

Sanatana Bharat
TIMELESS INDIA



Jagrata Bharat
RESURGENT INDIA

A Civilisation of Material Abundance and High Technological Skills



CENTRE FOR POLICY STUDIES CHENNAI

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A Land of Abundant Agricultural Yields

The lands of India have been blessed with great natural fertility, abundant water and unlimited sunshine. The people of India have gratefully accepted these natural blessings. They have, from the most ancient times, developed high agricultural skills to put what nature has so bountifully endowed to the best possible use.

Outsiders arriving into India from the time of Alexander of Macedonia in the fourth century BC to the European observers of the late eighteenth century have all marvelled at the abundance of yields obtained by the Indians; and at the great technological skills displayed by them in all aspects of agriculture including ploughing, manuring, watering, selection of seeds, rotation of crops, fallowing and folding of lands, etc. They also marvelled at the simple yet optimally

efficient tools developed in different parts of India for diverse agricultural operations.

All available historical information indicates that the Indians were till recently the best agriculturists in the world. The yields reported in the inscriptions and by various observers from different parts of India equal the highest possible today.

It is not for nothing that Indian lands are given the adjective of *sasya syamala*, the lands that emit a deep green hue because of the thickness of crops standing on them. It is not for nothing that the Upanishad has taught us the mantra of *Annam Bahu Kurvita; Tadvratam*: ensure an abundance of food, that is the inviolable discipline of mankind.



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Historical Estimates of Agricultural Yields in India

| Period | Region | Source | Annual Yield Per Hectare |
|----------|---------------------------|---------------------|---|
| 900-1200 | Thanjavur | Inscriptions | 15-18 tons of Paddy |
| 1100 | South Arcot | Inscriptions | 14.5 tons of Paddy |
| 1325 | Ramanathapuram | Inscriptions | 20 tons of Paddy |
| 1807 | Coimbatore | European Observer | 13.0 tons of Paddy |
| 1803 | Allahabad | European Observer | 7.5 tons of Wheat and another cereal crop |
| 1770 | Chinnamedu (Chengalpattu) | British Survey | 9 tons of Paddy |
| 1993 | Ludhiana (Punjab) | Government of India | 4.3 tons of Wheat and 5.5 tons of Paddy |



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Agricultural Abundance of India Dazzled the World

Diodorus Siculus (circa 1st Century BC)

India has many huge mountains which abound in fruit trees of every kind, and many vast plains of great fertility, which are remarkable for their beauty and are supplied with water by a multitude of rivers. The greater part of the soils, moreover, is well watered and bears two crops in the course of a year...

In addition to cereals, there grows throughout India much millet, which is kept well watered by the profusion of river streams, and much pulse of superior quality, and rice also, ...as well as many other plants useful for food, of which most are native to the country. The soils yield, moreover, not a few other edible fruits fit for the subsistence of animals...

It is accordingly confirmed that famine has never visited India, and that there has never been a general scarcity in the supply of nourishing food.

Ibn Batuta (circa 14th Century)

When they have reaped the autumn harvest, they sow spring grains in the same soil in which autumn grains have been sown, for their country is excellent and the soil fertile. As for rice they sow it three times a year...



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Agricultural Abundance of India Dazzled the World

François Bernier on Bengal (circa 17th Century)

Egypt has been represented in every age as the finest and most fruitful country in the world, and even our modern writers deny that there is any other land so peculiarly favoured by nature: but the knowledge I have acquired of Bengal, during the two visits paid to that kingdom, inclines me to believe that the pre-eminence of Egypt is rather due to Bengal. The latter country produces rice in such abundance that it supplies not only the neighbouring but also the remote states. It is carried up the Ganga as far as Patna, and exported by sea to Masulipatnam and many other ports on the coast of Coromandel. It is also sent to foreign kingdoms, principally to the island of Ceylon and the Maldives. Bengal abounds likewise in sugar, which it supplies to the kingdom of Golconda and the Karnatic... The three or four kinds of vegetables which together with rice and ghee form the chief food of the common people are purchased for the merest trifle...



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Agricultural Abundance of India Dazzled the World

Alexander Walker on Malabar (Early 19th Century)

In Malabar the knowledge of Husbandry [agriculture] seems as ancient as their History. It is the favourite employment of the inhabitants. It is endeared to them by their mode of life, and the property which they possess in the soil. It is a theme for their writers; it is a subject in which they delight to converse, and with which all ranks profess to be acquainted. They have provided a code of rules for good Husbandry. A system is laid down for the proper cultivation of soils...

