

**HEART OF THE MATTER: AGARWOOD USE AND TRADE  
AND CITES IMPLEMENTATION FOR *AQUILARIA MALACCENSIS***

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Credit: Dr A. K. Chopra/TRAFFIC India

*Aquilaria malaccensis* trees in India

## HARVEST, TRADE AND CITES IMPLEMENTATION WITHIN KEY AQUILARIA RANGE STATES

### INDIA

Unless otherwise stated, information in this section was obtained from Gupta (1999).

#### Status and distribution

India is home to two *Aquilaria* species, *A. khasiana* and *A. malaccensis*. *A. khasiana* is found mainly in the Khasi Hills of Meghalaya (Kanjilal *et al.*, 1982). *A. malaccensis* is native to nine north-eastern States: Arunachal Pradesh, Assam, West Bengal, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The species is typically found growing at altitudes of up to 1000 m, being localized mainly in the foothills and undulating slopes of evergreen and semi-evergreen forests (Chakrabarty *et al.*, 1994). The status of wild *A. malaccensis* has steadily deteriorated with few natural agarwood stocks remaining. According to information gathered by Forest Departments and the Regional Deputy Director of Wildlife Preservation, Eastern region, wild *A. malaccensis* is 'rare' in all of the above-mentioned States (apart from Sikkim and West Bengal where its status was not commented upon). Wild agarwood (known locally as 'agar') was heavily extracted from Arunachal Pradesh between the late 1950s and the early 1980s, virtually exhausting the natural stock. Wild *A. malaccensis* is considered almost extinct in Assam. Surveys undertaken by the Regional CITES Management Authority in Tripura indicate that the natural stock is almost exhausted in that State as well. In Mizoram, *A. malaccensis* grows sporadically in some of the catchment areas of main river tributaries such as Tuivawl. The lack of plantations in Mizoram and Meghalaya has resulted in much illegal harvesting from natural forests. *A. malaccensis* in Nagaland and Manipur is so depleted that a large proportion of the raw agarwood used by processing units in these two States is sourced from neighboring countries.

#### India's role in the agarwood trade

India was previously the centre of a thriving industry and trade based on agarwood derived from *Aquilaria malaccensis*. Products produced and traded included wood, chips, powder and oil, being used mainly for perfumes, incense, and medicines (including Ayurvedic). Prior to the 1991 export ban on wood and wood products (detailed below), Mumbai served as the main exporting centre to Middle Eastern countries. *A. malaccensis* harvested from north-east Indian States, predominantly Assam, was taken to Hojai in Assam where it was processed into chips, dust and oil. Importers and exporters previously supplied traders in Mumbai and Calcutta, primarily with Assamese agarwood, but suppliers have largely shifted their base to south-east Asian countries, particularly Singapore, owing to the scarcity of Indian agarwood. Traders interviewed reported that the decline in the trade started 15-20 years ago, coinciding with the decline in the availability of high quality Indian agarwood. Even with the decline in trade, however, there is still an agarwood chip, oil and powder processing industry in India. North-east India continues to dominate India's agarwood processing industry, with Assam and particularly Hojai still playing a major role, and Mumbai being the main location from which agarwood is traded and exported. Most of the established exporters in Assam have been involved in the agarwood trade for 90-95 years.

Some of the agarwood processed in India comes from domestic *Aquilaria malaccensis* plantations, both Government-owned and, to a greater extent, privately owned, however domestic production is small in comparison to imports. Traders reported obtaining supplies from the East Garo Hills (Meghalaya), Imphal (Manipur), Nagaland and upper Assam. They described these supplies as being of inferior quality owing to the young age of harvested trees, and hence suitable only for oil

distillation. Agarwood from *A. khasiana* is apparently traded in the form of wood and chips. It is noted as being difficult to distinguish from *A. malaccensis*, but is not used to a significant extent in the production of oil.

