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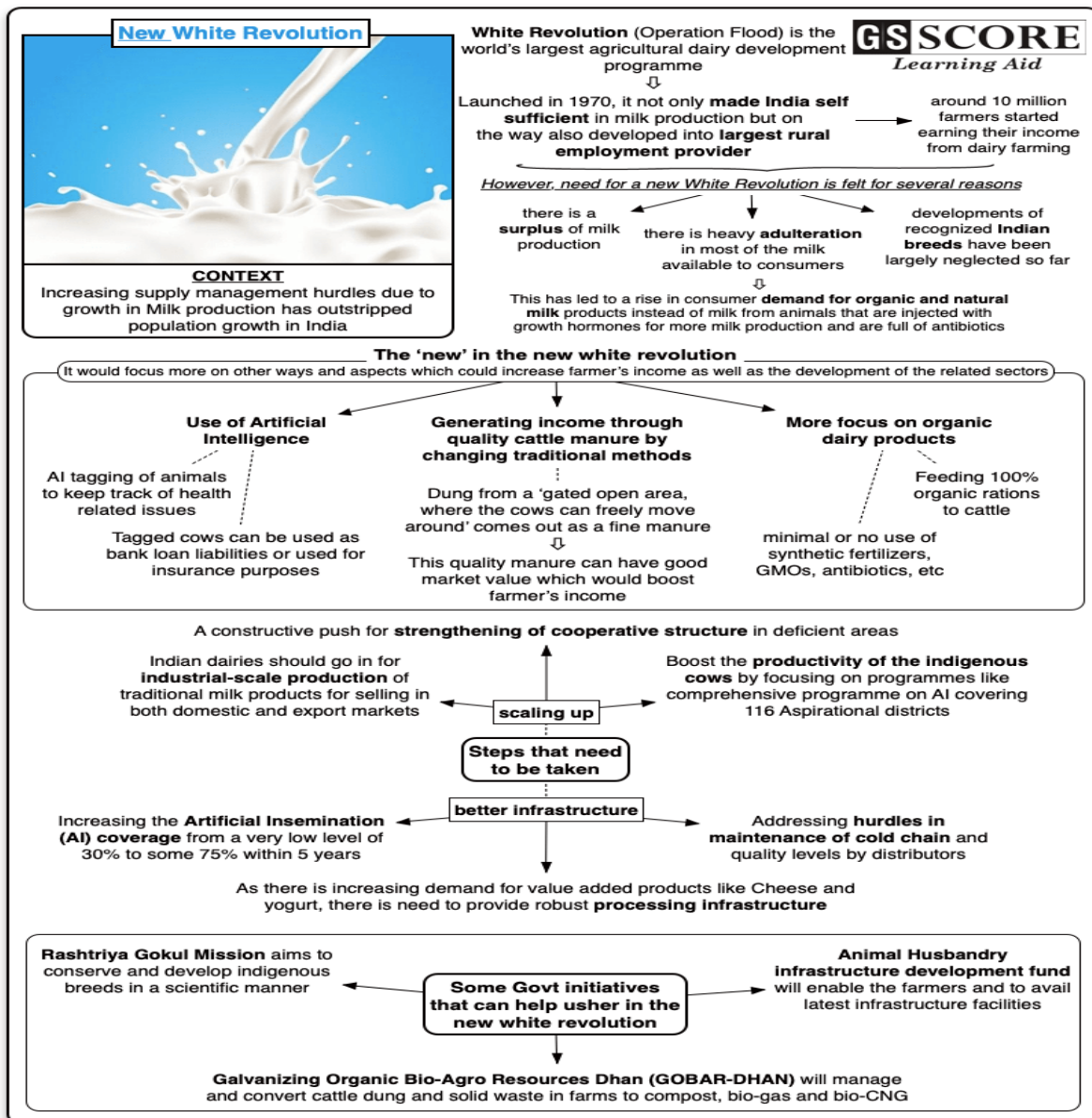
Operation Flood Phases In India

The **White Revolution in India** was successful in transforming the country from a milk deficient nation to a world leader in milk production. It helped dairy-farming become **India's** largest self-sustaining industry and also, **India's** largest rural employment provider.

