UNDERSTANDING THE IMPORTANCE AND MANAGEMENT OF WATER IN RURAL CONTEXT OF KIRANGAKOTTAI VILLAGE OF TAMIL NADU

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***Abstract*: Water is a source of life and most important substance required to live on earth and thereby we live on water. But the exploitation by the community due to improper management and utilization or in other hand the commercialization of natural resources especially water leads to the many social development issue. As known scientifically water refers to chemical compound of billions of molecules, consisting of one hydrogen and two oxygen atoms in a liquid form and 3/4th of the word covers with water where the three side of our Indian country have beautifully covered with water but still we as county and mainly rural population struggle for water. For them water is not just for their life but it's also their livelihood since the source of agriculture mainly depends on water. So, this paper has attempted to understand the importance of water and its management by the rural community of Kirangakottai village. This research used most of participatory tools, case study, Focused group discussion and random sample survey with sample size of 80 households. This research resulted at water as an one of the major issue of the villager where people have solved it by renovating the tank in the village.**

I. *INTRODUCTION*

Agriculture is the back bone of India, more than 60 percent of Indians are staying in rural areas and they are depending on agriculture and related works, India is a second largest population (populous) on country in the world, now it's one of the fastest growing country, rural becoming urban(urbanization due to migration in searching of livelihood) since the agriculture is becoming seasonal livelihood because of many internal and external factor such like monsoon failure, people are slowly migrating to the urban area for employment. Now a days agriculture facing more problems due to climate change, due to proper rain ponds, lakes and canals as well as rivers are becoming dry. This study focusing on the water and impact of less water in agriculture.

Kirangakottai people are agriculture based employers now a days they are facing problem due to water, initially they used to do two time crop in a year but now they are going with only one time crop, major crop is paddy, as well they are farming like coconut, Banana and ground nut which is rain based crop, here water scarcity is more. Even villager have many ponds, tanks, well and borewell but almost all water bodies are dry. After rainy season people are depending livestock, as well as agriculture related works in other villages, on daily wages. Most of the People are not getting proper employment in this village, they are migrating to another cities, like Madurai, Chennai, Thiruchi. Koyambathur and foreign countries also they are migrating.

II. Methodology

- Participatory Rural Appraisal.
- Personal Interview.
- Literature review.
- Secondary data

III. RESULTS AND DISCUSSION

Village basic details

History of the village

500 year ago, Ilamaravar community people lived near the Keelakanmai village name is Nellur, and Pandaram community people migrated from other village and settled in Kirungankottai, these people used to come here for doing pooja in Nellur temple. Later Pandaram leader died in the Nellur village, they Pandaram community made Jeevasamthi for their leader in that village and settled here. Then they kept their old village name to this place(Kirungankottai).

In this village there is two main temples with big history.

Vaigaikarai Amman temple.

This temple belongs to goddess, amman. People call her as Vaigai karai amman. In previous year this goddess idle came to this village by the flood in Vaiagai river. And stayed there in that villager. Villagers found that idle and they constructed temple for that goddess and worshiping very honestly. Because they believed that this goddess will punish very suddenly, they shared a story that once in festival there was a man drummer who came to play drum after drunk. So, goddess got anger and she punished with the vel. And she put the ash in that wound and she told after 12 years this scare will hid till that it will remember your mistake. Without any other medicine that wound was healed with that ash.

Ganabathi temple.

Ganabathi temple which located center of the village. it was constructed for god Ganabathi in 1917. Later it was reconstructed in 1974 with the money which they collected from the criminals (who did mistake in that village) they will give the punishment and commonly fine rupees 100.

Demography

Kirangakottai is a village in Singampunari block, Sivaganga district of Tamil Nadu. It is located 48 km towards North from district headquarters Sivaganga. 9 km from Singampunari. 437 km from state capital Chennai. This place is in the border of Sivaganga district and Madurai district. Kirungakottai is surrounded by Kottampatti block towards West, S. Pudur block towards North, Nattam block towards West, Ponnamaravati block towards East.

