different people work out best under different circumstances, and deciding whether someone should eat before training can be like telling them what time of day to work out or which diet they should follow—it largely depends on what works best for the individual.

24 hour fasts have also been shown to increase the brain's production of growth hormone by up to 2,000 percent in men and 1,300 percent in women (the effect ends when the fast does). This is good news for anybody looking to slow the aging process: Growth hormone isn't just awesome at lowering body fat while preserving muscle but it improves physical function, bone quality, and longevity. **Fasting affects men and women differently persons to person.**

While on a fast, it's a good idea to drink plenty of water (6th Food) to keep the stomach from feeling too empty. But it might relax you to know the initial hunger probably isn't because the body requires food, but because of a hormone called ghrelin. Ghrelin is an appetite stimulant the body learns to secrete based off your meal patterns, so it makes you hungry when you would normally be eating. **After a few fasts, however, the body learns to produce less ghrelin, and you get more control over when you eat.**

The science behind "Intermittent Fasting" is pretty solid, but that doesn't mean it's the only path to better health. If fighting through ghrelin surges or skipping meals with loved ones become insurmountable problems — **or if you're hypoglycaemic, diabetic, or have a history of eating disorders — 'Intermittent Fasting' might be worth avoiding.**

It's also important to remember that **no matter when we eat, what and how much we eat is always important** — the improved hormones and smaller eating windows of 'IF' are not a carte blanche to consume thousands of extra calories!

Of course, ideas about exactly when to eat and when to fast can vary from one person to the next. Eat when hungry, don't when not. Six meals per day or one big dinner, the research shows that you can eat when you feel like eating. The metabolism won't shut down, muscles won't atrophy, and the sun will rise in the morning. It takes a load off, don't it?

There's no harm in giving it a try. Intermittent Fasting is rapidly becoming a popular and powerful method for fighting disease, improving body composition, and taking some of the stress out of dieting and meal planning, but

remember: if it doesn't work for you, it's not the only way to get results.

The Fast Way to Improve Performance - Many studies have found that training in a fasted state is a terrific way to build lean mass and boost insulin sensitivity. So, it makes good sense to combine exercise and fasting.

In short, fasted training helps to ensure that carbs, protein, and fats go to the right places in the body and are stored only minimally as body fat. Exercising on an empty stomach has been shown to be especially great for fat loss, and it's even been shown that people who train while fasted become progressively better at burning fat at higher levels of intensity.

When the body learns to exert itself without any food, it gets better at performing when it does have fuel in the tank.

- You can consume more than just water.
- Break your fast whenever you'd like.
- Eat as many meals as you'd like.

We didn't say as many calories as you like. But it's not necessary to eat many meals throughout the day. Despite some long-held myths that the body can only absorb a certain amount of protein at a time, we're completely capable of digesting the day's intake in one big meal (of course, this doesn't mean that you need to!).

The Takeaway - If fasting just isn't for you, then there's no need to keep it up—just don't be afraid to try it out.

You're completely free to eat whenever you want. Just listen to your body—it's got you taken care of.

The autonomic system of the body emitted Saliva through mouth to water the throat. Once the mind set in through Fasting, the hormone Ghrelin (hunger hormone) automatically stopped. So, hunger and thirst is not a matter for a yogi. Actually, body need not require more food. We eat out of greed. Only two leaves of Thankuni Pata (Soumyabali & Somalata in Sanskrit) stimulates the body, detoxify the body & maintains the hormonal imbalance. It helps in secretion of adequate Hormones and works as an anti-viral, anti-bacterial and anti-inflammatory. Otherwise, it will balance your stomachs as well as body.

A mouthful of water, you drink, at an equal interval, will cool your system, which is permissible at the intermittent fasting. In Sishu Prajapati Brata, one after another intermittent fasting, body and mind adjusted for total fasting without water and food.

HAVISHYANNA BRATA:

Havishyanna is a healthy food for sadhanas, people who are on severe sadhnas, on bhagwata seva, in Deekshas like ayappa, hanuman, devi, shiva and venkateshwara should eat this simple food which is easy to digest, holds spiritual significance & gives sathwik vibrations.

In another instance Havishyanna is an extremely important word when it comes to death because this word is used for the food to eat during the 10 days after the funeral of a deceased. Havishyanna means food fit for oblation (offerings) consists of things that are considered very pure and fit to be taken during certain period of Fast, is food with no masala or spices, one become

cleansed from the impurity of materials and sorrows of death.

Havishyanna Brata includes a single meal either before or after midday (Noon). In the month of Kartik, Havishyalis have been seen in Puri around the Jagannath Temple during the period of Panchuka, a five days of devotion & meditation.

Havis or Naivedya refers to "ritual food offering" and represents one of the various upacaras (offerings), in pūjā (ritual worship). Puja consists of offering hospitality, in the form of water to wash the feet, to drink, water for ablutions, offering a bath (Trisandhya Snana – at Dawn, Noon & Dusk), new clothes, fragrant unguents, fragrant flowers and ornaments, food and so on. Each step in the pūjā process is called "saCskāra" and each offering is called "upacāra"

Havis refers to "clarified butter (Cow Ghee) mixed with rice" and represents one of the items offered to the nine planets (navagraha), according to the grahasānti (grahayajña) section of the Yājñavalkyasmṛiti preceded by the section called vināyakakalpa, prescribing a rite to be offered to Vināyaka. These two verses prescribe different faggots [i.e., havis] to be burned for grahas with offerings of honey, ghee, dadhi, and milk. It is interesting to note that some of the faggots (i.e. parāṣa, khadira, pippala, and śamī) mentioned here are also used in the SūrutasaChitā in the context of curing the diseases caused by grahas, which, in this case, are not planetary. Cooked rice to be offered to grahas. (Astronomy & Astrology)

Havis is the general term for an offering to the gods, 'oblation', whether of grain (parched, boiled, as porridge or as cake), or Soma, or milk, or clarified butter, etc. It is common from the Rigveda onwards.

In Upasana (Prayer) Books, the Havishyanna actually includes Boiled White Rice (Arua), Boiled raw banana, Boiled Moong Dal, Cow Ghees, Seasame, Amla, Harida, Bahada, Sendha Namak, Cow Milk, Ripe Mangoes, Ripe Bananas are used. Though Cow Ghees & Sendha Namak used in Havishyanna, the Items can be boiled but not fried. The process is to mix Cow ghees & Sendha Namak to the Parched Rice, Boiled Moong Dal and Boiled Raw Banana. Amla, Harida & Bahada can be boiled with rice or moong dal. By adding Sesame Chutney, Ripe Banana and

Ripe Mangoes, the intake of Havishyanna is so beautiful which harmonizes the eating smoothly.

OPTIMIZING HORMONES (FASTING):

Each items in Havishyanna has tremendous effect on optimization of hormones.

- **White Rice** contains thiamine, niacin, riboflavin, iron, calcium and has cancer fighting effects.
- The presence of bio-active compounds, macro and micronutrients may be responsible for the potential properties that Moong Dal (high concentration of protein) might exhibit Anti-inflammatory, antioxidant, anti-diabetic, Anti-hyperlipidemic, Anti-cancer potential, Anti-microbial agent, probiotic and liver protective properties.
- **Boiled Raw (Unripe) Bananas** contain various antioxidants and plant compounds and have resistant starch which escapes digestion and feeds the friendly bacteria in your gut, produce short chain fatty acids and reduce the cancer.
- **Ripe Bananas** are rich in fiber, Vitamin B6, Manganese, Vitamin C, Folate and Pottasium and works as a vasodilator and controls blood pressure levels and slowly release the insulin hormone after consumption.
- **Cow Ghee** is rich source of Vitamin A, D, E & K which ensure normal cellular function and growth in humans.
- Consumption of **Sesame Seeds** Chutney make up all the vitamin deficiencies in human body.
- **Ripe Mangoes** contains Polyphenols, which are plant compounds that improve immunity, digestive and eye health and has potential anticancer effects.
- **Harida (Myrobalan)** – Haritaki Terminalia Chebula, which removes toxin & undigested materials from body as mild laxative & supports general health gain, well being of eyes, brain, throat, intestine, skin, liver, spleen & urinary tract.
- **Baheda** – Terminalia Bellirica – improves immune health and has antimicrobial and anti-allergic property & helps in balancing cough and cold.
- **Amla** - Phyllantus Emblica –

Helps in boosting immunity, reduce the risk of age related macular degeneration and improved eye-sight due to the presence of Vitamin A.

- **Sendha Namak** - Rock Salt – A natural preservative, enhances digestion, improves metabolism, balancing the chi (energy) – purifying air – relieving stress -weight loss – prevents respiratory infections – natural remedy for nail fungus.
- **Cow Milk** – Important for bone health contains calcium, phosphorus, Vitamin D & protein.

An empty stomach triggers a cascade of hormonal changes throughout the body that are conducive to both building muscle and burning fat.

