

# **NIS – 2 study Vietnam**



## **Studies on Private Sector Development and Business Opportunities for Norwegian Industry and Trade in Vietnam**

**April/May 2004**

**Report from NHO Appointed Team**

## Foreword and acknowledgements

This report presents the findings of a Norwegian business team visiting Vietnam in April 2004. It represents the second stage of a Norad two-phased study in Vietnam which is part of the Norwegian governments strategy on Private Sector Development (PSD).

The study has been carried out by a team under the leadership of a representative from Norwegian trade and industry as represented by the Confederation of Norwegian Business and Industry (NHO) on behalf of Norad. The Phase 2 team visited Vietnam from Thursday 15 April – Friday 23. April 2004, and a total number of approximately 115 meetings with Vietnamese officials, financial and legal institutions, business organisations and companies were conducted.

The first part of this report presents the results of an experience study on the general business climate in Vietnam. The second part summarises the main findings from enclosed sector reports within the Hydropower, Oil and gas, Maritime, Fishery and aquaculture and Trade sectors. The team also assess available support incentives, and recommendations for a possible Match-Making program and the development and marketing of a “Norwegian model” (strong cluster competence involving companies, knowledge institutions and authorities) for Vietnam are made. Complete sector reports are enclosed. Some specific business opportunities are not mentioned in the report due to the degree of sensitivity.

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The sector experts are responsible for the contents and structure of their respective enclosed sector reports.

The team wishes to thank the ambassador H E Per Stavnum and his staff at the Royal Norwegian embassy in Hanoi, in particular Mr. Jo Inge Bekkevold for having put together a comprehensive programme and for providing first class assistance during our stay. We also thank the Vietnamese sector organisations EVN, PetroVietnam, VASEP, Vinamarine, Viantrade and their dedicated personnel for good co-operation and helpful assistance during the study. Finally we would like to thank the local consultant, Ms. Nguyen Thi Mai Huong and Mr. Tran Trong Chinh at the embassy for their good work.

It has been a pleasure working together with a very dedicated and motivated team.

Oslo, May 28, 2004

Arne Borgersen

## **EXECUTIVE SUMMARY**

GDP growth in Vietnam was 7, 1 % in 2003 and is expected to rise to 7, 5 % in 2004 and 7, 6 % in 2005. Total exports amounted to nearly 20 bill. USD in 2003 and the top export sectors were crude oil (19 %), textiles and garments (18, 3 %), footwear (11, 2 %) and seafood (11 %). Annual export growth is expected to be 12 % with some uncertainty to the price of crude oil. Despite the remarkable economic growth, GDP per capita is still low and performance is below its potential. Hence Vietnam is still classified as a developing country, and even if progress is made, poverty reduction remains a major challenge.

Business climate in Vietnam is rapidly improving. New laws and amendments regulating foreign direct investments (FDI) and business relations between Vietnamese and foreign commercial interests are constantly enforced. Governance practice is gradually moving from "rule by law" to "rule of law". A fast growing economy, political stability, good market potential and high quality cheap labour force are some of the reasons why many foreign companies are entering the Vietnamese market.

When doing business in Vietnam it is important to have a long time perspective. In general it may be wise to have a small scale start up, e.g. establishing a representative office, use sufficient time to learn the market and how business is conducted and gradually consider establishing a 100 % foreign owned company, if possible. However, it is important to emphasise that a relevant entry strategy often depends on sector, type of project and location. Local governance is strong in Vietnam and different rules and practice of laws may apply to the different provinces.

Due to the strong development in Vietnam in recent years the team members had some expectations about business opportunities before the study was conducted. However, NIS-2 has revealed even more business opportunities than expected. A possible exception is the trade sector where mainly the largest players in Norway are assessed to have a certain business potential.

### **Hydropower**

Electricity demand in Vietnam is expected to continue to grow with 15-17% annually, to 50 TWh and 90 TWh in 2005 and 2010 respectively, or + 1500 MW/year. Total installed capacity in 2002 was 8.860 MW. Generation in 2003 was 35, 8 TWh in which hydro power counts for approx. 50 %, coal 13 %, gas-turbines 30 % and diesels and IPP 7%.

A very ambitious hydropower construction program has started to exploit most of the country's hydropower potential in 12-15 years. Foreign capital will now be invited into this sector. A window of opportunity is thus opening up for foreign investors in hydropower.

An indication of potential business areas are:

- Investment in hydropower projects in operation, under construction or in planning. Investments in new projects may for some qualify for carbon trading under the Kyoto protocol
- Local production of mechanical and electromechanical equipment for small hydropower projects, based on Norwegian design and solutions
- Establishment of a power pool
- Support on i) construction of unlined tunnels, and ii) construction management and scheduling techniques

- Possibly some export of electromechanical equipment

### **Oil and gas**

Vietnam has a significant petroleum sector with current oil production of 400,000 bopd and a gas production expected to increase to more than 800 mmcf/d during the next 5 years. The ambition is to stabilise a plateau oil production at today's level and increase gas production to 1000 mmcf/d. The state company, PetroVietnam, estimates current reserves at 4 billion bbl of oil and 23 tcf of natural gas.

PetroVietnam is the dominant player in all petroleum sector development, both upstream and downstream. Subsidiaries of PetroVietnam within the different activity sectors would be potential business associates and/or equity partners for Norwegian investors. PetroVietnam has good general knowledge of Norwegian offshore technologies and has a high regard for Norwegian petroleum competence.

Indication of main business opportunities:

- Waste management
- Drilling rig and operation
- Seismic services
- Petrochemical development
- Engineering and construction of production facilities
- Refinery investments
- Supply vessels
- Promotion support

### **Maritime**

Vietnam has, at present, 3 shipyards capable of building vessels up to 100.000 DWT and one yard capable of repairing vessels up to 400.000DWT. In addition there is 20 yards with upgrading plans.

Currently Vietnam has a total of 109 seaports. Among the 80 operative ports there are only 3 with international standard. Considering a yearly increase in growth rate of 15% the demand for new and upgrading existing ports are enormous.

The average age of Vietnam's fleet, consisting of approx. 850 vessels, is close to 20 years. The ambition of the Government is to bring down the average age to 16 years by 2010 and total DWT shall be lifted from the existing 1.7 mill to close to 5 mill DWT.

The development within the maritime sector in Vietnam is tremendous, and huge investments are to be made in the coming years, especially in connection with upgrading and building of new shipyards and ports. Norwegian Equipment suppliers have recently shown great interest in the growing Vietnamese market, and promising business opportunities are present in the following main areas:

- Equipment supplies to upgrading and building of shipyards
- Technical design support in modernisation of Vietnams merchant vessel fleet
- Norwegian equipment for new oil rig supply vessels
- Construction work and equipment to port development
- Development project for offshore sea fishery
- Equipment supplies to a new maritime industrial park

### **Fishery and aquaculture**

The sector has developed significantly the past ten years, especially within aquaculture. Total production is today about 2.4 million tonnes, of which about 1 million tonnes come from aquaculture. Major increases in aquaculture production are expected while landings probably will not increase significantly in the future (which does not mean there are no business opportunities within sea fishery).

Further growth within traditional offshore fishery is expected to be marginal whereas the plans for developing marine aquaculture are very ambitious. Major potential for the Norwegian industry are identified within the following areas:

- Improved on-board handling and transportation of live fish (RSW)
- Raw material supplies and drying within the processing industry
- Feed development and production, hatchery and grow-out operations and increased fingerling production within the aquaculture industry
- Disease prevention and vaccine development
- Waste utilisation

### **Trade**

The textile and garment industry is the largest industrial employer in Vietnam and 800 000 people are employed in an estimated 1 000 companies across Vietnam. The shoe industry employs approximately 500 000 people. Both industries are dominated by state-owned companies.

In general, production is focused on large quantities. Norway is a small market and benefits from lower production prices will only materialise if the Norwegian companies have reasonable order quantities. Otherwise the savings are insignificant and can not outweigh the disadvantages of long transportation times.

Vietnamese manufacturers/exporters are in urgent need of developing their competence through an export development training program including core competence like; design & merchandising, market knowledge, export marketing and management, market entry, product/production improvement and quality control.

In order to trigger off business opportunities recommendations are made for a trade delegation visit to Vietnam consisting of larger Norwegian importers and wholesalers with focus on textile, garment, shoe and furniture. Target group should be Vietnamese exporters/manufacturers in a mix of a few large enterprises (1.500 – 3000 workers) and a number of medium sized enterprises (100 – 1.000 workers). For each importer/wholesaler there should be worked out a tailor made visiting program. Efforts for institutional co-operation, including focus on training, should be made.

### **Environmental technology**

In the sector studies the experts also had a view on environmental technology. The following business opportunities, involving possible Norwegian technology and competence, have been identified:

- *CDM – Clean Development Mechanism* (under the Kyoto protocol). In connection with potential investment in several small hydro power projects (less than 30 MW), there is interest in Vietnam for exploiting the CDM potential
- Waste management for dangerous and toxic wastes and oil spill combat equipment
- Utilisation of waste from fish processing and water treatment of water going into aquaculture dams

In a meeting with Ministry of Construction the following topics were pointed out as interesting for a possible co-operation between Norway and Vietnam:

- How to treat water leakage from solid waste storage
- Assessment and analysis of poisoned water

So far, Norway has funded a project to establish a Masterplan for hazardous waste management in Ho Chi Minh City and surrounding provinces. This Masterplan was made by Interconsult and SINTEF, commissioned by Dept. of National Resources and Environment and the People's Committee in Ho Chi Minh City.

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## Acronyms

ADB	Asia Development Bank
ASEAN	Association of South East Asian Nations
Bbl	Barrels
BCC	Business Co-operation Contract
Bcf	Billion cubic feet
BDS	Business Development Services
Bopd	Barrels of oil per day
BSO	Business Support Organisation
BSS	Business Supply Services
BOT	Build-Operate-Transfer
BTO	Build-Transfer-Operation
CBI	Centre for Promotion of Imports from Developing Countries
CIEM	Central Institute for Economy Management
CM	Cut to make
CSR	Corporate Social Responsibility
DANIDA	Danish International Development Agency
DKK	Danish Kroner
DPI	Department of Planning and Investment
DWT	Dead Weight Ton
EVN	Electricity of Vietnam
FDI	Foreign Direct Investment
FIE	Foreign Invested Enterprises
FIL	Foreign Investment Law in Vietnam
FOE	Foreign Owned Enterprises
GDP	Gross Domestic Product
GoV	Government of Vietnam
GSP	Generalised system of preferences
IFC	International Finance Corporation
ICB	International Competitive Bidding
IPP	Independent Power Producer
JV	Joint Venture
kV	Kilo Volt
KWh	Kilo Watt per hour
MFN	Most Favoured Nation
Mmcf/d	Million cubic feet per day
MOI	Ministry of Industry
MPDF	Mekong Project Development Facility
MPI	Ministry of Planning and Investment
MW	Mega Watt
NIS	Næringsutvikling i Sør (Private Sector Development)
NOK	Norwegian Kroner
Norad	Norwegian Agency for Development Co-operation
NSEC	Norwegian Seafood Export Council
ODA	Overseas Development Aid
POE	Private Owned Enterprise
PSD	Private Sector Development
QA	Quality Control
R&D	Research & Development
RSW	Refrigerated Sea Water
SCM	Supply Chain Management
SME	Small and Medium sized Enterprises
SOE	State Owned Enterprise
Tcf	Trillion cubic feet
TPA	Ton per annum
TWh	Terra Watt per hour
USD	United States Dollar
VASEP	Vietnam Association of Seafood Exporters and Producers
VCCI	Vietnam Chamber of Commerce and Industry
WTO	World Trade Organisation

## 1 *Introduction*

Phase I of the study in Vietnam assessed the status of the private sector and its environment. It also identified possible areas for future Norwegian support of PSD, within the framework of Vietnamese and Norwegian development co-operation, including investment climate and private sector development policies as well as physical and social infrastructure. Present areas of co-operation and the efforts of other donors were also described. The report, which is available at [www.norad.no](http://www.norad.no), included an assessment of areas of co-operation where Norwegian private sector organisations or enterprises can enhance the development effects in terms of poverty reduction.

The objective of Phase 2 has been to study in more detail the possibilities for enhanced Norwegian investments and business relations in Vietnam, and if possible, identify specific project opportunities for business to business collaboration. The choice of sectors in this study (Hydropower, Oil and gas, Maritime, Fishery and aquaculture and Trade) were based on needs and potential within Vietnamese business sectors, strong Norwegian competence and considerable interest among Norwegian trade companies.

In accordance with Terms of Reference (ToR), and building on the recommendations of the report of Phase I, the team's main task has been to explore the potential for involvement of Norwegian investors and companies in Vietnam to support PSD. The NIS-2 report highlights areas where Norwegian business and industry has a good potential and also indicates some specific business projects. Target group is sector organisations and enterprises within chosen sectors in Norway and also in Vietnam.

A separate sector study within environmental technology has not been conducted but is integrated in the other sector studies. In those sectors where environmental business opportunities, involving Norwegian technology, have been identified they are revealed in the Executive Summary.

The objective of the experience study is to give potential Norwegian investors in Vietnam and Norwegian enterprises, who wish to initiate business in Vietnam, useful input from other companies' business experiences in Vietnam. The contents of this study are the opinions and recommendations of the authors based on presentations and meetings with Nordic companies (including a few Norwegian companies), Nordic business- and PSD organisations, ministries in Vietnam and some international finance institutions. In addition, results from a study on German investments in Vietnam (Axel Mierke, Nov. 2003) has been included as input to the experience study.

## 2 *Experience study*

### 2.1 **General business experiences in Vietnam**

According to ADB Vietnam had a GDP growth of 7, 1 % in 2003 which is expected to rise to 7, 5 % in 2004 and 7, 6 % in 2005 given the improvements in business environment. Especially the nonstate industry sector has experienced a strong development with a growth of 18, 7 % in 2003. Total exports amounted to nearly 20 bill. USD in 2003, and the top export sectors were crude oil (19 %), textiles and garments (18, 3 %), footwear (11, 2 %) and seafood (11 %). Annual export growth is expected to be 12 % with some uncertainty to the price of crude oil. Inflation is expected to be around 4, 5 % in 2004 and 2005.

The time for investing and doing business in Vietnam is regarded as very good, and Norwegian investments and business interests are welcomed by the authorities. Business climate is rapidly improving and new laws and amendments to enhance FDI and encourage business relations between foreign and Vietnamese interests are constantly enforced.

The investment climate in Vietnam is also commented in the NIS-1 study, emphasising Vietnam's relatively solid reputation among foreign investors, which corresponds with our impression after visiting the country. Investments from western countries are far less than investments from neighbouring countries, but the reasons for this would be speculations from the authors.

Potential Norwegian investors should be aware of the three categories of Special Zones, which are designated by the Vietnamese Government as target sites for investments. There are Export Processing Zones, Industrial Zones and High-Tech Zones, where incentives and preferential tax treatment may apply as a way to encourage investors.

Based on our meetings with Nordic companies in Vietnam our impression of major reasons for doing business in Vietnam, which also is supported in several official Vietnam reports, are the following:

- Currently the fastest growing economy in Asia next to China
- Low labour costs of good quality
- Labour force with high moral, loyalty and quickness to grasp new tasks
- Good market potential (Pop. 80 mill.)
- Large natural resource base
- Expanding private sector
- Political stability
- Low inflation
- Low crime

Our impression is that Vietnam in certain areas has potential for improvements, such as:

- Cumbersome administrative procedures
- Corruption

- Inconsistent and barely transparent system of legal documents
- Unpredictability of policy changes and high costs for establishing business
- Foreign lenders unable to take mortgages

Vietnam also has a challenge in reforming the banking system and equitizing (privatising) SOEs (State Owned Enterprises). A lot of the bank lending in Vietnam today is government instructed, and financial support to SOEs has not yet been reduced.

The commercial centre of Vietnam is in the south, around Ho Chi Minh City (HCMC). Historic conditions and some differences in investment climate might explain why a majority of foreign investments are going to HCMC and the surrounding provinces of Dong Nai and Binh Duong. Some of the companies we met also indicate the feeling of more GoV regulations and control (“rule by law”) in the Hanoi region. However, there is a tendency now that more and more investments in heavy industry are going to the north and that the south is becoming more high tech and ICT oriented. Labour in general is cheaper in north, and many believe that there will be a concentration of production in north and more sales in south in the coming years.

Several companies point out the great importance of understanding Vietnamese business culture and Vietnamese people’s motivation for doing business with foreigners. Main factors are the need for technology, international market knowledge and capital. However, there are many Vietnamese people with solid capital. Hence there is ability among Vietnamese people for potential large investments within private sector, but the willingness seems to be rather low.

## **2.2 Partnership**

A local partner, who knows the market and business climate, can be an advantage in Vietnam. Selecting the right partner is however crucial.

Joint Venture (JV) has been a common, and in many cases a necessary, way of setting up a business in Vietnam. There is now a trend that fewer foreign enterprises choose JV when they want to do business in Vietnam. Many foreign enterprises are terminating their JV with Vietnamese counterparts mainly because of differences in management culture. The differences are in general much more distinct if the partner is a SOE and not a POE (Private Owned Enterprise). Those who continue their business in Vietnam seek to establish 100 % FOEs (Foreign Owned Enterprise). According to the law there are restrictions within certain sectors regarding the possibility of establishing 100 % FOE, among other things within hydropower, maritime and oil industry. However, experience shows that laws and regulations are flexible depending on sector, type of project and location.

Vietnamese authorities have in recent years become more conscious about social responsibility of the companies and environment. In the economic zones there are severe examples of foreign companies neglecting ILO (International Labour Organisation) conventions. Foreign companies and local entrepreneurs also have an enormous potential concerning environmental improvements.

Norwegian companies have a good record both in the field of Corporate Social Responsibility (CSR) and environment. The team believes that the responsibility of Norwegian companies should be marketed in order to develop this as a comparative advantage when Vietnamese interests search for foreign investments and partners.

### **2.3 The Danish Private Sector Development Programme (PSDP) in Vietnam**

The PSDP has been operative in Vietnam since 1997 and substantial amounts have been put into the program over a longer period. Approx. DKK 125 mill. have been used up until today. The economic frame for 2004 is DKK 25 mill. Around 100 Danish companies have started business in Vietnam as a result of PSDP and approx. 40 business co-operations are currently supported. The PSDP supports commercial viable projects within all relevant business sectors. Main sectors for ongoing projects are clothing and textile, ship building and sea transport, water and environment, food and beverage, IT and fishery.

The program focuses on a tight co-operation with the Danish Mixed Credit Program, Danida's Sector Programmes and The Industrialisation Fund for Developing Countries (IFU), the latter equivalent to the Norwegian Norfund.

The PSDP is described as flexible and a very important support in the start up phase in Vietnam. The program stresses the importance of working with a local partner and therefore encourages establishments of partnerships between Danish and Vietnamese companies. In general this has been a successful approach. Many Danish establishments in Vietnam would not have been a reality, nor would have made the same progress, without the program. The PSDP as a facilitator in establishing business in Vietnam, and with good knowledge about the market, has for many Danish companies been of decisive importance in choosing Vietnam.

### **2.4 Recommendations**

Based on information from meetings in Vietnam, we suggest the following conditions to be considered in evaluating Vietnam as a business location and starting up business:

- Visit the country and seek information from experienced persons, enterprises and organisations, e.g. Nordic Chamber of Commerce
- Respect and seniority are very important in Vietnam. Understand the needs and the way of thinking and make clear your own agenda in Vietnam
- Long time perspective, patience and small scale start up (e.g. a representative office with little formalities and reporting). Learn the market and how business is conducted and gradually consider establishing a 100 % FOE, if possible
- If Vietnam is the right location for your business and a partnership is relevant, it is important to evaluate if your own assets and attitude are relevant for a partner
- In setting up a contract with a Vietnamese partner it is important that all contingencies (obligations, penalties, exit-possibilities etc.) are included
- The process of choosing right partner is crucial and sufficient resources in building relations and confidence are very important
- A local employee or representative to follow up your partner
- Good planning, choice of key employees and training of staff is essential
- Use of professional consultants in a start up phase

- The problem of *corruption* in Vietnam is taken seriously by GoV, although progress in reducing the problem is slow. The most important message to new investors and business seeking players in Vietnam is that one must not be naive in the matter of corruption and have a strategy on how to fight the problem when it occurs.
- A Guide for Business and Investment in Vietnam is available on [www.mpi.gov.vn](http://www.mpi.gov.vn)

### 3 Summaries of sector studies

#### 3.1 The Hydropower sector

##### **The power sector**

Vietnam's power resource potentials are great such as coal, oil, gas and hydro-power. Hydropower and coal-fired power dominate in the north, while in the south there is increasing reliance on gas. However after 2015, Vietnam will lack these resources and will have to import from other countries by linking the electricity network of neighbouring countries.

Power generation, transmission, and distribution in Vietnam are all organised under Electricity of Vietnam (EVN), which in turn is an organisation under the Ministry of Industry (MOI). However, foreign investors have invested in several large gas fired plants on a BOT basis, and domestic IPPs are investing in both thermal and small to medium sized hydro power projects. An illustration of the power sector is given below

A National Hydropower Plan Study for Vietnam is currently being undertaken by a JV of Sweco International, Sweco Grøner and Norplan. This forms an input to the official power development Master Plan.

##### **Demand**

In 2003, 40TWh were produced (up 5 TWh from 2002), of which 35TWh was sold at a total turnover of over USD 1400 million. According to the current Revised Master Plan V, demand is expected to continue to grow with 15-17% annually, to 50 TWh and 90 TWh in 2005 and 2010 respectively. Per capita energy consumption in 2003 was 390 kWh. Compared with neighbouring countries like Malaysia, Taiwan, Thailand, Vietnam lags 20 years behind.

##### **Supply**

Total installed capacity in 2002 was 8.860 MW. Generation in 2003 was 35,8 TWh in which hydro electricity is approximately 50 %, coal-fired 13 %, gas-turbines 30 % and diesels and IPP 7%. By the end of 2002, EVN had 14 large and medium-sized power plants, 9 of which are hydropower plants, in addition to dozens of small diesel and mini-hydro stations.

From 2004 till 2010, 12000 MW of new capacity in 25 new power stations must be added, i.e. 1700 MW/year. Annual growth rate for hydro power will be approx. 13% or 6-700 MW/year. Vietnams total hydropower potential of about 17- 18000 MW is close to fully exploited in 12 years from now. According to the Revised Master Plan

V, hydropower is expected to constitute 47% of total production in 2005 and 45% in 2010. A new Master Plan VI will be ready in about 2 years.

### **Hydropower resources**

Vietnam's technical/economical hydro power potential is estimated to 80 to 100 TWh/year, representing about 17700 MW. About 20% of this or 4200 MW / 18 TWh (average load factor 50%) is exploited as per April 2004, and another 2900 MW (+ Son La 2400 MW) in 20 new power stations is under construction. Of the total potential 51 TWh/year are in the north, 19 TWh/year in the central regions and 10 TWh/year in the south.

