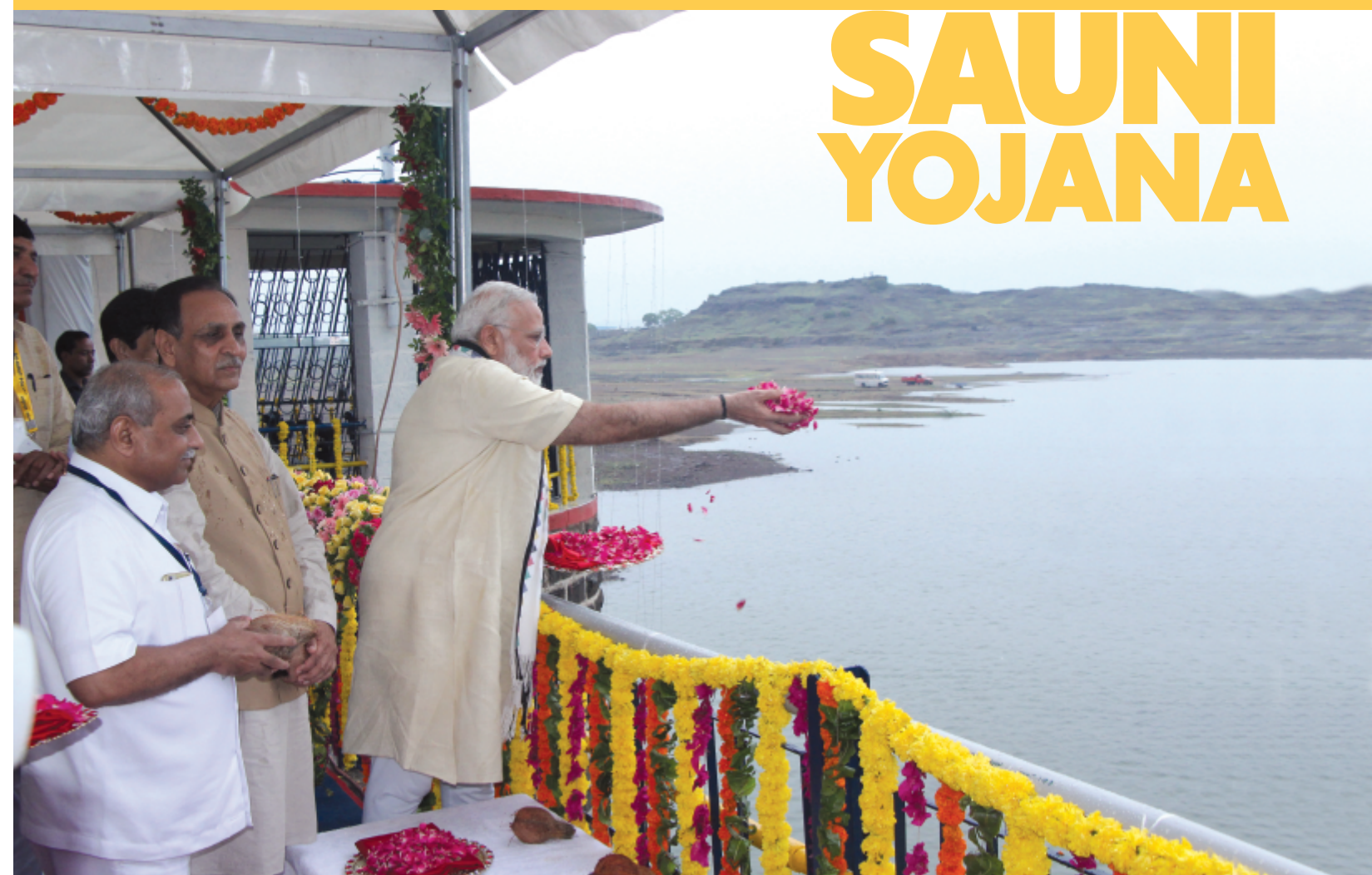




# SAUNI YOJANA







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SAURASHTRA NARMADA AVTARAN  
IRRIGATION YOJANA

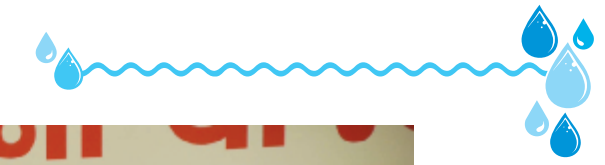




# Index

◆ Preface	04
◆ Requirement of SAUNI	07
◆ Scenario of Saurashtra region before SAUNI project	09
◆ Birth of SAUNI	20
◆ Details of SAUNI Yojana	23
◆ Benefit of SAUNI Yojana	31
◆ Change in the lives of people	33





# Preface

Availability of adequate water is the prerequisite for the development of any region. As the Gujarat Chief Minister, Shri Narendra Modi knew the importance of water in the state where the majority of areas were facing drought in every third year. The current Prime Minister had a clear vision to utilize a single drop of water to ensure availability of water to every nook and corner of Gujarat.

