

## The Use and Trade of Agarwood in Japan



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**TRAFFIC**

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Agarwood use and trade have played an important historical role in Japanese culture, and yet at the same time retain an arcane sense of mystery for many Japanese people, let alone foreigners with an interest in one of Japan's high arts of long-standing tradition. Obtaining information on this trade, and the industry it supports, required the establishment of several trust-based relationships – and many of those would not have been possible for TRAFFIC to obtain without various personal introductions and connections, both inside and outside Japan.

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## Executive Summary:

Agarwood-producing species are found from India eastwards throughout Southeast Asia, as well as in southern China. Historically, species in the Genus *Aquilaria* are believed to have provided the bulk of the trade in agarwood, but another important genus is *Gyrinops*, with all known agarwood-producing genera belonging to the Family Thymeleaceae. The resinous agarwood product is only found naturally in 10-20% of trees of these species, with a still imprecisely understood combination of wounding, vectors of infection (bacterial infection, fungus) and resinous response (*i.e.* to external and internal causal factors) producing the formation of agarwood. Efforts to turn agarwood into a plantation crop have been frustrated by this complicated codex, and many experiments with fungal and bacterial inoculation have produced mixed results in inducing the required resinous response from trees. Only one agarwood-producing species, *Aquilaria malaccensis*, has been subject to trade controls under CITES Appendix II, in which it was listed in 1995.

In terms of the global trade in agarwood, Japan rates behind the United Arab Emirates and Saudi Arabia as the most important end-destination markets, other than Taiwan (Province of China) in terms of *A. malaccensis* trade import volumes according to CITES Annual Report Data held at UNEP-WCMC. Taiwan (Province of China) is the most important final destination market for *A. malaccensis*, and Singapore plays the paramount role as a re-exporter of *A. malaccensis* sourced primarily from Indonesia and Malaysia. Hong Kong plays a decreasing, but still significant, role as a re-exporting entrepot in the global market.

The two most important sources of Japanese agarwood supply, according to both available import statistics and interviews with Japanese experts, have historically been Viet Nam and Indonesia. Hong Kong, Singapore and Bangkok continue to play an important entrepot role in supplying Japanese agarwood demand.

Agarwood is used for cultural, religious and medicinal purposes in Japan, in order of importance. Until 1998, Customs statistics were available for all species of agarwood imported into Japan and show that 46% of Japan's total imports between 1991 and 1998 were from Viet Nam, which would likely indicate a preference in the Japanese market for agarwood derived from *A. crassna*. In addition, Viet Nam has traditionally been the source of high-grade agarwood including the supremely resinous *kyara* (also known as *ky nam* or *kanankoh*).

Annual CITES Reports from for the period 1995-2000 show Japan imported a total<sup>1</sup> of 47.5 t of *A. malaccensis* during this six-year period in the form of wood, wood-chips, logs, powder and timber. Almost all reported Japanese trade in *A. malaccensis* was reported as import/re-export from the countries of origin via Hong Kong or Singapore, with Indonesia the only significant range State dealing directly with Japan. For the same 1995-2000 period, however, reported CITES exports and re-exports of *A. malaccensis* to Japan totalled 114.3 t, more than twice the reported volume of imports into Japan – which represents a discrepancy of 66.8 t. The discrepancy between reported imports and reported exports/re-exports was most significant in 1999, when reported exports to Japan were almost 6 times more than reported imports into Japan.

Japan has a well-developed but highly specialised traditional industry for fragrance appreciation, which involves both the use of raw agarwood, as well as processed forms, most commonly incense. Japanese incense products are held in high regard globally, but according to CITES annual reports compiled by the Japanese CITES Management Authority, there was no recorded re-export of agarwood, including products and derivatives, from *A. malaccensis* from Japan between 1995 and 2000. Japanese incense manufacturers are known to export finished agarwood products to Korea, Singapore, the USA and countries within the European Union, but it is unknown whether these products contain *A. malaccensis* or in fact contained other agarwood-producing species.

What was originally a very specialised culture of incense appreciation in Japan has expanded over time, but still the percentage of the population who use agarwood products is very small, and necessarily limited by

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<sup>1</sup> In 1997 and 1998, there are discrepancies of approximately 1783kg and 800kg, respectively, between figures sourced from the Japanese CITES Management Authority by TRAFFIC East Asia-Japan, and those submitted by the same authority to the UNEP-WCMC CITES Trade Database. This could reflect differences in timing of data requests by TRAFFIC, and report submissions by Japan to UNEP-WCMC; as a result, the higher volumes, following data held at UNEP-WCMC, are used in calculations for this analysis.

the high prices that agarwood commands per gram. However, it is unlikely that Japan's demand for agarwood will decrease or disappear. Therefore, the Japanese agarwood industry has an important role to play in promoting links with range States to develop sustainable sources of supply to ensure that this country's unique agarwood culture can continue. Putting comprehensive trade monitoring systems in place in Japan, based upon the previous Customs codes for 'all agarwood species' that existed until 1998, would assist greatly in tracking Japan's trade 'footprint' or reliance on certain range States for sources of agarwood.

Towards the goals of maintaining Japan's culture of agarwood use, while ensuring that trade is both legal and sustainable, some key recommendations are made:

- 1) *For more comprehensive monitoring of agarwood trade:* Under the new CITES listing for *Aquilaria spp.* and *Gyrinops spp.*, which will come into force in January 2005, all agarwood imported into Japan should be accompanied by CITES permits. The Ministry of Finance may wish to reclassify agarwood with a separate Customs code, as it was until 1998, in order to provide a "check and balance" system for the data collected by the CITES Management Authority of Japan. Japan's role as a re-exporter of processed agarwood incense products should also be examined with regard to correct permitting procedures for re-exports from Japan to ensure continued access to global markets (particularly in view of the more comprehensive CITES listings coming into force in January 2005).
- 2) *For improved understanding of CITES regulations:* The CITES listing for the two genera *Aquilaria* and *Gyrinops* will need to be clearly explained to importers, merchants and retailers, including re-exporters. Particular attention should be given to increasing the understanding of Japan's impact on wild agarwood stocks, and the need to work with range States to pro-actively manage these trees in their original habitats. By explaining that Japanese traditions of use can only continue if conservation management needs in range States are met, the intention of the increased regulatory demands imposed by CITES Appendix II will be clarified.
- 3) *For greater awareness of the need to manage agarwood supply:* Japan's agarwood industry (including importers, manufacturers and retailers) should be encouraged to share information with the various types of consumers regarding the need to ensure future sustainability of Japan's use of this natural resource.

## Introduction and Background:

The best quality agarwood is determined according to its resin content, and the Chinese name for the best agarwood *Ch'en Hsiang* ('sinking fragrance') is indicative of the fact that high quality agarwood is impregnated with enough resin to cause it to sink in water. The Japanese name for agarwood is *jin-koh* which, like the Chinese *Ch'en Hsiang*, literally translates as "sinking fragrance". Japanese grading of agarwood has a codified system of assessment based on various characteristics including resin content, colour, shape and weight of the wood pieces. The grade which commands the highest price in Japan is called *kyara*, derived from the Sanskrit term *kara*, meaning black. Because of its high esteem in the agarwood world, the *kyara* classification was broadened to describe something of supreme quality, including in the admiration of female beauty. This desirability (and monetary value) of *kyara* is predicated on its rareness in nature, something which modern levels of harvesting have ensured has continued to increase.

Japan's fascination with agarwood dates back around 1500 years, when it is believed to have arrived in the country along with the Buddhist religion, and several highly ritualised traditions of use in Japanese religious, cultural and medicinal applications have evolved. As it is not a range State for any agarwood-producing species, Japan has always depended on supply from tropical Asian countries and has maintained trade links over centuries with key areas of supply on the Indochinese peninsula and the Indo-Malesian archipelago.