The largest hydropower potential is found in the river basins of Da in the north, Se San in central Vietnam and Dong Nai in the south. Potential exist also in other river basins such as Vu Gia-Thu Bon south of Da Nang where some 1300 MW (larger than 30 MW) have been identified. Many hydropower plants in Vietnam are multipurpose projects and play an important role as to flood prevention, water supply and irrigation.

According to the current revised *Master Plan V*, there are 80 projects of more than 30 MW to be built in Vietnam. Between 5-30 MW there are some 134 projects totalling some 1500 MW. For projects less than 5 MW, they do not have valid statistics, but an estimate in the order of 2-300 projects.

A *Master Plan for Small Hydro* is just completed in April 2004. After MOI approval, interested parties can apply for development licence. Likely investors are contractors, and the different distribution companies (DC1 DC 2, DC 3, DC 4 etc.) Other investors than EVN have now invested in more than 100 projects. 20 small hydro power projects are currently under construction.

### **Financing**

Investment needs in the power sector is approximately 2 bill. USD/year, of which 1, 2 bill. USD to generation alone. The hydropower sector may require 6-700 mill. USD/year. 15 billion USD is required up to 2015. EVN's current debt is 6 bill. USD. So far financing of 11 bill. USD seem to be secured.

EVN cannot raise the capital required for the electricity sector, and other domestic and foreign investors are therefore encouraged to invest.

### **Demand for equipment and technologies**

Assuming that the value of hydro-mechanical and electro-mechanical equipment in a hydropower plant account for min. 30% of total costs, the value of equipment to be purchased up 2010 is roughly 3 bill. USD. Approximately 300 mill. USD worth of equipment is likely to be purchased from Western countries every year. Around 30% of hydro-mechanical equipment and 100% of electro-mechanical equipment will be imported. Major exporting countries are the G8 countries, of which Russia traditionally holds about 50%.

### **Transmission and distribution**

The power transmission voltage levels are: 500kV, 220kV and 110kV. Overall transmission and distribution loss rate in 2002 was 13.4%. The goal is to reduce system losses to 10% by 2010.

### **Foreign investment in hydropower**

Many domestic and foreign investors have invested in a series of BOT (build-operate-transfer) projects, independent projects and joint ventures, mainly gas fired combined cycle plants. Foreign investments are now also sought for coal fired plants.

So far there has not been any FDI project in the hydropower sector. However, the Ministry of Industry and EVN has now decided to invite private domestic and foreign capital also into the hydropower sector, and previous restrictions as to max foreign ownership (20%) in the power sector does no longer apply.

Currently 6 EVN projects are calling for foreign investment through JV, i.a. Bac Ninh (35 MW), Quang Ninh (1200 MW), Srepok 3 (150 MW), An Khe- Ka Nak (163 MW) and Se San 4 (330 MW). As with BOT and IPP forms, foreign investors could invest in over 20 hydropower projects that are planned to be built in the 2006 - 2010 period by non-EVN entities.

Foreign investors can hold only up to 30% in a JV regulated by the law governing investment by foreign entities in domestic shareholding companies. However, according to MoI, this limit may no longer strictly apply, and through negotiation even foreign majority may be achieved. This decision lies with MOI. The off-taker will be EVN, and the tariff is negotiated with EVN on the basis of giving the investors a “reasonable return”. If the foreign investor takes an equity stake of more than 30% in a JV the investment would fall under the Law on Foreign Investment and its implementing regulations as a foreign-invested joint venture enterprise..

### **Power pooling**

Vietnam is preparing for power pooling in connection with planned restructuring of the whole power sector. In 2003 EVN submitted to Ministry of Industry a preparatory mechanism to expose EVN’s power plants to a competitive power trading market. This is regarded as the first step towards a competitive power pool. Norwegian experience in this area may be welcomed in Vietnam.

### **Construction**

There are many large Vietnamese contractors involved in hydropower as contractors and to some degree also as investors. The biggest is Song Da (annual turnover of about 4 bill. USD) which has constructed 70% of all hydropower in Vietnam. They are interested in support or co-operation within construction management & scheduling and unlined tunnels.

### **Business opportunities in the hydropower sector**

- *Investments* may now be possible in the near future. Potential investors should make a first legal and financial due diligence investigation in order to determine the risk/reward profile of investments - followed by meetings with MOI and EVN. There may also be possibilities as co-investors with Vietnamese non-EVN companies.
- *Nordpool / Statkraft* may have an opportunity to long term co-operation with Vietnam in the establishment and operation of a *power pool*, and optimisation of *system operation*. Through a long term relationship there is obviously also a need and possibly a business opportunity in better *maintenance management*.

- *Contractors* would have a potential for support to Vietnamese contractors and consultants as to *unlined tunnels* (relevant for 7-8 projects) and *construction management & scheduling*.
- *Equipment suppliers* may on competitive ICB terms have opportunities in a 300mUSD/year market.
- *Small hydro power*. Vietnam imports almost all equipment for small hydro power plants from China. Norwegian design and solutions might find a market in Vietnam, if produced locally.
- *CDM – Clean Development Mechanism* (under the Kyoto protocol). In connection with potential investment in several small hydro power projects (less than 30 MW), there is interest in Vietnam for exploiting the CDM potential

### 3.2 The Oil and gas sector

Vietnam has a significant petroleum sector with current oil production of 400,000 bopd and a gas production expected to increase to more than 800 mmcf/d during the next 5 years. The ambition is to stabilise a plateau oil production at today's level and increase gas production to 1000 mmcf/d. The state company, PetroVietnam, estimates current reserves at 4 billion bbl of oil and 23 tcf of natural gas.

#### History and perspective

Oil production in Vietnam started in 1986 from the large Bach Ho (White Tiger) field operated by Vietsovpetro, which is a JV company between PetroVietnam and RVO Zarubezneft (Russia). Bach Ho is still the largest producer and account for more than 50 % of total oil production. This and other early oil fields are now on decline and there is focus on enhanced oil recovery technologies.

Gas production will increase rapidly during the next few years when a series of gas discoveries will be put on stream. Vietnam is rapidly becoming an important gas nation and commercial utilisation of associated and natural gas is a challenge. PetroVietnam is planning several rounds of new licensing during 2004 and 2005. An activity level of 15-20 exploration wells per year and a similar number of production wells is expected to be maintained for many years to come.

#### Companies

PetroVietnam is the dominant player in all petroleum sector development both upstream and downstream. The state company has subsidiaries for all activity sectors and these subsidiaries would be business associates and/or equity partners for Norwegian investors. The upstream petroleum sector has been open for foreign company investments since 1987. At present some 25 petroleum contracts (PSC) are in force and the operators include major companies such as BP, ConocoPhillips and Unocal and a number of regional and international independents.

#### Norwegian interests

Statoil held a license interest in Vietnam (with BP), but the company sold this asset in 2001. Several Norwegian firms are active as contractors and service companies. Current and planned business includes seismic acquisition, equipment to drilling rigs and production facilities, equipment to supply vessels and various consultant services.

### **The use of gas**

While the crude oil is exported, the associated and natural gas is brought ashore. The Bach Ho pipeline system for associated gas was completed in 1997. The gas has been used mainly for power generation. A new pipeline from the gas fields in the Nam Con Son basin feeds natural gas to the Phu My Power-Fertilizer complex which has a planned capacity of 3,000 MW and 740,000 tonnes ammonia urea per year. In the south west a further two gas pipelines are planned that will bring gas ashore to a series of power plants and another ammonia urea facility. This will add 2,900 MW power generating capacity and 800,000 tonnes ammonia urea per year. Vietnam has plans to use wet gas also for polypropylene and polyethylene production. Such plants would be located adjacent to one of the planned refineries

### **Refineries**

Vietnam's consumption of oil products is about 228,000 bopd. This is largely imported and Vietnam has plans to build at least two refineries. The first will be located in Central Vietnam at Dung Quat, and the second is tentatively planned for Northern Vietnam. There is much debate about refinery locations and industry investors have complained that the planned locations are not commercially optimal.

### **Soft co-operation**

These Norwegian assistance programmes are ongoing:

1. "Assistance to Development of Management Systems on Safety and environmental Pollution Control in Vietnam Petroleum Industry", where PetroVietnam is co-operating partner with NPD/SFT.
2. "Vietnam total resource assessment, Phase II", which is performed under co-operation between PetroVietnam and NPD.
3. "Petroleum Policy and Management" a programme in CCOP where Vietnam is an active participant. The Norwegian assistance is co-ordinated by NPD.
4. Petrad arranges different professional seminars to meet Vietnam's demand for oil and gas training and technology transfer.

### **Business co-operation**

PetroVietnam has good general knowledge of Norwegian offshore technologies and high regard for Norwegian petroleum competence. With reference to the challenges in Vietnam, PetroVietnam has indicated these areas for possible Norwegian technology and business co-operation:

- ✓ Deep water ( more than 100 m) drilling and production technologies
- ✓ EOR technologies for oil fields on decline (including CO<sub>2</sub> injection)
- ✓ Gas utilisation alternatives
- ✓ Refinery investments
- ✓ Polypropylene and polyethylene production
- ✓ Waste management for dangerous and toxic wastes
- ✓ Abandonment and clean up procedures and technologies
- ✓ Environmental practices in processing
- ✓ Investment promotion support

### **Possible investment opportunities**

Certain specific investment opportunities have tentatively been identified and include:

- *Waste Management*  
System for treatment of hazardous waste for, or in co-operation with, PetroVietnam Technical Services Company PTSC
- *Drilling Rig 70 to 200 m*  
Possible JV with PetroVietnam Drilling Company
- *Non-exclusive seismic surveys*  
Such activities are ongoing and would continue in preparation for future licensing
- *Oil spill combat equipment*  
New contingency plans will call for oil spill combat equipment, boats and facilities
- *Polypropylene and Polyethylene production*  
Feasibility studies exist for the PP plant, pre-feasibility only on PE. PetroVietnam Processing Dept. is contact.
- *Engineering and construction of production facilities*  
PetroVietnam Engineering and Construction Company wishes to establish strategic partnership for engineering and construction in Vietnam
- *Second Refinery*  
Industry investors are sought for this project.
- *Supply Vessels*  
PTSC plans to increase the fleet with 3-4 large vessels
- *Promotion Support*  
PV will tender for consultant support in promoting the upcoming license rounds. Norwegian consultants will be invited.

### **Commercial mechanisms**

The simplest approach is to position for tenders to supply equipment and services to PetroVietnam and the foreign operators. Petrovietnam is open for JV projects or JV companies where the PetroVietnam subsidiary would hold 30-50 % of the equity. Depending on the project, PetroVietnam would be in a position to pay its share. There is at the moment no plans to “equitise” (privatise) subsidiaries of PetroVietnam. The country accepts that foreign investors establish 100% foreign owned companies for operation in Vietnam.

## **3.3 The Maritime sector**

### **Vietnam Maritime Administration (VINAMARINE)**

The Vietnam Maritime Administration is the State administration agency under the Ministry of Transport and dedicated to the maritime industry in Vietnam with head office in Hanoi and regional offices in Hai Phong City, Da Nang City and in Ho Chi Minh City.

Drafts and regulations, operating standards, norms, safety regulations, development plans and projects for Vietnams maritime industry is part of their comprehensive task and powers. In many ways VINAMARINE can be compared with the Norwegian Sjøfartsdirektorat.

### **Shipbuilding in Vietnam**

In April this year the Shipbuilding –World received the impressive news that Graig Investment of UK had placed the order of their latest 5 + 5 + 5 BC each of 53.000

DWT at Vietnam Shipbuilding Industry Corporation's yards in Vietnam. Their fleet of similar vessels have previously been built in China.

The 322,5 million USD contract comes in addition to the 32 general cargo and container vessels ordered by state owned ship owners, of which VINALINE, the state owned ship owner, counts for 28. In addition are orders placed with, VINASHIN, for Singapore, Japan, Sweden and Japan.

Vietnam has, at present, 3 yards capable of building vessels up to 100.000 DWT and one yard, in corporation with South Korea, with capacity of repairing vessels up to 400.000DWT. In addition there are 20 yards with upgrading plans. Several of these modernisation projects have already started, some in corporation with European and Asian Shipbuilding Nations.

It is first in these latest months that Norwegian equipment suppliers have made heavy approach towards this growing market. NME (Norwegian Maritime Exporters) together with VINASHIN recently accomplished a joint Technical Seminar in Hanoi with close to 100 decision takers from the maritime industry and yards in VIETNAM.

#### **Vietnam Merchant Vessel Fleet**

Vietnam has a fleet of close to 850 vessels of which the national Vietnam National Shipping Line (VINALINE) operates 31%. The rest is owned and operated by Limited Liability enterprises, joint stock companies, joint venture companies and finally Co-operatives and individuals. One is the Norwegian Thoresen Indochina with main office in Ho Chi Minh City.

The average age of the fleet is close to 20 years and the latest master plan of the Government states the average age shall be brought down to 16 years by 2010 and total DWT shall be lifted from the existing 1.7 mill to close to 5 mill DWT. This is an impressive goal, which again indicates the huge potential for business relation, not only for ship equipment, but also in design co-operation, charters and education.

In 2002 Vietnamese vessels could handle only around 15% of total import/export volume of goods. By 2005 shall 25% (approx. 25 mill tons) be handled by a national fleet. This also explains the upgrading of their yards and need for technical design support in their need of modern effective vessels adapted to the new port developments and logistics.

#### **Offshore service vessels**

PetroVietnam Technical Services Company (PTSC) owns and operates DP1 and DP2 vessels, oil rig supply vessels, tugs, fire-fighting vessels and utility stand by vessel and is located in the centre of Vietnams oil and gas operations, Vung Tau in South of Vietnam. The company, as part of the Russian Vietnamese joint venture Vietsovpro, has quite recently ordered the first of 3 oil rig supply vessels type UT 722. The vessels will be built by a yard in east Russia, and Rolls Royce is supplier of design and a package of equipment. The vessels will operate in Vietnam and the order is a new opportunity for Norwegian equipment and vessel design.

### **The Ports of Vietnam**

Currently Vietnam has a total of 109 seaports (of which 80 are operative) stretching along the 3260 km coastline, rivers and deltas. Among the 80 ports there are only three ports with international standard. Considering a yearly increase in growth rate of 15% the demand for new and upgrading existing ports are enormous.

Cargo throughput in 2003 was 115mill TPA. It is expected that this volume will increase to 200 mill tons per year by 2010. It is said by Financial Time Information that Vietnam will need investments equal to 2, 83 bill. USD a year to build or upgrade the maritime infrastructure. State funding is limited and port upgrading has been based upon long term soft loans and supported with ODA by countries like Japan.

Important meeting was performed by NIS 2 with port management in Ho Chi Minh City with the aim of developing business co-operation between Vietnam and Norway. The main Ports of Vietnam is listed in the Marine Sector - report, also with reference to Shipping Agencies. Contact with Thoresen Indochina and Vosa Goup can be recommended.

### **Sea Fisheries and the Offshore Fleet**

It is by authorities within Vietnamese fishery stated that the offshore fleet of Vietnam counts for 6673 vessels with main engine between 49 and 90 HP. We know however that private enterprises have a few larger vessels. It is, however, further stated that the offshore fleet has a negative earning, there is lack of trained crew and management, equipment is missing or worn out, and a large percentage of the vessels and crew are not capable of fishing at the far located fishing ground.

1.4 million tons are landed from the sea going vessels pr. year, and if 20 to 25% of this amount is lost due to a lack of transport facilities and cooling capacity (reference to Eurofish 01/2004) the losses are approx. 250.000 tons. These losses, considering a normal market price for such catches, amounts to at least 3.5mill. USD/year. NIS 2 has a direct proposal to how this important industry can improve.

### **Presence in Vietnam**

There is a general request from both individual companies and ministries that foreign companies are approaching the market with assistance from local establishment. The engagement can be from a representative office, to joint venture enterprises, foreign owned companies, participation with local production-project as investor or as supplier of technology needed by the Vietnamese participant.

Maritime sector is a sector of priority, and foreign companies can expect Special Investment Encouragement, particular within shipbuilding and ship equipment. Vietnam Shipbuilding & Industry Corporation has, at present, a localisation rate of 30% within their shipbuilding sector. Their aim is quite clear. The percentage shall be lifted to 40% within the next years and up to 60% by 2010. Part of this shall be within ship equipment.

NIS 2 and Norwegian companies are invited to participate in a new industrial park, now under development what land area and constructions concerns.

### **Summary of “NIS 2 projects”**

During meetings held in Vietnam with companies and Ministries and Institutions there have been several requests for collaboration between Vietnam and Norwegian companies. Some of these requests are in the report called “NIS 2 Projects” and attempts will be done by the project to realise some of these.

The study also gives Norwegian companies the opportunity to use this study in their approach to the main actors within the maritime sector of Vietnam.

#### **1. Short term approach.**

- 1.1. Product and Company information to Shipping Companies and Shipyards and Ship Owners.
- 1.2. Local Production in Vietnam.
- 1.3. Ro-Ro competence transfer/corporation.
- 1.4. Agent / Local Representative Office.

#### **2. Long term.**

- 2.1. Corporation between Norway and Vietnam Ship Building Industry.
- 2.2. Port development. Construction work. Equipment supply. Financing.
- 2.3. Suggested Project for development of Offshore Sea Fisheries in Vietnam.
- 2.4. Construction. New Service Base in Cai Mep area in South near Vung Tau.

### **3.4 The Fishery and aquaculture sector**

#### **Status and development**

The Vietnamese fishery and aquaculture industry has developed significantly over the past ten years. Total production is today about 2.4 million tonnes, of which about 1 million tonnes come from aquaculture. It is not expected that landings will increase significantly in the future, while major increases in aquaculture production are expected.

The fishing fleet consists mainly of small and medium sized vessels operating in the in-shore areas. There are a few ocean-going vessels, but no factory vessels. A major problem for the fleet is on-board handling of fish. Improvements are needed in order to improve the quality of landed fish for the processing industry.

Aquaculture has grown tremendously over the past ten years. The main species in aquaculture include shrimp and catfish (tra and basa), and more recently tilapia and cobia. There is also a more traditional sector that produces carp and a number of marine species in smaller quantities.

Vietnam is seeking to expand its aquaculture production significantly over the next few years. The target for 2010 is very ambitious, and the focus is now on developing marine aquaculture. There are several areas that are suitable for cage culture, and the large-volume species the country is concentrating on at present include cobia, which can be raised in cages that are similar to Norwegian salmon cages. Supplies of fingerlings as well as feed are seen as some of the bottlenecks.

## **Processing**

The processing sector in Vietnam was originally state-owned, but is now gradually being transferred to the private sector. New and very modern facilities are being constructed both in the south and in the north, and practically all of these facilities are on private hands. The standard is excellent, and practically all of these factories produce for exports.

There are some opportunities in improving the more traditional processing, such as drying. Today, sun-drying is the most popular method, but the losses due to spoilage, as well as the poor quality of the products, is a problem. Introduction of controlled drying would enhance the quality and open up for expansion of exports of these products to for example China.

## **Exports**

Vietnamese seafood exports are in a phase of great expansion at the moment. The total value of seafood exports in 2003 was about 2.2 billion USD, and the target for 2010 is set at 4 billion USD.

The main export items are frozen shrimp and frozen whitefish fillets (catfish and basa). The main markets are the USA, China, Japan and the EU, but the dominance of the USA has caused some concern because Vietnam is in danger of being cut off from this market due to allegations of dumping. Thus, catfish exports have been under pressure, and Vietnam is also in danger of being subject to penal duties on their shrimp exports to the USA. Thus, the authorities would like to focus on increasing exports to other regions, such as the EU, rather than see growth in exports to the USA.

Infrastructure/supporting services for the seafood industry are being built out. For example, the Vietnam Association of Seafood Exporters and Producers (VASEP) was established five years ago, and is building up a set of services for the producers and exporters based on the example of the Norwegian Seafood Export Council (NSEC). VASEP would like to co-operate more closely with NSEC both with regard to the development of their services, and with regard to securing long-term financing of its operations based on the Norwegian model (export tax on seafood exports).

Resource surveys and management is also a cause of concern, but falls outside the scope of this report.

## **Business opportunities**

A number of specific potential co-operation project within private sector were identified during the mission which involve Norwegian companies and institutions:

- Improved on-board handling and transportation of live fish (RSW)
- Processing
  - Develop artisanal processing (drying)
  - Increase raw material supplies through aquaculture and imports of raw materials
- Aquaculture
  - Hatchery operations
  - Grow-out operations in freshwater and marine aquaculture
  - Increase fingerling production

- Feed development and production
- Disease prevention and vaccine development
- Waste utilisation

Potential public sector co-operation (infrastructure projects) includes co-operation between VASEP and NSEC, as well as continued co-operation in research and fisheries/aquaculture management, particularly in the field of environmental management.

### **Follow up**

The proposed follow-up of the mission includes establishing contact between the Vietnamese companies and potential co-operation partners in the private sector in the Norwegian seafood industry, and between Norwegian and Vietnamese institutions. To match Norwegian companies with potential Vietnamese partners a matchmaking program would be very useful, but since there is not yet a matchmaking program for Vietnam, other mechanisms will have to be used.

For the infrastructure projects, Norad should take the lead and invite Norwegian institutions/organisations or even companies to participate. These projects would probably have to be part of the country programme and be financed under this.

## **3.5 The Trade sector**

### **Objective**

The objective of the trade sector study has been to research the total Supply Chain Management capabilities (SCM) within the textile-, garment - and shoe industries in Vietnam through visiting approximately 21 factories and sector specific BSOs. The reason for the SCM research has been to map the possibilities of increased import and co-operation between Norwegian importers/wholesalers and Vietnamese exporters/manufacturers.

### **Quality of labour**

Despite of the slowdown of the world investment flows and the harsh competition among the ASEAN countries, Vietnam is still an attractive country for foreign investment and trade in the region.

What makes Vietnam unique is the quality of the workmanship. The workers are very conscientious and take pride in producing good quality compared to other manufacturers in ASEAN. From a cost perspective, Vietnam can offer some of the lowest labour costs in the region, and thus the price of processing is indeed very attractive.

Vietnamese people and foreigners working in Vietnam are subject to the labour code. The labour code has created a legal frame work which sets out the rights and obligations of employers and employees, working hours, labour contracts, payment of social insurance, overtime work, strikes and termination of employment contracts etc. There exist several decrees and circulars implementing the provisions of the labour

code. Vietnam has set the minimum working age to 15 years –workers aged 13 years or older or more can be hired under an apprentice contract. In a CSR-perspective, Vietnam is a bit ahead of other major manufacturing countries in the region and it can be considered as an added value for Vietnam.

### **Textile, garment and shoe**

The textile and garment industry is the largest industrial employer in Vietnam and 800 000 people are employed in an estimated 1 000 companies across Vietnam. The shoe industry employs approximately 500 000 people.

