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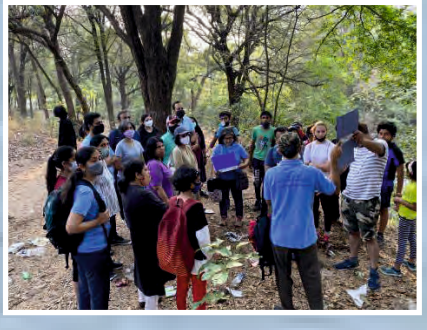
Jalasamvad

A Dialogue on Water

Editors: Dr. Datta Deshkar, Shri Satish Khade

Jeevit Nadi
Movement in Pune



Women & Water:

- Right from morning till night, every woman is busy is dealing with water issues. She is required to fetch water, may be from a long distance, store it properly and use it carefully satisfying all the needs of the family members. On many occasions this work is done even at the cost of her health. If we go to any village, we always see one picture every day, woman carrying one pot of water on her head and the other one on the waist. This double weight affects her hair, neck, backbone, waist, calf, feet and she is required to tolerate it without any complaint.
- After everybody in the family takes bath, if water is left she takes her bath. On many occasions she has to go without it. The head of the family, even when he is free, does not take any trouble to fetch water as it is supposed to be below his dignity. She, however, takes the help of the eldest daughter for this work. As a result, it is not possible for the daughter to attend the school regularly. In rural areas, most of the girls do not attend the schools as they have to help their mother in doing this 'noble' duty.
- The woman with her eldest daughter moves out to fetch water, the smallest kid in the family is left unattended at home. There are many incidents when these small children meet with severe accidents at home and are required to lose their life.
- As if this is not enough, she has to attend to her farm duties also. Weeding, cleaning the farm, irrigate the crops are the duties which every woman has to perform. Thus, no time is left with her to think about herself.
- Even when she is involved in all these operations she is not involved in any decision making process. All the decisions are taken by the males and the heads of the family. Thus, it is more or less a thankless job for her. This is not the fate only of Indian women. It is true in case of all the women folk all over the world.
- This issue was raised in world conferences. Out of the four Dublin Principles one is related to this issue. It was recognized that women should be involved in the decision making process and management of water. Suitable resolution was passed in this conference.
- To ascertain as to whether Indian women know anything about such resolution, we as the representatives of Global Water Partnership (South Asia) met the representatives and Office bearers of All India Women's Association at their head Quarter in Delhi. Our objective to meet them was to associate them with our water of literacy work. They have more than 5000 branches all over the country. Unfortunately, they had no idea about such resolution. We took them to the South Asia Water Forums held at Kathmandu and Islamabad at our cost to make them familiar with our work. But even after attending these Forums we could not get any positive response from them.
- We received a grant of Rs. 1,00,000 from our parent Organization (Global Water Partnership) to associate women with this work. We held workshops at Ambajogai, Nanded, Parbhani, Jalna, Pune, Aurangabad and Mulshi where at least 1500 women attended these workshops.

Jalsamvad

Mouth Piece of Bharatiya Jala Sanskriti Mandal

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  Dr. Datta Deshkar
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- **Present Editors**
  Dr. Datta Deshkar - 09325203109
  Shri Satish Khade - 09823030218

- **Cover Design**
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Contents

Editorial .....

Formation of Water user societies in Urban Areas

We always think of water user societies or associations for rural areas established by cultivators for efficient and economic use of water. They are really needed in the present context of shortage of water. We have constructed hundreds of dams on the rivers in the country to collect water of rivers but we are experiencing difficulties in proper and efficient use of water thus collected. Water use is the most neglected part of water problem.

Can we not think of water users associations for urban areas also? It is learnt that in some of the foreign countries such associations exist. We need not go too far to find out such urban water users associations. Our neighbouring country, Nepal has such associations for last five decades. One colony can have one water users association where the people living in that area can develop a practice of using water economically and judiciously. Water has become a very precious material now and that is why its proper use has become inevitable.

Since water has social angle also individual efforts to deal with water issues may not serve any useful purpose. It should be a joint effort and responsibility where each and every individual residing in any colony should be associated with this work. It is therefore necessary to give a thought to this issue where involvement of all the residents is desirable.

As a first step, it would be necessary to form a formal body of residents from that colony. Ward member of that locality, some experts residing in that area, some respectable people, some youth representatives, some lady representatives, some government officials residing in the locality, representatives of some voluntary organizations operating in that area should come together and form such Society. That group can design its own constitution. This organization should be registered under the Society Registration Act to give it a legal status.

One pertinent question can be asked here as to what this organization is expected to do. Following is the list of activities which can be entrusted to this newly elected body: (1) Identification of available water resources in the colony. (2) equitable distribution of water to all the beneficiaries. (3) erection of a water treatment plant to treat the waste water. (4) educating the people how to conserve water. (5) holding essay competitions, debating competitions, drawing competitions for children to make them aware of various water issues. (6) awareness camps for maid servants or economic use of water. (7) Tree Plantation programmes in the locality. (8) Rain water harvesting work in the colony. (9) health and sanitation programmes to promote healthy life. (10) Celebration of World Water Day, Wasundhara Din, Environment Day in the locality (11) Planning lectures of experts in the field of water. (12) checking the quality of water periodically. (13) If there is any lake in the locality Association can form one Sarovar Samvardhini which will take care of that lake. (14) This association can work as a pressure group to get the water problems solved. (15) Finding out the leakages of water in the locality and timely repairing these leakages.

People living in the community should treat this as their social responsibility for proper and efficient use of water.

Dr. D. G. Deshkar
Editor

Story of Water. Part 9 – Water Quality

Shri Chetan Pandit

(M) : 9423174594

We are now done with quantity aspect of water resources. In this 10th part of the Story of Water, we will examine the quality aspect.

It is not sufficient to have adequate quantity of water. It is also necessary that the water be of sufficiently good quality, appropriate to the intended use. If the quality is not satisfactory, then the water is of no use. The best example of this is the Chennai city. You may have read the news of Chennai city often facing acute water shortage. It is not as if the local sources of water in Chennai have all been used. There is still unused water. But its quality is very poor, not satisfactory for domestic use even after treatment, and Chennai suffers from water scarcity. In fact, today almost all our water sources have been affected by pollution, to various degrees. In this Part 10, let us see how the water is polluted, and what we can do about it.

Rainwater is distilled water, and should be pure water, but it isn't. There is pollution in the atmosphere, and as the rain falls through the atmosphere, it picks up various pollutants. Two obnoxious gases, sulphur dioxide (SO2) and nitrogen oxide (NO2) are released in to air due to burning of coal, petrol and diesel; and also in some industrial processes, namely extracting metal from ore, chemical fertilizer industry, etc. These gases are also found in volcanic eruptions. These react with the rain water and make it acidic. However, this is a localized phenomenon. And though the rainwater does pick up some pollutants in all the areas, still, the rainwater is reasonably pure.

River Pollution :

Central Pollution Control Board (CPCB) defines the river water quality by five classes, A to E. Each class is defined by various pollution parameters. But I will not go in to details of that because then I will have to explain the meaning of every parameter, and that is a bit too technical for the non-technical readers. The five classes and the permissible uses of water in each class, are as below.

Class	Permissible Use
A	Drinking water with only disinfection
B	Bathing
C	Drinking water with conventional treatment and disinfection
D	For fish and wildlife
E	Irrigation, Industrial Cooling, Controlled Waste disposal

Class A is the purest, and Class E is worst. Although CPCB does not define a Class F, but water quality can be worse than Class E, in which case it is not fit even for irrigation or industrial use. Rivers in the North-East states, and the rivers in Western Ghats and Himalayan rivers in their early reaches, may be pure to Class C or better. But in their middle reaches and beyond, the main rivers in the peninsular India are all polluted to Class C or worse.

From the consideration of source, pollution of river is divided in two main groups, point source pollution, and non-point source pollution. Point source pollution is that, which enters the river at a well defined point, through a drain carrying the pollutants. The city sewage, and the industrial effluents, are the point sources. The city sewage is collected by a central sewage system, and the industry also discharges the effluents through a pipe/ drain. Point source pollution can be intercepted and treated. However, the reality is,

treatment is very expensive. In developing countries the governments lack the resources for treatment of sewage to a level where, when released in to the river, the river water quality will be maintained to minimum class C.

For industrial effluents also cost is the main issue. Treatment of effluent to prescribed standards increases the product cost, makes the product less competitive in the market, and reduces the profit. Effluent treatment to stipulated standards is prescribed in the industry's license to operate, but the enforcement of laws is very poor. We rarely hear of an industry being shut down because of lack of effluent treatment.

The pollution by city sewage comprises mostly organic pollutants (human excreta) which is bio-degradable. Even if not entirely removed, it is relatively less harmful. But the industrial effluent invariably has heavy metals and other toxic compounds which, on the one hand are difficult to remove, and on the other, have very serious health consequences.

A new category of very worrisome pollutants is emerging – the medicines and their broken-down products. The medicines we consume are discharged from the body through urine and excreta either as they are, or after some chemical decomposition. These get in to the river through home sewage. Although the quantity of medicine consumed by a person is in milligrams, crores of people are consuming it every day, and there is significant quantum of medicines in the river water. These can neither be removed from the sewage at the sewage treatment stage, nor from the water at the stage of drinking water treatment. So, without being aware of it, you are consuming a cocktail of medicines. And though the quantity may be only a few micrograms, but that is sufficient to impact the health of the person drinking that water. That was about point source pollution. The non-point source pollution is one that enters the river all along its length, not at a particular point, and therefore can not be intercepted and removed. What are these non-point source pollutants?

About 18 crore automotive tyre were sold in India in 2021. Some will be for new vehicles but most will be replacement of old tyres. The rubber from the tyre wears out continuously, and is deposited on the road as micro-particles. The total quantity of rubber thus deposited on the roads per year is estimated to be close to one lakh tons. Ever wondered where does all this rubber go?

It goes in the river. Where else can it go? Initially, some of it may become airborne and move with the wind, but eventually it gets deposits on the road surface, from where it is washed in to the river with the rain water flow. Likewise, may other chemical products from home wall paint to agro-chemicals (fertilisers, insecticides, pesticides) also eventually all wash in to the river.

