

**Socialist Republic of Vietnam**

**The Nation of Vietnam**  
**Development assistance utilizing special**  
**Prosthetics and Orthotics Technology for**  
**developing countries and Overseas**  
**Business Development Preparatory Survey**  
**for BOP Business**  
**Final Report(Summary)**

**February 2014**

**Japan International Cooperation Agency (JICA)**

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## 1. Research Summary

### 1.1 The Background and Purpose of the Study

In Vietnam, while disabled people still suffering from limb paralysis and damaged joints due to war, polio, and hemiplegia are not just a few, reduction of medical costs and shortened periods of treating these people are desired. Many of them in particular exists in the BOP layer group, and their transition to independent living and social rehabilitation, and furthermore, securing income from employment is highly hoped for through the earliest recovery methods possible.

On the other hand, "CB brace" which is an artificial limb harness invented by Sakima Gishi Co., Ltd., realizes light weight and improvement of the supportive wearability in comparison with conventional joint harness products sold in Japan.

By expanding to Vietnam our successful achievements as a corporation in Japan, we believe we would be able to contribute to the economical activities by providing medical treatment to the BOP layer group and assisting their soon return to society as a workforce, which is highly in demand.

Not only is Vietnam the ideal Market demanding our "CB brace" technology, but for us as a corporation planning to make our global market expansion, Vietnam is certainly an ideal location from a business standpoint to bring our production base to provide to the surrounding nations and their market needs, considering the safety and labor cost aspects of the operation.

The goal of our study, was to make assessments on the possibilities of providing our "CB brace" as an equipment for rehabilitation to disabled people with such disorders as problems relating to the joints, who many of them exist in the BOP layer group in Vietnam, and to give positive impact in substantially shortening the medical treatment period, cutting down the medical costs, and assisting their earliest return to the everyday life in society. Another goal was to assess the possibilities of landing our production base in Vietnam.

So basically, our focus was on the research of the Vietnam market concerning the demand for the "CB brace" which resides in high numbers within the BOP layer group, and also regarding the idea of hiring workers from the BOP layer group for the production and sales of "CB brace", and business development in Vietnam for distribution into its markets and the feasibility of our production and sales business strategic plan for our overseas operations.

### 1.2 Research Methods

In selecting the locations for initiating a thorough research on the demands for "CB brace" and the possibilities of the landing site for the production base in Vietnam, we abided by a certain rule of pattern, that such location should be an area well urbanized, must have such

hospitals that offers orthopedics treatments or rehabilitation service facilities, and it also must be a location that's determined to be a low risk factor for securing operational resources for the production base, and that lead us to select Hanoi City, Ho Chi Minh City and its surrounding areas.

## 1 ) The Outline of the Research

The research covered the local hospitals and clinics where conditions of persons with joint disabilities, polio sufferers, hemiplegia patients were recorded, and the demands and possibilities of the local business development of "CB brace" items.

The research was performed with the cooperation of Medical Doctors, Nurses, Physical Therapists, and Prosthetists who deal with degenerative knee joint treatment at the local hospitals and clinics, to obtain the accurate picture of the current situations. The "CB brace" created by Sakima Gishi were introduced to the above medical professionals, whom they all agreed to verify the effectiveness of the introduced equipment and also research and discuss how it should be distributed in Vietnam.

## 2 ) The Method and Means of Investigation

### ( 1 ) Local Hearings

#### i . Study of Joint Disorders in Vietnam

##### ① Trends on Medical Treatments and its Effectiveness

Physical Therapy, Occupational Therapy, Exercise Therapy, Medical Drug Therapy, Intra-Articular Injection, Surgical Operation Treatment, Brace Equipment Therapy

##### ② The brace's type, material, structure, service life, and price, in a Brace Equipment Therapy

##### ③ The present situation of Medical Treatment and Recovery Status

- The evaluation on the effectiveness of each treatment
- Rehabilitation programs being implemented at Rehabilitation Hospitals

- Cooperation possibilities with Rehabilitation Technician Training Schools
- Current status of rehabilitation for physically handicapped person, poliomyelitis disabled person, and hemiplegic patients

ii . Study of the Main Factors of Joint Disorders in Vietnam

①Investigation of the Causes

Investigation on whether factors such as Age, Gender, Race, Body Weight, History of Knee Injury and Surgical Operation, Osteoporosis, Occupation, Lifestyle, Smoking, and Heredity, has any effect.

②Diagnosis of Knee Pain and Therapeutic Methods

③The Medical Treatment System

The role of Medical Doctors, Physical Therapists, Occupational Therapists, Prosthetists, etc., and the situation of collaboration work

( 2 ) Implementation of the Pilot Project

In the field survey, we visited Hospitals and Rehabilitation Centers around Ho Chi Minh City and Hanoi City, and initiated on-site hearings to the medical groups to study and compare the medical treatment levels that were being offered, for the purpose of securing facilities for cooperation, and we borrowed some space and equipment from these facilities to create a test piece with the materials brought in according to the local design requirements, and had them tested on the patients and disabled persons, and we were provided feedback on usage issues and valuable information for future planning decisions.

3 ) Period of Investigation

A total of 4 visitations to Vietnam were done for performing the local investigations.

Period of Investigation	Location	Purpose of the Study	The Method
From April 22, 2013 Thru April 27, 2013	Ho Chi Minh	Local research on the circumstances of the needs, and production possibilities	Site visits, local hearings, and interviews

From June 11, 2013 Thru June 28, 2013	Hanoi, Ho Chi Minh	Local investigation on the situations, and research of medical facilities cooperating on the pilot project	Site visits, local hearings, and interviews
During July of 2013	Hanoi, Ho Chi Minh	Preparatory investigation for the pilot project	Survey of patients for brace equipment design
From Aug. 17, 2013 Thru Sep. 12, 2013	Hanoi, Ho Chi Minh	Investigation for the pilot project	Research and evaluation of effectiveness by testing the brace equipment on the patients

#### 4 ) The Details of the Initiated Survey

##### ( 1 ) The Research on the Needs and Demands

- The research on the possibilities of shortening medical treatment periods, minimization of medical costs, assisting early recovery back to society through provision of such items as the “CB brace” was done through visiting Public Medical Institutions, Rehabilitation Centers, and City Government Offices, to assess factors such as the situation of the patients, the current level of medical technology offered and current medical needs.