Most of the companies in both sectors are situated in Ho Chi Minh City (previously Saigon) and the country's capital Hanoi. Both industries are dominated by state-owned companies. The smaller private owned companies are mainly located in and around Ho Chi Minh City.

Most commodities produced in the Northern part of Vietnam are shipped from Hai Phong Port – 100 km outside Hanoi (3 hrs drive by truck). Air shipment will leave from Noi Bai Airport – 15 km from Hanoi. The commodities produced in Ho Chi Minh City (region) are shipped from the Saigon port. The transit time from Vietnam to major European ports (via Singapore) is 25 – 30 days by sea. Shipments to Canada and USA via Kaoshing, Taiwan take 15 – 18 days.

### Production lead-times

Fabric mills are generally speaking asking for 35-45 days lead-time for dyeing. For transportation of the fabric from the mill to the garment/shoe factory will take approximately 15 days. The CM lead-time (processing) at the factories is 30 – 40 days from receipt of L/C.

### Payment & Price quotations

DP at sight or L/C, CM price or FOB price.

### Minimum Quantities

Most fabric mills impose minimum quantities per colour as input for production of shoes and garments. The minimum quantities within each sector vary with the capacity of the manufacturing company and the type of input material needed. The minimum quantities also differ between a CM and FOB quoted production.

### International Recognised QA control

Upon request from buyers both the shoe and garment industry have the possibility to undertake international QA control through international recognised companies such as ITC and SGS.

### **Export**

Approximately 55% of the exports within the textile-, garment- and shoe industries go to quota free markets such as Hong Kong, South Korea, Taiwan and Japan, while the remaining 45% go to Canada and the EU market. After the signing of a trade agreement between Vietnam and USA (MFN) in 2002, it is expected that the USA will become the major market in the near future.

The export situation in Vietnam is that most of their export goes through trading offices in HK, Singapore and Taiwan. Vietnam exporters/manufacturers wish to increase and establish direct export relations with foreign importers/wholesalers to obtain better control and better margins. This, however means that Vietnamese manufacturers/exporters are in urgent need of developing their knowledge through an export development training program including core competence like; design & merchandising, market knowledge, export marketing and management, market entry, product/production improvement, quality control (QA). These workshops could be held in co-operation with the sector specific BSOs, VCCI, VIANTRADE etc.

### **Business opportunities**

Norway is a small market and even if we consider Vietnam to be the right place to produce/import goods from, we need to consider which Norwegian partners are right for Vietnam. The benefits from lower production prices will only materialise if the Norwegian companies have reasonable order quantities. Otherwise the savings are insignificant and can not outweigh the disadvantages of long transportation times.

### *Recommendations*

- This means that a possible Norwegian business delegation to Vietnam should contain medium (manage min. quantities) to large sized importers/wholesalers (chain stores and/or companies with export from Norway)
- If decision is made to send a business delegation to Vietnam, the Vietnamese exporters/manufacturers should be a mix of a few large enterprises (1 500 –3000 workers) and a number of medium sized enterprises (100 – 1000 workers)
- Include the furniture industry in a business delegation (appendix 1)
- For each importer/wholesaler there should be worked out a tailor made visiting program
- Incentives to bring out Norwegian companies, i.e. cover stay in Vietnam
- Include the visit as a form of preparation phase (ref. the Danish PSD program)
- Institutional co-operation incorporating core competences training (ref. NHO/Indonesia )

## **4 Support incentives for doing business in Vietnam**

### **4.1 Available support incentives for Norwegian enterprises**

The following financial instruments are available for Norwegian enterprises seeking business opportunities in Vietnam:

<b>Institution</b>	<b>Vietnam-specific instruments</b>	<b>General instruments</b>
<p><i>Asia Development Bank</i> *)  <a href="http://www.adb.org">www.adb.org</a></p> <p>*) Innovation Norway’s Manila-office also serves as the Liaison Office to the ADB</p>		<p>Supports private sector projects with clear development impact in Asia and the pacific region in the financial or infrastructure sector. ADBs role is to mobilise funding (equity, loans, guarantees, complementary financing scheme) from local and foreign sources</p>

<i>Eksportfinans</i> <a href="http://www.eksportfinans.no">www.eksportfinans.no</a>	In a process with banks in Vietnam with the aim of establishing long term financial agreement	Offers competitive long-term financial solutions for export companies
<i>GIEK</i> <a href="http://www.giek.no">www.giek.no</a>		Offers different guarantees in connection with political and commercial risk projects, often in combination with Eksportfinans
<i>Innovation Norway</i> <a href="http://www.invanor.no">www.invanor.no</a>		Some support schemes available for network project and international market activities
<i>Nopef</i> <a href="http://www.nopef.com">www.nopef.com</a>		Favourable loans and grants to Nordic companies for project feasibility studies for project export deals and internationalisation projects in countries outside EU and EFTA
<i>Norad</i> <a href="http://www.norad.no">www.norad.no</a>	Agreement with MPI regarding Concessional Credits (untied mixed credits consisting of a grant element from Norad combined with ordinary export credit) to be used to finance export of capital goods or services to projects proposed by MPI	Support for feasibility studies, training/competence building, management training, improvement of HSE aspects, support for environmental improvement etc.
<i>Nordic Development Fund (NDF)</i> <a href="http://www.ndf.fi">www.ndf.fi</a>		NDF offers credits that are co-financed with other multilateral finance institutions. NDF is able to participate in the financing of private sector activities in developing countries without government guarantee, and support PSD in cooperation with Nordic companies, Nordic/regional/international development institutions and local partners
<i>Nordic Investment Bank (NIB)</i> <a href="http://www.nib.int">www.nib.int</a>	Recently established a loan program for SMEs in Vietnam channelled through Bank for Investment and Development of Vietnam (Vietinde bank)	Multilateral finance institution offering long term loans and guarantees on competitive market terms
<i>Norfund</i> <a href="http://www.norfund.no">www.norfund.no</a>	In a process of entering into a fund for investments in Indo-China	Direct investments in profitable POEs in developing countries

The question is if these financial mechanisms are sufficient for triggering off business opportunities in Vietnam. The possibility of a co-ordination of the above mentioned instruments could be very helpful for Norwegian companies. In addition, the need for a facilitation mechanism for Vietnam (e.g. a MatchMaking Program) is present.

Norfund is an important financial resource for possible Norwegian investments in Vietnam, and it is desirable and important that Norfund plays an active role in realising business opportunities uncovered in this study.

#### **4.2 Possible MatchMaking Program (MMP)**

If there is sufficient Norwegian interest for doing business in Vietnam this study clearly indicates a need for a facilitation mechanism. Because Vietnam is a challenging market and the framework is somewhat complex, it is necessary for Norwegian companies, with limited resources and market knowledge, to have a support mechanism consisting of market competence, legal competence, local management competence and financial support. It is important that this support mechanism need to be systemised and organised in a flexible way.

The team strongly recommends Norad to establish a MatchMaking Program for Vietnam, using the Danish PSD-program as a possible model. The objective of a MMP would be to contribute to increased business activity, sustainable growth and employment in Vietnam. This could be achieved by utilising Norwegian technology, production know-how, products and services and/or by utilising resources and know-how in the developing country in order to facilitate Norwegian companies in their production and marketing of products and services.

Based on the findings in this study a program should comprise all sectors, but with sufficient flexibility to accept different entry strategies. A trading program should also be considered within the same framework.

### **5 *Concluding remarks and follow up***

The team has had the opportunity to study in some detail the potential for involving Norwegian business in Vietnam. We have covered much ground and gathered a lot of information. Contacts with many Vietnamese companies and business organisations were made. Prosperous opportunities have been screened out, more than what was expected before the study. The real accomplishment of this type of mission is however closely dependent on the success in matching the identified opportunities with the relevant Norwegian private sector actors, and that the latter actively pursue the opportunities with their potential Vietnamese partners.

Timing for doing business in Vietnam is undoubtedly good. Business climate is rapidly improving and many business opportunities for Norwegian companies are still at an early stage. Norwegian investments and competence are welcomed by Vietnamese authorities, business organisations and companies. We shall not hide the fact that there are some obstacles and constraints for doing business in Vietnam as there are in every developing country, but in the right setting the business opportunities more than compensate for these constraints. The myth that everything takes time in Vietnam needs to be considerably moderated. When doing business in Vietnam it is necessary to have a long time perspective, but in many aspects things happen very fast.

We believe that Norwegian business has a contribution to make in developing private sector in Vietnam. Our companies represent a positive business culture, with high standards in management, CSR, quality in performance and end results, and the ability to meet environmental challenges.

It is the wish of the team that this study can be an important contribution to increased business relations between Vietnamese and Norwegian companies and that the development and marketing of a “Norwegian model”, consisting of cluster competence within certain sectors, with strong interaction and efficiency between companies, knowledge institutions and authorities, can make Norwegian competence attractive in Vietnam. In this respect conditions should be favourable for Norwegian companies through the comprehensive and good work Norad has done within several sectors regarding institutional strengthening, administration, education and research among other things.

Together with a possible “Norwegian model” the team recommends the establishment of a Match-Making Program for Vietnam and improved co-ordination of available financial incentives specific for Vietnam.

In the follow up of this study there will be a seminar in Oslo in June 2004 presenting the findings within each sector. Norwegian companies identified by the team members, that are relevant for opportunities in Vietnam and capable of meeting the needs of Vietnamese PSD, will be invited to the seminar together with business organisations and Norwegian authorities and official institutions. Furthermore, the team will inform all relevant companies and business organisations we met in Vietnam about our findings and conclusions, by way of sending them the final report. This will enable them to make direct contacts with potential Norwegian partners or with NHO/Norad. In the follow up work of realising business potential in Vietnam, and connecting business interests in Norway and Vietnam, a close co-operation with Innovation Norway will be very important.

# **Annex 1      Sector report Hydropower**

## CONTENT

### THE POWER SECTOR OF VIETNAM

- General overview
- Demand and supply
- Tariffs
- Financing
- Transmission
- Distribution
- Equipment
- Power pooling

### HYDROPOWER

- Runoff
- River systems and hydropower potential
- Multipurpose projects
- Peak power
- National Hydropower Plan
- North Vietnam
- Central and south Vietnam
- Hydropower construction plans to 2010
- Small and mini Hydro

### PRIVATE AND FOREIGN PARTICIPATION

- Methods of investment suggested by EVN
- Other projects where EVN will not be the investor
- Foreign investments in Vietnamese hydropower enterprises
- Domestic involvement in power projects

### APPENDIX

- Meetings – Hydropower sector

## The Power Sector of Vietnam

### **General overview**

Vietnam's power resource potentials are great such as coal, oil, gas and hydro-power. However after 2015, Vietnam will lack these resources and will have to import from other countries by linking the electricity network of 10 ASEAN member countries.

Vietnam's power sector has a regional character because of the geographical distribution of resources and the country's long and narrow shape. Hydropower and coal-fired power dominate in the north, while in the south there is hydropower but it also relies on diesel-fired generation and increasingly it will rely on gas from the offshore gas fields of Bach Ho and Nam Con Son. In the centre there is hydropower and diesel-fired capacity.

Electricity of Vietnam, EVN, is responsible for all generation, transmission, supply and distribution of electricity and, until recently, had a monopoly in the power sector, but with the increasing importance of gas in the south and substantial reserves of coal available in the north, the Vietnam Oil and Gas Corporation (PetroVietnam) and the Vietnam National Coal Corporation (Vinacoal) will start playing important roles in the energy sector. The Ministry of Industry has State management control of all three Corporations, EVN, PetroVietnam and Vinacoal

EVN has set up relations with more than 100 companies and corporations around the world including major energy suppliers from Britain, Finland, Germany, Russia and China. The Corporation has joined the Cigree organisation.

### **Demand and Supply**

#### Demand

In 2003, 40TWh were produced (up 5 TWh from 2002), of which 35TWh was sold at a total turnover of over US\$ 1400 million. According to the current Revised Master Plan V, demand is expected to continue to grow with 15-17% annually, to 50 TWh and 90 TWh in 2005 and 2010 respectively. Per capita energy consumption in 2003 was 390 kWh. Compared with neighbouring countries like Malaysia, Taiwan, Thailand, Vietnam lags 20 years behind.

Name of Power station		MW	Gwh/yr
1	Tuyen Quang	342	1329
2	Son La 215	2045	7397
3	Ban La (Nghe An 1)	300	1077
4	A Vuong 1	210	808
5	Ba Ha River	250	915
6	Plei Krong	110	766
7	Se San 3	273	1110
8	Se San 3A	100	401
9	Ry Ninh II	8	
10	Buon kuop - CPK	280	1353
11	Draylinh II	16	85
12	Dai Ninh	300	1178
13	Srok Phu Mieng	51	238
14	Can Don	72	280
15	Upper Ea Sup	70	
16	Rao Quan	70	260
17	Quang Tri	70	
18	Azun Ha		
19	Bac Binh	35	
20	Coc San - Chu Linh	70	
TOTAL UNDER CONSTRUCTION		4672	17197

### Supply

Total installed capacity in 2002 was 8.860 MW. Generation in 2003 was 35,8 TWh in which hydro electricity is approximately 50 %, coal-fired 13 %, gas-turbines 30 % and diesels and IPP 7%. By the end of 2002, EVN had 14 large and medium-sized power plants, 9 of which are hydropower plants, in addition to dozens of small diesel and mini-hydro stations. From 2004 till 2010, 12000 MW of new capacity in 25 new power stations must be added, i.e. 1700 MW/year. Annual growth rate for hydro power will be approx. 13% or 6-700 MW/year. Vietnam's total hydropower potential of about 17- 18000 MW is close to fully exploited in 12 years from now. According to the Revised Master Plan V, hydropower is expected to constitute 47% of total production in 2005 and 45% in 2010. A new Master Plan VI will be ready in about 2 years.

To reach the forecasted demand levels, power generation capacity should be increased up to 11,000 MW within 5 years and to 28,000-35,000 MW by 2020. Several new transmission lines will be built in the next decade including 15,000 km of 110kV-500kV lines.

The development of the energy sector in Vietnam is critical to the future growth of the country. The demand for power is rising rapidly and is expected to continue an annual high growth rate of 15 percent for the next ten years. Hydropower's share of total is expected to drop from 59% in 2001, around 50% today till about 40% in 2010. Hydropower systems will then have a total capacity of 8 GW, natural gas-fired plants will be 6.5 GW and coal-fired thermal plants will be around 3 GW.

EVN's Power Development Plan 2001-2010 (Master Plan V, and its revision of March 2003) prioritises the development of large hydro, natural gas and coal resources. In terms of installed generation capacity, the country's generating capacity reached 8748 MW in 2001. EVN owned and operated 7878 MW of this capacity while the remaining 600 MW were owned by independent power producers (IPPs). The installed capacity in 2010 is projected to be between 12-14 GW. The additional installed capacity from 2001 to 2020 is planned to be 28980MW. The total installed capacity in 2020 will be 34455 MW against the estimated peak load demand of 26854MW with a reserve margin of about 28%.

As per April 2004, 20 hydropower projects totalling some 4600 MW are under construction. Vietnam plans to build 60 power plants from now till 2020, including 40 plants with a combined capacity of 12,000 MW in the 2001-2010 period, In 2001 and 2002 EVN put five

more power projects into operation -- the Phu My 1, the Pha Lai 2, the 720 MW Yaly hydro-power plant, the Ham Thuan-Da My hydropower plant, and the Ba Ria 306 Add-on project -- with a combined capacity of 2,188 MW. Among the existing power plants, hydropower accounts for 60 percent, coal-fired 17 percent, gas and fuel fired 23 percent.

**Tariffs**

Electricity price subsidies are now being removed and cost reflective electricity pricing is introduced. The reform framework was initially planned to increase retail tariffs to an average of US\$0,07 per kWh in 1999. Because of the Asian financial crisis, the government postponed its implementation. In

2001, the government raised the tariffs to an average of US\$0,056 per kWh and would progressively rise to US\$0,07 per kWh in 2005. The government is also considering adopting an automatic energy price adjustment mechanism in retail tariffs, to automatically pass-through to consumers the actual cost of fuel, foreign exchange gains or losses, and local inflation.

Unit: VND/kWh, 1 USD = 15500 VND

No	Types of charges	Domestic businesses (Production)	FIEs and foreigners (Production)	FIEs and foreigners (Business)
1.	At voltage of over 110KV <ul style="list-style-type: none"> <li>• off peak</li> <li>• low peak</li> <li>• high peak</li> </ul>	785 425 1325	830 440 1410	
2.	At voltage of between 22-110KV <ul style="list-style-type: none"> <li>• off-peak</li> <li>• low peak</li> <li>• high peak</li> </ul>	815 445 1370	890 480 1510	1260 690 2110
3.	At voltage of between 6-22KV <ul style="list-style-type: none"> <li>• off-peak</li> <li>• low peak</li> <li>• high peak</li> </ul>	860 480 1430	950 520 1600	1400 760 2360
4.	At voltage of under 6KV <ul style="list-style-type: none"> <li>• off-peak</li> <li>• low peak</li> <li>• high peak</li> </ul>	895 505 1480	1020 560 1710	1530 850 2550

At present there is an increasing pressure from the government to implement the tariff reform plan to avoid financial risks to EVN. For example, the average price of some of the recent BOT projects in the country is US\$0,04 per kWh while the average retail tariff is US\$0,051 per kWh. This indicates that there may be insufficient margin to cover transmission and distribution costs.

**Financing**

Investment needs in the power sector is approximately 2 billion USD/year, of which 1,2 bn USD to generation alone. The hydropower sector may require 6-700 m\$/year. Projected capital needs from now till 2015 is \$ 22 bn. EVN cannot raise the capital required for the electricity sector, and other domestic and foreign investors are therefore encouraged to invest.

*Financing sources:* The primary financial driving factor for the power industry is Official Development Aid (ODA), which has contributed to the sector \$2.9 billion between 1996 and 2000, i.e. close to 600 m\$/year. Especially JBIC has been very active and has financed up to two third of EVN’s recent power plant projects. Funding from JBIC means that there must be a Japanese company as the main contractor. In bilateral assistance Sweden, France, Belgium, Switzerland and Finland have been quite active. Export finance has not been used much.

*New policy:* Due to large investment requirements, there is currently a shifting in policy away from donors. There is no guarantee that ODA funding will be made available and EVN is interested in project proposals and alternative funding sources. EVN will consider those proposals on their merits.

To attract additional capital, the power generation sector is opening up to foreign and domestic investors from other sectors under various forms, including Independent Power Producers (IPP), Build-Operate-Transfer (BOT), Build-Transfer (BT), Build-Transfer-Operate (BTO), Joint Ventures (JVs) and Joint Stock firms. IPPs currently generate about 8,7% of total power supply.

### **Transmission**

Main voltage levels are 500kV, 220 KV and 110 KV. In 2000, the high voltage network consisted of 1,514 km of 500 kV, 3,732 km of 220 kV and 7,851 km of 66-110 kV. A 500 kV North-South 1487 km transmission line, commissioned in 1994, transmits electricity from Vietnam's largest generator, the Hoa Binh hydropower plant in the north, to large population centres in the south, linking the country into one electricity grid. The cable has helped to alleviate an electricity shortage in Ho Chi Minh City. Construction is also started on the country's 2nd 500kV transmission line linking Pleiku in the Central Highlands and Thuong Tin (northern Ha Tay province) to settle the problem of electricity shortage in northern provinces by 2005.

The medium voltage network consisted of over 50,000 km. Five companies reporting to EVN distribute electricity in Vietnam: Power Company N°1-PC 1 (North Vietnam), PC 2 (South Vietnam), PC3 (Central Vietnam) , Hanoi Power Company (Hanoi) and HoChiMinh City Power Company (HCMC).

The government currently is considering building more transmission lines. 15,000 km of transmission lines and transformers with a total capacity of 50,000 MVA are planned to be built up to 2010<sup>1</sup>. In the period 2001-2010 EVN plans to construct 2416 km (500 kV), 4414 km (220 kV), 7757 km (110 kV), 92600 km of medium voltage, and 19000 km of low voltage.

In 2003 EVN put into use 956 km of 220 kV transmission line, a number of 220 kV transformers with a total capacity of 3,271 MVA, nearly 700 km of 110 kV transmission line and 110 kW transformers with a total capacity of 2,706 MVA. Especially, the Vinh Long-Bac Lieu 220kV transmission line, two 220 kV transformers in Bac Lieu and Vinh Long provinces started operating, and the construction of the 500 kV transformer in central Ha Tinh Province completed improving electricity service in the Mekong delta and northern central provinces.

For the *medium voltage* power there will be a plan step by step transferring the existing multi-voltage system (6, 10, 15, 22, 35 KV) to single voltage of 22 KV system in urban, delta, and midland areas and to 35 kV voltage at mountainous area. Development of Power network must conform to the plan to ensure the consistency of voltage level and the safety operation, to reduce total line losses from 18-20% at the moment to 10% in 2010 and 8% 2020.

In general, the electricity transmission and distribution systems in the country are in need of *rehabilitation*. The transmission systems are unreliable and undeveloped. Poor quality equipment and the absence of modern dispatching facilities are prevalent.

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<sup>1</sup> BBC Monitoring Asia Pacific , volume 8, issue #2 - Friday, January 24, 2003

**Distribution**

Vietnam's power distribution system is in relatively good condition; however, the distribution transformer capacity, the conductors, and the connections are generally too small and result in high losses.

Technical and non-technical losses and end-use inefficiencies in both urban and rural areas exacerbate the poor financial position of the power companies and reduce potential investment funds. Inefficiencies on the distribution side include low system power factor, transformer inefficiencies and poor quality of cables.

One of the biggest contributors to end-use inefficiencies are electric motors, which are manufactured locally and designed to comply with a power factor requirement of 0.7 at nominal output. In rural areas, pumps for irrigation/drainage form a major part of the connected load. A combination of poor design standards and mismatching to duty requirements mean that pump efficiencies and motor power factors tend to be low.

In some places, fraud and theft have created losses of over 40 %. A major contributing factor is that most of the installed meters are inaccurate and unreliable, causing significant revenue losses to power companies. It is estimated that 300,000 meters per year would be needed to equip newly connected customers and gradually replace the old meters.

**Equipment**

Most of Vietnam's power generation equipment is imported. Most foreign power companies and suppliers of power equipment are currently focusing on projects that are financed through overseas development assistance. Sales efforts for power generation projects/equipment in Vietnam should target the Ministry of Industry, the three large government power companies, and the government power design and investigation companies (PECCs). Government buyers prefer to buy new power generation equipment, which represent state-of-the-art technology.

The most important decision criteria is quality, followed by price. Other considerations are the ability of the equipment to fit into the plant's network of existing equipment and availability of after sales service and spare parts. As Vietnam favours a diversity of foreign supplier relationship in its approach to working with vendors, access to contract is somewhat easier. Assuming that the value of hydro-mechanical and electro-mechanical equipment in a hydropower plant account for min. 30% of total costs, the value of equipment to be purchased up 2010 is roughly 3 bUSD.