India's agarwood industry relies primarily on imports from Singapore (the agarwood originating in Indonesia and Malaysia, according to Singapore's CITES annual reports) and, according to information collected from traders, from the neighbouring *Aquilaria malaccensis* range States of Bangladesh, Bhutan and Myanmar, as well as from Cambodia, Lao PDR, Thailand and Vietnam. Agents based in south-east Asian countries are reported to dispatch agarwood supplies to Mumbai periodically, usually accompanied by an agent. Some overseas suppliers are also said to be involved in supplying agarwood to traders and processors in India via air. There are no reports of suppliers based overseas flying agarwood out of India, although there are reports of Indian-based traders exporting agarwood this way.

The agarwood markets of Mumbai are mainly supplied by middlemen who have brought agarwood, mostly in the form of oil, but also as chips, from Assam. Some of the traders interviewed recounted importing and exporting agarwood via Mumbai. Traders are also reported to operate from other north-eastern towns such as Agartala, Imphal, Jorhat, Sibsagar and Silchar.

The methods of agarwood shipment include by post (in parcels weighing less than 10 kg), by rail, either accompanied or unaccompanied, and occasionally by road.

According to Heuveling van Beek and Phillips (1999), Indian importers buy many tonnes of grade 5 or 6 agarwood powder for distillation purposes. Many large processing units are located in Assam, Chakrabarty *et al.* (1994) reporting that a total of approximately 200 agarwood oil distilleries operated in the towns of Hojai, Islamanagar and Nilbagan in Naogaon district in 1993. The number of distilleries in current operation is unknown, but interviews conducted suggested that there are currently far more processing units in Assam than in 1993. Unconfirmed local enquiries suggest that there may be more than 1500 processing units in Hojai alone, although, according to available information, the Industry Department has issued licences to only 29 (unlicensed processing units are presumably operating illegally). If this is confirmed, then the number of processing facilities will have increased dramatically following the effective date of the CITES-listing of *Aquilaria malaccensis*.

Surveys indicate that oil distillation is now also undertaken in Calcutta and that raw agarwood is processed into chips in Mumbai. Processing units are also found in Tripura, Arunachal Pradesh, Mizoram, Nagaland and Manipur, the last two alleged to be supplied primarily by smuggled stock from Myanmar and Bangladesh. Traders reported that agarwood is also processed into chips in Dubai by Indian labourers employed there.

Traders in Mumbai reported that agarwood adulteration was common and widespread, and that the most common chip adulterants were 'lodh' (possibly *Symplocos racemosa*) and 'astrang' (possibly *Mandragora officinalum*). Only expert traders can distinguish between genuine agarwood chips and adulterants. Agarwood oil is adulterated with *lodhoil*, five or six other chemicals and/or agarwood powder that imparts the fragrance of agarwood. Indian traders use the word *kalagasi* to describe *Aquilaria* wood that is mixed with resinous chips to increase weight and hence profit. Previous TRAFFIC India investigations (Anon., 1998a) suggested that the fact that agarwood prices in Delhi and Calcutta are significantly lower than in Mumbai indicates that the product has been adulterated with wood of species more common than *Aquilaria* spp.

Agarwood can be skillfully mixed with iron shavings to increase the weight, this adulteration

usually remaining undetected until the shavings are deposited during oil distillation. Carbon powder from spent batteries may also be mixed with *Aquilaria* wood to make it resemble high quality agarwood.

## Markets and Prices

Traditionally, the main perfume traders in Mumbai dealt either in scents derived from woods (oudhs) or in scents derived from flowers (attars). This division does not apply today, with most perfume traders in Mumbai stocking both oudhs and attars, commonly in addition to leather garments and textiles. Most retailers are either Indians or of Middle Eastern descent.

The locations of traditional perfume shops in Mumbai have gradually shifted from Nagdevi Street and Mohammad Ali Road, where they were located in the 1970s to Colaba. Prominent traders have shops in Colaba and also maintain offices in Nagdevi Street and Mohammad Ali Road. This is reportedly in order to be close to hotels used by Middle Eastern visitors, the primary purchasers of agarwood perfumes. Shops were observed displaying glass cabinets containing various grades of agarwood chips and oil for purchase. The maximum quantity held by any one trader rarely exceeded 100kg. Most retailers reported holding a license for stocking a particular quantity of agarwood. Further clarification is required regarding license requirements.