##### ( 2 ) Research on Possibilities of Local Production

- For researching the possibilities of overseas strategy of basing business such as the production and sales of "the CB brace" in Vietnam, factors such as local manufacturing technology levels were done by visiting various manufacturers.

##### ( 3 ) Research on the Local Business Environment

- Through the cooperation of our local partners such as iCED (Vietnam Production Unions), Hanoi National University (VNU Institute of Technology), and local offices of JETRO and JICA, we initiated independent studies according to each research location in Hanoi City and

Ho Chi Minh City as shown in the below graph, in the areas of research on related articles and documents, local hearing investigations, testing of the brace equipment on hospital patients through the pilot project, all for the purpose of obtaining as much information as possible for evaluating the needs, marketability, and the potential of business.

## 2. Research Conclusion

### 2.1 Potential of Business Based on Results of the Study

Based on the results from the research initiated concerning the circumstances of disabled people (potential needs), circumstances of orthopedics and medical rehabilitation and treatments using brace equipments, circumstances of manufacturing/selling/purchasing of brace equipments, circumstances of factory location/work environments and business management environments, we have come to the conclusion of developing the business based on a certain condition. Although there are certain issues to be resolved, we have illustrated in the charts below, the factors indicating a business chance (positive factors), and risk factors (negative factors) we have drawn from the current business environment which is the reasoning behind the conclusion we have reached in taking the step towards the development of business, and the highly prioritized issues that led us in reaching conclusion of the development of business, and also the direction and designated condition of promoting the development of business.

#### ( 1 ) A Market which has Potential for Great Demand

- According to the results from the research initiated concerning the circumstances of disabled people (potential needs), circumstances of orthopedics and medical rehabilitation and treatments using brace equipments, circumstances of selling/purchasing of brace equipments, and also based on the evaluation of the potential market of common medical equipments, the demand for knee joint brace equipment is relatively high and a potential market exists, and we conclude that the market has is still room for development of a sales market for “CB brace” in Vietnam.
- Purchasers of the knee joint brace equipments at a certain price seems to be the wealthy communities who live in large urban areas such as Hanoi, Hai Phong, Da Nang, Ho Chi Minh City. Still even in those cases, price does seem to be a major consumer decision factor. If “CB brace” could manage to be distributed between the price of \$200 to \$500 USDs, it is estimated that there is enough leverage for high competition against other

products made in Germany, United States, or France.

#### ( 2 ) Product Power of “CB brace” as an Differentiated Harness Equipment

- Medical treatment utilizing prosthetics and orthotics still in the diffusion process, harness equipment appliances having the same function as "CB brace" is not found, and also the positive reactions from medical doctors and those patient who actually tried it on during the pilot project were very high, therefore it is believed that the product has its own unique properties and differentiated strength.

#### ( 3 ) Building a Sales System to Elicit Demand

- Increasing sales in Vietnam is believed to be possible by creating an awareness in the public of such an product as “CB brace” through a straightforward method of deepening relations with the hospitals, identifying patient needs through discussions with medical staff groups, and creating an understanding towards the unique characteristics and effects of the “CB brace” through test fitting experiences at the rehabilitation centers.
- By providing explanatory materials and samples, together with training and securing of technical sales personnel with extensive knowledge towards the product, we believe we could expand sales in Vietnam through the cooperation of local sales companies and distributors handling physical therapy equipments, treatment support equipments, medical equipments, and welfare equipments, to convince the medical community such as doctors and their staff, physical and occupational therapy staff and counselors on the characteristics and effects of “CB brace”.

#### ( 4 ) Production Basing Possibilities

- Based on research of the circumstances of prosthetics equipment manufacturing, factory location/work environments, and business management environment, we are able to conclude that, although partial management resources such as materials, factory technicians, etc., needs to be secured through methods such as import, local training, renting, etc., Vietnam has enough potential to become a candidate site location for a



production base.

1) Positive Factors and Negative Factors drawn from the Business Environment

Examination Factors	Positive Factors	Negative Factors
①Disabled candidate for “CB brace”	<ul style="list-style-type: none"> <li>• Approx. 2 million patients who needs “CB brace” equipments.</li> <li>• The Disabled People’s Association showed interest to the medical treatment of cerebral palsy and poliomyelitis.</li> </ul>	<ul style="list-style-type: none"> <li>• There are comparatively few elderly people.</li> <li>• Awareness of treatment for aging and degeneration is small.</li> </ul>
②Status of orthopedics and rehabilitation medical treatment	<ul style="list-style-type: none"> <li>• There are some physicians who introduce patients to the prosthetics equipment shops.</li> <li>• A Doctor of a main hospital admits the performance of the CB brace.</li> </ul>	<ul style="list-style-type: none"> <li>• Treatment relies mainly on surgical treatments, and comparatively organizations and medical specialists regarding rehabilitation treatments are smaller in number and the support being insufficient.</li> <li>• Not much instruction or prescription is given out from medical doctors concerning exercise therapy and physical therapy.</li> <li>• Specialists of exercise therapy and physical therapy are also short in numbers.</li> </ul>
③Situation of medical treatment using prosthetics equipments	<ul style="list-style-type: none"> <li>• Doctors in Vietnam are seeking information on rehabilitation and related equipments.</li> <li>• There are hospitals that are willing to</li> </ul>	<p>Medical treatments that use prosthetics equipment for rehabilitation is not being performed spontaneously.</p> <p>Doctors of orthopedics has little knowledge about rehabilitation</p>

	<p>co-produce a proto-type equipment.</p> <ul style="list-style-type: none"> <li>• There are demands for “CB brace”, but currently there are no items that meets the quality and pricing aspects, and a supply shortage exists.</li> </ul>	<p>treatments.</p>
④Situation of purchasing and sales of prosthetics equipments	<ul style="list-style-type: none"> <li>• There’s a potential for selling to the wealthy class for the price range of 30,000 Japanese Yen.</li> <li>• There are possibilities for insurance coverage.</li> </ul>	<ul style="list-style-type: none"> <li>• Prosthetics equipments are currently not covered by insurance.</li> <li>• Prosthetics equipments are difficult to be sold unless the price tag is below 10,000 Japanese Yen.</li> </ul>
⑤Manufacturing situation of prosthetics equipments	<ul style="list-style-type: none"> <li>• Prosthetics equipment manufacturer in the private sector is existant, and has capabilities to manufacture and repair to some degree.</li> <li>• There is a prosthetics equipment craft shop in the rehabilitation hospital, where production is possible.</li> <li>• Vietnam has excellent sewing skills.</li> <li>• It is possible to place orders to Japanese mold manufactures.</li> </ul>	<ul style="list-style-type: none"> <li>• A French prosthetics equipment manufacturer had expanded to Vietnam, but because it was too expensive the general public could not purchase, therefore the company ended up having to close all operations in Vietnam</li> <li>• Considering repair, overhaul, etc., the metallic mold needs to be imported.</li> <li>• There are currently no certification systems for prosthetists.</li> <li>• Engineers for production of prosthetics equipments are short in numbers, therefore ability development through educational training is necessary.</li> </ul>