With the long history of use, and continuing importance of the Japanese market to the current global trade demand for agarwood, Japan was identified by the CITES Plants Committee under Decision 12.71 as a priority for further research. This report was compiled in collaboration between TRAFFIC Southeast Asia and TRAFFIC East Asia-Japan in 2003 and 2004, under funding from CITES Project S-206, and builds on historical work done by TRAFFIC in Japan pertaining to the traditions of using high-grade natural products in incense preparations.

Consultations and interviews were carried out with importers, manufacturers and retailers of agarwood products in Japan, as well as several scientific researchers specializing in agarwood. Sampling of the retail availability of agarwood and agarwood products was carried out in major cities such as Tokyo and Kyoto.

Trade statistics were obtained from Japan's Ministry of Finance (customs statistics) and the Ministry of Trade and Industry (CITES data). UNEP-WCMC's CITES trade database was also consulted.

## Section 1 – The History of Agarwood Use in Japan (largely sourced from *The Book of Incense* by Kiyoko Morita, unless otherwise indicated):

The use of agarwood plays an important role in Japanese culture, in which it has been used for cultural, religious and medicinal practices for hundreds of years. The earliest record of agarwood in Japanese texts dates back to the year 595 AD, in the *Nihon-shoki* (Chronicles of Japan) which records the following entry:

“...aloeswood drifted ashore on the island of Awaji (near Kobe). It was six feet in circumference. The people of the island, being unacquainted with aloeswood, used it with other firewood to burn for cooking; the smoky vapour spread its perfume far and wide. In wonderment, they presented it to the Empress”.

When the agarwood arrived at the royal court, Prince Shotoku recognized it as *jin-koh*, the use of which had been introduced to Japan along with Buddhism in the middle of the 6<sup>th</sup> Century, via the Korean peninsula. Agarwood fragrance was central to incense offerings of Buddhist rituals, which became incorporated into State ceremonies and imperial court functions during the Nara period<sup>2</sup> (710-794 AD), a tradition that continued until the Meiji Restoration (1868) after which the tradition of offering incense during imperial functions was abandoned (Morita, 1992).

Possessing *jin-koh* was also a symbol of power and wealth in feudal Japan, and legends surround warrior nobles such as Sasaki Douyo (1296-1373) who was known to burn huge peaces of wood during large gatherings at the Shoji temple (outside Kyoto) in flagrant demonstrations of his wealth to his guests.

**1.1 Cultural and religious use:** In religious (Buddhist) worship, the highest quality offering a devotee can make is to burn *jin-koh* in the form of wood chips or incense. Incense is believed to have been used in Japan from the time of the introduction of Buddhism around 1500 years ago. In Buddhism, the offering of incense is a purification ritual in which the incense is burned in order to purify the space surrounding statues of the Buddha. In the *Nihon Shoki* (Chronicles of Japan), it is written that incense was burnt when monks read the Buddhist sutras.

In the Heian Period, exchanges with China deepened, and perfume was imported under the Japanese trade with Sung dynasty China (12<sup>th</sup> Century). At that time, the burning of incense increased with the popularity of Buddhism and spread throughout Japan. In modern Japan, incense is also burned at funerals and on visits to graves.

It has also been a Japanese custom to enjoy incense burning outside of a Buddhist or religious context. In the world of fragrance, *jin-koh* is the ‘supreme fragrance’ in combination with selected blends of other natural products (including sandalwood, spikenard, patchouli, camphor, and benzoin) to create various forms of pure incense (*i.e.* containing no artificial ingredients). Sandalwood, by virtue of its greater availability and much lower price, remains the dominant aromatic wood in Japanese manufactured incense production (Nakata, *pers. comm.* to TRAFFIC Southeast Asia, 2004). The dominant ingredient by weight, however, in all incense sticks is a neutral binding agent known as *tabu*, which is traditionally sourced from the bark of specific tree species *Machilus thunbergii* (Shimada, *in litt.* to TRAFFIC Southeast Asia, 2004) and possibly also from *Cercidiphyllum japonicum* (Morita, 1992).

In the Heian Period, a pastime known as *soratakimono*, in which people would enjoy the scent of burning incense freely, became popular. In the novel *Genji Monogatari* (The Tale of Genji), completed by Murasaki

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<sup>2</sup> *List of relevant Japanese historical periods*

Nara710-794

Heian794-1185

Kamakura1185-1333

Muromachi1333-1576

Azuchi Momoyama1576-1600

Edo1600-1868

Meiji1868-1912

Taisho1912-1926

Showa1926-1989

Heisei1989-present

Shikibu shortly after 1000 AD, the hero Hikaru Genji, whose clothes are perfumed using burning incense, is described in terms of *soratakimono*.

The materials of *soratakimono* were prepared by mixing various raw materials of traditional medicine. *Takimono* was fashionable at the time among the aristocracy as an amusement in which people competed to judge the relative superiority of scents or guess the differences between them. The end of the Kamakura period (1185-1333) brought with it a shift from the use of *nerikoh*, or blended incense that had become popular following the adaptation of Chinese incense ‘recipes’ by Japanese courtiers, back to the burning of *jinkoh* wood itself. Based on this fashion, *bunkoh* — the enjoyment of the scents of fragrant woods that are the raw materials of fragrances, eventually became established as *koh-doh* – a more formalized art of enjoying and discriminating between fragrances – in the Muromachi Period (1336-1573).

The *koh-doh* ceremony (in which the fragrance of agarwood is appreciated by connoisseurs) became a highly ritualized practice that was traditionally only accessible to imperial and high-caste (noble) families. There is a strong connection between *koh-doh* and other distinctive Japanese arts such as the tea ceremony, *ikebana* (flower arrangement) and Noh drama, largely through the patronage of shogun Ashikaga Yoshimasa. Initiates of *koh-doh* were usually members of the aristocratic or warrior classes (and therefore male) who would hold gatherings focused on *jin-koh* appreciation, which were intertwined with tea and poetry appreciation. In time, it became fashionable to refer to the art of fragrance appreciation in terms of *koh o kiku* or *mon-koh* (listening to incense), and during the Tokugawa shogunate of the Edo period (1603-1867), incense appreciation became known as a “suitable feminine pleasure” and thus elite women and female courtesans were accorded the chance to participate in *koh-doh* ceremonies. As the popularity of this ceremony grew during the Edo period, the word *kyara* came to signify not only the highest quality *jin-koh*, but also to refer to any object of high quality or beauty (including the description of female beauty).

During the Edo period, several ‘schools’ of *koh-doh* developed under the leadership of different incense masters, such as the Shino (following the teachings of master Shino Soshin, based on a warrior) and the Oie (following the teachings of Sanjonishi Sanetaka) schools. Although these groups differed in their approaches to *koh-doh* appreciation, one element was common: the teachings of *koh-doh* were only verbally passed down from the masters to their students when they had reached a certain level of proficiency – a tradition that continues in 21<sup>st</sup> Century Japan.

In the beginnings of the Edo period (1600 onwards), there was a 30-35 year boom in general commerce as Japan prepared to shut its doors to the outside world. The accumulation of *jin-koh* during that period allowed for the stockpiling of surplus supplies, and resulted in the spread of *jin-koh* culture to the middle classes of society who normally would not have had access to this product and its rituals. At the same time, the high-grade product was kept within the noble families and connoisseurs who had their ‘secret recipes’ for incense, and observed some seasonality of consumption: in summer, wood chips, and in winter, kneaded (hand made) incense (Hata, *pers. comm.* to TRAFFIC Southeast Asia, 2004).