Shri Narendra Modi knew that in order to make all-round development

right from agriculture to industry availability of water is must. After taking reign of the state, Shri Modi's prime focus was to provide adequate water not only for drinking purposes but also for irrigation for the prosperity of the people of Gujarat.

The Saurashtra Narmada Avtaran Irrigation (SAUNI) yojana (project) was launched as part of this vision of Shri Narendra Modi. The objective of this highly ambitious project was to fill 115 reservoirs situated in water deficit



Saurashtra region by diverting floodwaters overflowing from the Sardar Sarovar Dam across the Narmada River.

Gujarat state often faces the acute water crisis. 71% area of Gujarat is water deficit area. SAUNI yojana is one of the projects developed for the optimization of water of the Narmada River. It is extremely important to know the topography of Gujarat to understand the importance of SAUNI yojana. The state has mainly divided into five major regions – North Gujarat, Central Gujarat,

**“Waters of Narmada will bring transformation to this region. The SAUNI scheme will further transformation and farmers of Saurashtra region will prosper.”**

South Gujarat, Saurashtra and Kutch. These five regions of the state have vast differences in the quantum of annual rainfall. South and Central Gujarat regions and geographical area have







blessings of rain god with annual rainfall in the range of 800 mm to 2000 mm. The other three regions – North Gujarat, Saurashtra and Kutch are not so blessed as these regions witness drought in every three to four years.

For North Gujarat, the Shri Narendra Modi Government in the state already implemented Sujalam Sufalam Yojana. Now it was the turn of another malnourished region with regard to availability of water for irrigation and domestic requirements. SAUNI yojana was one of the solutions for the water scarce Saurashtra region.

Shri Narendra Modi wanted to address the challenge of water scarcity and he gave top priority to this project once it was conceived. He ensured optimum use of government machineries to implement SAUNI yojana on ground.

On the day of ground breaking ceremony of SAUNI yojana at the Race Course Ground in Rajkot on February 17, 2014 Shri Modi said, "During monsoon, Narmada water flows into the sea. Instead we want to utilize overflowing water (not stored in Narmada Dam) to drench the thirst of arid areas like



Saurashtra and Kutch."

The successful execution of the project drew the attention of leading personalities of the country resulting in their visits at our different site locations. Inauguration ceremony was held under the leadership of Shri Narendrabhai Modi, then Chief Minister of Gujarat in September-2012. Shri Narendrabhai Modi, the Prime Minister of India has inaugurated lokarpan of different links of the project during April-2017, August-2016 and June- 2017.

The Foundation stone of Phase-II works was laid by Shri Ram Nath Kovind the President of India. Function was also presided by Shri O.P. Kohli, the Governor of Gujarat during his visit in September-2017. The Chairman of NABARD Mr. G.R. Chintala visited the Dholidhaja pumping station site during October-2020.



## Requirement of SAUNI

**T**o ensure equal availability of water across Gujarat, the Narmada, Water Resources, Water Supply and Kalpsar Department identified 3 MAF of surplus Narmada water to be utilized for command area development by augmenting the water yields of various reservoirs in Saurashtra, Kutch and North Gujarat.

A surplus of 3 MAF of Narmada water was made available for Kutch, Saurashtra and North Gujarat in

between 2001 to 2006. Despite making giant leaps of faith in the developmental activities, Gujarat was known as one of the driest and most arid regions of the country. This scenario has changed in the last couple of decades. The state's water management network has achieved not just national but international recognition for being able to channelize an optimum amount of irrigated and potable water to its citizens.







Not just that, the system has also eliminated the existing problems of electricity for the farmers. SAUNI Yojana is a visionary project highlighting Gujarat's capability on two fronts. First, it is a portrayal of the state's infrastructural capability. Second, it is a one stop solution to mitigate the problem of water scarcity in Saurashtra.