**Forecast demand for equipment in hydropower generation**

	2004-2005	2006-2010
Total installed hydropower capacity (MW)	2.195	4.847
Total investment capital (\$ mill.)	3.073	6.786
Estimated demand for equipment & technology (\$ mill.)	922	2.036

Source: Vision & Associates' estimates

Approximately 300 mUSD worth of equipment is likely to be purchased from Western countries every year. Around 30% of hydro-mechanical equipment and 100% of electro-mechanical equipment will be imported. Major exporting countries are the G8 countries, of which Russia and Ukraine traditionally holds about 50%.

The *competition* is strong from countries like Japan, France, Germany, Sweden and other European firms. The largest supplier of power generation equipment to Vietnam at the present time is France. An expanding involvement of Korean and Taiwanese firms in the industrial sector of Vietnam is expected to encourage purchases of power generation equipment from their home countries

The *market* in Vietnam for imported power equipment surpassed \$1 billion in 2002 and is expected to grow at an annual rate of 10 to 13 percent. Some of the best prospects for foreign companies include: technical and engineering services; equipment for power generation projects like turbines, capacitors, circuit switches, switchgear, and insulators; electrical protection equipment such as surge arresters, fuse cut-outs, circuit breakers, and reclosers; electrical testing and calibration equipment and instruments; and pole line hardware for high-tension transmission lines.

The Ministry of Energy oversees the electric power sector. It also *prequalifies firms* that seek to bid on projects. The main suppliers of energy are the government entities known as Power Company 1, Power Company 2, and Power Company 3. These companies are also responsible for the operation of the energy transmission and distribution networks under their jurisdiction. The government Power Investigation and Design Companies are engineering consulting organisations, which specialise in investigating and designing power plants and transmission and distribution networks. Also, there is an Electrical Installation Company responsible for the installation of transformer stations.

The above organisations work closely on plans for implementing projects and buying equipment. The Government may expect interested companies that bid on projects to finance their own feasibility studies and provide a complete financial package as part of their proposals. However, formal feasibility studies are difficult to conduct and reliable data is hard to obtain or non-existent.

#### Equipment standards

European and international technical standards for power generation and transmission equipment are now prevalent. Many projects which have been developed with international technical assistance specify European or Japanese standards or equivalent.

#### Power pooling

Vietnam is preparing for this in connection with preparations for restructuring of the whole power sector. In 2003 EVN submitted to Ministry of Industry a preparatory mechanism to expose EVN's power plants to a competitive power trading market. This is regarded as the first step towards a competitive power pool. Norwegian experience in this area may be welcomed in Vietnam. This was also the view of the World Bank.

## Hydropower

### **Runoff**

The average rainfall of the whole territory of Vietnam varies from 1500 to 2000 mm. It is distributed unevenly both in space and time. The annual rainfall can reach 4500 mm in some places, while in others it can be as low as

Table 2. Seasonal change of monthly discharge

River	Annual discharge (m.c.m)	Max.monthly discharge(b.c.m)	Min.monthly discharge (bcm)	Ratio max./min.
Red River	137 000	24 600	2,420	10.47
Ma	20 100	4 190	448	9.35
Ca	24 200	5 360	526	10.19
Dong Nai	30 600	3 890	145	26.82
Mekong	526 000	91 800	6 175	14.87

Source: Vietnam Water Resources Sector Review, Hanoi, 1994

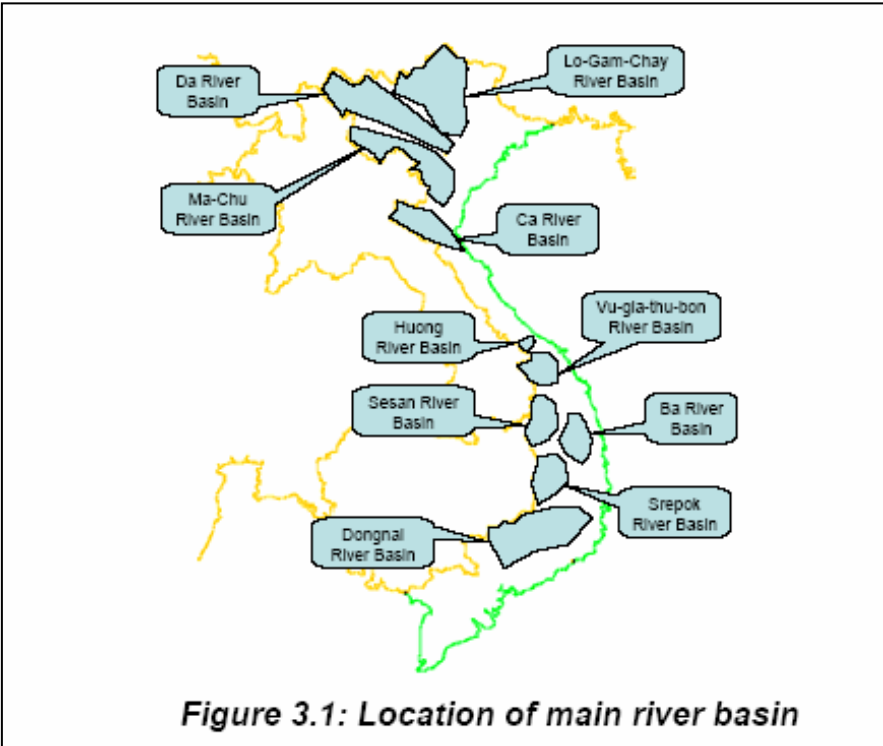
600mm. Annual runoff discharge per capita in Mekong Delta provinces is about 4 times of country's average, while that of Dong Nai river is only 34%, of Ca and Ma river, only 50% to 60%.

The rainy season usually starts in May or June and finishes in October, while it normally provides 75% to 80% of the entire annual rainfall. The ratio between maximal and minimal monthly discharge varies from 10 for Ca river or Ma river in northern part of Central Vietnam to 27 for Dong Nai river in the southern part. Water resources in Vietnam are also very unevenly distributed geographically. Vietnam has an annual river flow estimated about 830 billion cubic meter, providing a runoff per capita of 10,986 c.m. The average run-off per sq. km is 2,66 million cm, about 10 -90 liter/s.km<sup>2</sup>. The actual water resources withdrawal under existing diversion and storage infrastructures is still very low, estimated about 7.8% of total runoff. Thus only a small part of the total natural runoff is artificially managed and the remaining + 90% still has the opportunity of freely flowing in river and spring beds

Along with annual variation long term hydrological data series in Red River and Mekong River show yearly *cyclical variations* of flows runoff. Several consecutive years of water abundance are alternated with consecutive years of water poverty. For the Red River a 20 years cycle of water abundance from 1932-1951 has been followed by a 16 years cycle of water poverty. For Mekong River a 17 years cycle of water abundance from 1937 to 1953 has been followed by a 24 years cycle of water poverty

**River systems and Hydropower Potential**

Vietnam is well endowed with over 2200 rivers and streams with rich water resources, the Red river system in the north, including the Da and Lo - Gam - Chay rivers, and the Mekong river delta in the south being among the largest rivers in the world. In the center, there are the Ma river and the Ca river of the northern part, the Vu Gia - Thu Bon river of the central part, the Se San river and the Srepok river of the Central Highlands, the Ba river of the Coastal Area, and the Dong Nai river of the southern part. The locations of the river basins of



Vietnam are shown on the Figure 3.1.

Vietnam's gross *theoretical* potential of hydropower is 34674 MW or 300 TWh/a, and its economically feasible potential is 18,6-20 GW or 82-100 TWh/a. Vietnam's *technical/economical* hydro power potential is estimated to 80 to 100 TWh/year, representing about 17700 MW. About 20% of this or 4200 MW / 18 TWh (average load factor 50%) is exploited as per April 2004, and another 2900 MW (+ Son La 2400 MW) in 20 new power stations is under construction. Of the total potential 51 TWh/year are in the north, 19 TWh/year in the central regions and 10 TWh/year in the south.

The hydropower potential is mainly concentrated on three rivers: 6250 MW on the Da river in the north. 1500 MW on the Sesan river in central Vietnam, and 2500 MW on the Dong Nai river in the south. In addition to the above the potential for small- and medium-size hydropower stations is estimated at 1600 to 2000 MW of which only 56 MW has been developed.

According to the current revised Master Plan V, there are 80 projects of more than 30 MW to be built in Vietnam. Between 5-30 MW there are some 134 projects totalling some 1500 MW. For projects less than 5 MW, they do not have valid statistics, but an estimate in the order of 2-300 projects.

### **Multipurpose projects**

*Floods:* Hydropower stations will often also serve the purpose of *flood control* in Vietnam, and many hydropower in Vietnam are therefore often associated with multipurpose dams. Flood disasters are considered as the most serious natural disasters in the country in terms of economic damages, as well as loss of people life and environmental conditions. For example in 1998 and 1999 floods killed more than a 1000 people, devastated millions ha of crop fields, destroying important infrastructures constructions, deteriorating the living environment, deferring the local socio-economic development for several years. The total loss were estimated to about 4 000 billion Vietnamese dong.

Flood patterns are very diversified according to local climatic and landscape conditions: extensive floods in densely populated agricultural lands of delta regions of Red River and Ca, Ma rivers in northern central Vietnam; widespread, prolonged flooding in Mekong River delta; intensive flash flooding in highlands and midlands of northern and central part of the country. About 55 million of Vietnamese live in the lowlands flood-prone areas. The annual economic losses by flood has been estimated in hundreds millions of US dollars every year. Losses of people life and environmental losses happen every year and could not be calculated in financial terms.

*Drought:* On a total annual basis, in evaluating water balance of various rivers, nearly all watersheds show significant surplus of runoff comparing to current water demands. However on seasonal balance basis serious water shortages occur frequently during the dry season in almost all river basins throughout the country. In Mekong River Delta during the dry season, especially from early March to May, river discharge is always lower than rice fields' irrigation demands. In coastal areas of the delta some fresh water discharge is also necessary for prevention of salinity intrusion, which could affect about 1.5 million ha of crop fields.

Preliminary calculation shows that with the current population and economic growth there will be on Red River Delta a lack of water for agriculture, industry, and domestic use of 6

b.c.m in the year 2010. Drought pressure is more serious in river basins of Central Viet Nam leading to a loss of about 30% of local agricultural production value.

### **Peak power**

The *peak load* duration in Vietnam is 4 hours from 6:00 pm to 10:00 pm. However, the daytime load has been steadily rising with increased daytime power demand due to industrialisation. The load factor has accordingly increased year by year, and is expected to be around 67% in 2010.

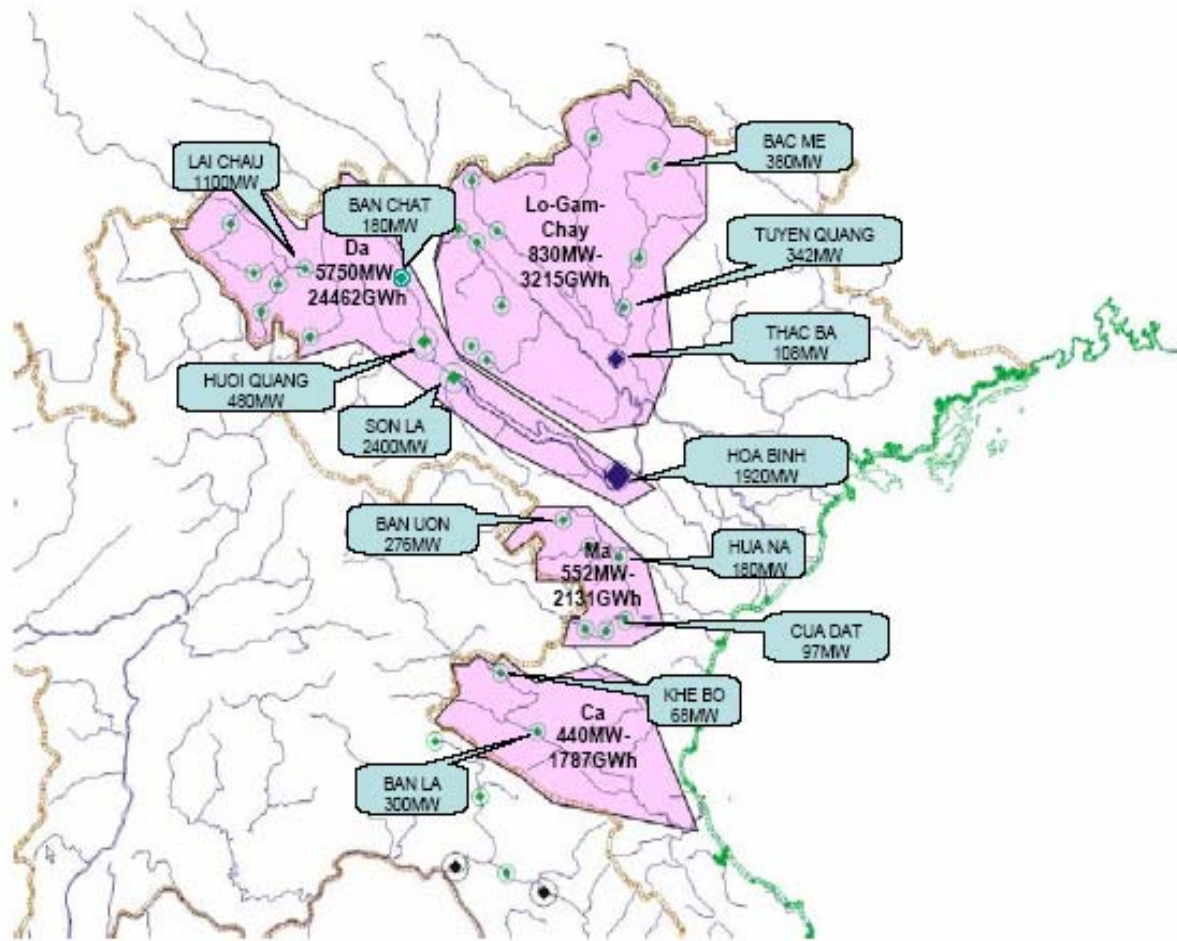
A minimum requirement for hydro power generation at multipurpose reservoir projects is that they must be operational with the installed capacity for these 4 hours. Thus, water volume necessary for 4 hours operation with the installed capacity is assumed to be the minimum water requirement for power generation of multipurpose reservoir projects.

The reservoir water level may have to be lowered during the rainy season for flood control purposes. Power output with the installed capacity may not be possible due to such flood control, but the required 4 hours peaking is possible.

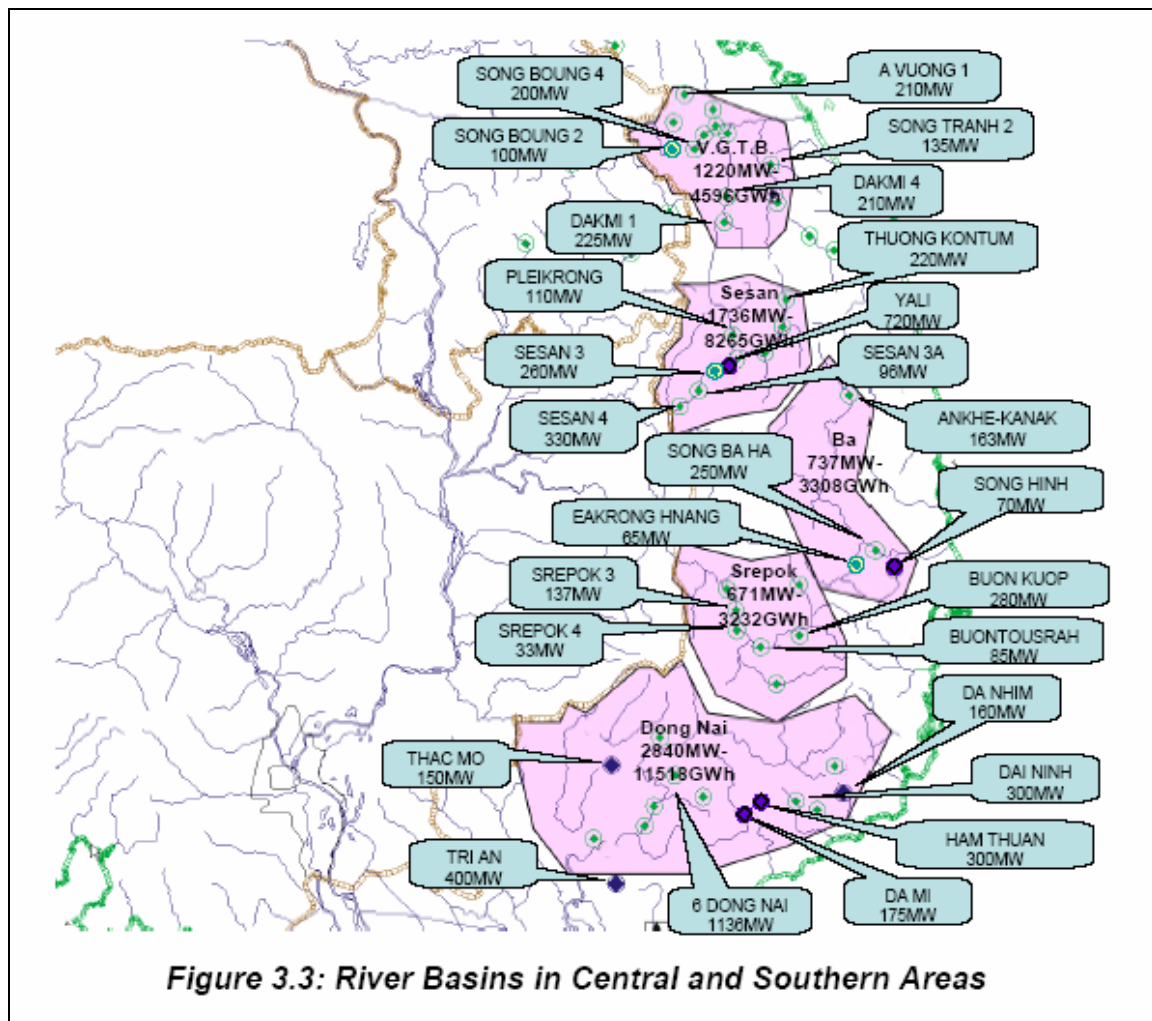
### **National Hydropower Plan**

Currently, Vietnam is developing a study on National Hydropower Plan with a time horizon to year 2020. This study is being undertaken by Sweco and Norplan, and forms input to the official power development Master Plan. It covers a full investigation of the five main river basins which are estimated to possess about 75 percents of the country's exploitable hydropower potential. These are the Da, Lo Gam, Ca, Se San and Dong Nai river basins. A brief overview of the location and size of the most important plants are given below.

#### *North Vietnam*



**Figure 3.2: River Basins in the North of Vietnam**



#### Other Rivers

Apart from the above mentioned major rivers with significant hydropower resources, there are a number of rivers in which the potential power is smaller such as Huong River Basin, Tra Khuc River Basin

#### Hydropower construction plans to 2010

The power supply scheme for 2003-2010 period requires construction of at least 20 hydropower plants, meaning a huge amount of construction and building work for contractors, equivalent to digging and moving about 180 million cubic metres of soil, seven million cubic meters of concrete and drilling and filling more than 90 kilometres of tunnels and installing about 200,000 tonnes of steel structures and equipment. The plan also includes the construction of 80 small and medium sized hydropower plants owned and built by other businesses apart from EVN.

Approved power projects have been handed out to contractors or groups of contractors, with A Vuong hydropower project given to Licogi and their subcontractors, Ban La hydropower project to Vinaconex and their subcontractors and Play Krong hydropower project to Song Da

and their subcontractors. As many as 13 corporations and companies under various ministries have signed contracts with EVN to handle power projects. Many corporations have taken the work of main contractor for the first time and have to negotiate with the investors, their subcontractors and direct the construction works on major hydropower projects

### **Small and mini hydro**

Small hydro power stations (0,5 -10 MW) play an important role in the electrification of the midland and mountainous areas. The potential for small mini hydroelectric power is estimated to 7 - 10% of the total economic hydropower potential in Vietnam, between 1500 and 2000 MW.

Small hydro resources are mostly situated in the north and central Vietnam, near the border of Laos and Cambodia. The small hydropower potential (<10 MW per site) in the country is estimated to be around 800-1400 MW. This consists of the following: i) 400 – 600 MW for grid connected mini-hydro; ii) 300 – 600 MW for isolated mini-grids and; iii) 90 – 150 MW picohydro systems. About 60 MW capacity of grid-connected mini-hydropower is being exploited in 48 sites in Vietnam. The mini-hydropower systems have capacity sizes ranging from 100 to 7500 kW. It was reported that 13% of these sites are not in operation due to equipment failure. There is a significant scope to increase the capacity of each system through rehabilitation. The installation of these systems were either directly financed by the government or through international aid.

Isolated mini-hydro grids are commune-based small hydro systems. These mini-grids have capacity sizes ranging from 5 – 200 kW. Currently, there are 300 communes in North and Central Vietnam that have small hydro systems installed with an aggregate capacity of around 20 MW. The mini-hydro grids are either commune-operated or commercially operated. It was reported that commercially operated mini-hydro grids are better managed and have lower failure rate than commune-operated grids.

In order to accelerate the development of small hydropower, new policies and incentives will be introduced to attract additional investments and know-how to this sector. Provincial or district level autonomy for authorising small project development will be essential. It is envisaged that the private sector shall be allowed and encouraged to play a lead role in small hydro power development.

A Master Plan for Small Hydro (defined there as less than 30 MW) is just completed in April 2004. After MOI approval, interested parties can apply for development licence. Likely investors are contractors, and the different distribution companies (DC1 DC 2, DC 3, DC 4 etc.) Other investors than EVN have now invested in more than 100 projects. 20 small hydro power projects are currently under construction.

*The Hydro Power Centre (HPC)* is the most active organisation in providing consultancy for grid connecting mini hydro plants. The centre has a manufacturing capacity for around 30 mini hydro plants of 20 to 400 kW annually. A project for privatisation of the centre has been presented to the World Bank without success so far; the present status of this organisation is certainly a barrier to possible partnership with a private company Two major reasons limit the market and the development of this kind of local enterprises

- The failure rate of the local fabrication is still rather high. There is a need for new techniques and a whole review of the quality of manufacture to improve the reliability.
- The local fabrication has difficulties to compete in terms of quality with imported (Chinese) equipment.

O&M management and services, and sourcing of spare parts for small hydropower equipment requires improvement

The majority of pico and micro hydropower schemes have been developed in the Da Basin in the North and in the Central Highlands. In the North there are plenty of streams and rivers near to population centres.

