



ITTO
INTERNATIONAL TROPICAL
TIMBER ORGANIZATION

GTI ANNUAL REPORT (2022-2023)

GLOBAL TIMBER INDEX (GTI) ANNUAL REPORT

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GLOBAL GREEN SUPPLY CHAINS INITIATIVE

(2022-2023)

First report of Global Timber Index released on December 8 2022 in Macao, launching new era of business information-sharing.

Ms Sheam Satkuru

ITTO Executive Director

The release of the GTI's first report "may be one small step for an activity but might lead to one giant leap for the whole timber sector". Once it is fully operational, the GTI Platform will serve as the first comprehensive timber index in the world, which will gradually develop into a 'weathervane' of the timber industry.

Mr Vincent U

President of Macao IPIM

The release of the GTI report is part of an initiative to promote the legal and sustainable trade of forest products by utilizing Macao's role as an international trade cooperation platform. Global Timber Index Platform GTI Report Press Conference would generate more cooperation opportunities. Macao IPIM will continue to join forces with relevant organizations to create new possibilities for a wider range of businesses.

Dr. Luo Xinjian

Secretary General of GGSC

The work on the platform to date has focused on confirming focal points and enterprises in the pilot countries, platform-building, communications, GTI model design and optimization, online technical training, and report preparation and formulation. The continued support and collaboration of focal points and enterprises will be crucial to the success of the platform.

The production of roundwood and sawnwood in GTI timber producing countries accounts for 60% of that of ITTO producer.

China is the largest roundwood importer among the ITTO consumer.

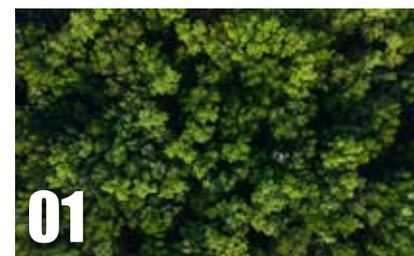
ITTO members		
Producing (37)		
Africa (14)	Asia & Pacific (10)	Latin America (13)
• Angola	• Cambodia	• Brazil
• Benin	• Fiji	• Colombia
• Cameroon	• India	• Costa Rica
• Central African Republic	• Indonesia	• Ecuador
• Congo	• Malaysia	• Guatemala
• Côte d'Ivoire	• Myanmar	• Guyana
• Democratic Republic of the Congo	• Papua New Guinea	• Honduras
• Gabon	• Philippines	• Mexico
• Ghana	• Thailand	• Panama
• Liberia	• Viet Nam	• Peru
• Madagascar		• Suriname
• Mali		• Trinidad and Tobago
• Mozambique		• Venezuela
• Togo		[Bolivarian Republic of]

ITTO members		
Consuming (38)		
European Union (27)		
• Albania	• Austria	• Italy
• Australia	• Belgium	• Latvia
• China	• Bulgaria	• Lithuania
• Japan	• Croatia	• Luxembourg
• New Zealand	• Cyprus	• Malta
• Norway	• Czech Republic	• Netherlands
• Republic of Korea	• Denmark	• Poland
• Switzerland	• Estonia	• Portugal
• United Kingdom	• Finland	• Romania
• United States of America	• France	• Slovakia
	• Germany	• Slovenia
	• Greece	• Spain
	• Hungary	• Sweden
	• Ireland	

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SUMMARY

In May 2022, the International Tropical Timber Organization (ITTO) launched the project “Supporting the Establishment and Operation of the Global Timber Index (GTI) Platform for Building Legal and Sustainable Forest Products Supply Chains (hereinafter referred to as “GTI project”), which was funded by the Trade and Investment Promotion Institute of Macao SAR, China (IPIM). The Global Green Supply Chains (GGSC) is the implementing agency.

The specific objective of “Supporting the Establishment and Operation of the Global Timber Index Platform for Building Legal and Sustainable Forest Products Supply Chains” is to establish and initially operate a global timber index platform in six selected pilot countries, aiming at building legal and sustainable forest products green supply chains and increasing the trade in legally/sustainably produced forest products within a stable, transparent, and predictable business environment. The main outputs of this activity are as follows:

- The index collaborating platform is established and operated.
- The design and initial operation of a global timber index are completed.
- The monthly/annual GTI index are reported, released and disseminated.
- GTI related activities of training, promotion, dissemination, collaboration are conducted.

In 2023, 7 focal points from Asia, Africa and Latin America have been organized as pilot countries to participate in the GTI platform, namely: Indonesia, Malaysia, Gabon, Republic of Congo, Brazil, Mexico, and China. More than 160 enterprises from the above 7 pilot countries have participated in the GTI platform, which exceeded the target by 60%. The first GTI report was released in The Global Timber Index Platform GTI Report Press Conference on December 8th 2022 in Macao. Since then, the GTI index report is scheduled to be released globally in five languages (Chinese, English, Portuguese, French, and Spanish) at the beginning of each month. The GTI index is derived from monthly surveys and statistics on superior timber enterprises in timber producing and consuming countries worldwide. As the index can reflect the fluctuations of global timber industry in a timely manner, it has become a "weathervane" for many countries to monitor and track the running situation of the timber industry, and has been highly praised by the pilot countries.

ABBREVIATION

ABIMCI	Brazilian Association of Mechanically Processed Timber
BWP	Biennial Work Programme
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CONAFOR	National Forestry Commission of Mexico/Comisión Nacional Forestal
EFE	Export Furniture Exhibition
GGSC	Global Green Supply Chains Initiative
GTI	Global Timber Index
IPIM	Trade and Investment Promotion Institute of Macao SAR, China
ITTO	International Tropical Timber Organization
LSSC	Legal and Sustainable Supply Chain
MIFF	Malaysia International Furniture Fair
MTC	Malaysian Timber Council
ROC	Republic of the Congo



PART 1
BACKGROUND



PART 1

BACKGROUND

Recent scientific research shows that the gap between global demand and supply of timber and wood products is expected to widen significantly by 2050 due to a significant increase in the global population and a correspondingly sharp increase in societal needs for construction materials. There will be an increasing demand for legal and sustainable wood products to meet such needs while maintaining other important forest values. The effective protection and sustainable management of global forests, as well as the legal and sustainable use and trade of forest products, have also attracted worldwide concerns.

In the new international development environment, global wood industry is facing new opportunities and challenges. Especially affected by the pandemic of COVID-19, the wood industry is met by significant challenges on information consistency, and current information and data cannot fully reflect the development value of the wood industry. Therefore, it is necessary to find a new method to mirror and monitor the dynamics and trends of the performance of the global wood industry. Building and operating a platform for conducting and publishing the global timber index and linking world wood industry's information and data, has become a top priority for the global wood industry.

ITTO formulated the Legal and Sustainable Supply Chain (LSSC) Programme aimed at building legal and sustainable supply chains through a multi-pronged and integrated approach

requiring enabling governmental frameworks, private sector initiatives on the ground, financial resources, and institutions for building capacities in the markets. ITTO also set up activities in its Biennial Work Programme (BWP) to build legal and sustainable forest product supply chains with a view to support development of innovative solutions to providing assurances of sustainability and legality, including developing/implementing sustainable supply chains and enhancing market information and data service.

In May 2022, the International Tropical Timber Organization (ITTO) launched the project "Supporting the Establishment and Operation of the Global Timber Index (GTI) Platform for Building Legal and Sustainable Forest Products Supply Chains", which was funded by the Trade and Investment Promotion Institute of Macao SAR, China (IPIM). Global Green Supply Chains (GGSC) is the implementing agency.

Through the project, the GTI Platform was established and initially operated in seven pilot countries, including Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China, aiming to facilitate business information and data exchange and collaboration among stakeholders including timber producers, buyers, processing industry and market players nationally and internationally, aimed at building legal and sustainable forest products green supply chains and increasing the trade in legally/sustainably produced forest products within a stable, transparent and predictable business environment.



PART 2

GTI PROJECT IDENTIFICATION



PART 2

GTI PROJECT IDENTIFICATION

01- PROJECT OBJECTIVES

The GTI project's objective aims to establish and initially operate a global timber index platform in seven selected pilot countries, and supported by ITTO and Macao SAR, to collect, verify, process, analyze timber data through specific mathematical model and periodically release the index of participating countries. The GTI Platform will promote business information and data exchange and collaborations among stakeholders including timber producers, buyers, processing industry and market players, aimed at building legal and sustainable forest products green supply chains and increasing the trade in legally/sustainably produced forest products within a stable, transparent and predictable business environment.

There are four outputs of the GTI project as follows:

Output 1: The index collaborating platform is established and operated.

Output 2: The design and initial operation of a global timber index are completed.

Output 3: The monthly/annual GTI is reported, released and disseminated.

Output 4: GTI related trainings, promotions, disseminations and collaboration activities conducted.

The implementing agency overcame many obstacles (control policy on COVID-19, tight time schedule, etc.) and successfully completed all the planned outputs and activities on time, some of which exceeded expectations.

02- PROJECT ACHIEVEMENTS

The Global Timber Index Platform was set up and in operation.

7 focal points from Asia, Africa and Latin America have been organized as pilot countries to participate in the GTI platform, namely: Indonesia, Malaysia, Gabon, Republic of Congo, Brazil, Mexico, and China.

TABLE 2-1

THE FOCAL POINTS OF GTI PLATFORM

The pilot country	The focal point
Indonesia	Sustainable Forest Management of the Ministry of Environment and Forestry
Malaysia	Malaysian Timber Council (MTC)
Gabon	Ministry of Water and Forests, Sea and Environment, Responsible for the Climate Plan and Land Use
Republic of the Congo	Ministère de l'Economie Forestière
Brazil	STCP Engenharia de Projetos Ltda
Mexico	National Forestry Commission of Mexico/Comisión Nacional Forestal (CONAFOR)
China	The Secretariat of the Global Green Supply Chains Initiative (GGSC)

More than 160 enterprises from the above 7 pilot countries have participated in the GTI platform, which exceeded the target by 60%. A liaison mechanism with the sample enterprises has been established. The trainings and communication with the focal points and sample enterprises has been conducted online/offline before the GTI index release. The technical issues about GTI index and daily operation and management of the GTI platform have been introduced.

The sample companies of 7 pilot countries filled in the questionnaires at the end of each month, with the guidance of the focal points and GGSC. The focal points are keeping in contact with the companies and answering technical questions related to GTI index.

FIGURE 2-2

GTI QUESTIONNAIRE FOR PRODUCER AND MANUFACTURER



For producer

The questionnaire focuses on the investigation into the development trend of local timber harvesting and supply, covering logs, sawn timber, plywood, etc.



For manufacturer

The questionnaire focuses on the investigation into the prosperity and development trend of local timber processing and manufacturing industry, covering wooden floor, doors and furniture, etc.

Through this platform more people paid attention to the development trends of forestry industry and discussed how to promote the legal and sustainable trade of timber. Stakeholders have a better understanding of GGSC and ITTO action programmes, easier access to industry information and communication with each other is much more convenient.

The Global Timber Index model was designed, which is the first prosperity index of the timber industry around the world.

The GTI index contains 1 comprehensive index and 11 sub-indexes, the latter of which cover harvesting, production, new orders, export orders, existing orders, inventory of finished products, purchase quantity, purchase prices of main raw materials, inventory of raw material, employees, and delivery time.

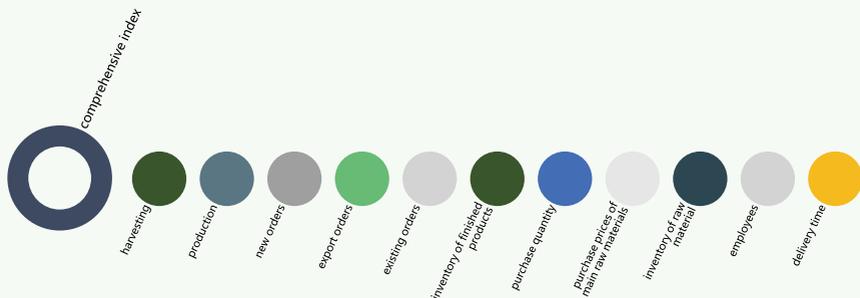
FIGURE 2-1

GTI TRAINING FOR THE CHINESE TIMBER ENTERPRISES IN NANXUN, ZHEJIANG PROVINCE

The design and initial operation of a global timber index has been completed.



FIGURE 2-3
THE GTI COMPREHENSIVE INDEX AND ELEVEN SUB-INDEXES



The GTI index reflects the perceptions of front-line managers regarding the performance of various aspects of the timber industry, thereby providing a sensitive indication of changes in the prosperity of the timber industry in various countries.

The Global Timber Index Platform GTI Report Press Conference and International Workshop on Global Timber Market Trend were organized and successfully convened in Macao.

The GTI's November report was released in a hybrid meeting on the GTI Platform and an associated international workshop on global timber market trends, co-organized by ITTO and the Trade and Investment Promotion Institute (IPIM) of Macao SAR, China. Around 170 participants from 12 countries attended the event in person or virtually.

The GTI Platform is being developed as part of a framework of cooperation and collaboration between ITTO and Macao IPIM, which is supporting the activity financially. The work is being implemented by the Secretariat of the Global Green Supply Chains (GGSC), which is also based in China.

Seven pilot countries in tropical Asia, Africa and Latin America, as well as China and about 150 enterprises and companies, are participating in the initial phase of the GTI Platform.

FIGURE 2-3
THE GTI RELEASING CEREMONY OF GTI INDEX ON DEC. 8 IN MACAO



FIGURE 2-4
HIGHLIGHTS FROM THE GLOBAL TIMBER INDEX (GTI) REPORT RELEASE CONFERENCE



Representatives of the focal points and industrial/business sector of Brazil, China, the Congo, Gabon, Indonesia, Malaysia and Mexico attended the launch meeting and provided inputs into the platform and the structure of its monthly reports.

ITTO Executive Director Sheam Satkuru said the release of the GTI's first report "may be one small step for an activity but might lead to one giant leap for the whole timber sector". She expected the GTI to become an important tool for increasing transparency in the tropical timber trade and improving policies. "Once it is fully operational, the GTI Platform will serve as the first comprehensive timber index in the world, which will gradually develop into a 'weathervane' of the timber industry," she said.

Mr Vincent U, Acting President of Macao IPIM, said the release of the GTI report is part of an initiative to promote the legal and sustainable trade of forest products by utilizing Macao's role as an international trade cooperation platform. He expressed gratitude to ITTO for co-hosting the launch event and workshop, which will generate more cooperation opportunities. He said Macao IPIM will continue to join forces with relevant organizations to create new possibilities for a wider range of businesses.

Dr Luo Xinjian, Secretary General of GGSC, said the work on the platform to date has focused on confirming focal points and enterprises in the pilot countries, platform-building, communications, GTI model design and optimization, online technical training, and report preparation and formulation. The continued support and collaboration of focal points and enterprises will be crucial to the success of the platform, she said.

Ms Carole Ogandagas, Central Director of Studies, Statistics and Programs in Gabon's Ministry of Water and Forests, the Sea and the Environment, introduced the development of Gabon's national strategy and policies for the industrialization of the timber sector, which is in line with the objective and expected outcomes of the GTI Platform. Timber enterprises in Gabon want to participate in the platform, including the GTI report, she said.

Dr Ivan Tomaselli, Vice President of the Brazilian Association of Mechanically Processed Timber (ABIMCI), said many Brazilian timber companies are interested in joining the GTI

FIGURE 2-5
HIGHLIGHTS FROM THE GLOBAL TIMBER INDEX (GTI) REPORT RELEASE CONFERENCE & INTERNATIONAL SYMPOSIUM ON GLOBAL TIMBER MARKET TRENDS



Platform. They expect it to improve the sharing of information and data on international wood supply and demand and to promote sustainable trade and partnerships in global green timber supply chains, he said.

Mr Chen Jianjun, Chairman of the Power Dekor Group, shared the case of a leading flooring company and its interest in, and the benefits of, participating in the GTI Platform. The world timber sector is facing numerous difficulties and challenges, said Mr Chen, especially supply-chain vulnerability and the prejudice and misunderstanding of the timber industry. He said that, as a founding member of GGSC and GTI platform, Power Dekor urges all stakeholders in the timber sector to collaborate in the post-pandemic era with a view to rebuilding stable, effective and resilient supply chains within a legal and sustainable framework.

The International Workshop on Global Timber Market Trends was held immediately following the release of the GTI report, with the participation of timber enterprises and associations, organizations, experts and scholars. Participants discussed opportunities and challenges for the global timber industry in the post-epidemic era and trends in global timber markets. They also debated how best to continue building the GTI Platform and maximizing its potential for information and data sharing and exchange in the timber sector.

The monthly/annual GTI is report, released and disseminated.

GTI monthly Reports have been formulated and released monthly to the public on ITTO website, GGSC website and other ways (such as the dissemination activities of focal points).

GTI sample enterprises took part in the data submission of GTI Index every month, with the guidance of focal points in 7 pilot countries. All the stakeholders get more macro-economic and business news in 7 pilot countries through the GTI monthly report, and this news is additional information beyond the GTI index. The trend of the timber industry reflected by the GTI index is published on ITTO website as TOP News.