One of the most remarkable of the rites of Hindoo worship probably owes its origin to their respect for agriculture. Their sacred Bull, and their superstitious regard for the Cow, have their foundation in the great service they render to Husbandry. Under all these circumstances of favour and encouragement, we should expect that it would be the study of this people to improve the art of cultivating the ground, and that they would in such a length of time have discovered the most convenient and effectual instruments for the purpose...

There is cultivated in Malabar upwards of fifty kinds of rice. They are each distinguished by a separate name, by some peculiar quality, and different modes of cultivation are of course pursued. Some kinds grow on the hills and do not require irrigation... There is one species which is propagated by cuttings, a mode which I never heard of except in Malabar.



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Agricultural Abundance of India Dazzled the World

Alexander Walker on Gujarat (Early 19th Century)

In Guzerat... the divisions [of land] are seldom very large and are of unequal sizes according to the judgement, interest, or taste of the proprietor. They are remarkably neat, kept clean and well dressed. These fields have frequently broad grassy margins which are left for pasture, such as are seen in some parts of Yorkshire. The whole world does not produce finer and more beautifully cultivated fields than those in Guzerat. In the neighbourhood of towns, they are commonly planted at the edge, with fruit, and other trees. This gives them the appearance of our Hedge-rows, and they must be compared to the finest parts of England.

This appearance is not peculiar to Guzerat: It may be found in many other countries [parts] of India...

I must repeat that I have seen in India the most abundant crops, 'the corn standing as thick on the ground as the land could well bear it'; fields neat, clean and generally without a weed. Infinite pains are taken to extirpate these, and several ingenious instruments have been contrived for the purpose.



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India is the Land of Irrigation

India has through the ages been the land of irrigation. Nature has endowed India with abundant waters, but a large part of the water is received during the relatively short rainy season. Therefore, it has been always necessary for India to carefully husband the waters she receives; to collect, store, divert and channel the rains such that the lands are sated before the water flows down to the seas.

Indian civilisation has from ancient times imposed upon the kings and the people the responsibility to carefully tend

to the wells, canals and tanks so that the agriculture is not left merely to the mercy of the rain-gods. In the Ramayana, Srirama asks Bharata to ensure that agriculture in Kosala does not become *devamatrika*, dependent on rains alone. And, in the Mahabharata, Narada solicitously asks Yudhishthira:

“Have you ensured that in every part of the land large irrigation tanks have been constructed, that these are brimming with water, and that agriculture is not left to the mercy of the gods of rain alone?”





Largest Irrigated Area in the World

Indian people and kings have always followed the advice of Ramayana and Mahabharata. In every period of Indian history, great kings of India have constructed great irrigation works. The legendary Karikala Chola of the *Sangam* period constructed *Kallanai*, the grand anicut, at the point where the river Kollidam branches off from Kaveri. The anicut is the life-line of the rich and fertile Kaveri valley even today. According to an inscription of 1st Century AD, the Saka Rudradaman of Junagarh got the vast Sudarsana Lake near Girnar repaired; the Lake is known to have been constructed by the Mauryas. Similar examples can be gleaned from

all parts of India throughout Indian history.

Even today India is the most irrigated region in the world. India has the largest irrigated area, and enough irrigation potential to double it.

| Country (1998) | Irrigated Area in million hectares |
|----------------|------------------------------------|
| World | 271.4 |
| India | 59.0 |
| China | 52.6 |
| USA | 21.4 |
| Europe | 17.1 |



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The Erys of South India

The Indian technical ingenuity in evolving simple techniques that are sophisticated enough to take advantage of the full complexity of the local situation, and meshing these locally adapted techniques into impressively large systems, can be best seen in the tank irrigation system of South India. The whole of South India is dotted with these tanks. A British expert writing in the 1850's estimated the total number of such tanks in the Madras Presidency to be over 50,000. Another estimate indicated that in the eighteenth century there were more than 38,000 tanks in the region that later constituted the Mysore State. The state had an area of around 29,000 square miles. It is, therefore, a fair estimate that there were over a lakh tanks in the whole of South India. These tanks were constructed and maintained by local effort. Together they formed a closely-knit whole so that the outflow from the one at a higher level supplied the one at a lower level, and so on. This chain of tanks was so complete and inter-related within itself that British engineers of the nineteenth century felt that it would have been impossible to add another tank to the chain or to take out one from it.

