

There are two types of geothermal steam

① magmatic steam: - Steam originating from the magms
itself

② ~~Meto~~ meteoritic form: - Steam produced from
ground water heated by the
magma

Types of Geothermal Resources:-

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④

- ① Hydrothermal
- ② Hot dry rock (HDR)
- ③ Geopressurised
- ④ Magmas

Only hydrothermal energy is being presently utilized since the technology for commercial utilization and other energy source is not available.

Hydrothermal Resources

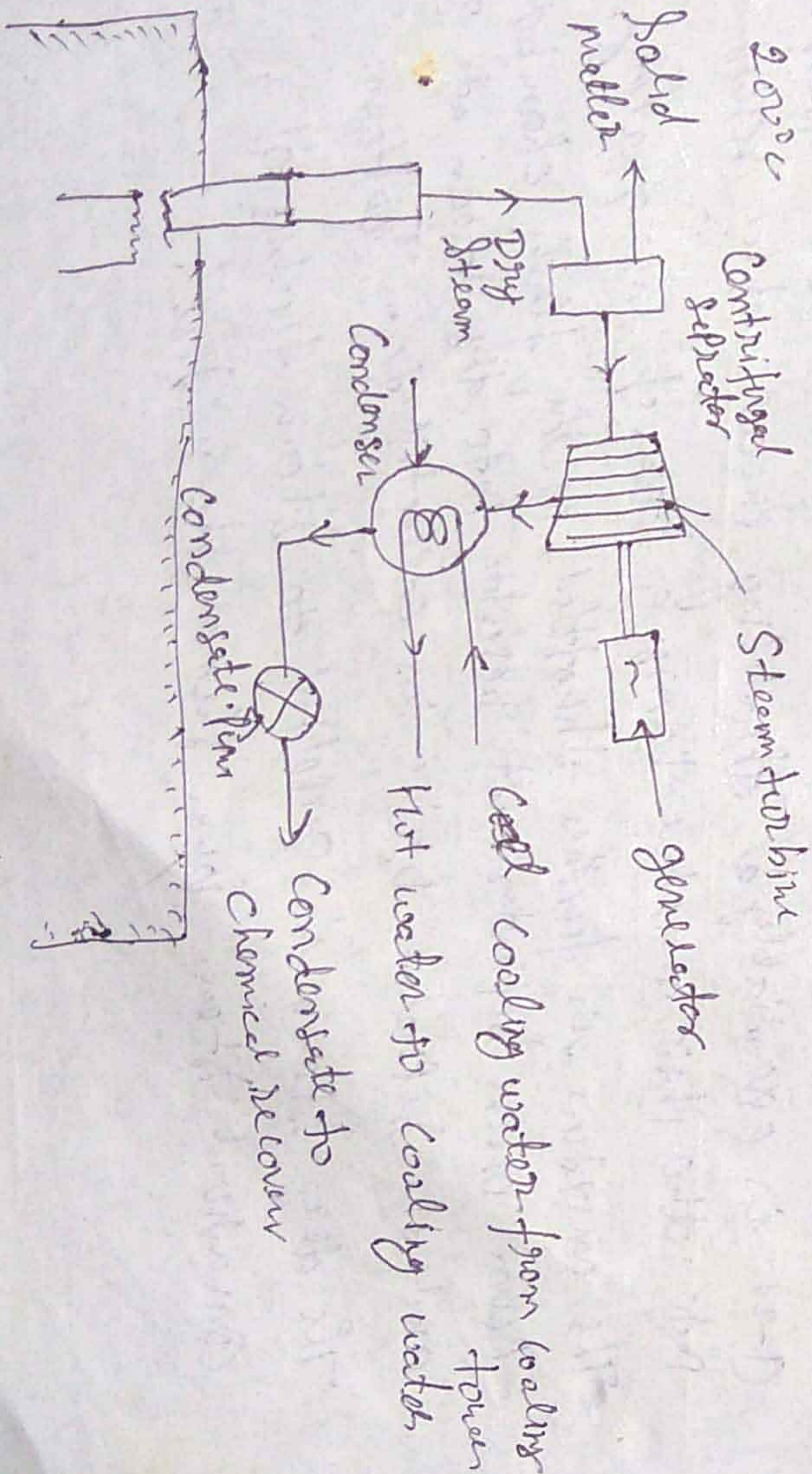
Hydrothermal resources are those in which the water is heated by contact with the hot rock.

Hydrothermal resources are divided into

- (i) Vapour Dominated (Dry Steam Fields)
- (ii) Liquid Dominated (Wet Steam Fields)

(i) VD \rightarrow Vapour Dominated fields deliver steam with little or no water. The pressure and

temp of the steam from such resources reaching to the surface are limited to 8 bar pressure and temp of



(2)

Dry Steam extracted from the geothermal field may contain water and solid particles. These are removed in a Centrifugal separator. Pure dry steam is then directly supplied to a steam turbine. The exhaust steam from the turbine is condensed in the condenser with the help of cooling water circulated. The resultant hot water is returned to the cooling water. The condensate is either sent to chemical recovery or it is re-injected into hot field with the help of condensate pumps.

Liquid Dominated or wet steam system

The hot water deposit ~~about~~ without much steam content are called liquid dominated geothermal fields. The temp range in these fields is in the range of 100°C to 315°C .

These are of two types

• (i) High temp wet steam system: \rightarrow

When the resource temp. is above 180°C , it is called high temp. system.

The hot water from underground water from underground water from a depth of about 1 km at Point 1 at about 40 bar reaches the well head at Point 2 at lower pressure (1-2) is essentially a throttling process which results into two phase mixture having a steam of low quality.

The mixture is further throttled in the flash chamber cum brine separator. It results into dry steam at 3 and the separated brine is collected from bottom.

The dry steam is supplied to steam turbine of a conventional steam power plant at the m. H.P.