As feudal society was replaced by the Westernization of Japan during the Meiji period from 1868 onwards, *koh-doh* was one traditional art that declined in popularity, along with the ability of *koh-doh* masters to earn regular income from their teachings. In the 1920s, there were efforts to re-acquaint certain sectors of Japanese society with the world of incense appreciation, when descendents of the original *koh-doh* masters performed ceremonies for the imperial household and at selected temples. From the 1960s onwards, the next generation of the Shino and Oie schools offered classes and compiled handbooks that demystified many of the complex traditions that surrounded the world of *koh-doh*. Traditional incense shops in cities such as Kyoto, Osaka, Tokyo and Sapporo popularized new blends of incense, and assisted the incense masters by providing venues for them to impart their teachings to new enthusiasts. The expansion of *koh-doh*’s audience has even extended to other countries as Japanese culture has become more widely known through the efforts of masters and students of *koh-doh*.

Today *koh-doh* is firmly rooted as one of the elements of high Japanese culture, and television specials on the national broadcaster NHK (in 1988 and 2004) have assisted in demystifying this ceremony for average Japanese citizens, and increasing the numbers of people interested in learning more about *koh-doh*. However, the price of high quality *jin-koh* used for *koh-doh*, as well as for other cultural and religious practices, sets a limiting factor on the volume of demand. The volume of sales of high-quality *jin-koh* in Japan may have

dropped to as low as 30% of the levels in 1990, largely due to the end of the Japanese ‘bubble economy’ that drove the increased purchasing power of the 1980s and early 1990s (Nakata, *pers. comm.* to TRAFFIC Southeast Asia, 2004).

Anecdotal evidence from discussions with experts in Japan suggests that the modern *koh-doh* community is likely to be much less significant in terms of demand volume than *jin-koh* used for religious purposes. Different Buddhist sects in Japan have preference for high-grade *sen-koh* preparations and wood chips sourced from long-standing *jin-koh* retailers, with some sects (such as the Sotushu or Shingon) believed to use more wood chips than others.

**1.2 Incense products using jin-koh:** In conducting the *koh-doh* ceremony, however, the *jin-koh* is cut into very small pieces, which can then be broken down with precision agarwood preparation tools to the size of a ‘mosquito’s leg’, known as *babibunsoku*. Some of these pieces are known as *mei-koh*, or named incense, a tradition that dates back to the Heian period. Individual *mei-koh* pieces are usually named by incense masters, referring to the particularly high quality of the fragrance or to the owner of the piece. Most famous of these is the *Ranjatai*, which remains part of the collection formerly housed at Shoso-in, the imperial treasure house that still stands in the grounds of the Todai temple in the old imperial capital Nara. Pieces of *mei-koh* are passed down through generations of families in small individually marked folded envelopes, which are often kept in decorative boxes made of lacquerware or *bekko* (hawksbill turtle shell). It is considered part of the responsibility of each ‘owner’ of the *mei-koh* pieces to use them sparingly, so that the next generation can also appreciate the unique qualities of each fragrance (Hata, *pers.comm.* to TRAFFIC Southeast Asia, 2004).

*Sho-koh* (chipped mixed fragrance) is usually composed from five, seven or 10 different ingredients, including *jin-koh*, sandalwood, cloves, ginger and ambergris, and small amounts of the chipped mixture are placed on hot coals and burned on Buddhist altars.

*Naru-koh* (blended incense balls) is also composed by a mixture of as many as 20 different powdered ingredients including *jin-koh*, held together by a bonding agent that is either honey or the flesh of plums. After the blending process, which is usually done by hand-kneading the ingredients, the mixture is sealed in a ceramic jar and buried in wet ground for at least three years, with the understanding that the longer it is allowed to mature, the more fragrant the blend. Each manufacturer’s *neri-koh* is different, and the subtle differences between blending and maturation processes are a closely guarded company secret.

*Sen-koh* (blended incense sticks) are the most commonly available form of incense products in Japan, and vary in length and thickness according to the period of time they are required to burn. *Sen-koh* may contain different proportions, and different grades, of *jin-koh* as an ingredient, and prices vary according to the amount of *jin-koh* in the particular blend.

Other traditional incense product forms that may include *jin-koh* include *Ensui-koh* (blended incense cones) and *Nioi-bukuro* (sachets).

Only certain companies involved in incense (*sen-koh*) manufacturing deal with *jin-koh* as an ingredient, but the number of companies is unknown. Use of agarwood oil in Japan is not apparent, with many incense industry participants suggesting that this product was likely to be unpopular in the Japanese market due to the problem with ensuring quality control, as well as the volume of wood needed to extract pure essential oil. However, retail surveys in 2004 revealed that although not prolific, agarwood oil is sold in Japan.

**1.3 Medicinal Use:** The trees and plants that provide the raw materials for Japanese incense preparations are also often used as herbal medicines. Agarwood has been used for traditional medicine in Japan on account of its effectiveness as a sedative or tranquilizer, in detoxifying the body and in maintaining stomach health.

Although the Japanese pharmacopoeia has a lot of commonality with that of Traditional Chinese Medicine, there are indigenous Japanese characteristics that have been developed in the schools of Kansai and Toyama prefectures which have remained traditional seats of learning for Traditional Japanese Medicine. However, *jin-koh* is not specifically listed in the official Japanese pharmacopoeia, and it is only used in combination with other ingredients, such as in patent medicines like *rokushingan* that is used to fortify the operations of vital bodily organs such as the

heart, lungs and liver. *Rokushingan* can also help sore throats with its anaesthetic qualities. A similar product suitable for children is *kiougan*, which differs only from the adult dosage of *rokushingan* by not including *sensu* (toad venom) which is used as a natural steroid in the adult dose. *Kannougan* is a third product which may be described an older version of *kiougan* for adults. Most of these patent household medicines have a declining market share (Shimada, *pers. comm.* to TRAFFIC East Asia-Japan, 2004). Another example of agarwood use in traditional medicine from a long-standing manufacturing house in Kyoto is a preparation known as *zui-sei*, used to treat extreme fatigue with a prescription that includes *jin-koh*, bear bile, cattle gallstone, ginseng and camphor (borneol).

An important Japanese agarwood importer estimates that the bulk of agarwood use in Japan is for the incense industry, rather than for the medicinal sector, which has declined in significance over time. The same importer, believed to control 20-30% of Japan's total agarwood imports, estimates that approximately 20% of this volume is made up of *A. malaccensis* imported under CITES permits.

No specific data exists regarding the volumes of medicinal agarwood imports and manufacture, but a figure of less than 1 t per year has been estimated to represent the needs of the medicinal agarwood industry at national level. It is also believed that the medicinal industry requires lower grades of agarwood than the religious/cultural sectors of use (Shimada, *pers. comm.* to TRAFFIC East Asia-Japan, 2004).

A related category of use is the application of incense, including varieties containing agarwood, as an aromatic calmativ. Incense has also been used in the workplace as a way of increasing productivity by varying the fragrance of the working environment to throughout the day (Hata, *pers. comm.* to TRAFFIC Southeast Asia, 2004). Research into aromatic properties has shown that the scent of agarwood has the effect of producing a sense of mental 'quietness' (Shimada, *pers. comm.* to TRAFFIC East Asia-Japan, 2004).

## Section 2: Sourcing and Grading of Agarwood in Japan

Japan is not a range State for any agarwood-producing species, and has therefore always relied upon sources in Southeast (and possibly South) Asia for its supply. Historically, Indochina (primarily Viet Nam) and Indonesia (primarily the island of Borneo, which includes Brunei Darussalam, Indonesia and Malaysia) have been the two most important sources of supply to Japan.

The roles of Hong Kong, and in more recent times, Singapore, as merchant entrepots servicing the Japanese demand for agarwood sourced from Indonesia and Japan should not be underestimated. Neither should the long-standing relationships and trust between Japanese buyers and their Chinese merchant 'middlemen' in these entrepots be discounted – and even today, many Japanese trading houses conduct business in Chinese when sourcing their agarwood. However, the gradings in Singapore or Hong Kong often need to be re-classified to meet the more exacting Japanese qualitative standards. History has played an important role in the changing dynamics of Japan's agarwood supply and demand – including the opening and closing, and then re-opening, of Japan's trade with the Western world, and the contacts with China, Korea and wider Southeast Asia (including the Japanese seafarers and merchants who conducted business out of the central Vietnamese port of Hoi An for hundreds of years.