—*Cambridge Encyclopedia of India, Pakistan, Bangladesh and Sri Lanka, 1989*



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Textiles: The Great Industrial Enterprise of India

Textiles formed the great industrial enterprise of pre-British India. Up to 1800, India was the world's leading producer and exporter of textiles; China was a close second.

Spinning of yarn was an activity in which perhaps the whole of India participated. According to an observer from Manchester, Arno Pearse, who visited India in 1930 to study its cotton industry, there were 5 crore spinning wheels (*Charkhas*) intermittently at work even then. And this simple small wheel was so efficient that till the early decades of the nineteenth century a widowed mother could still maintain a whole family in

reasonable manner by spinning on the *Charkha* for a few hours a day.

Weaving was a relatively more specialised activity. However, the number of those belonging to the weaver castes was smaller in comparison only to those from the cultivating castes. Various estimates indicate that the weavers formed more than 5 percent of the Indian population. Early nineteenth century data for certain districts of South India indicate that there were around 20,000 looms in a district on the average. Arno Pearse in 1930 estimated the number of handlooms operating in India to be in the vicinity of 20 lakhs.



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Textiles: The Great Craft of India

India was renowned in the world for the great artistry, skill and sophistication in all aspects of textile manufacture. There were vast regions of India that specialised in specific types of fabrics. Each of these regions had its own specialised techniques of weaving, bleaching, dyeing and painting etc. And, each had its own characteristic designs, motifs and symbols. For example, in Western India, Sironj in Rajasthan and Burhanpur in Khandesh were major centres of cotton painting; cheap printed cottons came from Ahmedabad; woollens including the extraordinary Cashmere Shawls were produced in Kashmir; true silks were worked as *Patolas* at Patan in Gujarat and so on.

These dispersed and diverse techniques were so optimised that textiles produced in Britain through the technologies of industrial revolution could hardly match the Indian textiles in quality or price. Till the early nineteenth century, the British mill-produced fabrics were protected from Indian competition by the imposition of duties of 70 to 80 per cent on the cottons and silks imported from India, or by positive prohibition. The historian H. H. Wilson noted that without such prohibitive duties and decrees, “the mills of Paisley and Manchester would have been stopped in their outset and could scarcely have been again set in motion even by the power of steam.”



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India Excelled in Iron and Steel Making

Iron ore is found in almost the whole of India south of the Sindhu-Ganga plains. And iron smelting was widely practised throughout this region from the earliest times to almost the present. Iron smelting communities can be found up to today even on the northern side of the Kaimur Hills. And one can see slag heaps formed by centuries of iron smelting activity in hundreds of villages in the plateau and the peninsula.

Scores of European accounts of Indian manufacture of iron and steel are available. These accounts refer to almost a hundred districts spread all over India. It is estimated that the number of furnaces in India towards the latter half of the eighteenth century was over 10,000 and these had the potential to produce 2 lakh tonnes of

iron annually.

Throughout history, Indian steel has been renowned in the world for its extraordinary high quality and sophistication. Alexander of Macedonia was proud of having received 100 'talents' of steel from Pururavas of Takshashila in the fourth century BC. The West was acquainted with Indian iron and steel fairly early through the celebrated Damascus swords, which were invariably forged from the famed Indian *wootz* steel. And Michael Faraday—one of the greatest British scientists of the nineteenth century who carried out experiments on electricity that proved momentous in the discovery of the laws of electromagnetism—was fascinated with Indian *wootz* steel and used it for several purposes.



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The Iron Pillar of Delhi

All over India, one can find scattered iron pillars and girders of very large dimensions and of very high quality. The Iron Pillar at Mehrauli in Delhi is an especially noteworthy example. It has dazzled metallurgists with its sheer size and its resistance to corrosion. The pillar is 24.25 feet high, and has a diameter of 16.4 inches at the base. It weighs 6 tons. And, it has withstood the ravages of time for more than 1500 years without any visible sign of rusting or decay. Metallurgists of the world have marvelled at the sophistication of smelting and iron-making technology that could produce iron of such quality. And, they have wondered at the skills of foundry and erection that allowed the Indians to forge such a large and heavy piece of metal at that early age.

Looking at the Iron Pillar of Delhi, a late nineteenth century British observer remarked, "It is not many years since the production of such a pillar would have been an impossibility in the largest foundries of the world, and even now there are comparatively few places where similar mass of metal could be turned out." This was in 1881, more than a hundred years after the onset of the industrial revolution in Britain.

