

# Chapter 31

## Indian Sandalwood Market Trend



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### 1 Introduction

Sandalwood trade in India started as early as seventeenth century. Realizing the value of sandalwood, Tipu Sultan, King of Mysore, declared it a Royal Tree in 1792. Indian sandalwood is one of the most precious commodities for export, earning an excellent foreign exchange. It is also being imported in small quantities in the form of a value-added product. The wood was mainly exported to China during the first half of the eighteenth century; a small quantity was also exported to countries like France, England, Germany and the Middle East. With time, the wood trade with China was stopped and arrangements were made with the USA and European countries to extract oil. The understanding of exporting well-dressed sandalwood logs, roots and billets for distillation of oil continued with Germany and USA until the First World War, as the technology was not available with India. Since Germany was a major partner in the First World War, it severed connections with all the world trades. There was a disturbance in the sea route transport systems, as many countries were also involved in the war; consequently, India had no alternate but to establish its own distillation unit.

### 2 Sandalwood Early Trade and Export

The earliest sandalwood trade available was during 1866–1867. The Mysore Government had sandalwood stock worth INR 156,321 and selling realized revenue of INR 74,598. During 1885–1886, Government of India exported sandalwood stock worth INR 444,241 and imported value-added product worth INR 16,404. During 1889–1890, the export wood increased to INR 1,009,152, out of which stock worth INR

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**Table 1** Harvest value of sandalwood during late 1800s and early 1900s [3]

Year	Export value (INR)
1885–1886	444,241
1889–1890	1,009,152
1907–1908	1,000,000

770,791 was ported through Madras and the rest from Bombay. The selling price for wood at Bombay was INR 120–180 per 21 Mounds (10 Pounds). The price for sandalwood oil was INR 8.5 for a pound [3].

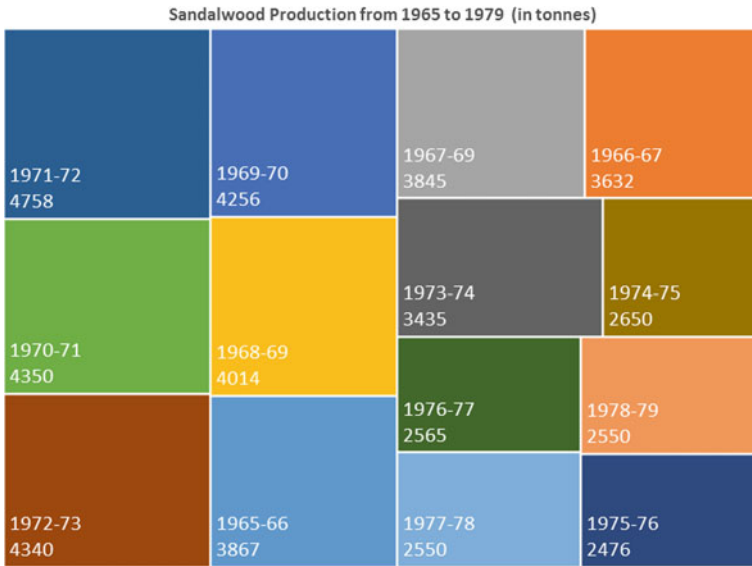
During the beginning of the nineteenth century, (1907–1908), 85,000 pounds of wood was exported to different countries worth INR 1,000,000. After World War II, the export of wood was restricted to 2500 tonnes; 52% was sent to Germany, 18% to USA and the remaining to England and other countries (Table 1).

### 3 Sandalwood Harvest

Sandalwood harvest information was not systematically maintained before 1950. Forests of Karnataka and Tamil Nadu states contributed 90% to the country's production; other states like Kerala, Andhra Pradesh, Madhya Pradesh and Orissa contributed a small quantity.

The production in India solely depended on the trends in Karnataka and Tamil Nadu. In 1952–1953, production was 2459 tonnes, which increased to more than 4000 tonnes during 1956 and 1957. During 1957–1961, the production was more or less stable. The second quinquennium, i.e. 1965–1966 to 1969–1970, started with an increase in 3867 tonnes in 1965–1966. However, it dipped in 1966–1967, but maintained an upward trend during 1967–1968, 1968–1969 and 1969–1970 (Fig. 1). During this quinquennium, the average production was 3922 tonnes, which was higher by 23.5% than the previous quinquennium. The average production during 1970–1971 to 1974–1975 was 3842 tonnes, which was lower by about 2% to the previous quinquennium. The data regarding production are patchy and lack authenticity, as the statistics was not maintained properly. The average production in the third quinquennium presented a gloomy picture as the production achievement was at 2517 tonnes.