INDIAN DAIRY INDUSTRY:

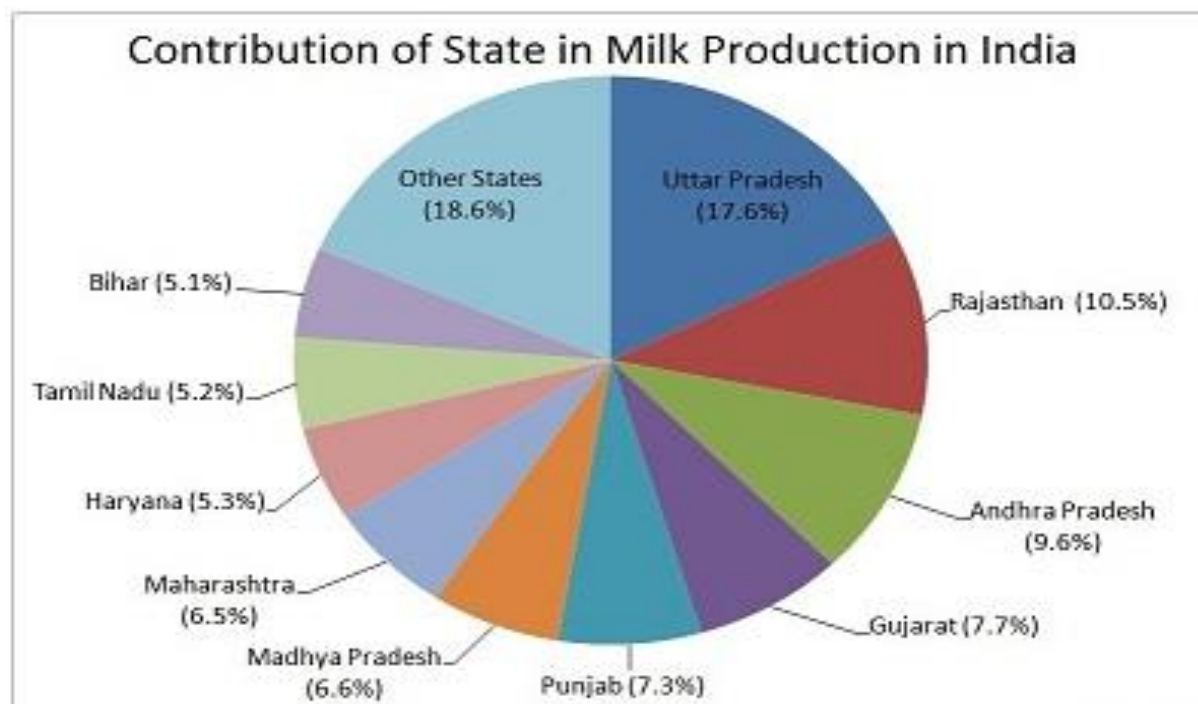
Today, India is the center of the global dairy industry. It is the largest producer of Milk in the world. The Indian dairy industry is rapidly growing. India had tremendous milk production in 40 years and has become the world's largest milk-producing nation with a gross output of 84.6 million tons in 2001 and an annual output of 130 MT (2014-15). India is the largest producer of milk in the world. It also has the largest milk-producing animal population of over 118 million. According to the National Dairy Development Board, demand for milk is expected to increase at a compound annual growth rate or CAGR of 5% from 130 million tons in 2014 to 200 million tons in 2022. The move towards value-added dairy products offers higher margins than liquid milk for the Indian Milk Industry. According to a report by CARE Ratings, the share of value-added products in the milk and milk derivatives segment in India is growing at around 25% every year and is expected to grow at the same rate until 2019-20. The Indian Dairy Industry has

achieved this strength of a producer-owned and professionally-managed cooperative system, despite the facts that a majority of dairy farmers are illiterate and run small, marginal operations and for many farmers selling milk is their sole source of income. More than 10 million dairy farmers belong to 96,000 local dairy cooperatives, who sell their products to one of 170 milk producers' cooperative unions who in turn are supported by 15 state cooperative milk marketing federations.