Population

Population details

Census parameters	Census data
Total Population	3633
Total No. of Houses	910
Female Population %	50.9 % (1851)
Male Population %	66.9 % (2431)
Working Population	47.8 %
Total literacy rate	66.9 % (2431)

The above table shows that male population is more than female population.

Caste and class

In this village totally 16 different caste people are living. They are Ila maravar (maravar), moopanar (valayar), pallar, paraiyar, sakkiliyar, nadar, konar, chettiyar, aasari, Panikkar (Pillamar), vannan, mutharaiyar, ambattaiyan, pandaram, vaniga chettiyar, vairavi. Only ambattayan and vannan continuing caste-based occupation like ambattayan (barbar) and vannan (washing cloths), and also agriculture. Each caste has their own temple and tradition. Other community people will not worship in that village. but in common temple all people will come worship together, but only ilamaraver and pandaram caste people will only enter into the inside of the temple other community people will stay out of the temple and worship. Then common festival like Pongal, Diwali, local festival, manjuvirattu in this all caste people will be together to celebrate No conflict will be there. And Muslim also living in that village with the people.

Gender

Average sex ratio of Kirangakottai village is 1039 which is higher than Tamil Nadu state average of 996. Child sex ratio for the Kirangakottai as per census 2011 is 946, higher than Tamil Nadu average 943.

Water

The village was established before 100 year. The village have traditional water bodies such as Tanks and Ooranies. In this village, total 27 tanks and 7 Ooranies are there, the first open well was dug in 1960 and first bore well was dug 1980. In 1945 first flood happened in village and next year they had no rainfall and faced water problem. In 1952, the panchayat office, electrical connection and overhead water tank was built in the village. In 1960, the first water supply connection (common tap) was given. People have shared for the past 10 to 12 years, they are facing water scarcity due to less rainfall. As a result, they have stopped the paddy cultivation which requires more water and converted to gram cultivation.

Trend Analysis for water sources

Year	1970-1980	1981-1990	1991-2000	2001-2010	2011-2020
Tanks and pond water	5	4	4	3	2
Borewell	-	1	2	3	5
Open well	3	4	4	4	5
Hand pump	4	3	2	-	-
Trees	5	4	3	3	2
Rain water	5	5	4	3	2
Road	1	1	1	3	4
Temperature	1	1	2	3	4
Soil condition	4	4	4	4	4

Rating: From 5- Good and 1 -Bad

From the trend analysis it is clear that 1970 to 2010, the water availability was good because of good rainfall. But from past 10 years, rainfall is less so water availability is also less. Villagers get water from tanks and ponds September to December only. Borewells depth is increasing year by year, in summer the depth is more than 700 feet and in summer period water depth is more than 1200 feet. Similar to the hand pump there is more than 5 handpump but all are dry. Because of deforestation temperature has increased. Soil is fertile because of low rainfall, some farmers do not cultivate anything on that land.

Water infrastructure/ resources access &status-Tank, Oorania agriculture details:

Whole village is facing problem for drinking, domestic as well as agriculture water. there are total 27 tanks in this village, which depends on rain water but community shared that from last 10 year there is very less rainfall and none of the tanks got water. At present out of 27 tanks only 3 tanks have water, in which two tanks are located outside of the village and one tank is located in center of the village, these tanks get water from the surplus of nearby village tanks.

Along with 27 tanks they also have 7 Oorani which is used for drinking water of the village and presently due to less rainfall these Ooranies does not have enough water so they are depending on outside source for drinking water from last 10 years.