The significant effects of Fasting are as follows:

1. Improved insulin sensitivity. Put very simply, the body releases insulin (a hormone) when we eat to help us absorb the nutrients from our food. The hormone then takes the sugars out of our bloodstream and directs them to the liver, muscles, and fat cells to be used as energy later on. The trouble is that eating too much and too often can make us more resistant to insulin's effects, and while poor insulin sensitivity ups the risk of heart disease and cancer, it also makes it harder to lose body fat. Eating less frequently (i.e. fasting more regularly) is one way to help remedy the issue, because it results in the body releasing insulin less often, so we become more sensitive to it—and that makes it easier to lose fat, improves blood flow to muscles, and even curbs the impact of an unhealthy diet.
2. Periodic fasting that both reduces the risk of chronic disease and improves the body's digestion of carbohydrates. It's all about insulin, a hormone responsible for the uptake of nutrients into the liver, muscles, and fat cells. Because the body releases insulin when carbohydrates are consumed, eating too much and too often can make us less sensitive to it. Unfortunately, an abundance of food (as well as other factors, like insufficient sleep and exercise) has made poor insulin sensitivity fairly common place. That's bad, not just because it makes it more difficult to lose fat and absorb nutrients, but also because it increases the risk of diabetes and several kinds of cancer. Fortunately, the problem can be improved by essentially doing nothing — not eating increases insulin sensitivity, meaning Regular Fasts allow you to eat more carbs, get less sick, and burn more fat.
3. The old-fashioned fast can promote muscle gain and fat loss comes down to growth hormone (GH), a magical elixir of a hormone that helps the body make new muscle tissue, burn fat, and improve bone quality, physical function, and longevity. Along with regular weight training and proper sleep, fasting is one of the best ways to increase the body's Growth Hormone. The effect ends when the fast does, which is a compelling reason to fast regularly in order to keep muscle-friendly hormones at their highest levels.



THE INDUSTRIAL COLUMN

Choices for Odisha's power sector

Mr. Pradeep Kumar Panda, Economist, Bhubaneswar, Email: pradeep25687@yahoo.co.in

12322 MW, as of December 2022 zero, most states would face the same dilemma: how to produce

(CEA), in which 9540 MW of power by GRIDCO from various sources was 1460.7 MW, (109.2 MW from 8 small Hydro-electric Projects, 1010 MW from Solar PV Projects, including 25 MW from roof-top solar, 20 MW from 1 Biomass Power Project and 321.5 MW from wind sources). Odisha Renewable Energy Development Agency (OREDA) took initiatives for various programs on the front of solar energy like Konark Solarisation, (aiming to turn the temple town of Konark into a solar town as well as a Net-Zero town through Solar Street Lighting, Solar Powered Drinking Water Kiosks, solarising the night-time illumination of the Sun Temple, establishment of solar charging stations, introduction of electric vehicles, etc.); Roof Top Solar Power Plant in residential, commercial and Government buildings; and Solarisation of agricultural pump sets under PM-KUSUM & Soura Jananidhi (State Scheme), etc.

At the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Glasgow, United Kingdom, in 2021, India Government expressed to intensify its climate action as a step forward to the target of



reaching net-zero emission by 2070. One major component of the strategies is to achieve 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. State governments, along with the Central government have taken several initiatives to reduce emission in power sector through promoting renewable energy sources. Odisha, a coastal state in the Eastern part of India, is rich in minerals. Growing demand for power for industrial activities and domestic consumption is putting stress on the state's emission parameters. Though Odisha has the share of 3.47% population in India, net GHG emission from Odisha (274.54 Mt CO₂e in 2018-19) is 9.3% of the country in 2018 (GHG Platform India 2022). In per capita terms, net emission from Odisha (6.15 tCO₂e per capita) is higher than that of the national average (2.24 tCO₂e per capita). Odisha has installed capacity of

installed capacity is for coal-based power plants. So, emission in Odisha is largely driven by high dependence on coal (90%) as a source of power generation in the state (in 2021-22). Other sources of power generation are hydro (8%), small hydro (1%), solar (1%). Odisha is one of the few states of India which is surplus in electricity production: only 33% of the produced electricity is consumed within the states and the rest of exported to other states. Clearly, selling electricity is a source of revenue for the state, revenue received from Taxes and Duties on Electricity in Odisha was Rs. 393846.21 lakh in 2020-21.

To keep up the pace of growth and development for the states and to meet the aspiration of the people, the state requires to continue generating electricity. It will not be prudent to import electricity from other states to reduce emission within the state boundary. As all states moves towards the goal of achieving net

electricity in a sustainable way.

Mitigation measures in terms of transition towards renewable



energy is emphasized in policy design in Odisha. In 2021-22, contracted capacity of renewable

The state government of Odisha is also targeting to harness its renewable energy potential, as reflected in Renewable Energy Policy of Odisha, 2022, offering exemption on duty and surcharges along with other benefits, and targeting to increase the renewable capacity to 10 GW by 2030. Apart from traditional sources of non-fossil-fuel like hydro, solar and wind energy, the policy document also considered the non-traditional sources like green hydrogen, green ammonia, floating solar, biomass, waste-to-energy etc.

For renewable energy development, major challenges are: land acquisition and opportunity costs involved with RE development. Odisha's renewable energy rich sites are mainly in the forest areas or agricultural land; so, it is quite

difficult for the state to establish large scale solar power sector. Despite having significant potential for renewable energy sources in Odisha, presently, renewable energy's share in power sector is only 1%. The pragmatic alternative is to continue with coal-based electricity, but adopt latest technology to reduce emission.

There are some mitigation technologies available for reducing CO₂ emission from the stationary sources like carbon capture and storage (CCS) technology for large scale production. The existing carbon capture technologies can be grouped into three categories: (a) pre-combustion and (b) oxy-fuel combustion with CO₂, and (c) post-combustion. Under the pre-combustion process, Integrated Gasification Combined-Cycle (IGCC) technology has the potential of reducing 90% emissions from power plants. In oxy-fuel combustion technology, CO₂ is separated during combustion and has the potential of removing up to 100% CO₂ from the flue gas. Post-combustion CO₂ capture technology can be retrofitted to existing plants without major modifications; and only the

necessary capturing equipment are needed to be installed. Here, the most common method is chemical absorption with amine solvents (recovery of CO₂ is approximately 85% to 95%); others being membranes, the PSA (pressure swing adsorption) process and mineral carbonation processes. The drawback of the technology is that these processes reduce the power plant efficiency to some extent. But research on integration of CO₂ capture, transport and storage in power plants is going on in different countries on the world. Inclusion of CCS in the mitigation portfolio is recognized to be beneficial for expediting the climate stabilization process and for gaining long-term economic efficiency in long-term.



THE ART & CULTURE COLUMN

General Introduction to Odishan Temple Architecture

INTRODUCTION

Temple is a 'Place of Worship'. It is also called the 'House of God'. Stella Kramrisch has defined temple as 'Monument of Manifestation' in her book 'The Hindu Temple'. The temple is one of the prominent and enduring symbols of Indian culture: it is the most graphic expression of religious fervour, metaphysical values and aesthetic aspiration. The idea of temple originated centuries ago in the universal ancient conception of God in a human form, which required a

'amlaka'. The plan is based on a square but the walls are sometimes so segmented, that the tower appears circular in shape. Advancement in the architecture is found in temples belonging to later periods, in which the central shaft is surrounded by many smaller reproductions of itself, creating a visual effect of a fountain.

DRAVIDA TEMPLE STYLE

Dravidian architecture is a style of architecture that emerged thousands of years ago in the Indian subcontinent. They

ODISHAN TEMPLE STYLE

Odisha possesses the most remarkable Northern temples. To a certain extent they represent a pure form of the original Nagara style. They can be divided into two groups, namely the early form of Nagara temples and the later evolution of the same in the fully developed Odishan type.³ Because of its unique style it possesses a different temple style known as Kalingan School of Temple Architecture. This style received due recognition when it was mentioned in the Silpa texts and the inscriptions.⁴ The

history of temple building activities in Odisha can be seen in a series of beautiful temples dating from about the 6th century to the 16th century. The various ruling dynasties of Odisha from the Sailodbhavas to the Gajapatis devoted themselves in erecting a number of religious shrines in their kingdoms for sheer display of the aesthetic sensibilities, religious mindedness and glorification of their

reign.⁵ Bhubaneswar, the Temple City of India has a cluster of five hundred temples, ranging over a period of nearly four centuries.⁶

The Odishan temple style did not represent a fixed type. But in spite of the stylistic change that distinguishes one phase from another, we find a remarkable continuity in the development of the style till it reaches the climax. We have decided the course of evolution of temple architecture in t o

three phases – Formative Phase, Transitional Phase, and Mature Phase.