One specialty incense store in Osaka Prefecture was originally an apothecary in the Muromachi Period, when Japan's trade boomed with China, Europe and Southeast Asia. Later the name of this store was changed to *Jinkoh-ya* (literally, "Agarwood Store") because of its specialization in the import of scented woods to Sakai City, an important trading port that grew prosperous through trade with European merchants, and enjoyed patronage from the head temples of various Buddhist sects. The business has continued under the same management for 350 years, and today remains one of the highest quality purveyors of agarwood products.

The following is a list of natural plant materials commonly used today in the manufacture of incense in Japan.

- agarwood (*jin-koh*), sandalwood, cassia/cinnamon, benzoin, camphor, cloves, frankincense, galangal, myrrh, patchouli, spikenard or jatamansi (*Nardostachys* sp.).

In *koh-doh*, the fragrance of agarwood is classified by the terminology *go-mi rikkoku* (literally "six countries, five flavours"), which was systematized during the Muromachi Period. This system classified scents into one

of six categories according to its place of production or export, and then further distinguished them according to five “flavours” or “tastes”. The six geographic sources were *Kyara*, *Rakoku*, *Manaban*, *Manaka*, *Sasora* and *Sumatora*; while the five flavours were sweet (resembling the smell of honey or concentrated sugar), sour (resembling the smell of plums or other acidic foods), hot (resembling the smell of red pepper when put in a fire), salty (resembling the smell of a towel after wiping perspiration from the brow, or the lingering smell of ocean water when seaweed is dried over a fire) and bitter (resembles the smell of herbal medicine when it is mixed or boiled) (Morita, 1992). Human characteristics were also often ascribed to the various classifications. Detailed *rikkoku* classifications differ between different *koh-doh* schools, some of which include all types of agarwood, sandalwood, and other natural aromatic ingredients.

The following is an outline of the classical *go-mi rikkoku* classification system, developed by literati and connoisseurs appointed by Shogun Ashikaga Yoshimasa in the 16<sup>th</sup> Century:

- *Kyara* A name originating from the Sanskrit *kara*, meaning “black”. The highest quality variety of agarwood and possessing all five component flavours (as listed below), *kyara* is prized for its noble and elegant scent – like an aristocrat in its elegance and gracefulness. Sourced from Viet Nam.
- *Rakoku* A sharp and pungent smell similar to sandalwood and possessing bitter, salty and hot flavours – reminiscent of a warrior. Sourced from Thailand.
- *Manaban* With a great variety of scents and rich in resin ingredients and possessing mostly sweet flavours – coarse and unrefined, like a peasant. Believed to be sourced from the east (Malabar) coast of India, and perhaps from Indo-Malaysia.
- *Manaka* Among the scented woods, this type has a rather shallow scent and is not strongly related to any of the five flavours – light and changeable like a woman’s feelings. Sourced from Malacca (Malaysia).
- *Sasora* A quiet scent with a light and faint flavour, with good quality *sasora* mistaken for *kyara*, especially when it first begins to burn – reminiscent of a monk. Believed to be sourced from western India, but this is uncertain.
- *Sumatora* Rich in resin ingredients and sour at the beginning and end, sometimes easily mistaken for *kyara* – reminiscent of something distasteful and ill-bred, like a servant in his master’s clothing. Sourced in Sumatra (Indonesia).

[Source: *Kaori no Techo* (Scent Handbook) (Shoyeido Corporation, 1991); Morita (1992)]

All six types were considered to be good quality, but *kyara* was held in particularly high esteem by *jin-koh* connoisseurs down the centuries. One of these, General Sasaki Douyo (1306-73) was recognized as an archetypal military aristocrat whose love of extravagance and luxury included his prized collection of aromatic wood. Stories surrounding his legendary exploits include great gatherings at the Shoji Temple outside Kyoto, where he is said to have burnt large pieces of agarwood to demonstrate his richness and power to his guests (Hata, *pers.comm.* to TRAFFIC Southeast Asia, 2004).

Because of its high esteem in the agarwood world, the *kyara* classification was broadened to describe something of supreme quality or beauty, including in the admiration of women. This desirability (and monetary value) of *kyara* is predicated on its rareness in nature, something which modern levels of harvesting have ensured has continued to increase. Japanese industry participants agree that there have been no significant stocks of *kyara* grade available since the mid-1990s, and while merchants have accumulated stockpiles of *kyara* that are believed to be significant enough to supply the Japanese high-end demand for 10 years, actual volumes are ‘trade secrets’.

### Section 3: Japanese research on agarwood<sup>3</sup>

The Japanese evaluation, both culturally and monetary, of *jin-koh* (agarwood) as the ‘supreme fragrance’, has led to scientific research into various aspects of the wood/resin properties. As the classes and prices of agarwood are influenced by a host of complex factors (including the country of origin, the strength and duration of the scent, the wood density, the product purity, resin content and colour), some research has focused on isolating the many sesquiterpenes and chromone derivatives (chemical compounds that combine to impart aroma when agarwood is burnt) present in the resinous wood, such as *agarol*, and *jinko-eremol*. Several researchers have tried to match the variation in chemical compounds contained in agarwood’s resinous deposits with geographical sources and taxonomic species names.

Yoneda (1998) focused on techniques of gas chromatography and ‘thin-layer chromatography’ to examine the ratio of nine sesquiterpene compounds in a range of wood samples, and found that ratio of the compounds differed between the ‘source’ of agarwood. The research postulated that there were two main ‘types’ of agarwood according to this chemical analysis – the Indonesian type (three sub-types), and the Viet Nam type, originating from the Indochinese peninsula. However, the attributed origin (Borneo [Kalimantan], China, Indonesia, Malaysia, Sumatra, Thailand, Viet Nam) of many of these samples depended upon anecdotal veracity of the merchants in Singapore and other points of re-export, and in fact none of them were actually sourced from Viet Nam (Yoneda, *pers. comm.* to TRAFFIC Southeast Asia, 2004). In addition, none of the samples tested had fruiting or flowering specimens accompanying the wood, which makes it extremely difficult to compare Yoneda’s distinctions with a classification by species.

Aside from sesquiterpene compounds, another key ‘marker’ in agarwood chemistry is the proportions of chromone found in the resinous deposits, for which there has been a number of research publications. Thin-layer chromatography techniques have been used to compare chromone derivatives (such as agarotetrol and isoagarotetrol) to attempt correlation with the market grading of agarwood, specifically focusing on mid-grade agarwood from Kalimantan (Shimada et al, 1982) and high grade *kanankoh* (*kyara*) agarwood obtained from Hong Kong, Singapore and Viet Nam traders (Shimada et al, 1986). Research on high-grade samples (n=100) classified by the Japanese term *kyara* were tested for levels of chromone, and it was discovered that not only was there consistent evidence that chromone levels could isolate *kyara* quality agarwood, but also some compounds were found in *kyara* that were not present in other agarwood ‘grades’ (Yoneda, 1998).

Yagura et al (2003) conducted research using column chromatography techniques details further specific information (following research by Shimada *et al*, 1982; 1986) on isolating chromones within agarwood resin’s chemical structure, and identified four chromone derivatives previously unknown in agarwood. Such chromone compounds, detectable through thin-layer chromatography, may be useful for the identification of agarwood. In addition, chromone has a high stability as an indicator – even after 20 years, isolated fractions still contain residues of chromone (Shimada, *in litt.* to TRAFFIC East Asia-Japan). Research by Yoneda (1998) on agarwood kept in the imperial collection of the Shoso-in Treasure House concluded that agarwood’s chemical constituents have not varied in 1200 years.