You may ask - how to manage the river pollution? Well, as for the point-source pollution, it must be treated. It certainly costs lot of money, and that has to be arranged. There is no other solution. Good, clean rivers don't come for free. As for the non-point source pollution, the only way is to reduce the use. There are reports of pesticides being found not only in fruits but also in cow's milk. How does it get there? Through the fodder and water. The use of pesticides can not be entirely eliminated. But it can certainly be reduced.

I often have to travel for work and stay in hotels, and in good hotels they replace the soap every day. From a 50 gm soap cake, in one day I may use at the most 2 grams. Where does the remaining 48 grams go? It gets in to the garbage, and from there in to the land-fill, and finally leaches in to ground water. Since I am environmentally conscious, I always request the hotel not to replace the soap every day. Do we open a new cake of soap in our home every day? No, we don't. Even though in the home several people use it. In the hotel room I am the only person using it. Then why change it every day? I am glad to see some hotels are now realising the environmental damage they are causing, and are adopting more environment friendly practices.

Finally, the people also throw a lot of organic matter in the river. Throwing of Nirmalya and such, cremation on river banks, disposal of Asthi, all pollute the river. We Indians consider river Ganga as a holy river, but we also pollute it, with

everything from untreated sewage to industrial effluents, and even half-burnt corpses!! The river Chambal is relatively pollution free. But the reason for that, is rather strange. Mythology says Shakuni, the tormentor of Pandavas, was from Chambal area. Draupadi gave him a curse that no one will perform any religious rites on the banks of Chambal. As a result, Chambal is relatively clean. It is an irony that a curse is the cause of a river being clean.

Ground Water :

Ground water pollution poses a different challenge. In case of river water, the monsoon every year brings a heavy flood flow and the pollutants accumulated over the year get washed away. No such luck for the ground water. Once a pollutant enters the aquifer (under ground water bearing strata) there is no way to remove it from there, and it may stay there for years, even more.

Ground water is polluted from two sources. First, the surface water. You will recall that in the article # 2, "Water in Nature" I had explained that if the water level in the river is higher than that in the ground water formation, then the water seeps from the river into the ground. Ground water is also recharged from millions of square kilometers of open surfaces. The pollutants in the river water, and in the surface water, get in to the ground water.

Second, some minerals from the rocks breakdown and get in to the ground water. Some, like the bicarbonates and chlorides of calcium and magnesium, are harmless. But a few, the fluorides and Arsenic, are very harmful and can have very serious health consequences. There is no way to prevent these chemicals from getting in to ground water. If an area is affected by fluorides or arsenic, the only option is to not use the ground water there, or use it after purification by a process that removes the fluorides or arsenic. Such processes have been developed, but the problem is, where to dispose-off the removed fluorides or arsenic? No matter how it is disposed off, it gets back in to the water-cycle.

Sewage Treatment :

Sewage treatment is a complex topic, beyond the scope of this article, and I will not go in to the details of it. Very briefly, the solid garbage is removed by screening. The bio-degradable organic wastes are removed by a process where some particular bacteria break them down chemically, in to a combustible gas, and solid sludge. The gas may be supplied to nearby homes through pipelines for use as kitchen gas, or used as fuel in some nearby industry. The solid sludge is disposed off in landfills. Finally, the water which is now relatively – but not entirely - free of pollutants, is used for agriculture or industrial proceses.

Drinking Water Treatment :

There are different types of impurities, and each require a special treatment to remove it.

- Suspended particles. Like the fine soil. These settle down to the bottom if the water is left undisturbed for some time, and can also be removed by filtration.
- Colloidal particles. These are also suspended particles, but are very small, so small that these do not settle down, and can not be removed by simple filtration. Milk is an example of

colloidal. The milk contains some dissolved solids, and also some suspended solids. But the suspended solids are so small that you may keep the milk undisturbed for weeks, and yet these will not settle down to the bottom. (these can be separated from the milk by centrifuge process)

- Dissolved inorganic solids. As the name suggests, these are dissolved in the water, like salt or sugar are dissolved in your soft drink. Removing a dissolved substance is not easy, actually near impossible.
- Organic pollutants. These come from decaying organic matter like leaves and branches of trees, dead animals, etc. These give a very unpleasant taste and odour to the water.
- Biological impurities. There are many different micro-organisms – the bacteria, viruses, parasites, protozoa, and others. Some may be harmless, but most causes serious infectious diseases.

The treatment in the city water treatment plant comprises of three main steps.

- Coagulation. Alum or a similar chemical is added to the water. This causes the colloidal particles to clump together, a process called coagulation. The coagulated clumps are larger in size and will settle down to the bottom, like the ordinary suspended impurities, and can be removed by filtration.
- Filtration. The water is passed through a stack of filters comprising gravel, coarse sand, fine sand, etc. This step removes all suspended impurities, and coagulated colloidal impurities.
- Disinfection. Chlorine is added to water to kill the micro-organisms.

The conventional city water treatment does not remove dissolved impurities, or organic impurities. If these are within limits, these have to be tolerated. Else, a new water source has to be found. A major part of the water supply to the Delhi city comes from Yamuna river, through a long open canal. The canal passes through the city of Panipat – a name very familiar to Marathi people, for an entirely different reason. There are many pickle making industrial units in the city of Panipat. They often do not treat their effluents adequately. One of the pollutants from the pickle industry is – ammonia. There is nothing we can do to remove the ammonia. If the level of ammonia on a day is more than some acceptable limit, we simply have to reject the water and shut down the water supply plant, and wait till the level of ammonia reduces.

Domestic Purification :

Finally, I will explain a little about the domestic water purifiers, because this is of interest to all. Many different types of purifiers are available in the market. All have a simple filter at the entry of water. This removes the suspended impurities. Most also pass the water through a cylinder filled with small carbon granules, called activated charcoal filter, to remove odour or taste imparted by any decaying organic matter. Thereafter, there are four main types.

Chemical :

These add iodine, chlorine or some similar chemical, to kill the micro-organisms. These do not require electricity, but the chemical has to be replaced periodically, and a regular intake of some chemical may have harmful health consequences.

Ultra-filtration :

These use a very fine filter membrane, that can remove even most of the micro-organisms. Thus, it combines removal of suspended impurities, and micro-organisms, in one step. These also do not require electricity. If the membrane is of a good quality, and if the input water impurities are within certain limits, ultra-filtration is a good option.

Ultra-Violate, or UV :

After the usual filtration, water is exposed to Ultra Violate (UV) rays. UV radiation kills some micro-organisms and deactivates some others. UV purifiers require electricity.

Reverse Osmosis or RO :

This is a complex process, somewhat similar to the process in our kidneys, that can also remove the dissolved impurities. RO purifiers require electricity. RO can also remove micro-organisms, but usually a RO machine have a UV stage also, for added protection.

Dissolved inorganic salts, called Total Dissolved Solids, (TDS) are measured by a very

simple instrument, and are expressed as “parts per million”, or ppm. One liter is one million milligrams and thus ppm is same as mg/L. RO is the only purification process that removes dissolved impurities. If the TDS is less than 500 ppm, then RO is not only not required but is also not recommended. For TDS between 500 to 1000 ppm, it is a matter of choice, RO may be used if the water taste is bad. RO is recommended for TDS more than 1000 ppm, or if the water contains some harmful dissolved impurities, like fluorides, arsenic, industrial chemicals, etc.

Domestic water purifiers is big business. The technology is very simple. The components are imported and the purifier can be assembled in a small shed. Profit margins are high; and it is easy to sell them by playing on the health fears of users. As a result, it is common to see expensive machines that combine everything – Ultra-filtration + UV + RO. In most situations, such a 3-tier purification is not required and the only purpose of these monster machines is, to take some money out of your pocket.

With this, I come to the end of science and technology part of “The Story of Water”. Hereafter we will focus on the management aspects. Next article will be administrative structure of water management, and water related institutions.

As I write this article on 4th of April 2022, Covid threat seems to be over. Wearing of masks has been made optional and all restrictions of normal life have been removed. Still, it would be a good idea to continue to take precautions for some more time. Take care, and stay safe.

*****

World Water Day-2002
Water For Development
Gajanan Deshpande, Pune
+91 9822754768

(A new series of articles has been launched from August 2021 to learn more about the importance of World Water Day and the various water awareness programs implemented every year.)

The main theme for World Water Day-2002 was "Water for Development" and the International Atomic Energy Agency (IAEA) was tasked with implementing it. This year, special emphasis was laid on how to plan and manage the water resources in an integrated manner for sustainable development in view of the perceived scarcity of water resources in a large area of the world.

Sustainable development means carefully utilizing the available resources, taking into account the development needs of the next generation while gradually developing the resources on earth. Sustainable development means to make efficient use of natural and man-made resources. Due to globalization and industrialization, natural resources are being used extensively and uncontrollably today. Sustainable development expects controlled use of these limited resources in view of our future generations.

Development is the essence of human society. Water development is of paramount importance. Development is impossible without water, which is one of the three natural resources i.e. land, water and air. Be it agriculture or industry - development is impossible without water. The key issue facing this problem is the huge disparity between water distribution and its quality.

More than 50 percent of the body of an organism is made up of water, so it needs water to survive. As water becomes contaminated and unusable for a variety of reasons, it can have serious health consequences, leading to new serious illnesses. In that sense, our social habits and behaviour are not right. Our efforts to solve all these basic problems related to water are failing. Therefore, in order to achieve sustainable development, it is necessary to make efficient use of water and take measures to ensure clean and plentiful water supply by avoiding water pollution.

The ground water level is going down day by day, the flow of the river is blocked. In underdeveloped countries, water is used

extensively for agriculture, but yields are very low. Therefore, increasing agricultural production is a need of the hour. In view of this, agricultural technology that requires less water should be developed and used for sustainable agricultural development.

Water and energy have a unique relationship. Firstly, an option of hydroelectric project is considered for power generation. But, not all places have favourable conditions for setting up hydropower projects. Then, a thermal power project or a nuclear power project is considered. But for both of the above project options, only heat is generated from coal, gas, oil or atoms. Water is heated on using that heat to form steam and electricity is generated by running a generator on that steam. All of these options require a very large supply of water for keeping the system cool.

Water is required for each product. Some industries require a lot of water and some less. But industrial development is impossible without water. The development of industrialization is important for social and economic development as well as for reducing rising unemployment.

The pace of urbanization is increasing tremendously. Developing countries account for 93 percent of the world's urbanization. The population density is increasing exponentially on small land area. Therefore, providing adequate water to this population, avoiding large scale wastage of water, treating and reusing wastewater from urban and industrial areas are some of the issues that stand in the way of sustainable water development.