The average yearly production of sandalwood from 1981 to 1985 was 3,209.80 tonnes. The increase in production is due to the major contribution from Karnataka State. During 1980–1983, poaching activities were rampant in the sandalwood growing areas in Shimoga and Chandrakala forest ranges, where a very good sandalwood population with good girth class existed. The extensive illegal harvest resulted in removal of only the stem portion leaving behind the root portion as it was difficult to extract. The Forest Department initiated the removal of such leftover roots and sent to forest depot for storing and further disposal. This was the reason for the increased sandalwood production. The lowest production was noticed in 1990 (1648 tonnes).



**Fig. 1** Tree map of Sandalwood production in India from 1970 to 1980 [3]

The decreased production observed in the later years is because of extensive illegal harvest and the establishment of a number of illegal distilleries that realize the high value of sandalwood in the international market. The share in the contribution towards sandalwood production from Karnataka was reduced due to overexploitation. On an average, yearly production during 1987–1990 was only 2805 tonnes which was less than 18% production from the previous years. The average production from 1991 to 2000 further reduced to 1630 tonnes due to shortage of mature sandalwood trees in the natural habitat. During these years, the bigger girth class of heartwood reaching sandalwood depot also considerably reduced (Fig. 2).

The production further declined from 2000 to 2004, and the main contribution was from Tamil Nadu (over 80%); Karnataka contributed only 15%. The annual average production of sandalwood during this period was 1370 tonnes. This quantity could be achieved because the Tamil Nadu Forest Department extracted all the available dried and dead trees from the natural forest as a precautionary measure against the illegal harvest. The leftover trees in the natural forest were predominantly of small girth class (<30 cm).

Subsequently, the average annual production of sandalwood further declined to 834 tonnes in 2007, while in 2019, it dropped to a meagre 300 tonnes (Fig. 3). Tamil Nadu Forest Department did not auction the wood since 2009, and the major contribution was from Kerala Forest Department. The drastic reduction in production was due to inadequate steps to regenerate and conserve natural resources effectively.

During earlier years, heartwood of ten trees weighed more than a tonne; later 100 trees were needed to make a tonne. Presently more than 200 trees are required to produce one tonne of heartwood. There is a progressive decrease in the size of

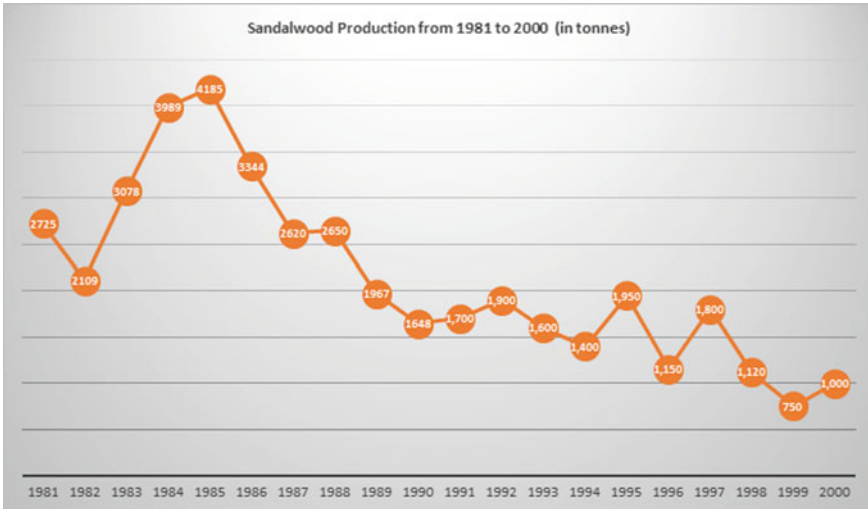


Fig. 2 Sandalwood production during 1991–2000 [3]

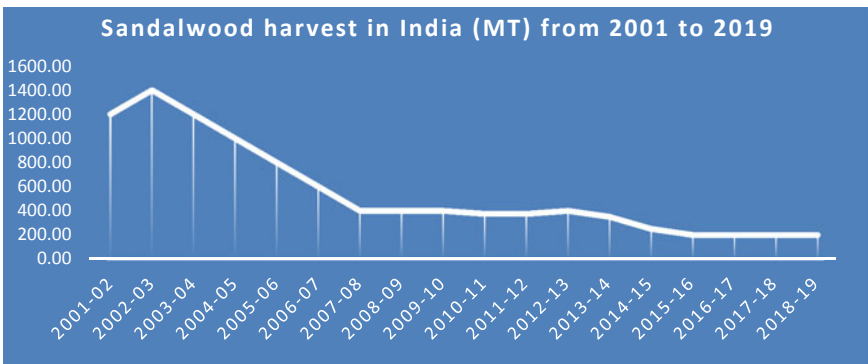


Fig. 3 Sandalwood harvest in India (MT) from 2001 to 2019 [4]

extractable trees. During current sandalwood auctions, some of the bigger category class were eliminated since they do not exist in the natural populations. From 2025, the only source would likely to be from farmer’s private field.

