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MyCITES User Manual

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MyCITES USER MANUAL

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SUMMARY

This manual is produced as a guide to use MyCITES website effectively. The MyCITES is intended for user that comes from various fields and applications such as students and researchers. MyCITES provide the latest information and details on CITES species for the purpose of learning, monitoring, conservation planning and other relevant activities in Malaysia.

As the name of website “MyCITES”, this website developed to compile the information related to species listed in Appendix I, II and III of the Convention of International Trade on Endangered Species of Wild Flora and Fauna (CITES) CITES as endangered and protected species from over-exploitation. Currently, MyCITES include two species, *Gonystylus bancanus* and *Aquilaria malaccensis*. In the future, we expected that MyCITES will be extended to other Malaysian species listed by CITES.

Currently, each species page in MyCITES contain four main components:

- (i) Ramin and Karas distributions in Malaysia;
- (ii) Research and development of Ramin and Karas in Malaysia;
- (iii) Timber trade and production of Ramin and Karas in Malaysia;
- (iv) Malaysia policy and management practices of Ramin and Karas;

Thus, we hope that this manual could assist the user to explore MyCITES database that can be accessed through www.mycites.frim.gov.my.

Regard,

MyCITES Team

1.0 WEBSITE ARCHITECTURE AND STRUCTURE

MyCITES have been created to provide information on Malaysia CITES listed species via web browser. User of this database will be able to browse MyCITES portal to login and use the service, view all the information that has been shared in MyCITES (currently information on Ramin and Karas) and also can view and download all the information such as journals, books and other available publications.

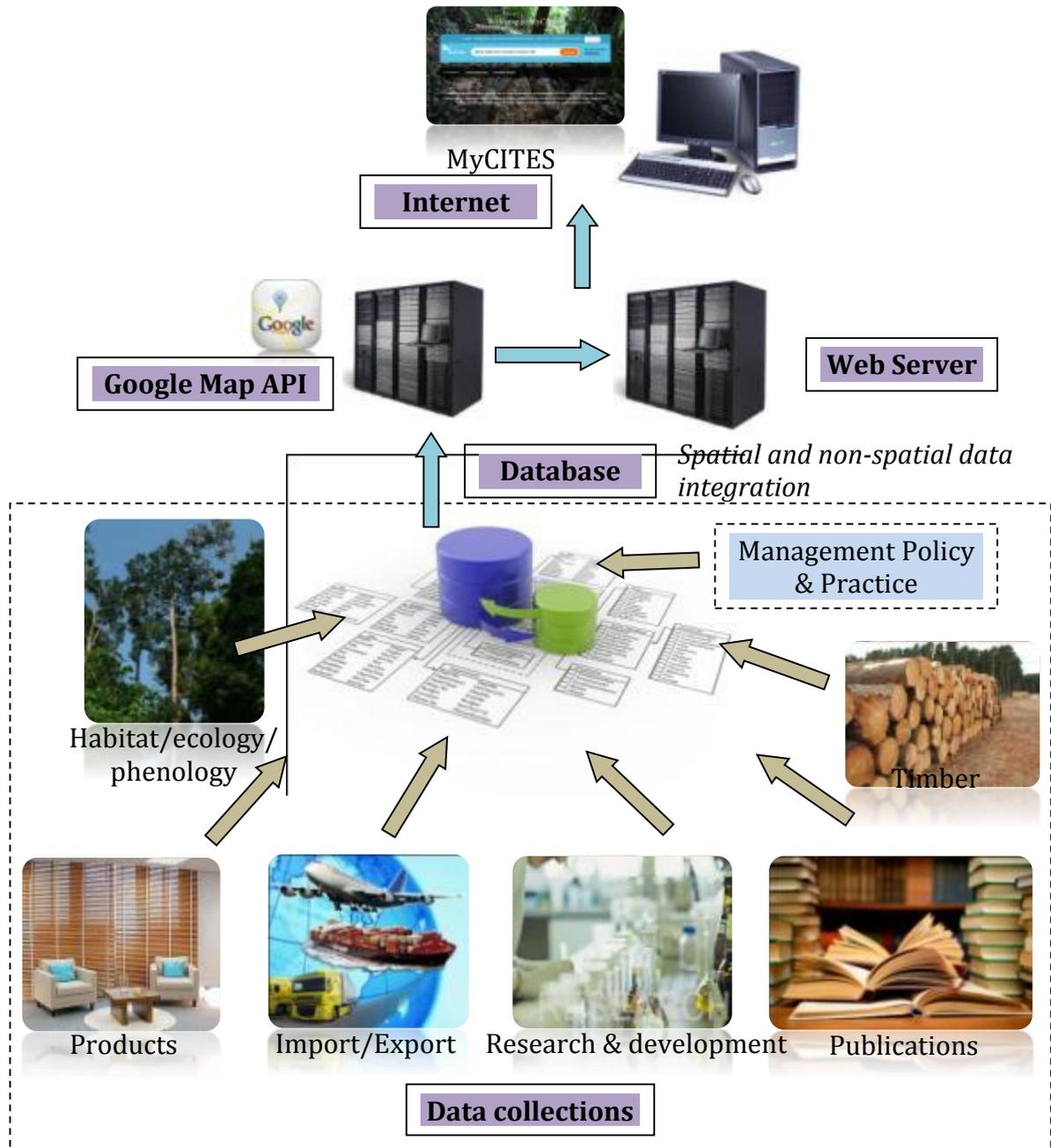


Figure 1 Structure design of MyCITES website and information database

MyCITES web based information system has been developed with client-server architecture. The server part consisted of data storage, file storage which will provide data access and maintenance. The administrator of MyCITES create and manage articles, publications and updating information via internet connected device. The interface are designed to be clean and simple to give comfortable working environment to the administrator. The website part consists of a web portal with key area that include list of species, list of publication (journals, books, research paper), newspaper articles, conference and seminar information and other related information. This website will give access to a wide range of information related to Ramin and Karas. **Table 1** shows the system requirement for development and access to MyCITES website. Back end of MyCITES website was developed using the latest version of PHP 5 as a programming language and MySQL 5 as the database platform.

Table 1 System requirements for development and access to MyCITES website.

Server Specification	Web Specification
Workstation	Any desktop/laptop
Any Operating System	Any Operating System
Web Server	Internet connection
MySQL DBMS	Any browser
Firewall	

2.0 MYCITES SPECIFICATION

There are five elements in the design of the MyCITES website and database namely layout design & concept, user requirement study, web development, web features, and web system module. **Table 2** shows the characteristics of each element involved in the development of MyCITES.

Table 2 Characteristics of each element involved in the development of MyCITES.

No.	Element	Specification
1	Layout design & concept	<ul style="list-style-type: none"> ✓ Unique custom & creative web concept and objective. ✓ Layout architecture strategy and planning for easy content reading, accessibility and reading.

2	User requirement study	<ul style="list-style-type: none"> ✓ Understanding objectives and activities of the project ✓ Restructuring the existing web contents to reach the targeted group ✓ Ensure the best visual solutions possible
3	Web development	<ul style="list-style-type: none"> ✓ CMS (Content Management System) Integration with Administrative Control Panel. ✓ A special and customized Content Management System (CMS) to maintain and keep your site updated. ✓ CMS Features: <ul style="list-style-type: none"> - Admin login access panel - Admin notifications and Alert - Add new pages with text and image - User Management - Text - Formatting and styling - Visual and code view ✓ Page Manager Module <ul style="list-style-type: none"> - Create unlimited pages - Manage Categories and Page Group - Add/Delete/Rename Categories - Add/Delete/Edit pages - Assign pages to the parent - Create unlimited sub pages ✓ Valid XHTML/CSS Web Conversion for browser compatibility and accessibility - Internet Explorer 10.0 and above, Firefox, Safari and Chrome. ✓ Mobile browser friendly layout design structure and coding. ✓ SEO Friendly Web Structure
4	Web Features	<ul style="list-style-type: none"> ✓ Navigation & Menu <ul style="list-style-type: none"> - Valid CSS based menu - Customized drop down menu - Cross browser support - Navigation Manager - add/edit/delete main menu - Sub Navigation Manager - add/edit/delete submenu

-
- ✓ News Features
 - Auto latest News at the main page
 - Add/ edit/ delete news
 - Archived with pagination
 - ✓ Announcements Features
 - Auto latest Announcements at the main page
 - Add/edit/delete announcements
 - Archived with pagination
 - ✓ Media Centre
 - Image gallery – add/ edit/ delete
 - Archived with pagination
 - ✓ Online Contact Form
 - With Forms validation and error checking
 - Redirect to admin emails or multiple receivers
 - ✓ Multiple Language
 - Bahasa and English language pack
 - Language Selector
 - Multiple language manager using Content Management System

-
- | | | |
|---|-------------------|---|
| 5 | Web system module | <ul style="list-style-type: none">✓ Advanced search filters<ul style="list-style-type: none">- Advanced search based on taxonomy fields- Drill down and filtering features- Auto-complete features✓ Research & Development sections<ul style="list-style-type: none">- Management of items- Advanced search filter- Search options based on publication type✓ Simple User Registration<ul style="list-style-type: none">➤ Online user registration form |
|---|-------------------|---|
-

3.0 MAIN FRONT PAGE

3.1 Main Home Page

The user can access the website by typing <http://mycites.frim.gov.my> at internet browser. The user will see the main front page as shown in **Figure 2**. This page contains all the links to species database.