The farmers of Saurashtra faced the primary problem of availability of Irrigation water. This compelled them to crop in lesser areas in absence of their

basic requirement. To ensure the availability of potable water in Saurashtra, Shri Narendra Modi laid the foundation of SAUNI Yojana. The scheme not only solves the problem of availability of drinking water for farmers but also provides them water for irrigation resulting in the prosperity of the entire region. At the same time, it ensures a balance in the ground water table and also improves the ground water aquifers.



## Scenario of Saurashtra region before SAUNI project

Spread across around 66000 km<sup>2</sup>, the peninsular region Saurashtra covers about one third of the total area of Gujarat. Despite being such a vast region, Saurashtra had remained underdeveloped because of water scarcity. Scanty rain coupled with absence of perennial rivers make the region dry and arid. The region had no permanent source of water.

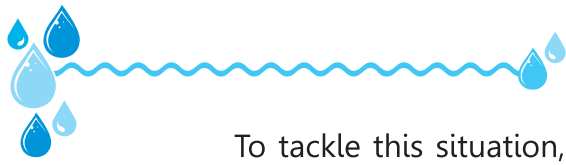
People residing in the region accepted this fact. Socio-economic

**“SAUNI yojana will go a long way in giving water here (Saurashtra region), but I will again reiterate my demand to farmers to embrace drip irrigation”.**

implication is visible in form of continuous migration of Saurashtrians (People of Saurashtra) to South and Central Gujarat regions apart from other parts of the country.





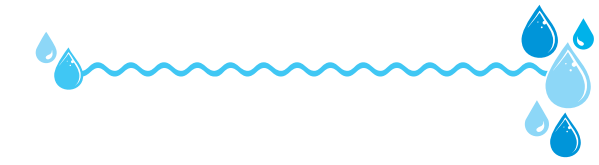


To tackle this situation, many dams were constructed in the region to store rain water along with a canal network. The only problem was how to fill these dams to the brim in case of inadequate rain. Majority of the dams used to receive insufficient income of water and hardly filled to its full reservoir level. Because of it, the water level of all these dams used to get depleted quickly by the arrival of December. In fact during summer, children were actually seen playing cricket inside the empty dams of Saurashtra.

Dearth of water directly impacted agriculture. Farmers in the region could only think of monsoon of Kharif crop as

water was not available for the remaining two seasons – Ravi (winter) and summer unlike peasants of South Gujarat and Central Gujarat.

Forget irrigation, the level of water scarcity was such that women in the many parts of Saurashtra region had to go miles to fetch a pot of drinking water during the scorching heat of summer. The state government had to supply water through tankers to most parts of the region to quench the thirst of people. In the mid-eighties drought conditions were so severe that the government had to run special trains to bring water to major cities of Saurashtra region.



Entire government machinery was occupied to solve basic water problems every summer. In the past the state government had to avail water for the commercial capital of Saurashtra region – Rajkot by drilling large bores at the place considerably far from Rajkot and then transporting the water through a pipeline exclusively laid for the purpose. During drought every third or fourth year, the government at the helm had no option but to initiate scarcity relief work to provide livelihood to farmers, farm labourers and lakhs of needy people.

Till the year 1989, the government was almost clueless on how to address water woes of Saurashtrians. Finally some efforts were made and Sardar

**“Water is a 'prasad' from nature. This is being done so that our farmers are happy. Work happened with great effort, not via short cuts”.**

Sarovar Development plan was published with a title – “Planning for prosperity”. In this report the storage option of surplus Narmada water in Saurashtra region was described in detail.

“A fairly detailed project has been worked out based on supplies which may be made available at the tail of







Saurashtra Branch so as to pump about 1.0 MAF of water to augment the presently planned irrigation schemes which are either existing, under construction or planned in near future. These have an aggregate storage capacity of about 63.60 TMC (1.5 MAF). These are proposed to be serviced by a proposed new storage to be located near Chotila at an elevation of 180 meters (FSL), with two link supply canals taking off towards the south and towards north and west to serve various projects in Rajkot, Bhavnagar, Amreli and Jamnagar Districts," said the report.

The report further said that most parts of Saurashtra plateau experience uncertain and erratic rainfall with a very

high co-efficient of variation and not only the dry-land agriculture but that based on irrigation from Government constructed storage schemes is totally uncertain. It has been found that the existing storages in the districts of Saurashtra (except parts of Junagadh district) get filled up to the extent of 25 to 30 percent of their live storage capacities, average filling being not above 75 percent for 25 percent of the years for many projects.