⑥Factory location environment	<ul style="list-style-type: none"> <li>• The infrastructure for industrial complex is maintained, and there are also factories for rent.</li> </ul>	<ul style="list-style-type: none"> <li>• Electricity and freight distribution infrastructures are still undergoing the development phase.</li> <li>• It is not possible to own land property.</li> </ul>
⑦Labor environment	<ul style="list-style-type: none"> <li>• Income tax is 28%, which is lower compared to Japan.</li> <li>• Vietnamese have a diligent characteristics, and the willingness to learn for those seeking employment is very high.</li> </ul>	<ul style="list-style-type: none"> <li>• The trial period for an hired employee is designated at 2 months, and the worker’s insurance is mandatory.</li> </ul>
⑧Outcomes of the pilot project	<ul style="list-style-type: none"> <li>• The response received from the fitting tests of the “CB brace” to patients at 4 hospitals, were all high ratings.</li> <li>• Doctors are eager and willing to implement the “CB brace”.</li> </ul>	<ul style="list-style-type: none"> <li>• The price being at the range of 30,000 to 40,000 Japanese Yen, we were advised that it is considerably expensive for patients from the general public, making it difficult for them to purchase, so price adjustments were requested by the reviewers.</li> </ul>

## 2.2 Initial Business Model Hypothesis and Evaluation Items

3 points were derived from the perspective of building a business model to expand the BOP business in Vietnam, and allotted them below with the items to be evaluated.

Perspective of Building a Business Model	Considerations for Commercialization	Evaluation Items
①The BOP layer group as a consumer	Marketability of “CB brace” as a personal use	Market trends
②The BOP layer group as a bearer of work	Possibilities of putting in place a production base creating employment	Manufacturing/sales functions Business potential of the BOP business

③Realization of BOP business	Long-term thinking, social change viewpoint, partnerships, etc.	Situation of Competition Cooperation and partnerships with medical institutions and companies
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To evaluate the initially set hypothetical business model for “CB brace” to expand its production and sales as a BOP business, we have outlined here below, certain items such as market trends, manufacture/sales functions, business potential of the BOP business, situation of competitions, establishment of cooperation and partnerships with medical institutions and companies, which implies to “CB brace” business being powerful at its position, and also our holding strength as a corporation in the implementation of the production and sales business and the significance of this business.

Evaluation Items	The Initially set Hypothetical Business Model	Details of Evaluation Items	Our Corporate Strength
Market trends	<ul style="list-style-type: none"> <li>• Provides prosthetics equipment for rehabilitation of patients with serious cases of joint disorders and hand-and-foot paralysis.</li> <li>• Provision of “CB brace” equipments to the BOP layer group having low incomes and difficulties paying medical expenses.</li> <li>• Provision of an affordable “CB brace” equipment, despite of insufficient coverage by insurance.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential needs, and actualization and purchasing power of potential needs</li> </ul>	<ul style="list-style-type: none"> <li>• Functions and effects of “CB brace”</li> </ul>
Manufacture / sales functions	<ul style="list-style-type: none"> <li>• Production and sales of “CB brace” through cooperation and partnerships with prosthetics equipment related companies in Vietnam</li> <li>• Establishment of a production base</li> </ul>	<ul style="list-style-type: none"> <li>• Procurement of materials</li> <li>• Securing of human resources</li> </ul>	<ul style="list-style-type: none"> <li>• Functions of “CB brace”</li> <li>• Manufacturing strength of “CB brace”</li> </ul>

	in Vietnam	<ul style="list-style-type: none"> <li>• Processing base, factory</li> <li>• Securing of funds</li> </ul>	
Business potential of the BOP business	<ul style="list-style-type: none"> <li>• Distribution of prosthetics equipment to the BOP layer group in Vietnam, which would enable their soon recovery to society at the earliest timeframe</li> <li>• The hiring of workers from the BOP layer group for the production and sales business operations of “CB brace”</li> </ul>	<ul style="list-style-type: none"> <li>• The BOP layer group as an consumer market</li> <li>• The BOP layer group as a bearer of work</li> </ul>	<ul style="list-style-type: none"> <li>• Functions of “CB brace”</li> <li>• Manufacturing strength of “CB brace”</li> </ul>
Situation of competitions	<ul style="list-style-type: none"> <li>• Various workshops within hospitals and corporations could be thought as competitors, but since “CB brace” is so different and originally unique, the number of competitors have been identified as low.</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop within Vietnam</li> <li>• Workshop within a hospital</li> <li>• Overseas manufacturer</li> </ul>	<ul style="list-style-type: none"> <li>• The originality and patentability of “CB brace”</li> </ul>
Cooperation and partnerships with medical institutions and companies	<ul style="list-style-type: none"> <li>• Currently, discussions and cooperations are being formed with medical institutions in Vietnam that would stabilize as a standardized role model, and also analyzing and examining of various issues are being done to resolve existing problems within the medical rehabilitation treatments.</li> </ul>	<ul style="list-style-type: none"> <li>Cooperation needed for business development</li> <li>• Cooperation from medical institutions</li> <li>• Support from related organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Functions of “CB brace”</li> <li>• Cooperationso f companies in Okinawa, with having Sakima Gishi</li> </ul>

	<ul style="list-style-type: none"> <li>Enhancing the awareness towards orthopedics and rehabilitation within the medical institutions, and establishing the organizational system.</li> </ul>	<ul style="list-style-type: none"> <li>Support from the Vietnamese Government</li> </ul>	positioned in the center
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### 3. Fitting Tests on Hospital Patients through Pilot Project

We were able to identify patients in need of “CB brace” through the initiation of the Pilot Project. Overall, most patients had probably assumed that there weren’t much differences with the ordinary harness equipments they were used to, prior to the test fitting of the “CB brace”. But after having tried it on, they all seemed to be surprised at how light the weight felt, and the support characteristics.