Some enterprises used the index to monitor the timber industry’s developing trend and adjust their business strategy. Some pilot countries have created promotional websites

FIGURE 2-6
THE GTI COLUMN AND TOP NEWS ON ITTO WEBSITE

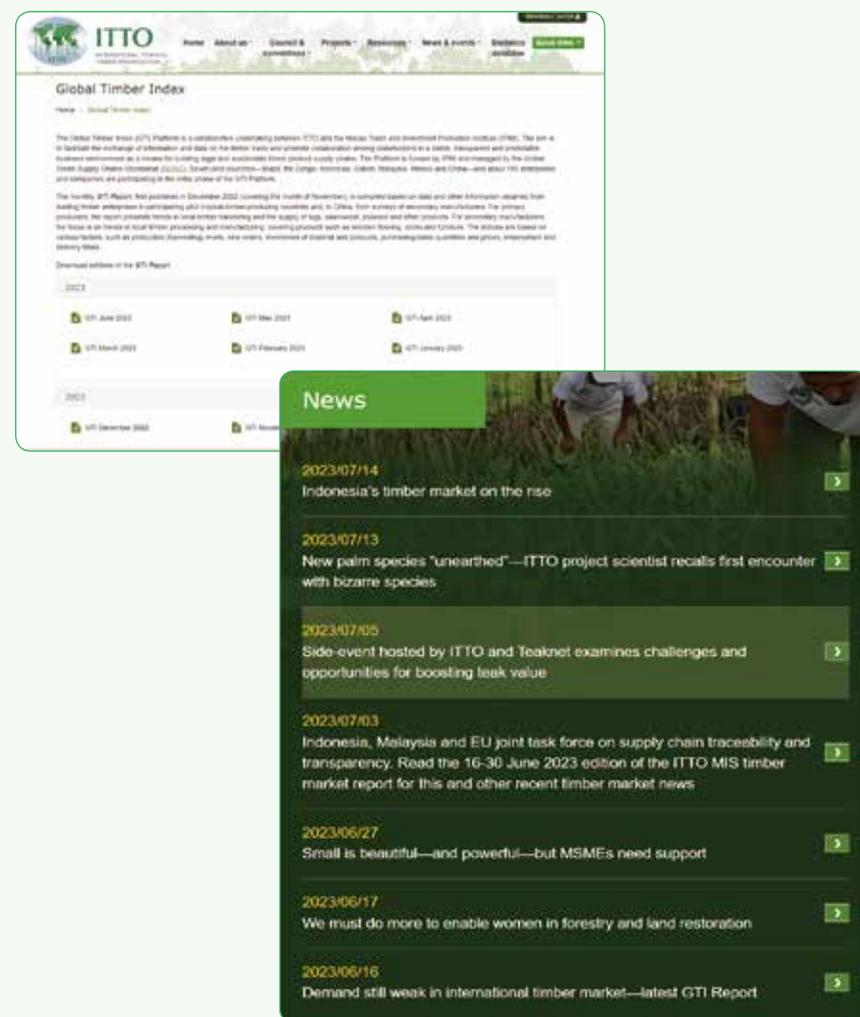
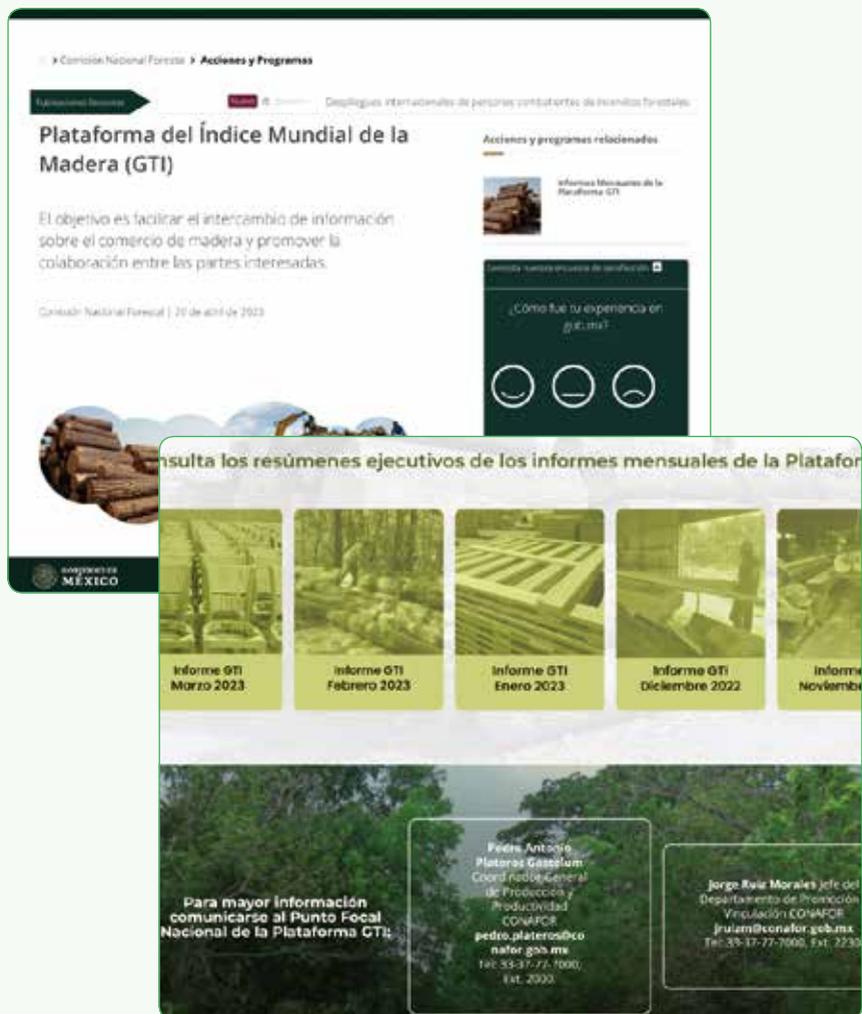


FIGURE 2-7
THE PROMOTIONAL WEBSITES FOR THE GTI REPORTS MADE BY MEXICO CONAFOR



specifically for the GTI reports, such as Mexico. Some focal points use the index to compare the development trend of the timber industry in different countries.

GTI related activities of promotion, dissemination and collaboration are conducted.

The focal points and GTI sample enterprises in 7 pilot countries have a better understanding of GTI index, and the legal and sustainable supply chains through the GTI Brochure.

All the stakeholders actively took part in the GTI related trainings and seminar, and some focal points volunteer to hold the GTI seminar, such as Malaysia organizes the Seminar on Global Timber Index (GTI), in conjunction with the Malaysian Wood Expo 2023.

FIGURE 2-8

SEMINAR ON GLOBAL TIMBER INDEX (GTI) ORGANIZED BY GTI MALAYSIA FOCAL POINT



FIGURE 2-9

GTI ACTIVITIES IN EXPORT FURNITURE EXHIBITION (EFE)



The International Workshop on Global Timber Market Trends was held immediately following the GTI Report Press Conference on 8 December 2022, with the participation of timber enterprises and associations, organizations, experts and scholars. Participants discussed opportunities and challenges for the global timber industry in the post-epidemic era and trends in global timber markets. They also debated how best to continue building the GTI Platform and maximizing its potential for information and data sharing and exchange in the timber sector.

Through a series of communication and cooperation activities, the GTI index, as well as the work of GGSC and ITTO in promoting legal and sustainable timber trade, have been widely recognized by more enterprises, timber associations, international organizations,

governments, etc. For example, GGSC attended important international exhibitions to promote the GTI platform and GTI index, such as Malaysia International Furniture Fair (MIFF) and Export Furniture Exhibition (EFE), 2023 Architect Expo in Thailand.

03- PROJECT IMPACT

The outcomes of the activity have been widely appreciated by stakeholders in the global timber industry and they had a sustained and far-reaching impact not only at the industrial level but also widely among producers and consumers as well as international organizations.

- The GTI Platform, which was the first attempt to build a new type of information and data exchange platform centered on GTI Index, attracted more than 160 enterprises from the 7 pilot countries to participate in, which exceeded the target by 60%. As ITTO ED said, the GTI Platform “may be one small step for an activity but might lead to one giant leap for the whole timber sector”. There are many associations, enterprises and financial institutions that are interested in and willing to join GTI Platform.
- The GTI Index, which reflects the development trend of timber industry, was the first prosperity index of the timber industry around the world. With more countries’ participation, it will eventually become a “weathervane” for the global timber sector.
- GTI Platform provides a large number of training and promotional activities, and the GTI Report provides the latest news on the efforts the pilot countries took to promote legal and sustainable trade. By doing so, it enhanced the awareness of legal and sustainable timber trade among timber enterprises, associations, focal points, etc., and increased networking and collaboration between consumers and producers in the implementation of legal and sustainable supply chains.
- Information related to policy, market, and economic aspects were regularly released and disseminated by GTI Report. It strengthened the stakeholders’ judgment and expectations on industrial trends and policy environment, making a contribution to a more stable, transparent and predictable business environment.

FIGURE 2-10

GTI ACTIVITIES IN NANKANG CITY, JIANGXI PROVINCE





PART 3

THE INTRODUCTION TO GTI INDEX (GTI)



PART 3

THE INTRODUCTION TO GTI INDEX (GTI)

01- WHAT IS GTI?

The Global Timber Index (GTI) is an index system that comprehensively reflects the overall trend of global timber production and trade. It is completed by the participation of major ITTO timber producers and consumers members. The GTI index system includes GTI-pilot country index and GTI specialized index.

The survey of GTI-pilot country index covers timber harvesting, trade, manufacturing including production, orders, imports and exports, employees, inventory and raw material prices and other business indicators. It is of a great significance as a guide to business operations, industry investment, and will aid formulation of national policies.

The GTI Specialized Index is a timber industry index for specific sub-industries or regions. The statistics and release on the GTI-Producer and the GTI-WBP indexes will be officially launched in second half of 2023.

The GTI-Producer Index serves as a "weathervane" on prosperity-level change of timber harvesting and primary processing in timber-producing countries, reflecting the overall

changing trend of the production and operation related to harvesting and primary processing in timber-producing countries compared to the previous month. Currently, the sample countries of the GTI-Producer Index include Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil and Mexico. In 2022, the production volume of logs and sawn timber in the six countries mentioned above reached 269 million m³, accounting for 58.6% of that of the 36 ITTO timber-producing countries.

The GTI-WBP Index serves as a "weathervane" on prosperity-level change of global wood-based panel processing and manufacturing, reflecting the overall changing trend of the production and operation of wood-based panel (including plywood, fiberboard, particle board, etc.) industry in the world compared to the previous month. Currently, the sample countries of GTI-WBP include China, Brazil, Indonesia, Malaysia, Mexico, Gabon, and Republic of the Congo. In 2021, the total production volume of wood-based panels in the above seven countries was 202 million m³, accounting for 50.9% of the global total production volume of wood-based panels.

02- WHAT IS THE GTI CONTENT?

GTI designs specific indicators according to the characteristics of timber and timber industries in different countries, and publish several national indexes, such as GTI-Indonesia index, GTI-Gabon index, GTI-ROC index and so on.

Now, there are two sets of the GTI questionnaires, respectively for the timber producer and the timber manufacturer.

- For timber producer, the questionnaire focus on the development of local timber harvesting and supplying, covering log, sawnwood, and veneer, etc.
- For timber manufacturing countries (like China), the questionnaire focuses on the development of local timber processing and manufacturing, covering floor, door, plywood, and furniture, etc.

03- HOW THE INVESTIGATION OF GTI INDEX IS CONDUCTED?

The GTI questionnaire is completed through the following process.

First, the focal point is assigned by the pilot countries. The focal point can be a government department, an association or an enterprises.

Second, the sample enterprises were selected by the focal points. GTI sample enterprises shall meet the following requirements:

- Top 30 domestic timber enterprise. Timber producing enterprises may have the priority of forest land management right.
- With outstanding advantages in the timber sub sectors.
- Following green and sustainable development concept.
- Support the GGSC initiative.

Third, the sample enterprises assign the contact person who is responsible for submitting the data every month. The contact person should be a business manager, department manager, or vice-president in producing enterprises who is familiar with the production and operating process. Or it can be completed by a specific staff from the statistic department to fill in the questionnaire on a monthly basis.

Fourth, the focal points organize the sample enterprises to fill GTI questionnaire at the end of each month, with the help of GGSC.

Fifth, GGSC organizes the experts to calculate, verify, process and analyze the data, communicate ambiguous data and key issues with focal points and the enterprise, conduct a quick investigation, then compile the GTI report, based on statistical analysis of the collected data and information in the timber industry.

Last, the GTI report is translated into 5 languages (Chinese, English, Portuguese, French, and Spanish), and completed the data proofreading and set type. The GTI report is released through different channels, such as ITTO website, GGSC website and the website of focal points.

04- HOW IS GTI INDEX CALCULATED?

The GTI index contains 1 comprehensive index and 11 sub-indexes, the latter of which cover harvesting, production, new orders, export orders, existing orders, inventory of finished products, purchase quantity, purchase prices of main raw materials, inventory of raw material, employees, and delivery time. The GTI index is obtained by summarizing the feedback of questionnaires conducted among frontline managers of the timber industry in each country. It reflects the perceptions of front-line managers regarding the performance of various aspects of the timber industry, thereby providing a sensitive indication of changes in the prosperity of the timber industry in various countries.

GTI comprehensive index is calculated based on five sub-indexes with different weights: production, new orders, inventory of raw material, employees, delivery time. The calculation formula is:

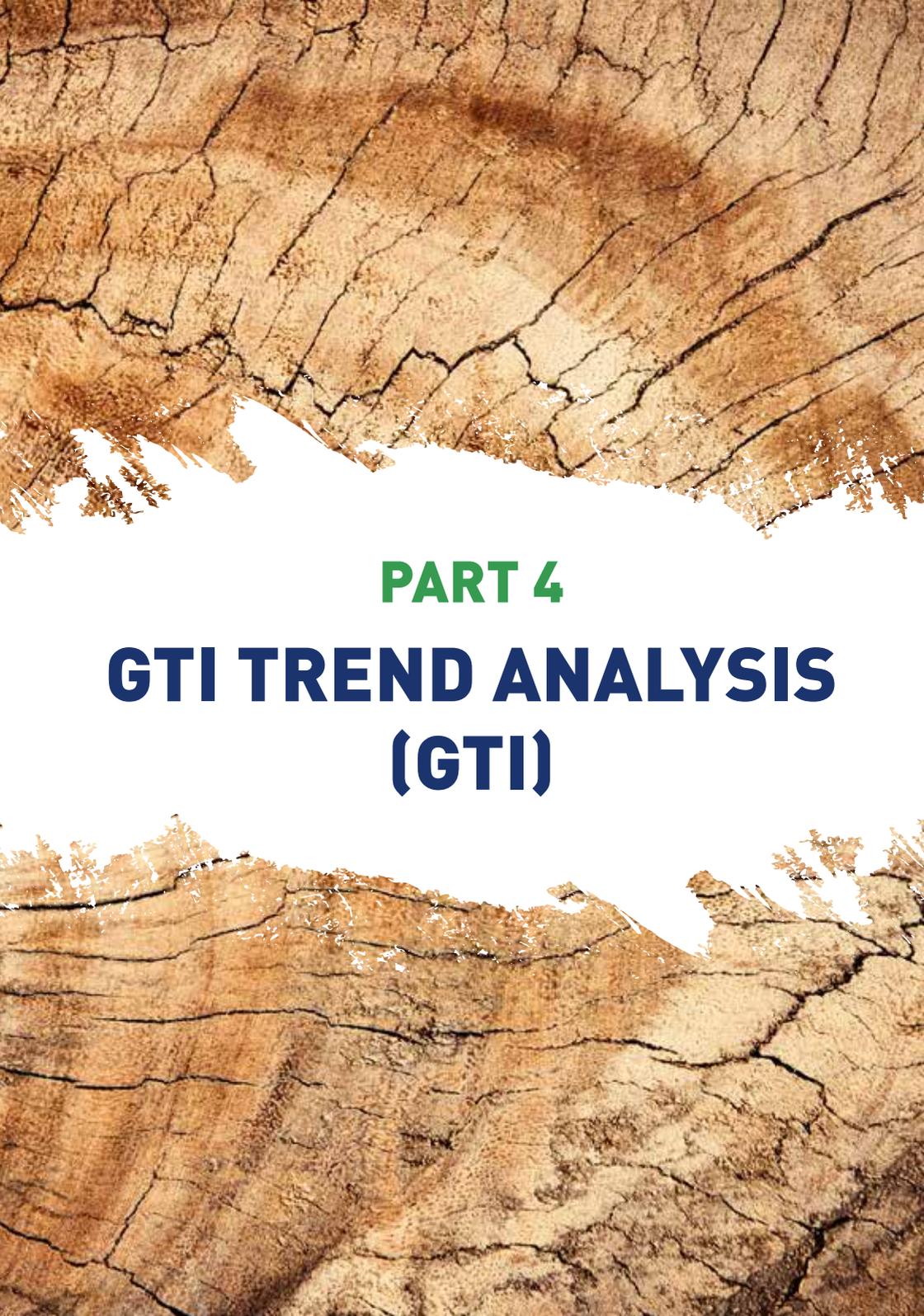
GTI Index = production index * 25% + new orders index * 30% + raw materials inventory index * 10% + employees index * 20% + delivery time index * 15%.

05- HOW TO READ GTI INDEX?

The values of both the comprehensive index and the sub-indexes are between 0-100%, and 50% is the critical value of the indexes.

A GTI index reading above 50% indicates that the business activity represented by the index is generally expanding; below 50% indicates that it is generally declining; and equal to 50% indicates that it is unchanged from the previous month.

Taking the GTI-China index as an example, if the GTI-China index is greater than 50%, the Chinese timber manufacturing industry is in an expanding (rising) state, and positive factors play a leading role in the development; If the index is 50%, it present that positive factors and negative factors offset each other, China's timber manufacturing business development is basically the same as last month ; If the index is less than 50%, it means that there are more negative factors in China's timber production and operation.