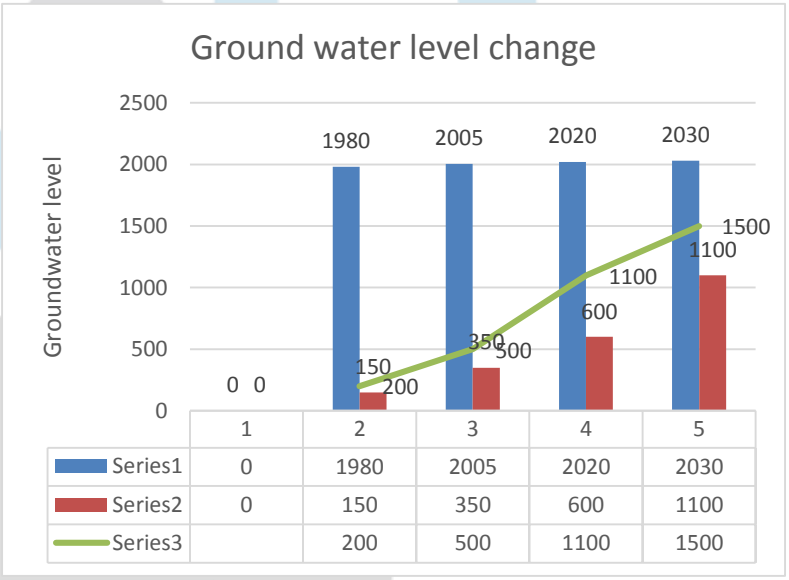
In village major crop are paddy, coconut and groundnut. In East and west side more agriculture land in villagers some of the land south side also this side people grow paddy crop and ground nut. West side of the village most of the red soil this side all type farming doing by farmer like green gram, black gram, millets etc, in east side mostly coconut farming has and some area cover in mango orchard as well as groundnut farming also having. Most of the part cover in red soil but some portion have clay soil.

Well details*:*

Villager have 18 own wells, but they don't have water in 15 well. Only three well have somewhat water, these wells get water from the surplus of nearby water sources so, villagers are using it for domestic and agriculture purpose. But during summer session there is no water in these 3 wells for two to three months.

Almost 90% household have minimum one borewell. But mostly villagers not getting water in summer session. The ground water level in winter is nearly about 600 to 700 feet and during summer season it is 1100 to 1200 feet.

Villager have 5 small water tanks just for domestic purpose. These tanks are getting water from tube well so water of these tanks depends on the ground water level.



Access of water& distance of water sources, time spending to bring water and frequency in a day:

There is water in only 3 tanks so villagers use this water for their domestic purpose, as per the discussion with community they spend nearly 20min to bring water from the tank. And the frequency to bringing water is 4 to 5 times in a day. It means they spend nearly 1.30 hours in a day just to bring water.

Villager have many water bodies for drinking water but they don't have water on any resource. Villagers buy drinking water from Singamunari block. They buy 12-liter water at Rs. 15. Nearly 80% households live in joint family so joint family needs 18-liter drinking water in a day. And nuclear family needs 12 liter of drinking water in a day. It means villagers spend a big part of their income for drinking water.

Present stat

Comparison of ground water level:

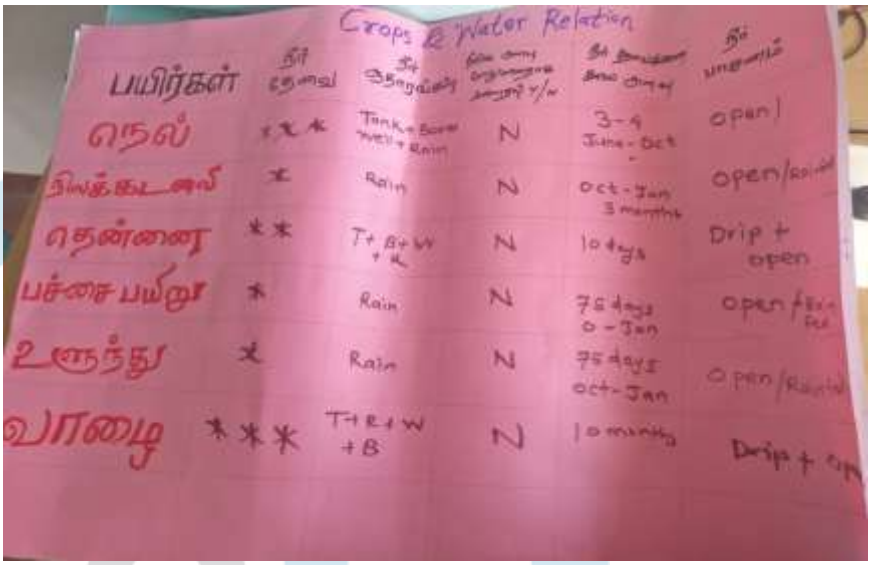
This village had good ground water level in till 1980 because that time there was no borewell. Villager used to get water from tanks, well& ponds for drinking, domestic and agriculture purpose. Villager construct 1st borewell on 1980 and after that continuously they started construction of borewell. At the time of 2005 the ground level water decreased from 150 feet to 500 feet. In 2007 because of more rainfall from last 2 year once again ground level increased but from 2010 there is very less rainfall. So now the ground water level in winter is nearly about 600 to 700 feet and during summer season it is 1100 to 1200 feet.