From the data collected from the entire research initiated during the Pilot Project, we were able to confirm that “CB brace” had the maximum positive effect on cases of gonarthrosis. The number of patients with bad knees happened to be relatively high, and we received quite a number of requests to decrease the sales price of the “CB brace”, but realistically, we were not in a situation of being able to just decide and confirm the price at that point. We’re afraid purchasing of “CB brace” will be difficult for the target consumer group, unless we somehow manage to bring the price range at 10,000 Japanese Yen, or lower.

From a doctor’s standpoint, “CB brace” had proven itself to be very effective as a rehabilitational equipment, and recognized its characteristics as being usefull for treatments of such patients in need.

The lecture on the importance of rehabilitation, exercise therapy, and muscle training, with scientific evidence data backing up, altogether provided by professor Yamamoto of Kumamoto Health Science University to those interested including medical doctors and physical therapists, had a special impact in raising awareness among the medical community and patient groups, and we were able to conclude that it is very important to spontaneously continue to provide new information and exchange information through evaluation of data.

The Pilot Project’s status of service offered through the Public Medical Institutons and evaluation results.

Items	Items in Detail	Status of Offer / Evaluation Results, etc.
①The treatment’s	Circumstances of Physical Therapy, Occupational Therapy,	<ul style="list-style-type: none"> <li>The existing treatment relies heavily on</li> </ul>

trend and its effectiveness	Exercise Therapy, Medical Drug Therapy, Intra-Articular Injection, Surgical Operation Treatment, and Brace Equipment Therapy	Medical Drug Therapy, Intra-Articular Injection, Surgical Operation Treatments, and not much of Physical Therapy, Occupational Therapy, Exercise Therapy, and Brace Equipment Therapy.
②About brace equipment therapy	The brace's type, material, structure, service life, and price, etc.	<ul style="list-style-type: none"> <li>• High evaluations to the lightness and the support characteristics of "CB brace"</li> </ul>
③The reality of treatment and recovery status	<ul style="list-style-type: none"> <li>• The number of orthopedic doctors, their skills, and the current medical treatments that they offer.</li> <li>• Treatment details of orthopedics and rehabilitations</li> <li>• Evaluation of Effectiveness for each treatment</li> <li>• Rehabilitation programs being administered at rehabilitation hospitals</li> <li>• Cooperation possibilities with Rehabilitation Technician Training Schools <ul style="list-style-type: none"> <li>• Current status of rehabilitation for hemiplegic patients, poliomyelitis disabled persons, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation of orthopedics and evaluation of the department of rehabilitation are low.</li> <li>• Lack of awareness towards the importance of rehabilitation therapies, such as exercise therapy and muscle training.</li> <li>• Lack of physical therapists, occupational therapists</li> <li>• Lack of leader figures</li> <li>• "CB brace" had the maximum positive effect on cases of gonarthrosis.</li> </ul>

#### 4. The Main Challenges for Commercialization

Identified below, are 6 points

**Challenge 1 :** Information about “CB brace” must be provided to hospitals and doctors, and their medical staff continuously, in order to push for reformation of consciousness (current way of thinking), and encourage acquisition of knowledge. In order to realize this, hospitals and doctors, and their medical staff needs to be made aware of the functions of “CB brace”, and also to provide data on the evaluation of the effectiveness of “CB brace”, clinical trials must be done continuously to patients in the BOP layer group at the public hospitals. Our challenge here is about preparing a number of sample type “CB brace” equipment to lending it out free-of-charge.

**Challenge 2 :** In the stages of development, the important challenges are the training of professionals, such as doctors who can show prescription treatments, physical therapists and prosthetists with technology and know-how related to processing and fitting, maintenance, remodeling, etc. In order to solve this task, the challenge here is to realize a organization system in Vietnam consisting of Vietnamese technicians who all have once trained at the Sakima Gishi Co., Ltd.’s Factory and Training Center in Okinawa and returned to Vietnam with extensive knowledge and capabilities of manufacturing sales and creating of “CB brace” equipments according to each patient’s individual needs.

**Challenge 3 :** Much time will be required for the continuation and expansion of business within the market of Vietnam. Therefore not only limiting our possibilities to Vietnam, but it is deemed necessary to proceed and initiate research and analysis of the prosthetics equipment market within the surrounding countries such as Singapore, Thailand, Philippines, Malaysia, Taiwan, China, etc., that have much futuristic potential of creating a customer base.

**Challenge 4 :** As for the future, we plan for the factory in Vietnam to serve as the mother factory, for stabilizing production for distributions into the western markets such as Europe and the Americas, and other operations such as reimportation to Japan. In order to achieve such status, our challenge concerns the initiation of additional evaluations on Vietnam’s business environment, prosthetics equipment/medical environment/medical status, medical institutions, circumstances on the production/sales of brace equipments and factory related informations.

**Challenge 5 :** In developing the business of manufacturing and sales of prosthetics equipments to assist the disabled people within the BOP layer group for their recovery to life in society, hiring of workers from the BOP layer group will be highly encouraged, and as for the demand



of the product, we intend to fulfill not only the demands received from the BOP layer group, but all other people with disabilities will be equally attended. Our challenge resides in the additional evaluation on the marketability and business potential of subjects needed to be carefully examined for the continuity of this business.

**Challenge 6 :** The price setting of the "CB brace" becomes extremely important for the development of business for promoting the use of "CB brace" to the disabled people in the BOP layer groups. Our headquarters are working towards cost deductions, and that's where our challenge resides. We have completed the process of newly creating the metallic mold customized for mass production and processing of the main part items. But there are still some more steps ahead that we will eventually need to clear-up. Additional evaluations need to be initiated for local procurement of accessory components and deduction of manufacturing costs through local hiring of the workforce directly contributing to local operations of lowering the costs for assembly and processing, which would enable the price of the "CB brace" to become significantly affordable for people in the low income groups.

## 5. Business Model Perspective obtained through Research

### 1 ) Main Points for Establishing a Business Model for BOP Business

In order to advance the efforts including what was our mission task for this research, which was to assess the possibilities of assisting the disabled people in the BOP layer group in provision of employment and assisting their recovery to a more quality life in society, we do not want to end it there, where it does not make much difference to a volunteers work, but in order to position these efforts continuously, we have driven the main points here below for establishing a business model for the development of this business.