*Import of equipment:* Local institutions and companies have already shown their capability to manufacture a large number of systems of various types, Francis, Kaplan, Pelton and Crossflow in the capacity range from 5 to 1500 kW. However, due to a large number of installations which have stopped working, the authorities have shown some reluctance to purchase Vietnamese equipment, favouring more expensive Chinese machines (e.g. Chinese equipment for a 200 kW rehabilitation scheme may cost US\$ 125,000 compared with US\$ 70,000 for Vietnamese). However, these are still cheaper than European sourced equipment, though inferior products in terms of efficiency and reliability. European-sourced family hydropower sized units are also likely to be too expensive for the current market.

## Private and foreign participation

The government in 2001 decreed to open up 20 percent share of the total installed capacity to foreign investors in the form of IPP, BOT or joint ventures. Investment licenses were already issued to 2 power generation projects (715 MW each) to be developed by foreign investors. For the period 2001-2005, EVN planned to uptake 1512 MW capacity through BOT projects and 1220 MW through IPPs.<sup>2</sup> The limit of 20% share for foreign capital in the power sector is now to be abandoned. We were told in the Ministry of Industry that no specific limit would apply in the future.

Until recently, private participation (both domestic and foreign) in the power sector has been limited to small foreign invested plants usually built primarily to supply power to industrial zones and then selling excess capacity to EVN (eg Nomura (50 MW), Amata (18 MW) and Hiep Phuoc (375 MW)).

Project	Capacity	Main contractor
Plei Krong	100 MW	Song Da Construction
Quang Tri	64 MW	Construction Corporation No.4
Ban La	300 MW	Song Da Construction
A Vuong	2 x 105 MW	Licogi
Buon Kuop	280 MW	Vinaconex

However, the Phu My 2.2 and Phu My 3 power projects have now shown that foreign invested projects can be successfully negotiated (even though the negotiations have been very long...) and financed.

The *Phu My 2.2* project is a 715 MW combined cycle gas power plant negotiated in the form of a 20-year BOT concession with a power purchase agreement (PPA) between EVN and the BOT Company and a gas supply agreement (GSA) between the BOT Company and PetroVietnam. The sponsors are Electricite de France, Tokyo Electric Power Co and Sumitomo Corporation. A loan of US\$150 million was obtained from JBIC and other commercial loans have been obtained backed by guarantees of various sorts by the World

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<sup>2</sup> “*New and Renewable Energy Opportunities for Electricity Generation in Vietnam*”, Report produced in conjunction with the Technology Partnership for New and Renewable Energy, HCMC 4-5/3 2004

Bank, ADB and Proparco.

The *Phu My 3* project is a 717 MW combined cycle gas power plant negotiated in the form of a 20-year BOT concession with a PPA and GSA. The sponsors are BP, Nissho Iwai, Kyushu Electric Power Co and Sembcorp Utilities. A loan of US\$99 million has been obtained from JBIC and loans have also been obtained from ADB and commercial banks with political risk guarantees from ADB, MIGA and NEXI.

Participation by local (domestic) companies and State-owned enterprises is being encouraged, with the investor for the Can Don hydropower plant (72 MW) being Song Da Construction Corporation. Five hydropower plants to be commenced in 2003–04 are to be constructed by applying EPC contracts, with a domestic construction company already selected as the main contractor in each case as shown in table. Both of these projects are being built as Build-Operate-Transfer (BOT) projects, where the foreign investors operate the plants for a set period of time. These projects were held up for quite a long time due to disagreements over pricing. The foreign investors considered the prices offered by EVN to be below the levels which would give them a sufficient rate of return on capital. The Vietnamese government eventually stepped in to resolve the issue, and the price was set at 4.09 cents per kilowatt hour (kWh).

#### **Methods of investment suggested by EVN**

In the RMP-V of March 2003, EVN has listed 32 power projects for the 2001–10 period where EVN will be the investor, but since then EVN has added to the list and divided the list between:

- power plants to be owned by EVN and for which EVN will raise finance domestically and overseas (26 projects: five in 2003–05 and 21 in 2006–10)
- power plants *calling for outside investment* (nine power plants of which only three are listed in the RMP-V and six have been added but are for putting into operation after 2010)
- power plants to be financed by *joint ventures between EVN and domestic corporations* (five power plants)
- power plants for which EVN has called for finance from ODA funding (either from the World Bank, ADB or JBIC) – in most cases if ODA funding is not available, EVN will seek commercial loans, mostly in the form of lines of credit for the purchase of materials and equipment (ECAs).

In some cases the power plants appear in two different lists. Prospective investors would need to check with EVN whether investment in, or financing of, a particular plant is required and what method of investment or financing is sought.

Apart from three projects in the 2001–10 period where outside investors are sought, EVN has arranged for eight projects to be financed wholly or partly for equipment procurement, it has commitments of finance for six other projects and is seeking finance for the remaining 15 projects. More capital also needs to be raised for investment in power plants to be put into operation after 2010.

#### **Other projects where EVN will not be the investor**

The RMP-V also lists projects where EVN will not be the investor. It is not clear in many

cases who will be the investor although Vinacoal is identified as the investor for the Na Duong, Cao Ngan and Cam Pha plants, PetroVietnam is the investor for the Ca Mau plant, and Song Da Construction is reported to be the investor in respect of several smaller power plants. The RMP-V indicates that enterprises of various economic sectors are encouraged to participate in investing in coal-fired projects in the Quang Ninh area or in hydropower projects having a capacity of up to 100 MW in the form of a joint stock company where a State corporation holds a controlling share. At the moment therefore it is unlikely that direct investment in these plants would be open to foreign investors although this is not entirely clear.

In addition to power generation plants, the RMP-V sets out a plan for projects involving 500 kV transmission lines, 500 kV transformer sub-stations and 220 kV transmission lines and transformer sub-stations. EVN is seeking ODA funding for a large number of these projects, but also has a substantial number of 220 kV power network projects and 110 kV sub-station and transmission line projects for which other financing is required. For 110 kV projects, most materials and equipment can be domestically supplied but EVN would need foreign loans for equipment that cannot be manufactured domestically such as circuit breakers, insulators, control panels and systems and optic fibres.

EVN has not listed the very controversial Son La hydropower project proposed for the Da River 320 km west of Hanoi. This massive 3600 MW project will be the largest of its type in Vietnam and requires substantial resettlement of people. It is due to start in 2005 and is scheduled for completion in about 2015–16.

### **Foreign investment in Vietnamese hydropower enterprises**

Experience so far in Vietnam with foreign investments in thermal power projects is that PPA and particularly the power price has been very difficult and lengthy to negotiate. Too much attention has been paid to tariffs and too little attention has been paid to investors being allowed a reasonable rate of return on investment when negotiating BOT projects. However, with tariffs slightly above 4 UScents /kWh, it is assumed that ROE would be roughly 20% on BOT projects. Nevertheless it is probably better to buy into an existing power company, or a project that has been negotiated (but not necessarily yet implemented), because it takes so long to get to the finally agreed position. Below are some considerations regarding buying into existing projects or companies.

*Regulation:* Foreign investment in Vietnamese enterprises are regulated through Decision No. 36-2003-QD-TTg from the Prime Minister, and Circular No. 73/2003/TT-BTC (Circular 73) dated 31 July 2003 from the Ministry of Finance (MOF). It applies to all activities involving foreign investors contributing capital to, or buying shares in, Vietnamese companies under the Law on Encouraging Domestic Investment.

The *maximum amount* (in shares or capital contribution) that foreign investors can hold in a Vietnamese company is 30 per cent and investment is still limited to certain sectors of the economy. If several foreign investors subscribe to contribute capital to, or buy shares in, a Vietnamese company with a value of more than 30 per cent of the company's authorised capital, the company must select a foreign partner by tender or by auction. It was indicated during meetings in Ministry of Industry and EVN, that this 30% limit now might become negotiable. 51% Vietnamese ownership would though be preferred, but even foreign majority could be possible.

Hydropower is still not officially on the lists of national projects calling for foreign investment. However, as long as a project involves the right method of investment for the relevant sector and fits into Vietnam's socio-economic development plan, the project will always be considered by the Ministry of Planning and Investment (MPI), even if it is not in the List or in a list of a relevant ministry.

*Equitisation:* Several hydropower projects are now in the process of being equitised (privatised). Where an SOE is being equitised, it is up to the relevant minister (or chairman of a people's committee if the project is under local control) to decide whether foreign investors will be allowed to participate in an initial sale of shares. The structure of the initial sale of shares must be included in the equitisation plan, and only after determining the number of shares to be held by the State and the number of shares to be sold to employees and suppliers will a decision be made whether the balance of the shares will be sold to domestic outsiders or foreign and domestic outsiders.

In the case of a joint stock company, an investment plan or plan for issuing additional shares must be approved by the board of management or shareholders' general meeting (depending on the terms of its charter) and where the company's shares are not listed, the sale of shares must be carried out by itself or through an intermediary financial institution. The company must publish in the mass media its proposal to sell shares to foreign investors together with other information about its activities, capital and funds for the relevant year and the two previous years.

Circular 73 also contains guidelines relating to the price for the sale of shares or contribution of capital and relating to the information to be provided before and after shares are sold to, or capital is received from, foreign investors.

*The sale price* for shares in an SOE being equitised is determined in accordance with GOVN decree. The sale price of shares in an unlisted company will be agreed between the company and the foreign investor but cannot be less than the price offered to domestic investors; and the sale price of shares owned by an existing shareholder can be agreed between the shareholder and the foreign investor but cannot be lower than the initial sale price offered to domestic investors (for an unlisted company) or the sale price quoted on the securities market (for a listed company).

### **Domestic involvement in power projects**

The Government encourages domestic involvement in hydropower projects in many ways. For the power projects listed below, - all under construction as per April 2004, the Government on 17 June 2003 issued Official Letter 797/CP-CN indicating that, as much as possible of the building of these power stations must be carried out using domestic contractors and domestic funds so that, by constructing these projects, "domestic enterprises will be able to improve their consultancy, engineering and manufacturing capabilities". The projects are:

- *A Vuong* power station (170MW) in Quang Nam Province, with Licogi as main contractor
- *Quang Tri* power station (70MW) to be built by Construction Corporation No.4
- *Buon Kuop* power station (280MW) in Dak Lak Province to be built by Vinaconex
- *Plei Krong* power station (110MW) in Gia Lai Province and
- *Ban La* power station (300MW) in Nghe An Province, both to be built by Song Da Construction.

Permission has been given for each of the five projects to be undertaken through EPC contracts entered into by groups headed by a main Vietnamese contractor with the Vietnam

Electricity Corporation (EVN) and the contracts do not have to go out to tender. Other aspects of the projects are:

- EVN and the main EPC contractor can rely on current tendering regulations to appoint consultants for the main design and for managing each project and the design construction drawings; the consultant must, in each case, be an experienced domestic consultant; *if any foreign consultant is to be involved, approval must be obtained and the foreign consultant will only act as a sub-consultant*
- the Ministry of Finance will issue a guarantee, at the request of EVN, to enable foreign loans to be borrowed for the import of equipment and technology for each project
- each of the four domestic commercial banks will be allowed to provide loans to EVN exceeding the limit of 15 per cent of its equity
- an international tender is to be conducted for the import of foreign equipment and technology which cannot be produced domestically.

Oslo, May 2004

Øyvind Ulfby  
Energy Adviser

## **HYDROPOWER APPENDIX      MEETINGS – HYDROPOWER SECTOR**

Date: 16.4.2004 and 22.4.2004

### **EVN - Electricity of Vietnam**

Address: Tran Nguyen Han, Hoan Kiem Dist, Hanoi, Vietnam,  
Tel: 84 4 8249509, Fax: 84 4 8249462, E-mail: vp@evn.com.vn, Website: www.  
evn.com.vn

Persons met:

Lam Du Son, Vice President (met 22.4.04)  
Phan Minh Tuan, Director International Cooperation Department (met 22.4.04)  
Tran Tuan Dzung, Deputy Director Intern. Cooperation Department (16.4.04)  
Kim Hoa, Deputy Director Power Generation Department (16.4.04)

Date: 21.4.2004

### **Ministry of Industry (MOI)**

54 Hai Ba Trung, Hanoi, Vietnam  
Tel: (84-4) 826-7988, Fax: (84-4) 826-5303

Persons met:

Mr. Ta Van Huong, Director Department of Energy and Petroleum  
Mr. Ngo Huy Toan, International Cooperation Department

Date: 16.4.2004

### **Song Da Construction Company**

Address: G10, Thanh Xuan Nam Street, Thanh Xuan District, Hanoi, Vietnam ,  
Tel: 84 4 8541164, Fax: 84 4 8541169

Persons met:

- Ninh Manh Hong, Deputy General Director
- Pham Van Hung, Vice Director
- Tranh Dinh Sinh, Senior Engineer (studied in Norway)

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Date: 17.4.2004

### **Hydropower Project Management Board (PMB) No. 4 in Pleiku**

Persons met:

Le Xuan Tung, Deputy Manager

Date: 21.4.2004

### **NHP Management Board (Son La Hydropower Project Management Board)**

Persons met:

- Mr. Vo Than Thuy, Manager of Planning Division
- Ms. Tam Dan

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Date: 22.4.2004

### **Institute of Energy**

Nr 6 Ton That Tung Str.,- Dong Da, Hanoi

Tel: 8529302, 5743279 and 8523353

Fax 84-4-8523311

Persons met:

- Pham Khanh Toan, Director
- 

Date: 20.4.2004

**Power Engineering Consulting Company 1 (PECC1)**

Persons met:

- Ngyen Quyet Thang, Deputy Director
- 

Date: 17.4.2004

**Yali power station**

Persons met:

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Date: 17.4.2004

**Se San 3 power station** (under construction)

Persons met:

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Date: 19.4.2004

**Thac Ba Power Station**

Persons met:

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Date: 20.4.2004

**Power Engineering Consulting Company 1 (PECC1)**

Persons met:

- Ngyen Quyet Thang, Deputy Director
- 

Date: 21.4.2004

**NHP Management Board** (Son La Hydropower Project Management Board)

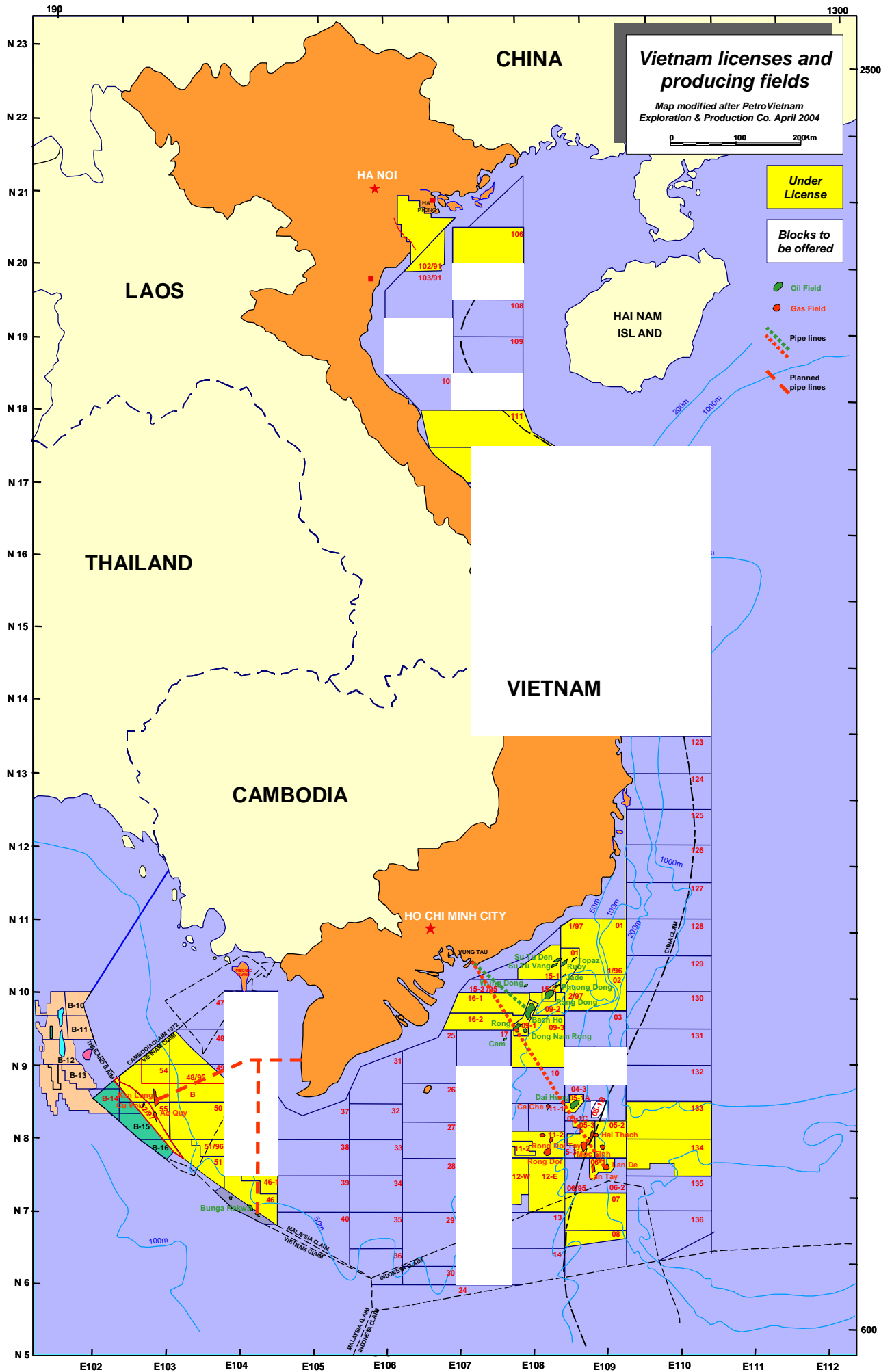
Persons met:

- Mr. Vo Than Thuy, Manager of Planning Division
  - Ms. Tam Dan
-

## **Annex 2      Sector report Oil and Gas**

### **CONTENT**

<b>THE VIETNAM PETROLEUM SECTOR</b>
<b>COMPANIES AND PEOPLE VISITED</b>
<b>THE PETROLEUM SECTOR</b>
Petroleum Basins
Exploration History
Oil production
Gas production and utilisation
Liquefied Petroleum Gas
Base and Yard Facilities
Refineries
PetroVietnam
Foreign companies
Norwegian Soft Co-operation
Development perspective and Vietnam's requirements
<b>TENTATIVE INVESTMENT OPPORTUNITIES</b>
Commercial projects
Soft projects
Commercial mechanisms
<b>LICENSE HOLDERS AND STATUS OF OPERATIONS</b>
<b>CURRENT PSC TERMS</b>

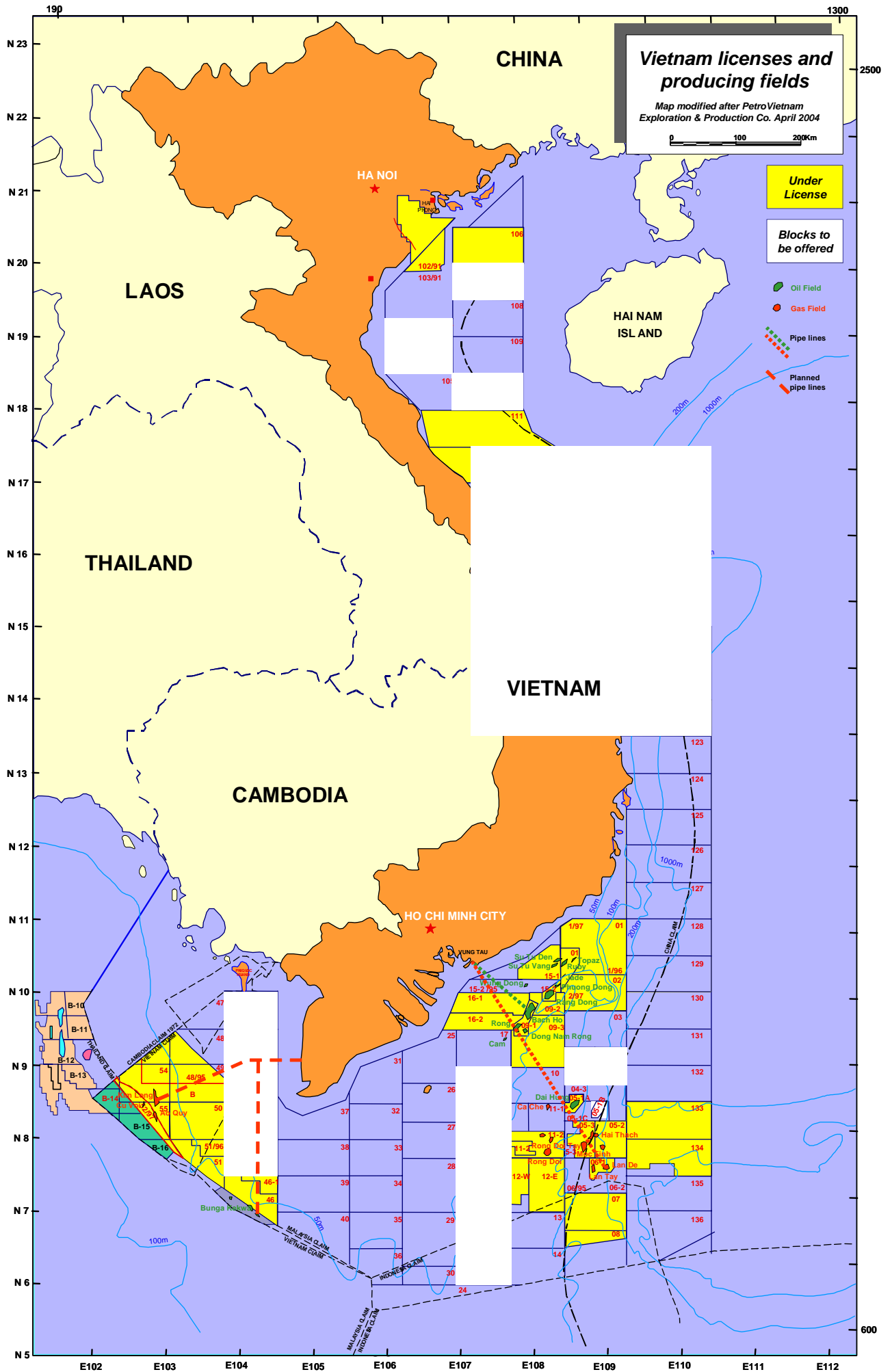
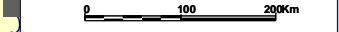


**Vietnam licenses and producing fields**  
 Map modified after PetroVietnam Exploration & Production Co. April 2004

**Under License**

**Blocks to be offered**

- Oil Field
- Gas Field
- ⋯ Pipe lines
- - - Planned pipe lines



## The Vietnam Petroleum Sector

This brief report is mainly based on:

- ✓ Information given to Einar H. Bandlien during meetings in Hanoi, Vung Tau and HoChi Minh City 16- 23 April 2004 (see meeting list)
- ✓ *The Sectoral Study for Norwegian Trade and Investment Interests in Vietnam* by Vision & Associates Hanoi, March 2004
- ✓ *An Introduction to exploration opportunities for oil and natural gas in Vietnam* by PetroVietnam 2002 (presented at EPF-ONS, Stavanger 29.08.02)
- ✓ PetroVietnam's official website: [www.petrovietnam.com.vn](http://www.petrovietnam.com.vn)
- ✓ US Gvt. Energy Information Administration website: [www.eia.doe.gov/emeu/cabs/vietnam](http://www.eia.doe.gov/emeu/cabs/vietnam)

### Companies and people visited

#### *PetroVietnam Head Quarters, Hanoi 16.04.04*

- Do Van Ha General Manager International Co-operation
- Dr. Tran Duc Chinh Acting General Manager Exploration Division
- Nguyen Van Minh Acting General Manager Oil and Gas Production Division
- Truong Quan Expert International Co-operation
- Dao Duy Khu Deputy General Manager Safety-Health-Environment Division

#### *PetroVietnam Technical Services Company, Vung Tau 19.04.04*

- Thai Quoc Hiep Deputy Director General of PTSC  
Director of PTSC Marine
- Ta Duc Tien Deputy Director of PTSC Marine
- Do Quoc Hoan Manager Commercial Department

PTSC has offices and marine base area in extension of the Vietsovetro port and base facilities in Vung Tau, providing base and supply services to the offshore operators.

