

The normal area in the Tanjore district, including double crop paddy is 13,27,800 acres and taking a moderate figure of 200 lb. as increased yields due to manuring (though increased yields up to 500 lb. can be easily expected), the extra production will be nearly 1,18,553 tons in a single year. If the scheme is extended to all the tracts mentioned above, then it is possible to increase production by nearly 4 lakhs of tons in one year and our All-India deficiency in rice can be made up in just two seasons viz., 1950-'51 and 1951-'52.

The above scheme may involve a large expenditure, but we are now spending huge sums of money to get food grains from outside and that amount can be easily spent on the above scheme and self-sufficiency can be attained within the period prescribed by the India Government. Food production is to be treated as a war measure, and hence it is of utmost importance to take up such a revolutionary method to increase food production. Unless this is done, maximisation of production can be hardly attained before the dead line fixed by the India Government.

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## Maximisation of Crop Production through Adequate Irrigation

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Provision of irrigation facilities is the most potent single factor in any scheme of increased crop production, especially in a country like ours where the monsoons are often erratic and the rains precarious. No doubt, better seeds, more manure and scientific methods of cultivation do play their parts in increasing crop yields. But without adequate and timely supply of water, these cannot produce effective results. By providing an assured supply of water, crop production may be increased by 100%, for the dry land can be converted into a garden land, the garden land into a wet land and the single crop wet land into a double crop wet land.

Irrigation has been in vogue in India from time immemorial and this country is said to be the original home of irrigation. India leads the world in the field of irrigation even after partition. We have still 47 millions acres of irrigated land. But this area though considerable, represents only 1.5th of the total area under cultivation. Of the total area irrigated in our State, Government canals from river projects served 42%, tanks 36%, wells 16% (including subsidy wells) private canals and other sources 6%.

The following are the sources of water for irrigation purposes.

1. Rivers with their irrigation systems.
2. Tanks and Reservoirs.
3. Wells.

Let us consider the scope of improving these sources so that the maximum area could be brought under irrigation.

**Rivers and irrigation system:** India is blessed with some perennial rivers, which if fully exploited, could supply water for irrigating our entire area under crops. It has been calculated that only about 6% of the available water in our rivers is now being utilised and the balance of 94% is running waste into the sea, causing great damage to life and property, during floods. We have a large number of irrigation projects on hand awaiting execution. Some of them are under construction. Extensive areas are expected to be benefited by these projects and the food problem solved once for all. But it is a question of finance and time. It is a long-range programme, and therefore our policy must aim at quicker and simpler means of increasing irrigation facilities by restoration of tanks, channels and construction of more wells.

**Tanks and reservoirs:** Tank irrigation is the oldest and easiest form of irrigation. There are about 33,000 tanks in this State. But many of them, especially those in the Zamin areas, have lost a considerable portion of their storage capacity. Hence the imperative need for repairing and renovating immediately all the tanks to their original capacity, so that the entire area under the ayacut of each tank is assured of adequate water supply. The Government sanctioned in 1949 a scheme for restoring irrigation sources like channels, tanks, wells etc. at an estimated cost of Rs. 10 crores spread over a period of 5 years from 1949-50. It was estimated that this scheme might produce 1½ lakhs tons of food grains. But the progress so far made is not appreciable. Enormous delay is experienced in executing the work. Contractors are not forthcoming to take up the work on the plea that the rates are not attractive. Under such circumstances the ryots of the locality must come forward to undertake the work without considering the remuneration. After all they are the people to be benefited by these works. They must revive the good old system of "*Kudimaramath*" and take the initiative in restoring their tanks. Of course the government must make use of such labour-saving equipments as bull-dozers, excavators etc. so that work is finished expeditiously.

**Wells:** Well irrigation is the only means of intensifying the cultivation where other irrigation facilities like rivers, reservoirs etc. are not available. But well irrigation has its limitations. The presence of underground water must be correctly located; sufficient water must be found and the water must be free from injurious salts.

The underground water must be fed and recouped by rain water which must be conserved by contour bunding, trenching, basin listing etc. It may be noted that due to the failure of rains for the last three seasons in our State, the underground water supply has dwindled gradually and the wells dried up, affecting crop production seriously.

There were about 7,28,092 wells before the well-subsidy schemes, irrigating over 1½ million acres. About 45% of the total wells were found in the three districts of North Arcot, Coimbatore and Salem which indicates the intensity of cultivation in these parts. With a view to encourage ryots to dig more wells, the government sanctioned well-subsidy schemes from 1944 onwards by which a subsidy of half the cost of construction was paid, subject to a maximum of Rs. 750/- in rocky areas and Rs. 500/- in ordinary areas for construction of new wells. Up to February 1950, 1,90,458 wells were subsidised at a cost of Rs. 5,41,12,774. The number of wells actually constructed were 1,07,401 irrigating an area of 1,28,418 acres and producing an additional tonnage of 64,560 tons. It may be noted that in spite of such a huge expenditure, the actual area brought under well irrigation is only at the rate of 1 acre per well with an additional production of ½ ton per acre.