EVOLUTION OF ODISHAN TEMPLE

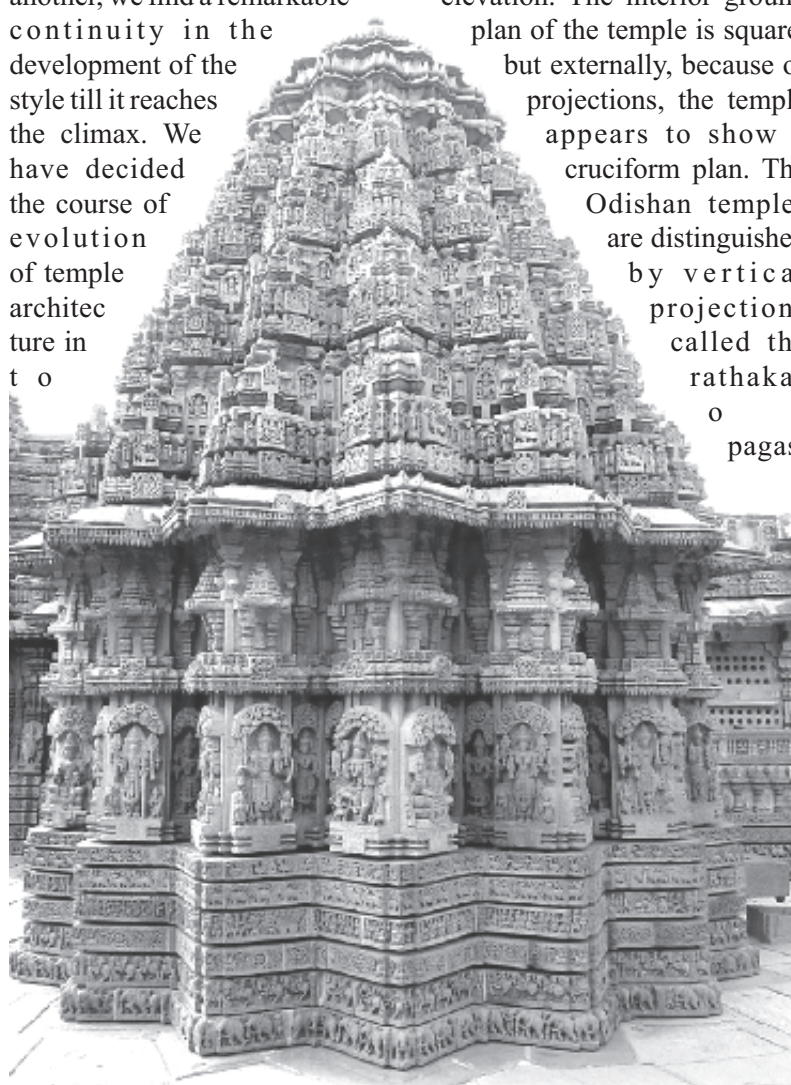
The temples evolved in Odisha consist of two main parts – the sanctum and the frontal hall. The sanctum called viman



a and the frontal hall or the mukhasala called jagamohana.⁷ These two together make the temple a complete whole. The two structures linked internally. Externally the jagamohana is subordinate to the main temple in height. There is a traditional belief among the craftsmen of Odisha that the main temple is the bridegroom and the jagamohana is the bride. In course of time, to meet the growing needs of the rituals, two more structures, the natamandira and bhogamandapa, were added. Each is a separate structure but integrated to form an effective and harmonious architectural organization.⁸

PLAN AND ELEVATION

The Odishan temple is remarkable in its plan and elevation. The interior ground plan of the temple is square, but externally, because of projections, the temple appears to show a cruciform plan. The Odishan temples are distinguished by vertical projections called the rathakas or pagas.



Depending on the number of the pagas, the temples are classified into triratha, pancha-ratha, sapta-ratha, and nava-ratha.

TYPES OF TEMPLES FOUND IN ODISHA

Odisha is famous for temple architecture and with varieties of temples presents the Kalingan School of Architecture in its well-developed forms.¹⁰

According to Silpa Sastras, there are thr



habitation, a shelter and this requirement resulted in a structural shrine. India's temple architecture is developed from the Sthapati's and Silpi's creativity. A small Hindu temple consists of an inner sanctum, the Garbha Griha or womb chamber; a small square room with completely plain walls having a single narrow doorway in the front, inside which the image is housed and other chambers which are varied from region to region according to the needs of the rituals.

In various Silpa Sastras we find detailed instructions for the construction of all types of buildings and also rules of proportion for the sculpting of different categories of images. It is from these Silpa Sastras that we come to know about the types of temples. The Indian Silpa Sastras recognize three main styles of temple architecture known as the Nagara, the Dravida and the Vesara.¹

NAGARA TEMPLE STYLE

Nagara types of temples are the typical Northern Indian temples with curvilinear shikharaspire topped by amalakasila.² This style was developed during A.D. 5th century. The Nagara style is characterized by a beehive-shaped and multi-layered tower, called 'Sikhara'. The layers of this tower are topped by a large round cushionlike element called

consist primarily of pyramid shaped temples with cupola-formed shikharas. These temples are dependent on intricate carved stone in order to create a step design consisting of many statues of deities, warriors, kings and dancers. The majority of the existing buildings are located in the South Indian States. The earliest monuments of this school can be seen at Mamallapuram and at Kanchipuram.

VESARA TEMPLE STYLE

Vesara type of temples contains elements of both Nagara and Dravida styles. This style is also described in some texts as the 'Central Indian Temple Architecture Style' or 'Deccan Architecture'. The trend was started by the Chalukyas of Badami (500-753 A.D.) who built temples in a style is that was essentially a mixture of the Nagara and the Dravida styles, further refined by the Rashtrakutas of Manyakheta (750- 983 A.D.) in Ellora, Chalukyas of Kalyani (983-1195A.D.) in Lakkundi, Dambal, Gadag etc. and epitomized by the Hoysalas (1000-1330 A.D.). This style mostly prevalent in the Deccan. The ground plan of the temples of this style is starshaped or polygonal. The temple consists of shrine, anti-chamber and hall with aisles and porch.

ee different types of temples in the Kalingan School. These are 'Rekha', 'Bhadra' or 'Pidha' and 'Khakhara'. The sanctum of the temple is either Rekha or a khakhara type deula. Similarly, the mukhasala is either a flat-roofed rectangular hall or square hall with the roof arranged in pidhas. Majority of the sanctums are of rekha type and whereas the khakhara type is limited to a few Sakta temples. The mukhasalas of the temples of formative phase are flat-roofed rectangular halls while in later period, the pidha deulas were introduced.

REKHA TEMPLE

The rekha temple or the vimana is characterized by a curvilinear superstructure. It can be divided into four parts. The four divisions are pista, bada, gandi and sira or mastaka. From the bottom to the finial, each part of the temple has a separate name. The Odishan craftsmen considered the temple as the body of the Cosmic Being. Therefore, the different parts of the temple are named after limbs of the body. Just as the different parts of a human body are organically related to each other, so the different divisions of the temple bear vital relationship with each other and are integrated into an artistic composition.

The cella where the presiding deity is enshrined conceived as the womb of the Cosmic Being and thus called Garbhagriha. Like the womb it is intensely dark. The dim light of the earthen lamp along with the fragrance of the flowers, incense; it creates an atmosphere of solemnity where a devotee can fix his mind in meditating his beloved God.

PISTA

The Pista is not a compulsory feature. This is generally found in temples erected in the Ganga epoch.

Continued Page 18

ENERGY

India's sustainable jet fuel may get internationally certified in 2023

A bio-jet fuel, also known as sustainable aviation fuel (SAF), produced using home-grown technology from cooking oil and seeds of oil-bearing plants will likely be certified internationally this year. An international certification would allow the SAF to be used in commercial flights in India.

The Indian Institute of Petroleum (IIP), a laboratory of the Council of Scientific and Industrial Research (CSIR), has tied up with Boeing, Indigo, Spicejet and the three Tata Airlines — Air India, Vistara and Air Asia India — to support the production of SAF.

The Indian Air Force received provisional certification in November 2021 to use SAF on their test flights, subject to case-by-case approval by the aircraft manufacturer concerned. However, it is yet to be internationally certified for use in commercial airlines in India.

CSIR-IIP-produced SAF is likely to obtain international certification this year and will drive up demand from the civil aviation sector, Anjan Ray, director at CSIR-IIP in Dehradun, said.

The institute's SAF samples have been sent to the United States Federal Aviation Administration Clearinghouse for rigorous testing to obtain the ASTM D4054 qualification from ASTM International. The Pennsylvania-based organisation develops and publishes standards for products and services globally.

"The process takes 18-24 months. We are moving as per plan. Before the certification can be awarded, it has to go through a ballot, where it is voted on by engine and airline manufacturers, organisations working on key components and safety regulators. The certification is expected within the next 12 months,"

The world presently has only two major aircraft manufacturers, Boeing and Airbus. ASTM D7566 certification allows international airframe manufacturers like Boeing and Airbus to issue Service Letters permitting the use of the specified approved fuel on all aircraft, according to the CSIR-IIP director.

"There is a lot of interest globally as CSIR-IIP has received multiple inquiries from international players to license the trademarked DILSAAF process for production outside the country," Ray explained.

The CSIR-IIP pilot plant in

Dehradun has produced 10,000 litres of fuel for the IAF to date. It was produced from feedstock like non-edible, edible and used cooking oil. Specifically, palm stearin, sapium oil, palm fatty acid distillates, algae oil, karanja and jatropa were used.

The IIP's fuel received provisional certification from the Centre for Military

lower, which can help reduce air pollution and contribute to India's Net Zero greenhouse gas emissions targets, according to a press briefing from the Centre released in November 2021.

If approved for commercial usage this year, the question of the country's ability to scale it for mass production comes into play. One public sector unit,

per year. "But to achieve even a per cent of blending of SAF in India, you need about 60,000 tonnes a year."

In the European Union, the blending of SAF with conventional jet fuel made of gasoline and kerosene starts at two per cent in 2025 and increases through five-year intervals to reach 63 per cent in

Rajiv Bansal, in November 2022 said the Union Ministry of Civil Aviation is in talks with the Union Ministry of Petroleum and Natural Gas to legally mandate the jet fuel blending.