PART 4

GTI TREND ANALYSIS (GTI)

PART 4

GTI TREND ANALYSIS (GTI)

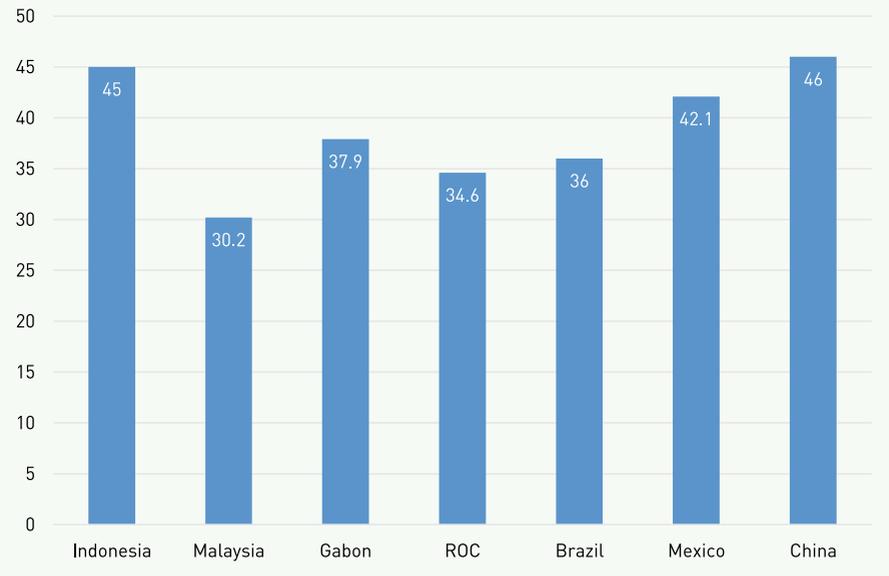
01- COMPREHENSIVE INDEX

The GTI comprehensive index measures the monthly overall development and prosperity of the pilot countries' timber industry. For timber-producing countries such as Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico, the survey focuses on the prosperous development trend of local timber harvesting and supplying, and the timber industry's prosperity is closely related to that of downstream demand. Regarding China, a major timber processing and manufacturing country, the survey focuses on the prosperous development trend of the timber processing and manufacturing sector, and to some extent, the prosperity of the timber manufacturing sector can drive the development of the upstream timber sector.

In terms of producers' GTI, the GTI comprehensive index of the six timber-producing countries remained at a low level from November 2022 to September 2023 due to the contraction in international market demand. Brazil, Gabon, Republic of the Congo, Malaysia, and Mexico saw GTI indexes below 50% for eleven consecutive months, with average values of 36.0%, 37.9%, 34.6%, 30.2%, and 42.1%, respectively, indicating a sustained contraction in the timber market. The Indonesian timber market showed signs of recovery from April this year, with the GTI-Indonesia index rising to 50.6%, above 50% for the first time in the past nine months. However,

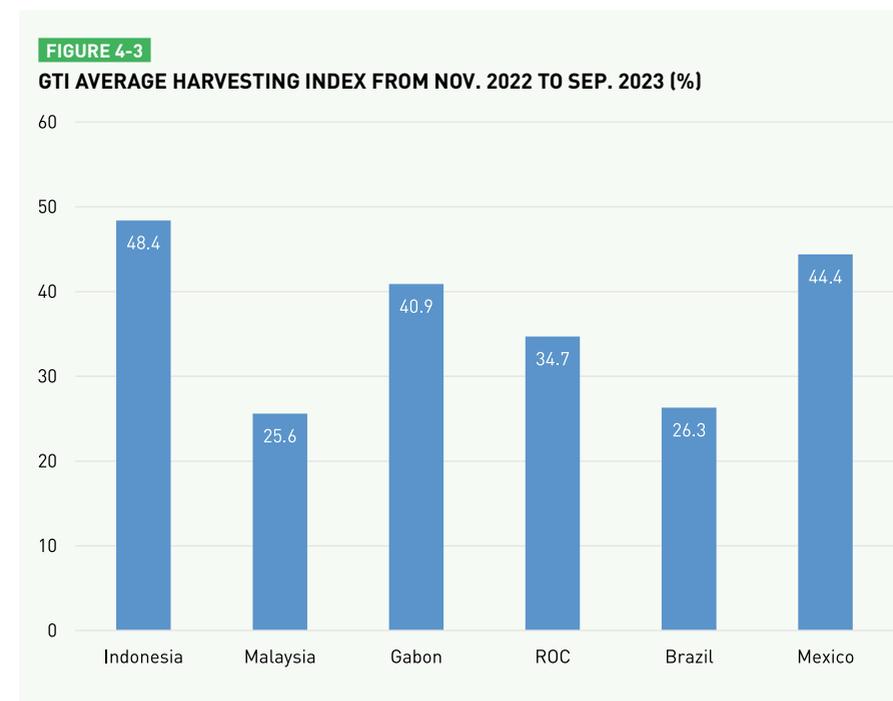
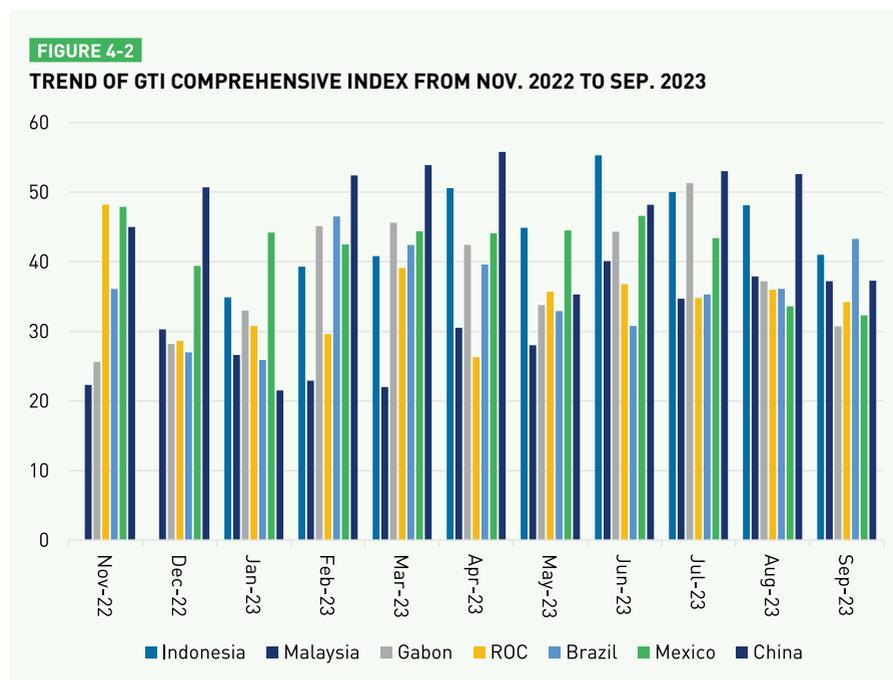
FIGURE 4-1

GTI AVERAGE COMPREHENSIVE INDEX FROM NOV. 2022 TO SEP. 2023 (%)



this was mainly due to the increase in its domestic orders, and whether the international market could recover remains to be observed.

Since the beginning of December 2022, China had relaxed its policy on infection prevention and control for COVID-19. Driven by the real estate stimulus policy and the "steady growth" measures, the timber industry had experienced a strong boost in production activities. From November 2022 to September 2023, the average value of GTI-China index recorded 46.0%, significantly higher than the average of timber-producing countries. Since the relaxation of the pandemic measures, except for January when the index was lowered due to the Chinese New Year holiday, GTI-China had remained above the critical value (50%) for three consecutive months, then fluctuated around the critical value, demonstrating the strong resilience and vitality of China's timber processing and manufacturing industry, but its stability still needs to be consolidated.



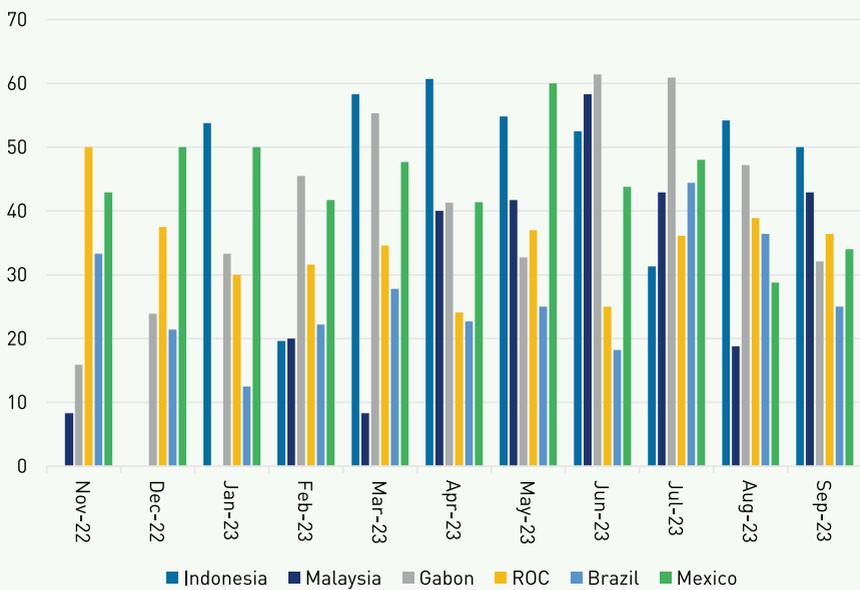
02- GTI SUB-INDEX: HARVESTING INDEX

As one of the five sub-indexes used to calculate the GTI comprehensive index, the harvesting index measures the monthly increase or decrease in timber harvesting within timber-producing countries and represents the production activities at the forefront of the timber supply chain. The harvesting index is employed for six timber-producing countries, namely Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico, except for China, which is a timber processing and manufacturing country without the harvesting index.

From January 2023 to September 2023, harvesting activities in Indonesia were relatively active. Except for February, when timber harvesting and the transportation speed of logs to factories were affected by continuous rainfall, the harvesting index of Indonesia remained above the critical value (50%) in other months, indicating a gradual increase in the harvesting volume.

Affected by the contraction in global demand, countries such as Malaysia, Gabon, Republic of the Congo, Brazil and Mexico experienced relatively low levels of timber harvesting. The average values of harvesting indexes from November 2022 to September 2023 recorded 25.6%,

FIGURE 4-4
TREND OF GTI HARVESTING INDEX FROM NOV. 2022 TO SEP. 2023



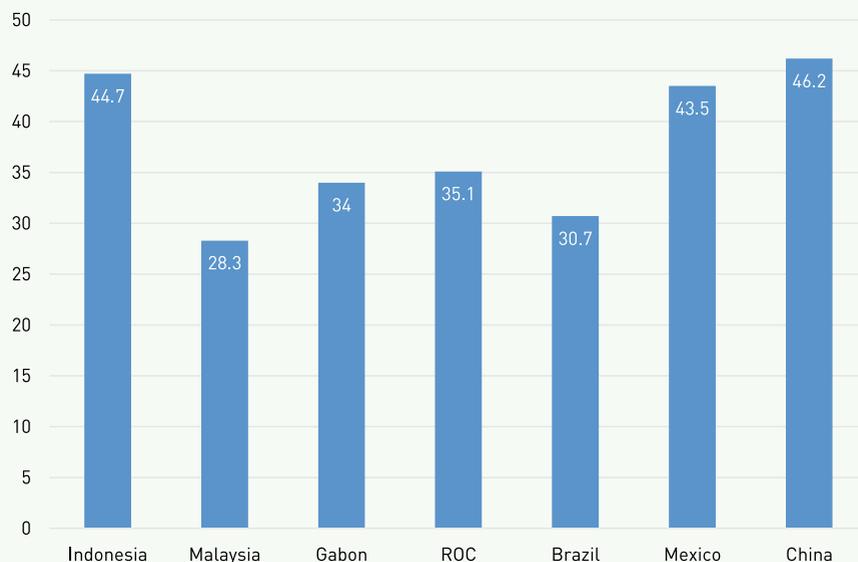
40.9%, 34.7%, 26.3%, and 44.4%, respectively, all below the critical value (50%). In terms of trend, harvesting volume in Mexico showed signs of stabilization in November and December last year, with the harvesting index remaining at the critical value for two consecutive months. Although it then declined, it remained higher than the harvesting indexes of Malaysia, Republic of the Congo, and Brazil. The harvesting index of Gabon rose above 50.0% in March, June and July this year, because the enterprises began the outdoor operation in the dry season. GTI index shows a distinct seasonal pattern.

03- GTI SUB-INDEX: PRODUCTION INDEX

As one of the five sub-indexes used to calculate the GTI comprehensive index, the production index is used to measure the monthly increase or decrease in production and processing of timber and timber products in each country.

In the past six months, the sluggish international demand in the timber industry had affected the supply side, particularly evident in the insufficient operating rates of timber enterprises, underutilized production capacity, and the production contraction. From November 2022 to

FIGURE 4-5
GTI AVERAGE PRODUCTION INDEX FROM NOV. 2022 TO SEP. 2023 (%)



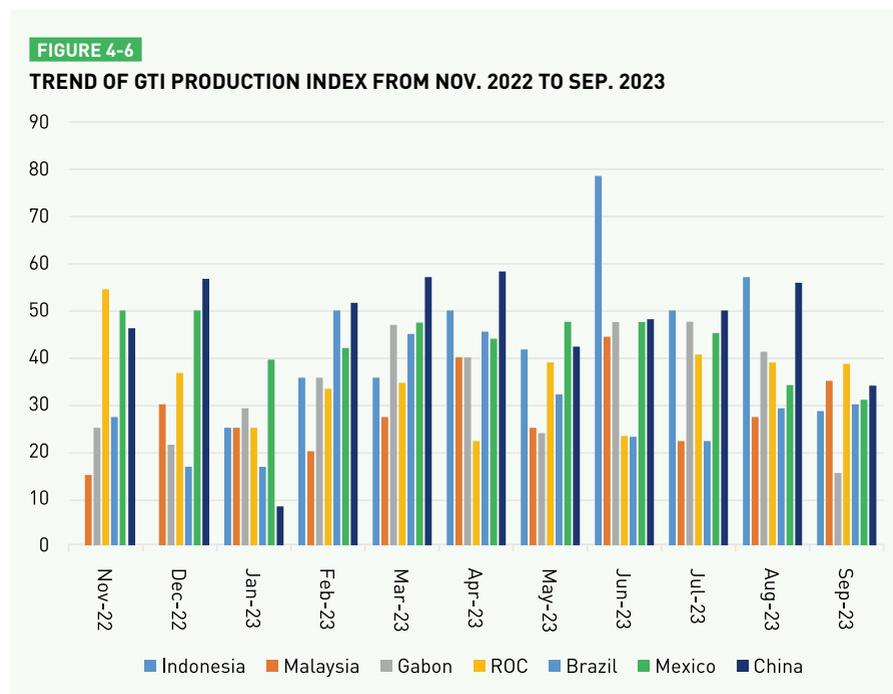
September 2023, the average values of the production indexes of Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China were 44.7%, 28.3%, 34.0%, 35.1%, 30.7%, 43.5%, and 46.2%, respectively, all below the critical value (50%).

In terms of the trend, the values of Indonesia’s production index gradually rose from January 2023, reaching the annual peak (in 78.6%) in June, which demonstrated a significant recovery trend. The values of Brazil’s production index rose month by month from November 2022 to February 2023, reaching the critical value (50%) in February, but then declined. The production indexes of Malaysia and Gabon, although showing a slow upward trend, remained below the critical value. The production indexes of Republic of the Congo and Mexico continued to fluctuate below the critical value. The production index of China showed a noticeable recovery

trend after the easing of pandemic policies in December 2022. Except for January 2023 during the Chinese New Year period, the values of production index for the other four months were all above the critical value and rose to 58.3% in April.

04- GTI SUB-INDEX: NEW ORDERS INDEX

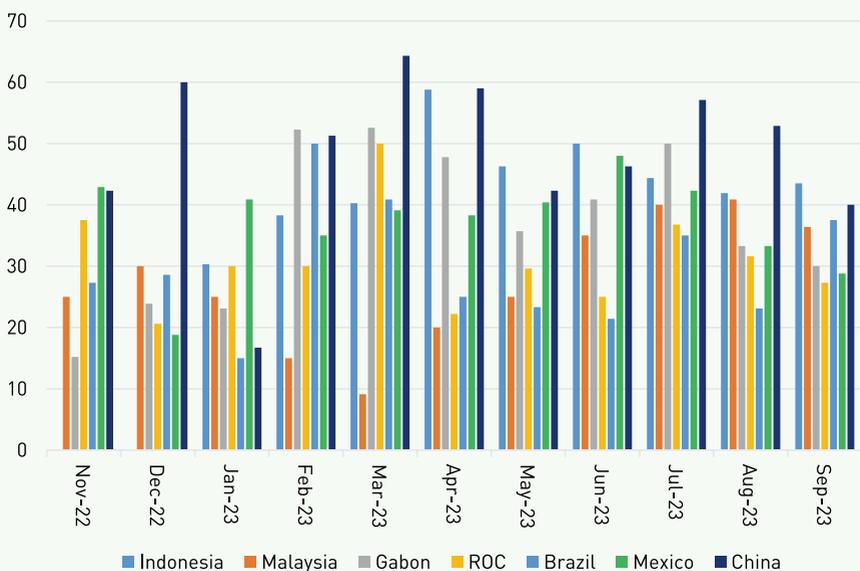
As one of the five sub-indexes used to calculate the GTI comprehensive index, the new orders index is used to measure the monthly increase or decrease in the number of new orders obtained by enterprises, including both domestic and international orders.