Water should be distributed on equitable basis for the welfare of humankind. Such an unequal situation leads to fears of a warlike situation. It is also predicted that the third world war will be caused because of shortage of water. Since everything depends on water, any kind of development is impossible without water. Therefore, the bright future of the world will depend on how society pays attention to water conservation, its proper management and equitable distribution.

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Aao Nadi Ko Jaane - Report 06

Shri Vinod Bodhankar

(M) : 9850230064

In the previous 3 articles, I had posted the context of studying the Sustainable Development in a River Basin under 3 of 5 headings (listed below, on next-page), and how myself, Narendra Chugh and the Late Dr Sandeep Joshi had spent some time and effort in creating a Citizen's Paper. For all of us at Indian Peninsular River Basins Council and Indian Himalayan River Basins Council the Citizen's paper becomes a preliminary document to refer to.

It is understood that each river has a complex geo-cultural, industrial-agricultural, political and socio-economic matrix in which the local people alone can evolve custom made dynamic models of mutually supportive human-river relationships.

Since then, one of the important mile-stones that has been reached is the formation of YUVA JALBIRADARI as a youth wing being created (20th March 2022 at Kavthemahankal, Agrani River Basin, Sangli District) with cadre-building as one of the aims - based on immersing the youth in a range of field-experiences available with Jalbiradari and Associated organizations and institutions. Even in the orientation and training of Yuva Jalbiradari's young leaders, coordinators, convenors, communicators, volunteers, activists and trainees, the Citizens Paper on Concepts of Sustainable Development in River Basin is relevant and will be utilized as one of the basic syllabus documents.

At the same time, online and offline training will be a constant interface between the Nature and the young heads, hearts and hands -

Aao Nadi Ko Jaane type web-networking

Nadi Ki Paathshaala field-training workshops which involve learning on the banks of the selected rivulet/river for a closer and experiential look at the anatomy and functionalities of the river as an Organic Being

Inaugurating NADI KI PAATHSHALA, Pune Jalbiradari & Vanarai at Fergusson Amphitheatre

DO-Testing Training to be implemented across entire river basins in a grid-format for gaining base-line information round the year which caters to daily variations, weekly, monthly, seasonal, festival-related and land-use related variations of Dissolved Oxygen. Our first scaled-up DO-Tests training module will be in collaboration with Smart City, Nashik Administrative Team, by Second week of May 2022

Sagarmitra Training to impart young students with lessons of Individual and Collective daily responsibility - as a Water Literacy and Water-

Sensitization Sanskaar will be scaled-up. In the coming academic year Vidya Pratishthan of Baramati in collaboration with Baramati Nagar Palika has officially invited us to induct 6000 high school students into the Sagarmitra Model of Initiative Leadership Training based on creating Waste Plastic Segregation at Source Synergies in the entire city population

Such outreach to the generation-next is a part of the 'River Culture and Society' section of the document extract that follows in the next article. Meanwhile, this is the third extract from the document. The series will end with the next article next month.

Extracts - (continued) - from :

Citizens Paper on Concepts of Sustainable Development in River Basin

By (Late) Sandeep Joshi, Vinod Bodhankar, Narendra Chugh

The Index -

1. River Catchment Area Approach
2. Removal & Prevention of Encroachment (In this article)
3. Controlling the Pollution of the Lakes and Rivers of India (In this article)

The above three sections of the document have already been published in previous 2 articles in e-magazine JALASAMVAAD.

In this volume of the e-magazine we are presenting Sections no.4 of the content of the 'Citizen's Paper on Concepts of Sustainable Development in River Basin':

4. Maintaining Ground Water Balance (In this volume, below)
5. River Culture and Society (will be continued in next volume of e-magazine)

Maintaining Ground Water Balance

Present Condition:

Liberalization, rapid urbanization and modernization of our country has compelled the population, agriculture and industries to extract ground water extensively without adequate recharging practices causing ground water imbalance and damage to local geological features over a period of time. There is a need to pay attention to quality of ground water which is being contaminated due to domestic effluents, seepage of sewage, industrial effluents and agricultural chemicals.

Examples of Ground Water Imbalance:

Alarming ground water depletion in North Indian states as per studies published by NASA and authenticated by Indian Authorities, Deeper bore wells by farmers and co-operative industries like sugar, distillery etc., inequitable exploitation of ground water by stakeholders like Coca Cola in Maharashtra and Kerala, cash crop growers with large land holdings as compared to small and marginal land holders, traces of pesticides and other chemicals in bottled waters extracted from ground water as per studies Center for Science and Environment, use of bore wells to dispose of untreated effluents – chemical corridor of Western India, 400 bore wells were dug at site Dow Chemicals in Shindewadi, Chakan, Pune, and a people's agitation was needed to reverse this damage before it began.

How many are the undetected, un-protested and un-resisted cases of illegal ground water pollution like this?

Issues:

• Over exploitation of groundwater without any scientific records and Documentation.

• No monitoring and regulation to maintain the groundwater balance bore well based on information on width, depths and numbers in given area/region depending on the quality and quantity of available groundwater resources

• Gross failure of Groundwater Survey and Development Agency (GSDA), urban local bodies, corporations, municipal councils, and state governments in seriously implementing policies, laws and development plans with respect to groundwater quality, balance and protection.

• Public appeasement policies like free distribution of electricity, unbridled exploitation of ground water by the state and central government

• Inappropriate existing city and regional plans compromise on open spaces and hence restrict recharging eco-spaces and thereby reduces groundwater replenishment.

• Ruthless destruction of forest tree cover results in

reduction in infiltration, moisture holding capacity of soils and as well as groundwater recharging thus disturbing the eco-hydrological cycle of the region and ground water balance

• Technological developments have led to deeper and wider bore wells being dug. These bore wells are not only being used for water extraction but are also used as dumping sites for hazardous chemicals and toxic industrial effluents to evade the strictures from regulating authorities. It causes severe irreversible contamination and pollution of groundwater thereby depriving entire communities of clean water supply e.g. Solapur downstream of Ujani

Water Quality Status of Maharashtra 2019-20

Type	Station Code	Station Name	Apr	Dec/ Oct	Average	District	Taluka	Village
GW	1902	Dug well at MSW Site, owned by Shri.Dattu Kondiba Borate at Borate Vasthi.	72	66	69	Pune	Haveli	Moshi
	2819	Dug Well Owned by Shri Deshmukh	250	366	308	Pune	Baramati	Malegaon
	2820	Dug Well Owned by Shri Shivaji Baban Darekar	32	151	92	Pune	Shirur	Sanaswadi
	2821	Bore Well at Bale Railway Station premises Owned by Shri Digambar Joshi	No Data	410	205	Solapur	North Solapur	Dahegaon
	2822	Bore Well near Chincholi	No Data	352	176	Solapur	Mohol	Chincholi
	2823	Bore Well at Shete Vasti near old Tuljapur Road	No Data	447	223	Solapur	Solapur	Shete vasthi, Tuljapur Naka

SOURCE: https://www.mpcb.gov.in/sites/default/files/focus-area-reports-documents/WQR2019-2020_01032021.pdf

Surface Water		Good to Excellent	Medium to Good	Bad	Bad to Very Bad	Dry	Not collected	No Data
Ground Water	Excellent	Good	Poor	Very Poor	Not suitable for drinking	Dry	Not collected	No Data

• Public health issues like serious body deformities and malfunctioning due to fluoride contamination in ground waters in Marathwada (Maharashtra), some regions in Gujarat and Rajasthan, arsenic pollution in West Bengal, radioactive and nuclear pollution in Jaduguda (Jharkhand), and Agro-chemicals pollution of ground water in Punjab, Haryana, West.Maharashtra (sugar belt) and Karnataka.

• There is no policy about the failed and defunct bore wells and wells. Such sites become vulnerable for contamination and fatal accidents.

• Beyond exceptional and isolated pockets and pilot projects, no adequately robust efforts and support from government to the public initiatives on rainwater harvesting with the help of methods and structures like johads, anicuts, small check dams, green dams for groundwater recharging.

• Groundwater is a common community and precious ecological resource. Community has naturally endowed moral right besides the constitutional guarantee of the governments to provide clean drinking water.

• However, over-zealousness by state and central governments to hand over the rights of groundwater extraction in large quantities to private operators for reaping obscene profits (water bottling plants, distilleries, sugar factories etc.) is resorted to which works against the natural principle of people's and ecological welfare.

• Poor and marginalized communities are deprived of clean groundwater in urban and rural sectors.

• Drying of rivers, streams, lakes and other bodies is mainly due to serious depletion of groundwater and forest cover.

What is needed? :

• Mapping of groundwater resources and flows with quantity and quality of water shall be prepared using indigenous latest technologies and made available in the public domain bearing the sanctity, uniqueness and inviolability of our national map having universal acceptance and respect.

• Nationwide, state-wise and region-wise mapping of all groundwater resources having links with streams, rivers and lakes and all other inland water bodies using modern indigenous technologies and human resources with public participation for definitive mapping.

• This painstakingly acquired, verified, categorized, collated and well documented data must be uniformly and equitably shared across every related ministry, departments, planning divisions, media and citizens' societies and institutions by making it accessible on public domain.

• Continued compilation, verification, and documentation of information about ground-waters. These groundwater resources shall be notified and declared as "Protected Groundwater Resource for Community and Ecological Welfare".

• Groundwater protection policies must be developed on the lines of sensitivity and seriousness involved in defining reserved forest protection policies ensuring community participation.

• Restructuring of Development Plans incorporating sites and open spaces having access to aquifers for recharging ground-waters in every sector like rural, urban, industrial, agricultural, etc.

• Implementation of policy "Over Exploiter Pays" on the similar lines of Polluter Pays principle to effectively curb exploitation tendencies and commercialization of groundwater.

• Evolving, defining, fixing, and notifying the scientific region-specific norms of groundwater utilization scale (say from 0 – 1 lakh litres per day, 1-5 lakhs litres per day etc.) to identify over exploiter.

• Efficient administrative and techno-professional institutional mechanism to comprehensively prepare and monitor area-wise, region-wise, state-wise and central list of over-exploiters considering the norms fixed as above and evolve suitable policy and action plan to deal with such exploitation.

• Review and modify existing policies, definitions, laws, rules, regulations and guidelines for maintaining groundwater balance with inputs from all affected stakeholders especially the women and poor, marginalized populations.