This was currently not a priority due to issues with feedstock and production, he indicated.

"There is a lack of segregation, collection and supply mechanism and infrastructure for biofuel feedstocks in general and particularly for SAF-appropriate raw materials," Kaveri Ashok, a senior associate at the Center for Study of Science, Technology and Policy (CSTEP) said.

However, India has a reasonably substantial feedstock pool of used cooking oil and animal fat, much of which is being exported to international producers of SAF and renewable diesel such as Neste Oil in Singapore and the EU, according to Ray.

"There is enough demand in India for these feedstocks to make biodiesel or SAF, but the export happens much higher prices than domestic producers can pay. This is compromising the domestic availability of feedstock for SAF and biodiesel," Ray added.

Ashok believes that India will not need to cultivate any fresh biomass specifically for SAF at the current adoption rate. Crop residues that would otherwise go to waste are the biomass that will be used. SAF can also be made from used cooking oil or ethanol.

"If an extensive cultivation of crops is needed specifically for SAF production at a larger level, there will be trade-offs with food/water security, health / nutrition and so on," Ashok said.

Demand for bio-jet fuel must be increased through a national policy, along the lines of the National Biofuel Policy, for it to be commercially scaled and to accelerate production, said Ramya Natarajan, group head of climate change mitigation at CSTEP and reviewer of a recent study on sustainable aviation in India.

A nodal agency to implement this policy should be formed to bring together energy, transportation and agriculture sectors together under one roof, according to the study. Mapping the sources of the various feedstock could aid this policy, it added.

So far, a Bio-Aviation Turbine Fuel Program Committee has been constituted by MoPNG to facilitate clean jet fuel production in India.



Airworthiness & Certification (CEMILAC), a laboratory of the Indian Defence Research and Development Organisation, which the Directorate General of Aeronautical Quality Assurance approved.

SAF scaling in India

Aviation biofuel can be blended with conventional jet fuel for use. Its sulphur content is much

Mangalore Refinery and Petrochemicals Ltd, is setting up the first plant, which is expected to come online by early 2025.

However, two more such SAF plants are expected to be set up by other refineries in the near future, probably by 2025-26.

The Mangalore Refinery can produce 20 tonnes of SAF per day, meaning about 7,000 tonnes

2050. This would comprise 28 per cent of synthetic aviation fuels too.

The US Congress introduced the Sustainable Skies Act in May 2021 to bring in incentives to use SAF. It includes a \$1 billion grant over five years to expand the number of SAF-producing facilities in the US.

In India, Civil Aviation Secretary

THE REVOLUTION EXPRESS

A Tryst with Destiny

Indian Prime Minister Jawaharlal Nehru's Address at the stroke of Midnight on 14th August 1947 "Tryst with Destiny" was an English-language speech delivered by Jawaharlal Nehru, the first Prime Minister of India, to the Indian Constituent Assembly in the Parliament House, on the eve of India's Independence, towards midnight on 14 August 1947. He gave a message to the nation first time through his speech after independence of the country. His speech was so much inspirational encouraging the mass people of India for the upliftment and development. The astrologers and the British were eventually able to find a middle ground. It was decided that the time kept would be the midnight hour between August 14 and August 15, simply owing to the fact that while the British calendar starts

forgotten the ideals which gave her strength. We end today a period of misfortunes and India discovers herself again. The achievement we celebrate today is but a step, an opening of opportunity to the greater triumphs and achievements that await us. Are we brave Enough and wise enough to grasp this opportunity and accept the challenge of the future?

Freedom and power brings responsibility. The responsibility rests upon this Assembly, a sovereign body representing the sovereign people of India. Before the birth of freedom, we have

can live apart. Peace is said to be indivisible, so is freedom, so is prosperity now, and also is disaster in this one world that can no longer be split into isolated fragments. To the people of India, whose representatives we are, we make an appeal to join us with faith and confidence in this great adventure. This is no time for petty and destructive criticism, no time for ill will or blaming others. We have to build the noble mansion of free India where all her children may dwell.

The appointed day has come -the day appointed by destiny- and India stands forth again, after long Slumber and struggle, awake, vital, free and independent. The past clings on to us still in some Measure and we have to do much before we redeem the pledges we have so often take. Yet the turning-point is past, and history begins anew for us, the history which we shall live and act and others will write about. It is a fateful moment for us in India, for all Asia and for the world. A new star rises, the star of freedom in the East, a new hope comes into being, a vision long cherished materializes. May the star never set and that hope never be betrayed! We rejoice in that freedom, even though clouds surround us, and many of our people are sorrow stricken and difficult problems encompass us. But freedom brings responsibilities and burdens and we have to face them in the spirit of a free and disciplined people. On this day our first thoughts go to the architect of this freedom, the Father of our Nation, who, embodying the old spirit of India

our brothers and sisters who have been cut off from us by political boundaries and who unhappily cannot share at present in the freedom that has come. They are of us and will remain of us whatever may happen, and we shall be sharers in their good [or] ill fortune alike. The future beckons to us. Whither do we go and what shall be our endeavour? To bring freedom and opportunity to the common man, to the peasants and workers of India; to fight and end poverty and ignorance and disease; to build up a prosperous, democratic and progressive nation, and to create social, economic and political institutions which will ensure justice and fullness of life to every man and woman. We have hard work ahead. There is no resting for any one of us till we redeem our pledge in full, till we make all the people of India what destiny intended them to be. We are citizens of a great country on the verge of bold advance, and we have to live up to that high standard. All of us, to whatever religion we may belong, are equally the children of India with equal rights, privileges and obligations. We cannot encourage communalism or narrow-mindedness, for no nation can be great whose people are narrow in thought or in action. To the nations and peoples of the world we send greetings and pledge ourselves to cooperate with them in furthering peace, freedom and democracy. And to India, our much-loved motherland, the ancient, the eternal and the ever-

(LIFE), Health and Wellness, Inclusive Development, Aatmanirbhar Bharat and Unity. Azadi Ka Amrit Mahotsav is an initiative of the Government of India to celebrate and commemorate 75 years of independence and the glorious history of its people, culture and achievements. This Mahotsav is dedicated to the people of India who have not only been instrumental in bringing India thus far in its evolutionary journey but also hold within them the power and potential to enable Prime Minister Narendra Modi's vision of activating India 2.0, fuelled by the spirit of Aatmanirbhar Bharat. The official journey of Azadi Ka Amrit Mahotsav commenced on 12th March 2021 which started a 75-week countdown to our 75th anniversary of independence and was ended on 15th August 2023..

Narendra Modi –Prime Minister

"The Azadi Ka Amrit Mahotsav means elixir of energy of independence; elixir of



from 12 am, the day in the Hindu calendar begins at sunrise.

The First Speech Heard At the Stroke of Midnight on 14th August 1947

Long years ago we made a tryst with destiny, and now the time comes when we shall redeem our Pledge, not wholly or in full measure, but very substantially. At the stroke of the midnight hour, When the world sleeps, India will awake to life and freedom. A moment comes, which comes but Rarely in history, when we step out from the old to the new, when an age ends, and when the soul of a nation, long suppressed, finds utterance. It is fitting that at this solemn moment, we take the pledge of dedication to the service of India and her people and to the still larger cause of humanity.

At the dawn of history, India started on her unending quest, and trackless centuries are filled with her striving and grandeur of her success and failures. Through good and ill fortune alike, she has Never lost sight of that quest,

endured all. The pains of labour and our hearts are heavy with the memory of this sorrow. Some of those pains

Continue even now. Nevertheless, the past is over and it is the future that beckons us now. That future is not one of ease or resting but of incessant striving so that we may fulfil the pledges We have so often taken and the one we shall take today. The service of India means, the service of the millions who suffer. It means the ending of poverty and ignorance and poverty and disease and Inequality of opportunity. The ambition of the greatest men of our generation has been to wipe

Every tear from every eye. That may be beyond us, but as long as there are tears and suffering, so

long our work will not be over and so we have to labour and to work, and to work hard, to give reality to our dreams. Those dreams are for India, but they are also for the world, for all the nations and peoples are too closely knit together today for any one of them to imagine that it



held aloft the torch of freedom and lighted up the darkness that surrounded us. We have often been unworthy followers of his and have strayed from his message, but not only we but succeeding generations will remember this message and bear the imprint in their hearts of this great son of India, magnificent in his faith and strength and courage and humility. We shall never allow that torch of freedom to be blown out, however high the wind or stormy the tempest. Our next thoughts must be of the unknown volunteers and soldiers of freedom who, without praise or reward, have served India even unto death. We think also of

new, we pay our reverent homage and we bind ourselves afresh to her service.

75th year of independence

Now India has celebrated its 75th of Independence Day. As we countdown to 15th August 2023, Azadi Ka Amrit Mahotsav aimed to further boost this peoples' movement through collaborative campaigns and outreach across India and the world. Following campaigns are on the lines of nine critical themes aligned with the 'Panch Pran' announced by Hon'ble Prime Minister: Women and Children, Tribal Empowerment, Water, Cultural Pride, Lifestyle for Environment

inspirations of the warriors of freedom struggle; elixir of new ideas and pledges; and elixir of Aatmanirbharta. Therefore, this Mahotsav is a festival of awakening of the nation; festival



ENVIRONMENT & AGRICULTURE COLUMN

38 forest and unsurveyed villages in Odisha's Ganjam granted revenue status

The residents of the villages have also been granted community forest rights & can also avail government benefits now

Thirty-eight unsurveyed and forest villages in Odisha's coastal Ganjam district have been converted into revenue villages, according to a notification issued by the district magistrate on April 13, 2023.