Main Points	Details
1 ) The understanding of the continuous possibility through the understanding of the market	<ul style="list-style-type: none"> <li>① Understanding the activities and cultures of the people</li> <li>② Elicit potential needs (educational activities, etc.)</li> <li>③ Expansion of purchasing power (micro-finance, etc.)</li> <li>④ Understanding of other stakeholders (NGO etc.)</li> <li>⑤ Ensure the continuity of the environmental society</li> </ul>

<p>2 ) Designing the possibility of evolving</p>	<p>①Ensure scalability by reading ahead of the destination  ②Securing of extensibility by the merit enjoyment (technology transfer, spontaneous business)  ③Securing of deployment power (foreign country deployment etc.)  ④Securing the continuity of business (funding, etc.)</p>
<p>3 )Activation of human resources different from past experiences</p>	<p>①Cooperation with an organization trusted locally  ②Establishment of value chain (distribution network, etc.)  ③Improve the ability of people (ability development, organization, partners, etc.)  ④Clarification of shared goals (function of the economic ecosystem, etc.)  ⑤The establishment of a fair business model (transparency, trust between partners, spontaneous and efficient and effective improvement)</p>

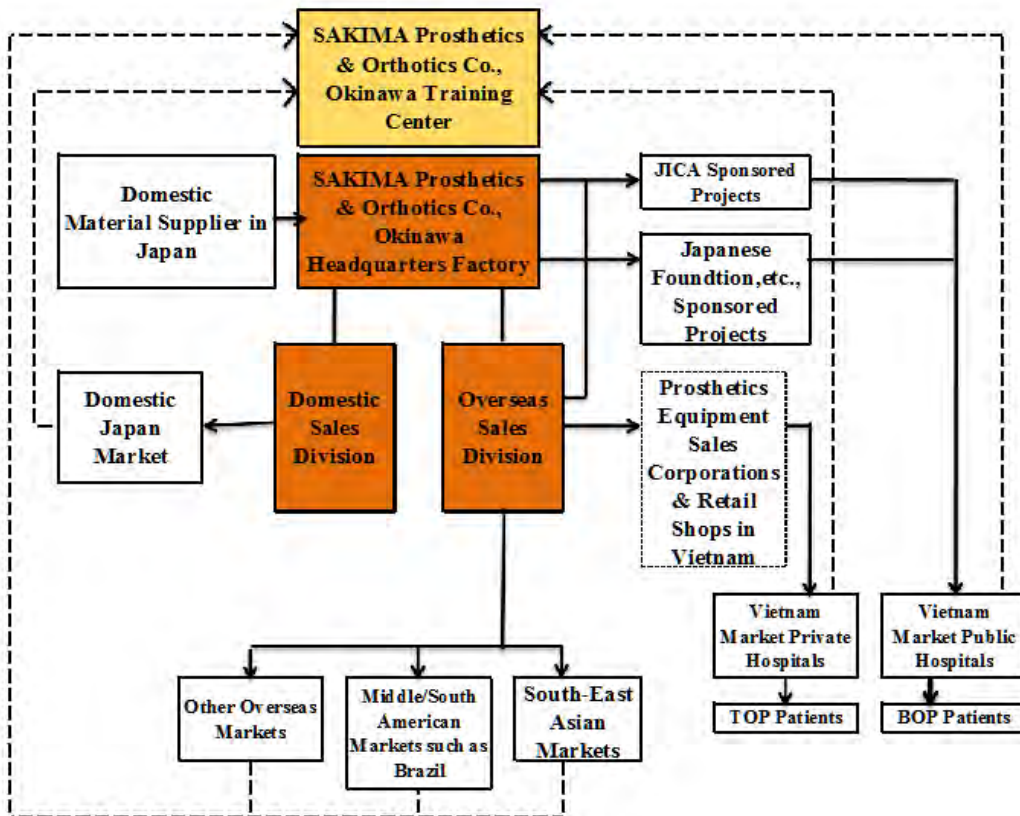
## 6. Business Model : STEP 1

### ( 1 ) Business Model : The Outline of STEP 1

For several years until the head office factory relocated to the town of Kin-cho, Okinawa positions itself on track, and the usefulness of "CB brace" in the Vietnamese market is recognized (three years according to plans), the processing assembly of "CB brace" will be carried out at the Okinawa head office factory, and business activities will be rolled out according to Business Model : STEP 1 shown below, until the completion of the establishment of the Vietnamese factory as the mother factory.

- ① Consider and seek possibilities of lending the equipments to public hospitals at no cost for the BOP layer group, through JICA sponsored projects, Japanese foundation and other organizations sponsored projects.
- ② For TOP patients showing strong trends of being mainly treated in private hospitals, we will conduct sales through sales trading companies and retail stores in Vietnam who are in cooperation with us as our window for overseas sales division.
- ③ At the same time, work towards accepting trainees from Vietnam who will be educated and trained on the details of "CB brace" and procedures of manufacturing, remodeling, adjusting, attaching it to patients, and treating of patients. The curriculum will be offered at our training center in Okinawa, Japan. We will work towards considering the possibilities of having the training expenses of trainees from Vietnam covered by the Government sponsorships programs offered by the Government of Vietnam, or through JICA sponsored projects or Japanese foundation sponsored projects.

Chart 1: Planned Business Model of STEP 1



( 2 ) Business Model : Plan of Activity for STEP 1

In STEP 1, we will clarify the differences of the sales route between the BOP layer group and the TOP layer group, both contributing to the business development of STEP 2, and arrange preparations.

The supply of “CB brace” basically will be based upon exports from Japan, and we will provide the part materials (Arm B) to the CB specialized technician for it to be assembled to a “CB brace” equipment, and also have the sales and after maintenance followed-up and handled.

The period for popularization, PR, and market research for STEP 1 is planned to be approximately 3 years, and Sakima Gishi has no further plans for new capital investing during the STEP 1 phase.

During the STEP 1 phase (3 years), the target number of sales of the “CB brace” is set to at 680 or more.