### 4 Sandalwood Market

Sandalwood and its products are in great demand in the domestic and international market.

About 20% of the wood produced is used in the handicraft industry. Attractive carvings and art pieces from the wood are exported to different countries, earning good foreign exchange. This industry has suffered heavily due to a sharp decline in production and the removal of subsidized wood price to artisans, which they were getting till 1995. The prohibitive increase in sandalwood price is also one of the reasons for the short supply of wood handicraft industry. In India, religious institutions use about 2–5% of wood towards making a paste, which is used on idols and distributed among devotees.

## 5 Import of Sandalwood

Sandalwood was never imported to India until 1995. Merchants were not prepared to accept any alternates to Indian sandalwood. This was because the sandalwood was readily available to merchants both from legal and illegal sources. The price was also moderate and not fluctuating in the domestic market. During 1999, Australian sandalwood *Santalum spicatum* was introduced to Indian merchants. Though there were initial inhibitions for the exotic sandalwood, later it was accepted as it was less expensive.

At the same time, merchants explored the possibility of getting other scented wood as alternates, because of the inconsistent supply from Western Australia. African (Tanzanian wood) sandalwood, which belongs to the genus *Osyris*, was imported in large quantities for various value-added products. The wood was comparatively cheaper and captured a wide domestic market. Indian merchants have imported about 2000 tonnes of wood annually since 2001. Though this wood has been imported in large quantities, the need and the demand for Indian sandalwood has not decreased. Since 2010, the Government of India has restricted the import of logs. The Tanzanian Government to conserve *Osyris* species imposed export restrictions during 2004. It amended the export rules, mentioning that only value-added products from *Osyris* wood can be exported. The Indian merchants, due to high demand for African sandalwood oil in the domestic market, established sandalwood distilleries in Africa.

## 6 Sandalwood Prices

Sandalwood is perhaps the only wood in the world sold by weight and not by volume. During the past one hundred years, the prices of sandalwood have seen many variations. During 1882–1883 to 1887–1888 in the erstwhile Mysore State (Present Karnataka State), sandalwood was sold at the rates mentioned in Table 2.

The above prices illustrate that there was not much variation in the price. During the early 19 century, sandalwood fetched a little over INR 400 per tonne, which in the next few years steeped to INR 500. In 1913, the prices shot up to INR1000 per tonne, which increased to INR 2000 during the year 1914. The price of wood has

**Table 2** Sale of sandalwood during 1800s [5]

Years	Price (INR per tonne)
1882–1883	328
1883–1884	300
1884–1885	307
1885–1886	329
1886–1887	337
1887–1888	302

increased to INR 5000 a tonne prior to World War II and remained almost stable till 1957–1958. Sandalwood is sold in the open auction by classifying into different grades based on the wood's weight and soundness. The oil content in the wood varies in a tree from the roots to the stem and to the major branches. Consequently, the price for the different categories also varies.

There was a constant rise in the price structure from the beginning, as the demand increased, and the price also kept pace with it. There was a gradual increase in price from 1962 to 1966 (INR 6874), and during 1967–1970, the price hiked to INR 10,910. The price increase was almost double compared to the previous five years to INR 20,371 and 33,776 during 1971–1976 and 1976–1980, respectively. In India, only Tamil Nadu Forest Department was publicly auctioning sandalwood, and the sale price conferred by the state forest department was always taken as the national sandalwood sale price of sandalwood for the year. Karnataka State Forest Department was transferring the wood to the state-owned distillery to extract sandalwood oil. The price of sandalwood was never consistent; it was purely based on oil demand and the Indian government policy on the export. The price from 1991 to 1995 was unimaginable—INR 220,000 (Table 3).

The price of wood per tonne from 1995 to 2000 increased in arithmetic progression reaching its peak INR 646,000 in just 6 years, indicating the high demand and short supply. The annual premium increase is more than 50%.