The 38 villages have received their new status after over half a decade, with the process to do so having put in motion in 2017, according to a statement by the district administration.

The villages are spread across two subdivisions — Chatrapur and Bhanjannagar — and four tahasils or blocks — Polasara (13 villages), Beguniapada (5), Surada (13) and Dharakote (7).

They are now revenue villages under Section 2 (14) of the Orissa Survey and Settlement Act, 1958 and in pursuance of Section 3(1)(h) of the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 or FRA, the notification by the magistrate stated.

The villages included in Polasara block are:

- Gambharia
- Chanchara

- Bhitirikhola
- Malaberuanbadi
- Khaikhatanuasahi
- Nirasa Palli
- Tosingi
- Mahulapalli
- Badataila
- Naharatota
- Punjiama
- Andheri
- Pimpalamalai

Those under Beguniapada block are:

- Tabhabania
- Binchha
- Padapada
- Janibili
- Karandagada

Surada block includes the following villages:

- Chancharapalli
- Dhaugaon
- Bibhutia
- Anandapur
- Mandiakhaman
- Barapada
- Bhaliapada
- Biripada
- Gajarakumpa
- Besarabata
- Balipadar
- Batapadia

- Sagadabasa

The villages under Dharakote block are:

- Jalli
- Rangamatia
- Haladibagada
- Phatachanchara
- Malijharapalli
- Bhaliagudanusahi
- Baghaapadmapur

Besides these 38 villages, 14 other forest villages of three districts — Dhenkanal (12), Angul (1) and Deogarh (1) — have already been converted into revenue villages. There are 458 forest and unsurveyed villages in Odisha, according to the state government.

What does it mean?

India's forests were divided into three categories as per the 1878 amendment of the Forest Act authorised in 1865 under colonial British rule: Reserved, protected and village forests. Under the new provisions, some villagers were permitted to reside in reserved forests, provided that they provided free labour for the forest department to cut and transport trees and protect forests from fires. Such forests came to be known as 'forest villages.'

The erstwhile United

Progressive Alliance government in 2013 recognised the settlement and conversion of all forest villages, old habitations, unsurveyed villages, etc into revenue villages as one of the rights of forest dwelling Scheduled Tribes and other traditional forest dwellers under Section 3(1)(h) of the FRA, 2006.

The process to convert the 38 Ganjam villages began in 2017 after Odisha's ST & SC Development, Minorities and Backward Classes Welfare Department sent a letter with the list of forest and unsurveyed villages whose status was to be changed.

"In December 2021, all the proposal case records were submitted to the Board of Revenue in Cuttack for approval. However, the Board returned the case records with certain compliances. Again, after another round of field work, all 38 proposal case records were resubmitted to the Board in January and February, 2022. After final scrutiny of all the case records, it finally approved the proposals of conversion of all the villages," the statement noted.

Barna Baibhabha Panda, senior programme manager, Foundation for Ecological

Security (FES), which assisted the administration in the conversion process, told.

The District Welfare Office, led by Parikshita Dash, especially played a key role in coordination among various departments. Dash was instrumental in getting the case records of these villages approved by the Director (Land Records and Survey) in the Board of Revenue.

Along with the change in status of the villages, community forest rights have also been approved and the necessary documents handed to the concerned Gram Sabhas.

The mostly tribal residents of the villages will now also be able to avail all governmental benefits such as rights over land; caste, income and residence certificates and the right to purchase and sell land. Governmental institutions can also be established now in these villages.

"Individual and community land rights will enable improved access to resources like agricultural lands, forests, water bodies, pasture lands, etc by village communities. Secure tenure will facilitate investments in regeneration and conservation of forest and water resources which will enhance livelihoods opportunities in the long run," Panda said.



THE SPORTS AFFAIRS

Why not many Odia cricketers are making it to IPL?

Not many cricketers across the country are fortunate enough to play for Team India. However, with the resurgence of Indian Premier League (IPL), many talented players in the country are making a fruitful career by playing in the cash-rich league.

However, the milch cow of Indian cricket has not proved much rewarding for Odisha cricketers. Only two Odia players have got the opportunity to play in the mega tournament so far. While Haladhar Das was the first cricketer from Odisha to make an IPL debut playing for Deccan Chargers in 2008, four years later, all-rounder Biplab Samantaray was bought by the same franchise. Odia cricketers Pragyan Ojha and Abhishek Rout have played in the mega event. They have represented Hyderabad and Maharashtra cricket associations respectively. Fortunately, Subhranshu

players are making it to the IPL teams?

There are many cricket clubs spread all over the State that conduct many local level

“The game in the State also suffers from lack of finances. The local clubs are not maintained properly due to lack of money. Lack of 'turf wicket' deprives

“Performance in the domestic circuit cannot guarantee you a spot in an IPL franchise, but it can surely bring you into reckoning. The Odia cricketers have failed

but nothing eye-catching,” said Parida.

Another former cricketer, who also chose to remain anonymous, said, Odisha has never won any major domestic titles. Players here suffer from lack of self belief. Their background and psychology prevent them from dreaming big. They only aspire to play for the State team. This lack of self-confidence and aspiration needs to change. Odisha cricketers should dream big and must not be complacent at any point in time.

“Meanwhile, there is a considerable clout exerted by the boards of Mumbai, Tamil Nadu and Delhi in BCCI administration and in the selection process. Odisha belongs to the most neglected group. The State cricket is run by the whims and fancies of a few officials. It's high time this kind



tournaments. The presence and participation of Ranji cricketers

cricketers of getting a taste of real pitches. Odisha cricket is mainly dominated by 'matting wickets' which is not where the Ranji and international matches take place. Lack of turf wickets makes the transition a difficult task for those who have played the entire season on matting wickets,” he said.

According to former coach Rashmi Ranjan Prida, performance of Odisha players in various domestic level tournaments including the Ranji Trophy are not consistent enough to attract the attention of any cricket franchise.

to make it to the 'reckoning list'



due to their inconsistent performances. Some players have shown flashes of brilliance

of autocratic culture was changed,” he said.



Senapati, who is currently the number one batsman for Odisha, was picked up by Chennai Super Kings (CSK) this year. The rookie batter has been retained by the MS Dhoni – led franchise in IPL 2023 also. With the impact player rule in place, Subhranshu may get a chance to play the cash-rich league this year. He is often getting opportunities to field as a substitute player.

Odisha has unfortunately failed to produce international level cricketers. Is it due to lack of talent or the inability to perform at the 'required' level? At this juncture, the million dollar question is why not many Odia

augment the process of their evolution. There is no dearth of passion and commitment from the side of the players either. Then, what is holding Odisha back in producing many IPL cricketers?

As per a former Odia cricketer, who doesn't want to be named, the reason may be threefold- infrastructure, performance and clout.

“First, lack of infrastructure has given a major jolt to the aspirations of cricketers in the State. There aren't many stadiums here. Most of the clubs are concentrated in Bhubaneswar and Cuttack.” He said.



FACTS TO KNOW

White – The Very Aspect of All

Prabhu Prasad Gadnayak



White is the colour of the Brahman (the highest caste). White goes well with almost all things in this world. White is associated with light, goodness, innocence, purity, and virginity. It is considered to be the colour of perfection. White means safety, purity, and cleanliness. As opposed to black, white usually has a positive connotation. White can represent a successful beginning. Being white means having no black money.

White may indicate the completion of a cycle in your life - you may find you have a desire for white clothing or white in your surroundings at a time when you are moving in a new direction in your life. The Satsangees, devotees of Sri Sri Thakur Anukula Chandra wears white Dhoti & Panjabi after being while from inner & outer on crossing the layers of Sadhana one after another.

In color psychology white is the color of new beginnings, wiping the slate clean, so to speak. It is the blank canvas waiting to be written upon. While white isn't stimulating to the senses, it opens the way for the creation of anything the mind can conceive.

- White is used in many medical practices and can give the feeling of sterility and coldness of emotions and may lead patients to think the doctor won't relate to them on an emotional and personal level. It can be too clinical and sterile. Many people use white as a recall of their youth and innocence. It reminds them of a time when their lives were easier and less complicated. The personnel who are in white i.e. Judges, Magistrates, Doctors, Advocates, Officers, Devotees, Drivers and Peons.
- White contains an equal balance of all the colors of the spectrum, representing both the positive and negative aspects of all colors. Its basic feature is equality, implying fairness and impartiality, neutrality and independence.
- White is totally reflective,

awakening openness, growth and creativity. You can't hide behind it as it amplifies everything in its way.

- White is a color of protection and encouragement, offering a sense of peace and calm, comfort and hope, helping alleviate emotional upsets. It creates a sense of order and efficiency, a great help if you need to declutched your life.

If your favorite color is white, it will reflect in your personality. White represents the positive as well as the negative aspects of all colors. It contains an equal balance of all the colors of the spectrum. So, it maintains equality and unity.