Currently, MyCITES only covers two species, *Aquilaria malaccensis* and *Gonystylus bancanus*. The numbers of tree species database will increase in future (depending on the demand and effort of other researchers to include the other Malaysian CITES species into MyCITES) the website are designed to cater the expansion of new species database to be added into MyCITES.

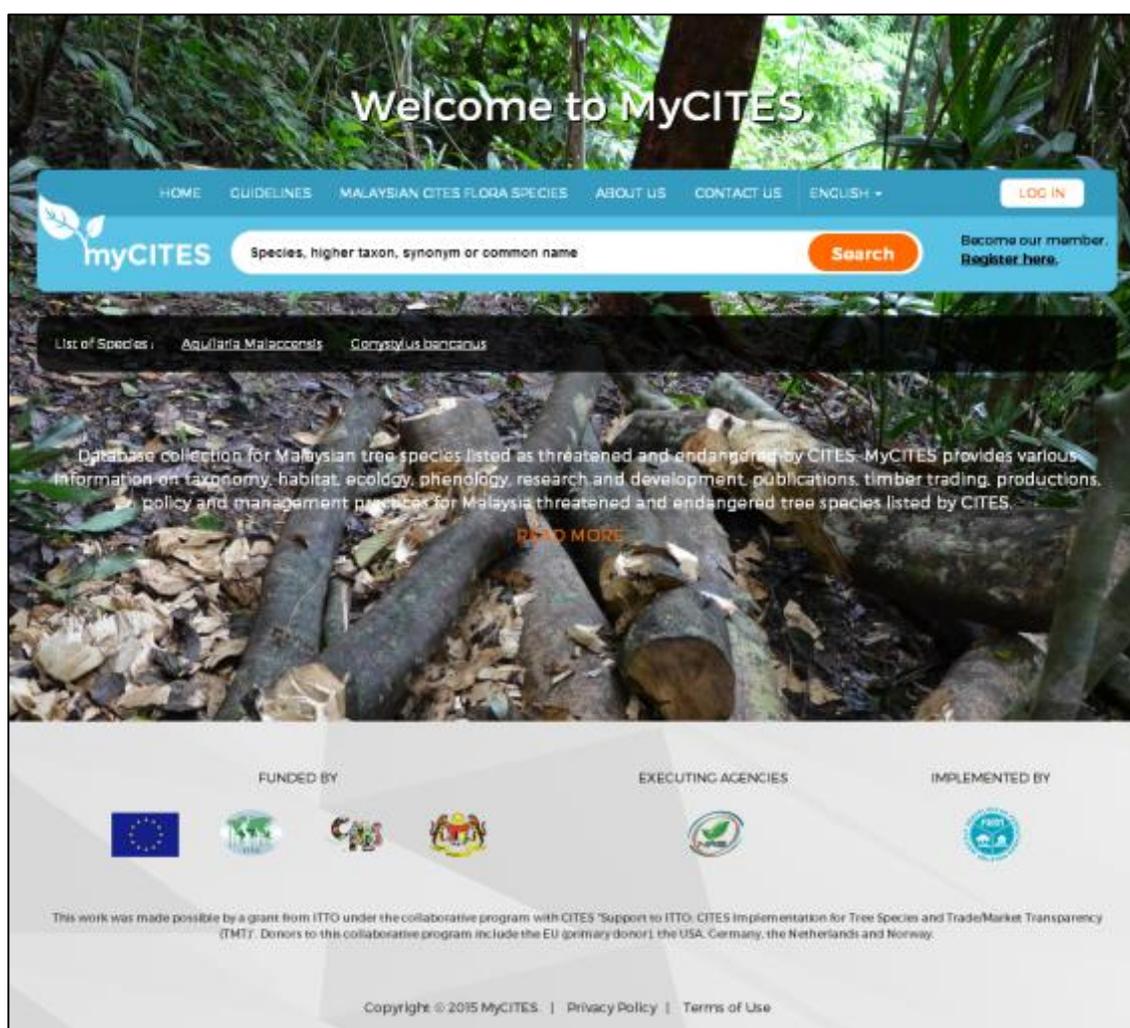


Figure 2 Homepage of MyCITES

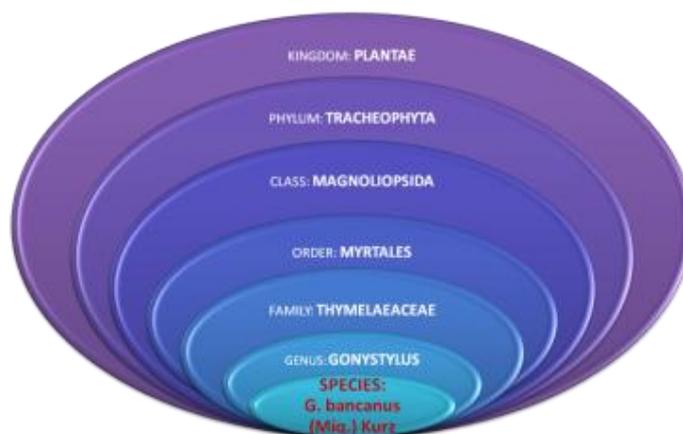
The user can go to Species Front Page by two way, either:

- i. Clicking on desired species name (**Figure 3**)
 - This is the suggested way as currently there are only two species, so the user can easily select the page of desired species right away.



Figure 3 Directly click to desired species page link

- ii. Search tool (**Figure 4**)
 - As mentioned earlier, MyCITES will be extended to other Malaysian CITES species (there are 1022 flora species currently listed in Appendix I, II and III by CITES). In the future the list of species page will increase and it will take longer time to search their desired species home page. This tool can help to minimize the searching process.
 - User can type keywords related to the species, for example:
 - i. Species name
 - ii. Higher taxonomic hierarchy: genus, family, order, class and phylum



- iii. Vernacular name / common name

For example:

Species	Vernacular name
<i>Gonystylus bancanus</i>	ramin melawis, ramin telur, garu buaya
<i>Aquilaria malaccensis</i>	karas, chandan, chingkaras, depu, gaharu, gaharu lampong, gharu, johog-galuk, engkaras, kekaras, kempas nenasi, kepang, tabak, taboh, tengkaras

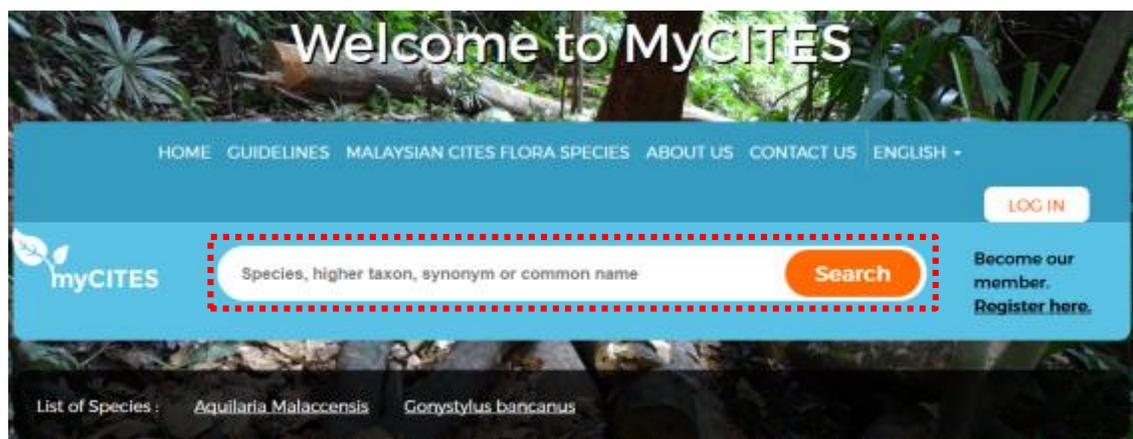


Figure 4 Search tool to go to Species Front Page

3.2 Guidelines

A guidelines for explained the efficient way to use the website and the content for each species page (**Figure 5**).