Due to global low economic growth, high inflation, and the lingering effects of the pandemic, there had been a significant contraction in demand, leading to continued sluggishness in international demand for timber and timber products. From November 2022 to September 2023, the average values of the new orders indexes of Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China registered 43.8%, 27.4%, 36.8%, 31.0%, 29.7%, 37.1%, and 48.4%, respectively, all below the critical value (50%).

Looking at individual countries, Indonesia's timber industry demand showed a slow recovery trend. The values of new orders index rose month by month from January to September, reaching 58.8% above the critical value (50%) in September. Gabon experienced consecutive growth in new orders from February to March this year, but there was a slight decline in September, indicating that the ability to secure orders had not yet stabilized. The values of new orders indexes of Republic of the Congo, Brazil, and Mexico were generally at a low level, except for certain months when they were around the critical value. China's timber enterprises had maintained a continuous growth trend in new orders after the Chinese New Year holiday in January 2023, with the values of new orders index consistently above the critical value (50%) for three consecutive months. It is worth noting that the recovery of new orders in Indonesia and China was primarily driven by the increase in respective domestic demand, while there was no significant improvement in international market orders.

FIGURE 4-8
TREND OF GTI NEW ORDERS INDEX FROM NOV. 2022 TO SEP. 2023



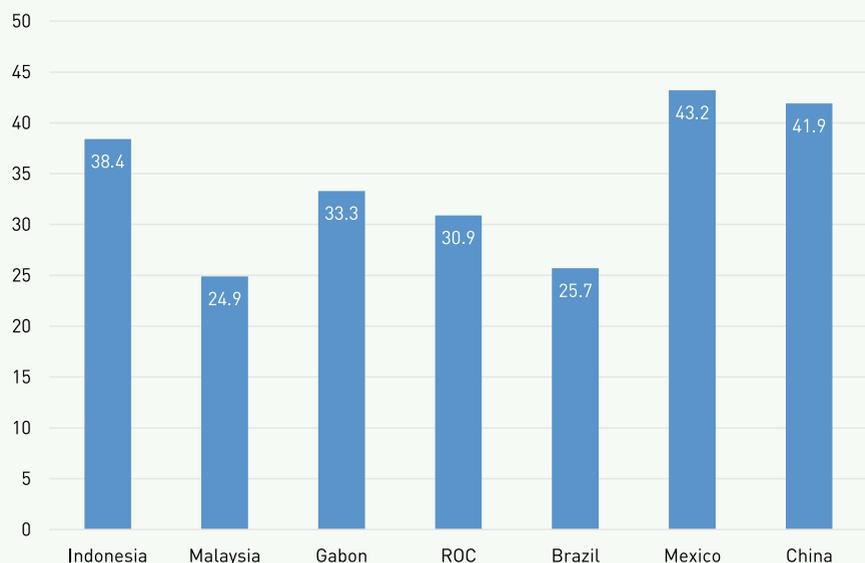
05- GTI SUB-INDEX: EXPORT ORDERS INDEX

Export orders index measures the monthly increase or decrease in the number of new export orders signed by timber enterprises in each country.

In the past six months, the international market demand in timber remained sluggish, and the number of orders from foreign markets generally dropped. From November 2022 to September 2023, the average values of the export orders indexes of Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China registered 38.4%, 24.9%, 33.3%, 30.9%, 25.7%, 43.2%, and 41.9%, respectively, all below the the critical value (50%). Except for Malaysia, the average values of the export orders of the other six countries were lower than their respective orders index averages, indicating that domestic demand in these countries generally exceeded external demand.

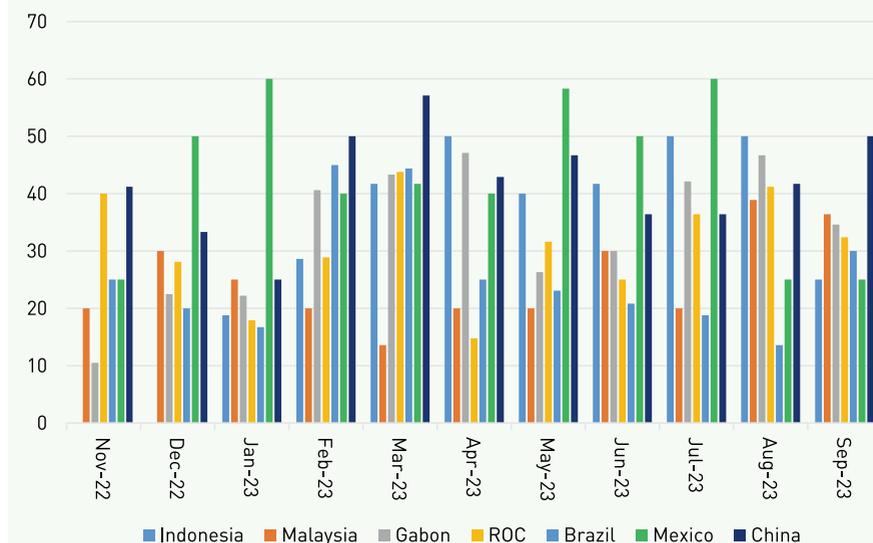
Looking at individual countries, the values of export orders index of Indonesia had been rising month by month and reached the critical value (50%) in April 2023. The export orders index of timber-producing countries such as Malaysia, Republic of the Congo, Brazil, Gabon, Mexico

FIGURE 4-9
GTI AVERAGE EXPORT ORDERS INDEX FROM NOV. 2022 TO SEP. 2023 (%)



had remained at a low level, and enterprises were eager to expand their international market. Mexico export index showed specific peaks during May to July 2023, but lower than the critical value in other months this year. China's export orders experienced a transient rebound in March 2023 (with the export orders index rising to 57.1%), but the number of export orders in other months decreased compared to the previous month.

FIGURE 4-10
TREND OF GTI EXPORT ORDERS INDEX FROM NOV. 2022 TO SEP. 2023



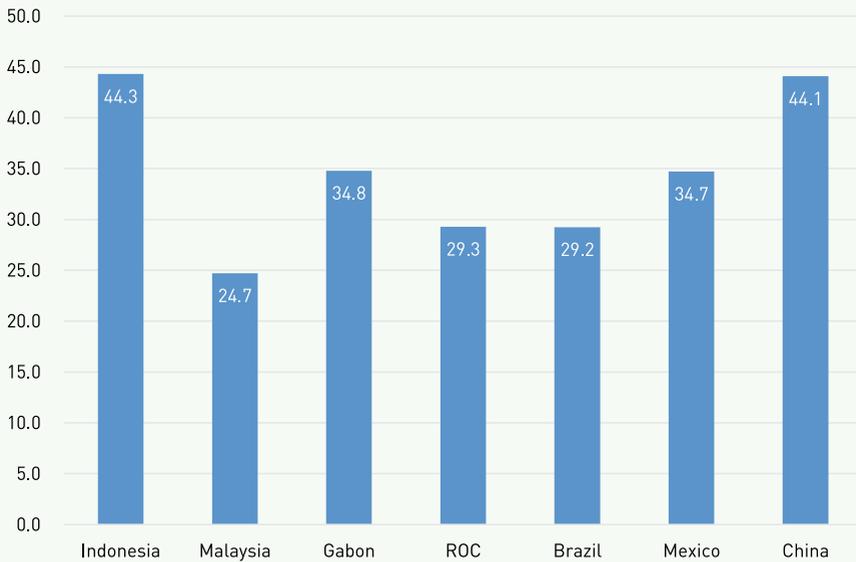
06- GTI SUB-INDEX: EXISTING ORDERS INDEX

Existing orders index measures the monthly increase or decrease in the number of undelivered orders that timber enterprises in each country have.

From November 2022 to September 2023, the average values of the existing orders indexes of Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China were recorded at 44.3%, 24.7%, 34.8%, 29.3%, 29.2%, 34.7%, and 44.1%, respectively, all below the the critical value (50%). This indicates that timber enterprises in these countries didn't have a significant

FIGURE 4-11

GTI AVERAGE EXISTING ORDERS INDEX FROM NOV. 2022 TO SEP. 2023 (%)

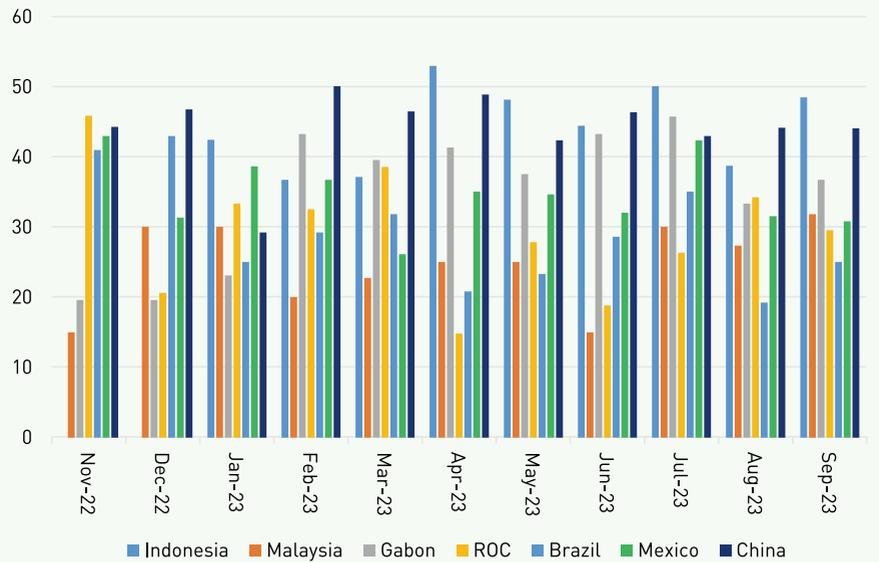


number of backlogged orders awaiting delivery. In the situation where orders were not saturated, the timber industry lacks sufficient momentum for future development.

Looking at each country, the values of existing orders indexes of Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico had consistently remained below the critical value. This indicates that enterprises were accelerating the delivery of existing orders in the absence of sufficient new orders. The export orders index of Indonesia steadily increased and reached 52.9% in April. The existing orders index of China reached the critical value in February 2023, but for the other months, it remained below the critical value.

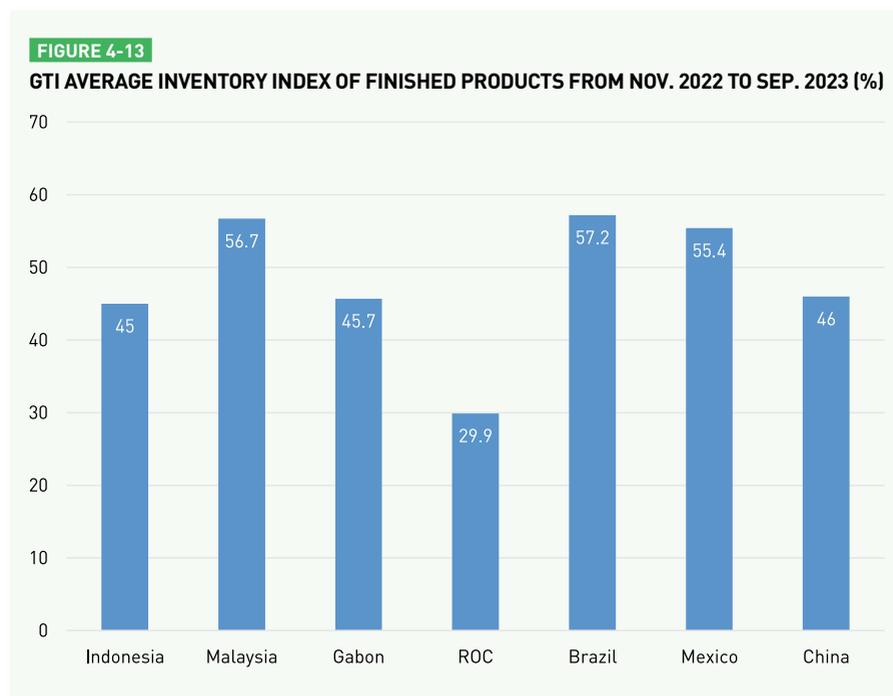
FIGURE 4-12

TREND OF GTI EXISTING ORDERS INDEX FROM NOV. 2022 TO SEP. 2023



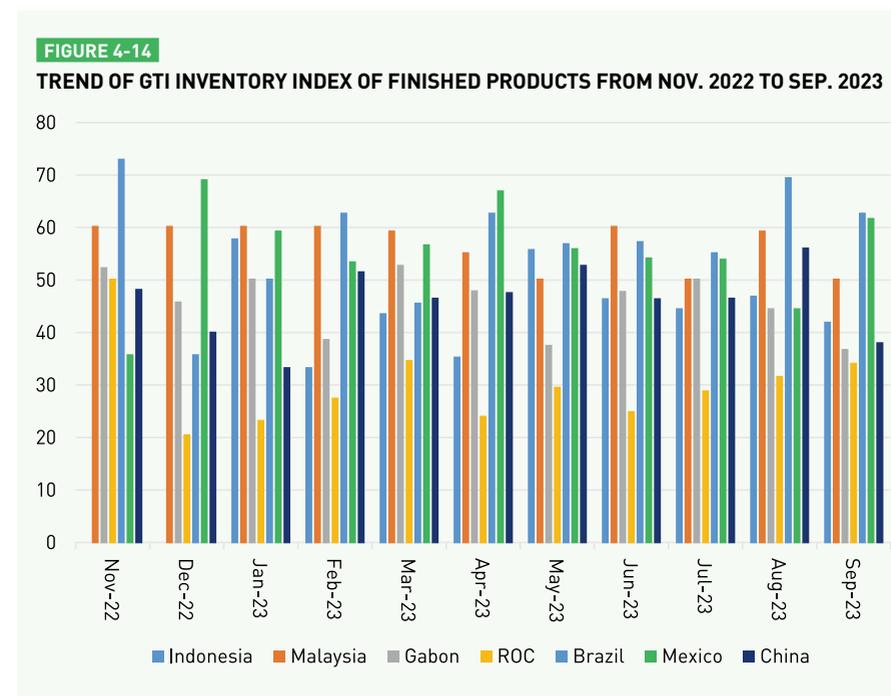
07- GTI SUB-INDEX: INVENTORY INDEX OF FINISHED PRODUCTS

Inventory index of finished products measures the monthly increase or decrease in the quantity of inventory of finished products held by timber enterprises in each country. Generally, a decrease in "finished products inventory" reflects an increase in market demand, indicating that the products produced by enterprises can be sold timely in the market.



From November 2022 to September 2023, there were about three cases around the inventory indexes of finished products of the seven GTI pilot countries:

a. Malaysia, Brazil, and Mexico showed the characteristic of increasing inventory, with average values of the inventory indexes of finished products reaching 56.7%, 57.2%, and 55.4%, respectively. Particularly, Malaysia's inventory index of finished products had been remaining in the expansion range for seven consecutive months, indicating a risk of inventory backlog.



b. Indonesia and China were in a "depletion of inventory" as the demand of domestic market rebounded, with average values of the inventory indexes of finished products recorded at 45.0% and 46.0%, respectively.

c. Gabon and Republic of the Congo had relatively low inventory of finished products during the traditional rainy season that resulted in less active production activities. Their average values of the inventory indexes of finished products were recorded at 45.7% and 29.9%, respectively.

08- GTI SUB-INDEX: PURCHASE QUANTITY INDEX

Purchase quantity index measures the monthly increase or decrease in the purchase quantity of raw materials (including components) by timber enterprises in each country. Generally, the more orders enterprises newly obtain, the stronger demand for raw material purchase. Therefore, an increase in the purchase quantity index demonstrates robust market demand.