• Responsibility and accountability of existing state and local self governments in time bound implementation of maintaining groundwater balance

• Strengthening of auditing system for evaluation of maintaining groundwater balance by ensuring involvement of societal wisdom and people's participation

• Over exploitation of ground water shall be treated as criminal offence. laws, rules and regulations shall be framed and modified to include provisions to prosecute the over exploitation of ground water as a criminal offence attracting non-bail-able warrants.

Solutions to maintain ground water balance :

• Definitive unique comprehensive mapping of groundwater resources and flows must be made available in public domain.

• The general population must be thoroughly educated and alerted to the significance of maintaining the groundwater balance and must be imparted the elementary training and motivation to immediately report exploitation leading to imbalance.

• Evolution of stringent legal instruments to control over exploitation of groundwater.

• Recharging of groundwater with community participation in urban as well as rural areas using traditional wisdom and geo-cultural knowledge for establishing regional water balance including streams, rivers and lakes

• Water – intensive cropping patterns, extensive use of agro-chemicals to be replaced by water economic cropping patterns and organic farming techniques to relieve the pressure on groundwater resources.

• Check, monitor, control use of streams, tributaries, wells and bore wells as dumping sites for hazardous chemicals and toxic industrial effluents and punishing these criminals severely.

• Government initiative and active help in creation of community driven groundwater protection squad (Bhujal Janahit Parishad)

• Incentive schemes for the implementation of rainwater harvesting and similar other structures which help in ground water recharging without damaging the quality.

Action Plan:

• Review and upgradation of existing groundwater

balance laws, rules and regulations with definitive time bound programme in consultation with local and affected population

• Hierarchical distribution of responsibilities (identified, allocated and notified for immediate action) to protect the groundwater

• Punitive measures for the agency or department failing to take action against over-exploiters of groundwater

• Record keeping, regular auditing by social groups working on groundwater balance issues.

• Orientation, sensitization, and field training for capacity building of all personnel from all types of state and local self governments, MLAs, MLCs and MPs (LS & RS), Self Help Groups to protect, conserve and maintain the groundwater balance.

• Quarterly compulsory public hearing on the subject of utilization of groundwater to be conducted by people's representatives in presence of local and affected populations, NGOs, Print and

Cable Media and concerned department/(s)

• Involvement of educational institutes, professional associations and religious trusts as watchdog and sensitizers for protecting the groundwaters

For queries/feedback contact:

Vinod Bodhankar, 9850230064,
Narendra Chugh 9850074952

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Jeevitnadi : Activities in the month March, 22

Smt. Aarti Mhaskar

(M) : 9527908801

(English Translation By Shri Gajanan Deshpande, Pune)

'Jeevitnadi' is an organization working in Pune. It works for the revival of rivers with the participation of citizens. The following activities were undertaken by the organization in March-2022.

On March 1, 2022, we received the news of the sad demise of our close friend and one of the directors of Jivitnadi, Shri Dharmaraj Patil. While scattering the knowledge of butterflies and birds to the people, his sudden passing away like this, just at the age of 42, was not at all acceptable to our minds. He was a researcher of the rare owl specie Ranpingala. Today, the one who taught the tribal people the importance of this specie and trained them in how to do caring and protection of this bird, should leave us forever?

On March 6, 2022, many people met him while performing routine environmental activity on the banks of Ram-Mula confluence. He was recently fighting with the help of residents of Pune to save the Saleem Ali Bird Sanctuary. When Maharashtra Environment Minister Aditya Thackeray visited the sanctuary recently, he too was reminded of the seriousness of saving the sanctuary. The Minister also assured that he will definitely consider as to how this forest can be saved. As the next journey began, destiny changed its course and news of Dharmaraj Patil's tragic demise was received at the tender age of 42. It would be a true tribute to Dharmaraj to see that the work he had started shall be completed.

On March 8, 2022, International Women's Day, brought to the fore the discussion on the relationship between the river and women and their place in society through the webinar. Dr. Parineeta Dandekar, Associate Coordinator, SANDARP; the director and lead curator of the Living Water Museum (LWM), Dr. Sarah Ahmed, who has been working in the water sector for the last 30 years, Meghna Bafna, a leading activist from the Salim Ali Sanctuary Movement, Pune and Shailja Deshpande, the director of Jivitnadi, Ram-Mula Sangam chief Shubha Kulkarni and Shatakshi Gaikwad, who conducted the program and of course a large number of spectators attended the programme. Everyone knows that the relationship between a woman and a river is very old. Today, even though a River is considered as a woman, people have made it's condition pitiable. While deliberating the issue, Meghna Bafna said in dismay that she is not sure whether they will get success in saving the Saleem Ali Sanctuary. On that, Parinita Dandekar pleaded that they should not lose their patience. Let's keep trying to ensure that the government takes care to save our river area and its biodiversity. Parineeta further lamented that no position was given to a woman in any of the water or river areas on the state level. But given the progress of women in India, there is no doubt that the situation will improve.

A Parikrama tour about Siddheshwar-Vriddhevar was organised on March 12, 2022, at 5-5:30 pm. It was free for all which was participated by students from St.Mira and Kalmadi Junior College. Manish Ghorpade sir led this tour. In this parikrama, he explained how old Mula-Mutha is, how the changes took place in them during Nizamshahi, Peshwa period and after independence. The circumambulation of the river has been prepared in consultation with various

scholars as well as by studying the evidence of the Archaeological College and other studies, references to the Board of Indian History Research, etc. It has a solid scientific base. This was explained with the help of various photographs.

Every Punekar should definitely take this Parikrama to understand the river. Listening to the history of Mula-Mutha, one can understand where and why Ambil Odha was diverted during Peshwa period. Because of this, everyone was provided with drinking water, washing, cattle and so on. But listening to the current pitiable condition of Ambil stream, was hard to hear. Everybody was saddened to hear that due to the decision of the politicians in power during the independence period, the lives of the common people, their homes and their children were severely damaged due to the flood of Panshet dam. Given the current situation, the river is almost full of dirt.

On March 19, 2022, employees of Concentrix participated in the Jeevit Nadi campaign. On 20th March, 2022.a ''Jal Aadhar Kendra'' was established. The Jal Aadhar Kendra will be useful for the common man in following ways -

1. All types of books on water literacy available for sale.
2. Audio-videos related to actual case studies on various subjects.
3. Banners, pictures, exhibitions available for water literacy program for schools, colleges and social organizations.
4. Contact list of expert-practitioners and other service providers for organizing program-activities.

The project was organized by Jivitanadi Director Niranjan Upasani. It was inaugurated by Upendradada Dhonde, Senior Scientist.

On March 21, 2022 Dharmaraj Foundation has been established. At that time, there was an in-depth discussions on how the work of Dharmaraj Foundation is to be taken ahead. On March 22, 2022 at Ratna Hall, Pune, Director of the Ecology Society Madam Swati Gole was honored with Rotary Water Award by Rotary Club.

On March 23, 2022, Kalmadi High School and Vidyavali School in Baner came together and started a series called 'Ek thi Nadi'. Under this, they decided to take the guidance of ''Jivitanadi''. Under the guidance of Shubha Kulkarni, students and teachers of Kalmadi and Vidyaveli first understood the river by taking a tour of the river at the confluence of Ram and Mula rivers. A street play written and directed by shri Sagar Kulkarni on the topic of 'When Pune wakes up' was performed.

On 25th, 26th and 27th of March 2022, Ram Nadi Mahotsav was organized online in the Kirloskar Vasundhara International Film Festival. Shailja Deshpande, the director of Jeevitanadi, has made a film about Ram Nadi Parikrama. You may watch the video on the following link.
https://fb.watch/c8-cF3Ku2W/

Shri Gurudas Nulkar and Mansi Karandikar of Ecology Society gave information about the Pashan Lake and how the wildlife there is changing. Please watch this video on the following link.
https://fb.watch/c8QAWpnbvg/

In another movie, Gurudas Nulkar gave detailed information about why and how the Pashan Lake can be renovated. It was determined to do all this from the source of the river Ramnadi to the river Mula. Please watch below link.
https://fb.watch/c012aZtuiG/

In the project 'Dattak Gheu Nadi Kinara' one hour of voluntary labor work is done on the banks of the river near Jivitnadi; likewise such activity was undertaken on 26th March 2022. On March 19, as usual, Shailajatai, Prachi and Bhushan Dada assessed and evaluated as to how much of spring water was coming into the river. It was found that every spring was oozing out about 3-4 liters of water per minute. This means that on a normal day 5000 liters of water is going to the river. With the help of ACWADAM, it is found that there are eight such live springs on the right bank of Mula River. This is one place on the Mula River. We are afraid that these springs would get closed in the concreting work.

On March 27, 2022 Distributed a 2 page monthly bulletin 'Know Your Stretch' series. Today's was the sixteenth edition. It presents information

about the water birds; which include Shekatya. It also includes the biodiversity of birds, micro-organisms, insects, butterflies, fish, small to large trees and many more, that are found in the Ram-Mula confluence under expert guidance.

The children of DLRC school took a nature walk on the confluence of Ram-Munla river on March 27, 2022 around 8:00 am under the "Dattak Gheu river bank" and also did cleaning. On March 27, 2022 - Jeevitnadi participated in 'Pune's Water' organized by Living Water Museum (LWM). In this, Jeevitnadi organized a 'Mutha river tour' on 27th March. On March 28, 2022 Opening Ceremony of Living Water Museum (LWM) was organized in Pune. Dr. Sara Ahmed explained about what exactly they do at the Living Water Museum. The main purpose of this is to preserve linkage between water and man with the help of youth without allowing breaking the umbilical cord for generations - from old customs, river stories, folk-art, path plays, other modern tools or artifacts. She said that LWM in India is connected to 72 water museums internationally.

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Stockholm Water Prize 2000
Prof. Kader Asmal, South Africa
Gajanan Deshpande, Pune
+91 9822754768

(An article series has been launched in August 2020 to learn more about the World Water Prize winners and their work.)

The 2000 Stockholm Water Prize was awarded to Prof. Kadar Asmal of South Africa for his special work. Mr. Kadar Asmal is a Professor of Law. He rewrote many of South Africa's water reform laws in 1998 - for which a social foundation had already been laid and which benefited not only the rich in the white community but also the poor black population there.

When he was appointed Minister of Water Resources and Forestry in the Nelson Mandela government in 1994, approximately one million people in South Africa did not have access to safe drinking water. Since then, water has been made available to an estimated ten million people around their homes or in their schools or workplaces.