Figure 5 Guidelines for using the website

3.3 Malaysian CITES Flora Species

This tab contains the list of family of Malaysian CITES flora species according to Appendix (Appendix I, II and III) (**Figure 6**).

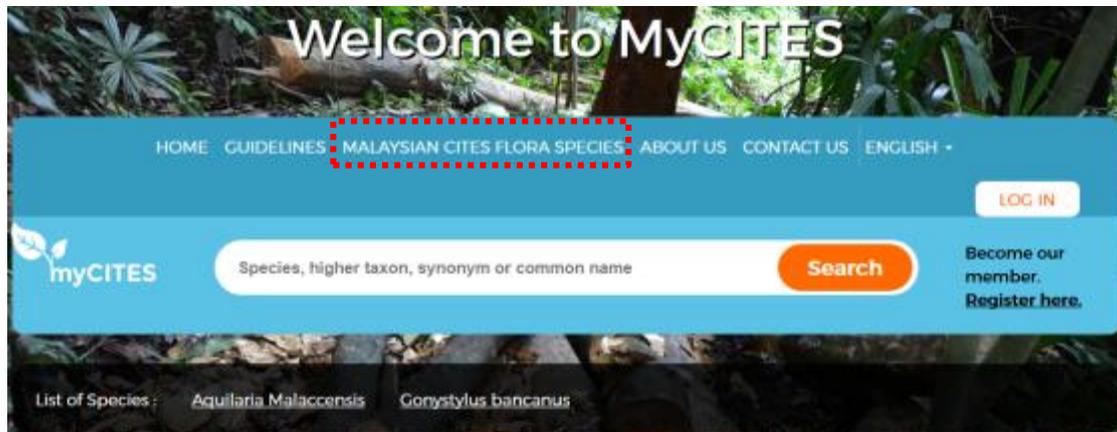


Figure 6 Malaysian CITES Flora Species contains the list of family of Malaysia CITES flora species

3.4 About Us

About us button explain about MyCITES and the details about implementing and funding agency (**Figure 7**).



Figure 7 About Us explain about MyCITES

3.5 Contact Us

The user can send message to the administrator (implement agency) if they have any query regarding the content of the website by filling the provided form (**Figure 8**).

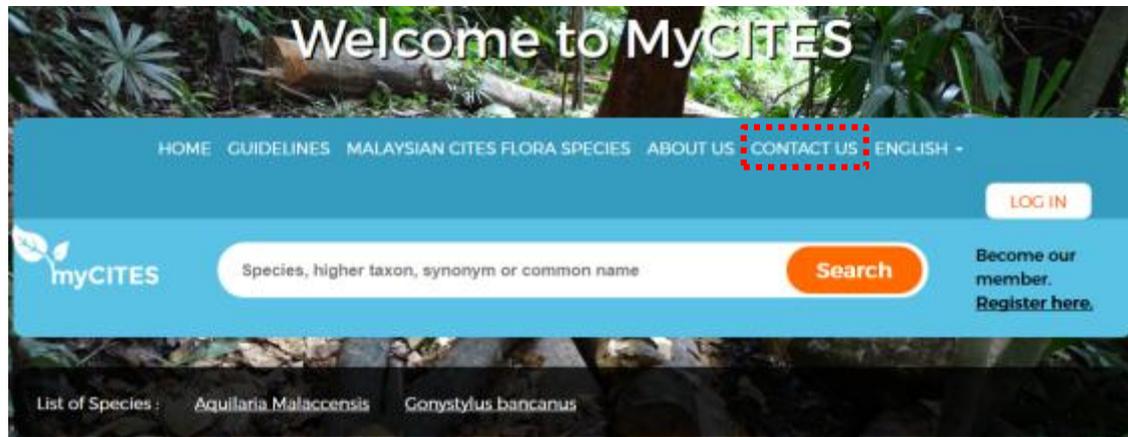


Figure 8 Contact Us for user to send message to the administrator

3.6 Language

User can switch the language of website to either English or Bahasa Malaysia (**Figure 9**).



Figure 9 Language switching for user to select to either English or Bahasa Malaysia

We have included MyCITES Bahasa Malaysia as we observe that some of Karas plantation owners are come from variety of people with different level of knowledge (the observation were made during the cultivation workshop which were also participated by many villagers who are unable to communicate in English). Their participation in this workshop also proved that they are also looking for information regarding this species.

4.0 SPECIES HOME PAGE

4.1 Species Homepage (Overview Page)

Once the user has chosen their desired species page, the user will see Species Homepage as in **Figure 10**. There are five contents under Species Homepage:

- i. Introduction
- ii. Taxonomy and Nomenclature
- iii. Habitat
- iv. Ecology and Phenology
- v. Distribution Map by Forest Reserve

The content for Species Homepage is shared by both species but the sub-content is different (**Figure 10**).

Introduction, Taxonomy and Nomenclature, Habitat, Ecology and Phenology is static content where the user can scroll up and down without doing anything. User can click to any content to see the sub-content.

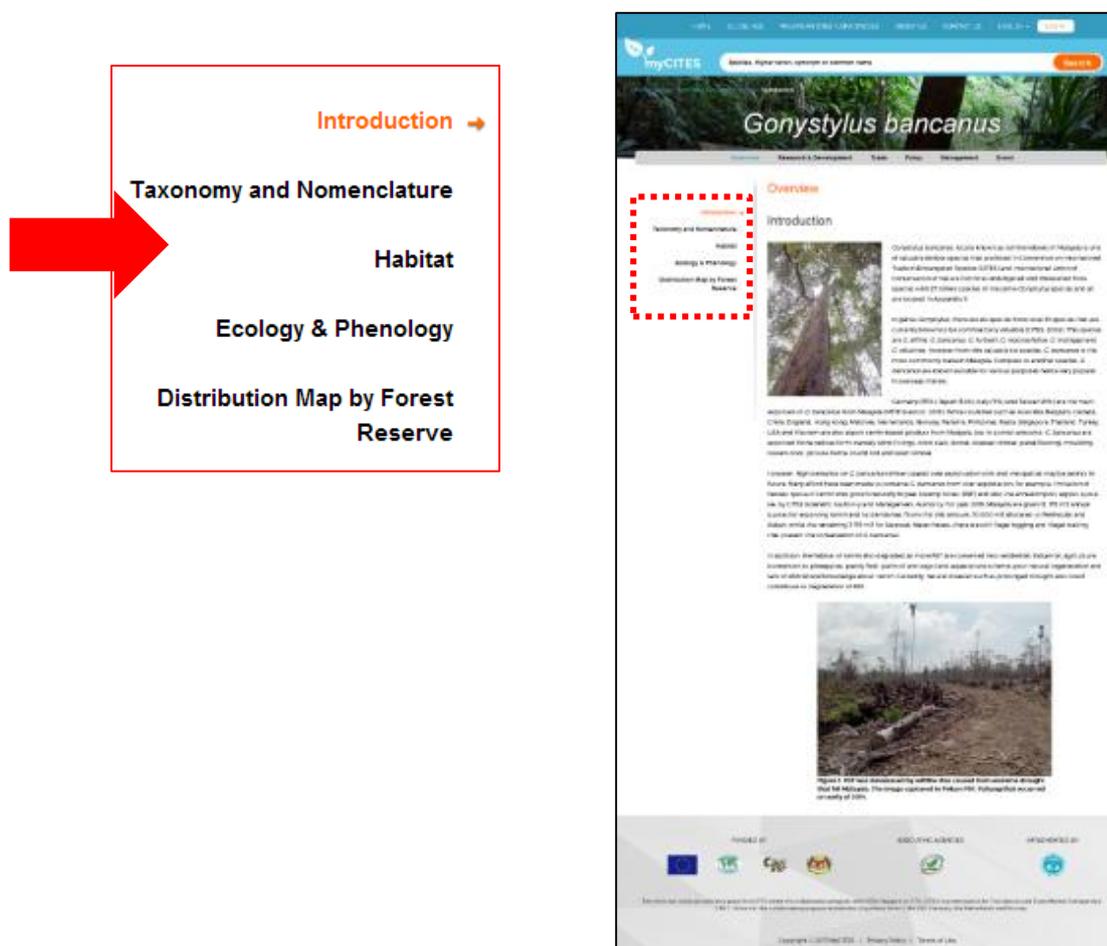


Figure 10 Species Home Page for *Gonystylus bancanus*

The user can click on any point or location in Distribution Map by Forest Reserve to see the details about the location (**Figure 11**):