The Indian Dairy Industry engages in the production and processing of milk & cream. This industry is involved in the manufacture of various dairy products like cheese, curd, yogurt, etc. The Indian Dairy Industry specializes in the procurement, production, processing, storage, and distribution of dairy products. India as a nation stands first in its share of dairy production in the international scenario and makes important contributions to the national economy. The Indian Dairy industry provides gainful employment to a vast majority of rural households. Given its high-income elasticity, the demand for milk and dairy products is expected to grow rapidly.

India accounts for about 56 percent of the cattle population of the world's buffalo population and 14 percent of the cattle population. It ranks first in respect of buffalo and second in respect of cattle population, second in goat population and third in respect of sheep in the world.



Operation Flood implementation-

Operation Flood was implemented in three phase:

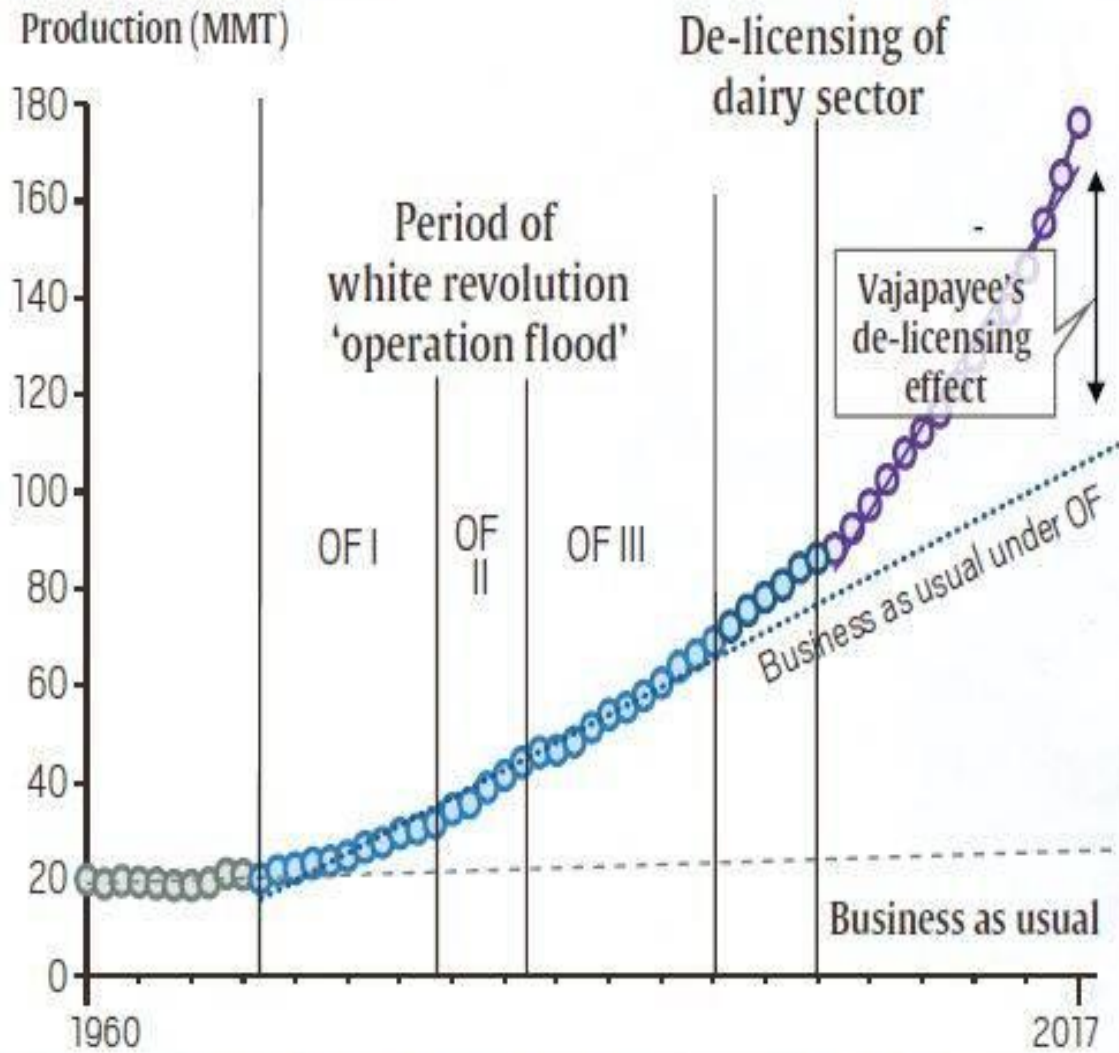
Phase I (1970–1980) was financed by the sale of skimmed milk powder and butter oil donated by the European Union (then the European Economic Community) through the World Food Program. NDDB planned the program and negotiated the details of EEC assistance. During its first phase, Operation Flood linked 18 of India's premier milk sheds with consumers in India's