Effects of White:

Impartial:

White suggests fairness and neutrality because of the balance and equality of all the colors contained within it.

Rescuer:

White rescues us from the dark. It is the white knight, rescuing the damsel in distress.

Futuristic:

Symbolizing a clean slate, we can envisage anything with white.

Efficient:

White is clean and clinical, giving an impression of efficiency and organization.

How the Color White Affects Us Physically

- Aids mental clarity
- Encourages us to clear clutter or obstacles
- Evokes purification of thoughts or actions
- Enables fresh beginnings

Interesting information on White.

- The appearance of white in a dream is thought to represent happiness at home. White castles are a symbol of achievement, destiny perfectly fulfilled, and spiritual perfection.
- Originally, scientists wore beige coats. In the late 19th century, medical professionals chose white ones. The color white was chosen because of the idea of hope and expectations for healing and recovery that the physicians would bring.
- White is considered a neutral color in landscape design. Its appearance can be used as a

background for other colors.

- “White resonates, like a silence that can suddenly be understood.” – Wassily Kandinsky
- White is the combination of all colours, and the indicator of light and brightness, with powerful meanings linked to all human rites of passage. White is associated with life and death, love and life, old and new, young and old. The colour white is strongly associated with the basics of life, including rice, bread, salt and sugar (especially in Asian cultures).
- The Christian churches also associate white with the

purified soul, joy, virgin, innocence, transcendental perfection, resurrection, sacraments, simplicity, illumination, chastity, holiness, redemption, spiritual authority and with saints (those who are not martyrs).

- To the human eye, white is a brilliant color that can cause headaches for some.
- In Biology the plants which receives all the pigments (Chlorophyllis, Carotenoids, Flavonoids & Betalains) which includes all the colours (Red, Green & Blue) from the sun rays, it's flower became white.

- In night, the people believes the ghosts or say Atma are in white colour. As because the white is easily traceable in night, most of the vehicles met with an accident are not white in colour. So, in choosing the colour of the vehicle, white colour is appreciable.

White offers an inner cleansing and purifying of your thoughts, emotions and, ultimately, your spirit, refreshing and strengthening your entire energy system. Sri Sri Thakur Anukul Chandra implemented white in all aspects of life for which, the devotees used to wear white as well as worship in white flowers, covers in white chadar, spread white bedsheet on bed and in Ursav & Satsang being white and white.

From Page 13 (General Introduction to Odishan...)

BADA

The constituent elements of the Bada are pabhaga, jangha, and baranda. This type of trianga bada is found in temples belonging to the earlier phase of the style. In later temples, the bada is composed of five elements; pabhaga, tala jangha, bandhana, upara jangha, and baranda. The pabhaga denotes the bottom part of the wall and is composed of mouldings called khura, kumbha, pata, kani and basanta. The baranda forming the topmost part of the bada is composed of a series of seven or ten mouldings.

GANDI

The Gandi of the rekha deula inclines inward in a convex curve, this being more pronounced towards the top in later temples. It is divided into several pagas by the continuation of the projections of the bada. In a temple of Triratha plan, we find two types of pagas. The central projection or paga is known as Raha-paga having two projections known as Kanika-pagas on both sides. These Triratha temples generally belong to the formative phase. With the evolution, Triratha pattern changed to Pancha-ratha pattern having two are more pagas. The new pagas are known as Anuratha-pagas which is placed in between Raha-paga and Kanika-paga. In a Sapta-ratha temple, another two pagas added in between Anuratha and Kanika known as Anuraha. In Navaratha temples, Pariraha pagas added on either side in between the Anuraha and Kanika pagas. Kanika pagas are further subdivided in to a number of horizontal sections or storeys (bhumi) by the miniature amla (ribbed disc resembling the amlaka fruit), called bhumi amla. Sometimes the gandi is decorated with anga-sikharas. The central raha is relieved with a prominent chaityawindow design. The gandi ends with the bisama, the topmost course, with or without paga divisions scaling the spire.

MASTAKA

The Mastaka of the Deula consists of the beki, the amla, the khapuri, the kalasa and the ayudha. The beki separates the square gandi from the circular crowning elements. The amla in the case of later temples is supported by dopichhalions at the corners and figures of Vimanapalas placed on the centre of the raha. Above the amla comes the khapuri or the skull, and on it is placed the kalasa or water-pot and ayudha or the weapon of the deity to whom the temple is dedicated. The dhvaja or banner is placed at the pinnacle of the temple.

PIDHA TEMPLE

There is no difference between Rekha temple and Pidha temple in the treatment of the bada, but they differ in the disposition of the gandi. The gandi of the jagamohana is of pyramidal shape. It is composed of a number of pidhas or horizontal platforms, piled up in the form of a pyramid. The pidhas rapidly decrease in size from bottom upwards. The diminution proceeds until the topmost pidha is half in size to the lower most one. The pidhas may be arranged in one or two tiers, with moderate height of vertical wall intervening between them. Each of these tiers is called a potala. The cross-section at any point of the gandi is square. Above the gandi comes the mastaka, composed of several elements which are circular in cross-section. First comes the beki, then the ghanta, an enormous ribbed structure shaped like a bell. On the top of the ghanta is a succession of beki, amla, khapuri and kalasa as in the Rekha.

KHAKHARATEMPLE

The Khakhara temple is very unique in its style. This type is very limited in Odisha. This is exclusively meant for the Sakti worship. The gandi of the khakhara is composed either like that of a rekha or of a pidha with certain minor differences. The plan of the deula is oblong, and its mastaka is distinguished by its barrel vaulted elongated roof called khakhara by the treatisers due to its faint resemblance to kakharu or voita kakharu. Over the khakhara are placed either miniature amlas or kalasa flanked by lions.

The khakhara type is limited to six examples in Bhubaneswar, but miniatures of this type were very extensively employed as a decorative motif on the body of Rekha or Pidha temples and the type has a wider distribution.

Except these three types of temples, we also find another two types of temples known as Gauriya temple and Hypaethral temple in Odisha.

GAURIYATEMPLE

Gauriya type originated in Eastern India as a result of the impact of the west in the sphere of Indian Architectural activities. It is said to be the combination of the Gothic style and the Indo Aryan style of architecture. There are a few Gauriya temples in the district of Mayurbhanj and there are only two examples of this type of temples in the town of Puri; one beside the Markandeya tank and the other at the gateway of Uttara Parsva monastery.

HYPAEETHRAL TEMPLE

Hypaethral temple is a circular temple in the ground plan without the roof belonging to the Sixty-four yoginis placed in the wall of innerside. Of the extant Yogini temples, four are located in the Gwalior-Bundelkhand region (the ones at Khajuraho, at Bheraghat near Jabalpur, at Mitauli near Gwalior and at Dudhai near Lalitpua), while other two are in Odisha (the ones at Hirapur near Bhubaneswar and at Ranipr-Jharia in Bolangir district).



Easy to switch: Here is why India's dairy farmers should shift to ethnoveterinary medicines



Low-cost ethnoveterinary medicines can help curb the use of antibiotics in Indian dairy sector and combat the overlooked pandemic of antimicrobial resistance

Some lifesaving solutions are so simple and obvious that they remain hidden in plain sight. This is particularly true for livestock disease treatments that have evolved over generations through experiences of communities, withstood the test of time, are embodied in local culture and practices and yet, the knowledge remains untapped in the absence of standardisation and scientific validation. More often than not, dairy farmers, and some field veterinarians, indiscriminately use antibiotics for treating even common infections in animals.

Researchers with Delhi-based Centre for Science and Environment (CSE) found evidence of such rampant misuse and overuse of antibiotics in 2020 and 2021, during consultations with dairy farmers and experts from various sectors such as animal husbandry, food safety, human health.

They had observed that most dairy farmers skip the critical withdrawal period—a prescribed number of days during which the treated animal should be excluded from the milk supply chain to allow antibiotic residues to be excreted out of its body. In 2018, the Food Safety and Standards Authority of India (FSSAI) had also found antibiotic residues in milk samples.

Such abuse of antibiotics not only adds to the treatment costs, but also increases the burden of antimicrobial resistance (AMR). Interaction between antibiotic residues and pathogens in various environmental matrices (soil and water) and in living organisms can lead to formation and spread of bacteria that are resistant to antibiotics.

A comprehensive global study published in peer-reviewed journal *The Lancet* in January 2022, estimates that infections caused by these antibiotic-resistant bacteria played a part in the deaths of 4.95 million people in 2019 alone.

“Antibiotic residues in milk also interfere with the manufacture of several dairy products such as buttermilk, shrikhand (a dessert made with yoghurt) and curd by delaying starter culture activity, crucial for production of fermented milk products,” says Anilkumar Bayati, managing director of Sabarkantha District Co-operative Milk Producers' Union Ltd, also known as Sabar Dairy, in Gujarat.

One common infection among dairy animals that prompts farmers to depend on antibiotics is mastitis, which is caused by over 100 types of microorganisms such as bacteria, fungus and virus.

The infection, triggered by rough milking, injury to the udder tissue or due to unhygienic farm conditions, causes inflammation of mammary glands and blockage of milk ducts. It thus affects milk production and manifests in change of milk colour, consistency or even presence blood in milk.