- i. Name of forest reserve where the stands of *Gonystylus bancanus* and *Aquilaria malaccensis* can be found
- ii. State = the state where the location of the forest reserve is located
- iii. Year when the data is collected.
- iv. Source = where the data is obtained

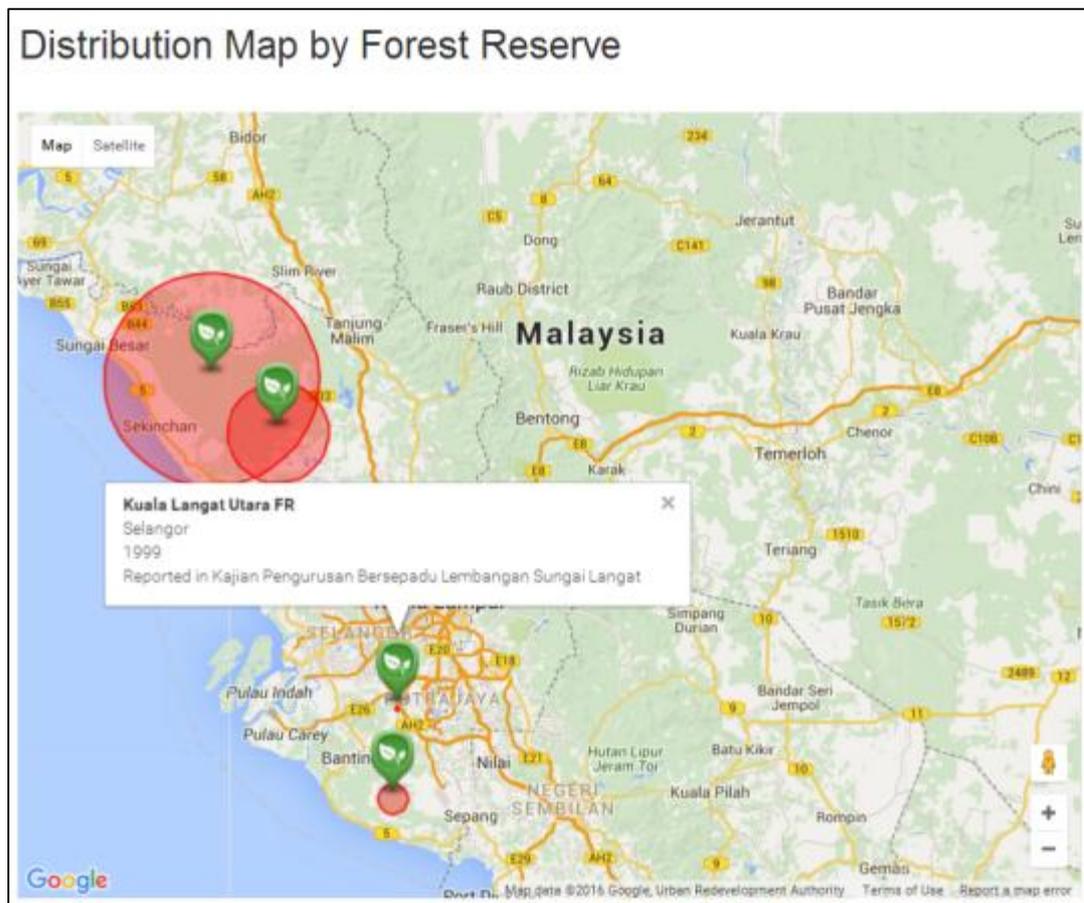


Figure 11 Distribution map by forest reserve for *Gonystylus bancanus*

4.2 Research and Development page

There are four content under Research and Development page:

- i. Overview = introduction to the research in Malaysia contains list of agencies and institutions involved in the research
- ii. Research Projects = list of research projects
- iii. Publications = list of publications
- iv. Technologies & Invention = list of technologies and invention

The content for Research and Development for both species is similar but the sub-content is different (Figure 12).

HOME GUIDELINES MALAYSIAN CITES FLORA SPECIES ABOUT US CONTACT US ENGLISH +

LOG IN

myCITES Species, higher taxon, synonym or common name Search

Home / Species / *Gonystylus bancanus* / Research & Development / Overview

Gonystylus bancanus

Overview Research & Development Trade Policy Management Event

Research & Development

Overview

The encouragement to conduct research and developments related to the *Gonystylus* species is aimed to ensure the management and conservation are consistent with the international trading. Local agencies such as Forest Research Institute Malaysia (FRIM), Forestry Department of Peninsular Malaysia (JPSM), Sarawak Forestry Department, Sabah Forestry Department, Pahang State Forestry Department, and Malaysian Timber Industry Board (MTIB) are the agencies that involved with the research and development related to *Gonystylus bancanus*.

International Tropical Timber Organization (ITTO) and Convention on International Trade in Endangered Species (CITES) are the international bodies that collaborating with local agencies (as listed above) for conduct the research and development with financial support that comes from European Commission (primary donor) and ITTO donor countries such as USA, Japan, Norway and New Zealand.

Ministry of Science, Technology and Innovation (MOSTI) also encourage local researchers to conduct research related tree species such as *Gonystylus bancanus* and *Aquilaria malaccensis* through establishment of grant schemes such as ScienceFund and TechnoFund that can be apply throughout the year. A number of projects related to *Aquilaria malaccensis* have been approved under this fund, but no project related to *Gonystylus bancanus* have been awarded.

Several institutions of higher learning also identified to contribute to the study related to *Gonystylus* species (as listed below).

Local Institutions of Higher Education	Faculties
	- Faculty of Forestry
Universiti Putra Malaysia (UPM)	- Faculty of Agriculture and Food Sciences - Faculty of Science and Environmental Studies
Universiti Teknologi MARA (UiTM)	- Faculty of Applied Sciences
Universiti Kebangsaan Malaysia (UKM)	- Faculty of Science and Technology
Universiti Sains Malaysia (USM)	- School of Industrial Technology
Universiti Teknologi Malaysia (UTM)	- Centre for Artificial Intelligence and Robotics (CAIRO)
Universiti Kebangsaan Malaysia (UKM)	- Faculty of Science and Technology

Figure 12 Research and development for *Gonystylus bancanus*

4.2.1 Research Projects

There are many research projects (**Figure 13**) listed, hence to expedite searching the desired projects the user can filter using any or combine information below:

- i. Keywords = filter the search by entering the keywords for the project's title
- ii. Year = filter the search by when the project started
- iii. Duration = filter the search by the duration of the project implemented
- iv. Select Executing Agency = filter the search by desired agency that executed the project

Search for Research Projects

Type your keywords...

Select Year * Select Duration *

Select Executing Agency *

Research Projects Show 10 entries

No *	Title	Year	Duration	Executing Agency
1	Use of DNA for Identification of <i>Gonystylus</i> Species and Timber Geographical Origin in Sarawak	2012	19 months	Sarawak Forestry Corporation
2	National Workshop on Enforcement Compliance for Trade in Ramin (<i>Gonystylus</i> species)	2010	8 months	Malaysian Timber Industry Board (MTIB)
3	Genetics Study of Ramin Melawis (<i>Gonystylus bancanus</i>) in Malaysia For Generating Information on Population Genetic Structure and Establishment The DNA Database To Track Smuggling Activities	2008	4 years	
4	Regional Workshop on the Sharing of Findings from the Activities Implemented in Indonesia and Malaysia under the ITTO/CITES Project on Ensuring International Trade in CITES? listed Timber Species is Consistent with their Sustainable Management and Conservation	2010	6 months	Forest Research Institute Malaysia (FRIM)
5	The Development of <i>Gonystylus</i> spp. (Ramin) Timber Monitoring System Using Radio Frequency Identification (RFID) in Peninsular Malaysia	2008	24 months	Forestry Department Peninsular Malaysia & Forest Research Institute Malaysia (FRIM)
6	Generation of Spatial Distribution Maps of Ramin (<i>Gonystylus bancanus</i>) Using Hyperspectral Technology and Determination of Sustainable Level of Harvest of Ramin in Production Forests of Peninsular Malaysia	2008	25 months	Forest Research Institute Malaysia (FRIM)
7	Developing DNA Database for <i>Gonystylus bancanus</i> in Sarawak			
8	Optimum Harvesting Regimes of Peat Swamp Forest in Peninsular Malaysia	2005	4 years	Forest Research Institute Malaysia (FRIM)
9	Status of Peat Swamp Forest in Sarawak	2001	4 years	Sarawak Forestry Corporation
10	Growth and Yield of The Logged-Over Peat Swamp Forests of Sarawak	2001	4 years	Sarawak Forestry Corporation

Previous 1 2 Next

Figure 13 Searching tools in Research Projects

A new page that contains further information about the projects will pop-up when the user click on any of their interested project as shown in **Figure 14**.