Virtually all traders estimated the profit margin to be 15% for domestic sales and 20% for international sales.

Agarwood chips in Mumbai are generally available for INR2000-5000/kg(USD47-118kg). traders said that chips can actually be obtained for anything between INR200-100000/kg(USD5-2353/kg). it is very likely that those priced at INR200 are almost certainly fake, heavily adulterated and contain virtually no resin. Chips of the highest grader (“double super”) are reportedly available at the border with Myanmar for up to INR 60 000/kg (USD1412/kg), rising to INR100 000/kg (USD 2353/kg) in the Mumbai market.

Agarwood chips available in a Mumbai medicinal plant market ranged from INR5000-6000kg (USD118-141/kg). Their authenticity could not be verified. Agarwood oil of varying grades and content was offered for sale at INR20-3000/tola (1 tola=10g, equating to USD 0.5-71/tola or USD 47-7059/kg).

North-eastern prices are typically higher than those in Mumbai. Agarwood chips cost INR10000-50000/kg (USD235-1177/kg) and dust can be obtained for INR7500-35 000/kg (USD176-824/kg). Manufactured products were also available for purchase. Perfume prices ranged between INR 2000-4500/tola (USD 47-106/tola ot USD4706-10589/kg), and incense was in the range of INR 45000 -55000/kg (USD 1059-1294/kg).

Wholesale agarwood prices are fixed by certain forest divisions in the north-east. The Forest Department collects and reviews existing market prices for the various grades of agarwood from different Divisional Forest Officers to decide the price. The Principal Chief Conservator of Forest then approves these.

Based directly on the agarwood prices in Indian rupees shown above (therefore not accounting for inflation), between 1993 and 1994 the prices of 2<sup>nd</sup> class and 3<sup>rd</sup> class agarwood decreased by 25% and 7%, respectively. However, both the lowest class (Dhum Agarwood) and the highest class (Black Agar) increased in price by between 40-250% and by 117%, respectively, in a single year. The timing of these changes in price corresponded to the submission of the CITES listing proposal for *Aquilaria malaccensis* by India.

Interviews conducted with traders, exporters and suppliers within India indicated that agarwood was available (and therefore available for export) in raw, partially processed and processed forms. The latter include medicine, incense and perfumes. The vast majority of agarwood is exported in the form of oil. Destination reported by traders included Bahrain, Kenya, Kuwait, Oman, Qatar, Saudi Arabia and the UK.

### **Reported international trade**

Records of trade in *Aquilaria malaccensis* included in India's CITES annual reports for the period 1995 to 1997 are limited to the import of 38 kg of *A. malaccensis* in 1995. However, CITES annual report data provided by Singapore indicate that far larger quantities of *A. malaccensis* have been re-exported to India.

Approximately 14 t of chips in 1995, 15 t of chips and powder in 1996 and 19 t of chips and powder in 1997 were reported by Singapore as re-exported to India. These data are corroborated by trade data provided by India's Directorate General of Commercial Intelligence and Statistics, Calcutta, which show the import of 12 t of agarwood chips and dust from 1995 to 1996 and 24 t from 1996 to 1997. Data from the same source show the export from India of over 18 t of agarwood chips and dust from 1995 to 1996, and of nearly 20 t from 1996 to 1997. The species of agarwood in trade is not specified in these data, but it would seem likely that at least some of this trade included *A. malaccensis*. Imports of agarwood from

India were not reflected in the CITES annual report data of other Parties.

### **Domestic harvest and trade controls**

The *Indian Forest Act, 1927* regulates domestic harvests and both the intra- and inter-State transport of agarwood. Controls are implemented through a permit system that is managed by the Department of Forestry. Divisional Forest Offices maintain records of licences and permits issued to harvest agarwood from plantations; only a few individuals have obtained such permits. These individuals obtain separate permits to harvest and transport agarwood as and when the opportunity arises rather than setting up registered companies (S.K. Das, pers. comm. to TRAFFIC India, 1999).