In addition to research into chemical compounds, several Japanese scholars have published papers on the characteristics of the harvest and trade in Borneo (Yamada, 1997), Lao PDR (Yoneda, 1999a; 1999b; 2000), and Viet Nam (Tran et al, 2003). Yoneda’s work in Lao PDR led him to conclude that there may be more than three species of *Aquilaria* distributed in that country.

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<sup>3</sup> For many of the research papers referred to here, only short English-language executive summaries were accessible when compiling this report. Hence some of the points made here may lack the detail available in the full Japanese-language original research.

	IUCN Red List Status (1998)	India	Indonesia	Cambodia	Singapore	Thailand	China	Bangladesh	Philippines	Bhutan	Viet Nam	Malaysia	Myanmar	Laos
<i>Aquilaria banaensae</i>	VU D2										○			
<i>Aquilaria beccariana</i>	VU A1d		○									○		
<i>Aquilaria crassna</i>	CR A1cd			○		○					○			○
<i>Aquilaria cumingiana</i>	VU A1d		○						○					
<i>Aquilaria hirta</i>	VU A1d		○		○									
<i>Aquilaria malaccensis</i>	VU A1cd	○	○		○	○		○	○	○		○	○	
<i>Aquilaria microcarpa</i>	VU A1d		○		○									
<i>Aquilaria rostrata</i>	DD											○		
<i>Aquilaria sinensis</i>	VU B1 + 2cde						○							

[Source: IUCN Red List of Threatened Species, 2004]

**Table 1: Current IUCN Red List assessment of the Genus *Aquilaria* and their distribution by country.** Note that the assessment was last done in 1998 (under the 1994 criteria [vers. 2.3]), and that the list of species assessed is not exhaustive, and that the need to update the IUCN Red List assessment was recognised by CITES Parties at CITES CoP13.

#### Section 4: Agarwood Trade in Japan

It is thought that there are less than 10 major importers of agarwood into Japan that in turn supply many more manufacturers of incense and medicinal agarwood products, and retailers of wood pieces and wood chips. Japanese agarwood industry actors may travel directly to entrepots such as Singapore and Hong Kong to select their supplies, or go directly to range States such as Indonesia and Viet Nam. It is also possible that there are ‘direct sale’ merchants who come to Japan from these same range States.

An insight into the (declared) value at point of import of is shown by the Customs statistics for 1991-1998. A total of 277 396 kg of agarwood (all species) was imported into Japan over that eight-year period, valued at JPY 6 798 927 000 (USD 51 825 040). The unit price for reported imports of agarwood (all species) into Japan ranged between JPY 18,700 and 27,900 per kilogram (USD183-271) over the eight-year period, with the average price being USD187 per kilogram.

The retail price of agarwood as a raw material, sold as wood pieces or small chips, shows an extremely wide variation in Japan. The price varies according to the quality (grade), the form and, in the case of small pieces, the shape. Agarwood from various sources is usually sold simply as *jin-koh*, and sub-categories include *jin-koh matsu* (powder), *kizami* (cuts), *kakuwari* (square pieces), *kowari* (small pieces). These are all sold separately from the high-grade *kyara* quality.

In 2004, surveys of retail prices showed a range of JPY 35-2500 (USD0.32 – 22.7) per gram for *jin-koh*, while *kyara* ranged from JPY1000-30,000 (USD9.1 – 272) per gram. This overall range for all types/grades of unprocessed agarwood of JPY 35-30,000 (USD0.32 – 272) per gram in 2004 contrasts with a range of JPY 80 – 19,497 (USD 0.61 – 149) per gram observed in 2001<sup>4</sup>. Although *kyara* would not likely be sold in kilogram units, the prices in 2001 (*i.e.* up to USD149,000 / kg) and 2004 (*i.e.* up to 272,000 / kg) are

<sup>4</sup> Exchange rates in 2001: USD1=JPY131.2; Exchange rates in August 2004: USD1 = JPY110.1

extremely high and may indicate increasing scarcity of *kyara* supplies.

Processed products containing agarwood as fragrance ingredient are sold as incense sticks, cones or pressed-powder shapes. The amounts of agarwood, and the purity of product used, varies greatly (prices in 2001 ranged from a low of JPY500 (USD3.8) to a high of JPY350 000 (USD2 668) per item (TRAFFIC East Asia-Japan, *in litt.* to TRAFFIC Southeast Asia, 2004). In 2004, a single example of agarwood oil was observed on sale for JPY65,000 for 8cc (JPY8125/USD73.8 per cc).

#### 4.1 – Analysis of Available Statistics on Japan’s Trade in Agarwood

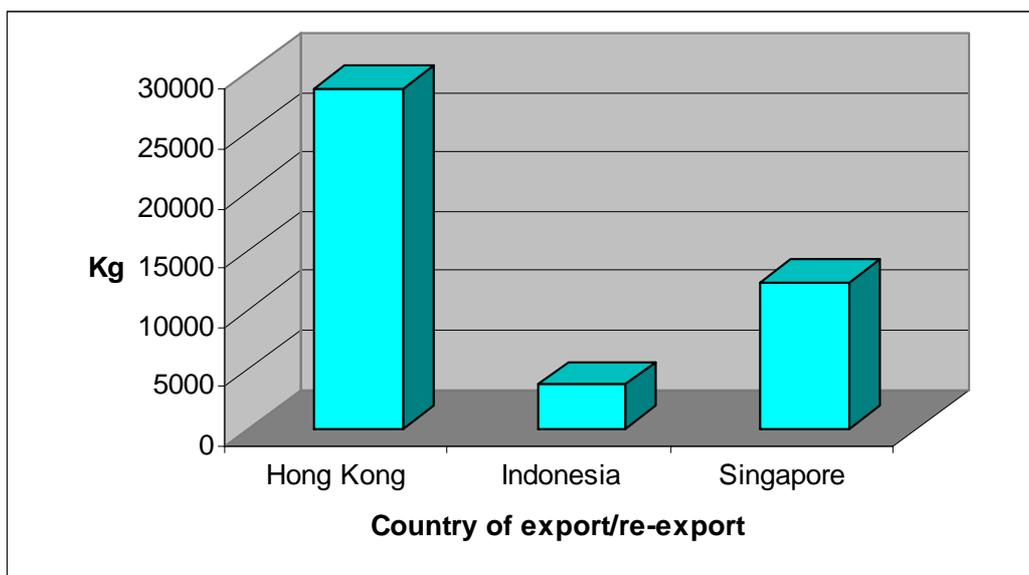
Japanese agarwood imports derived from *A. malaccensis* are regulated under The Foreign Exchange and Foreign Trade Law (1980), by the Ministry of Economy, Trade and Industry in its function as the CITES Management Authority of Japan. Annual CITES Reports from Japan (following the listing of *A. malaccensis* on CITES Appendix II in 1994), however, are only available for the period 1995-2000. According to these reports, Japan imported a total<sup>5</sup> of 47.5 t of *A. malaccensis* during this six-year period in the form of wood, wood-chips, logs, powder and timber. The origin of these specimens was reported in the majority as wild, including pre-Convention stocks re-exported from Hong Kong. Also, almost all reported Japanese trade in *A. malaccensis* was reported as import/re-export from the countries of origin via Hong Kong or Singapore, with Indonesia the only significant range State dealing directly with Japan.

For the same 1995-2000 period, however, reported CITES exports and re-exports of *A. malaccensis* to Japan totalled 114.3 t, in the forms of wood, wood-chips, logs, powder and timber, more than twice the reported volume of imports into Japan – which represents a discrepancy of 66.8 t. The discrepancy between reported imports and reported exports/re-exports was most significant in 1999, when reported exports were almost 6 times more than reported imports. For the period 2001-2002, available reports from exporting and re-exporting States indicate that at least 34 t, in the form of wood chips and pieces, were exported to Japan. As with the 1995-2000 period, the bulk of this trade passed through either Hong Kong SAR or Singapore, with Indonesia and Malaysia recorded as the main countries of origin. There is no data yet available for reported imports into Japan (UNEP-WCMC CITES trade database) after 2000.