From November 2022 to September 2023, the average values of the purchase quantity indexes of Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China were 44.1%, 18.9%, 42.8%, 39.5%, 25.9%, 43.2%, and 44.8%, respectively, all below the the critical value

FIGURE 4-15
GTI AVERAGE PURCHASE QUANTITY INDEX FROM NOV. 2022 TO SEP. 2023 (%)

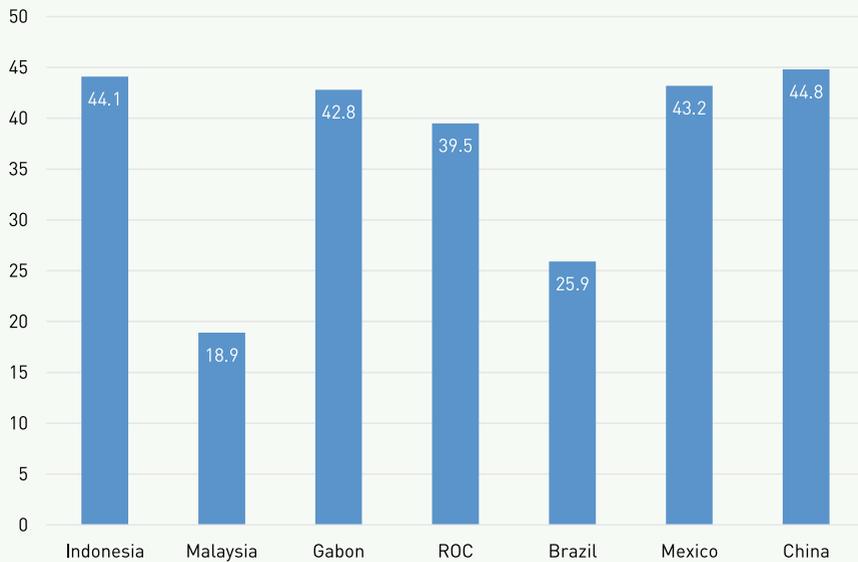
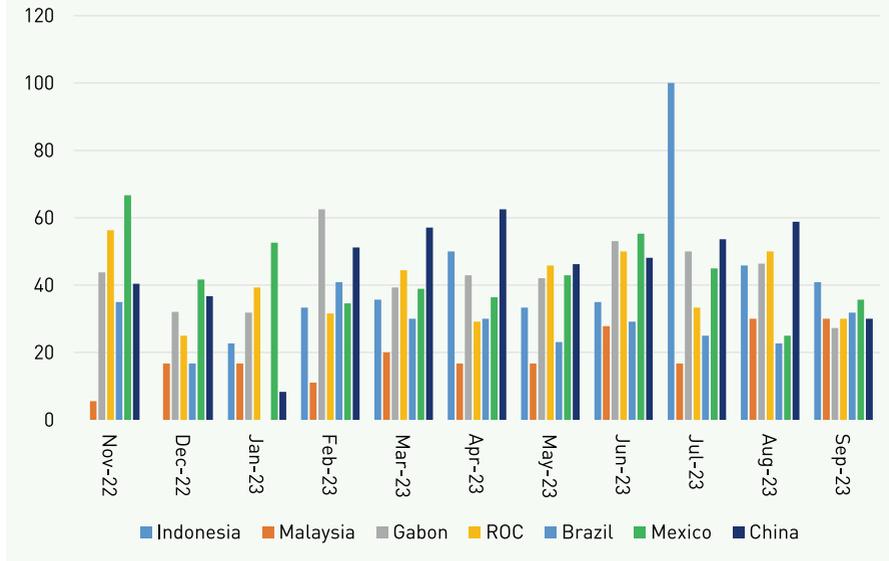


FIGURE 4-16
TREND OF GTI PURCHASE QUANTITY INDEX FROM NOV. 2022 TO SEP. 2023

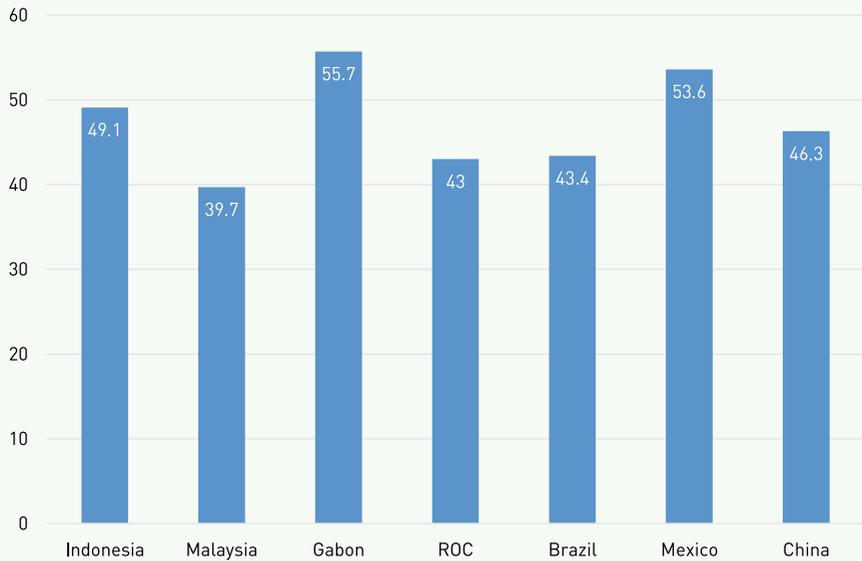


(50%). These figures reflect the current sluggish demand in the international timber market. The subdued demand and the uncertainty about future markets had impacted the enthusiasm for procurement among enterprises. Most enterprises were reluctant to stock up on inventory to minimize capital occupation.

Looking at each country, Indonesia’s purchase quantity index had steadily increased since January 2023 and rose to the critical value (50%) April. The purchase quantity indexes of Malaysia, Republic of the Congo, and Brazil had been consistently running at low levels within the contraction range. Gabon and Mexico saw an increase in purchasing quantity at the beginning of 2023 but were unable to sustain it. China’s purchase quantity index had been in the expansion range for three consecutive months since February this year, due to the demand for raw materials brought about by the increase in orders.

FIGURE 4-17

GTI AVERAGE PURCHASE PRICE INDEX FROM NOV. 2022 TO SEP. 2023 (%)



09- GTI SUB-INDEX: PURCHASE PRICE INDEX

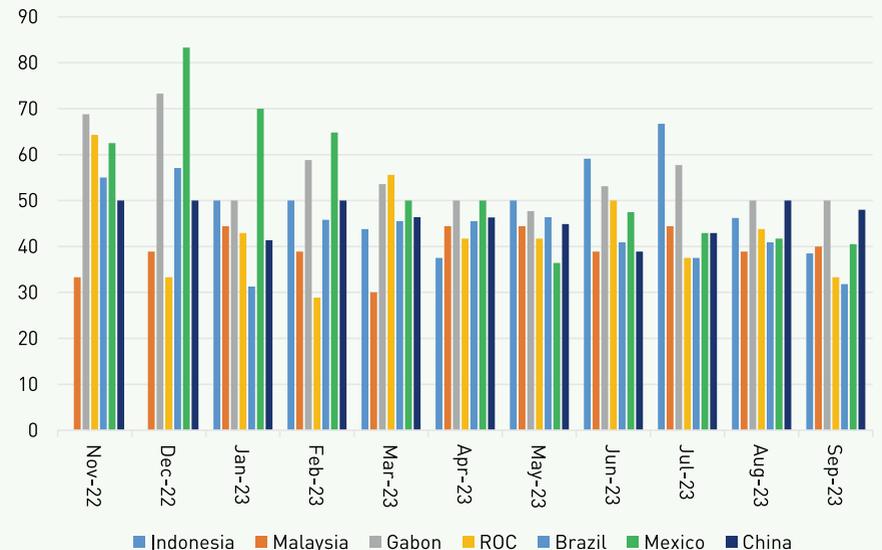
Purchase price index measures the monthly increase or decrease in the purchase price of raw materials (including components) for timber enterprises in each country. It also reflects the balance between supply and demand of raw materials.

From November 2022 to September 2023, there were about two cases around the purchase price indexes of the seven GTI pilot countries:

- a. **Gabon and Mexico:** Over the past year, Gabon had been faced with rapid rise of national diesel and fuel prices, the shortage of adhesives and component materials, as well as occasional rise in the prices of logs and sawnwood. These factors led to an overall rise in purchase costs. From November 2022 to September 2023, the average values of purchase price indexes of Gabon were 55.7%. Mexico experienced the same thing from November 2022 to May 2023, leading to high average value of purchase price indexes (53.6%).
- b. **Indonesia, Malaysia, Republic of the Congo, Brazil, and China:** The average values of purchase price indexes were 49.1%, 39.7%, 43.0%, 43.4%, and 46.3%, respectively. Five countries had shown a sustained decline in purchase prices over the past year, while the other four countries, except for certain months when purchase prices temporarily stabilized, had experienced a continuous downward trend in raw material purchase prices.

FIGURE 18

TREND OF GTI PURCHASE PRICE INDEX FROM NOV. 2022 TO SEP. 2023

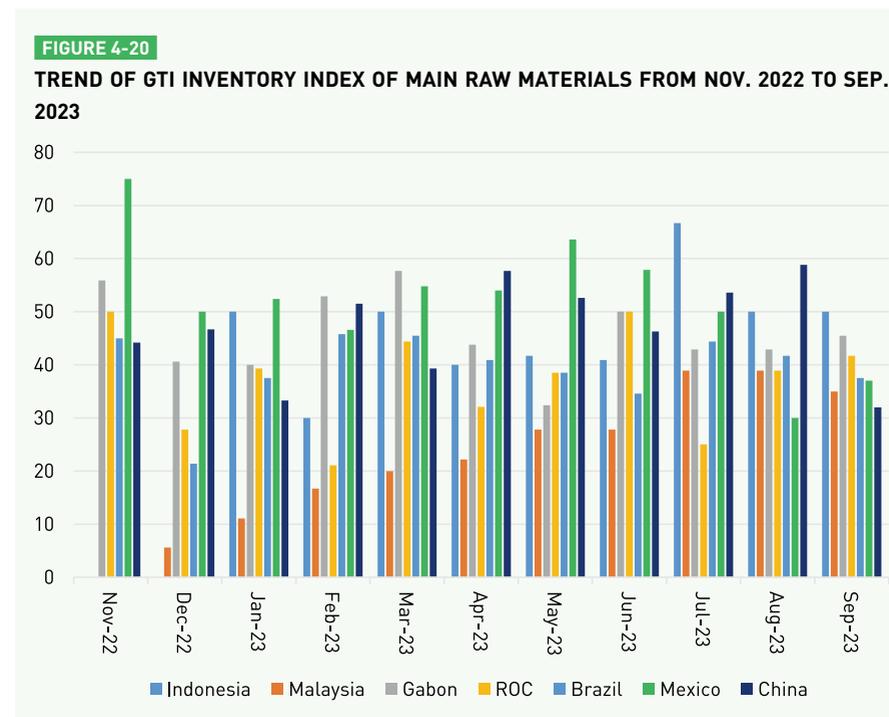
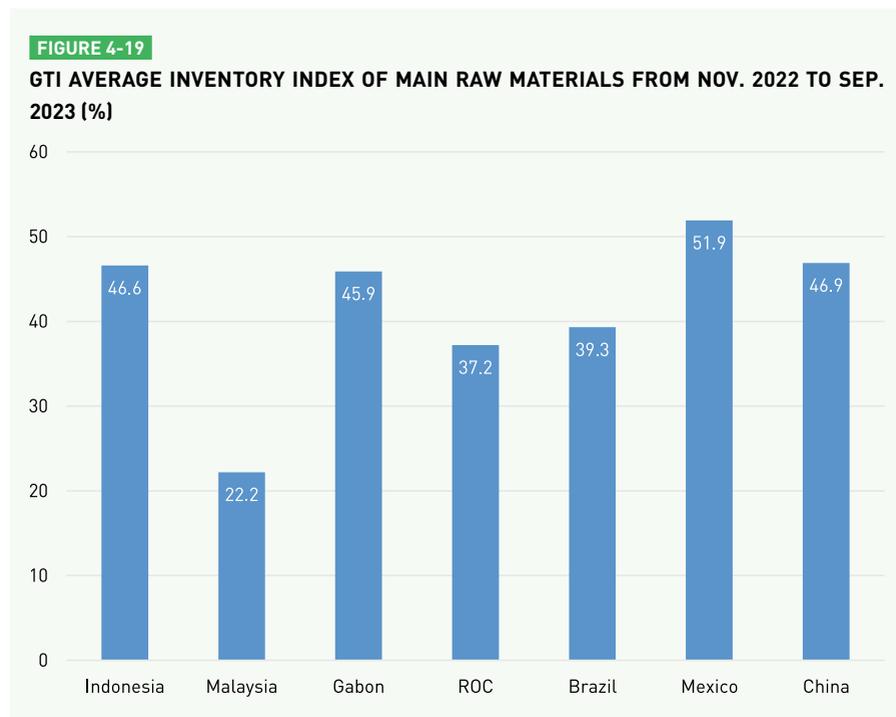


10- GTI SUB-INDEX: INVENTORY INDEX OF MAIN RAW MATERIALS

Inventory index of main raw materials measures the monthly increase or decrease in the inventory of main raw materials (including components) of timber enterprises in each country. Generally, the inventory of raw materials is an indicator of manufacturers' assessment of business conditions. If they anticipate a rebound of future demand, manufacturers will increase their purchase and stock of raw materials.

From November 2022 to September 2023, the average values of inventory indexes of main raw materials of Indonesia, Malaysia, Republic of the Congo, Gabon, Brazil, Mexico, and China were 46.6%, 22.2%, 45.9%, 37.2%, 39.3%, 51.9%, and 46.9%, respectively. There were about there cases around the inventory indexes of main raw materials of the seven pilot countries:

a. Indonesia, Gabon, and China: The inventory indexes of raw materials fluctuated around the critical value, reflecting a lack of confidence among enterprises in future business conditions, and the excessive ex-factory frequency of raw materials.



b Brazil, Malaysia, and Republic of the Congo: The inventory indexes of main raw materials remained generally stable below the critical value, indicating that most GTI enterprises in these countries focused on reducing inventory to free up funds tied up in raw materials.

C Mexico: The average value of the inventory indexes of main raw materials was 51.9%. Except for February, August and September 2023 when it registered 46.6%, 30.0% and 37.0% the indexes had been remaining above the critical value in other months. In a situation of insufficient demand, the increase of raw materials inventory in Mexico was a "passive" inventory backlog.

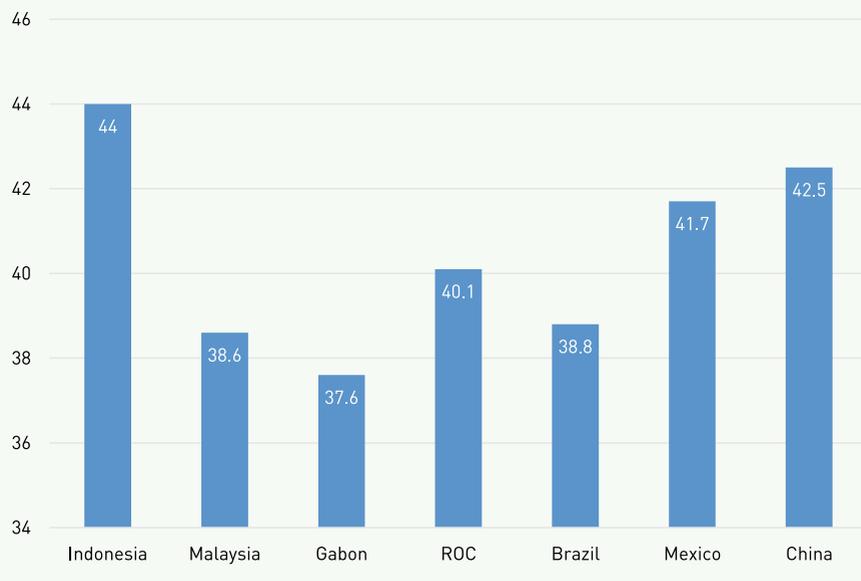
11- GTI SUB-INDEX: PRODUCTION AND MANAGEMENT EMPLOYEES INDEX

Production and management employees index measures the monthly increase or decrease in the number of main employees involved in production activities of timber enterprises in each country. It is a strong indication of the situation of employment absorption of a country's timber industry. It is worth noting that due to the low entry barriers in the timber industry, in countries where industrial structures are transitioning and upgrading towards advanced manufacturing, the number of employees in the timber industry may remain in a long-term contraction state. Therefore, the employees index below the critical value alone is not a sufficient basis for concluding that employment is continuously deteriorating. For analysis and judgement, it's also necessary to consider the industrial structure of a country.

From November 2022 to September 2023, the average values of production and management employees indexes of Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China were 44.0%, 38.6%, 37.6%, 40.1%, 38.8%, 41.7%, and 42.5%, respectively, all below the critical value (50%). Specifically:

a. Indonesia, Gabon, Brazil, Republic of the Congo, and Mexico: The production and management employees indexes gradually oscillated upward within the contraction

FIGURE 4-21
GTI AVERAGE PRODUCTION AND MANAGEMENT EMPLOYEES INDEX FROM NOV. 2022 TO SEP. 2023 (%)



range. This indicates that although the employees in the local timber industry had decreased, the decline was gradually narrowing.

b Malaysia: The values of production and management employees indexes decreased from 40% in November last year to 38.6% in September this year. The GTI enterprises in Malaysia showed a trend of employees reduction.

C China: The production and management employees indexes had been running within expansion range at or above the critical value since February, March and April 2023. After April, the index continued to fluctuate shortly around the critical point, this indicates that the improvement in business conditions was basically stable.