Status of tank, ponds, well& borewell:

Physically all 27 tanks, 7 ponds, 18 well& borewell are good but only three tanks have water for domestic purpose but that is not enough for villagers need. All 7 ponds have totally dried. Only 3 well have water but the water level depends on the session, during summer session well don't have water for 2 to 3 months. Maximum household have borewell but there is very less water in borewell, the ground water level in winter is nearly about 600 to 700 feet and during summer season it is 1100 to 1200 feet.

Crops and Water Relation

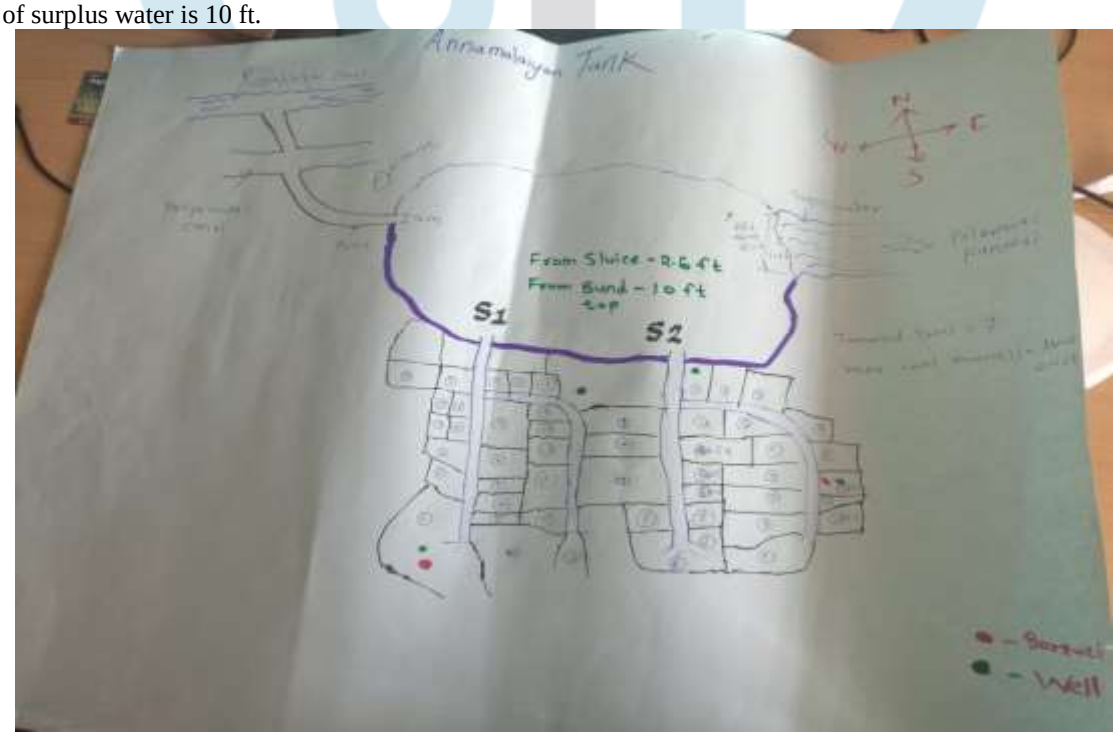
According to community water required for paddy, banana comparatively more than the required water for ground nuts, black gram, green gram and coconut. For ground nut, black gram, green gram water source is rainwater and type of irrigation is open.