According to CITES annual reports compiled by the Japanese CITES Management Authority, there was no recorded re-export of agarwood, including products and derivatives, from *A. malaccensis* from Japan between 1995 and 2000. Whether this indicates conclusively that the entirety of *A. malaccensis* imports are consumed or utilised by Japan’s domestic market is unknown. Japanese incense manufacturers are known to export finished agarwood products to Korea, Singapore, the USA and countries within the European Union, but it is unknown whether these products contain *A. malaccensis* or not.

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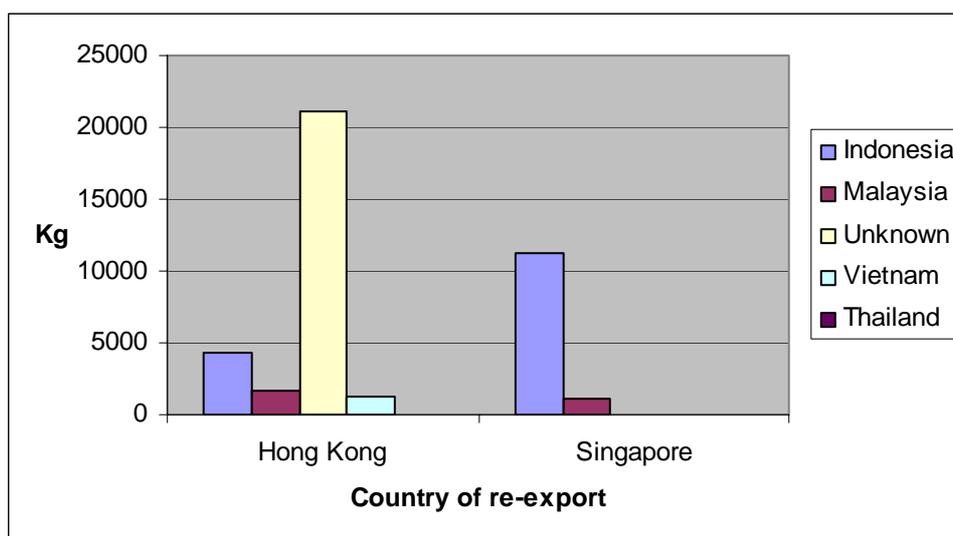
<sup>5</sup> In 1997 and 1998, there are discrepancies of approximately 1783kg and 800kg, respectively, between figures sourced from the Japanese CITES Management Authority by TRAFFIC East Asia-Japan, and those submitted by the same authority to the UNEP-WCMC CITES Trade Database. This could reflect differences in timing of data requests by TRAFFIC, and report submissions by Japan to UNEP-WCMC; as a result, the higher volumes, following data held at UNEP-WCMC, are used in calculations for this analysis.



**Figure 1: Reported Japanese *A. malaccensis* imports – main points of export / re-export (1995-2000)**  
 [Data Source: Ministry of Economy, Trade, and Industry, CITES Annual Reports 1995~2000, *in litt.* to TRAFFIC East Asia-Japan]

YEAR	Reported Imports by Japan (kg)	Reported Exports to Japan (kg)
1995	6 629	11 159
1996	10 829	22 302
1997	10 134	20 512
1998	8 126	18 082
1999	3 620	21 119
2000	8 181	21 175
2001	<i>Not available</i>	20 202
2002	<i>Not available</i>	12 997
<b>TOTAL</b>	<b>47 519</b>	<b>195-2000: 114 349</b> <b>147 548</b>

**Table 3: Comparative tabulation of reported imports by Japan versus reported exports (including re-exports) to Japan [Source: UNEP-WCMC CITES trade database]**



**Figure 2: Country of origin for *A. malaccensis* imports re-exported via HK or SG to Japan, 1995 – 2000** [Data Source: Ministry of Economy, Trade, and Industry, CITES Annual Reports 1995~2000, *in litt.* to TRAFFIC East Asia-Japan<sup>6</sup>

In terms of the global trade in agarwood, Taiwan (Province of China) is the most important final destination market for *A. malaccensis*, and Singapore plays a paramount role as a re-exporter of agarwood sourced primarily from Indonesia and Malaysia, with Hong Kong playing a smaller role in re-exports. Japan rates behind the United Arab Emirates and Saudi Arabia as end-destination markets in terms of *A. malaccensis* trade volume.

Until 1998, statistics for all species of agarwood imported to Japan were collected by Japan’s Customs authorities, under the Ministry of Finance, following a discrete customs code category (HS code 121190520). In the period 1991-98, Customs statistics show over 277 t of agarwood imports into Japan (see Figure 3), of which the most significant points of origin were (in order of magnitude) Viet Nam, Indonesia, Singapore, Thailand and Hong Kong.

Year	Total amount (unit: kg)	Total value (unit: ¥1000(USD))	Unit price (unit: ¥1 000/kg(USD/kg))
1991	36 848	904 841(6 737 962)	24.6(183)
1992	35 141	958 675(7 577 859)	27.3(215)
1993	33 189	809 869(7 327 141)	24.4(220)
1994	28 446	781 116(7 704 073)	27.5(271)
1995	55 873	1 043 242(11 118 426)	18.7(199)
1996	34 608	966 117(8 848 845)	27.9(255)
1997	30 951	720 905(5 920 704)	23.3(191)
1998	22 340	614 162(4 681 469)	27.5(209)
<b>Total (1991~98)</b>	<b>277 396</b>	<b>6 798 927(51 825 040)</b>	<b>[average for 1991-98] 24.5(187)</b>

[Source: Ministry of Finance, Customs statistics, 1991~1998; exchange rate used: USD1=JPY131.2]

**Table 4: Annual Japanese agarwood (all species) imports (1991~1998)**

<sup>6</sup> When Viet Nam acceded to CITES in 1994, its published list of protected species included *Aquilaria crassna*, but there may have been some confusion as to the species name in reported CITES trade data for *Aquilaria* sp. originating from Viet Nam.

Since 1999, however, Japan's Ministry of Finance made a decision to integrate agarwood imports with a more than 30 other "materials" (mostly non-timber forest products) under a Customs HS code 121190110. The Customs decision is believed to be based on the comparatively low volume of agarwood commodities imported into Japan. As a result, it is no longer possible to confirm the Japanese total import figures specifically for agarwood.

The official Customs statistics collected in the period 1991-1998 show that the average annual import amount over the eight years was 34 675kg. The average annual value of these imports was JPY849 866, 000 (USD6 478 130, using the historical exchange rate [USD1 = JPY131.2]). The average import price per kg over the entire period was JPY24 509 (USD187) [see Table 4].

As Hong Kong is a re-exporting centre for agarwood, it is difficult to know the country of origin – however, UNEP-WCMC data show that Hong Kong has imported agarwood under *A. malaccensis* permits from Indonesia, Malaysia (via Singapore) and directly from Viet Nam (although not a range State for *A. malaccensis*). According to the official Customs trade statistics, the annual average unit price of agarwood from Hong Kong was JPY48 000/kg (USD366/kg). [see Table 5]

The differences in the time periods of available Customs statistics (1991-98) for imports of agarwood (all species) and reported CITES import statistics for *A. malaccensis* (1995-2000) make comparison difficult. The only viable comparison that gives an indication of the magnitude of CITES-permitted imports compared to total agarwood imports is the period 1995-98, which reveals that of the approximately 144 t of reported agarwood imports, approximately 36 t (representing approximately 25%) was imported as *A. malaccensis*.