FIGURE 4-22
Trend of GTI Production and Management Employees Index from Nov. 2022 to Sep. 2023

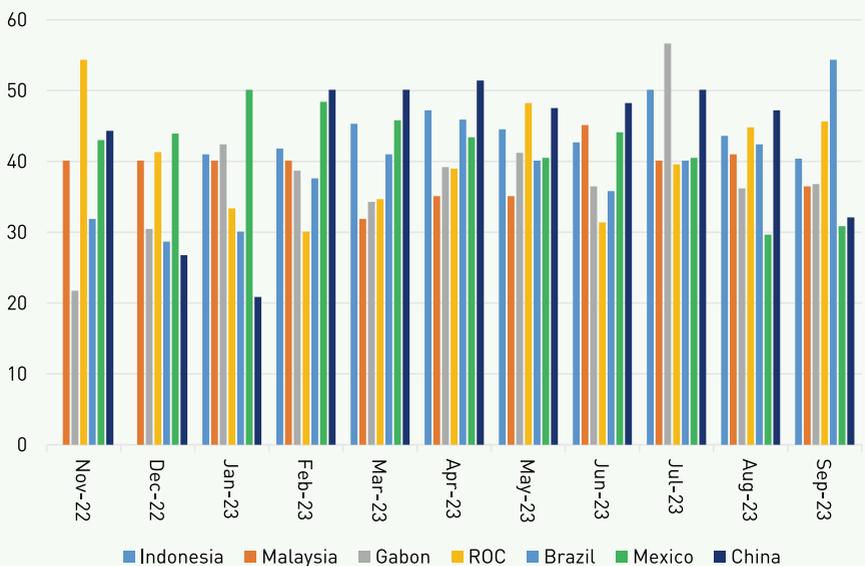
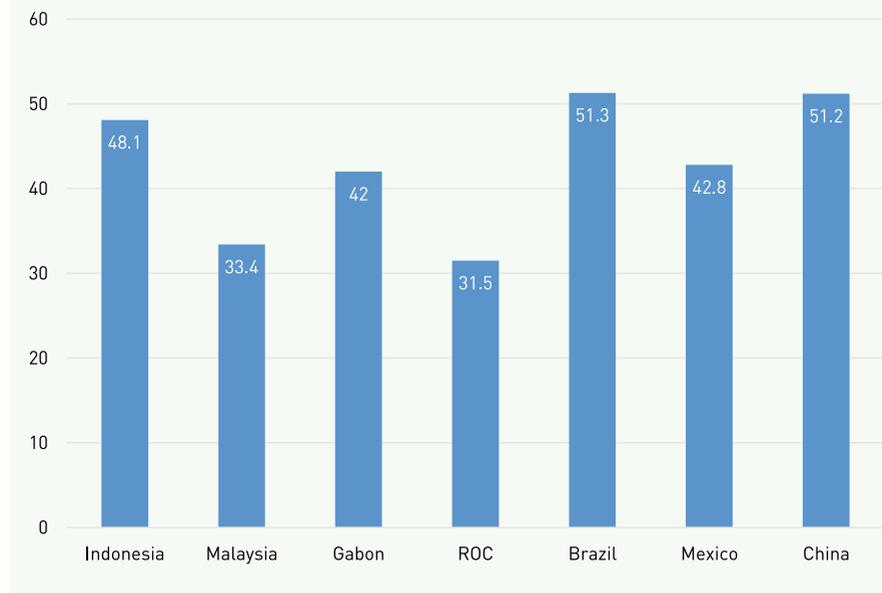


FIGURE 4-23
GTI Average Delivery Time Index from Nov. 2022 to Sep. 2023 (%)



12- GTI SUB-INDEX: DELIVERY TIME INDEX

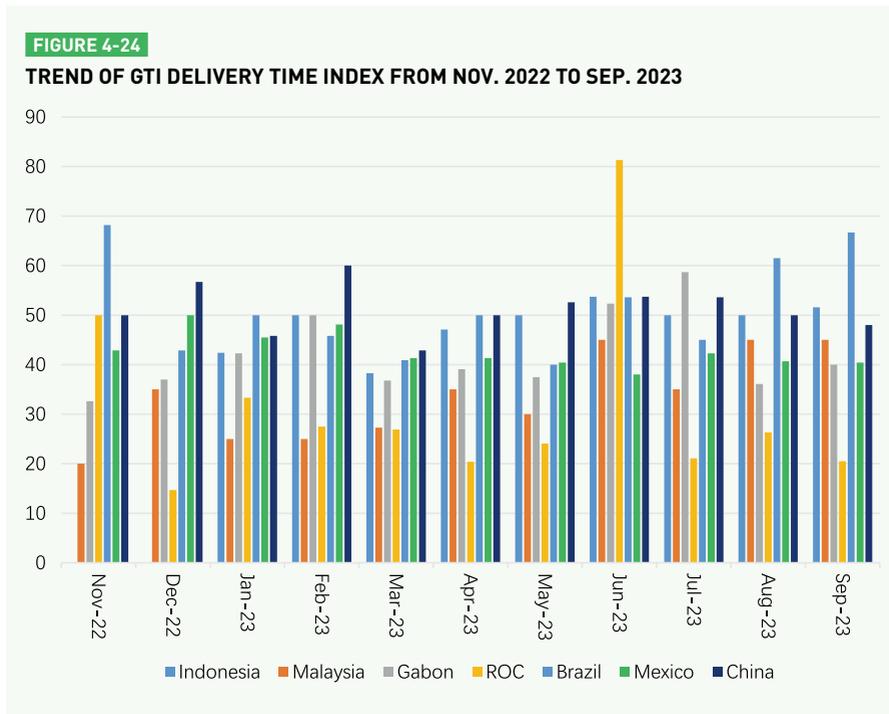
Delivery time index measures the monthly increase or decrease in the delivery time of suppliers of timber enterprises in each country. Generally, longer delivery time and slower delivery speed may indicate a good situation of orders in the industry, where logistics are unable to deliver goods on time. Therefore, a slower delivery actually represents a better business condition for timber enterprises.

From November 2022 to September 2023, the average values of the delivery time indexes of Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico and China were 48.1%, 33.4%, 42.0%, 31.5%, 51.3%, 42.8%, and 51.2% respectively.

a. Indonesia, Malaysia, and Mexico: The values of delivery time indexes of these countries had been oscillating around the critical value for the past six months, indicating relatively stable supplier delivery for timber enterprises in these countries, without significant delays in delivery time.

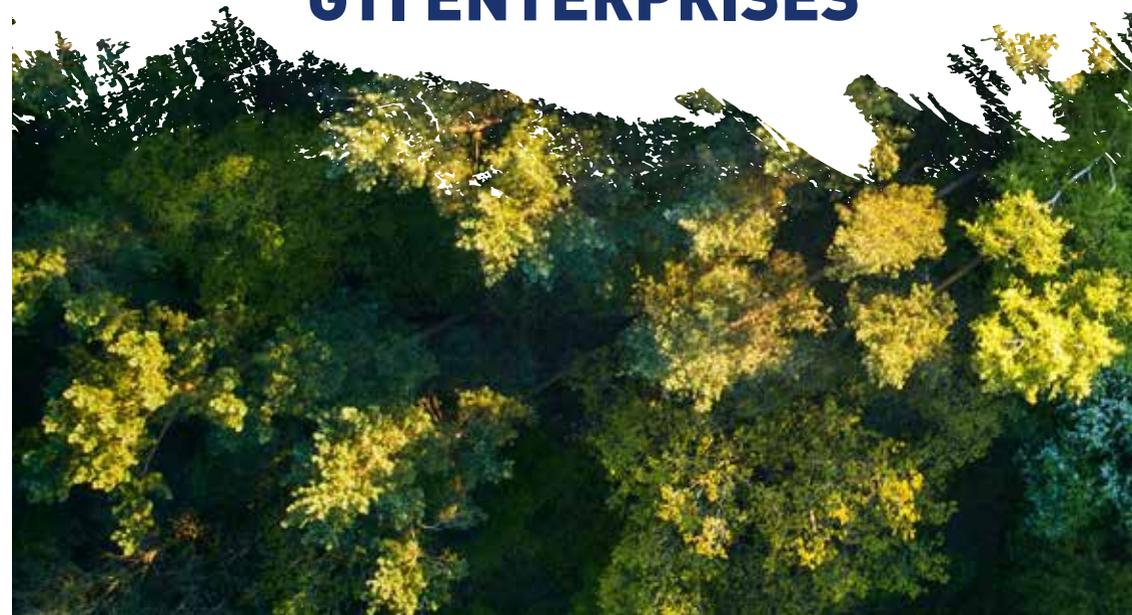
b Gabon, Republic of the Congo and Mexico: The values of delivery time indexes had been consistently low, below the critical value. However, the transportation infrastructure of the three countries was relatively weak, and logistics delivery might be affected by road collapses during the rainy season.

C Brazil and China: The average value of delivery time indexes of Brazil and China was 51.3% and 51.2%. Except for a few months, it had been consistently above the critical value. This reflects some delay in supplier logistics delivery, but overall it remained stable and didn't have a significant impact on the production and operation of timber enterprises.



PART 5

ANALYSIS ON PROBLEMS AND SUGGESTIONS REPORTED BY GTI ENTERPRISES



PART 5

ANALYSIS ON PROBLEMS AND SUGGESTIONS REPORTED BY GTI ENTERPRISES

In addition to objective questions used to calculate index values, the questionnaire of Global Timber Index (GTI) also includes subjective questions to investigate the problems and challenges faced by pilot countries' timber enterprises in their production and operations during the period, and to seek enterprises' suggestions and opinions on how to address the current problems. Subjective questions can also serve to verify the authenticity of objective data and to provide more detailed information.

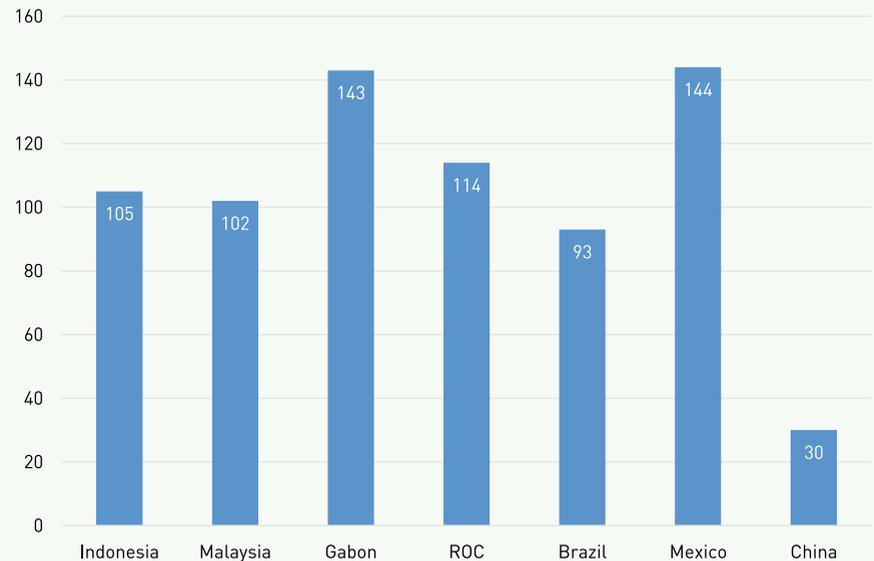
01- FEEDBACK OVERVIEW

From November 2022 to September 2023, a total of 731 cases of problems and challenges were reported by the sample enterprises of pilot countries, including Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, Mexico, and China. Among them, Mexico had the highest number of reported problems with 144, followed by Gabon and Republic of the Congo.

The problems and challenges reported by the enterprises involve various aspects, such as raw material supply, production & operations, market demand, policy measures, weather conditions, etc. The majority of the reported problems are production & operations problems, totaling 233 and accounting for 31.9%. These mainly include transportation, costs, production

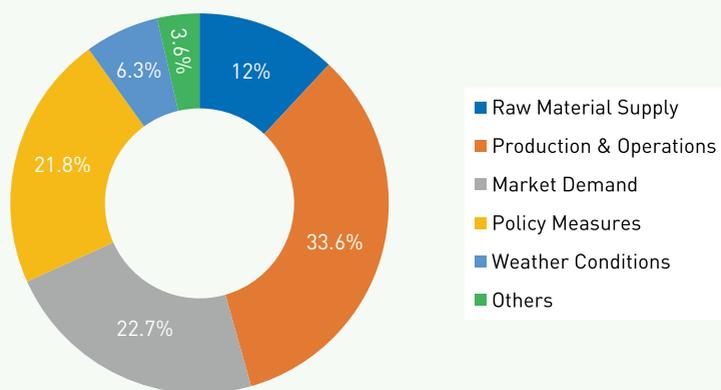
FIGURE 5-1

NUMBER OF PROBLEMS AND CHALLENGES REPORTED BY ENTERPRISES OF GTI PILOT COUNTRIES



Note: the data of Indonesia covers the period from January to September 2023.

FIGURE 5-2
CLASSIFICATION OF PROBLEMS AND CHALLENGES REPORTED BY SAMPLE ENTERPRISES OF GTI PILOT COUNTRIES

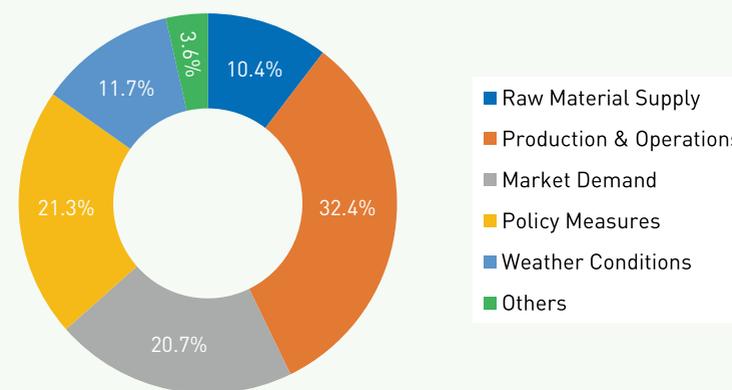


volume, labor, and other problems. Insufficient market demand is the second largest problem reported by the enterprises, totaling 157 and accounting for 21.5%. Specifically, this is mainly about inadequate international demand for timber and the poor product sales.

02- TIMBER-PRODUCING COUNTRIES

Among the seven GTI pilot countries, Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico are timber-producing countries. According to statistics, from November 2022 to September 2023, the GTI enterprises from the six timber-producing countries reported a total of 701 problems and challenges (see Figure 15). These challenges could be classified

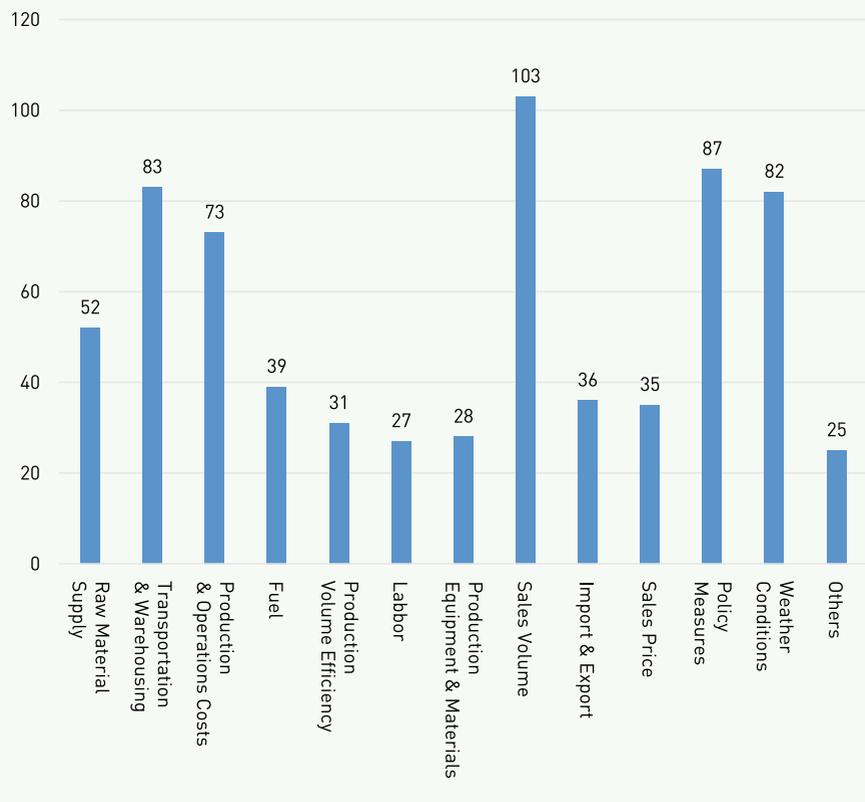
FIGURE 5-3
CLASSIFICATION OF PROBLEMS AND CHALLENGES REPORTED BY ENTERPRISES OF TIMBER-PRODUCING COUNTRIES



into six categories: raw material supply (73), production & operations (227), market demand (145), policy measures (149), weather conditions (82), and others (25). Production & operations problems and market demand problems are the most frequently reported problems.

Further subdividing the production & operations category, it includes transportation & warehousing, production & operations costs, fuel, production volume & efficiency, labor, production equipment & materials, and others, with each subcategory having 83, 73, 39, 31, 27, 28, and 25 reported problems, respectively. For the market demand category, it can be further divided into sales volume, import & export, and sales price, with 103, 36, and 35 reported problems, respectively.

FIGURE 5-4
DETAILED CLASSIFICATION OF PROBLEMS AND CHALLENGES REPORTED BY ENTERPRISES OF TIMBER-PRODUCING COUNTRIES



Comparing all the categories that include the subdivided categories and the categories of raw material supply, policy measures, weather conditions, and others (see Figure 16), we see the top five problems and challenges reported by the enterprises are sales volume (14.7%), policy measures (12.4%), transportation & warehousing (11.8%), weather conditions (11.7%), and production & operations costs (10.4%). Specifically, the biggest problems faced by Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico are reduced orders, demand for policy improvements, transportation disruptions, continuous rainfall during the rainy season and increased operations costs, respectively.

A. DECREASED ORDERS, THE BIGGEST PAIN POINT OF ENTERPRISES, ALSO THE TOP CHALLENGE THAT WAS THE MOST FREQUENTLY REPORTED BY GTI ENTERPRISES IN EACH COUNTRY

From November 2022 to September 2023, the most frequently reported problem from sample enterprises in the six pilot countries (Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico) was the problem of decreased orders, accounting for 14.7% of the total reports. Among them, the problem appeared in Brazil, Malaysia, and Indonesia most prominently, with the proportion of this problem to a country’s total problems being 46%, 40%, and 38%, respectively.

