Tank irrigation

- A tank is a reservoir for irrigation, a small lake or pool made by damming the valley of a stream to retain the monsoon rain for later use.
- It accounts for approximately 3% of the net irrigated area in India.
- Tank Irrigation is popular in the peninsular plateau area where Andhra Pradesh and Tamil Nadu are the leading states.
- Andhra Pradesh has the largest area (29%) of tank irrigation in India followed by Tamil nadu (23%).
- Tanks are known as Ery in Tamil. The temple tanks of Tamil Nadu are known as Kulam

Kinds of Tanks

- The tanks are of two kinds viz., System Tanks and Non-System Tanks.
- The canal fed tanks are known as System Tanks, which were exclusively under the management of the Public Works Department.
- The System Tanks are fed with water from rivers and run off through diversion weirs, feeder channels and surface flow.
- System Tanks are the minority of tanks that are supplied from major storage canal irrigation systems or from perennial rivers.
- The rainfed tanks are known as Non-System Tanks.
- NonSystem Tanks which command area below 40 hectares are coming under the control of Panchayat Unions.
- These Non-System Tanks have a small storage capacity.

It is practised mainly in the peninsular region due to the following reasons:

1. The undulating relief and hard rocks make it difficult to dig canals and wells
2. There is little percolation of water due to hard rock structure and ground water is not available in large quantities.
3. Most of the rivers are seasonal; there are many streams which become torrential during the rainy season – so the only way to use this water is to impound it by constructing bunds and building tanks. Also, it is easy to collect rainwater in natural or artificial pits because of impermeable rocks.
4. Scattered nature of agricultural fields

Merits

- Most of the tanks are natural and do not involve cost for their construction
- Independent source for an individual farmer or a small group of farmers
- longer life span
- can be used for fishing also

Demerits

- Depends on rain and these tanks may dry up during the dry season
- Silting of their beds
- Require large areas
- Evaporation losses
- Sometimes there might be a need to lift the water to take it to the field

Wells (and Tube Wells)

- A well is a hole dug in the ground to obtain the subsoil water. An ordinary well is about 3-5 metres deep but deeper wells up to 15 metres are also dug.
- This method of irrigation has been used in India from time immemorial. Various methods are used to lift the ground water from the well.
- Some of the widely used methods are the persian wheel, reht, charas or mot, and dhinghly (lever) etc.
- A tube well is a deeper well (generally over 15 metres deep) from which water is lifted with the help of a pumping set operated by an electric motor or a diesel engine.

Well Irrigation

- Well irrigation is gradually giving way to energized tube wells. But there are many wells still in use where electricity is not available or the farmers are too poor to afford diesel oil.
- This method of irrigation is popular in those areas where sufficient sweet ground water is available.
- It is particularly suitable in areas with permeable rock structure which allows accumulation of ground water through percolation.
- Therefore wells are seen more in areas with alluvial soil, regur soil, etc. and less seen in rocky terrain or mountainous regions.

- These areas include a large part of the great northern plains, the deltaic regions of the Mahanadi, the Godavari, the Krishna and the Cauvery, parts of the Narmada and the Tapi

valleys and the weathered layers of the Deccan trap and crystalline rocks and the sedimentary zones of the peninsula

- However, the greater part of peninsular India is not suitable for well irrigation due to rocky structure, uneven surface and lack of underground water.
- Large dry tracts of Rajasthan, the adjoining parts of Punjab, Haryana and Gujarat and some parts of Up have brackish ground water which is not fit for irrigation and human consumption and hence unsuitable for well irrigation
- At present irrigation from wells and tubewells accounts for more than 60% of the net irrigated area in the country.
- UP has the largest area under well irrigation which accounts for 28% of the well irrigated area of the country. U.P., Rajasthan, Punjab, Madhya Pradesh, Gujarat, Bihar and Andhra Pradesh account for about three-fourths of the total well-irrigated area.

Merits of well irrigation

- Simplest
- Cheapest
- Well is an independent source of irrigation and can be used as and when the necessity arises. Canal irrigation, on the other hand, is controlled by other agencies and cannot be used at will.
- Some ground water salts are useful for crops
- Does not lead to salinization and flooding problems
- There is a limit to the extent of canal irrigation beyond the tail end of the canal while a well can be dug at any convenient place.

Demerits

- Only limited area can be irrigated.
- Normally, a well can irrigate 1 to 8 hectares of land.
- Not suitable for dry regions
- Overuse may lead to lowering of water tab