All these reforms were made possible mainly due to the efforts of Prof. Kadar Asmal. Professor Asmal was tasked with developing an action plan to address the serious water crisis facing South Africa; including the issue of unequal water availability. He enthusiastically set up a comprehensive revised system, taking into account the existing water management policies and practices. Prof. Asmal already had extensive experience of organizational reforms. He was appointed a member of the African National Congress, a group formed by Prof. Nelson Mandela to work on the country's new constitution.

While formulating his action plan, Professor Asmal naturally linked water issues from his previous experience to the three main human concerns - human rights, social justice and environmental sustainability.

The initiatives taken by Prof. Kadar Asmal include Working for Water Program, Social Water Supply and Sanitation Program and National Water Conservation Campaign. At the end of 1998, 24,000 people participated in more than 300 projects across the country through the Working for Water Program - the main objective of which was to eradicate exotic species that consume large amounts of water and endanger biodiversity. The community water supply and sanitation program launched to care for the health of the people of South Africa has provided employment to three lakh people, mainly women.

Due to the National Water Act of 1998, South Africa's water can no longer be used for racial discrimination. The new law is now described as the most comprehensive and far-reaching law on water in the world. This includes a special concept of 'reserved water'; in which human needs and basic environmental functions are given priority over commercial or industrial interests. The Act covers the right to use water. It is an economic tool

contd on Page no 29.....

Organization- Swades Foundation

Shri Vinod Hande

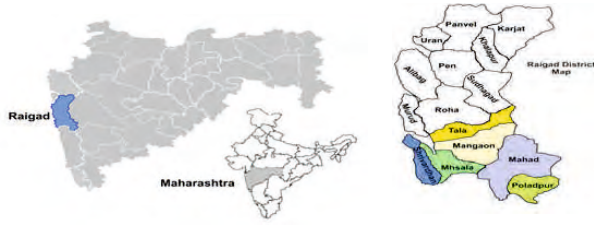
(M) : 9423677795

Swades foundation founded by Ronnie and Zarina Screwvala with single minded focus on empowering rural India with a vision of empowering rural India through best practices, modern technology and values. Philosophy of Swades Foundation states that India lives in her village and we can't rise to our true potential as a country, without a fundamental transformation in the lives of people in rural India. Swades aims to bring best global practice, corporate thinking to create a model of sustainable development. With a mission to empower 1 million rural Indian every five years establishment registered in 2013. Organization believes in 360 degree development with focus on community Mobilization, Water & Sanitation, Agriculture and Dairy, Livelihood, Education and Health & Nutrition. Strategy of Swades is to Engage, Empower, Execute and Exit.

Initially founder of the organization Ronnie and Zarina Screwvala started organization with SHARE (Society to Heal Aid Restore Educate) 1n 1983 with strong belief that India will never achieve its true growth until the rural sector of the country is empowered to make choices and transform their own life. In 2013 SHARE changed to Swades Foundation with a mission to empower rural lives. Little bit history of organization. Founder Ronnie Screwvala started journey with SHARE with small amount of Rs.1000/- and continued to progress in small steps. SHARE began by starting a sheltered workshop for the mentally challenged in Dharavi and Chembur area of Mumbai by providing training and employment opportunities for young youth. At workshop a 'Recycle, Restore, Reuse' program implemented which converted newspapers, cloth pieces and calendars into doormats, photo frames, pen stands, carry bags etc. They were also provided with skill to produce argo products like pickles, squashes, and spice powders there by generating income and restoring self-confidence. In 1999 SHARE entered in rural Maharashtra by creating saving groups among women in Raigad district. This received poor response as women were spending most of the time in arranging water for their domestic use. This led SHARE to begin work to improve access to drinking water in the region through rainwater harvesting from 2001. SHARE constructed over 570 rainwater harvesting structures like building bunds, ponds, spring barriers, eco-friendly bore wells, roof top rainwater harvesting structures etc. to solve the problem of water scarcity.

Screwvala who took initiative of empowering of rural India as a SHARE, renamed it as Swades Foundation in 2013, inspired by the

movie Swades of Shaharukh khan. Swades Foundation is now professional organization with 1600 strong team of which 1300 are community volunteers and 300 full time staff with an aim of empowering 1 million rural Indians every 5 years. Currently Swades empowering 6 blocks of Raigad dist. (Mahad, Mangaon, Mhsala, Poladpur, Shrivardha, Tala and newly added Sudhagad) of Maharashtra. Swades dreams of One India. An India where the Urban-Rural divide does not exist.



Swades Foundation works in following field for community mobilization and rural development,

- Education.
- Water & sanitation.
- Health & Nutrition.
- Economic Development

Swadesh has empowered 8248 self help groups and 720 governance groups located in 4124 village hamlets of 720 Gram panchayats for better governance. Achievements of Swades in above mentioned fields are,

Education

- 136666 children in 1361 schools, 806 aganwadis and 41 junior colleges impacted.
- 4748 teachers and principals trained.
- 6036 scholarships provided.
- Empowering 2700 schools with 200000 students
- With 17 programs 10000 teachers transform schools.

- **Water & sanitation**

- 39796 homes provided with potable water through taps.
- 25219 households toilet built.
- 2985 acres of land brought under irrigation.
- Ensured 260000 households have 200 liters of potable water per day round the year.

Health & Nutrition

- Creating an ecosystem for rural health with a special focus on diseases impacting 1% of the poplation.
- Special attention on eye care, maternal and childcare.
- Healthcare services through trained 2500 community health workers.
- 17317 cataract surgeries and 91939 spectacle provided.
- 156 cardiac surgeries for children.
- 44825 children tested for anemia.

Economic Development

- 16829 entrepreneurs created in animal husbandry.
- 3099 youth got employment.
- Grafted 143955 trees and distributed 1016294 new plants.

The lack of safe and secure drinking water and toilets is a major hurdle before the country's growth. Water born diseases affect 37.7 million Indians annually. Diarrhea alone causes more than 1600 death daily in India. As per estimation of the World Bank 21% communicable diseases in India are related to unsafe drinking water. Despite 3600mm of annual rainfall, the soil and terrain of rural Maharashtra where Swades is engaged makes water management a severe problem for Swades. Swades will ensure that every household in its working area has a toilet of their own and receive 200 liters of potable water per day through taps installed at house.

Economic development of rural area is also a task of Swades. Organization ensures that every rural household to earn Rs.2 lakhs annually. Farming is a key livelihood means but scarcity of water in the region and soil's limited water retention capacity put a big challenge. Thus farming is difficult for farmers to continue after the monsoon. Major part of their harvest is used for self consumption so they don't make money. Some have cattle but again water restrictions put limit.

The Swades foundation's Economic Development programs supports households who do not have land or have limited land. Various programs implemented into On-farming

(agriculture) and off farming (animal husbandry and fishing)and non-farming (training for youth for employment and self-employment). Economic Development programs focus on empowering rural families that help them to raise their income by Rs.2 lakhs per annum.

On-farming :

Swades motivates farmers to take up multiple cropping by ensuring that water reaches their farm beyond monsoon. Water schemes with drip irrigation helped them to take crop beyond paddy. Some farmers take additional fruit crops to make their income 4-5 folds. Swades supports them with infrastructure and technical training. In 2019-20 Swades brought 270 acres of land under irrigation which benefited 676 farmers.

New Orchard Program :

The new orchard program of Swades serves as a retirement plan for villagers where they plant fruit bearing trees to reap the income by sale of fruits. After four to five years of care & nutrition each tree gives income ranging from Rs.600-1000 every year. In year 2020 alone Foundation impacted 1399 households with this program and also distributed 76285 sapling for horticulture. Similarly those households having a local variety of mango swades supported them to take up mango grafting transforming local variety into Alphonso mango. Last year 231 households participated in this program and 3895 plant were grafted. This will generate annual income of Rs.1500/- to Rs. 2000- per tree after four years.

Off farming :

Swades trains community members with technical knowledge needed for dairy business with financial literacy. Swades also support them to increase milk yield and establish connections with milk collection centers. Swades also supports them to procure loan for buying cattle and expanding their dairy farm.

Goat rearing is the most preferred livelihood programs of the poor tribal families. Swades supports them with one female adult goat and two kids. Income from this program around Rs.30000-40000 per year. In the year 2020 total 2262 tribal families engaged in goat farming. Similarly Swadesh also supports rural households in poultry program to generate money by sale of birds and eggs.

In the coming years Swades will ensure that all beneficiaries of the Economic Development

Program receive financial literacy training, skill for preparation of budget, saving, financial security etc. Swades also aims to develop a 'Dairy Service Hub' in Mahad and Mangaon block. This way farmers will be motivated to grow green fodder for cattle feed subsequently will result in milk quality.

Water and sanitation

When swades got a mission to uplift a 1 million people out of poverty every 5 years, lack of safe drinking water and individual household toilets were main challenges for the communities. Swades aims to provide 200 liters of potable water to every household along with a toilet to make village open defecation free. Since 2016 Swades has supported 34153 rural households with drinking water through taps in their house and has build 23463 household toilets impacting 169000 lives.

Villages that face water scarcity, life of women is full of struggles. They have to walk for kilometers everyday to fetch drinking water which gives rise to body ache with allied problems. To end this Swades completed water schemes to provide tap connections to their house. These schemes are solar powered which ensures continuous supply of potable water. Forming of Village Development Committees and Water Management Committees with trained representative to ensure smooth operation and maintenance of water schemes.

Like water scarcity, unavailability of toilet put rural community to the risk of infections and other diseases. Apart from diseases safety of women and elderly persons always there. Through the Household Sanitation Program, Swades Foundation has built 1542 household toilets in last year. Construction of toilets is not a challenge but ensuring regular use of it was. Swades has created Nigarani Samitis in every village. These trained committees have been ensuring complete use of toilets and maintaining hygiene. In 100 % toilets constructed by Swades clean water is available and Swades ensures that everyone uses it.

Water Harvesting :

Swades Foundation has constructed check dams for harvesting rain water to ensure an adequate water supply for drinking and irrigation. Drip irrigation system helped farmers to cultivate multi crop and subsequently increased farmers income. Main advantage is migration reduced. Converting flood irrigation into drip irrigation helped farmers to improve productivity in agriculture. Swades foundation till date has brought 2454 acre of land under cultivation through drip irrigation in their area of working.