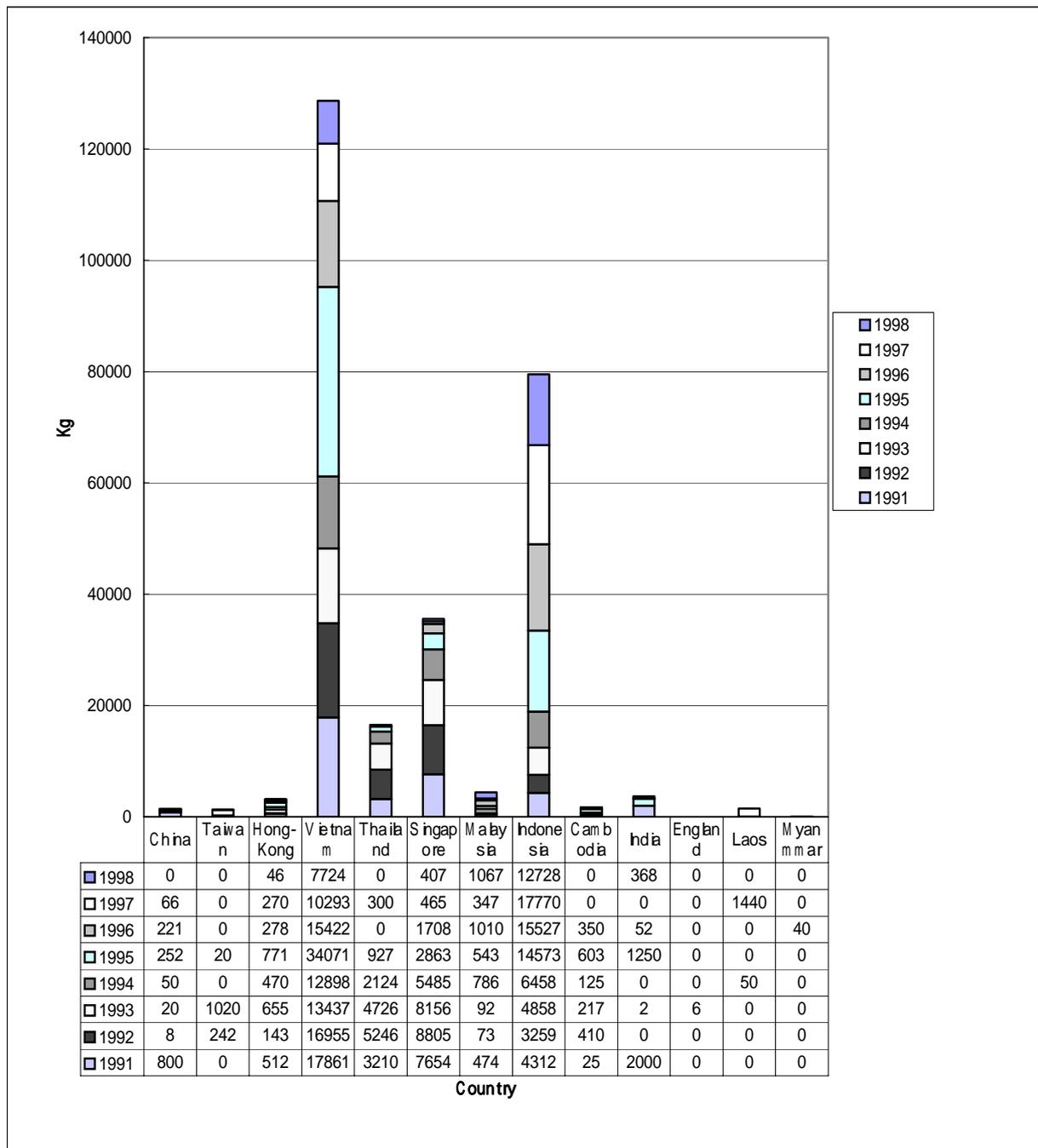
The sources of import are vastly different, with Viet Nam and Indonesia vastly outstripping the reported import volumes of *A. malaccensis* into Japan from the entrepots of Singapore and Hong Kong in CITES trade data. It is not known whether the Customs statistics recognise a 'country of origin' category as separate from the point of export to Japan. However, the variety of exporting and re-exporting countries suggests that agarwood from agarwood-producing species other than *A. malaccensis* is likely to have been imported into Japan.

Exporting country	Total amount over eight years (unit: kg)	Total value over eight years (Unit:¥1 000(USD))	Average price (Unit: ¥1 000/kg (USD)) [USD1=JPY131.2]
China	1 417	29 135(22 082)	20.6(157)
Taiwan	1 282	5 014(38 219)	3.9(29)
Hong Kong	3 145	151 875(1 157 672)	48.3(368)
Viet Nam	128 661	3 927 490(29 937 419)	30.5(232)
Thailand	16 533	203 735(1 552 976)	12.3(93)
Singapore	35 543	602 704(4 594 130)	17.0(129)
Malaysia	4 392	187 524(1 429 407)	42.7(325)
Indonesia	79 485	1 645 277(12 541 176)	20.7(157)
Cambodia	1 730	17 881(136 298)	10.3(78)
India	3 672	17 587(134 057)	4.8(36)
UK	6	5 041(38 425)	840.2(6404)
Laos	1 490	4 022(30 657)	2.7(20)
Myanmar	40	1 642(12 516)	41.1(313)

[Source: Ministry of Finance, Customs statistics, 1991~1998, *in litt.* to TRAFFIC East Asia-Japan]

**Table 5: Annual Japanese Agarwood Imports (all species) and Average Prices by reported export/re-export (1991~1998)**

**Figure 3 Japanese Imports of Agarwood (all species) by Country of Export/Re-Export (1991~1998)**



[Source: Ministry of Finance, Customs trade statistics, 1990~1998, *in litt.* to TRAFFIC East Asia-Japan]

## Section 5: Discussion and Conclusions

Japan's long history of agarwood use embraces a refined appreciation for this natural product in cultural, religious and medicinal contexts. Cultural use (including the appreciation of the wood's fragrance, whether in the form of chips or manufactured incense) is probably the most dominant sector of demand, but use for religious devotions also includes the burning of the two same forms, with particular demand coming from certain Buddhist sects. The medicinal use of agarwood is likely on the decline due to not only the cost of this material but also the increasing use of western medicine in Japan.

Until 1998, Japan's Customs statistics recorded all forms of agarwood import, including the CITES Appendix II-listed *A. malaccensis* (listed in 1995), into Japan. This data gave an important insight into both the volume of Japanese import demand, but also the sources of supply. It does not, however, give any indication of the purpose of import or the predominant types of use.

In the period 1991-98, Customs statistics show over 277 t of agarwood imports into Japan, of which the most significant points of origin were (in order of magnitude) Viet Nam, Indonesia, Singapore, Thailand and Hong Kong. The year-on-year trends in import volumes show that after peaking at 34 t in 1995 (the same year that CITES Appendix II controls came into force for *A. malaccensis*), imports from Viet Nam decreased at the end of the period 1991-98, while imports from Indonesia increased in the latter half of that period. These customs statistics confirm the interview-based discussions with importers and retailers in Japan that Viet Nam and Indonesia, respectively, are the two most important source countries for the Japanese agarwood market.

Available import statistics from the CITES Management Authority of Japan, pertaining to declared cargoes of *A. malaccensis* in the period 1995-2000, reveal that Hong Kong and Singapore are the most significant points of re-export for Japanese imports – highlighting the role of these two 'entrepots' in supplying the particular grades of agarwood in demand by the Japanese market [it is worth mentioning that the name Hong Kong means 'fragrant port' or 'perfumed harbour', thus named because of its historical role in supplying aromatic natural products (such as agarwood) to end-markets (such as Japan)]. Discussions with agarwood experts in Japan confirmed that Bangkok (Thailand) has played a 'third entrepot' role, both historically and in the present day, in supplying the global market, including Japan.

Import statistics, backed up by interview responses from Japanese experts, indicate that Japan has had a historical preference for agarwood 'types' believed to come from Viet Nam and Indonesia. However, because of the way the agarwood is traded at global level – as wood pieces, wood chips, powder, incense and oil, via entrepots such as Hong Kong, Singapore and Bangkok – matching the commodity to the tree species is extremely difficult. While efforts are ongoing to derive some method of chemical marker identification, differentiation of species in trade would only currently be possible if agarwood was accompanied by fruiting and flowering specimens.