Realizing merchants' eagerness towards the purchase of sandalwood, Tamil Nadu government introduced a different system for fixing the basic price for different categories of wood to earn more revenue. The government fixed 10% higher bid

**Table 3** Average market price (pooled) realized by auction sale during the twentieth century, Tamil Nadu Forest Department [1, 6]

Year	INR
1962–1965	6874
1966–1970	10,910
1971–1975	20,371
1976–1980	49,732
1991–1995	220,000
1995–2000	646,000

Plus taxes (Central tax 5% + FDT 12%) to the basic price

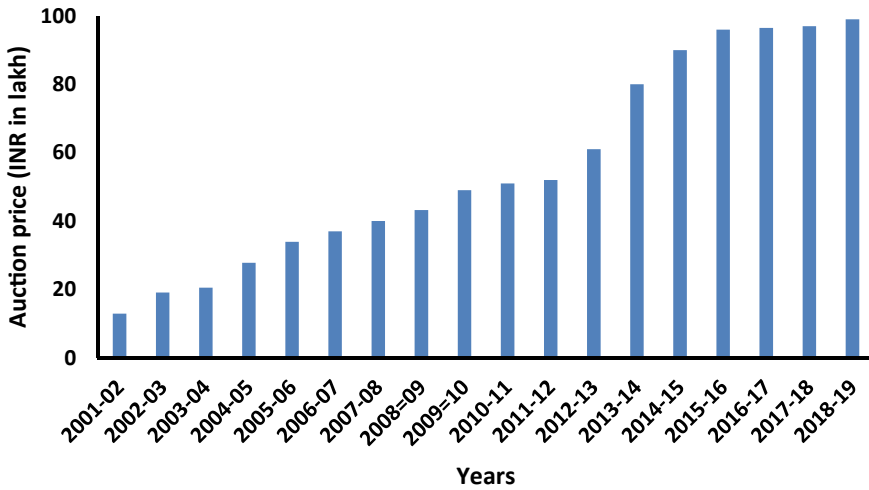


Fig. 4 Average market price (pooled) realized by auction sale during the twenty-first century [4]

price than the previous auction as the basic bidding price for all categories. There used to be four auctions in a year, and consequently, the annual price increment used to be more than 40%. Merchants protested to this, and on several occasions, the auction was cancelled. However, prior commitments forced them to buy at a premium price (Fig. 4).

Due to short supply and high demand, sandalwood’s price was too high, and there were only few buyers who wanted to make value-added products, since there was a ban on export of wood. The wood price from 2014 to 2019 reached about nine million INR, because of very short supply.

## 7 Sandalwood Oil Trade

### 7.1 Trade During First World War

Sandalwood oil used to be exported to different countries by various means of transportation. In medieval days, it used to be exported to Egypt, Greece and Rome. In those days, the oil was used for perfumery, and only the affluent like kings, landlords were able to afford its use.

For the first time in 1400, a crude form of sandalwood oil was extracted by Europe, and Germany refined the extraction procedure, which was later accepted as British pharmacopoeia grade. Due to war and restrictions in trade routes, the Mysore Government, under the farsightedness of the Maharaja of Mysore and Sir M. Visweswaraiiah the minister of Mysore, established the first sandalwood oil distillery in

**Table 4** Early production of sandalwood oil in India [1, 2]

Year	Production in Pounds
1917–1920	24,000
1921	55,641
1922	121,602
1923	149,464

the year 1916–1917 and named it Mysore sandalwood oil factory. Dr. Watson and Dr. Sudborough of Indian Institute of Science provided scientific support for sandalwood oil distillation. They produced British Pharmacopoeia grade sandalwood oil acceptable to the European market.

Initially, sandalwood oil factory was distilling 2000 pounds of oil per month which gradually increased to 55,641 pounds during 1921. By then, it had begun exporting oil to different countries. The production increased in the next two years – in 1922, the production was 121,602 pounds, while during 1923, it was 149,464 pounds, and similarly, the export increased proportionately earning huge foreign exchange (Table 4).

The distillation of sandalwood oil on a large scale continued successfully year after year. The Government of Karnataka started a second factory at Shimoga. The estimated production during 1916–1925 was 579 tonnes which increased gradually to 1026 tonnes from 1966 to 1975. Apart from these, there were many private distillation units established in Salem and Mettur (Tamil Nadu), Kuppam and Hyderabad (Andhra Pradesh), Bombay (Maharashtra), Kanpur and Kannauj (Uttar Pradesh) and Sultan Battered (Kerala). However, 75% of sandalwood oil production was produced from the two government oil factories.