Swades Dream Village :

In Swades dream village community will be empowered with the capability to transform their own lives and their families. Every home will have easy access to safe drinking water as per recommended health standards. Every home will

have toilet.

Every family will have bank account. Every family will have health insurance and access to public and private health care facilities. Community and grassroot workers will be trained and educated to provide paramedical facilities. In Swades village every child will go to school till 10th standard. In addition to above every dream village of swades will have,

- Women's self help group.
- Farmer's group.
- Producer's association.
- Water committees.
- School committees.
- Government facilities.

List of partners who help Swades Foundation in executing their programs for rural empowerment of 1 million in 5 -6 years. From this big list few of them are Tata Trust, Reckitt Benckiser, Mahindra & Mahindra, HSBC, UTI, HDFC bank, Australian Consulate, Red Cross, Rotary etc.

Swades welcomes any contribution which enables them to achieve goal of empowering rural India. Donors will get benefit of section 80G of Income tax Act. Donors can choose one or any combination of the following cause,

- Water conservation.
- Improving access to potable water.
- Sanitation.
- Agriculture.
- Education.
- Health.
- Livelihood.

Donors can also choose form the followings to support the cause of swades,

- One child/women/individual.
- One Hamlet of 20-100 families.
- One Gran Panchayat 500-2000 people.
- One block consisting of 40000-100000people.

For getting further details of Swades Foundation one contact on following address or can visit their website.

Address : Swades Foundation.
Nishuvi, 3rd floor, 75, Dr. Annie Besant Road,
Worli, Mumbai-400018 - Phone -022-61093730
Email- contact.us@swadesfoundation.org
www.swadesfoundation.org

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that allows the poor to afford it at an affordable rate; while at the same time forcing water-intensive industries and agriculture to pay more. In addition, the law enacted by Kadar Asmal requires neighbouring countries to receive a fair share of water from shared rivers, he said.

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'Khandesh Jal Sammelan' at Chalisgaon,

a Glimpse of Chalisgaon pattern

Shri Upendradada Dhonde, (M) : 9271000195

In Khandesh, if we see the location of dams, we find that most of the Dams are in area where there is abundant rainfall availability i.e. Western Ghats but if we see the water use then its like Khandeshis have no right on Dam water whereas the western Maharashtra districts tells some different story. Abundant, uninterrupted water supply, horticulture and cash crops like sugarcane, large scale manufacturing and industry hub in the western Maharashtra while Khandesh

has some different picture. The Drough prone Marathwada gets many Government schemes of ground water recharge but Khandesh? Again here different logic. Already less number of Dams, that too fully silted and even though it is raining profusely during season, we can only see that, these dams in our area getting full, then gates open and all the water carried away i.e. from Tapi basin via Ukai to Arabian sea and again Khandesh is back to the point as gruesome summer. This cycle, every year goes on and on.

Who is bothered to know the resons behind water scarcity of Khandesh, once a symbol or epitome of water culture. Can we belive that Phad Sinchan padhhati is one of the advanced techniques evolved during ancient times. Where does all our knowledge and concerns went away? Why we became so water illiterate? Bureaucracy, Politiancs, Public , anybody bothers? A big question for Khandeshi people.

But when many of the Jalmitra in Bhujal abhiyan team completed a course under Sahaj Jalbodh, they started understanding the issue and Sh. Mangesh Chavhan, MLA of the Chalisgaon constituency in collaboration with Shivneri foundation had taken a very good initiative of organizing the first of its kind, Khandesh Jal Sammelan at Chalisgaon to address the Khandeshis about the water issues and their solutions. The very basic aim of this programme was to create awareness in public about scientific understanding of watershed and its use in evolving the solutions. A very intricate planning was the core of this programme.

The dignitaries like Dr. B. N. Patil, Chief Executive Officer of Jalgaon District, Shri. Anil Bhokare, District Deputy Director of Agriculture, Shri. Diwakar Dhote , Deputy Director of GSDA, Shri. Upendra Dhonde, a dedicated groundwater expert, Shri. Laxmikant Satarkar, Prantadhikari , Shri. Amol More, Tehsildar of Chalisgaon and Shri. Nandkumar Walekar, BDO of Chalisgaon were

present for this programme. The heighlight of the programme was that the Jalmitras, who were trained with Sahaj Jalbodh training got the opportunity to speak as leading key speakers.

The other eye-catching heighlights of the programmes was like,

1. Great combination of encouragement to people by prize distribution ceremony at one side and a convention on technicality of various topics related to water with complete authority on subject. Maximum technical, scientific guidance by youth in minimum time, that too in a very simple language. Extensive planning, beautiful and timely completion of presentations.
2. Responsible officers of all departments like ground water, agriculture, forest, revenue etc. were present . The Senior Govt. officers and experts were present not for talk or lecture but instead to listen and guide the leading local young speakers.
3. Emphasis was on nature conservation knowledge rather than any high-low -rank etc. resulting in an ideal combination of enthusiasm and seriousness with no ignorance towards the main purpose i.e. "technicality of the subject".
4. Very simple, inexpensive but good menu for meeting with the hunger, because the real hunger was of knowledge and not really of food.
5. 13 villages of Chalisgaon taluka participated in ground water campaign in the year 2019-20 and carried out water conservation work. Those all were honoured with trophys and prizes.
6. Also, on behalf of Shivneri Foundation, the various jalmitra i.e. the water volunteers were honored by trophies and certificates at the hands of Mangeshdada Chavan, Upendradada and all other dignitaries.
7. Rajput mangal karyala, laxmi nagar, Chalisgaon was fully packed with audience till the end.

During the programme Gunwantbhau Sonawane, the founder of Bhujal Abhiyan, expressed the journey of Bhujal Abhiyan so far and the path of water literacy in his mind. He insisted that we must responsibly act and check the effective, true assessment of our works. We also have to respect for the works done by other individuals and organizations in our area but that doesn't mean that we will compromise with scientific basis and we are ready to accept our mistakes and even dare to point out those of others.

In this Jal Smmelan, various local nature conservationists of Bhujal Abhiyan gave excellent presentations on various topics. The young, enthusiastic speakers Jitendra Patil, Bhagwat

Bairagi and Yogesh sonwane delivered lectures very confidently on the topics like Jal arakhada, Village pond and Nisargbet. Jitendra Patil expressed his thoughts on what should be the ideal watershed plan. Yogesh Sonawane informed about the important component of Sahaj Jalbodh Tantra which is Nisargabet. Bhagat bairagi was given the responsibility of informing about the structure of the lake which plays a vital role in groundwater recharge. He explained the importance of lakes, their uses, design of lakes, types, who built the lakes and the purpose of the lakes. The lake is the foundation of the water movement. So everyone must know that lake creation or rejuvenation should be a priority. Also these speakers made appeal to all the administrative officers of the taluka, experts and practitioners to come together, if you find any error, please tell us.

At the end of the programme, while addressing the water volunteers, Upendradada told clearly to keep in mind that our motto is "No one leaves behind". Success in water sector may not be measured on the basis of certain crores of liters storage also not to be based on rewards, name and fame etc. but a positive change in the lifestyle of the people at the bottom should be the real basis.

The responsibility as moderator of the programme was capably handled by Sh. Vijay Koli. His able communication was an evidence that entertainment-award-ceremonies as an excitement are fine to a certain extent, but the seriousness of the exact procedure in the water field is also required..

Where there is no technical perfection in water conservation works then it is not a movement but it's a mockery of movement. The programme has given a very strong message that water conservation movement in Chalisgaon taluka has now taken a revolutionary turn and this water movement will no longer be confined to Chalisgaon taluka but it is spreading all over Maharashtra in wider form.

In short, this was not a mere event but it was like a truly spirited water awareness undertaking . It was a programme which brought the 'Common man-administration-institutions-experts' together. This Jal Sammelan has given Chalisagon people a true direction and an energy to walk on the real path.

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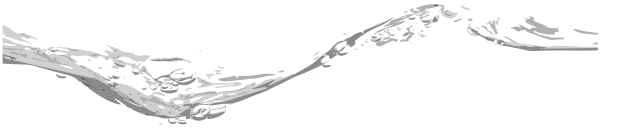

Visit to "FERROCEMENT MUSEUM"at Kondhane,

Taluka Karjat Dist Raigad

Shri. Ulhas Paranjpe , (M) +9820788061

On 9th March 2023 visit to Ferro cement Museum at kondhne village Taluka karjat, Dist Raigad was organised by IWWA Mumbai Centre
Total 54 students from Datta Meghe Engineering College and Saraswati Engineering College Navi Mumbai along with two staff members attended.
Myself, Er Kulkarni,Er.Vaidya ,Er.Gadge ,Er.Naykodi, Er Pawar and 2 Staff members were present at the site .
I explained them different methods of construction of Ferrocement Water Storage Tank .
I told participants that recently we have replaced Chicken Mesh with Natural Fibers such as
Coconut coir, Banana Fiber and Ambadi Fiber . This is our Innovation. I requested Staff of Engineering College to explore possibility of further study in this area AFTER WARDS THEY GATHERED AT OUR WATER KNOWLEDGE CENTRE at Mauli Hall Karjat.
I explained about Water Knowledge Centre and how we as a Engineer can give assured water to every individual Farmer in Kokan Region. Further I explained them use of Natural Fiber in Construction of Underground Water Storage Tank

I told them that as a Engineer we know many Technologies to store Water , Er B.R Kulkarni explained the importance of Cluster Development at Bhendi Baazar. Er.GADGE ,Er.Vaidya ,Er.Naykodi sir also shared their views regarding Importance of IWWA Membership and water scarcity problems and solutions.

*****

Wait, what!? Scientists say water in our oceans has alien origins

We live on a planet 71 per cent of which is covered in water. It is the water that gives Earth its unique blue colour from space; but the origin of this liquid water, which sustains our seas and has nourished life for millennia, still remains a subject of intense debate.

Some researchers argue that water in one form or the other has been present in our world ever since it coalesced out of swirling clouds of dust and gas 4.5 billion years ago. Earth has always been provided with a reservoir, in short.

Yet, other scientists have a different and, frankly, much more interesting viewpoint.

According to them, Earth was once parched and almost waterless, and our oceans were merely the result of ice and water raining down from extraterrestrial sources.

Yes, aliens gave us water! The theory suggests that extraterrestrials may be responsible for most of the 332,500,000 cubic miles of water covering our planet today.

And...drumroll, please...now, British scientists are backing up the hypothesis that our seas are actually from "out of this world."