Through analyzing the feedback from GTI enterprises, we see over the past six months, the global economic slowdown, geopolitical conflicts, and the post-pandemic era had led to a decrease in international demand for timber and timber products, which further resulted in lower timber prices and increased inventory, impacting the timber-producing countries that supplied raw materials. For example, Brazil reported market instability domestically and oversupply in foreign markets, leading to a decrease in timber sales. And some enterprises’ export revenue couldn’t even cover their costs of raw material. Indonesia reported a decrease in orders from buyers of Australia and New Zealand, accompanied by a decline in prices. Malaysia mentioned full warehouses at the ports of export destinations, challenges in cargo transshipment, and slow exports, which hindered production and cash flow. Additionally, Gabonese enterprises mentioned twice that orders were canceled as certain tree species were listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The direct impact of decreased orders was limiting enterprises' profitability and increasing their operational pressure. To address this outstanding problem, GTI enterprises put forward specific demands and suggestions, including:

- Actively expanding international markets, increasing the market acceptance of new tree species, and developing diversified timber products;
- Establishing online trading platforms to expand the customer base;
- Strengthening investment and cooperation among enterprises;
- Formulating incentive policies to revitalize the domestic and international timber products markets and taking measures to support timber products from sustainable forest management;
- Supporting and encouraging the utilization of waste materials from natural forests through policies to improve the utilization efficiency of timber;
- Reducing tariffs, stimulating export, and adjusting import strategies (suggested government measures);
- Promoting the use of timber in construction to improve the economy and increase timber purchase;
- Streamlining the approval process of CITES tree species licenses.

B. ENTERPRISES' STRONG DEMAND FOR POLICY IMPROVEMENT

From November 2022 to September 2023, among the 316 problems reported by sample enterprises in the six pilot countries (Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico), a total of 44 were related to the demand for policy improvement, accounting for 13.9%. And the enterprises from Republic of the Congo, Mexico and Gabon respectively proposed 19, 11, and 10 items of policy demand, accounting for 32.8%, 17.2%, and 14.1% of respective total reported problems.

The policy demand reported by GTI enterprises mainly focused on harvesting, trade permits, land taxes, and approval procedures. For example, enterprises in the Republic of the Congo mentioned overlapping licenses (such as mining license) in terms of forest concessions.

Additionally, the ban on log export in the Republic of the Congo directly impacted the production activities of timber enterprises. Gabonese enterprises reported complex and costly customs procedures, as well as high land taxes. Mexican enterprises mentioned excessive regulations on commercial plantations, slow issuance of forestry permits and timber transportation documents, as well as cumbersome approval procedures. In terms of the improvement of policy measures, the main suggestions and recommendations provided by GTI enterprises include:

- Enacting tax reduction policies to lower forest taxes, export taxes, etc;
- Improving administrative management and simplifying local customs clearance processes;
- Streamlining permit procedures for tree species covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and providing facilitation measures;
- Reducing forest taxes and expediting document processing by forestry management departments (suggestion of Gabonese enterprises);
- Further coordinating forest management systems and enhancing the reliability of forest concessions (Republic of the Congo enterprises' suggestion to government departments);
- Enacting legislation to regulate timber trade, adjusting forestry management processes, and accelerating approval speeds for forestry-related documents (Mexican enterprises' suggestion to government departments);
- Assisting in lowering tax rates and freight costs of logs (Malaysian enterprises' suggestion to government departments);
- Government may set the reference price of domestic logs and adjust it according to the supply and demand situation (Indonesia enterprises' suggestion to government departments).

C. TRANSPORTATION DISRUPTION, THE CHALLENGE THAT WAS THE SECOND MOST FREQUENTLY REPORTED BY GTI ENTERPRISES

From November 2022 to September 2023, among the 316 problems reported by the enterprise of the six pilot countries (Indonesia, Malaysia, Gabon, Republic of the Congo, Brazil, and Mexico), a total of 83 challenges were directly related to transportation problems. Among

them, transportation problem in the Republic of the Congo were the most prominent, accounting for 38% of all problems reported by Congolese enterprises. Additionally, Gabonese enterprises repeatedly expressed the need for improvement in railway transportation, with some enterprises reporting that the number of freight carriages provided by the Gabon railway company had been unable to meet transportation needs for two years. On December 24, 2022, heavy rain caused a train derailment on the PK333 Ovengue-Boue section of the Transgabonais (Libreville to Franceville). This incident had a significant impact on timber transportation, and it was not until February 8, 2023 that the transportation gradually returned to normal. On that day, Société d'Exploitation du Transgabonais (Setrag) officially resumed operations on the Transgabonais, primarily guaranteeing the transportation of goods such as petroleum, manganese ore and timber.

The poor transportation conditions had led to a decrease in the overall operational efficiency of the timber supply chain, imposing significant constraints on the transportation and production of goods. Timber transportation was stagnant, resulting in extended delivery cycles and increased production costs. In response to this situation, suggestions from the GTI enterprises include:

- Reducing highway fees;
- Seeking more reliable and efficient transportation means;
- Strengthening road maintenance during the rainy season to ensure the transportation of goods;
- Ensure the improvement of transportation infrastructure;
- Improving transportation infrastructure, including roads and bridges, to expedite product transportation;
- Congolese enterprises suggested the government be committed to road maintenance, particularly for some highways, and build bridges to solve the transportation problems of ferries, as the fees for ferries were extremely expensive (even affecting the development of the region);
- Gabonese enterprises suggested the railway operating company prioritize allocating freight carriages to remote stations, enhance the railway company's transportation capacity for

timber products, and develop emergency plans for railway transportation according to the situation of production and sales of logs.

D. RAINY SEASON AFFECTING TROPICAL TIMBER ENTERPRISES CONTINUOUSLY

From November 2022 to September 2023, in countries such as Gabon, Republic of the Congo, Brazil, Malaysia, and Indonesia, continuous rainfall during the rainy season significantly impacted outdoor timber harvesting, timber transportation, and production & processing. For example, Malaysian enterprises reported a decrease in log inventory and high freight costs due to the rainy season. Indonesian enterprises mentioned poor road conditions during the rainy season, which hindered transportation efficiency, especially affecting long-distance transportation of timber and timber products. Gabonese enterprises reported a decrease in log production due to heavy rainfall. Similarly, Brazilian enterprises reported that excessive rainfall affected outdoor production. Enterprises in the Republic of the Congo also mentioned that a large amount of rainfall impacted log production and transportation.

During the rainy season, most enterprises choose to reduce production activities, so it is also the traditional off-season for the timber industry in the pilot countries. To address the impact of rainfall, GTI enterprises in each country have also provided proactive suggestions, including:

- Adjusting operations strategies based on local climate conditions;
- Improving production tools and technologies to cope with the rainy season;
- Government to strengthen road maintenance during the rainy season;
- Scheduling outdoor operations according to seasonal weather, and production shall be properly expanded in dry season.

E. INCREASE OF ENTERPRISES' PRODUCTION & OPERATIONS COSTS

From November 2022 to September 2023, among the 701 problems reported by sample enterprises in the six pilot countries (Indonesia, Malaysia, Gabon, Republic of Congo, Brazil,

and Mexico), a total of 73 problems involved increase of production and operations costs of enterprises, accounting for 10.4%. Mexican, Malaysian, and Gabonese enterprises respectively reported 12, 8, and 7 problems of increased production and operations costs, accounting for 16.4%, 11.0%, and 9.6% of respective total reported problems.

Overall, the increase of production and operations costs of GTI enterprises is attributed to: (1) rising prices of diesel and fuel, (2) increased production costs due to the rainy season, (3) shortages of chemical products such as adhesives, (4) cost increase due to exchange rate fluctuations, (5) increased costs of raw material procurement, and (6) increased transportation costs. For example, Mexican enterprises reported high costs of land and sea transports in September this year. Brazilian enterprises mentioned that inflation in timber-importing countries led to increased tax rates and freight costs. Enterprises in the Republic of the Congo reported extremely high fuel costs and the accumulated debts due to purchasing enterprises not complying with economic agreements. In terms of reducing production and operations costs, the main suggestions and recommendations provided by GTI enterprises include:

- Controlling procurement based on shipment volume to reduce capital occupation, and increasing purchases when prices are low to reduce average procurement costs;
- Changing products structures, producing fewer products that use price-increased materials, and producing more other products while making a good production plan and balancing production capacities;
- Adhering to the principle of “purchase nearby” and minimizing the procurement distance to save logistics costs;
- Seeking new supply channels and finding suppliers that have the intention of unloading excess inventory;
- The enterprises in Gabon suggested the government ensure fuel supply and improving fuel utilization efficiency.

03- TIMBER-PROCESSING COUNTRIES

Among the seven GTI pilot countries, China is the main timber-importing country as well as the main timber-processing country. According to statistics, from November 2022 to September 2023, the Chinese sample enterprises reported a total of 18 challenges and problems, including shortage of raw material supply (50%), increased operations costs (27.8%), decreased quality of raw materials (16.7%), and labor shortage in production (5.5%).

A. PROMINENT PROBLEM OF SHORTAGE OF RAW MATERIAL SUPPLY

From November 2022 to September 2023, among the 30 challenges reported by GTI-China enterprises, there were a total of 16 challenges related to raw material supply, accounting for 53.3%. This indicated that the shortage of raw material supply was the primary bottleneck restricting the development of China’s timber industry. Specifically, the enterprises in China reported a shortage of 20 types of raw materials, as listed in Table 1. In terms of frequency of reporting by the enterprises, oak (including European oak above 1500, European oak above 1200, high-grade oak, and AB-grade European oak), Mahogany and Oak appeared most frequently.

TABLE 5-1
FREQUENCY OF RAW MATERIAL SHORTAGE REPORTING BY GTI-CHINA ENTERPRISES

Raw Material	Reporting Frequency	Raw Material	Reporting Frequency
Common Oak	5	Madhuca Spp.	1
Mahogany	4	Birch	1
Red Oak	4	Fir	1
Mongolian Oak	3	Eucalyptus	1
Impregnated Paper	3	Samrong	1
Log	2		

The direct result of a shortage in raw material supply was an increase in raw material prices, which further led to a significant increase in enterprise costs and affected order delivery. China, as the largest manufacturer of timber products, had long maintained a high degree of dependence on timber imports. The shortage of raw materials severely restricted the development of China’s timber industry. To better address the shortage of raw materials, the suggestions include:

- Controlling procurement based on shipment volume;
- The government to strengthen macroeconomic regulation and take comprehensive measures to stimulate farmers’ enthusiasm of afforestation, so as to increase domestic timber supply, and transform the reliance on international timber supply to reliance on domestic timber supply;
- The government to formulate policies that encourage log import, in reaction to increased production costs and operational challenges caused by the price increases resulting from raw material shortages.

B. INCREASE OF ENTERPRISES’ OPERATIONAL COSTS

From November 2022 to September 2023, among the 30 challenges and suggestions reported by sample enterprises in China, eight directly mentioned the cost increase, with seven of them referring to price increase in raw materials and the other one related to cost increase due to extended procurement and delivery periods.

At the end of 2022, China adjusted its COVID-19 prevention and control measures. However at that time, timber enterprises had not fully resumed normal operations. This resulted in shortage of some timber resources as well as price increase in North American materials. Occurrences of delayed supply were also observed. Black walnut and eucalyptus were the most frequently mentioned timber experiencing price increase (see Table 2). Due to the overall decline in international demand, the prices of timber decreased in general. From November 2022 to September 2023, GTI-China enterprises reported price decrease in 28 types of raw materials, eight more than the number of materials with price increases.

TABLE 5-2
GTI-CHINA ENTERPRISES’ REPORTING FREQUENCY OF PRICE INCREASE OF RAW MATERIALS

Raw Material	Reporting Frequency	Raw Material	Reporting Frequency
Urea	6	Oak	2
Paraffin	5	Fir	1
Water-Resistant Adhesive	5	Pometia Tomentosa	1
Eucalyptus	4	Wood Based Panel	1
Black Walnut	3	Teak	1
Veneer	3	Paint	1
Melamine	3	Miscellaneous Timber	1
Formaldehyde Free Adhesive	3	Diesel Oil	1
High-Density Timber	2	Methanol	1
Impregnated Paper	2	Leather	1
Cylicodiscus Spp	2		

TABLE 5-3
GTI-CHINA ENTERPRISES' REPORTING FREQUENCY OF PRICE DECREASE OF RAW MATERIALS

Raw Material	Reporting Frequency	Raw Material	Reporting Frequency
Methanol	5	Kraft Paper	1
Melamine	5	European Spruce	1
Pometia Tomentosa	4	Cherrywood	1
Ceresin Wax	3	Eucalyptus Wood	1
Formaldehyde Free Adhesive	4	Water-Proofing Additive	1
Eucalyptus	3	Red Oak	1
Dipteryx	2	Medium Density Fiberboard	1
Log	2	Bond Paper	1
Cross-Band Veneer	2	Plate	1
Fir	2	Sponge	1
Locust	2	Ebony Board	1
Particle Board	2	Leather	1
Miscellaneous Timber	2	Poplar	1
Solid Timber	2	Paint	1
Masson Pine	2	Red Oak	1

The most direct impacts of rising raw material prices were the limitation it imposed on enterprise profitability, and the inability to procure raw materials in a timely manner, which in turn affected order delivery time. Some enterprises had to transfer the cost pressure to consumers through price increase. However, in a sluggish market, it was very challenging to shift costs downstream. To address the problem of rising prices of raw materials, the enterprises put forward the following suggestions for consideration:

- Changing products structures, producing fewer products that use price-increased materials, and producing more other products while making a good production plan and balancing production capacities;
- Adhering to the principle of "purchase nearby" and minimizing the procurement distance to save logistics costs;
- The government to formulate policies that encourage log import to alleviate the operational challenges faced by factories due to the shortage and price increase of raw materials;
- The government to help enterprises ease challenges and gain development through financial and tax support measures, such as guiding through special funds, and optimizing the processing of export tax rebate.

C. DECLINE OF RAW MATERIAL QUALITY

From November 2022 to September 2023, among the 30 reported challenges and suggestions from enterprises in China, three of them involved decline of raw material quality, accounting for 16.7% of the total problems. The enterprises reported challenges such as unstable raw material quality, poor timber quality, challenges in procuring high-grade raw materials, and insufficient quantity. To address the problem of low-quality raw materials, the following points may be considered:

- Extending procurement distance appropriately to meet raw material demands and balance raw material quality and procurement costs;
- Strengthening quality control during the procurement process and seeking suppliers that offer better cost-effectiveness;

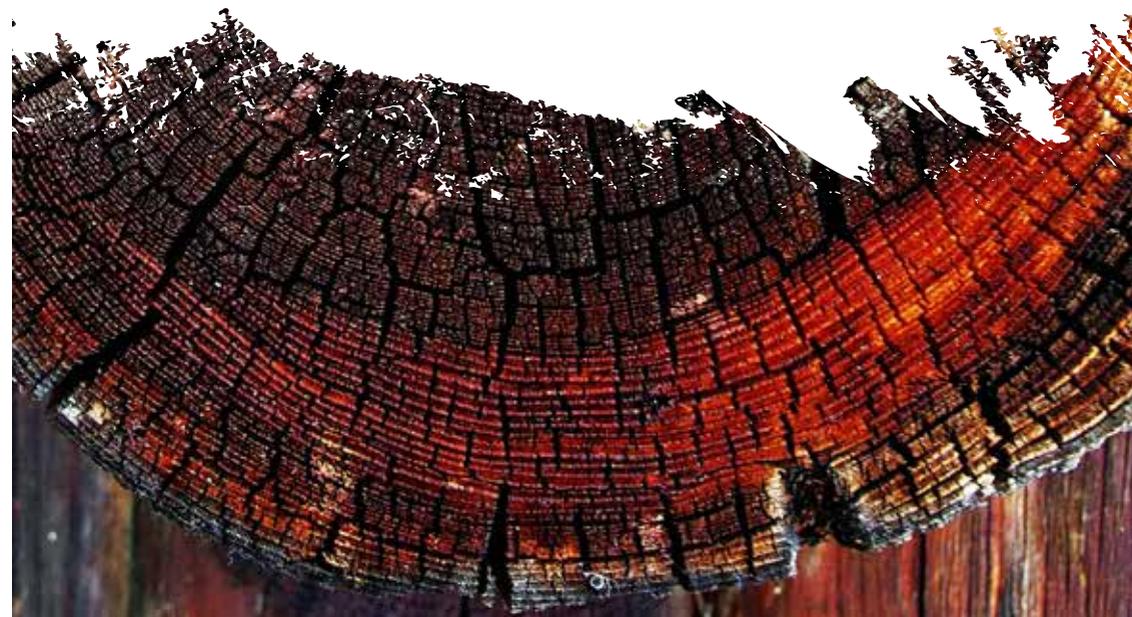
- Guiding consumers to appreciate the natural defects in raw materials to increase the utilization rate of timber products.
- Enhancing supervision over domestic timber supply enterprises (suggestion to government departments);
- Encouraging innovation of processing technologies, such as timber modification, to compensate for the shortcomings in the quality of domestic timber (suggestion to government departments).

D. INSUFFICIENT TRANSPORTATION AND LABOR

Overall, due to the impact of COVID-19 prevention and control measures and then large-scale COVID-19 outbreaks following the release of COVID-19 restrictions, timber enterprises in China faced unique and prominent problems in November and December 2022, particularly in terms of labor shortage and logistical challenges in the production and operations processes, which subsequently increased enterprises' cost of production and management. In January to September 2023, as COVID-19 management has become normalized, except the holiday during Spring Festival, the problem of insufficient transportation and labor has been significantly alleviated. At present, there is no enterprise feedback on such problems. In response to the problems exposed during the difficult period, it is suggested that timber processing enterprises in China actively overcome technological bottlenecks, and properly introduce automated and digital production lines based on production scale, so as to reduce repetitive mechanical production's reliance on manual labor. Additionally, it is hoped that government departments could increase policy incentives and support for the digital transformation of timber enterprises, thereby reducing the costs of digital transformation of small and medium-sized enterprises.