#### *PetroVietnam Gas Company, Vung Tau 19.04.04*

- Nguyen Trung Dan Deputy Managing Director
- Do Tan Deputy Manager of Planning and Investment Department
- Nguyen Van Hung Manager of Personnel Department

PV Gas has an operational role in the building of gas facilities

#### *PetroVietnam Engineering and Construction Company, Vung Tau 19.04.04*

- Luong Van Kinh ECO. Tech. Dept. Deputy Manager
- Nguyen Son Commercial Specialist

PVECC fabricates and installs platform jackets, storage tanks and pipelines

#### *PetroVietnam Exploration and Production Company, Ho Chi Minh City 20.04.04*

- Pham Xuan Tuyen Deputy Manager Reservoir Engineering Dept.

- Cu Minh Hoang Deputy manager, New Projects
- Duong Tan Da Reservoir Engineering Dept.
- Cu Minh Hoang Exploration Dept.
- Rhung Dung PVEP
- Vu Minh Tuan Exploration Dept
- Tran Tho Reservoir Dept.

PVEP is holding the interest of PetroVietnam (the State) in petroleum licenses. The company is moving to become operator and currently holds one block 100%.

***R&D Centre for Safety and Environment, Ho Chi Minh City 20.04.04***

- Dr. Nguyen Duc Huynh Director
- Pham Thi Dung Deputy Manager Environmental Dept.
- Ho Xuan Linh Safety Department Manager
- Le Thi Ngoc Mai Deputy Manager Environmental Dept.

RDCPSE is executing organisation for the Norwegian support project on Petroleum Safety and Environment.

***PetroVietnam Drilling & Well Service Company, Ho Chi Minh City 20.04.04***

- Nguyen Van Que Deputy Commercial Manager
- Nguyen Trung Tranh HSEQ Manager

PV Drilling has been separated out from PTSC. The company has the ambition to become rig owner/operator.

***PetroVietnam Investment and Development Company, Hanoi 22.04.04***

- Vu Van Nghiem Deputy Managing Director
- Nguyen Thi Cam Tu Team Leader, Legal & Contracts
- Nguyen Hong Tam Legal Officer
- Nguyen Xuan Phong Petroleum Geologist
- Mr. Hai Senior Expert, Drilling

PIDC has parallel roles to PVEP in holding license interest on behalf of the state. PIDC is also pursuing license interests abroad in a strategy to capitalise on political preference.

***PetroVietnam Oil Processing and Distribution Company, Hanoi 22.04.04***

- Dr Nguyen Quoc Huy Standing Deputy Director

PDC was originally formed (1969) to build refineries and petrochemical plants. These proved to be too big and long term projects, and PDC turned to do distribution, marketing and retail of petroleum products. (A PetroVietnam petrol station would be PDC)

***PetroVietnam Drilling Mud Company, Hanoi 22.04.04***

- Vu Hong Quang Manager, Marketing and Business Development Dept.
- Ta Quang Minh Drilling Fluids and Well treatment
- Dr Nguyen Quoc Huy Standing Deputy Director
- Dr. Nguyen Xan Ngo DMC

- Dr. Cao Anh Dung DMC

DMC produces chemical products for drilling fluids, mainly barite and bentonite, but also calcite, silica Class G cement and other. Local mineral resources have been mobilised for the offshore activity and are now being exported as well.

***Vietnam Petroleum Institute, Hanoi 22.04.04***

- Do Bat Deputy Director
- ENG. Tran Huu Than Deputy Manager Geology Dept.
- Do Quang Doi Deputy Manager Geophysics Dept.
- Dr Pham Duong Geophysicist, Manager of Information and Training Department
- Nguyen Huy Tien Petroleum Economics Dept.
- Nguyen Lan Oanh International Relations Officer, Planning & Projects Dept.
- Hoang Anh Tuan Gas Technology Dept.

VPI was established in 1978 is also a wholly owned subsidiary of PetroVietnam. PVI performs studies, offers consulting and technical services and gives training, both to other PV organisations and to foreign companies in Vietnam.

***Vietsovpetro, Vung Tau 19.04.04***

- Vuong Quoc Hung Senior Engineer Technical Department
- NN Manager IT Dept.

VSP is a Russian/Vietnamese joint venture and the company is Vietnam's largest operator and producer (Bach Ho and adjacent fields).

***ConocoPhillips(UK) Limited –Vietnam, Ho Chi Minh City 21.04.04***

- Georg Storaker President

Conoco Phillips holds interest in 5 licenses. Oil production since 2003, 5 further discoveries at various stages of appraisals and field development.

***Petronas Carigali, Ho Chi Minh City 21.04.04***

- Shafiee M Salim General Manager

Petronas, the Malaysian state company, arrived in Vietnam in 1991 and is now one of the key foreign companies. The company has been very aggressive in taking new acreage and will actively evaluate further acreage in the upcoming licensing rounds.

## The petroleum sector

Vietnam has a significant petroleum sector with current oil production of 400,000 bopd and a gas production expected to increase to more than 800 mmcf/d during the next 5 years. The ambition is to stabilise a plateau oil production at today's level and increase gas production to 1000 mmcf/d. The state company, PetroVietnam, estimates current reserves at 4 billion bbl of oil and 23 tcf of natural gas.



**Petroleum Basins**

The continental shelf of Vietnam covers an area of approximately one million km<sup>2</sup>, comprising seven major Tertiary basins and groups of basins: Song Hong Basin, Phu Khanh Basin, Cuu Long Basin, Nam Con Son Basin, Malay-Tho Chu Basin, Hoang Sa and the Truong Sa Basins. Among those, petroleum potential has been identified in the Song Hong, Cuu Long, Nam Con Son and Malay-Tho Chu Basin. The Exclusive Economic Zone (EEZ) of Vietnam is designated into more than 100 blocks of average 5000 km<sup>2</sup> size for each.

**Exploration History**

The exploration activities for petroleum started in the early 1960s in the Song Hong Delta, northern Vietnam, with assistance of the former Soviet Union. During the same period, exploration went on in the southern continental shelf through concession agreements with

international oil companies. The most important discovery of oil was made by Mobil in the Bach Ho (White Tiger) prospect, in the Cuu Long Basin.

Following the re-unification of the country in 1975, the first Petroleum Contracts (Service Contract or PSC) were signed with foreign contractors, but all of these agreements terminated by late 1970s and early 1980s. Vietsovetro, a joint venture between Petrovietnam and RVO Zarubezhneft (Russia) was established in 1981 to carry out petroleum operations in the Cuu Long Basin.

The Law on Foreign Investment of Vietnam promulgated in 1987. Since 1988 exploration and production has seen major investments by international oil companies.

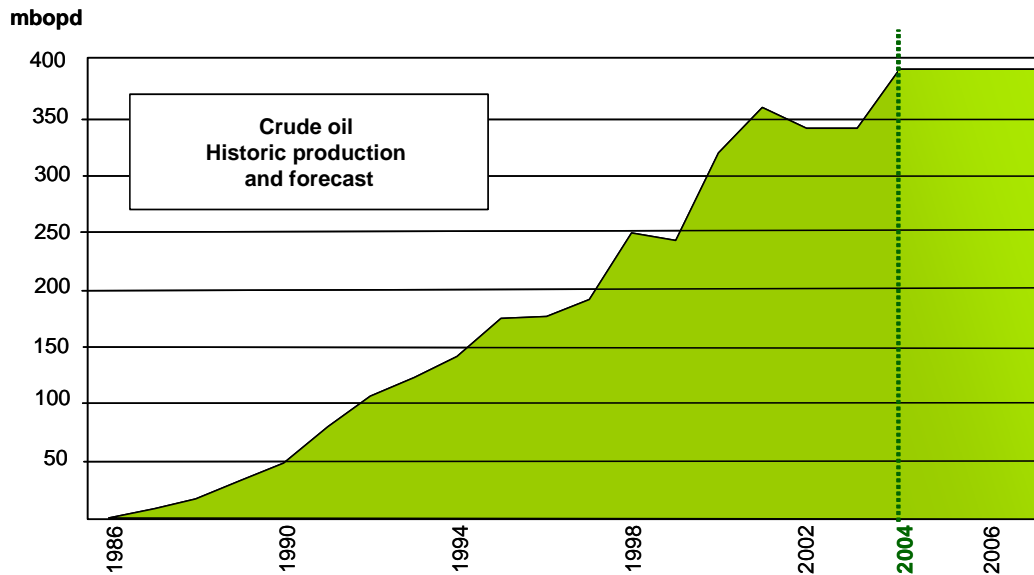
**Oil Production**

In June 1986, Vietnam’s first oil was produced by Vietsovetro from the Bach Ho oil field, the country’s only producing field until late 1994 when the Dai Hung and Rong fields came on-stream. In 2003 Vietnam produced an average of 340,000 bopd from six oil fields:

Field	Basin	Operator	Average Prod.
Bach Ho	Cuu Long	Vietsovetro	256,000 bopd
Rong	Cuu Long	Vietsovetro	12,000 bopd
Dai Hung	Nam Con Son	Vietsovetro	3,000 bopd
Rang Dong	Cuu Long	JVPC	43,000 bopd
Ruby	Cuu Long	Petronas	21,000 bopd
Bunga Kekwa*	Malay-Tho Chu	Talisman	14,000 bopd

(\*) Vietnam's share is 50% of total field production

Supported by the recent discovery of Su Tu Den-Su Tu Vang, a large oil field in Block 15-1, Cuu Long Basin, the country's oil production is expected to reach 400,000 bopd in 2004



Source: PetroVietnam 2004

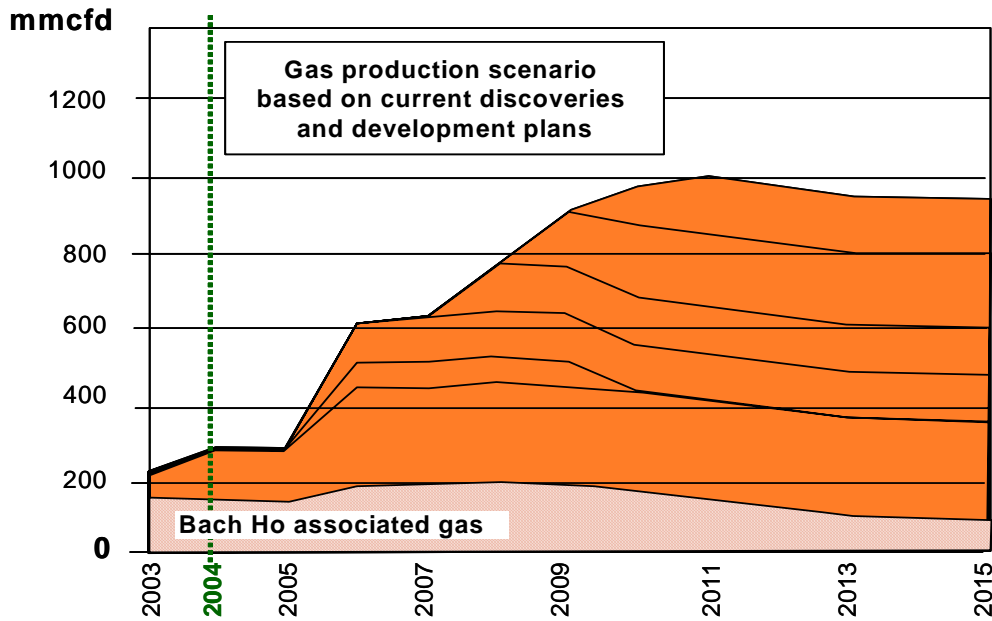
### Gas Production and Utilisation

Until recently the gas supply came from associated gas produced from the Bach Ho and Rang Dong fields in the Cuu Long Basin. Following a series of gas and condensate discoveries in the Nam Con Son and Malay-Tho Chu Basins, Vietnam is developing a comprehensive programme to take the gas ashore and use it.

#### *Bach Ho Gas Project*

The Bach Ho pipeline system was completed in 1997, initially designed to bring associated gas from Bach Ho field to shore. The essential facilities include an offshore compression platform, 107 km of 16" offshore two-phase flow pipeline, with maximum capacity of 100 bcf per year. Gas is supplied for an LPG plant in Dinh Co and several mid-size power plants (Hiep Phuoc, Thu Duc, etc.).

The Bach Ho gas project is seen to be the driving force for other energy and industrial projects in the Cuu Long delta. Recent extension allows the Bach Ho pipeline to absorb an extra associated gas from the Rang Dong field and other adjacent fields in the Cuu Long Basin.



Source: PetroVietnam and ConocoPhillips 2004

#### *Nam Con Son Gas Project*

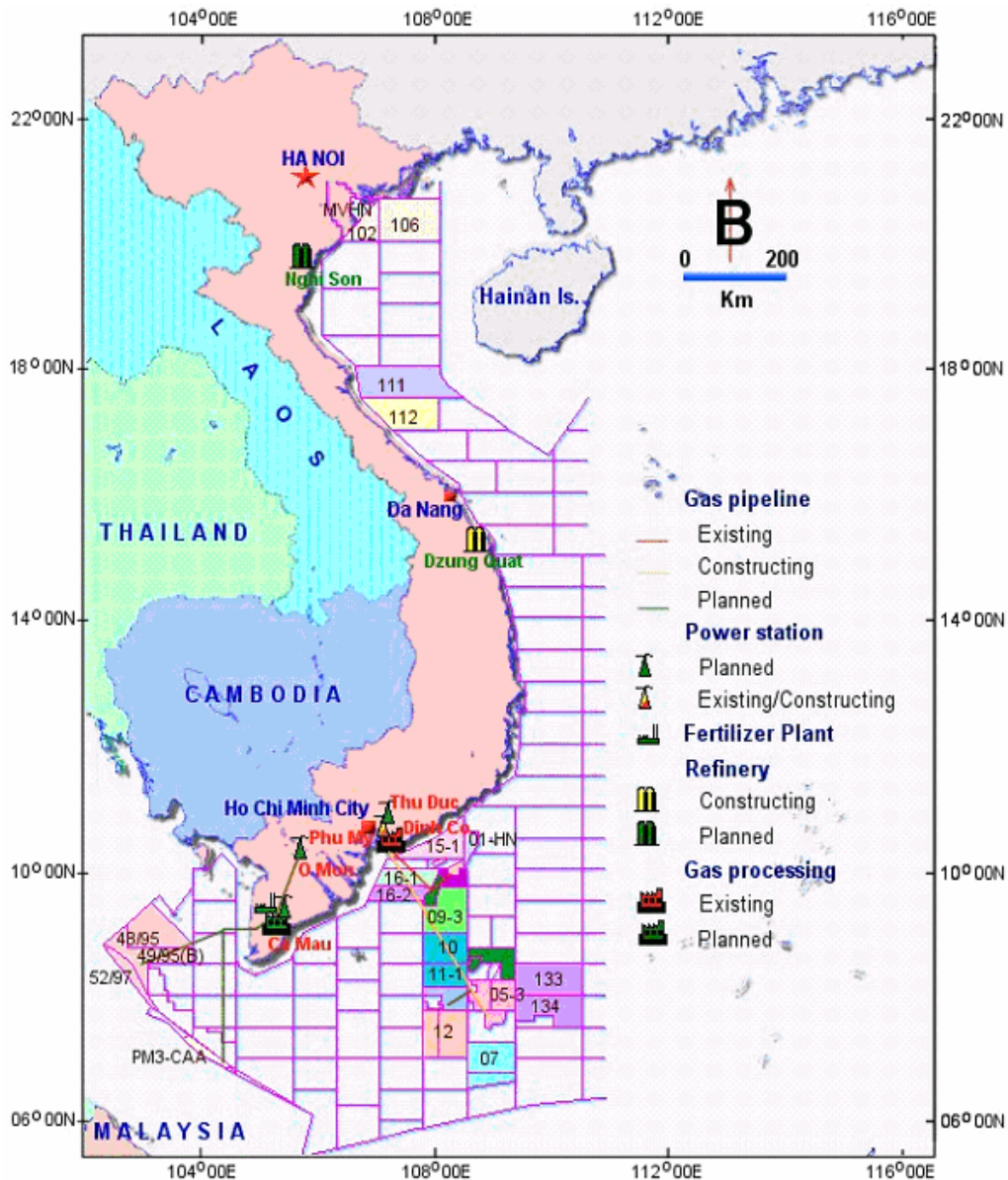
The new Nam Con Son pipeline transports gas from the Nam Con Son Basin to the Phu My area. Beside the primary gas shipment from the Lan Tay-Lan Do field it will have the ability to deliver additional gas from other discoveries in the basin. The system is considered as the largest offshore two-phase pipeline in the world with a length of 370 km and has a nominal capacity of up to 250 bcf per year. Gas is treated at the Dinh Co Terminal before entering a lower pressure pipeline to Phu My.

The Phu My Power-Fertilizer complex, an integrated part of the completed gas project, will be Vietnam's largest gas power station centre with planned capacity of around 3,000 MW developed in five separate phases. An associated 740,000 tonnes per annum ammonia urea facility is under construction in the same area. The complex is set to be fully operational by 2004/2005.

#### *Southwest Gas Project*

The Southwest gas master plan is projected to comprise of two pipeline systems. The first pipeline, 289 km-long offshore and 40 km onshore, 18" diameters with maximum capacity of 70 bcf per annum, is designed to deliver gas from Block PM3-CAA in the Malay-Tho Chu Basin to Ca Mau province, in the southernmost area of the country. The second pipeline shall bring gas from Unocal's Block B and neighbouring area to Ca Mau. PetroVietnam has proposed an optional 430 km long, 24-26" route including 235 km offshore and 195 km onshore with nominal capacity of maximum 150 bcf per annum. The system is scheduled to complete in 2007.

By the time gas from both pipelines is delivered to shore, Petrovietnam and Electricity of Vietnam (EVN) plan to develop an electricity network in the Cuu Long delta by building an integrated complex of four power plants totalling 1440 MW in the Ca Mau area and five other power plants of total 1350 MW in the O Mon-Tra Noc area. An 800,000 tonnes per annum ammonia urea facility is being constructed as part of the project.



**Vietnam  
oil and gas  
infrastructure**

**Liquefied Petroleum Gas**

Vietnam is a growing consumer and exporter of liquefied petroleum gas (LPG), with almost 70% of urban households using LPG for cooking and other purposes. Japan is the major consumer of Vietnamese LPG exports, receiving the country's first export shipment in May of 1999. The Dinh Co Plant is the only local producer of LPG in Vietnam, which is able to meet about 70% of national demand. The plant is 100% foreign-owned and is operating near capacity.

### **Base and Yard Facilities**

Vung Tau is close to the key producing areas offshore and has become the largest support center for petroleum exploration and production activities. Two major supply bases have been operating under the management of the JV Vietsopetro and the biggest petroleum services company of Vietnam, PTSC, with total area of 1,500,000 m<sup>2</sup> and a 3,000 m wharf. Maximum load out capacity is 20,000 tonnes. According to PetroVietnam, the base and yard facilities are capable of supporting the operation of up to 20 drilling rigs, fabricating 5-6 offshore drilling and production facilities per year, and accommodating 15,000 DWT vessels.

Petrovietnam plans to expand base activities in Vung Tau and establish new supply bases in northern, central and south-western areas to meet the demand of increasing exploration and development activities.

### **Refineries**

Vietnam's consumption of oil products is about 228,000 bopd. This is largely imported and Vietnam has plans to build at least two refineries. The US\$1.3 billion Dung Quat Refinery, which is located in Central Vietnam, will have a capacity of about 140,000 bbl/d. The project began as a joint venture between PetroVietnam and the Russian firm Zarubezhneft. The Russian company withdrew as equity participant in late 2002 and was reimbursed by PetroVietnam for money spent. There has been much debate about refinery locations and industry investors have complained that the planned locations are not commercially optimal. The Dung Quat complex is now developed as a 100% PetroVietnam project

A second refinery project is being planned in Nghi Son in northern Vietnam. A collaboration agreement for the feasibility study was signed by Mitsubishi and an American consulting firm in January 2003. The major product lines would be unleaded gasoline, transportation and industrial diesel, LPG, jet fuel, kerosene, FO, bitumen, BTX and propylene. The total project has a cost around USUS\$ 2 billion and the project is open for foreign investment.

The industry's preferred location for a refinery and petrochemical complex would be the Ba Ria /Vung Tau area. This option is still open for consideration for a third refinery and/or a PP/PE plant.

### **PetroVietnam**

Vietnam Oil and Gas Corporation, PetroVietnam, was established in 1975 and is the dominant player in all petroleum sector development both upstream and downstream. The state company has subsidiaries for all activity sectors and these subsidiaries would be business associates and/or equity partners for Norwegian investors. PetroVietnam employs a workforce of over 15,000 people and has annual revenues of some USUS\$ 3 billion (2001)

The subsidiaries of PetroVietnam are:

(The names underlined were companies met during the NIS-2 mission to Vietnam)

PetroVietnam Gas Company (PVGAS)

PetroVietnam Technical Service Company (PTSC)

PetroVietnam Drilling Mud Company (DMC)

PetroVietnam Manpower Training College (PMTTC)

PetroVietnam Insurance Company (PV Insurance)

PetroVietnam Transportation Company (PVTRANS)

PetroVietnam Engineering Company (PV ENGINEERING)  
PetroVietnam Exploration and Production Company (PVEP)  
PetroVietnam Investment and Development Company (PIDC)  
PetroVietnam Drilling and Service Company (PV DRILLING)  
PetroVietnam Engineering and Construction Company (PVECC)  
PetroVietnam Finance Company (PVFC)  
Petrovietnam Trading Company (PETECHIM)  
PetroVietnam Tourism and Services Company (PETROSETCO)  
Research Development Center for Petroleum Safety and Environment (RDCPSE)  
Research and Development Center for Petroleum Processing (RDCPP)  
Vietnam Petroleum Institute (VPI)

### **Foreign companies**

The upstream petroleum sector has been open for foreign company investments since 1987. At present some 26 petroleum contracts (mostly PSCs) are in force and the operators include major companies such as BP, ConocoPhillips and Unocal and a number of regional and international independents. (A list of petroleum contracts, companies and activity status is attached)

Statoil held a license interest in Vietnam (with BP), but the company sold this asset in 2001. Several Norwegian firms are active as contractors and service companies. Current and planned business by Norwegian companies includes seismic acquisition, equipment to drilling rigs and production facilities, equipment to supply vessels and various consultant services.