There is only drip irrigation practiced for coconut in some fields majorly it is observed during transect walk to the west side of the village. The availability of water is very low, so farmers not satisfied.

Annamalaiyan Tank

In this tank there are two sluice and each sluice have two channels. Between two sluice there are total 7 tamarind trees. From resource map it is understood that Annamalaiyan tank is situated west side of the village. The water coming to Annamalaiyan tank from Periyavaikal canal which is connected to Rajakalvai canal. The inlet is 2m breadth, the sluice depth from bund top is 10 ft. The surplus water from Annamalaiyan tank goes to Palavarai tank after it is crossing 7 ft above bund height of Annamalaiyan tank. The breadth of surplus water is 10 ft.



Annamalaiyan tank

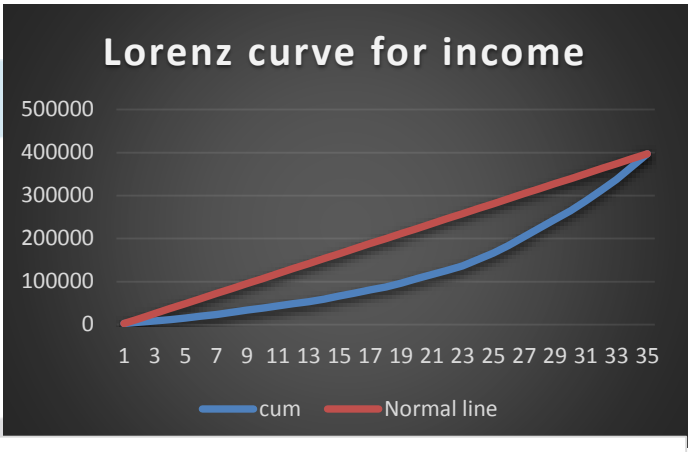
From the above figure it is concluded in tabular form are as follows,

Sluice	Channels	Acres of Land	Crop pattern	Crops
S1	2	14.6	Single	Paddy
S2	2	11.55	Single	Paddy

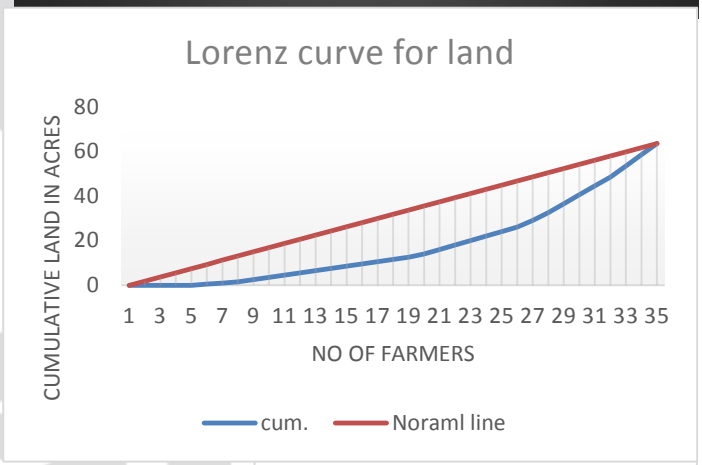
Infrastructure Access and present status:
Pond- in that village 35 pond have but there not fill in last 10 year because of no sufficient rainfall in that area. Most of the pond have unwanted tree have grown.
Well – well also have that village but now many well have dry because of no sufficient ground water. So, all well fill for mud and wood as well as leave.
Bore well- Now many farmers have Borewell but ground more than 500 feet so not have much more water in bore well
Road – Road infrastructure are good in Kirungakottai as well as good road connectivity with block and district. This is good condition have.
Government Building – in village school, Anganwadi, panchayat, society, and PDS shop have. Most of the building does not clean properly and panchayat building new construct in outside of the village.

Assets of Households

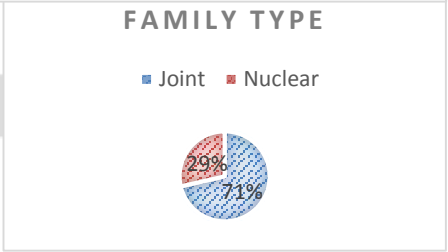
Income-
There are many types of livelihood in the village, mostly 80% of the villager's livelihood is agriculture. Every household have different income as per their livelihood but there is a huge inequality of income. Most of the villagers earn nearly average Rs. 2500- 3500 per month.
67% of the population have 38% of total income of the village, which means tht 33% population of the village have 62% income of total income of the village.