major metropolitan cities: Delhi, Mumbai, Kolkata, and Chennai. Thus establishing mother dairies in four metros. The Operation Flood – 1 originally meant to be completed in 1975, actually spanned the period of about nine years from 1970–79, at a total cost of Rs.116 crores. Improvement of milk marketing in the metropolitan cities Mumbai, Kolkata, Chennai, and Delhi. The objective was to gain a commanding share of the milk market and speed up the development of dairy animals respectively hinterlands of rural areas with a view to increasing both production and procurement.

Phase II (1979–1985) increased the milk-sheds from 18 to 136 . 290 urban markets expanded the outlets for milk. By the end of 1985, a self-sustaining system of 43,000 village cooperatives with 4,250,000 milk producers was covered. Domestic milk powder production increased from 22,000 tons in the pre-project year to 140,000 tons by 1989, all of the increase coming from dairies set up under Operation Flood. In this way, EEC gifts and World Bank loan helped promote self reliance. Direct marketing of milk by producers' cooperatives increased by several million liters a day. **"RAKSHA"** vaccine developed for cattle health.

Phase III (1985–1996) enabled dairy cooperatives to expand and strengthen the infrastructure required to procure and market increasing volumes of milk. Veterinary first-aid health care services, feed, and artificial insemination services for cooperative members were extended, along with intensified member education. Operation Flood's Phase III consolidated India's dairy cooperative movement, adding 30,000 new dairy cooperatives to the 43,000 existing societies organized during Phase II. Milk-sheds peaked to 173 in 1988-89 with the numbers of women members and Women's Dairy Cooperative Societies increasing significantly. Phase III gave an increased emphasis on research and development in animal health and animal nutrition. Innovations like a vaccine for Thieveries is, bypassing protein feed and urea-molasses mineral blocks, all contributed to the enhanced productivity of milk producing animals.

ALL INDIA MILK PRODUCTION AND PHASES OF OPERATION FLOOD



Source: Basic Animal Husbandry and Fisheries Statistics, Department of Animal Husbandry, Dairying & Fisheries (DoAHDF), Government of India and NDDB

ACHIEVEMENTS:

White Revolution is as important to dairy development as the Green Revolution has been to grain production. Its outcome is based on the improvement in cattle breeding and adoption of new technology. Some of the important achievements of the White Revolution are as under

1. The White Revolution made a profound impact on rural masses and encouraged them to take up dairying as a subsidiary occupation.
2. India has become the leading producer of milk in the world. The milk production that was about 17 million tons in 1950-51 rose to over 105 million tons in 2007-08. The production of milk has gone up by more than six times when compared with that of the Pre-Independence situation.
3. The per capita availability of milk per day at present is about 200 gm as against 100 grams before the White Revolution.
4. The import of milk and milk production has been reduced substantially.
5. The small and marginal farmers and the landless laborers have been especially benefitted from the White Revolution.
6. To ensure the success of Operation Flood Programme, research centers have been set up at Anand, Mehsana, and Palanpur (Banaskantha). Moreover, three regional centers are functioning at Siliguri, Jalandhar, and Erode. Presently, there are metro dairies in 10 metropolitan cities of the country, besides 40 plants with the capacity to handle more than one lakh liters of milk.
7. The government implemented livestock insurance on a pilot basis in 2005-06.
8. To improve the quality of livestock, extensive crossbreeding has been launched.
9. For ensuring the maintenance of disease-free status, major health schemes have been initiated.