Individual States within India have established various harvest control measures, including complete bans on harvests, harvests allowed under lease (*Agar Mahl*) and harvests restricted to

private lands. Prior to the CITES listing, it was legal to extract *Aquilaria malaccensis* from most States. Harvesting from Arunachal Pradesh, Assam and Meghalaya is now prohibited by State bans (under the *Indian Forest Act, 1927*), while harvesting in Manipur is restricted by an administrative order. In Tripura, harvesting from government lands has been prohibited since 1994. Mizoram and Nagaland have leased out harvesting privileges (from 1990 to 1993 and from 1991 to 1992, respectively); it is unknown whether lease terms have been renewed (Chakrabarty *et al.*, 1994; Gupta, 1999).

In Tripura, landowners can harvest stock from their private plantations if they obtain a Harvest Permit issued by the Forestry Department. Such landowners can then apply, again to the Forestry Department, for a Transit Pass (TP) enabling them to transport their stock to a 'safer place' within Tripura. There was no record of TP holders ever having subsequently approached the Forest Department for a TP to transport the same consignments on to another Indian State.

In Manipur, a TP is issued for agarwood harvested from the East Garo Hills (Meghalaya) by the Williamnager Range Forest Officer at a cost of INR2000/50 kg (USD47/50 kg). Some suppliers and traders reported that, as well as a TP issued in Manipur, the Maharashtra Forest Department issue an additional TP for transport within Maharashtra.

In Assam, Lieu Transit Passes (LTPs) are issued by the Assam Forest Department

In Assam, Lieu Transit Passes (LTPs) are issued by the Assam Forest Department to those who have legally transported agarwood from neighboring States (primarily Manipur, Mizoram and Nagaland). LTPs are issued upon the presentation of a valid TP issued in another State. LTPs allow the transportation of agarwood to any destination within Assam. There are reports, however, of traders illegally harvesting agarwood from, and managing to obtain a TP in, Nagaland, Manipur, Mizoram and Arunachal Pradesh.

The TP obtained under false pretences is then used to obtain a LTP in Assam.

Processing units in Assam are required to be licensed by the Industry Department. The Industry Department does not liaise with the Forest Department regarding the availability and source of raw agarwood and it is not mandatory for processing units to declare their source of raw of supply. The Forest Department of Tripura has the authority to issue licenses enabling the establishment of processing units. Although many traders have approached the Forest Department in this regard, all applications have been rejected, principally due to the lack of a regular source of raw agarwood.

The Forest Department is responsible for domestic seizures, while Customs authorities and the Border Security Force are responsible for seizures at borders and airports. In most cases, Customs and the Border Security Force turn over seized consignments to Forest Department officials for prosecution under the *Indian Forest Act*. Cases are referred to either the Court of Sub-divisional Judicial Magistrate or are adjudicated departmentally through the Forest Department.

Departmental adjudication is typically used to penalize offenders with no previous history of forestry-related offences. A fixed compensation fee and a fine of at least twice the current market value of the seized consignment is imposed. If found guilty, offenders are subject to a fine and/or imprisonment.

The fate of seized consignments varies with each State. Goods seized in Assam are released into the custody of the Forest Department for public auction, and if the case was referred to court, the auction proceeds are allocated to the Government Treasury as per the court's directives. In Tripura, virtually all seized consignments are stockpiled by the Forestry Department who consider that auctioning stock offers the offender an opportunity to buy back their seized

consignment. Customs authorities interviewed in Mumbai report that any seized consignments would be stockpiled.

### **International trade controls**

CITES is implemented in India through a combination of the *Wildlife Protection Act, 1972/1991*, the Export and Import Policy (EXIM) (*Import and Export Control Order, 1955*) of the *Foreign Trade (Development and Regulation) Act, 1992*, and the *Customs Act, 1962*.