① Price Settings

A patient receiving treatment for gonarthrosis at a rehabilitation hospital saw the "CB brace" equipment used for the pilot project, and had told us he would like to purchase one and would like to first know the price. Since the model which the patient was looking at was specially a sample product, we wanted to see the amount the patient was willing to pay, so we selected a price of "\$300" which actually is half the price of what it would normally cost. The patient's reply was positive, and told us that's affordable.

We interviewed one of the store managers for a prosthetics equipment store, and from this interview, we were able to find out that even if the price of "CB brace" was set at 30,000 Japanese Yen, comparatively wealthy people could afford to purchase the equipment. But since the majority of patients are expected to be from the low income group, many of the opinions brought to us have stated that the wide spreading of "CB brace" would be difficult unless we manage to set the price at 10,000 Japanese Yen, or lower.

Currently, we are planning to set the price at around 30,000 Japanese Yen initially, and then through the efforts of increased procurement of materials domestically within Vietnam, we anticipate to gradually lower the price down to what would be seen as more affordable to the general public. We would also like to follow-up discussions with the Government of Vietnam, for exchanging information and seeking together the most appropriate and effective methods for assisting the patients within the BOP layer group.

The price of the "CB brace" equipment for public hospitals is intended to be about 7,500 Japanese Yen each, and from there the price that the hospital decides to sell to the patient is solely depended on the hospital itself. The differed amount from our selling price will be covered by funds from the sponsored project. (The losses in red will be covered by subsidies)

## ②Training

Throughout our research, we received opinions requesting for a system to be created to receive training on the production/maintenance/management of the "CBbrace" in Japan. Therefore we are planning to create a program which would enable future technicians and craftsman from Vietnam to receive training in Okinawa, prior to their local start of participating in the production of "CB brace" equipments.

The training will cover topics beginning from basic techniques such as measurements, design, production, fitting, to advanced courses on motional instructions of rehabilitation and the evaluation of effectiveness. The training period will be between 1 to 3 weeks in duration.

In further details

- The training of CB specialized technicians will begin utilizing the training facility at the new factory opening in the Ginbaru area in April of 2014.

- Through the CB specialized technician training of the trainees, recommended by the Vietnamese hospitals (public hospitals selected from the BOP research project), we will set forth to popularize and PR the “CB brace”, and initiate market research and develop advanced knee harness equipments for the BOP layer groups in Vietnam.
- The training of the CB specialized technicians, will consist of a member of 10 trainees who each have received recommendations from at least 2 or 3 hospitals and the training program is expected to commence in Year 2014. In the future, we plan to open the window of opportunity to Private Hospitals and Commercial Entities as much as possible, and continue to increase the number of fostering and developing new CB specialized technicians. Through the efforts of CB specialized technicians trained in Okinawa, research will be initiated on the possibilities of sales to the TOP layer groups and make preparations for product distribution in STEP 2.

### ③Building the Distribution Channels and Distribution Systems

For building the Distribution Channels, we are able to gain cooperation and assistance from the 4 hospitals which participated in the pilot project. The 4 hospitals have mentioned that they are eager to introduce patients, once time comes for the “CB brace” to be manufactured and sold in Vietnam. Concerning wide spreading to the BOP layer groups, the initial price of the “CB brace” equipment might not be so affordable, one hospital had mentioned about the possibilities of having 100 to 200 “CB brace” equipments purchased by the hospital side, and providing them to the BOP layer groups in their treatments.

As for the most part, since most hospitals had welcomed us and our purpose of visit to their facilities, we believe in the importance of continued communication and involvement in STEP 1, to gain further understanding and cooperation from our partners in Vietnam.

Regarding the distribution, we could gain cooperation from the local prosthetics equipment stores. There were some owners of the store who expressed great interest towards the “CB brace” equipment, and they were confident that it is would be possible to sell it for a high price.

According to the above data, we will try segmenting our target customer groups into Upper Class, Middle Class, and the BOP layer group for building of our distribution strategies.

Much time will be required for the continuation and expansion of business within the market of Vietnam. Therefore not only limiting our possibilities to Vietnam, but we intend to research the prosthetics equipment market within the surrounding countries such as Singapore, Thailand, Philippines, Malaysia, Taiwan, China, etc., that have much futuristic potential of creating a customer base.