Studying grains of material from an asteroid called 25143 Itokawa brought back to Earth by a Japanese robot probe, this group of scientists concluded that these grains support the hypothesis that our oceans came from outer space.

Luke Daly, of the University of Glasgow, says that the dust they studied provides compelling evidence that our oceans were formed from water from other parts of the solar system. He says that there is strong evidence that at least half of the water on Earth has been filtered by interplanetary dust.

The scientists report in a paper published in Nature Astronomy that the grains brought back from the asteroid contained a significant amount of water. Daly and his colleagues examined grains of dust returned from Itokawa 25143 using atom-probe tomography. By using this technique, scientists can count atoms one by one in a sample.

As Daly explains, this water was most likely created by the solar wind, a stream of particles emanating from the Sun. In the clouds of dust that float throughout the solar system, these particles would have interacted with oxygen atoms to create water molecules which would have built up in the clouds over the solar system's history.

The dust grains, as well as their water, would have been mopped up by the Earth as it orbited the Sun. According to an argument, this would have allowed water, which Leonardo da Vinci once called "the driving force of all nature," to filter down from the skies onto the earth.

Professor Martin Lee of the University of Glasgow, who was part of the group, stressed that all the water that is found in our seas did not come from solar dust grains.

Ice from comets and asteroids crashing on Earth would have made an equally substantial contribution. According to Lee, solar dust and icy comets provided us with the oceans in which life then evolved.

This discovery is important not only for providing compelling evidence about the origins of water on Earth, but for several other reasons as well. It implies that there may be water on other worlds in our solar system, perhaps in the form of ice. This has profound implications for future exploration of space and the hunt for life across the universe.

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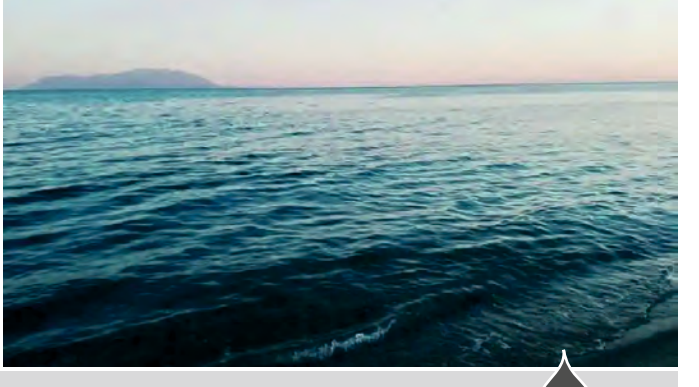


Nod for Ken-Betwa link project - Information collected from google

Context:

The Union Cabinet has approved the funding and implementation of the Ken-Betwa river interlinking project at a cost of ₹44,605 crore at the 2020-21 price level.

The Centre would fund ₹39,317 crore for the project, with ₹36,290 crore as a grant and ₹3,027 crore as a loan.

About the Project:

The project involves transferring of water from the Ken river to the Betwa river through the construction of Daudhan dam and a canal linking the two rivers, the Lower Orr Project, Kotha Barrage and the Bina Complex Multipurpose Project.

Significance of the Project:

The project is slated to irrigate 10.62 lakh hectares annually, provide drinking water supply to 62 lakh people and generate 103 MW of hydropower and 27 MW of solar power.

The project will be of immense benefit to the water-starved Bundelkhand region, spread across Madhya Pradesh and Uttar Pradesh.

The project is expected to boost socio-economic prosperity in the backward Bundelkhand region on account of increased agricultural activities and employment generation.

It would also help in arresting distress migration from this region.

Concerns associated:

Several obstacles have dogged the project.

The project will partly submerge the Panna Tiger Reserve in Madhya Pradesh and affect the habitat of vultures and jackals.

After years of protests, it was finally cleared by the apex wildlife regulator, the National Board for Wildlife, in 2016.

Benefits of interlinking :

Enhances water and food security.
Proper utilisation of water.
Boost to agriculture.
Disaster mitigation.
Boost to transportation.

Key facts:

Ken and Betwa rivers originate in MP and are the tributaries of Yamuna.
Ken meets with Yamuna in Banda district of UP and with Betwa in Hamirpur district of UP.
Rajghat, Paricha and Matatila dams are over Betwa river.
Ken River passes through Panna tiger reserve.

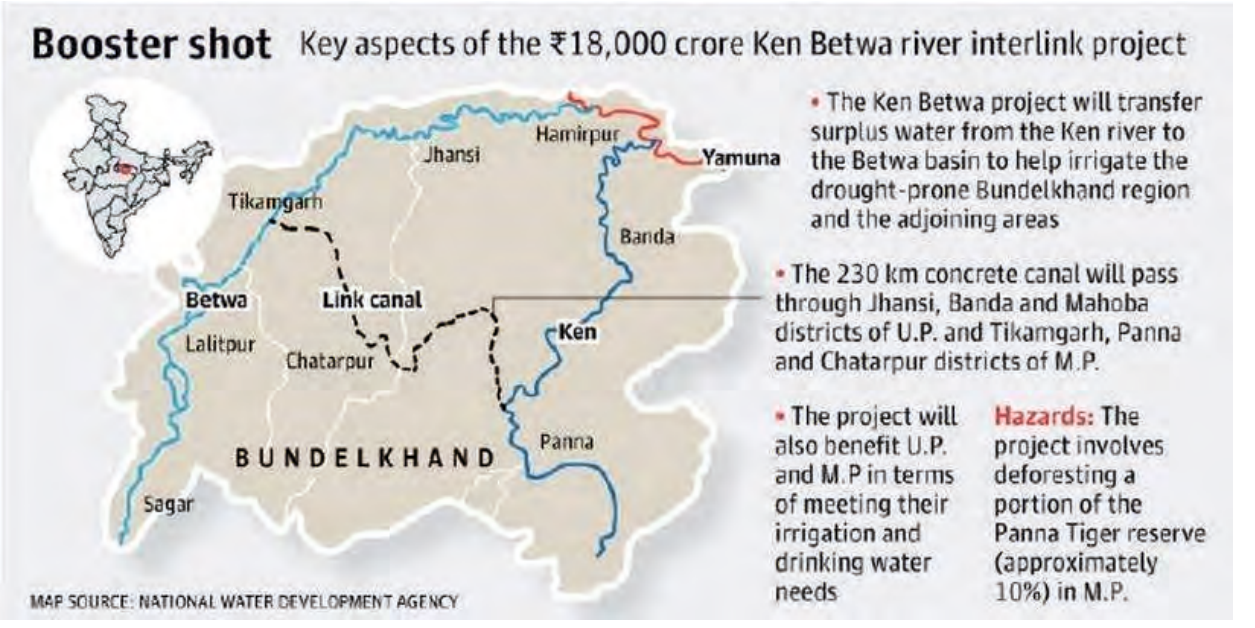
About the Project.
Ken and Betwa- tributaries and basin states.
About Panna Tiger Reserve.
Biosphere Reserves in India.

Cabinet Gives Nod for Rs 44,605 Ken-Betwa River Inter-linking Project

The Union Cabinet on Wednesday approved the funding and implementation of the Rs 44,605 crore Ken-Betwa inter-linking of rivers project, which will address the water scarcity in the Bundelkhand region spanning across Madhya Pradesh and poll-bound Uttar Pradesh. The Union Cabinet has approved a central support of Rs 39,317 crore for the project, covering a grant of Rs 36,290 crore and a loan of Rs 3,027 crore, Information and Broadcasting Minister Anurag Thakur told reporters here.

This will pave the way for more such projects for interlinking of rivers in the country, he added. The Ken-Betwa project involves the transfer of water from the Ken river to the Betwa river through the construction of the Daudhan dam (the Lower Orr project, Kotha Barrage) and a canal linking the two rivers (the Bina Complex Multipurpose project).

The project will ensure an annual irrigation of over 10.62 lakh hectares of land, drinking water supply to a population of about 62 lakh and also



generate 103 MW of hydropower and 27 MW of solar power. It is expected to be implemented in eight years with state-of-the-art technology.

"The project will be of immense benefit to the water-starved Bundelkhand region, spread across the states of Madhya Pradesh and Uttar Pradesh," an official statement said. The Ken-Betwa project will benefit the districts of Panna, Tikamgarh, Chhatarpur, Sagar, Damoh, Datia, Vidisha, Shivpuri and Raisen in Madhya Pradesh and Banda, Mahoba, Jhansi and Lalitpur in Uttar Pradesh.

"The project also comprehensively provides for environment management and safeguards. For this purpose, a comprehensive landscape management plan is under finalisation by the Wildlife Institute of India," the statement said.

*****

Shri Bhaktaraj Gajare - A nature lover

Let's meet a unique and eco-friendly teacher whose name is Shri. Bhaktaraj Garaje. He has been working tirelessly for the last several years to shape not only the future of the children in Jat taluka of Sangli District but also the present and future of all mankind. If there are such teachers, why can't students plant and take care of trees? Why not stop deforestation? Why not stop the exploitation of rivers, lakes, water, seas/oceans? Why not stop using plastic? Why not do what is necessary for the environment and avoid the harmful elements?

Let's inspire such teachers who are working on nature conservation, take inspiration and explain how such teachers created, let's see how such teachers shaped in our area?

So will you take lead to shape at least 1 teacher from your area making him your student before this rainy season so he can inculcate an importance of nature conservation among next Gen? I have decided. Now it's your turn.

His WhatsApp No. +91 98341 27980.

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Earth's interior cooling faster than expected, says research. What will happen next?

If a research is to be believed, the Earth's interior seems to be cooling down faster than expected. It may follow the footsteps of rocky planets Mercury and Mars.

The study, which has been carried out by ETH Professor Motohiko Murakami and his colleagues from Carnegie Institution for Science, has been published in the 'Earth and Planetary Science Letters Journal'.

These experts have developed a measurement system, which enables to measure the thermal conductivity of bridgmanite in the laboratory. It is done under the pressure and temperature conditions that prevail inside the Earth.

It suggested that the heat flow from the core into the mantle is also more than what was thought previously. The greater heat flow increases mantle convection and spikes the cooling of the Earth.

It also causes plate tectonics to decelerate faster than expected based on previous heat conduction values. The tectonics are responsible for the convective motions of the mantle.

These changes seem to be leading to the cooling down of the planet, said the researchers.

"Our results could give us a new perspective on the evolution of the Earth's dynamics. They suggest that Earth, like the other rocky planets Mercury and Mars, is cooling and becoming inactive much faster than expected," Murakami explained.