### **Norwegian Soft Co-operation**

There are several ongoing development assistance activities on the petroleum sector:

***“Assistance to Development of Management Systems on Safety and environmental Pollution Control in Vietnam Petroleum Industry”***, where PetroVietnam , Technology, Safety and Environment Division is co-operating partner with NPD/SFT. PetroVietnam R&D Centre for Safety and Environment is a sub-contractor. The project is well received and the Director of RDCPSE expressed that “the Norwegian project fundamentally changes the safety and environmental standard in Vietnam”. The current project includes training, technology transfer and development of guidelines and regulatory framework. The programme started in 2001 and is scheduled to be completed in 2005. PetroVietnam would like to see the project extended to address contingency planning for north and central Vietnam.

***“Vietnam total resource assessment, Phase II”***, which is performed under co-operation between PetroVietnam and NPD. The goal is to ensure that the Vietnamese authorities have a comprehensive knowledge of the total petroleum resources of the country, and that they continue to use this knowledge at management/policy level for overall strategic planning for the development of the energy sector. The project started in October 2002, and shall end in 2005.

### ***“Petroleum Policy and Management for CCOP Member Countries”*** (PPM)

The Co-operating institution is CCOP ( Co-ordinating Committee for Geoscience Programmes in East and Southeast Asia) and the Norwegian assistance is co-ordinated by NPD. Vietnam is active member of CCOP

The goal of the PPM Project is to strengthen government organisations responsible for petroleum resource management and to establish sustainable and efficient national petroleum policies and management practices. The project started in 2001 and has a 4 year duration.

**Petrad seminars.** Petrad has arranged a number of different professional seminars to meet Vietnam's demand for oil and gas training and technology transfer.

### **Development perspective and Vietnam's requirements**

The early discovery Bach Ho is still the largest producer and account for more than 50 % of total oil production. This and other early oil fields are now on decline and there is focus on enhanced oil recovery technologies. Gas production will increase dramatically during the next few years when a series of gas discoveries will be put on stream. Vietnam is rapidly becoming an important gas nation and commercial utilisation of associated and natural gas is a challenge.

HSE standards were initially set through the Soviet- and later Russian co-operation. There is need to upgrade standards and regulatory framework both for Vietsovpetro and other operators. A particular issue is plans and provisions for abandonment and clean up. (It is noted that NPD/SFT has assisted Vietnam in making new HSE regulation for the industry that is presently being implemented in Vietnam. The project has also built capacity for environmental and safety audits and is helping Petrovietnam to plan and implement the companies HSE management system. DNV is involved in training activities in this project.)

In order to maintain a sustainable oil production at today's level and further increase gas production, PetroVietnam is planning several rounds of new licensing. The first upcoming licensing round is planned for 4<sup>th</sup> Quarter 2004 and will include some 10 blocks in the Phu Khanh basin offshore central Vietnam. During 2005 further license rounds are planned in the south. An activity level of 15-20 exploration wells per year and a similar number of production wells is expected to be maintained for many years to come.

PetroVietnam has good general knowledge of Norwegian offshore technologies and high regard for Norwegian petroleum competence. With reference to the challenges in Vietnam, PetroVietnam has indicated these areas for possible Norwegian technology and business co-operation:

- ✓ Deep water ( more than 100 m) drilling and production technologies
- ✓ EOR technologies for oil fields on decline (including CO<sub>2</sub> injection)
- ✓ Gas utilisation alternatives
- ✓ Refinery investments
- ✓ Polypropylene and polyethylene production
- ✓ Waste management for dangerous and toxic wastes
- ✓ Abandonment and clean up procedures and technologies
- ✓ Environmental practices in processing
- ✓ Investment promotion support

## **Tentative Investment Opportunities**

Certain specific investment opportunities have tentatively been identified during discussion with PetroVietnam headquarters and different subsidiaries. It should be noted that some of these opportunities have not been matured and would need to be reconfirmed with the parties concerned. It is further expected that certain proposals would need approval and authorisation by government.

### ***Waste Management***

There is need to establish a system for treatment of hazardous waste and general waste from drilling, production and storage. The service would be established at the supply base in Vung Tau and other, and include incineration/gasification and recovery systems. Co-operating partner would be Petrovietnam Technical Services Company, PTSC, or PV Drilling. The oil companies would pay for the service. Regulatory requirements for safe waste disposal would provide further basis for the business.

### ***Drilling Rig 70 to 150+ m***

PV Drilling is about to build a 90 m jack-up in Singapore for Vietnam operations. Further movable rig capacity is required for water depth 70-150 m and deeper. Estimated sustainable activity level is 15-20 exploration wells per year (total all water depths). A floating drilling rig may be built or mobilised for Vietnam through JV with PV Drilling.

### ***Non-exclusive Seismic Surveys***

TGS Nopec and PGS are active in Vietnam with 2D and 3D non-exclusive surveys respectively. Competitive license rounds in Vietnam and significant industry interest make such surveys potentially good business.

### ***Seismic Acquisition***

PTSC is considering the conversion of an existing boat into a 2D seismic acquisition vessel. An agreement for marketing and technical services has been made with the Norwegian company Multiwave Geophysical Co.

### ***Oil spill combat equipment***

Under the Norwegian co-operation on Safety and Environment, Vietnam is updating its oil spill contingency plans and it may be expected that new requirements will be defined for oil spill combat equipment, boats and facilities. Norwegian suppliers have not delivered such technology and equipment in the past, but may well position for future tenders.

### ***Polypropylene (PP) and Polyethylene (PE) Production***

This was studied during 96-98 in connection with the planning of the first new refinery at is Dung Quat. PDC considers the PP project (150,000 tonnes/year) particularly feasible. Both PP, PE, polyester and other textile materials may be considered. Feasibility studies exist for the PP plant, pre-feasibility only on PE. Norwegian companies are invited to consider investment, technology co-operation and operational management of Petrochemical developments in Vietnam. Both JV and foreign equity models are possible.

### ***Abandonment and Clean Up***

With Bach Ho and other of the early fields on production decline, the plan for abandonment and clean up at close of production is becoming urgent. Norwegian expertise would be welcome for removal and disposal of wellheads, jackets and other installations. The commercial mechanism is a little unclear at this stage, but co-operating partner may be PVECC and the licensee (Vietsovetro and other) would carry the cost.

### ***Engineering and construction of production facilities***

PVECC fabricates and installs platform jackets, storage tanks and pipelines. Design and engineering is done by the contracting companies. Vietsovetro is currently the main client. PVECC can take the role of subcontractor through MOU with suitable engineering company

or contractor. PVECC would be open for case-by-case bidding co-operation or long term strategic partnership with Norwegian companies.

### ***Second refinery***

In addition to the Dung Quat refinery complex one or two more refineries are considered. Ngui Son is a preferred location and a feasibility study shall commence during 2Q 2004. Private investors are assumed for this project, and Norwegian partners and or suppliers would be welcome.

### ***EOR and CO2 injection***

The production decline in Bach Ho and other early fields is approaching 10% per year and pressure support and EOR techniques are much in focus. The fractured reservoir makes water injection difficult. ODA from Japan has financed an ongoing study to take CO<sub>2</sub> from fertilizer and power generation to inject for pressure support in Bach Ho.

Norwegian innovation and technology would be welcome, however, the respective operators are responsible and possible work would be under contract to the licensees.

### ***Supply vessels***

PTSC operates a fleet of 17 supply vessels and plans to increase the fleet with 3-4 large vessels (>10.000 bhp). Norwegian suppliers are in position to equip the new vessels. (See also Maritime sector report).

### ***“Deep water” technologies***

The term deep water in Vietnam means water depths 100 m and more. (Most of the current production is in 50 m water depth). PV is interested in co-operation with Norwegian industry with experience from production and maintenance in these water depths. The commercial mechanisms may include technical support and supply of equipment and services to PV and the licensees.

### ***Environmental practices in processing***

VSP recognises the need to improve environmental practices and processing equipment to meet international standards on oil in discharged water and methods to dispose of produced water. Norwegian technology co-operation would be welcome. The commercial mechanisms may include technical support and supply of equipment and services

### ***Promotion support***

PV will tender for consultant support in promoting the upcoming license round in the Phu Khanh Basin. Norwegian consultants will be invited to bid. Similar support may be required also for subsequent license rounds.

### ***E&P investment***

There will be a large number of new blocks on offer in Vietnam in the next few years. At the same time there is considerable reshuffling of license interests, which opens for equity opportunities in both exploration and development/production.

## **Soft Projects**

### ***Training Needs Assessment***

Petrad in Norway has developed a Training Needs Assessment tool that will help organisations to perform a diagnostic analysis of its functions and the human and material

resources required to efficiently perform these functions. PVEP has expressed particular interest in such assessment as basis for definition of training programmes for its staff.

#### ***4-weeks Management Training Seminar***

Petrad offers a 2+2 weeks training seminar which in essence is a condensed version of the annual 8 weeks course on Policy and Management of Petroleum Resources. The 4-week seminar may be arranged in Vietnam for staff from VPI (who expressed strong interest) and other of PV departments and subsidiaries.

## Commercial mechanisms

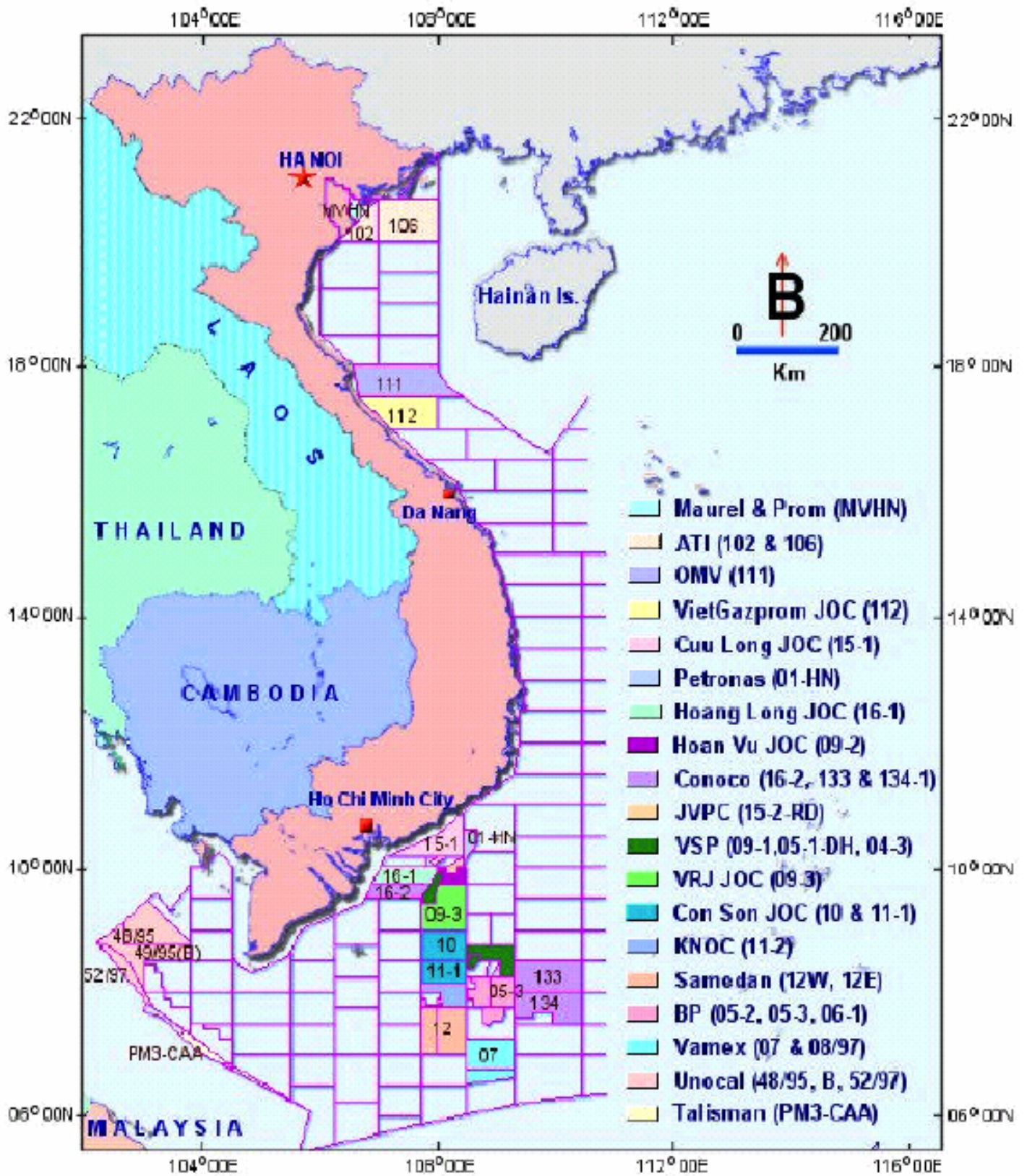
There is at the moment no plans to “equitise” (privatise) subsidiaries of PetroVietnam, but the state company expresses great flexibility in joint venture projects or joint venture companies. The PetroVietnam subsidiary would accept 30-50 % of the equity. Depending on the project, PetroVietnam would be in a position to pay its share. Lease/purchase type agreements are also of interest.

Vietnam legislation accepts that foreign investors establish 100% foreign owned companies for operation in Vietnam, and this is the most common approach so far in the oil and gas sector. It is considerable potential for Norwegian companies to position for tenders to supply equipment and services to PetroVietnam and the foreign operators. Said the president of ConocoPhillips in Vietnam: “*We know that many Norwegian companies are competitive, but they are simply not here.*”

## License holders and status of operations

Block	Operator	Partners	Status
Blocks 01 & 02	Petronas Carigali	PC (V) SB 85%, PVEP 15%	Exploration & Production (Ruby Field) First oil in 2004, peak in 2007
Blocks 05-1A	PetroVietnam Exploration & Production PVEP	PVEP 100%	Development (Dai Hung field) 350 mill bbl in place
Block 05.2	BP (UK)	BP (UK) 75.9%, PVEP 24.1%	Exploration & preparation for moving to the field development phase (Hai Thach Field)
Block 05.3	BP (UK)	BP (UK) 50%, ConocoPhillips 50%	Exploration & preparation for moving to the field development phase (Moc Tinh)
Block 06.1	BP (UK)	BP (UK) 35%, ONGC (INDIA) 45%, PVEP 20%	Prepared to move to field development & production phase (LAN TAY & LAN DO gas/condensate fields )
Block 07& 08	Vamex	Vamex , PVEP	Exploration
Blocks 09.1	Vietsovpetro	PetroVietnam/RVO Zarubezneft JV	Production ( Bach Ho, Rong fields)
Block 09.2	Hoan Vy JOC	PVEP 50%, SOCO, PTTEP 50%	Exploration
Block 09.3	Vietnam-Russia-Japan JOC	Zarubezhneft 50%, PVEP 35%, Idemitsu 15%	Exploration
Block 10 and 11-1	Petronas	Petronas, Pertamina, PIDC	Exploration
Block 11.2	Korean National Oil Co. (KNOC)	KNOC 100%	Exploration Phase II Extension
Block 12 E & 12 W	Samedan	Samedan 60%, Opeco 19%, Delek 21%	Exploration (PVEP option to farm in 15% if discovery)
Block 15.1	Cuu Long JOC	PVEP 50%, ConocoPhillips 23.25%, KNOC 14.25%, GEOPETROL 3.5%	Exploration & Development (Su Tu Den Field) First oil in October 2003, production expected until 2028
Block 15.2	Japan Vietnam Petroleum Co (JVPC)	JVPC (Japan) 46.5%, Conoco 36%, PVEP 17.5%	Exploration & Production (Rang Dong Field)
Block 16.1	Hoang Long JOC	PVEP 41.5%, SOCO 30%, Amerada Hess 24.5%, Opeco 4.5%	Exploration
Block 16.2	ConocoPhillips	Conoco 40%, PVEP 30%, KNOC 30%	Exploration
Block 46/02	TruongSon JOC	PIDC, Petronas, Talisman	Exploration

<b>Block</b>	<b>Operator</b>	<b>Partners</b>	<b>Status</b>
<b>Block B/48/95</b>	<b>Unocal</b>	Unocal 42.38%, PVEP 23.5%, Moeco 25.62%, PTTEP 8.5%	Exploration
<b>Block 52/97</b>	<b>Unocal</b>	Unocal 43.40%, PVEP 30.00%, Moeco 19.60%, PTTEP 7.00%	Exploration
<b>Block 01.97 &amp; 02.97</b>	<b>Lamson JOC</b>	Petronas 50%, PVEP50%	Exploration
<b>Block PM3, CAA</b>	<b>Lundin</b>	Lundin, Petronas, PVEP	Exploration & development
<b>Blocks 102 &amp; 106</b>	<b>ATI</b>	ATI	Exploration
<b>Block 111</b>	<b>OMV</b>	OMV, Edison Intrn.	Exploration
<b>Block 112</b>	<b>Gasprom</b>	Gasprom 100%	Exploration
<b>Block 133&amp;134</b>	<b>ConocoPhillips</b>	ConocoPhillips 70%, PVEP 30.00%,	Exploration
<b>Hanoi Trough (onshore)</b>	<b>Anzoil</b>	Anzoil, PIDC, M&P	Exploration & appraisal
<p>Since 1993, PVEP has carried out seismic exploration in certain areas including TC93, BB95, BM95. Well PV-94-2X at Tu Chinh Bank of Truong Sa Archipelago was drilled. Exploration was also conducted in the open part of blocks 01-02 and in blocks 46; 50; 51.</p>			



## Current PSC Terms

**Contract Duration:**

For Oil: Not in excess of 25 years with 5 years for exploration

For Gas: Not in excess of 30 years with 7 years for exploration

**Contract Area:** Not more than 2 blocks (or 4 blocks in special cases)

**Participation of PetroVietnam:** Negotiable

**Work Program and Budget:** Firm and optional, including:

- Term of each exploration phase
- Minimum work commitments (seismic, drilling, etc.)
- Minimum estimated financial commitments

**Tax Regime:** Royalty subject to rate of production output as below:

<b>Crude Oil:</b>	Normal Projects	Incentive Projects
Up to 20,000 bopd	6%	4%
Over 20 – 50,000 bopd	8%	6%
Over 50 – 75,000 bopd	10%	8%
Over 75 – 100,000 bopd	15%	10%
Over 100 – 150,000 bopd	20%	15%
Over 150,000 bopd	25%	20%
<b>Natural Gas:</b>		
Up to 5 mmcmd	0%	0%
Over 5 – 10 mmcmd	5%	3%
Over 10 mmcmd	10%	6%

**Enterprise Income Profit Tax:** Normally 50%; 32% for incentive projects.

**Remittance Tax:** 3-7%

**Value Added Tax (VAT):** 0-10% (exempted for imported material and equipment that can not be produced locally)

# **Annex 3      Sector report Maritime**

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# 1.SHIPBUILDING IN VIETNAM

## 1.1 Vietnam Shipbuilding Industry Corporation (VINASHIN)

Address:

Head Office: 109 Quan Thanh Thanh Street, Ba Dinh Distr. Hanoi, S. R. Vietnam

Contact: Business and International Department. Tel. +(84-4) 8.439816

Vietnam has around 59 shipbuilding and repairing enterprises owned mostly by the Ministry of Transportation, through VINASHIN, ministry of National Defence, and the Ministry of Fisheries,

VINASHIN is the dominating corporation with 27 member enterprises involved in shipbuilding, ship repair, equipment supply for the marine sector and other industrial engagement.

Total capacity of the whole shipbuilding industry is about 300.000 DWT per year, but with defined expansion plans for 20 of the yards this capacity will increase the years to come.

The Northern Quang Ninh-Haiphong Shipbuilding centre is the largest shipbuilding hub of the country and represent, at present, 60% of the country's shipbuilding capacity. Here is located both the Bach Dang Yard, the Nam Treu Shipyard and in Halong Bay the Halong Shipyard. However we will find some of the new yards in the Central centre, as the Hyundai-Vinashin yard and the new Dung Quat Shipyard.

VINASHIN is one of the largest State owned Corporation, established in 1996 with total 34 subsidiaries in which more than 20 are involved in shipbuilding. In total VINASHIN have 13.000 employees.

Their order book at present counts for:

Two 100.000 DWT tankers for Petrovietnam

5 + 5 + 5+ Bulk Carriers of 53.000 DWT for Graig Investement with DNV class.

28 cargo vessels 4000 to 15.000 DWT, two 1000-1500 TEU container vessels, one Aframax. All for local owners. 7 are already delivered.

1+1 Jack Up.

For Denmark: Series of cargo vessels of 30.000 - 15.000 – 6500 and 4500dwt. Series of Multipurpose vessels of 50.000 – 24.000 and 4500 dwt.

For Sweden 3 tankers of 13.500dwt.

For Germany series of 1.016 (as built by Halong S.Y.) and 1.730 TEU.

For Singapore: 4 Tugs of 3.200HP

Pending:

For Japan Series of LPG Carriers and Tankers

Pipe Layer for Local owners

Feeder Tankers for foreign owner

The majority of ship equipment installed, **at present**, comes from Germany, Japan, China and some from Norway will participate with deliveries to the new Graig vessels. This mainly due to owners request, but the interest for Norwegian equipment is increasing.

## 1.2. The Yards.

It is recommended that the first contact to the Vinashin Yards is done to the main office, and address as given.

Among the 20 Vinashin Shipyards several have already started upgrading, modernisation and expansion.

All the VINASHIN yards are of interest to the NIS II project, but here we will focus on the following yards.

#### Dung Quat Shipyard.

This yard is located in the central province of Quang Ngai. Vinashin is the sole investor and have already invested USD 400 mill. and will be the largest shipyard in South East Asia. The yard is constructed to build vessels up to 100.000 dwt and will be the builder of Petrovietnam's two new 100.000 dwt tankers.

#### Hyundai - Vinashin Shipyard.

This new yard is located in Ninh Hoa in the Na Trang province and is a joint venture between the Korean Hyundai and Vinashin. It is informed by Vinashin that the 2003 turnover of USD 200 mill. already gives a good return of the investments.