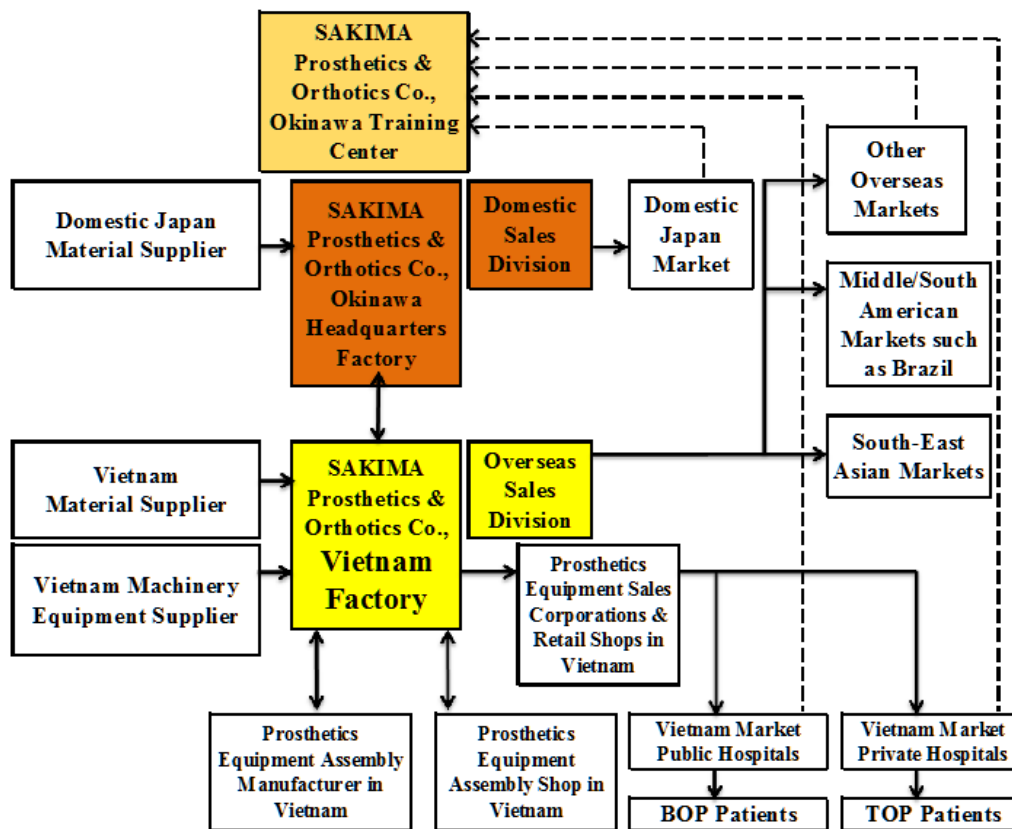
## 7. Business Model : STEP 2

### ( 1 ) Business Model : The Outline of STEP 2

As our Vietnam factory setup plan as described in Business Model : STEP 1 makes progress, and when the below conditions have reached a satisfying level with the business conditions reaching a status prepared to receive a “Go!” sign (3 years ahead from now according to plans), the next step will be to build a business model as shown in the below chart, and one of the priorities would be to work towards transforming the Vietnam factory into a mother factory prepared for advanced business operations.

- ① If successful in building a bond of trust with the local hospitals and orthopedic doctors, throughout the 3 years of JICA sponsored projects, Japanese Foundation and other organization sponsored projects.
- ② If successful in having the treatments performed domestically in Vietnam using “CB brace” to get covered by insurance and if we succeed in alleviating the patients financial burden of receiving such treatments.
- ③ Upon succeeding in creating a foundational base for the procurement of materials, training and securing of workers, securing of a factory, securing of the distribution channel, and once we reach the point of capability of executing the plan for a highly competitive processing and assembly of “CB brace” based on Quality, Delivery Time, and Cost factors.
- ④ Based on our Global Expansion Strategy which includes focus towards South-Eastern Asia including Japan sales, once our Vietnam factory’s value of existence as a mother factory has been well recognized both internally and externally.

Chart 2: Planned Business Model of STEP 2



( 2 ) Business Model : Plan of Activity for STEP 2

Based on the market research in STEP 1, we have actualized the Production and Sales Business Plan for Vietnam operations.

- Production in Vietnam will be based on the production factory in view of hiring workers from the BOP layer group, and the development of business and expansion will be based on the contributinal effort of assisting the disabled people with knee joint disorders on their journey forward to a better quality of life in society.
- The Vietnam factory will play a major role as the base factory for international operations together with other regional countries including Brazil, Peru, for Sakima Gishi.
- As for our sales target group, we will not limit our customer base to only the BOP layer groups in Vietnam, but also focusing on the middle income class or higher by providing a high grade



product, such as having partial materials imported from Japan as such materials as “Arm B” etc., for those high grade products

- For the distribution route to the BOP layer groups developed by the public hospitals during STEP 1, Sakima Gishi is considering providing the structural part materials (Arm B) for a low price (2,500 Japanese Yen, Each) to the CB specialized technicians at the public hospitals, which will then be assembled into a “CB brace” equipment and distributed, as one method for continuance.
- As for plans concerning the after maintenance and care in Vietnam, we plan on the premise that it will basically be handled by the CB specialized technicians in the local regions. But for sales to the TOP layer groups, we are considering an exclusive support initiated by Sakima Gishi.
- The investment plan within STEP 2 is on the presupposition of the local renting factory, and it mainly concerns the production activity decisions, sewing and attaching, and assembling. Therefore, the initial investment is estimated to be approximately 2.5 million Japanese Yen, for the purpose of securing an Industrial sewing machine, drill press, sander, grinder, dust collector, other tools and furnitures, etc. Also we are planning to station about 2 to 3 Japanese Management personnel locally in Vietnam.
- As for capital investment, with respect to working capital, we are not planning to borrow large amounts such as 10 million yen or more, but maintaining the operations within the range of self-financing as much as possible.

#### Numerical Target

- The domestic sales target towards the TOP layer groups on the first year of STEP 2 in Vietnam is, 220 “CB brace” equipments totaling in the sales price of 7.5 million Japanese Yen (35,000 Japanese Yen per equipment). For domestic sales target towards the BOP layer groups in Vietnam, our goal is 330 structural part materials (Arm B) totaling in the sales price of 825,000 Japanese Yen, and our target for export sales from Vietnam is, 220 “CB brace” equipments totaling in the sales price of 7.5 million Japanese Yen.

- Our target sales after the 3<sup>rd</sup> year is 650 “CB brace” equipments in count, with the total sales price reaching over 13 million Japanese Yen (based on assumption of selling the equipment at 20,000 Japanese Yen each, to the TOP layer groups in Vietnam).
- Regarding sales to the BOP layer groups, structural part materials (Arm B) will be sold through hospitals with a CB specialized technician. The selling price will be set at 2,500 Japanese Yen each. The sales target for the first year of STEP 2, is approximately 330 structural part materials at the sales price totaling 825,000 Japanese Yen. The goal after the 3<sup>rd</sup> year is 600 materials in count, with the sales price totaling 1.5 million Japanese Yen.

## 8. Production, Distribution and Marketing Plan

Production, Distribution and Marketing Plan for Business Model: STEP 1 and Business Model: STEP 2 is described below.

Business Model: STEP 1	Business Model: STEP 2
<ul style="list-style-type: none"> <li>• Provision of training in Japan for raising technicians with an in-depth knowledge of production technology aspects.</li> <li>• Through internationally sponsored projects, exploit and seek possibilities of lending the equipments to public hospitals at no cost for the BOP layer group.</li> <li>• For TOP patients showing strong trends of being mainly treated in private hospitals, we will conduct sales through sales trading companies and retail stores in Vietnam who are in cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• Production in Vietnam will be based on the production factory in view of hiring workers from the BOP layer group, and the development of business and expansion will be based on the contributinal effort of assisting the disabled people with knee joint disorders on their journey forward to a better quality of life in society.</li> <li>• For the distribution route to the BOP layer groups developed by the public hospitals during STEP 1, Sakima Gishi is considering providing the structural part materials (Arm B) for a low price (2,500 Japanese Yen, Each) to the CB specialized technicians at the public hospitals, which will then be assembled into a “CB brace” equipment and distributed, as one method for continuance.</li> <li>• The awareness towards physical therapy, occupational therapy, and and rehabilitation amongst doctors within the</li> </ul>

<p>with us as our window for overseas sales division.</p>	<p>medical institutions must be enhanced, and an organizational system must be established. Offering specific instructions for providing the most appropriate prescription on the prosthetics equipment which the patient needs, or through assisting the creation of an rehabilitation curriculum, we will need to continuously communicate and gain cooperation from the the model figure medical institutions for wide spreading the “CB brace” equipment.</p>
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## 9. Possible Cooperation with JICA Projects

For establishing a mother factory in Vietnam 4 years from now as described in Business Model: STEP 2, and as for proceeding with 3 years of foundational establishment and condition improvements as described in Business Model: STEP 1, we describe here below the cooperative action plan with JICA Projects, which perfectly fits into our high expectations, “the need for cooperation projects = resolving the remaining challenges and counter measuring towards the development of business”.