As per the report the existing practices in respect of irrigation projects in the area thus reflect hydrological patterns, which can be expected in a drought prone area with uncertain rainfall.

It has not been possible in this background to plan assured irrigation in the Saurashtra plateau. In most of the projects, sanction for the kharif crops can be given by August because of uncertainties in storage build-ups. Rabi Irrigation is also difficult to assure. This clearly means that the farmers who are very enterprising and hardworking have not been able to switch over to specific crops and/or technologies which demand assured irrigation.



No further action has been initiated after a report published in 1989.

After Shri Narendra Modi became Chief Minister of Gujarat he had taken keen- interest in the matter. Because of his active involvement, Sardar Sarovar Narmada Nigam Limited (SSNNL) has studied the water utilization in Narmada basin.

SSNNL has described that, The Narmada Water Dispute Tribunal has allocated 28 Million Acre Feet (MAF) to four states. Madhya Pradesh – 18.25

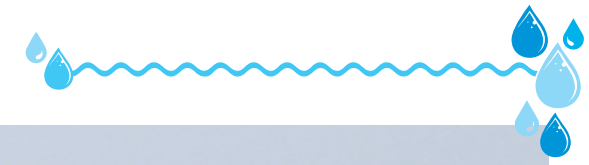
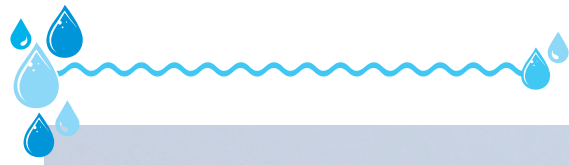
**“Water has reached in Saurashtra with the blessings of Maa Narmada”**

MAF, Gujarat – 9 MAF, Rajasthan – 0.50 MAF, Maharashtra – 0.25 MAF.

It is expected that the Government of Madhya Pradesh would take a long time before fully impounding and utilizing 18.25 MAF water allocated to it by the







“Water to every farm, employment to every individual (‘Har Khetar ko Pani, har hath ko kam’) was Pandit Dindayal Upadhyay’s dream, and this is the right path to strengthen Indian economy. Farmers of India are capable enough to provide food to entire Europe,” Modi on the occasion of launching of SAUNI yojana to mark Pandit Dindayal Upadhyay’s birth anniversary.



Tribunal. In the meanwhile, the surplus water will be flowing into the Sardar Sarovar Reservoir mostly during the monsoon months.

Whenever the flow of such surplus water is more than what can be fed into the River Bed Power House, that surplus flow can be diverted to the NMC for use in Gujarat, should be taken particularly

for the benefit of water scarce and drought affected regions of North Gujarat, Saurashtra and Kutch.

The SSNNL has with this objective in view, entrusted a study to the Water & Power Consultancy Services (India) Limited (WAPCOS) which is a Government of India (GOI) company, to assess availability of such surplus water

and also examine the scope of its utilization in the needy regions of Gujarat.

WAPCOS was also asked to work out alternative layouts with the cost of conveyance of surplus water in Saurashtra and Kutch regions.

WAPCOS studied Rainfall data of entire Narmada basin, position of

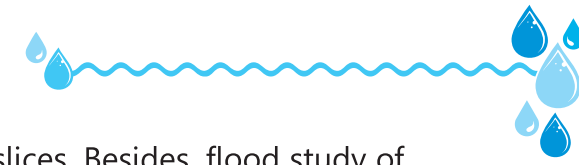
completed, ongoing and proposed projects in Madhya Pradesh as well as present utilization of water from completed scheme including anticipated water utilization through ongoing projects and proposed scheme







**"I still remember when I met lawmakers of Saurashtra and talked about SAUNI Yojana. This is an initiative that will make every Gujarati proud. All of us should take note of how this SAUNI Yojana has come through."**