Indian-based importers of agarwood must present proof of legal origin (Legal Procurement Certificate) at the time of import to obtain a Transit Permit (TP), which is required for all forest products regardless of origin. Some agarwood shipments being imported into India have been seized at border posts under the *Indian Forest Act 1927*, presumably owing to lack of sufficient proof of legal origin.

The Additional Inspector General of Forests (Wildlife) of the Ministry of Environment and Forests is the central CITES Management Authority. There are also regional Management Authorities competent to issue CITES permits. The Deputy Director of Wildlife Preservation, Eastern Region, is the Authority responsible for all nine Indian range States of *Aquilaria malaccensis*. The Botanical Survey of India is the CITES Scientific Authority.

The export of *Aquilaria malaccensis* has been prohibited since 1991, when the export of all wood products (including log, timber, chip, powder, flake, dust etc.) of all species was banned through the EXIM policy in force at that time. The current EXIM policy (1993-2002) published by the Directorate General of Foreign Trade, Government of India, permits the import of *A. malaccensis* (including chips, dust and oil), but maintains the 1991 blanket export ban on Indian-harvested wood products. However, it also specifically regulates the export of *A. malaccensis* via the Negative List of Export of Plants. The Negative List of Export of Plants (as set forth in *Notification No. 24 (RE-98)/1997-2002* dated 14 October 1998) being an amendment to the *ITO (HS) Classification of Export and Import Items 1997-2002*, specifically prohibits the export of 29 native flora species, including *A. malaccensis*. This includes the plants, plant portions, derivatives and extracts obtained from the wild. The export ban on all wild Indian flora species was recently re-communicated to Parties by way of CITES *Notification No. 1999/39*.

There are exceptions to the export ban, however, which allow the export of native species included in the Negative List. These include formulations, which are defined as products containing plant portions or extracts in unrecognizable and physically inseparable forms. Native wild *Aquilaria malaccensis* can therefore be freely exported in forms such as oil or medicine. Also, the export of Indian 'cultivated' varieties (i.e. agarwood derived from plantations) is permitted when accompanied by a Certificate of Cultivation. This is obtained from the Regional Deputy Director of Wildlife (CITES Management Authority), or the Chief Conservator of Forests or Divisional Forest Officers, in the State where the material was procured. A CITES export permit is also required, but none appear to have been issued.

Imported agarwood may be re-exported as value-added herbal formulations, if these are manufactured only from imported material. At the time of export, exporters are required to present an affidavit to Customs authorities stating that only imported plant material was used to produce the formulation being reexported.

Random sample tests are undertaken to verify the authenticity of affidavits, with action taken under the *Foreign Trade (Development and Regulation) Act 1992* against false affidavits. When export is allowed under the above conditions, it must occur only through the ports of Amritsar, Calcutta, Chennai, Delhi, Mumbai and Tuticorin.

Currently, although there are national controls, there are no CITES-related import or re-export controls for *Aquilaria malaccensis* or other CITES-listed medicinal plant species. As a result, CITES is not implemented for imports or re-exports of this species, i.e. CITES permits are neither required, nor provided for trade. TRAFFIC India has informed the Ministry of Environment and Forests, and the Director General of Foreign Trade in the Ministry of Commerce of its findings with regard to the trade and trade controls for *A. malaccensis*, and recommended that the EXIM Policy be amended to reflect CITES requirements for import and re-export controls.

### **Illegal harvests and trade**

Interviews demonstrate that some traders and private landowners are under the misconception that any *Aquilaria malaccensis* tree can yield high-quality agarwood. This has led to the premature harvest of trees of seven to eight-year-old plantations, particularly in Tripura. People in Tripura are aware of the high market value of *A. malaccensis* and, according to a government official, since the species was listed in CITES, Forest Department plantations have been illegally plundered (S.K. Das, *pers. comm.* to TRAFFIC India). Illegal extraction of young plantation trees occurred primarily just before or within a very short time of the CITES listing.