A review of studies in 2021 by the National Institute of Veterinary Epidemiology and Disease Informatics, the only institute that conducts surveillance and monitors animal diseases, states that 18 per cent dairy animals in the country suffer from clinical mastitis, while 45 per cent display subclinical mastitis, with no specific symptom except a slight decrease in milk yield.

Now call it an effect of a lack of enough field veterinarians and extension services in the country, or

easy over-the-counter access to antibiotics or the fear of losing milk, and therefore income, most dairy farmers rush to administer high doses of antibiotics to the cattle even at the slightest sign of mastitis.

Reviving lost wisdom

2013 Mastitis identified as one of the major animal health issues based on ear-tagging data

2014 National Dairy Development Board (NDDB) launched Mastitis Control Popularisation Programme (MCPP)

2016 Ethnoveterinary medicines (EVM) integrated into MCPP

2017 NDDB along with University of Trans-Disciplinary Health Sciences and Technology prepares brochure for farmers for important bovine ailments in 12 vernacular languages

2019 Sabar Dairy starts manufacturing and packaging of EVM products; Facebook page on traditional herbal formulations for cattle and buffaloes created

2020 Mastitis cases at Sabar Dairy treated with EVM shows 85% cure rate; eGopala mobile app launched

2021 eGopala web version launched; Kaira milk union (Amul Dairy) started manufacturing and packaging of EVM products

2022 So far, 576 demonstration plots established by milk unions under NDDB guidance; trained 260 core group of veterinarians from 34 milk unions and producer companies; licensed EVM products launched

Source: Centre for Science and Environment

To manage such common ailments and rationalise drug usage, especially antibiotics, the National Dairy Development Board (NDDB) in 2014 launched a project, Mastitis Control Popularisation Programme (MCPP).

The programme, piloted at Sabar Dairy, initially focused on early detection of mastitis so that the animal can be treated using simple methods. Milk brought to the society by the farmer was checked using a test-kit called the California Mastitis Test (CMT).

If the milk tested positive for mastitis, the farm was identified, the animal found and given an oral regimen trisodium citrate (sodium salt of citric acid that has antimicrobial properties and can maintain normal pH of milk). After 10 days, the animal was tested again. A trial on 218 animals showed that two consecutive trisodium citrate treatments led to 89 per cent recovery.

Around the same time, NDDB was exploring other low-cost alternatives to allopathic drugs. In 2016, it joined hands with the University of Trans-Disciplinary Health Sciences and Technology (TDU), in Bengaluru, which was researching on traditional herbal medicines for animals, also known as ethno-veterinary medicines.

At Sabar Dairy, they conducted another trial on 30 cows affected with clinical mastitis. A reddish paste, prepared by mixing aloe vera, turmeric powder and lime, was applied on the mastitis-infected area thrice daily for four to five days and the cattle were fed whole lemons. The medicine cured 29 cattle, with one farmer dropping out of the trial.

“We found that ethnoveterinary practices can be both preventive and curative. It can be used by farmers themselves as a first response to any condition,” says M Balakrishnan Nair, Emeritus Professor, School of Health Sciences, TDU.

Following the successful trial, Sabar Dairy used its network of technicians, who conduct artificial insemination, to make farmers aware of its benefits. “We gave them an incentive of Rs 22 lakh to implement the approach on the ground,” says Bayati.

Since then, MCPP has expanded to 25 milk unions and producer companies across nine states—Kerala, Assam, Punjab, Andhra Pradesh, Karnataka, Maharashtra, Gujarat, Uttar Pradesh and Tamil Nadu.

The expenditure of MCPP in 2021 was estimated to be Rs 2.605 lakh, with NDDB paying Rs 356 lakh and the rest borne by respective dairy cooperatives. Eight years later, CSE researchers visited various milk unions and producer companies. Interaction with dairy farmers and veterinarians showed an encouraging impact of MCPP.

Expanding horizon

The success of ethnoveterinary medicines on mastitis prompted a greater demand from farmers and veterinarians on their use for other bovine ailments.

NDDB thus expanded the scope of MCPP to 29 other diseases, which includes common diseases like diarrhoea, deworming, fever, wounds, indigestion, and critical diseases such as foot and mouth disease.

Effects of the medicines were recorded on NDDB's Animal Health Management Information System. CSE researchers have analysed the data collected till October 2022.

CSE researchers found a very high cure rate—80.4 per cent of the 780,000 cases analysed—across the ailments with ethnoveterinary medicines. Almost 80 per cent of the animals treated were suffering from ailments like mastitis, fever, diarrhoea, indigestion, wound, retention of placenta, bloat, lumpy skin disease and prolapse.

Farmers usually depend on antibiotics for treating these diseases. Those suffering from mastitis, fever and diarrhoea and indigestion accounted for 77 per cent of the total cases with an average cure rate of 81.2 per cent. This means four out of every five animals were cured using ethnoveterinary medicines for these four common ailments.

Of the 255,000 cases of mastitis, reported across all the 25 milk unions and producer companies, 78.4 per cent could be cured with ethnoveterinary medicines.

Baani milk producer company in Punjab and Pune Zillha Sahakari Duh Utpadak Sangh in Maharashtra showed the highest cure rates of 96.8 and 96.6 per cent, with Kolar milk union in Karnataka showing the lowest 56.9 per cent cure rate.

Similarly, 163,000 cases were treated for fever, with 82.2 per cent cure rate. Sabarkantha milk union in Gujarat and Malabar milk union in Kerala showed the highest cure rates of 82.4 and 85.2.

In case of diarrhoea, 84.4 per cent of the 151,000 cases were cured. Sabarkantha milk union in Gujarat and Bengaluru milk union in Karnataka showed the highest cure rates of 85.5 and 84.2 per cent. Cure rate for indigestion was 83.4 per cent.

The efficacy of ethnoveterinary medicines has also been reported in the treatment of lumpy skin disease (LSD), a viral disease of cattle for which no cure or vaccine is available and is causing major outbreaks across the country since July 2022.

Under MCPP, 3,000 cases have been treated, with a cure rate of 66.2 per cent. The Department of Animal Husbandry and Dairying now includes ethnoveterinary medicines in its treatment guidelines for LSD, released in August 2022. NDDB is also considering renaming MCPP “Disease Control through Alternative Methods”.

| What makes it special | |
|--|--|
| Simple ingredients of ethnoveterinary medicines that can work against several bovine ailments | |
| Disease/Condition | Ingredients |
| Mastitis (all types)* (Water based preparation) | Aloe vera, turmeric, calcium hydroxide, lemon |
| Mastitis (all types)* (Oil based preparation) | Aloe vera, turmeric, calcium hydroxide, lemon, mustard or gingelly oil |
| Teat obstruction* | Neem leafstalk, turmeric, butter or ghee |
| Udder oedema* | Sesame or mustard oil, turmeric, garlic |
| Retention of placenta# | White radish, lady's finger, jaggery, salt |
| Repeat breeding# | Jaggery, salt, white radish, aloe vera, moringa, cissus stem, curry leaves, turmeric |
| Prolapse* | Aloe vera, turmeric, <i>Mimosa pudica</i> (shameplant) |
| Foot and mouth disease- mouth lesions* | Cumin seeds, fenugreek seeds, black pepper, turmeric, garlic, coconut, jaggery |
| Foot and mouth disease- foot lesions/wound* | <i>Acalypha indica</i> (indian copperleaf), garlic, neem, coconut or sesame oil, turmeric, mehndi, <i>tulsi</i> (holy basil) |
| Fever# | Garlic, coriander, cumin, <i>tulsi</i> (holy basil), dry cinnamon, black pepper, betel leaves, shallots, turmeric, chirata leaf powder, sweet basil, neem, jaggery |
| Diarrhoea# | Fenugreek seeds, onion, garlic, cumin seeds, turmeric, curry leaves, poppy seeds, pepper, jaggery, asafoetida |
| Bloat and Indigestion# | Onion, garlic, dry chilly, cumin seeds, turmeric, jaggery, pepper, betel leaves, ginger |
| Worms# | Onion, garlic, mustard seeds, neem, cumin, bitter gourd, turmeric, pepper, banana stem, common leucas, jaggery |
| Tick/Ectoparasites* | Garlic, neem leaves and fruit, acorus rhizome (sweet flag), turmeric, lantana leaves, <i>tulsi</i> (holy basil) |
| Pox/wart/cracks* | Garlic, turmeric, cumin, sweet basil, neem, butter or ghee |
| Allergy / poisoning / venomous sting/bite# | Betel leaves, black pepper, salt, jaggery |
| Hygroma (Swelling of joints) * | Aloe vera, lime, <i>Cissus quadrangularis</i> (velde grape), turmeric, garlic, gingelly oil |
| Cough# | Adhathoda (adusa), <i>tulsi</i> (holy basil), garlic, turmeric, pepper, jaggery |
| Downer (not able to get up)# | <i>Desi</i> chicken eggs, moringa, <i>Cissus quadrangularis</i> (velde grape), jaggery |
| Toxicity (Pesticide /HCN / Mycotoxin) # | Betel leaves, black pepper, salt, jaggery, tamarind, water, moringa extract |
| Blood in milk# | Curry leaves, moringa leaves, jaggery, lemon |
| Anoestrus# | Betel, pepper, moringa, tamarind, salt, jaggery |
| <i>Note: * Topical application; # Oral administration; Source: National Dairy Development Board and University of Trans-Disciplinary Health Sciences and Technology, Bengaluru</i> | |

Continued Page 20



Cheaper and better

A high cure rate not only indicates that the use of antibiotics could be reduced, it also ensures higher income for dairy farmers.

