



*NDDB's solar initiative*



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NDDB's creation is rooted in the conviction that our nation's socio-economic progress lies largely on the development of rural India. NDDB's programmes and activities seek to strengthen farmer cooperatives and support national policies that are favourable to the growth of such institutions.

Today, India is the largest producer of milk in the world and dairying is one of the largest processing industries in India. As a result of economic liberalization, the dairy cooperatives now operate in an environment of competition. The cooperatives need to improve operations by adopting innovative technologies.

Dairy processing comprises chilling, pasteurization and packaging of liquid milk and manufacturing of value added products like Butter, Ghee, Milk Powder, Cheese, Curd, Butter Milk, Lassi, Butter Milk, and Sweets etc.

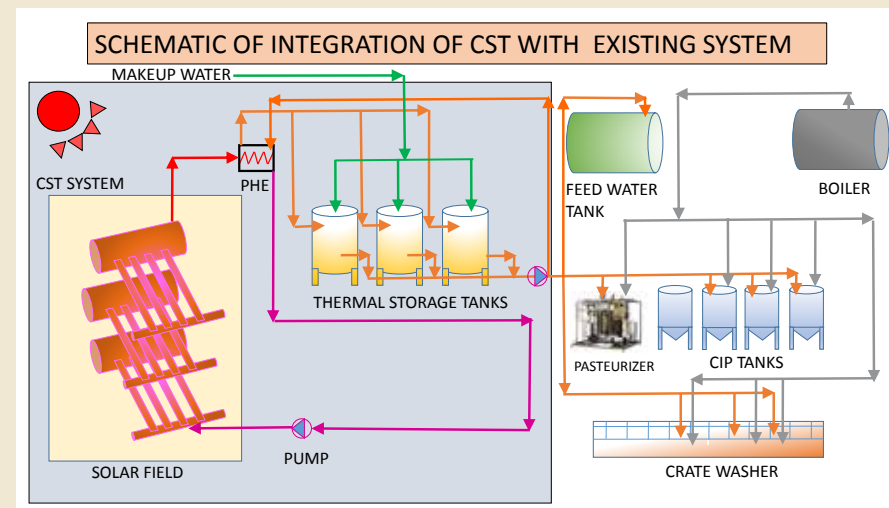
Dairy cooperatives alone handle about 500 LLPD milk through more than 200 dairy processing plants in the country. The plants vary in size from 1 LLPD to 40 LLPD. These plants process and pack liquid milk and also manufacture various milk products like SMP, Butter, Cheese, Curd etc. Thermal energy is utilised for the heating processes using fossil fuels. Fuel is the major manufacturing cost component of processing/manufacturing other than raw materials and packing materials.

**In line with the Government of India's policy to provide long term sustainable clean, renewable and viable source of energy, NDDB's solar initiative promotes use of solar thermal energy in dairy industry with the support from MNRE, UNIDO and UNDP.**

## Milk pasteurizer

Heating milk to 72 degree Celsius for pasteurisation (essential for safe human consumption) has been taken up as the first application for about 15-20 projects in Maharashtra, Punjab, Karnataka and Rajasthan.

Schemes have also assimilated use of solar thermal energy in the hot water application like can washer, crate washer and cleaning in place (CIP) of dairy equipment and boiler feed water on the basis of the plant configuration and requirements.



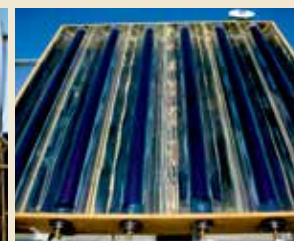
The selection of technology from CPC, PTC, and Dish will be on the basis of a simple, durable and viable process for generation of hot water up to 95 degree Celsius for the applications mentioned in the project reports.



Parabolic Dish



Parabolic Trough



CPC\*

**NDDB has targeted to complete the present set of projects in a span of 9-12 months and will cover more dairy cooperatives and area of application of solar thermal energy beyond hot water applications.**

\* Compound Parabolic Concentrator