Agarwood sourced from Viet Nam likely indicates a correlation with the dominant species on the Indochinese peninsula, *A. crassna*, which was categorised as Critically Endangered by the IUCN Red List assessment in 1998. However, imports reported from Viet Nam could possibly include two other *Aquilaria* species recorded from this sub-region, *A. banaensae* (believed to be endemic to Viet Nam) and *A. baillonii* (believed to be found in Cambodia, Lao PDR, Thailand and Viet Nam) (Le Cong Kiet, 2003). It is unlikely that imports from Viet Nam would include *A. malaccensis*.

The premium grade in the Japanese incense hierarchy is known as *kyara* (or *kanankoh*), and is said to possess all the 'flavours' of the other five types. Historically, *kyara* has been sourced via Japanese trading links with Viet Nam (where the *kyara*-grade agarwood is known as *ky nam*), and is thought to come from the forests on the slopes (<1000m above sea level) of the Truong Son (Annamite) mountain range – which form the political boundary with Cambodia and Lao PDR. Discussions with traders in Japan suggest however that of the approximately 129 t of agarwood (all species) reported as imported Viet Nam in the period 1991-98, perhaps only 100kg (i.e. <1%) would have been pure *kyara*. What is certain is that the availability of *kyara* from Viet Nam is almost exhausted, a fact clarified by interviews with Japanese trading house representatives who have made regular trips to Viet Nam up until 2004. The departure of many of the ethnic Chinese merchants from Viet Nam following the decline of bi-lateral relations between Viet Nam and China in 1978-79 also meant that long-standing trade relationships dating back hundreds of years have been broken in the past generation.

The other important geographical source of Japanese agarwood imports, Indonesia (whether directly from the source country, or via Singapore, Hong Kong or other entrepots) would include the CITES-listed *A. malaccensis*. However, considering that Malesia (a botanical term for the area from the Malay Peninsula eastwards through the Indo-Malaysian archipelago to Papua New Guinea) contains the highest diversity of agarwood-producing species, “Indonesian” agarwood could be derived from any of 10-15 species, including those found within the political boundaries of modern Brunei Darussalam, Malaysia and Papua New Guinea.

Japan’s access to global agarwood supplies is likely to have been influenced by the rise in purchasing power of the Middle East market that accompanied the region’s economic ascendancy during the oil boom in the 1970s and 1980s. Increased market demand over the past 25 years from countries such as the UAE, Saudi Arabia, Oman, Bahrain, Qatar and others is believed to have driven increased collection of agarwood from the islands of Borneo and Sumatra, also important sources of Japanese grades other than *kyara* – often referred to by the general merchants’ term *tani*.

Observations by Japanese researchers reveal that the change in agarwood extraction from the forests of Borneo changed in the 1990s to be one of commercial or even ‘industrial’ levels of harvest where previously it had been much more artisanal in nature – whereby indigenous communities harvested agarwood (known as *gaharu* in Bahasa Indonesia/Melayu) only from infected trees, often without needing to cut down the whole tree to extract the resinous wood (Yamada, *pers. comm.* to TRAFFIC Southeast Asia, 2004). This change is significant not only for the quicker disappearance of the higher grades, but also for the rise in destructive harvesting practices in the rush to find any available *gaharu*. From 1997 onwards, as the Indonesian socio-political structure destabilized, and with it the economy, the ‘*gaharu* boom’ was dominated by outsiders who had little or no interest in following less destructive harvesting techniques. According to a Japanese importer, in the past, ethnic Chinese merchants in each agarwood source area (in Indonesia and elsewhere) controlled the trade, and therefore the collection methods. This system has now broken down, and ill-managed felling of trees appears to be taking place more than in the past (Yamada, *pers. comm.* to TRAFFIC Southeast Asia, 2004).

As a result of the declining availability of high-quality grades of agarwood, some Japanese merchants whose companies have been involved in the agarwood trade for a century or more are very concerned with the survival of this long-standing industry. Their primary concern is that Japan’s agarwood culture is not allowed to die out or indeed, to be diluted by resorting to the use of only low-grade product.

Whether this has led to a practice of stockpiling is unknown, but the comparatively large amounts of agarwood imported from Viet Nam reported from 1991-98 (approximately 129 t, representing 46% of Japan’s total recorded imports during that period) may indicate moves by key Japanese importers to consolidate their stocks.

While there are also concerns regarding fake products entering the Japanese market, the main area of concern lies with the assessment of plantation-derived agarwood or that obtained from trees which have been treated or induced to yield agarwood. Results from some treatment technology show some great promise, but it is not anticipated that the technology alone would produce the high-end grades (such as *kyara*) that are so prized in Japan – but more likely supply the lower-end incense and wood chip market.

Observations by industry experts in Japan, however, indicate that the Japanese demand for high-grade agarwood can only be satisfied by products harvested from natural forests. Thus the way forward for Japan may indeed lie with developing direct ‘stewardship’ links with well-managed *in-situ* populations of agarwood-producing species in key range States. Such links could contribute to a sustainable use framework that supports lowland forest conservation and at the same time supplies the Japanese market with quality agarwood. It is still possible to establish a regeneration plan that would help ensure old-growth agarwood stands remain to supply high-grade agarwood to the global market – which includes future generations of Japanese agarwood consumers – for this unique non-timber forest product. In that regard, Japan’s agarwood industry may be able to catalyse important partnerships with agarwood range States to develop sustainable management systems to promote future supply.

## Section 6: Recommendations

- 1) *For more comprehensive monitoring of agarwood trade:* Japan's previous practice of collecting Customs statistics for imports of all agarwood species was extremely useful to monitor countries of origin and the 'footprint' of Japan's agarwood industry. Under the new CITES listing for *Aquilaria spp.* and *Gyrinops spp.*, which will come into force in January 2005, all agarwood imported into Japan should be accompanied by CITES permits. The Ministry of Finance may wish to reclassify agarwood with a separate Customs code in order to provide a "check and balance" system for the data collected by the CITES Management Authority of Japan. In addition, the discrepancy of 66.8 t in reported CITES trade data between Japan's reported imports of *A. malaccensis* and reported exports to Japan in the period 1995-2000 should be examined closely. Japan's role as a re-exporter of processed agarwood incense products should also be examined with regard to correct permitting procedures for re-exports from Japan to ensure continued access to global markets (particularly in view of the more comprehensive CITES listings coming into force in January 2005).
- 2) *For improved understanding of CITES regulations:* The CITES listing for the two genera *Aquilaria* and *Gyrinops* will need to be clearly explained to importers, merchants and retailers, including re-exporters. Particular attention should be given to increasing the understanding of Japan's impact on wild agarwood stocks, and the need to pro-actively work with range States manage these trees in their original habitats. By explaining that Japanese traditions of use can only continue if conservation management needs in range States are met, the intention of the increased regulatory demands imposed by CITES Appendix II will be clarified.
- 3) *For greater awareness of the need to manage agarwood supply:* Japan's agarwood industry (including importers, manufacturers and retailers) should be encouraged to share information with the various types of consumers regarding the need to ensure future sustainability of Japan's use of this natural resource.

The CITES Management Authority of Japan, in conjunction with leading agarwood industry players and appropriate NGO participation, could play a leading role in convening Japanese agarwood stakeholders to address recommendations 2) and 3) above. For example, the holding of a national capacity building workshop would allow for the establishment of information sharing networks among Japanese stakeholders. Japanese government and agarwood industry representatives should also ensure participation in international workshops that allow agarwood producer and agarwood consumer countries to share information on the long-term management of the global trade. Following Decisions taken at the 13<sup>th</sup> Conference of the Parties to CITES, it is expected that such events will be held before 2007.

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