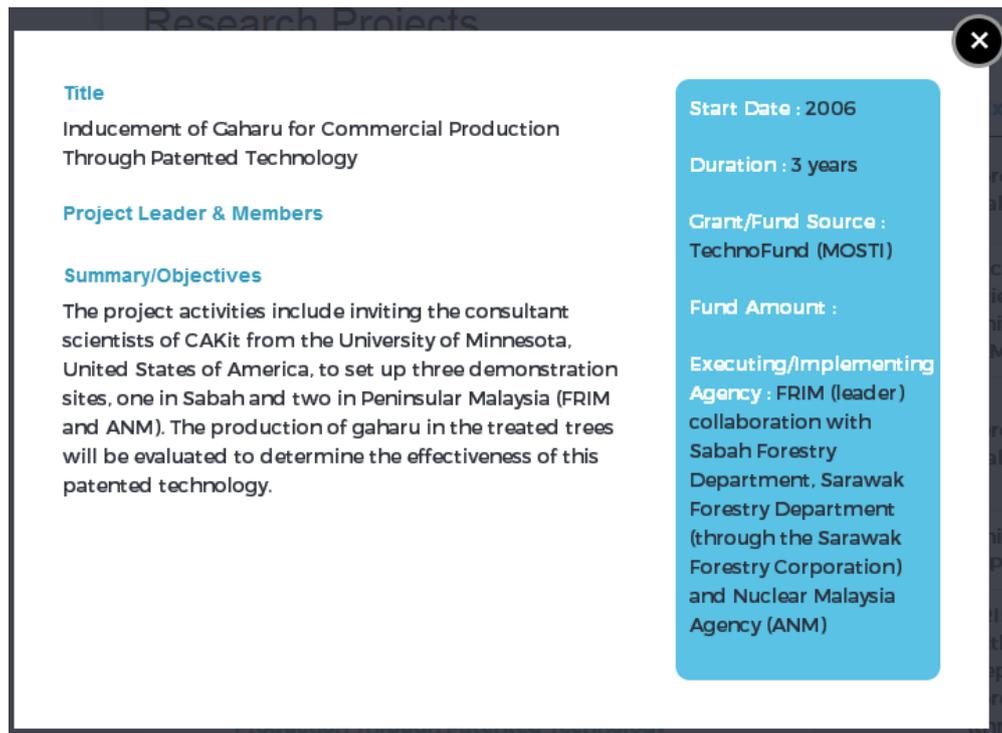


Figure 14 Example: Information of selected project

4.2.2 Publications

Similar to search for publications (**Figure 15**), hence to expedite searching time the desired publications, the user can filter using any or combine information below:

- i. Keywords = filter the search by entering the keywords for the publication's title
- ii. Type = filter the search according to type such as journals, proceedings, reports, review, bulletins, books and thesis
- iii. Author = filter the search by key in the author of the publication
- iv. Select Year = filter the search if the user know when the publication was published
- v. Select Status = User can filter to show either Purchase or Free download publications

Search for Publications

Type your keywords...

Select Type ▼ Select Author ▼

Select Year ▼ Select Status ▼

Publications

Show 10 entries

No ^	Title	Type	Author	Year	Status
1	Density Variation In The Timber of Ramin, <i>Gonystylus bancanus</i> (Miq.) Baill.	Journal	Murthy, L. S. V.	1960	Purchase
2	New or Noteworthy Species of <i>Gonystylus</i> (Thymelaeaceae), Principally from Borneo	Journal	H. K. Airy Shaw	1964	Free
3	Pulmonary Hypersensitivity to Ramin (<i>Gonystylus bancanus</i>)	Journal	A D Howie, G Boyd & F Moran	1976	Free
4	Intensity And Rate Of Ambrosia Beetle Infestation On Ramin (<i>Gonystylus bancanus</i> Kurz)	Journal	Supriana, N., Tarumingkeng, R., Wardoyo, S. & Turngadi, A.	1978	Purchase
5	Ramin - Some Possible Alternatives	Journal	Gower, A.	1980	Purchase
6	World Forestry: Forestry in Malaysia	Journal	Nor, Salleh Mohd	1983	Purchase
7	Malaysian Timbers - Ramin	Journal	Sim, H. C.	1983	Purchase
8	Rubberwood As A Substitute 'Tropical Whitewood' For Ramin In Asia	Journal	Smith, P. M., Eastin, I. L. & Jen, I. A.	1990	Purchase
9	The Application Of Spent Liquor In Wood Colouring	Journal	Wang, H. & Perng, H. Y.	1990	Purchase
10	Efisiensi Energi Kayu Pada Proses Pengeringan Papan	Journal	Nurhayati, T.	1993	Purchase

Previous 1 2 3 4 5 ... 21 Next

Figure 15 Searching tool in Publications

A new page that contains further information about the publications will pop-up when the user click on any of their interested publication as shown in **Figure 16**.

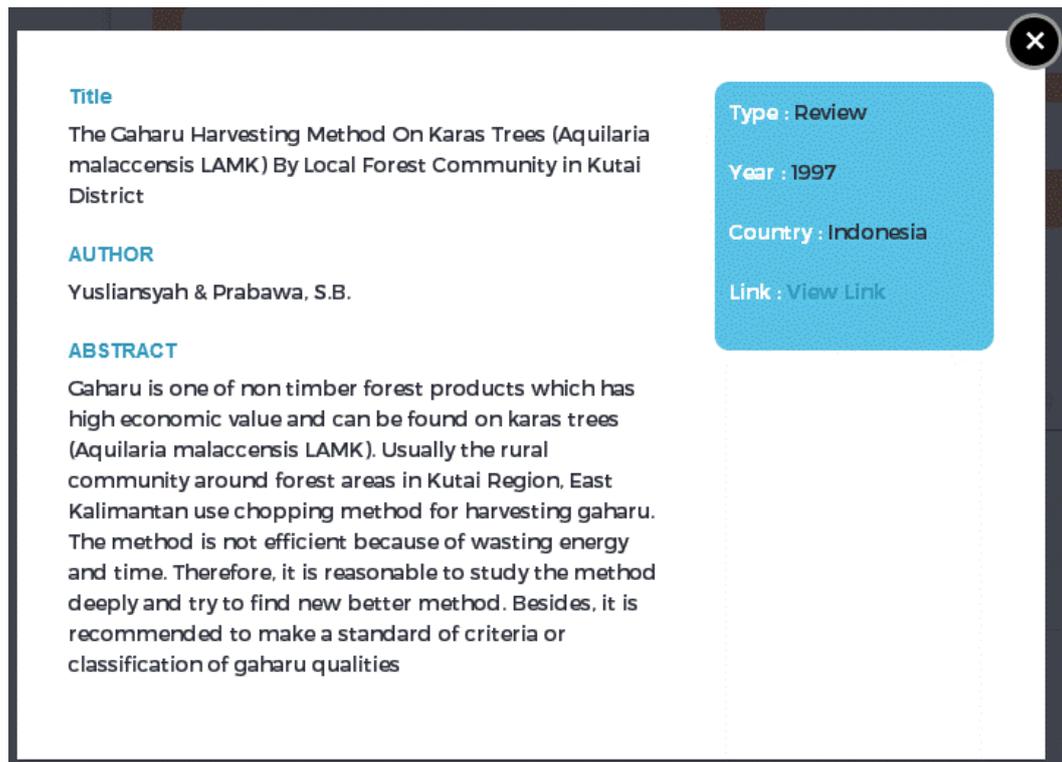


Figure 16 Example: Information of selected publication

4.2.3 Technologies & Invention

This page contains the list of technologies and invention related to *Gonystylus bancanus* and *Aquilaria malaccensis* produced by Malaysian researchers.