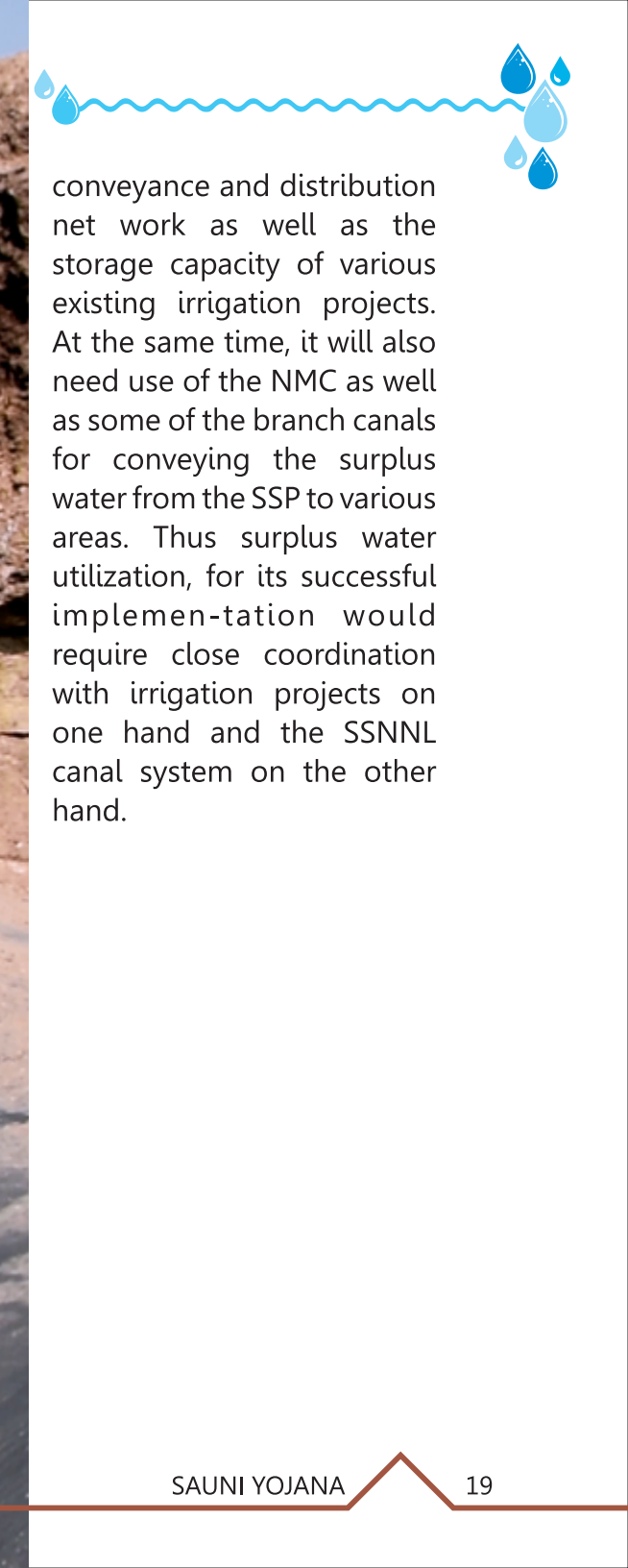
in 5 years slices. Besides, flood study of 108 years measured at Garudeshwar and Mortakka and two reservoir model study.

With the help of above facts "WAPCOS" has assessed the "Surplus Water" availability during various stages of development in M.P. and Gujarat. For allocation of water in both regions, "WAPCOS" has made study of water shortfall area, rainfall pattern, available facility of natural storage and possibility of increasing reliability of existing dam storage to decide absorbing capacity of both the regions, with the help of above fact, "WAPCOS" has suggested to allot the surplus water worth 1 MAF to each region i.e. North Gujarat, Saurashtra & Kutch.

For conveying surplus water in the regions, "WAPCOS" has studied the topography and techno economical possible route. "WAPCOS" has given four options with probable project cost of each option and its conveyance capacity.

The SSNNL has found the pre-feasibility report prepared by WAPCOS acceptable. The project for using surplus water envisages utilizing the





conveyance and distribution net work as well as the storage capacity of various existing irrigation projects. At the same time, it will also need use of the NMC as well as some of the branch canals for conveying the surplus water from the SSP to various areas. Thus surplus water utilization, for its successful implementation would require close coordination with irrigation projects on one hand and the SSNNL canal system on the other hand.



**“Water is the priceless gift of almighty to mankind. It is the heart of economic development. Gujarat has become a pioneer in conservation and effective utilisation of water. SAUNI is one of the initiatives taken by the Gujarat government. So that every drop of water would contribute to make the state’s economy vibrant.”**





## Birth of SAUNI

Ahead of the implementation of SAUNI yojana, then Chief Minister of Gujarat, Shri Narendra Modi invited technocrats, engineers and relevant experts by organizing a summit on water scarcity in Saurashtra region.

During and after the summit, many suggestions and considerations had come. A known hard taskmaster, Shri Narendra Modi wanted to address the water scarcity situation in Saurashtra region at any cost and he literally made

everyone concerned work on overcoming the challenge of water crisis in Saurashtra region.