Due to its high value and increase demand in the internal and external market, sandalwood prices skyrocketed. The price increase was partially due to a decrease in supply from 1930 to 1950s. In 1950, 120 tonnes of oil was produced; an increase in demand was attributed to the popularity of aromatherapy and cosmetic industry trends towards natural products.

## 7.2 Production of Sandalwood Oil After 1960

The reliable data on the actual production of oil of sandalwood in India are not available.

Official statistics shows far less production than its use in various industries. Private distillers illegally produced sandalwood oil and sold to both domestic and international market for their needs.

From 1963 to 1981, the bulk of the contribution (about 75%) was from Karnataka and the rest from different states. During a span of fifty years from 1916–75, the production increased by about 500 tonnes. However, there has been a declining



**Table 5** Estimated sandalwood oil production from 1916–2010 [2]

Year	Production in tonnes	Year	Production in tonnes
1916–1925	579.45	1976–1978	180.22
1926–1935	783.38	1980–1985	265.95
1946–1955	651.62	1996–2000	400.00
1956–1965	849.26	2004	140.00
1966–1975	1026.15	2005–2010	500.00

trend since then (Table 5). The oil demand increased in both domestic and international markets, and the price also increased substantially. This encouraged the private distillers to procure illegal wood. During 1960, there were only 15 private distillation factories in the country, with a distilling capacity of about 45 tonnes. Later, during 1965, the number of private distillers increased to 30 distilling more than 85 tonnes of oil.

The estimated production decreased further due to non-supply of sandalwood to the government-owned distillers at subsidized price by the forest department. In later years, the major supply of oil to both domestic and international market was from private distillers.

The official production of sandalwood oil figures from 1981 to the present date is around 100 tonnes, but based on the different industries requirements, the annual production quantity should be over 150 tonnes. Legislation by India government to protect the sandalwood tree has been inconsistent as sandalwood trade represents a significant export potential to the USA, European and Middle East markets.

## 8 Export of Indian Sandalwood Oil

India exports sandalwood oil to more than 40 countries of the world. Earlier to 1960, India met the world's requirements up to 70–80%. The total Indian production was of the order of 125–200 tonnes. The production came down to about 40 tonnes in 1981 of which 64% is still exported to different countries of the world (Table 6).

The export was high during 1960–1973 and later fell down sharply; this is due to the government's ban on export policy. Later, a quota system was introduced. The private and government institutions' export quantity was fixed based on the quantity of wood purchased during the auctions.

Sandalwood oil's market trend is exciting, and the price fluctuates based on the demand (Table 7). A kilogram of oil which was costing a mere 5 USD in 1941 fetched 1400 USD in 2005. There is an acute short supply of the raw material coming from the natural forest, since the regeneration efforts are not adequate. The value of wood and oil is increasing every year, hence, numbers of corporate bodies in the world and farmers have come forward to grow sandalwood in agricultural land, and industry may remain for several centuries.

**Table 6** Export of sandalwood oil for the years 1960–1961 to 1980–1981 [2]

Year	Quantity (in tonnes)	Value in (000'Rs)	Year	Quantity (in tonnes)	Value in (000'Rs)
1960–1961	98.0	17,408	1970–1971	103.8	24,540
1961–1962	97.1	19,321	1971–1972	117.9	26,099
1962–1963	72.2	12,854	1972–1973	119.9	27,820
1963–1964	81.1	12,290	1973–1974	92.7	35,116
1964–1965	97.1	14,514	1974–1975	71.4	70,869
1965–1966	89.4	13,466	1975–1976	22.7	13,994
1966–1967	90.5	20,426	1977–1978	22.6	28,572
1967–1968	99.0	23,610	1978–1979	25.3	24,040
1968–1969	123.0	31,488	1979–1980	43.0	33,348
1969–1970	108.1	24,540	1980–1981	37.1	28,839

**Table 7** Export prices of oil [2]

Year	Rate per kg in USD	Year	Rate per kg in USD
Pre-war	3.5–4.00	1980	135
1941	5.00	1985	166
1944–1948	13.00	1990	200
1955	12.00	1995	385
1960	16.00	2000	580
1965	35.45	2003	700
1970	32.00	2004	1046
1975	84.30	2005	1400

## 9 Conclusion

Sandalwood has been overexploited due to high demand. The price increase for the last two decades was exceptional. This incremental increase in price for Indian sandalwood may not happen in future, as many countries have started growing sandalwood. But, the demand for sandalwood and oil would not come down as many sandalwood-based industries have come up in different parts of the world.

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