Solving Challenges towards the Development of Business Countermeasure = Necessity for Cooperation Projects	Cooperation Possibilities With JICA Projects
① For wide spreading the great effectiveness of the “CB brace”, lending out equipments to public hospitals at no cost, or selling it for an extremely low price for the BOP layer group.	Through JICA Sponsored Projects such as the Grass-root sponsored projects, lending out to public hospitals at no cost (1 to 3 years, starting from next) No.1 Priority
② Designing of publicly offered subsidies for sales promotion, etc., of prosthetics brace equipments.	Research on the possibilities of financial support through JICA Sponsored Projects for sales promotion, etc., of prosthetics brace equipments (For 1 year starting next) No.2 Priority
③ Financial support towards the Vietnamese trainees on their expenses for training at the Okinawa Training Center. (Through funds provided by the Vietnamese Government, or JICA Sponsored Projects, etc.)	Financial support through JICA Sponsored Projects for education of the trainees from Vietnam (1 to 3 years, starting from next) No.1 Priority

<p>④ Based on our Global Expansion Strategy which includes focus towards South-Eastern Asia, research and analysis on Vietnam factory's value of existence as a mother factory</p>	<p>Research support on the prosthetics equipment market within the surrounding countries such as Singapore, Thailand, Philippines, Malaysia, Taiwan, China, etc., that have much futuristic potential of creating a customer base (next year)</p> <p style="text-align: right;">No.2 Priority</p>
<p>⑤ Procurement of materials, training and securing of workers, securing of a factory, securing of the distribution channel, etc. Preparation of establishing Vietnam's factory as the mother factory</p>	<p>Research and examination support for evaluating the feasibility of establishing Vietnam's factory as the mother factory (3 years ahead)</p> <p style="text-align: right;">No.3 Priority</p>

#### 10 . Project Scheme Envisioned

<p style="text-align: center;">Cooperation Possibilities With JICA Projects</p>	<p style="text-align: center;">Project Scheme Envisioned</p>
<p>Through JICA Sponsored Projects such as the Grass-root sponsored projects, lending out to public hospitals at no cost (1 to 3 years, starting from next)</p> <p style="text-align: right;">No.1 Priority</p>	<p>Initiating a case study on the use and test fitting, and wide spreading the great effectiveness of the "CB brace", lending out equipments to public hospitals at no cost, or selling it for an extremely low price for the BOP layer group. BOP patient</p>
<p>Research on the possibilities of the usage of public subsidy systems for sales promotion, etc., of prosthetics brace equipments (For 1 year starting next)</p> <p style="text-align: right;">No.2 Priority</p>	<p>Mining of distribution corporations and retail stores for securing the distribution channel which they obtain towards their existing customers such as patients within the BOP layer group in Vietnam</p>
<p>Financial support through JICA Sponsored Projects for education of the trainees from Vietnam (1 to 3 years, starting from next)</p> <p style="text-align: right;">No.1 Priority</p>	<p>Invite trainees including public hospital doctors, nurses, brace equipment craftsman from Vietnam, to the Sakima Gishi Training Center in Okinawa, to receive and participate in a training course.</p>

<p>Research support on the prosthetics equipment market within the surrounding countries such as Singapore, Thailand, Philippines, Malaysia, Taiwan, China, etc. (Next year)</p> <p style="text-align: right;">No.2 Priority</p>	<p>Research on the prosthetics equipment market through local visitation and studying related articles within the surrounding countries such as Singapore, Thailand, Philippines, Malaysia, Taiwan, China, etc.</p>
<p>Research and examination support for evaluating the feasibility of establishing Vietnam's factory as the mother factory (3 years ahead)</p> <p style="text-align: right;">No.3 Priority</p>	<p>Location, design of factory, procurement of machinery equipment, securing of human resources, securing of materials, research on logistics, prior preparations, for establishing a factory in Vietnam</p>

#### 11 . Specific Details of the Cooperation Project

<p>Cooperation Possibilities With JICA Projects</p>	<p>Specific Details of the Cooperation Project</p>
<p>Through JICA Sponsored Projects such as the Grass-root sponsored projects, lending out to public hospitals at no cost</p> <p style="text-align: right;">No.1 Priority</p>	<p>Through JICA Sponsored Projects such as the Grass-root sponsored projects, lending out to public hospitals at no cost starting next year, for a term of 3 years.</p>
<p>Research on the possibilities of the usage of public subsidy systems for sales promotion, etc., of prosthetics brace equipments</p> <p style="text-align: right;">No.2 Priority</p>	<p>Mining of distribution corporations and retail stores for securing the distribution channel which they obtain towards their existing customers such as patients within the BOP layer group in Vietnam, and research for establishing distribution channels starting next year, for a term of 1 year.</p>
<p>Financial support through JICA Sponsored Projects for education of the trainees from Vietnam</p> <p style="text-align: right;">No.1 Priority</p>	<p>Financial support through JICA Sponsored Projects for education of the trainees from Vietnam, starting next year, for a term of 3 years.</p>
<p>Research support on the prosthetics equipment market within the surrounding countries such as</p>	<p>Research on the prosthetics equipment market through local visitation and studying</p>

Singapore, Thailand, Philippines, Malaysia, Taiwan, China, etc. No.2 Priority	related articles within the surrounding countries such as Singapore, Thailand, Philippines, Malaysia, Taiwan, China, etc.
Research and examination support for evaluating the feasibility of establishing Vietnam's factory as the mother factory No.3 Priority	Location, design of factory, procurement of machinery equipment, securing of human resources, securing of materials, research on logistics, prior preparations, for establishing a factory in Vietnam, 3 years from now.

#### Charts and Reference Articles

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