After a plethora of considerations and lots of hard work put in by the experts, engineers and technocrats

within as well as outside the government finally it was decided to launch Saurashtra Narmada Avataran Irrigation (SAUNI) yojana. Initially, SAUNI was envisaged as an open canal network to connect different reservoirs and ponds of Saurashtra region.

However, the receptiveness of Shri Narendra Modi accepted a suggestion to convert the open canal project into a pipeline network. The decision was not taken overnight. In fact lots of brainstorming was done through plenty of presentations, marathon discussions and plenty of calculations. According to experts, the original plan of the open canal system was not feasible as it makes too much loss and also the higher R.L.

**“SAUNI project will truly benefit the people of Gujarat”.**

areas couldn't be reached. The other major hurdle faced was land acquisition problems apart from a plethora of minor issues. Hence finally the open canal network project was converted as PIPELINE NETWORK. The benefit of the pipeline network led to early completion







of the project and rectified most of the problems that were appearing in the open canal network. Finally, the committee directly reporting to Shri Narendra Modi decided to introduce four links as per the geography and topography of Saurashtra region.

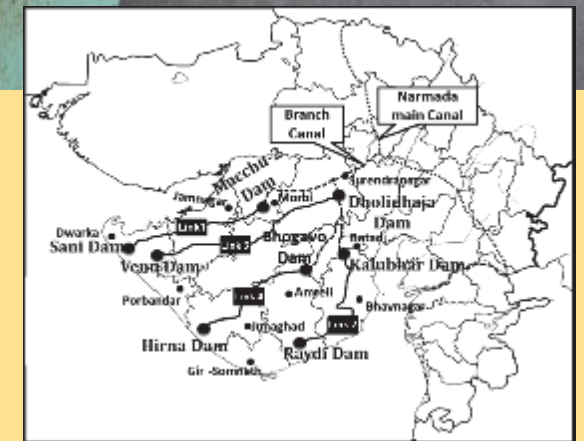
Once it was decided to implement SAUNI as a pipeline network, the task of designing and implementing the project at the fastest possible speed was

handed over to engineers and allied staff of Narmada and Water Resources Department Of Gujarat Government.

SAUNI yojana was accepted as a full proof solution of the grave water scarcity situation of Saurashtra region. Under the scheme, uninterrupted supply of water to the dams was envisaged throughout the year.



## Implementation Schedule of SAUNI Yojana



**S**AUNI yojana has been scheduled to be completed in three phases. Works of all four links are to be carried out simultaneously between the destinations as decided at the time of planning and designing.







“The more people have access to water, the more doors of progress will open. The Government’s priority is to give water as early as possible. It is also a responsibility to be careful and conserve as much water as possible.”



Works of all four Links covered under Phase-I are fully completed by now. Total 16 reservoirs are connected through which 1.66 lakh acres of land will get water for irrigation as per availability. Works of all four Links covered under Phase-II have been completed. Total 57 reservoirs are connected through which 3.78 lakh acres of land will get water for irrigation as per availability of Narmada water. Works of all four Links covered under Phase-III have been completed up to 80 % up till now. Total 42 reservoirs will be connected through which 2.81 lakh acres of land will get water for irrigation