Since there are a lot of technologies and inventions (**Figure 17**), hence to reduce the searching time for searching the desired technologies and inventions, user can filter using any or combine the filtration methods below:

- i. Keywords = filter the search by entering the keywords for the technologies and invention's title
- ii. Select Year = filter the search if the user know when the technologies and inventions were introduced
- iii. Project Leader = filter the search by key in the name of project leader of the projects for technologies and inventions
- iv. Select Agency = filter the search by desired agency that executed the technologies and inventions

Search for Technologies & Inventions

Type your keywords...

Select Year ▼ Select Project Leader ▼

Select Agency ▼

Technologies & Inventions

Show entries

No [▲]	Title	Year	Project Leader	Agency
1	Agarwood Identification System (AIS) Using Modified K-NN Kfold Technique	2013	Dr Nor Azah Mohd Ali	Forest Research Institute Malaysia (FRIM)
2	Agarwood Relaxation Indexer	2012	Dr Nor Azah Mohd Ali	Forest Research Institute Malaysia (FRIM)
3	Bioactives from Aquilaria Species and Agarwood Oils for Personal Care and Cosmeceutical Uses	2012	Dr Nor Azah Mohd Ali	Forest Research Institute Malaysia (FRIM)
4	Seventeen Microsatellite Markers of Aquilaria malaccensis	2012	Dr Lee Soon Leong	Forest Research Institute Malaysia (FRIM)
5	Microsatellite Markers for DNA Profiling of Aquilaria malaccensis	2012	Dr Lee Soon Leong	Forest Research Institute Malaysia (FRIM)
6	FRIMke001 Genetically Improved Clone For The Production Of Gaharu (Agarwood)	2011	Dr Mohd Noor Mahat	Forest Research Institute Malaysia (FRIM)
7	FRIMke002 Genetically Improved Clone For The Production Of Gaharu (Agarwood)	2011	Dr Mohd Noor Mahat	Forest Research Institute Malaysia (FRIM)
8	FRIMke003 Genetically Improved Clone For The Production Of Gaharu (Agarwood)	2011	Dr Mohd Noor Mahat	Forest Research Institute Malaysia (FRIM)
9	FRIMke004 Genetically Improved Clone For The Production Of Gaharu (Agarwood)	2011	Dr Mohd Noor Mahat	Forest Research Institute Malaysia (FRIM)
10	Inoculums Recipe For Production Of Gaharu (FRIM INOGA)	2011	Dr Mohd Noor Mahat	Forest Research Institute Malaysia (FRIM)

Previous 1 2 Next

Figure 17 Technologies and Inventions

A new page that contains further information about the technologies and inventions will pop-up when the user click on any of their interested technologies and publications as shown in **Figure 18**.

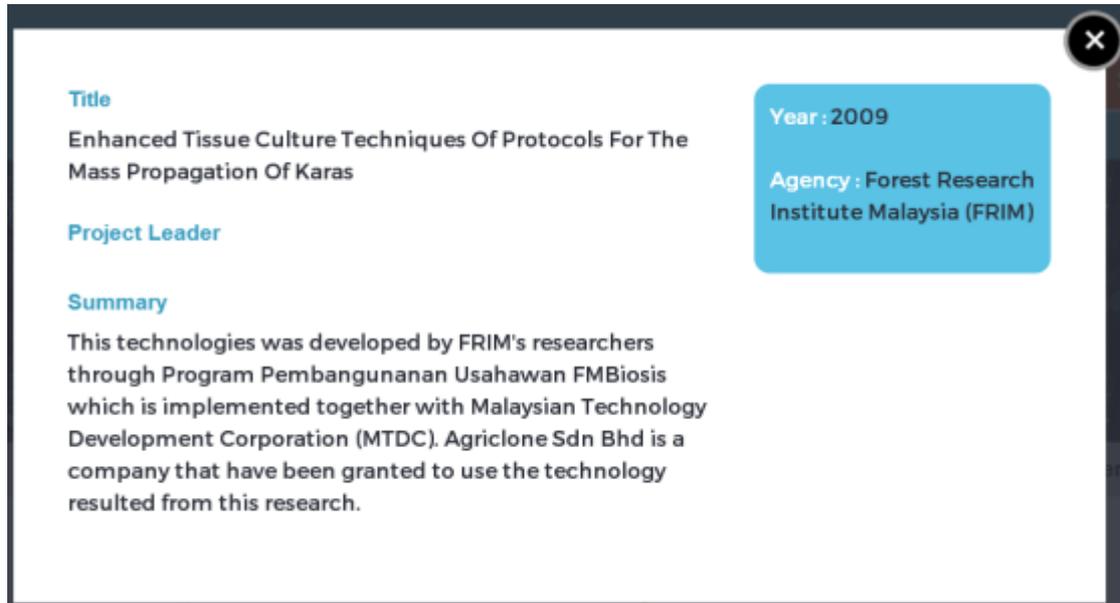


Figure 18 Example: Information of selected technologies and inventions

4.3 Trade

In Trade page showed the location and amount of import and export for *Gonystylus bancanus* and *Aquilaria malaccensis* products. Moreover, the list of products and its function also described.

Trade is a static page where user can only scroll down to read all the content and sub-content in Trade.

There are two contents under trade:

- i. Statistics = statistic import and export for species products
- ii. Production = list of products produced from species

The content for Trade for both species is similar but the sub-content is different.