Harish Patel, a small dairy farmer in Bhuvel village of Sabarkantha, sells his milk to Sabar Dairy. Patel also



procures ethnoveterinary medicines from the village dairy cooperative society under Sabar Dairy.

“Since we began using these, the incidence of mastitis on the farm has drastically reduced,” says Patel. “This medicine is extremely useful. We use it two to three times a year to treat mastitis and also after calving to improve milk output,” says Kiritbhai Patel, another farmer in the village, who sells 30 litres of his daily milk produce to Sabar Dairy. “Use of these preparations have reduced treatment cost. We spend only Rs 100-200 on medicines instead of Rs 2,000-3,000 earlier,” Patel adds.

“To scale up the use of ethnoveterinary medicines and to take it to the last mile, to the farmer, NDDB has prepared extension materials for various common ailments and is propagating those in the forms of videos, brochures, posters and mobile apps in all major vernacular languages,” says Meenesh Shah, chairperson of NDDB.

Such trainings and videos have helped Gurwinder Singh, a dairy farmer from Patiala, Punjab, who sells his milk to Baani milk producer company. Singh says he is able to prepare and administer ethnoveterinary medicines without waiting for the veterinarian. “Once the plant ingredients are available, these preparations are simple to make, and require no special expertise or logistics,” he adds.

Milk unions are also benefitting from the switchover. Sabar Dairy claims a notable reduction in antibiotics purchased over the past five years—from Rs 2.1 crore in 2017-18 to Rs 63 lakh in 2021-22.

“Before rolling out ethnoveterinary medicines we were purchasing 12,000 to 15,000 vials of 30 ml sulfadimidine and sulfamethoxazole-trimethoprim antibiotic injections. We no longer purchase even a single vial of it. This



antibiotic has a very long withdrawal period and its residues are harmful for humans,” says Samir B Patel, assistant manager, Sabar Dairy. This has helped the milk union save Rs 1.91 crore on medicines, including antibiotics, non-steroidal anti-inflammatory drugs and other supplements.

Bayati says there has also been a significant reduction of veterinary calls since the milk union has started promoting ethnoveterinary medicines, indicating increased use of these preparations by farmers.

Data with Sabar Dairy also shows a reduction of about 229,000 veterinary calls between 2017-18 and December 2020.

NDDB's latest annual report of 2020-21 highlights an average savings of 30 per cent in drug costs by milk unions that have seriously

embarked on the use of ethnoveterinary medicines.

They have reduced their medicine purchases, especially antibiotics, to the tune of Rs 10 lakh per month.

“Ethnoveterinary preparations provide a simple, cost effective and efficient option to milk producers for health care management of animals. It also provides an instant management option to households, devoid of the veterinary delivery system,” says R S Sodhi, managing



director, Gujarat Cooperative Milk Marketing Federation Ltd.

To cater to the growing demand for ethnoveterinary medicines, some milk unions and private players have also started preparing packaged formulations.

“It is not possible for farmers to have access to all the raw materials all the time,” explains Hargovindbhai Patel, who works at the Banaskantha district co-opertave milk producers union in Palanpur, Gujarat (Banas Dairy).

“Farmers mostly tend to opt for

ready-made preparations. If we tell them to make preparations themselves from raw material, they are less likely to make such effort. This is one of the reasons people choose allopathic medicine as it is ready to use,” says a staff member at the Kaira feed plant of Kaira District Cooperative Milk Producer's Union Ltd (Amul Dairy) in Anand, Gujarat, on the condition of anonymity.

As of now, ready-made formulations are sold as feed supplements by milk unions and as licensed drugs by both milk unions and private players.

Both Amul Dairy and Sabar Dairy have set up dedicated plants, with support of NDDB, for manufacturing and selling packaged ethnoveterinary medicines in the districts they cover.

Sabar Dairy manufactures different ethnoveterinary medicines for management of mastitis, fever, uterine health, improved digestion, better immunity and retention of placenta.

Amul Dairy also manufactures and sells packaged ethnoveterinary medicine pouches for prevention of mastitis, improved digestion, immunity, retention of placenta, abortion and agalactia (the absence of milk production in an animal that should be producing milk).

Banas Dairy has also started packaging its products. However, packaged medicines prepared by milk unions are only available at their co-operative societies and are sold at low prices for registered farmers. These are not available with local pharmacists.

Taking a step forward, the Malabar regional co-operative milk producers union in Kerala has obtained a licence from the state's Drug Control Department for ethnoveterinary medicines products it manufactures under a startup, called Ethnovet MLMA.

In June 2022, the start-up launched eight types of ethnoveterinary medicines products to prevent mastitis (Masticure), diarrhoea (Diar

end), healing of wound (Heal all), improve digestion and bloating (Rumatore), reduce fever (Pyrexure), improve milk production in cattle (Milk let), treatment of warts or cracks in teats (Crack heal) and keeping away of ticks or ectoparasities (Fly repel). Owing to the licensing, these products can be marketed like any other medicine. They are priced between Rs 80 and Rs 200.

There is also a newfound interest among private players to sell licensed ethnoveterinary medicines. For example, several unions under Punjab State Co-operative Milk Producers' Federation have been using Mastitis Malam and Must free manufactured by Trieto Biotech, which has been supplying their products to several dairy cooperatives in Gujarat since 2016.

Ayurvet Limited in Delhi is another company that manufactures ethnoveterinary medicines for cattle. In 2021, a medicine called Mastirak Gel, developed by National Innovation Foundation, an autonomous body of the Department of Science & Technology, has been commercialised through the industry partner Rakesh Pharmaceuticals.

It is a poly-herbal and cost-effective medicine to treat mastitis. All these medicines can be purchased at stores supplying veterinary medicines in

various parts of the country.

Game changer

By now, there are ample studies to establish that the use of ethnoveterinary medicines present a way to reduce and conserve the use of antimicrobials critical for human healthcare and also provide safe milk to consumer.

Ambika Prasad, Sundarban Co-operative Milk and Livestock Producers' Union, says, “We train our farmers for organic milk production, and ethnoveterinary medicines are part of the training programme.”

Reduced use of antibiotics in dairy farm also means lesser amount of unmetabolised antibiotics will find their way in to the dairy farm waste. Use of such antibiotic-free dung as manure for other agricultural farms will also prevent the inter-sectoral transfer of residues or resistant bacteria. This will add to the organic movement by being AMR safe.

A study by TDU and Tamil Nadu Veterinary and Animal Sciences University in Chennai, published in the Research & Reviews: Journal of Veterinary Sciences in 2017 shows that use of ethnoveterinary medicines led to a reduction of antibiotic residues in milk.

Twenty seven animals infected with clinical mastitis were treated by applying ethnoveterinary formulation externally over the udder 10 times per day for seven days.

Affected cows were also fed with two lemons twice daily. Post-intervention impact analysis after one year showed up to 18-49 per cent reduction in antibiotic residues.

“Due to the problem of resistance,

there is only 20-25 per cent cure rate of mastitis cases with allopap



h i c therapy, but we have seen above 80 per cent cure rates for mastitis and several other ailments with herbal preparations,” says Arvind Yadav, manager, Saahaj Milk Producer Company, Agra.

There is also some momentum around integrating Ayurveda and its allied disciplines into veterinary science. TDU has initiated a PG Diploma course in EthnoVeterinary Practices jointly with Tamil Nadu Veterinary and Animal Sciences University. Some 61 veterinarians have already enrolled for the course.

“We have signed an MoU with the Ministry of AYUSH where we are not only talking about research and development on the herbal products but also bringing this education into the formal system of education in the veterinary curriculum,” said Praveen Malik, former animal husbandry commissioner of the Department of Animal Husbandry

and Dairying at a CSE meeting in February 2022.

The use of ethnoveterinary medicines as an alternative to antimicrobials seems promising as the country is the largest producer of milk, contributing 23 per cent of global production.

For this, the Union and state governments should promote ethnoveterinary medicines among milk federations and big and small milk producers and procurement agencies through suitable policies and programmes. CSE researchers recommend a few measures to achieve this:

- Create awareness among veterinarians, para-veterinarians, far-mers, milk procurement agencies, dairy collectives through training and capacity building.
- Develop a research agenda, promote pilot projects across states for different diseases and formulations, and publish results for greater learning and trust building among stakeholders.
- Modify curriculum for veterinarians to include ethnoveterinary medicines.
- Make ethnoveterinary medicines ingredients/preparations available through supporting herbal gardens and manufacturing/ mixing plants such as through self-help groups, local producers, community as well as small and medium enterprise.
- Monitor ethnoveterinary medicines interventions and document their impact on cost, livelihood,



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- Monitor ethnoveterinary medicines interventions and document their impact on cost, livelihood,

health, antibiotic residues and reduction in AMR load.

- Incentivise antibiotic-free milk or milk produced without the use of antibiotics; label such milk and milk products.
 - Make consumers aware about ethnoveterinary medicines in dairy and its role in reducing antibiotic residues in milk and eventually the AMR load.
- Incentivise cattle dung not treated with antibiotics for use in crops as organic manure.