## Process : SAUNI Yojana



Line Marking and Excavation Work

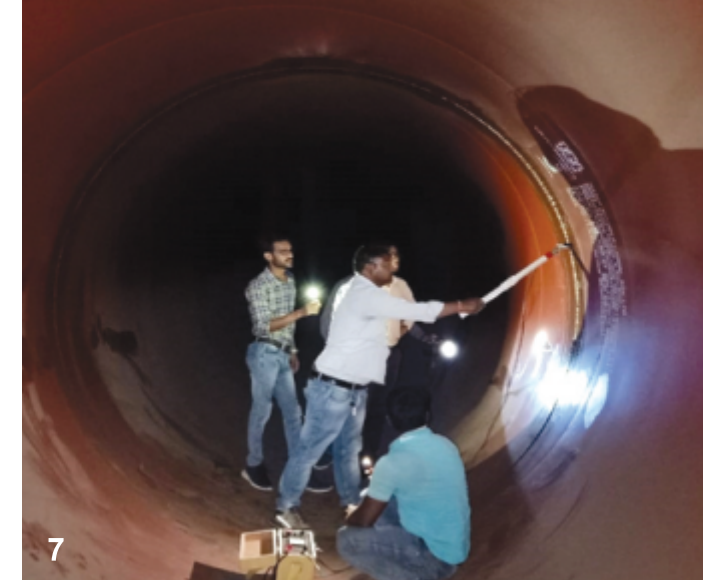
Sand Bedding Work



Pipe Laying Work

Phased Array Ultrasonic Testing

Outer Joint Coating



Holiday Test of Internal Joint Coating

Air vent pipe erection work is in progress

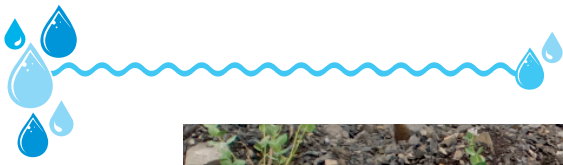


Trench Backfilling Work

Levelling Work







throughout the year as per the requirement after the Phase is completed fully.

As part of the project, one Million Acre Feet (1 MAF) Surplus Narmada Water has been allocated to Saurashtra Region. This water is to be tapped from Saurashtra Branch Canal and its sub branches. The excess flowing flood water of Narmada will be distributed to 115 reservoirs of eleven districts of Saurashtra through a total 1371 km long four link pipelines benefitting 8,25,000 acreland.

Flood water of Narmada river would be transported through open canal & Pipeline Networks to a maximum

distance of 645 kms from Sardar Sarovar dam to Raidy dam in Amreli district. In the process water would be lifted to a maximum height of 282 metres or 926 feet.

For the project utilization of an array of pipes with their diameter ranging from 3000 mm to 562 mm have been done. Besides land acquisition for 26 pumping stations for main lines and 11 Pumping stations for feeder lines completed. The pipelines cross 59 state highways and 10 national highways coupled with 16 railway crossings. For the implementation of project lands were occupied through 'Right of Use' permission.

**Link – 1  
Machhu-II dam of Morbi district to Sani Dam of Jamnagar District**

Having a carrying capacity of 1200 cusecs, 30 reservoirs of Rajkot, Morbi, Devbhoomi Dwarka and Jamnagar Districts will be filled and 1,80, 515 acre area will be benefitted. The works for about 160 Km long pipeline of this link are on the verge of completion.

**Link – 2  
Limbdhi Bhogavo-II Dam of Surendranagar District to Raidi Dam of Amreli District**

Having a carrying capacity of 1050 cusecs, 19 reservoirs of Bhavnagar, Botad, Surendranagar and Amreli Districts and area of 2,12,286 acres will be benefitted. The works for about 134 Km long pipeline of this link are already completed and commissioned. While 131 km long pipeline is under the final stage of completion.

**Link – 3  
Dholidhaja Dam of Surendranagar District to Venu-I Dam of Rajkot District**

Having a carrying capacity of 1200 cusecs, 31 reservoirs of Rajkot, Jamanagar, Devbhoomi Dwarka, Porbandar, Morbi and Surendranagar Districts and 2,07,560 acre area will be benefitted. The works for about 181 Km long pipeline of this link are already completed and commissioned. While 104 km long pipeline works are under progress.

**Link – 4  
Limbdhi Bhogavo-II Dam of Surendranagar District to Hiran-II Irrigation scheme of Junagadh**

Having a carrying capacity of 1200 cusecs, 35 reservoirs of Rajkot, Surendranagar, Junagadh, Porbandar, Gir Somnath, Amreli and Botad Districts and an area of 2,24,512 acre will be benefitted. The works for about 277 Km long pipeline of this link are already completed and commissioned. While 224 km long pipeline works are under progress.





# Benefit of SAUNI Yojana



**A**s many as 11 districts of Saurashtra region have been benefited due to the ambitious SAUNI yojana. Due to SAUNI reliability of dams and reservoirs is expected to increase coupled with improvement in groundwater aquifers. Further, the project is expected to improve accessibility to the domestic water and increase in agriculture, cattle fodder and milk. The project would catalyze economic growth in the region including that of land appreciation.

As per an estimate, population of more than 1.12 crore and 1282 villages in the region would get benefit of SAUNI project. As a whole, a total 8,25,000 acres of area would be benefitted.





Under SAUNI yojana 49 reservoirs, 103 ponds and 606 check dams have been filled during the last 4 years. 32757 million cubic feet of (MCFT.) water lifted for irrigation and drinking during the period. The project has been a boon and permanent solution to the problem of potable water for the people of Rajkot, Jamnagar, Morbi, Gondal, Botad, Jetpur and Ranpur. This issue is on the verge of resolution in Bhavnagar city. Due to the project, ground water recharge has increased and water tables of surrounding areas improved. Existing irrigation potential of reservoirs too augmented.