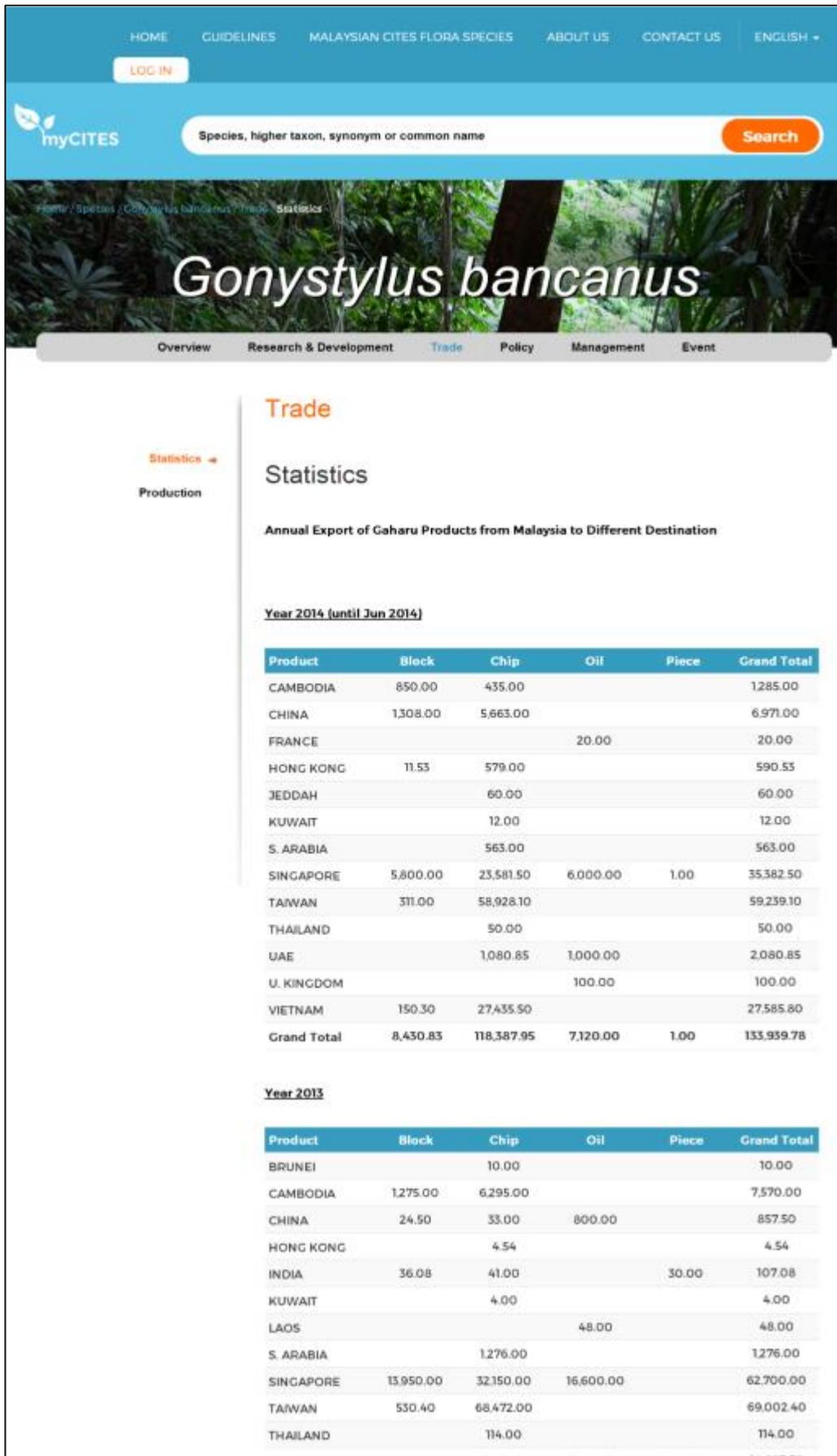


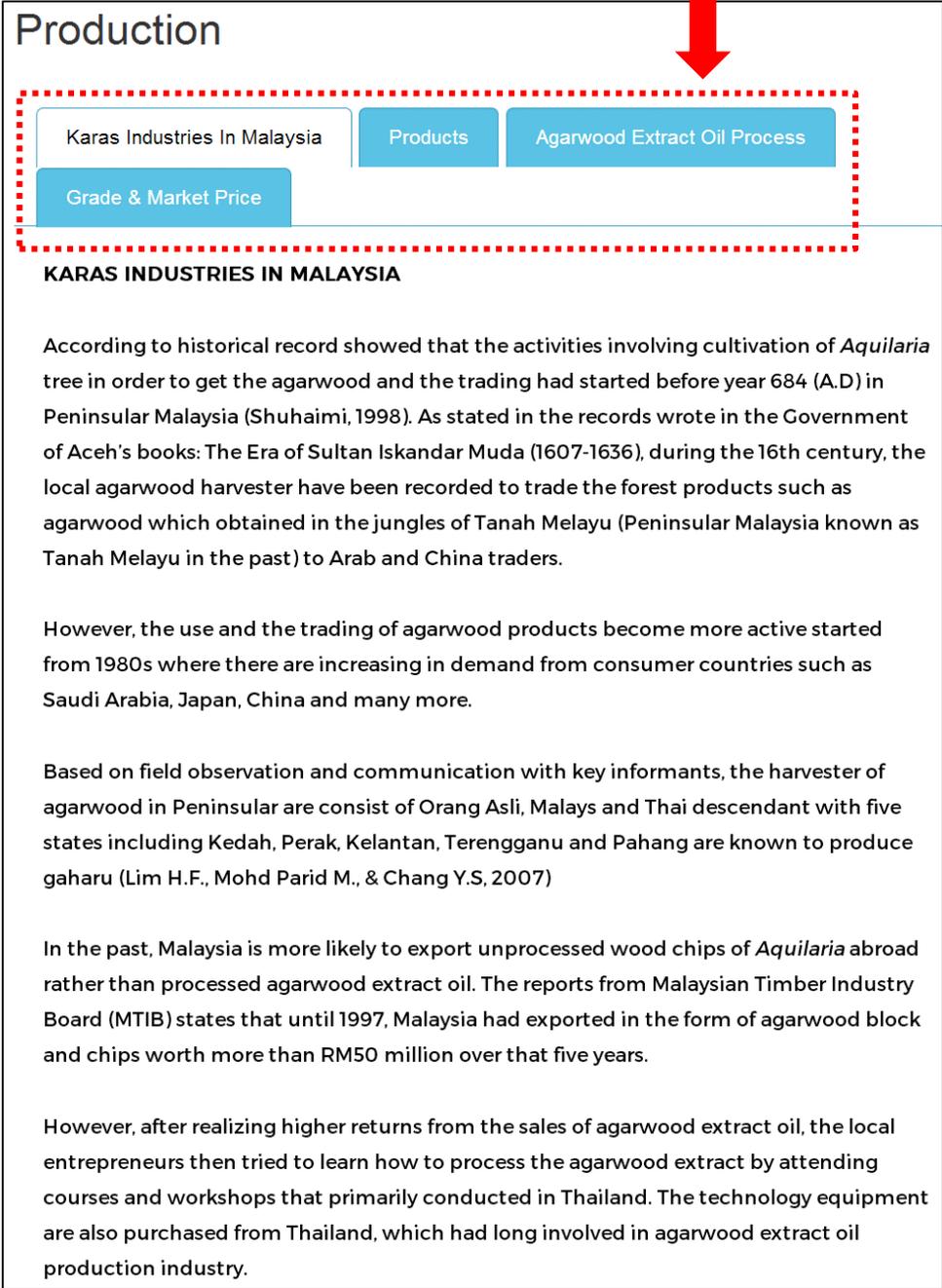
Figure 19 Trade

For Production information of *Gonystylus bancanus* there is only single sub-content, however for *Aquilaria malaccensis*, the content are divided to four sub content (Figure 20):

- i. Karas Industries in Malaysia
- ii. Products
- iii. Agarwood Extract Oil Process
- iv. Grade & Market Price

User can click to any of sub-content header to read.

Sub-content Header



Production

Karas Industries In Malaysia Products Agarwood Extract Oil Process

Grade & Market Price

KARAS INDUSTRIES IN MALAYSIA

According to historical record showed that the activities involving cultivation of *Aquilaria* tree in order to get the agarwood and the trading had started before year 684 (A.D) in Peninsular Malaysia (Shuhaimi, 1998). As stated in the records wrote in the Government of Aceh's books: The Era of Sultan Iskandar Muda (1607-1636), during the 16th century, the local agarwood harvester have been recorded to trade the forest products such as agarwood which obtained in the jungles of Tanah Melayu (Peninsular Malaysia known as Tanah Melayu in the past) to Arab and China traders.

However, the use and the trading of agarwood products become more active started from 1980s where there are increasing in demand from consumer countries such as Saudi Arabia, Japan, China and many more.

Based on field observation and communication with key informants, the harvester of agarwood in Peninsular are consist of Orang Asli, Malays and Thai descendant with five states including Kedah, Perak, Kelantan, Terengganu and Pahang are known to produce gaharu (Lim H.F., Mohd Parid M., & Chang Y.S, 2007)

In the past, Malaysia is more likely to export unprocessed wood chips of *Aquilaria* abroad rather than processed agarwood extract oil. The reports from Malaysian Timber Industry Board (MTIB) states that until 1997, Malaysia had exported in the form of agarwood block and chips worth more than RM50 million over that five years.

However, after realizing higher returns from the sales of agarwood extract oil, the local entrepreneurs then tried to learn how to process the agarwood extract by attending courses and workshops that primarily conducted in Thailand. The technology equipment are also purchased from Thailand, which had long involved in agarwood extract oil production industry.

Figure 20 Production page for *Aquilaria malaccensis*

4.4 Policy

Policy page described the policy used in manage and protect threatened species. Both *Gonystylus bancanus* and *Aquilaria malaccensis* are protected by Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and listed in Appendix II. Besides, Malaysia is one of signatory party of CITES.

User can only scroll down to read all the content in Policy. There are seven main content in Policy (**Figure 21**):

- i. CITES and Malaysia = the connection between CITES and Malaysia
- ii. Appendix = explanation Appendix I, II and III in CITES
- iii. Act 686 = Act used to control the international trade the species of flora and fauna listed in CITES
- iv. CITES Management Authority
- v. CITES Malaysia Authorities Directory
- vi. Export Quota = the export quota set by CITES Scientific Authority and Management Authority
- vii. Permit Application = the guidelines for permit application

The first five content (i-v) as listed are similar for both species, meanwhile the sub-content for Export Quota and Permit Applications are different according to species.



Figure 21 Policy

4.5 Management

User only can scroll down to read all the content and sub-content in Management (**Figure 22**).

The content for Management for both species is differ as both planted in different locations and to produce different products.

Gonystylus bancanus located in peat swam forest and apply management system which have been predetermined.

Therefore, the content for *Gonystylus bancanus* includes:

- i. PSF Management System = explanation about types of management used in Malaysia
- ii. Harvesting Method = Reduced Impact Logging (RIL) steps used to harvest the tree
- iii. Ramin Transportation Methods = how the logs are transferred to factory

Due to the fact that *Aquilaria malaccensis* are depleting in their original habitat and uncontrolled exploitation, plantations have been introduced to cater the demands for Karas-based products in international markets especially for Arabic countries, Taiwan, Hong Kong, Japan, Korea and China. In addition *Aquilaria malaccensis* is the tree easily can adapt to a variety of plantations environment that make it suitable for commercial planting. Therefore the management of *Aquilaria malaccensis* in commercialize plantation should be emphasized. On the other hands, most of the tree planted with purpose to produce agarwood where the planters requires inoculation technique to expedite the formation of the agarwood.