The following table gives the details of well-subsidy schemes up to February 1950.

Name of Scheme.	Amount paid.	No. of wells subsidised.	No. of wells completed.	Addl. acreage brought under irrigation.	Addl. tonnage produced.
Old 1944 Scheme.	1,03,212	594	293	271	175
Accelerated Scheme.					
New wells.	1,85,43,990	61,558	50,402	65,776	33,399
Old wells.	47,37,882	30,779	26,995	30,180	15,390
Ceded Dts. Modified :					
Scheme.					
New wells.	9,50,000	1,960	842	1,290	581
Old wells.	1,47,277	530	321	616	332
New well-subsidy scheme.					
1947—48.	1,63,19,652	46,847	23,243	23,202	11,503
1948—49.	1,67,02,386	29,183	4,932	6,448	3,021
1949—50.	1,12,08,375	19,017	373	635	150
<b>Total:</b>	<b>5,41,12,724</b>	<b>1,90,458</b>	<b>1,07,401</b>	<b>1,28,418</b>	<b>64,560</b>

It may be noted, that the well-subsidy schemes were not quite successful in increasing the acreage under irrigation. In fact a good portion of the subsidy was not utilised for the purpose for which it

was given. Well sinking is a gamble in many respects. Only those ryots who were lucky in striking good underground springs were able to finish their wells at reasonable cost. But many ryots, in spite of spending huge sums like Rs. 2000/- and 3000/- were not able to get springs. Thus they were not only frustrated in their efforts but also incurred ruinous debts as well. To obviate such difficulties, an intensive survey of underground water resources of the State must be made. The Industries Department, it appears have studied this problem with regard to a few districts. But this too, was not very helpful to the ryots. Further there is great demand for boring sets to tap deeper sources of underground water. There are a few sets with the Industries Department which are not easily available to ryots. A large number of these boring sets must be made available to ryots at nominal hire charges. There must be an organisation to guide the ryots who dig wells in locating underground springs, to conduct trial borings and to equip the wells with waterlifts. The art of water-divining is still in its infancy and requires further specialisation so that it may be of definite value to the well-diggers. Availability of cheap hydro-electric power is one of the contributory factors for the development of well irrigation. But unfortunately electric connections are not easily available to ryots for irrigation, even though it is freely available for running cinemas and other frivolous activities. Ryots are asked to give guarantees for power consumption beyond their capacity. Electrical goods are not easily obtainable. Such a state of affairs is not conducive to increased food production. The Government must take early steps to remove such obstacles so that the ryots could make full use of electricity for irrigation purposes.

The Irrigation Commission which examined in 1903, the question of extension of well-irrigation, recommended the following measures :

1. The liberalization of *Takkavi* loans and free grants in special localities ;
2. Sharing of risks with the cultivator when there is a failure to find water by allowing a partial remission of money which may have been advanced ;
3. Conducting trial borings and sub-soil surveys ;
4. Providing tools and boring equipments on hire.

Many of these recommendations have been given effect to, but there is urgent need for further intensification of these measures so that results are achieved quickly.

Now the digging of wells with all its uncertainties is left to the individual ryot. There is no reason why the Government itself should not take the initiative in digging big wells and hand them over to ryots who are prepared to pay 50% of the actual cost of

construction or else run them as State wells, fitted with power lifts and charge water cess for the area irrigated by the wells. As a matter of fact the provision of State irrigation wells is not a new practice. During the reign of Pandia Kings, huge wells with excellent springs were dug in many places to encourage well-irrigation. Even now we come across some of those wells, though dilapidated in condition. In U. P. and Bihar, these are State-owned tube wells with a capacity of  $1\frac{1}{2}$  cusecs, equivalent to 33,000 gallons of water per hour and each capable of irrigating 400 acres. The cost of each tube well is said to be Rs. 40,000/-. The possibility of digging such tube wells in our State also must be investigated. When large sums of public money are sunk in irrigation projects to benefit ryots in certain areas, it is but proper that the Government should extend such assistance to ryots in other less fortunately placed areas for the development of well-irrigation. No wonder that our Food Minister, Shri K. M. Munshi, attaches great importance to scheme which will increase the supply of water. In his eight-point programme, he pleads for the restoration of tanks and channels, wells and borings and construction of a large number of tube wells.

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## Economics of Crop Production on Bapatla Sandy Soils

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Any visitor to Bapatla, as he approaches the place in the train would be struck with the view on both sides, of stretches of sandy belts, fallow or covered with crops and dotted with palmyra or cashew-nut trees. There may also be attractive green patches of paddy or tobacco, interspersed with jasmine or vegetables coming to view according to the season. A closer observation will reveal the presence of small ponds or 'doruvus', wells from which water is lifted in pots for 'irrigating' the adjacent crops. The sands drink up water and hence pot-watering is a continuous process from day to day. A visit to these areas will show that very good crops could be grown out of these poor sandy soils. A study of this type of crop production and its economics has been considered worthwhile and might be interest, particularly to students of agriculture.