In fact SAUNI Yojana is more than a water supply scheme for the people of Saurashtra. The scheme has adopted the

motto of 'Jal hi Jeevan Hai' and transformed the lives of the people in the region. Shri Narendra Modi's vision of providing sufficient water to the farmers of Gujarat has proved to be a game changer in the agriculture sector of the state. In addition to that, the farmers also taught their children about the necessity of conserving water and its judicious utilization for leading a better life.

With implementation of the Sauni Yojana, the excess water from the Sardar Sarovar Dam is to be supplied to parched regions of Saurashtra using pipe canals. It acts as a link project and aims to fill irrigation dams which include canal networks to channelize water to the farmland.

## Change in the lives of people



**Jignaben Narsibhai Patel** was born in a water scarce area called Kamlapur village in Jasadan taluka. Her family had limited options of utilising water for domestic requirements. She had to walk for miles to fetch a pot of water and this did not leave the family with any recreational time. Today, SAUNI Yojana has transformed their lives by providing water at doorstep. Jignaben is now able to cater to her livestock, domestic needs and other water requirements in a short span of time.



**Bhikhabhai Patel** was always busy tending his field at Tramba in Rajkot since he was largely dependent on ground water for irrigation. This prevented him from spending time with his family. The SAUNI Yojana has enabled him to spend time with his wife and children. Availability of water resources for irrigation has been a blessing to him as it saves time and is more efficient. He is just one amongst a thousand farmers of Saurashtra who are now enjoying their social life. The standard of living has improved for the farmers through financial gains. As a result, Gujarat's agriculture sector has registered a manifold increase over the years.







**Laljibhai Meghabhai Parmar** is a farmer from village Sarsana, Tal. Than, Dist. Surendrangar. Before implementation of Sauni Yojana he was able to farm only in monsoon period and was dependent fully only on rainfall which is very uncertain in the Saurashtra region & only some limited crops could be grown. He always had to face a lot of challenges for irrigation and some time a great loss in crop production too though he has a well and a bore in his farm. But after implementation of SAUNI Yojana he is able to farm and produce three seasonal crops throughout the year due to rise in the ground water table of the surrounding area. As Sauni water is distributed to many enroute villages and nearby ponds, which can be filled and water can be stored in the enrouted ponds and dug for various purposes. He is also very happy as the ground water table has risen up which facilitates him to farm various crops. Laljibhai is now having a two-wheeler, one tractor and all required machineries for farming & one house having all required facilities. Indirectly we can say that now he is a self dependent person in a real sense.



**Nanjibhai Virambhai Bariya** is a farmer from the village Songadh, Tal. Than, Dist. Surendranagar. About 15 years ago before sauni yojana arrived he could produce some limited amount of crops like Cotton and Castor only & that too only during the monsoon period and had to be dependent only on the uncertain rainfall of the region. But after the arrival of Sauni Yojana he is now able to farm different crops like Cotton, Jawar Groundnut, Cumin and certain vegetables also. He also added that there is an increase in crop production due to an increase in the ground water table. Nowadays he has 3 two wheelers, one tractor with a trolley, and all required machinery and equipment for farming. Now he is a self dependent person and very happy with sauni yojana.







**Amardeepsingh Rajdeepsingh Jadeja** and his wife **Meeraba Jadeja** hail from Gondal in Rajkot. Amardeepsingh is a small peasant. The couple worked hard to feed a family of seven. This includes their parents, and three children out of which two are daughters aged 12, 8 years and a son aged 3 years old. Gondal receives irregular rainfall. This dries up the ponds and nearby lakes leading to a problem in drinking and irrigation water. SAUNI Yojana proved to be a blessing in disguise for the family. They could now use ample amounts of water for their fields and store water for domestic use as well. The crop production has increased leading to financial gains. Today, he has hired two more people to help him on the field.



**Bhaveshbhai Patel** hails from Muli village of Surendranagar. A cattle rearer by profession, he ended up spending beyond his limits to purchase fodder for cows, owing to water scarcity in the region. SAUNI Yojana filled water in the nearby ponds which enabled cattle rearers like Bhaveshbhai to feed their herd and grow grass for them. Today, he has purchased a few more cows as he became financially stable due to SAUNI yojana.