Therefore, the content for *Aquilaria malaccensis* includes:

- i. *Aquilaria* Plantation = step to plant and manage the tree in plantation
- ii. Pest Control and Crop Disease = way to control the pest and crop disease
- iii. Inoculation = step for make inoculation to stimulate the production of agarwood in plantation

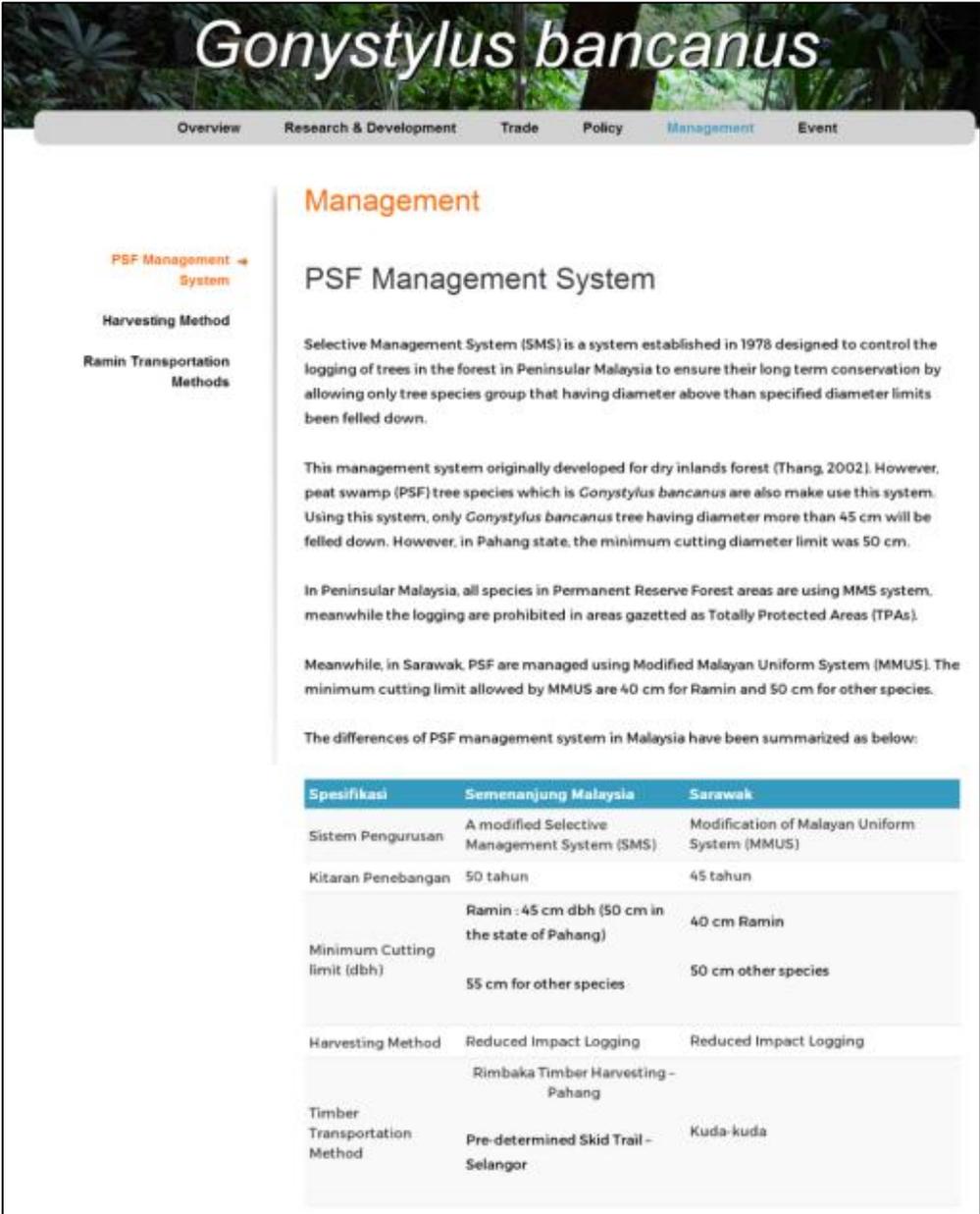


Figure 22 Management for *Gonystylus bancanus*



Aquilaria malaccensis

Overview
Research & Development
Policy
Trade
Management
Events
Newspaper Cutting

Aquilaria Plantations →

Pest Control and Crop Disease

Inoculation

Management

Aquilaria Plantations

The agarwood demands tends to increase the uncontrolled exploitation from forest which is the natural growth areas of *Aquilaria*. To cater the high demands for international markets especially for Arabic countries, Taiwan, Hong Kong, Japan, Korea and China, many Malaysian planters try to plant the agarwood- producer from *Aquilaria* species such as *A. malaccensis*, *A. subintegra*, *A. crassna*, *A. sinensis* and *A. beccariana* in plantation. From this five species, *Aquilaria malaccensis* is the common species can be found and planted in Malaysia.

According to a census conducted in 2014, a total 1,571,000 *Aquilaria* trees have been planted around Malaysia by State Forestry Department and private plantation companies. *Aquilaria* plantation statistic for the year 2014 according to the state are as below:

State	Area (Ha)	No of Trees	Economy Estimation (RM500 / Tree)
Johor	2.0	5,000	2,500,000
Kedah	44.1	109,500	54,750,000
Kelantan	40.5	43,200	21,600,000
Melaka	2.0	5,000	2,500,000
N. Sembilan	20.6	45,000	22,500,000
Pahang	144.1	351,000	175,500,000
Perak	298.2	415,800	207,900,000
Perlis	5.7	14,000	7,000,000
Pulau Pinang	4.0	10,000	5,000,000
Sabah	311.0	342,100	171,050,000
Selangor	16.6	45,500	22,750,000
Terengganu	230.0	185,000	92,500,000
TOTAL	1,119.0	1,571,100	785,550,000

Source: Ismail Muhammad, 2014

The 10% increment compare to trees planted in 2000 - 2005 (1,425,108 trees) gives an indication that *Aquilaria* plantations is one of profitable business sector. It should therefore, knowledge about *Aquilaria* plantations such as seedling selection, planting, care and maintenance need to know before working on it in order to prevent the planters failed to obtain desired returns. The following are some guidelines that can be apply by planters.

Figure 23 Management for *Aquilaria malaccensis*

4.6 Newspaper cutting

Newspaper cutting contain the news reported and available through online news portal and newspaper.

Information on Newspaper cutting available only for *Aquilaria malaccensis* tree.

There are a lot of newspaper cutting, hence to expedite searching time for the desired news the user can filter using any or combine the filtration methods below:

- i. Keywords = filter the search by entering the keywords for the news
- ii. Type = filter the search according to type of news such as conservation, crime, industry, medication, plantation or research
- iii. Duration = filter the search by the duration of the project implemented
- iv. Select Paper = filter the search by select the source of newspaper such as Sinar Harian, Utusan Malaysia, Kosmo or The Star

User also can read the news by clicking at the title of the newspaper (**Figure 24**). After click, the new browser will pop-up showing the whole story of the news at their original website link.

No *	Title	Type	Date	Paper
1	Pencuri gaharu ditangkap	Crime	5-Dec-13	Sinar Harian
2	Menggredkan kualiti gaharu	Industry	12-May-14	Utusan Malaysia
3	Bangunkan teknologi gaharu	Research	12-May-14	Utusan Malaysia
4	Kayu karas ibarat emas	Industry	12-May-14	Utusan Malaysia
5	Masa depan industri gaharu	Industry	27-Jun-15	Utusan Malaysia
6	SAG mahu terajui pengeluaran gaharu	Industry	13-Sep-15	Utusan Malaysia
7	Tesco tempa nama dalam MBR tanam 1,500 pokok karas	Plantation	9-Jun-15	Utusan Malaysia
8	Gaharu khazanah tidak ternilai	Conservation	16-Oct-12	Utusan Malaysia
9	Tanam pokok karas bantu pembangunan usahawan bumiputera	Industry	24-Sep-12	Utusan Malaysia
10	Potensi industri minyak atar	Industry	3-Dec-08	Utusan Malaysia

Figure 24 Newspaper cutting