"We still don't know enough about these kinds of events to pin down their timing," he said.

Nitin Gadkari Inaugurates The Biggest Vertical Farming Project By "A S Agri & Aqua"

In Nagpur, Maharashtra, A S AGRI AND AQUA LLP, one of India's fastest-growing agriculture and aquaculture enterprises and a pioneer in hi-tech soil-based vertical farming technology, held a grand opening ceremony for its own new state-of-the-art vertical farming venture, with Minister Nitin Gadkari as the Chief Guest.

The grand event took place at Geetganga Farms in Mansar, Nagpur. As the event's Chief Guest, Nitin Gadkari, Union Minister of Road Transport and Highways of India, inaugurated the new project and delivered an inspirational and motivating speech to the participants.

The latest venture in Nagpur, which will be one of Asia's largest vertical farming projects, is the next step in A S AGRI AND AQUA LLP's huge growth in Maharashtra, and it intends to offer the great benefits of soil-based vertical farming technology to farmers in the Vidarbha area.

Drought, lack of rain, climate change, increased dependency on chemical fertilizers, crop failure, insufficient irrigation systems, crop variety limits, and financial challenges have afflicted the farmers for years. The advent of A S AGRI AND AQUA LLP's patented, revolutionary soil-based vertical farming technique provides enormous prospects to Vidarbha farmers.

Soil-based Vertical Farming poly-houses provide the ideal environment for cultivation, entering a new age in agriculture. Vertical farming consumes 85 percent less water and 99 percent less land, producing 100 acres of produce on one acre.

The enclosed environment also enables temperature control and automated fertilizer management, reducing the danger of insect infestation and inclement weather while allowing year-round crop yields.

Aside from the Vertical Farm Poly-houses, A S AGRI AND AQUA LLP is introducing Skill-based Training and Placement Programs to the GNI Campus and Yuva Foundation Campus to improve

agricultural expertise and provide new career prospects for Farmers and local youth.

This new initiative comes just three months after A S AGRI AND AQUA LLP unveiled a vertical farming and aquaculture project in Nanded, Marathwada. The firm also funded and engaged in the Smart Urban Farming Expo, which will be held in Delhi on November 27th and 28th, 2021. The Agro-Vision Exhibition was recently conducted in Nagpur from the 24th to the 27th of December 2021.

A S AGRI AND AQUA LLP has been at the forefront of Soil-Based Vertical Farming in India from its start, championing a revolution in the world of agriculture. The recently opened Nagpur Vertical Farming project marks a watershed moment for the firm and offers up new avenues for growth for the farmer community of Vidarbha.

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Interlinking rivers to achieve atmanirbharta

With agricultural, economic, strategic, and sociological benefits, the national water grid can help India tap into its full potential as an economic powerhouse

An intricate web of a comprehensive policy involving various ministries is required to be created to implement a project of the ILR's magnitude (ANI)The climate crisis no longer remains an issue with merely climatic implications. Its reverberations are felt in the world of development and strategy. Our nation is particularly vulnerable to the adverse effects of the climate crisis. Increasingly, unpredictable patterns of monsoon rainfall, while catering to the second largest population in the world, might overwhelm the drinking water infrastructure of India. Hence, it is vital for the government to work towards comprehensively overhauling the existing water infrastructure of the nation, thereby recalibrating it with India's needs in the 21st century.

The answer to this recalibration lies in the national water grid, and the Interlinking of Rivers (ILR) programme, making them perhaps the most important need of the nation at this hour. The question that arises at this stage is: What is a national water grid? The national water grid is the network of canals and dams to be constructed under the ILR programme of the Government of India, which seeks to sustainably divert water from regions with rivers having excess water to geographies deficient in this natural resource. The ILR programme received an impetus during the National Democratic Alliance (NDA) government's tenure, under Prime Minister (PM) Atal Bihari Vajpayee.

An intricate web of a comprehensive policy involving various ministries is required to be created to implement a project of the ILR's magnitude. Federal sensibilities must also be accounted for through forming a consensus. The subtle art of policymaking needs to be backed with resolute and decisive leadership. This is where the United Progressive Alliance (UPA) government was deficient, and where PM Narendra Modi's leadership has made a difference to projects that long lay dormant between 2004 and 2014.

In less than five months of the NDA government's swearing-in, a special committee on ILR, as per the directions of the Supreme Court, was constituted by an order on September 23, 2014. The ILR has two components — the Himalayan River Development Component and the Peninsular Rivers Development Component. The National Water Development Agency (NWDA) has already identified 14 links under the Himalayan Rivers Component and 16 links under the Peninsular Rivers Component, for inter-basin transfer of water

after having conducted geographical and topographical surveys with due diligence.

The benefits of the national water grid have four distinct dimensions: Agricultural, economic, strategic, and sociological. On the economic front, the interlinking project will enable the production of 34,000 MW (megawatts) of energy, while curbing irrigation shortages to 35 million hectares of land. The benefits are sociological too. Research by the World Bank shows that halving the time required to fetch water for households increases school attendance among girl children by 2.4 percentage points on average, with the impact being far greater in rural areas. Thus, interlinking rivers, by increasing water supply, invariably results in women's empowerment — a dream already being realised by PM Modi's Ujjwala Yojana.

With our adversaries trying to disrupt the natural flow of rivers in the subcontinent by constructing dams, the ILR programme will ensure a safety net of water supply, if these foreign powers ever try to divert the natural flow of our rivers. All four dimensions are vital for the PM's vision of ensuring an aatmanirbhar India — a self-reliant India that is under no compulsion to be dependent on the world. Therefore, the ILR and the national water grid are essential policy imperatives in tapping into India's full potential to grow as an economic powerhouse.

The first chapter of this promising success story is being authored by the PM in the form of the Ken-Betwa River Interlinking Project. The Cabinet, last Wednesday, under the PM's direction, approved the funding and implementation of this historic project, which has a total cost of ₹ 44,605 crore. The government is committed to delivering on its promise of the project's completion in eight years.

The project has far-reaching positive implications on the region that I have the good fortune of calling my janambhoomi (birthplace) and karambhoomi (workplace). The 13 districts in the Bundelkhand-Chambal belt bordering Madhya Pradesh and Uttar Pradesh have, for generations, battled withering drought. For generations, despite promises by successive governments, this region had remained neglected.

With PM Modi at the helm of affairs, the project has been infused with renewed vigour. Statistics from the jal shakti ministry underline that the project will realistically provide irrigation to 10.62 lakh hectares of barren farmlands, and provide safe drinking water to about six million people. The benefits also extend to industry and the power sector, with infrastructure providing for the generation of 103 MW of hydropower and 27 MW of solar power.

*****

Scientists surprised as abundant animal life found deep under Antarctica ice sheet

Antarctica is an icy world. Temperatures go unimaginably low in winters. You may have seen viral videos of researchers bringing hot noodles in open while in Antarctica and the boiling food freezing in literally some secionds. Yes, the continent supports life. Penguins and whales have called this habitat home for thousands of years. But the continent isn't exactly what comes to mind when someone says 'flourishing wildlife' or 'abundance of life'. The popular perception of Antarctica remains that of a cold unforgiving icy land that has claimed lives of many explorers and researchers.

But nature is wonderful. And life has the tenacity to hold on against most difficult of odds. A new discovery in Antarctica has proven (again) just that.
On the surface, Antarctica looks like an icy graveyard. But researchers found that abundant life had been thriving under the ice shelf for thousands of years.

Researchers from UK and Germany found life deep below Ekstrom ice shelf in Antarctica.
This included animals. Though they are mostly worms and other animals that consume algae, discovery of life deep withing the frozen continent is in itself a big thing. It was previously thought that this was not possible as hundreds of metres of ice sheets did not provide favourable conditions for life to flourish.

The scientists dug two boreholes. One went on for 192 metres through ice. The other went through 190 metres of ice. And below it, scientists found a thriving ecosystem of animal life. They found 77 species from 49 different genera bryozoans.

Carbon dating yielded that the ecosystem had been thriving for 6000 years!

The researchers have published their results in the journal Current Biology.

Women & Water:

- Right from morning till night, every woman is busy is dealing with water issues. She is required to fetch water, may be from a long distance, store it properly and use it carefully satisfying all the needs of the family members. On many occasions this work is done even at the cost of her health. If we go to any village, we always see one picture every day, woman carrying one pot of water on her head and the other one on the waist. This double weight affects her hair, neck, backbone, waist, calf, feet and she is required to tolerate it without any complaint.
- After everybody in the family takes bath, if water is left she takes her bath. On many occasions she has to go without it. The head of the family, even when he is free, does not take any trouble to fetch water as it is supposed to be below his dignity. She, however, takes the help of the eldest daughter for this work. As a result, it is not possible for the daughter to attend the school regularly. In rural areas, most of the girls do not attend the schools as they have to help their mother in doing this 'noble' duty.
- The woman with her eldest daughter moves out to fetch water, the smallest kid in the family is left unattended at home. There are many incidents when these small children meet with severe accidents at home and are required to lose their life.
- As if this is not enough, she has to attend to her farm duties also. Weeding, cleaning the farm, irrigate the crops are the duties which every woman has to perform. Thus, no time is left with her to think about herself.
- Even when she is involved in all these operations she is not involved in any decision making process. All the decisions are taken by the males and the heads of the family. Thus, it is more or less a thankless job for her. This is not the fate only of Indian women. It is true in case of all the women folk all over the world.
- This issue was raised in world conferences. Out of the four Dublin Principles one is related to this issue. It was recognized that women should be involved in the decision making process and management of water. Suitable resolution was passed in this conference.
- To ascertain as to whether Indian women know anything about such resolution, we as the representatives of Global Water Partnership (South Asia) met the representatives and Office bearers of All India Women's Association at their head Quarter in Delhi. Our objective to meet them was to associate them with our water of literacy work. They have more than 5000 branches all over the country. Unfortunately, they had no idea about such resolution. We took them to the South Asia Water Forums held at Kathmandu and Islamabad at our cost to make them familiar with our work. But even after attending these Forums we could not get any positive response from them.
- We received a grant of Rs. 1,00,000 from our parent Organization (Global Water Partnership) to associate women with this work. We held workshops at Ambajogai, Nanded, Parbhani, Jalna, Pune, Aurangabad and Mulshi where at least 1500 women attended these workshops.

Heartiest greetings form the Jalasamvad family

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