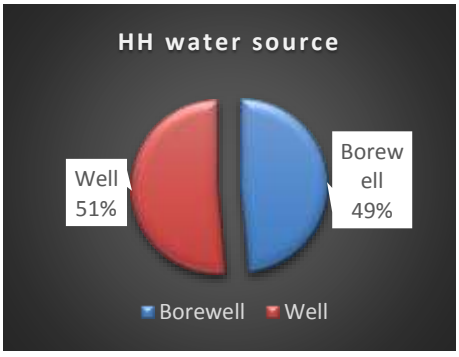
Land-
There are no. of small, big and marginal farmers in this village who depend on agriculture for their daily expenses eventhough they are facing problems to cultive paddy because of lack of water. Many farmers are living in valunarable condition, they don't sure about their income from the agriculture. The farmer who have more peace of land he is giving his land on lease to other small farmers for getting income. Inequality is found also in small farmers. (Lorenz curve shows inequality of land). There are many villagers who don't have a single piece of land but they do agriculture labour work in others land.
In this village 70% villagers have only 34% land of total land of the village. (Gini coefficient).



Type of family-
In this village most of the farmer live in joint family because they belive that the more employed member in family means the more income, and also they will have more land if they live in joint family. Only 29% of HH live in nuclear family, previsly they used to live in joint family but because of less land they live as nuclear family.



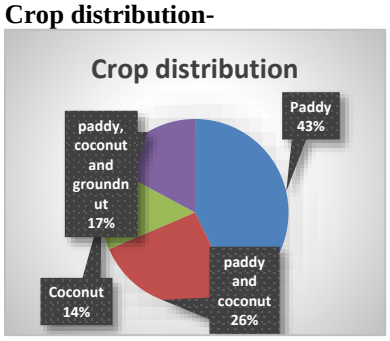
Household water source



Households	Time taking
14HH	10min
8HH	20min
7HH	30min
6HH	40min

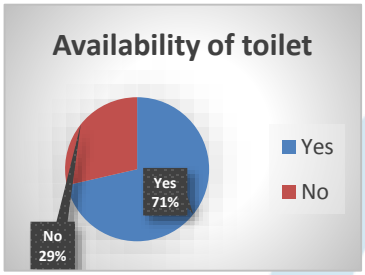
Everyone have minimum one source of water but unfortunatly these wells and borewells are not in use. Only three well have water and rest of the well have dried. The distaance from house to water source is too much far and the frequency of going to the souce for water is 4 to 5 times in a day (for domestic porpose).
Mostly womes only going for bringing water from the source so from this chart it is clear that every women of the village is spending minimum 1 hour of a day just to bring domestic water.

Crop distribution-



Famrmers are cultivating many types of crop in their land but 43% famrmers cultivate paddy, 17% farmers cultive paddy cum coconut cum groundnut, 14% of farmers cultivate only paddy and 26% of the farmers cultive paddy cum coconut.

Toilet availability-



Most of the household (71%) have toilet in the village, 29% household don't hve toilet availability. But the household who have toilet they also don't use toilet because of less water in the village, they need to go too far to bring water so most of the villager prefare open defication. And many villagers go for open defication because of their pradition practices which needs to change for the future generation.

IV. Conclusion

The villagers are facing lots of problem because of less water and not having proper attention from the government. Villagers are migrating so there is scope to start any FPO work. The organization can help villagers to change their cropping pattern as per the climate so villager can get employment in village itself and it will reduce the migration rate. Villager need to get good water for drink purpose so they can take help from any NGO (DHAN foundation) to give then support to have a easy access of water. Almost all villagers have involved in dairy business but they don't get good price for their milk so one dairy FPO can be promoted at village level which will help villager to get good money of their milk and also it will help to decrease the money of mediators.

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