Limited information was available on illegal trade from government officials contacted. However, available records of government seizures indicate illegal trade in agarwood likely to involve *Aquilaria malaccensis*. For example, four shipments of agarwood dust, totalling 68 t, were blocked from export in Mumbai by Inspectors of the Regional Deputy Director, Wildlife Preservation Office during the period 1994 to 1998 and referred to Customs for prosecution purposes under the EXIM policy (S. Panda, RDD Western Region, Wildlife Preservation Office, Mumbai, *pers. comm.* to TRAFFIC India, 1999). A number of smaller shipments of agarwood and oil have also been seized. When Customs authorities were interviewed in Mumbai dock, however, they stated that no seizures had occurred since 1994.

Seizures (reportedly of agarwood obtained from Surajnagar in Sylhet District) made by the Border Security Force at the border with Bangladesh confirm an India-Bangladesh trade route. Records of additional seizures made in Tripura are held by the Offence Report Registers of the Forest Department; records of individual cases relating to agarwood were unavailable. No records of seizures made in Manipur, Nagaland, Meghalaya and Arunachal Pradesh were found. However, traders interviewed said that seizures have occurred in the latter two States, which resulted in the public auctioning of the seized consignments.

Several reports of seizures were received from traders. For example, one importer interviewed reported the seizure of agarwood chips worth INR300 000 (USD9561), imported from Bangkok into Mumbai in 1994. Traders alleged that wood was smuggled across the north-eastern border, particularly from Myanmar, which they claimed necessitates bribing enforcement agencies at the border. Manipur was indicated as the preferred entry point and traders particularly named Churachandpur District as the place to obtain a Transit Permit illegally for wood smuggled from Myanmar. It was said that this cost INR200/kg (USD5/kg). Smuggled wood from other south-east Asian countries such as Indonesia, Lao PDR, Cambodia and Vietnam is said to be flown into Calcutta, Chennai, Mumbai and Delhi. According to traders interviewed, the majority of agarwood smuggled into India is destined for processing in Hojai. Some traders admitted illegally exporting agarwood, stating that this was a relatively risk-free process, since Customs formalities were easily 'negotiated'. Two traders gave separate accounts of bribing Customs officials in order to evade legal action. The use of couriers to export agarwood illegally was said to be widespread, with some retailers saying that they used couriers to export up to 20 kg of chips. Some traders thought that the export ban had discouraged Middle Eastern consumers from purchasing large

quantities of agarwood from India, who instead would only purchase up to five kilogrammes, an amount easily concealed within personal baggage. Small vials of oil (six to seven centimetres in length) are also easily hidden.

### **Cultivation**

As indicated above, both government-owned and private agarwood plantations have been established. The Silviculture Division of Arunachal Pradesh has converted large areas of degraded forests into commercial agarwood plantations. These are the source of most of Arunachal Pradesh's illegal stock, despite their being too immature to yield commercially valuable agarwood. The upper Assam climate provides particularly suitable growing conditions and large-scale plantations exist in this State. Owners of private plantations in Assam have also attempted artificial fungal inoculation of two- to three-year-old *Aquilaria malaccensis* plants, but it is not known how effective this has been at stimulating agarwood production. The Research and Development Department of an international agarwood trading company maintains that private Assam plantations have been fulfilling 70-80% of the world's demand for agarwood, but this seems very unlikely based on available trade data. Other traders interviewed also believed that private plantations could meet the demands of existing processing plants and they were therefore confident regarding continuance of the agarwood trade. However, evidence of imports into India indicates that this is not the case. One large agarwood trading company has distributed *A. malaccensis* seedlings worth approximately INR100 000 (USD2353) to villagers in Hojai and surrounding villages during the past three years, enabling them to plant their own *A. malaccensis* trees on their property and on other small tracts of land. Surveys undertaken by the CITES Management Authority in Tripura estimate that approximately 450-500 ha of private agarwood plantations exist in the north district. Government plantations also exist in Tripura, where the Forest Department first created plantations in the 1960s. There has been little effort to create agarwood plantations in either Mizoram or Meghalaya. Some government plantations can be found in Nagaland and Manipur, but there are few private plantations in these States.