APPENDIX



APPENDIX 1

GTI-INDONESIA INDEX (NOVEMBER 2022-SEPTEMBER 2023)

Month	Comprehensive Index	Harvesting Index	Production Index	New Orders Index	Export Orders Index	Existing Orders Index	Inventory Index of Finished Products	Purchase Quantity Index	Purchase Price Index	Inventory Index of Main Raw Materials	Production and Management Employees Index	Delivery Time Index
Jan-23	34.9	53.8	25.0	30.3	18.8	42.4	57.6	22.7	50.0	50.0	40.9	42.4
Feb-23	39.3	19.6	35.7	38.3	28.6	36.7	33.3	33.3	50.0	30.0	41.7	50.0
Mar-23	40.8	58.3	35.7	40.3	41.7	37.1	43.5	35.7	43.8	50.0	45.2	38.3
Apr-23	50.6	60.7	50.0	58.8	50.0	52.9	35.3	50.0	37.5	40.0	47.1	47.1
May-23	44.9	54.8	41.7	46.3	40.0	48.1	55.6	33.3	50.0	41.7	44.4	50.0
Jun-23	55.3	52.5	78.6	50.0	41.7	44.4	46.3	35.0	59.1	40.9	42.6	53.7
Jul-23	50.0	31.3	50.0	44.4	50.0	50.0	44.4	100.0	66.7	66.7	50.0	50.0
Aug-23	48.1	54.2	57.1	41.9	50.0	38.7	46.8	45.8	46.2	50.0	43.5	50.0
Sep-23	41.0	50.0	28.6	43.5	25.0	48.4	41.9	40.9	38.5	50.0	40.3	51.6

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APPENDIX 2 GTI-MALAYSIA INDEX (NOVEMBER 2022-SEPTEMBER 2023)

APPENDIX 2

GTI-MALAYSIA INDEX (NOVEMBER 2022-SEPTEMBER 2023)

Month	Comprehensive Index	Harvesting Index	Production Index	New Orders Index	Export Orders Index	Existing Orders Index	Inventory Index of Finished Products	Purchase Quantity Index	Purchase Price Index	Inventory Index of Main Raw Materials	Production and Management Employees Index	Delivery Time Index
Nov-22	22.3	8.3	15.0	25.0	20.0	15.0	60.0	5.6	33.3	0.0	40.0	20.0
Dec-22	30.3	0.0	30.0	30.0	30.0	30.0	60.0	16.7	38.9	5.6	40.0	35.0
Jan-23	26.6	0.0	25.0	25.0	25.0	30.0	60.0	16.7	44.4	11.1	40.0	25.0
Feb-23	22.9	20.0	20.0	15.0	20.0	20.0	60.0	11.1	38.9	16.7	40.0	25.0
Mar-23	22.0	8.3	27.3	9.1	13.6	22.7	59.1	20.0	30.0	20.0	31.8	27.3
Apr-23	30.5	40.0	40.0	20.0	20.0	25.0	55.0	16.7	44.4	22.2	35.0	35.0
May-23	28.0	41.7	25.0	25.0	20.0	25.0	50.0	16.7	44.4	27.8	35.0	30.0
Jun-23	40.1	58.3	44.4	35.0	30.0	15.0	60.0	27.8	38.9	27.8	45.0	45.0
Jul-23	34.7	42.9	22.2	40.0	20.0	30.0	50.0	16.7	44.4	38.9	40.0	35.0
Aug-23	37.9	18.8	27.3	40.9	38.9	27.3	59.1	30.0	38.9	38.9	40.9	45.0
Sep-23	37.2	42.9	35.0	36.4	36.4	31.8	50.0	30.0	40.0	35.0	36.4	45.0

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APPENDIX 3

GTI-GABON INDEX (NOVEMBER 2022-SEPTEMBER 2023)

Month	Comprehensive Index	Harvesting Index	Production Index	New Orders Index	Export Orders Index	Existing Orders Index	Inventory Index of Finished Products	Purchase Quantity Index	Purchase Price Index	Inventory Index of Main Raw Materials	Production and Management Employees Index	Delivery Time Index
Nov-22	25.6	15.9	25.0	15.2	10.5	19.6	52.2	43.8	68.8	55.9	21.7	32.6
Dec-22	28.2	23.9	21.4	23.9	22.5	19.6	45.7	32.1	73.3	40.6	30.4	37.0
Jan-23	33.0	33.3	29.2	23.1	22.2	23.1	50.0	31.8	50.0	40.0	42.3	42.3
Feb-23	45.1	45.5	35.7	52.3	40.6	43.2	38.6	62.5	58.8	52.9	38.6	50.0
Mar-23	45.6	55.3	46.9	52.6	43.3	39.5	52.6	39.3	53.6	57.7	34.2	36.8
Apr-23	42.4	41.3	40.0	47.8	47.1	41.3	47.8	42.9	50.0	43.8	39.1	39.1
May-23	33.8	32.7	23.9	35.7	26.3	37.5	37.5	42.1	47.7	32.4	41.1	37.5
Jun-23	44.3	61.4	47.5	40.9	30.0	43.2	47.7	53.1	53.1	50.0	36.4	52.3
Jul-23	51.3	60.9	47.6	50.0	42.1	45.7	50.0	50.0	57.7	42.9	56.5	58.7
Aug-23	37.2	47.2	41.2	33.3	46.7	33.3	44.4	46.4	50.0	42.9	36.1	36.1
Sep-23	30.7	32.1	15.4	30.0	34.6	36.7	36.7	27.3	50.0	45.5	36.7	40.0

APPENDIX 4 GTI-ROC INDEX (NOVEMBER 2022-SEPTEMBER 2023)

APPENDIX 4

GTI-ROC INDEX (NOVEMBER 2022-SEPTEMBER 2023)

Month	Comprehensive Index	Harvesting Index	Production Index	New Orders Index	Export Orders Index	Existing Orders Index	Inventory Index of Finished Products	Purchase Quantity Index	Purchase Price Index	Inventory Index of Main Raw Materials	Production and Management Employees Index	Delivery Time Index
Nov-22	48.2	50.0	54.5	37.5	40.0	45.8	50.0	56.3	64.3	50.0	54.2	50.0
Dec-22	28.6	37.5	36.7	20.6	28.1	20.6	20.6	25.0	33.3	27.8	41.2	14.7
Jan-23	30.8	30.0	25.0	30.0	17.9	33.3	23.3	39.3	42.9	39.3	33.3	33.3
Feb-23	29.6	31.6	33.3	30.0	28.9	32.5	27.5	31.6	28.9	21.1	30.0	27.5
Mar-23	39.1	34.6	34.6	50.0	43.8	38.5	34.6	44.4	55.6	44.4	34.6	26.9
Apr-23	26.3	24.1	22.2	22.2	14.8	14.8	24.1	29.2	41.7	32.1	38.9	20.4
May-23	35.7	37.0	38.9	29.6	31.6	27.8	29.6	45.8	41.7	38.5	48.1	24.1
Jun-23	36.8	25.0	23.3	25.0	25.0	18.8	25.0	50.0	50.0	50.0	31.3	81.3
Jul-23	34.8	36.1	40.6	36.8	36.4	26.3	28.9	33.3	37.5	25.0	39.5	21.1
Aug-23	36.0	38.9	38.9	31.6	41.2	34.2	31.6	50.0	43.8	38.9	44.7	26.3
Sep-23	34.2	36.4	38.6	27.3	32.4	29.5	34.1	30.0	33.3	41.7	45.5	20.5

APPENDIX 5

GTI-BRAZIL INDEX (NOVEMBER 2022-SEPTEMBER 2023)

Month	Comprehensive Index	Harvesting Index	Production Index	New Orders Index	Export Orders Index	Existing Orders Index	Inventory Index of Finished Products	Purchase Quantity Index	Purchase Price Index	Inventory Index of Main Raw Materials	Production and Management Employees Index	Delivery Time Index
Nov-22	36.1	33.3	27.3	27.3	25.0	40.9	72.7	35.0	55.0	45.0	31.8	68.2
Dec-22	27.0	21.4	16.7	28.6	20.0	42.9	35.7	16.7	57.1	21.4	28.6	42.9
Jan-23	25.9	12.5	16.7	15.0	16.7	25.0	50.0	0.0	31.3	37.5	30.0	50.0
Feb-23	46.5	22.2	50.0	50.0	45.0	29.2	62.5	40.9	45.8	45.8	37.5	45.8
Mar-23	42.4	27.8	45.0	40.9	44.4	31.8	45.5	30.0	45.5	45.5	40.9	40.9
Apr-23	39.6	22.7	45.5	25.0	25.0	20.8	62.5	30.0	45.5	40.9	45.8	50.0
May-23	32.9	25.0	32.1	23.3	23.1	23.3	56.7	23.1	46.4	38.5	40.0	40.0
Jun-23	30.8	18.2	23.1	21.4	20.8	28.6	57.1	29.2	40.9	34.6	35.7	53.6
Jul-23	35.3	44.4	22.2	35.0	18.8	35.0	55.0	25.0	37.5	44.4	40.0	45.0
Aug-23	36.1	36.4	29.2	23.1	13.6	19.2	69.2	22.7	40.9	41.7	42.3	61.5
Sep-23	43.3	25.0	30.0	37.5	30.0	25.0	62.5	31.8	31.8	37.5	54.2	66.7

APPENDIX 6 GTI-MEXICO INDEX (NOVEMBER 2022-SEPTEMBER 2023)

APPENDIX 6

GTI-MEXICO INDEX (NOVEMBER 2022-SEPTEMBER 2023)

Month	Comprehensive Index	Harvesting Index	Production Index	New Orders Index	Export Orders Index	Existing Orders Index	Inventory Index of Finished Products	Purchase Quantity Index	Purchase Price Index	Inventory Index of Main Raw Materials	Production and Management Employees Index	Delivery Time Index
Nov-22	47.9	42.9	50.0	42.9	25.0	42.9	35.7	66.7	62.5	75.0	42.9	42.9
Dec-22	39.4	50.0	50.0	18.8	50.0	31.3	68.8	41.7	83.3	50.0	43.8	50.0
Jan-23	44.2	50.0	39.5	40.9	60.0	38.6	59.1	52.6	70.0	52.4	50.0	45.5
Feb-23	42.5	41.7	42.0	35.0	40.0	36.7	53.3	34.6	64.8	46.6	48.3	48.1
Mar-23	44.4	47.7	47.4	39.1	41.7	26.1	56.5	38.9	50.0	54.8	45.7	41.3
Apr-23	44.1	41.4	44.0	38.3	40.0	35.0	66.7	36.4	50.0	54.0	43.3	41.3
May-23	44.5	60.0	47.6	40.4	58.3	34.6	55.8	42.9	36.4	63.6	40.4	40.4
Jun-23	46.6	43.8	47.5	48.0	50.0	32.0	54.0	55.3	47.5	57.9	44.0	38.0
Jul-23	43.4	48.0	45.2	42.3	60.0	42.3	53.8	45.0	42.9	50.0	40.4	42.3
Aug-23	33.6	28.8	34.1	33.3	25.0	31.5	44.4	25.0	41.7	30.0	29.6	40.7
Sep-23	32.3	34.0	31.0	28.8	25.0	30.8	61.5	35.7	40.5	37.0	30.8	40.4

APPENDIX 7

GTI-CHINA INDEX (NOVEMBER 2022-SEPTEMBER 2023)

Month	Comprehensive Index	Production Index	New Orders Index	Export Orders Index	Existing Orders Index	Inventory Index of Finished Products	Purchase Quantity Index	Purchase Price Index	Import Index	Inventory Index of Main Raw Materials	Production and Management Employees Index	Delivery Time Index
Nov-22	45.0	46.2	42.3	41.2	44.2	48.1	40.4	50.0	37.5	44.2	44.2	50.0
Dec-22	50.7	56.7	60.0	33.3	46.7	40.0	36.7	50.0	42.9	46.7	26.7	56.7
Jan-23	21.5	8.3	16.7	25.0	29.2	33.3	8.3	41.4	25.0	33.3	20.8	45.8
Feb-23	52.4	51.6	51.3	50.0	50.0	51.4	51.2	50.0	50.0	51.5	50.0	60.0
Mar-23	53.9	57.1	64.3	57.1	46.4	46.4	57.1	46.4	35.0	39.3	50.0	42.9
Apr-23	55.8	58.3	59.0	42.9	48.8	47.5	62.5	46.3	43.8	57.7	51.3	50.0
May-23	35.3	42.3	42.3	46.7	42.3	52.6	46.2	44.9	47.1	52.6	47.4	52.6
Jun-23	48.2	48.1	46.3	36.4	46.3	46.3	48.1	38.9	36.4	46.3	48.1	53.7
Jul-23	53.0	50.0	57.1	36.4	42.9	46.4	53.6	42.9	41.7	53.6	50.0	53.6
Aug-23	52.6	55.9	52.9	41.7	44.1	55.9	58.8	50.0	36.4	58.8	47.1	50.0
Sep-23	37.3	34.0	40.0	50.0	44.0	38.0	30.0	48.0	45.8	32.0	32.0	48.0

APPENDIX 8
THE GTI MONTHLY QUESTIONNAIRE-FOR PRODUCER

- Name of your enterprise: _____ *
- Main products of your enterprise (Multi Select):
 - Log
 - Sawnwood
 - Veneer
 - Plywood
 - Wood furniture
 - Other
- Harvesting quantity of timber: How is the harvesting quantity of timber compared with the previous month?*
- Production: How is the production quantity of your main wooden products (such as sawn, veneer, plywood, etc) this month compared with the previous month?*
- New orders: How are the new orders from customers this month compared with the previous month?*

6. Export orders: How are The orders from foreign customers this month compared with the previous month?*

- Increase Same Decrease No export

7. Existing orders: How are the unfinished orders this month compared with the previous month?*

- Increase Same Decrease

8. Inventory of finished goods: How is the inventory of the finished goods of your main products this month compared with the previous month?*

- Increase Same Decrease

9. Purchase quantity: How is the purchase quantity of main raw materials (including components and parts) this month compared with the previous month?*

- Increase Same Decrease We do not purchase raw materials

10. Purchasing price: How is the average purchasing price of main raw materials (including components and parts) this month compared with the previous month?*

- Increase Same Decrease Do not purchase raw materials

11. Inventory of main raw material : How is the inventory of main raw materials (including components and parts) this month compared with the previous month?*

- Increase Same Decrease We do not purchase raw materials

12. Production and management employees: How is the number of production and management employees this month compared with the previous month?*

- Increase Same Decrease

13. Delivery time: How is the delivery time of suppliers this month compared with the previous month?*

- Faster Same Slower

14. What are the main problems or difficulties your company currently facing this month?

15. What is your suggestion for the above problems or difficulties?

16. Your name: _____*

17. Your job: _____*

18. Your contact information: _____*

APPENDIX 9

THE GTI MONTHLY QUESTIONNAIRE-FOR MANUFACTURING COUNTRY

1. Enterprise name _____
2. Organization code _____
3. Main products _____
4. Production: How is the production of your main products this month compared with the previous month?
 Increase Same Decrease
5. Product order: How is the order from customers this month compared with the previous month?
 Increase Same Decrease
6. Export order: How is the export order this month compared with the previous month?
 Increase Same Decrease No export
7. Existing order: How is the unfinished order this month compared with the previous month?
 Increase Same Decrease

8. Manufactured inventory: How is the manufactured inventory of your main products this month compared with the previous month?
 Increase Same Decrease
9. Purchase quantity: How is the purchase quantity of main raw materials (including components and parts) this month compared with the previous month?
 Increase Same Decrease
10. Import: How is the import volume of main raw materials (including components and parts) this month compared with the previous month?
 Increase Same Decrease No import
11. Purchasing price: How is the average purchasing price of main raw materials (including components and parts) this month compared with the previous month?
 Increase Same Decrease
12. What are the main raw materials with increased prices this month? (Please list with common name)

13. What are the main raw materials with decreased prices this month? (Please list with common name)

14. Inventory of main raw material : How is the inventory of main raw materials (including components and parts) this month compared with the previous month?
 Increase Same Decrease

15. Production and management employees: How is the number of production and management employees this month compared with the previous month?

- Increase Same Decrease

16. Delivery time: How is the delivery time of main suppliers this month compared with the previous month?

- Increase Same Decrease

17. Which main raw materials are shortage of supply this month? (Please list with common name)

19. What are your main problems or difficulties in raw material purchasing? What are your comments or suggestions?

20. Your name _____*

21. Your job _____

22. Your contact information _____*

About ITTO

The **International Tropical Timber Organization, ITTO for short**, is an intergovernmental organization promoting the sustainable management and conservation of tropical forests and the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests. It located in Yokohama, Japan. At present, there are 75 ITTO members countries. ITTO's membership represents about 90% of the global tropical timber trade and more than 80% of the world's tropical forests.

About GGSC

Global Green Supply Chains Initiative (abbreviated as GGSC), supported by International Tropical Timber Organization (ITTO), is a global service platform voluntarily established by enterprises, research institutes, industry associations, international organizations and other interested parties involved in forest products R&D, design, manufacturing, distributing, consuming and recycling, to implement "the Initiative to build a collaboration network of global green supply chain of forest products" jointly launched by industry sectors, associations, international organizations and research institutions all over the world who were participants of the International Forum on "Together Towards Global Green Supply Chains – A Forest Products Industry Initiative" held in Shanghai, China in October, 2019.

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