Address:

No. 1 My Giang, Ninh Hoa, Nha Trang  
S.R. Vietnam.

Tel.+ (84-58) 622 101

Up to this year the yard have been engaged in ship repair of vessels up to 400.000 dwt, but is now candidate for building offshore structures and –Jack Ups for Petrovietnam.

Hyundau V

#### Halong Shipyard.

This yard is located in the tourist resort Halong Bay and is one of the yard now appointed to build 8 of the 53.000 dwt bulk carriers for Graig Investment. In addition to the 1500 employs another 500 will be employed this year. Makers list for the Graig vessels are nearly settled but in meeting with the yard it was mentioned that they are open for approach.

Information can be sent to:

Ha Long Shipyard, Glen Day Ward  
Ha Long City-Quang Ninh Prov  
S.R.Vietnam.

Tel. + (84-8) 7337762

The yard is also the builder of VINALINES two new 1016 TEU container vessel which we could inspect during our visit at the yard. One of the vessel will be delivered to Vinaline in May and the workmanship performed by the yard is first class.

The yard have historical corporation with Poland since the 70-ies which also reflected the yards use of Polish ship equipment.

A new soft loan of USD 200 mill. with Poland will secure the ongoing modernisation of the yard.

#### Bach Dang Shipyard.

The yard is located in Hai Phong, approximate 2 hours by car from Hanoi. Bach Dang is also one of the yards with a high output of new buildings and large investments are now securing this yard to be among the leading yards.

The yard has also entered an impressive corporation with B&W in Denmark. Up to 10.000HP main engines will be licence built by one of the many production facilities of the yard.

Address:

Bach Dang Shipyard  
No 3 Phan Dinh Pung Str.  
Hai Phong City,  
S.R.Vietnam.  
Fax: (84-31) 842282

Nam Trieu Shipbuilding Industry Company.  
Address:  
Tam Hung, Thuy Nguen,  
Hai Phong.  
S.R.Vietnam.  
Tel (84-31) 775 502

Nam Trieu Shipyard is appointed by VINASHIN to build 7 of the 53.000 dwt vessels for Graig and is, at present, building general cargo vessels for VINALINE.

### **Other Yards:**

**In the South: Saigon Shipbuilding & Repairing**

**In the Middle: Nghi Son S/Y.**

**In the North: Ben Kien S/Y, Song Cam S/Y, Tam Bach S/Y**

### **1.3. Sales of Ship Yard Equipment.**

During the period between 2002 and 2004 VINASHIN` s investment in shipyards was estimated to USD 144,7 mill. As new orders, like the large Graig order and others are obtained there is reasons to believe that the figures will increase. With few exceptions are the demands for modern facilities for efficient operation of the yards very high. Some yards have equipment bought in from Poland in the middle of the 70-ties and together with Financing should Norwegian suppliers be attractive.

### **1.4. DNV is “leading the way”.**

**Det Norske Veritas** have for years been established in Vietnam with their office in Vung Tau where they have served a fleet of supply vessels and rigs. Their latest order, of being principle Surveyors for the large 5 + 5 + 5 53.000 dwt Bulk Carriers, will, according to DNV manager Johan Gardin, lead to office establishment also in the North ( Hai Phong).

With a strong DNV on this market will Norwegian equipment suppliers be given a new challenge and a better possibility for deliveries, compared with a previous situation where other countries classification societies had a stronger position.

Address of DNV office in Vung Tau:

Det Norske Veritas  
4 Le Qui Don St., Vung Tau City  
S.R. Vietnam.  
Fax: + 84- 64 857141

### **1.5. Foreign Involvement in the Shipbuilding sector of Vietnam**

As early as in 1976 Vietnam entered a close corporation with Poland within the shipbuilding sector. Several of present manager within this sector have their technical an commercial education in Poland.

**Halong Shipyard** was built up in 1976 with support from Poland and 300 of the employees have education from Poland. Not only in the management, but also welders, pipers, electricians and other workers and specialists.

In relation with the ongoing upgrading of the yard and the new contract for building 8 advanced 53.000 dwt bulk carriers will several 100 be trained in Poland and 300 of the workers shall also to China “to learn how to build Graig vessels.

During the years 1999/2000 Halong Shipyard received a soft loan of USD 70 mill. from Poland. During 2004 will a new agreement for a Concession Loan of USD 200 mill. be entered, again with Poland at god conditions for Vinashin and the yard. New slipways, new dry dock, new production hall for section welding and a new administration building are already under construction.

It was interesting to hear that the two Container vessels, nearly completed, had Polish equipment from “bottom” to the crane tops. Polish licence built main engine, Towimor mooring winches and windlass, Towimor container cranes etc.

It was also interesting to hear that the design of the vessels was purchased from Polish ship consultants.

**Hyundai VINASHIN Shipyard (mention above)** is another example from a successful corporation between a shipbuilding nation and Vietnam.

This is a joint venture between Hyundai in South Korea and Vinashin. The yard was originally built as a repair yard for vessels up to 400.000 dwt, but is now, in addition, upgraded to build tankers of 100.000 dwt plus offshore structures and Jack Up’s for Petrovietnam.

The yard has 2700 employs, and of these 90 engineers from South Korea.

**Japan, Holland, Denmark, Germany and Australia** are also countries with close corporation with the ship building sector of Vietnam. This includes support in vessel design, training and local production.

The most comprehensive corporation is the join venture between Denmark and Vietnam on production of B&W diesel engines, up to 10.000 hp, at Bach Dang shipyard in Hai Phong.

## **1.6 SUGGESTED PROJECTS FOR BUSINESS CORPORATION BETWEEN VIETNAM AND NORWAY WITHIN SHIPBUILDING SECTOR**

### **1.6.1. Sales of Ship Equipment from Norway**

Before some of the new orders where placed with the yards in Vietnam there was an estimate from Vinashin on import figures of ship equipment during 2003 of USD 161.5 mill., considering that 30 % (of the total value of the ship) was localisation rate.

The majority of the vessels built for local owners based on long term design corporation with Poland, Japan, Germany etc. will normally have a makers list “nearly closed”. Partly because Norwegian suppliers have just recently started to penetrate the market and partly because design corporation very often result in equipment packages from the “designing” country.

VINASHIN is however fully aware of the fact that on export vessels for Europe will Norwegian equipment onboard their vessels be positive for their sales promotion and for the technological standard of their ships.

On vessels ordered for owners outside Vietnam with DNV as principle surveyor, Norwegian suppliers have all possibilities to participate. In a future where Norwegian Ship Consultants are participating with design there is reason to believe that Norwegian equipment will be on the “list”.

It should be mentioned that VINASHIN and their yards do follows international trade terms and international payment conditions, and are thus, also in this respect, a pleasant customer. They are, however very price concerned.

The last, but also a very important entrance to sales is The Export Finance of Norway’s models for financing equipment.

### **1.6.2. Design Corporation/Package supply “A NIS 2 Project”**

Already in the first meetings with VINASHIN in November 2003 it was presented a request from Vinashin to look into a possible corporation between Vinashin and Norway on vessel design, including equipment packages and, if possible, financing.

Demand for vessels, also for local owners, in the year to come is defined, traditional cargo vessels will have supplement in specialised vessels for better logistics also in the many rivers and deltas, ro-ro vessels, crude oil vessels, product tankers, LPG tankers and chemical tankers are mentioned also by the ship owners.

During a recent meeting with VINASHIN it was again confirmed that they are prepared to start discussions with Norwegian ship consultants. Not only on merchant vessels, but also for specialised vessels for their oil and offshore activities from Vung Tau. NIS 2 will have Design Corporation as one concept for trade and corporation between Vietnam and Norway. Norwegian companies have already stated their interest and a concept must be developed further in NIS 2.

### **1.6.3. Local Production/Local engagement A “NIS 2 Project”**

It is stated by VINASHIN that the existing localisation rate of 30% in the shipbuilding sector must be raised. The sector is still depending to a large extend on foreign supplies and there is set a goal by Vinashin to have close to 60% of the demand of equipment produced in Vietnam by 2010.

In meeting held with representative of VINASHIN Marine Trading Centre in April their new plans for Hai Duong Industrial Park was presented to NIS 2.

#### **1.6.3.1.Hai Duong Industrial Park**

Hai Duong is located close to the highway to Hai Phong 50 km from Hanoi, and thus 45 km from Hai Phong. The total area of the Industrial Park is 192.000m<sup>2</sup> and infrastructure and buildings will be the built by, and to the cost of Vinashin ( to be confirmed). Investment approved from Vinashin is in the range of USD 20 mill.

The industrial park will have a variety of marine activities and the part related to the MARINE EQUIPMENT FACTORY have a assigned area of 9800m<sup>2</sup>.

Requested Products to be produced/partly produced in Equipment Factory are:

- **Valves-Fans-Pumps-Windlasses-Cranes-Steering gear-Marine engines-Propellers-Propeller shaft system and Generating sets.**

The development strategy of the project is to start with assembly and later on to do part production and assembly and installation both for the domestic and the surrounding export market.

The suggested investing methods are:

- Privatising the company (Joint Capital as Shareholders)
- Joint Venture in manufacturing. Investing rate is negotiable
- Search for a Investing company to support the project.

Any model will be in accordance with the Foreign Investment Laws of Vietnam.

Several of the Norwegian equipment suppliers have established local production in China and South Korea. Companies without such agreements will, however, consider the VINASHIN Industrial Park – project and will be followed up by NIS 2.

Contact can be made to:

Marine Trading Centre

120 B Hang Trong Str.

Hanoi.

S.R. Vietnam

Att. Mr. Nguyen Tien Han, Vice Director.

With reference to Meeting 17.04.04.

### **1.6.3.2. Local representatives**

There is several options for Norwegian companies with regards to local representation via Agents.

**Vinashin** and their Business & International Department can, according to agreement, assist in search for suitable Agent, Importers or Sales Representatives.

**The Chamber of Commerce & Industry of Vietnam (VCCI)** can assist companies in a wide search for suitable partners.

**Mrs Nguyen Thai Mai Huong** from her company AVANT has proven her capability in assisting Norwegian companies in sales promoting activities. She can be hired for defined projects or as Agent.

NIS 2 sector responsible can, according with agreement, assist in building relation between Norwegian companies and suitable companies in Vietnam.

### **1.6.4 Trade Regime in the Maritime sector**

In the Maritime Sector, as for both the Shipbuilding Sector as for the Seaport Sector) there are not specified regulations for imports of equipment or technology. Vietnamese companies are freely allowed to import ship equipment on basis of the commercial contracts negotiated between the yards or Vinashin and the supplier.

With regards to investment in shipyards, manufacturing of ship equipment there is Special Investment Encouragement offered.

In relation with sales of ship equipment is normal to follow international General Conditions and payment conditions can be negotiated to be in accordance with “normal” practise. Payment conditions against Irrevocable confirmed L/C is therefore accepted conditions. It can also be mentioned that most of the imported equipment to this sector can enjoy zero import duty rates.

### **1.7 Investment in Yard/Yard Development in Vietnam**

The report have mentioned Poland and South Korea and Japan as investors in VINASHIN yards in Vietnam.

From a sector study, conducted by Vision & Associate, it is stated that two of the yards in the VINASHIN are calling for foreign investment.

Long Son Shipyard with the investment capital of USD 170 mill. and Vung Ang Shipyard with the investment capital of USD 180 mill.

Further information will be brought forward by NIS 2 upon request from Norwegian Yard Groups.

## **2. SHIPOWNERS IN VIETNAM**

### **2.1. Vietnam Shipping Line (Vinaline)**

Address:

Vietnam National Shipping Lines

Sun Red River Building, 23- Phan Chu Trinh Str.

Hoan Kiem Dist.

Hanoi – S.R Vietnam.

Fax. Business and Int. Relation Dept.: + (84-4)9332788

VINALINE, established in 1996 has 27 subsidiaries and is the largest of the shipping companies in Vietnam and operates 85 vessels with a total tonnage of 900.000 dwt. Of these are 44 vessels of newer date, 23 vessels are bigger than 10.000dwt.

Last year Ministry of Planning and Investment approved a Master plan stating that 32 new vessels should be built by VINASHIN yards, within 2005, for local owners. VINASHIN and its subsidiaries is listed as owners for 28 of these vessels.

Among the shipping line in the Vinaline corporation, listed as receiver of new tonnage, we will mention:

- VISERTRANS, INLACO SAIGON, VAN LANG, VINASHIP, VISTRANSCHART, VOSCO, FALCON, VINASHIP and TRANSCO.

### **Norwegian equipment for coming new VINALINE projects**

The majority of installed for their new vessels comes from Poland, Japan and China, Germany and South Korea. It must, however be mentioned that some of this comes from licence produced Norwegian equipment. Vessels based on Polish and Japanese and Danish design will, to a large extent, have deliveries from these countries.

The proposed NIS 2 project including a Design/Package corporation with Vinashin was presented with positive respond from VINALINE. It is acknowledged that Norwegian design packages with DnV class will have a large extent of Norwegian equipment.

In addition to general cargo vessels and container vessels will following be requested in the years to come.

- Feeder vessels
- LPG Tankers
- Crude oil vessels
- Product Tankers
- LPG and Chemical tankers.

### **Education in Norway**

Several in the companies management have their education from The Norwegian Shipping Academy and new courses was requested by VINALINE as part of the NIS 2 project. It is again confirmed how successful this corporation between Norad and the Shipping Academy have been.

Part of their education of Shipping people is now taken over by Holland and Belgium.

### **2.2. PETROVIETNAM TECHNICAL SERVICE COMPANY (PTSC)**

PTC MARINE is a wholly owned subsidiary of PETROVIETNAM with operating office in Vung Tau, where oil & gas exploration and production activities take place. PTSC Marine is one of the main divisions of Petrovietnam Technical Services Company and is assigned to provide diversified Marine support services to the Oil and Gas Industry in Vietnam.

PTSC Marine is a very important contact for Norwegian equipment suppliers and for companies with marine and offshore services ( maintenance, repair, spare part supply etc).

PTSC MARINE operates the following of PETROVIETNAM's fleet:

- Offshore support Vessels
- Towing Rescue and salvage
- Petroleum Products Carriers

Marine Crew Supply Service – Site Survey and Seismic Survey Services and Offshore Transportation Services is also part of the companies impressive operations. The company is in close negotiation with the Norwegian Rolls Royce Marine in Aalesund for design and equipment package for 3(+3) new Oil Rig Supply Vessels. Rumours say that the vessel can be built at Russian yard.

Norwegian companies have already good relation with PTSC. As an example, can be mentioned that Kongsberg have delivered equipment for Dynamic Positioning to their vessels.

### **2.3. Petrovietnam Transportation Co.**

#### **A “NIS 2 Project”**

PetroVietnam Transportation Co. have their office in Ho Chi Minh City and operates PETROVIETNAM's tanker fleet. The meeting with the management in April was, however, dedicated to the companies engagement in building a new service base for Petrovietnam in the Cai Mep area ( down the Mekong Delta from HCMC).

There is direct request from the management to receive accept from KVÆRNER or ELKEM or other Norwegian Construction Company to receive the Tender Documents for ” Planning/Design of Service Base”.

Following information where given during the meeting:

- Tender Documents are under production and procedures to acquire the land area is at a advance stage and final accept from the Government is expected by June 2004.
- Tender will be sent out during July 2004.

- Design/Plans is expected to be finalised by December 2004.
- Construction work, Phase 1, is estimated to start in the beginning of 2005.

The service base shall handle, among else:

1. Drilling Equipment
2. Subsea Constructions
3. Submersible rigs
4. Gas and Compressor Platforms
5. Large Tankers
6. Supply and Service Vessels.

It is Agreed with the management of Petrovietnam Transportation that NIS 2 will present the request for companies mentioned above.

#### **2.4. THORESEN INDOCHINA (Ex Vinamar Line), Ho Chi Minh City**

The Norwegian Thoresen Indochina is one of the 30 foreign shipping lines operating in Vietnam.

The Norwegian management of Thoresen Indochina have a strong engagement in the Norwegian/Vietnamese shipping activities in Vietnam.

Norwegian Companies with demand for shipping/freight services can contact:

Thoresen Indochina. ( Mng. Dir.Sigmund Strømme)

Harbour View Tower

35 Nguyen Hue Boulevard

Ho Chi Minh City, Vietnam

Fax: + (84-8) 8215424

#### **2.5. VOSA GROUP OF COMPANIES**

Norwegian Companies with demand for transport to/from Vietnam can contact:

VOSA Group of Companies

1003 – 10F Harbour View Tower

35 Nguyen Hue Blvd. 1st. Distr.

Ho Chi Minh City. Vietnam.

VOSA Group of Companies is a subsidiary company of VINALINE. Scope of business is SHIPPING AGENCY , SHIP BROKING, FREIGHT FORWARDING, LOGISTICS and act as port agent, clearing and forwarding and provides services to both ship owners, operators, charters and other clients.

VOSA have 14 offices along the coast and the management states that they cover the most important Ports of Vietnam with their services. VOSA corporate with 49 of Vietnams ship owners and is a good contact point for Norwegian ship owners with interest for the increasing transport market in Vietnam.

#### **Vessels of the future for Vietnam**

There is an increasing demand for container vessels of approx. 1000TEU. RO-RO and Lash carriers will be more and more attractive as Ports now are developed for such design. For the increasing export of fish and green products will also the demand for Container reefers increase.

#### **Ro-Ro Service in Vietnam**

There is a direct request from VOSA to NIS II to be connected to a Norwegian shipping company or organisation or education center with solid competence in Ro-Ro operations for transfer/corporation of such operation in Vietnam.

### **The Main Ports of Vietnam**

By contacting Thoresen Indochina or VOSA ( see above) detailed information about Vietnams ports and services. Below is listed a number of important ports by name and province-location. Starting from North, near Ha Long City and to the South to the Minh Hai Province.

- **In Quang Ninh:** The Ports Cam Pha, Hon Gai and Cai La and the new Conatiner port in .
- **In Hai Phong City:** The Ports Hai Phong, Chua Ve(Container Port now under upgrading), and Doan Xa Port.
- Ben Thuy Port in **Nghe An Province**, Than Hoa in **Than Hoa Province**, Vung Ang in **Ha Tinh Province**.
- **Da Nang Port** in Quang Nam **Da Nang**.
- **Dung Quat Port** in **Quang Ngai Province**.
- **Nha Trang** and **Ba Ngoi** in **Khanh Hoa Province**
- **In Ho Chi Minh City:** **Saigon Port**, **Ta Cang Port**, **Vietnam International Container Terminal**.
- **Dong Nai Port** in **LongThan Province**.
- **In Vung Tau :** **Baria Serece and Phu My Port**
- **In Mekong Delta the Can Tho Terminal** ( of Saigon Port)
- **Dong Thap Port**, **Vinh Thai Port**, **My Tho** in **Tien Giang Province** and **An Giang Province**.
- **In North,Hon Chong Port** in **Kien Giang Province** and **Nam Can** in **Minh Hai Province**.

## **3. PORT DEVELOPMENT/PORT UPGRADING**

Total investment Capital in Ports In Vietnam during 2003 is close to USD 220 mill.

During 2004 wills several of the planned and approved upgrading projects be started up. One of these, the Chua Ve Container Terminal in the Northern Port in Hai Phong City started upgrading works in March 2004. This is the second phase of the project to double the Hai Phong ports to reach a container processing capacity of 500.000 TEU by 2006.

The upgrading is financed by a USD 126 million loan from the Japanese Bank for International Corporation.

It is estimated that a large percentage of the seaport equipment will be delivered from Japan.

### **3.1. Saigon Port**

In relation with the NIS 2 study and possible project between Vietnam and Norway it was given a priority to the planned Relocation of Saigon Port.

The exiting Port of Saigon is the largest port with terminals from Ho Chi Minh City to Mekong with a defined capacity of 12.8 mill. TPA (tons per annum). The total port area (including the terminals in Ho Chi Minh City and in Mekong Delta) is 56 hectares, the 5 terminals have a total quay length of 2.977 m.

The increased demand for deeper ports, plus the strategic decision of relocate a new port outside the centre of Ho Chi Minh City will result in dept of 16 m and Port of Saigon will be capable of receiving vessels up to 50.000 dwt.

## **3.2. Relocation of Saigon Port**

### **A “NIS 2 Project”**

In meeting 19.04.04. with the management of Saigon Port and with the Chair Man of Vietnam Seaport Association the project was presented to NIS 2 with a request of participation from Norway with Financing, and or Port equipment and or Port Technology.

**A further request was to report back to the management if Norway and Norad and The Shipping Academy could reserve for possible training/education for representatives from the Port Authorities.**

The project includes new ports:

1. The CAI MEP CONTAINER PORT.
2. THE THI VAI PORT for general cargo
3. THE HIEP PHUOC Port.

The Cai Mep Port will be built out with 4 quays, each of 320m, planned to handle 550.000 TEU pr. year within 2010. Total cost USD 199.089.251 mill.

- Port equipment: USD mill.94.150 000,-
- Construction work: USD 104.937250 000,-

The Thi Way Port also with 4 quays, but for general cargo. Total cost: USD 118 mill.

- Port Equipment: USD 39.968 750 000,-
- Construction Work: USD 78.061 250 000,-
- Designed to receive vessels 50 – 80.000 dwt

The Hiep Phuoc Port is the smaller and shall handle vessels up to 15 – to 20.000 dwt Investments, stipulated to USD 47.395 967 000,-

Of this is port equipment USD 6.537 877 000,-

The feasibility studies are done and the Project Management are in a Phase where Terms of Corporation shall be considered. Alternative financing of the projects where mentioned as:

- Joint Venture
- Source of capital from financial aids
- “Consessional” loans

It shall be observed that the potential of obtaining orders for equipment and services are good. Norwegian technology on engineering, modern cargo handling, Intermodal Terminal Technology, as well as port traffic system and ship simulators are attractive products for the new port design.

It is history that 2.hand equipment is purchased for the new ports of Vietnam. Purchase of services and equipment is also financed via their own financial company.

Japan has been, and is still an important supporter of Port Development in Vietnam and it is, by Vinamarine, mentioned that the Study of Port Development of the Vung Tau International Container Port is performed by Japan and followed up with a ODF funding of USD 240 mill. The port of Hung Tau will, when built out, handle vessels up to 80.000 dwt.

It shall be observed that VINAMARINE in corporation with Government is developing the new Port project, but selection and choice of suppliers are done by the respective Port Authorities.

### **3.3 Vietnam International Container Terminal (VICT)**

NIS 2 also had the pleasure of visiting VICT in Ho Chi Minh City, together with Vinamarine's representative, and was hosted by the Chairman of VICT.

VICT is operating under the Foreign Investment Law of Vietnam and received the Operating Licence in September 1994 and Commencement of Operation in 1998. The port was official opened by ex president Clinton the 22. of November 1998 and is today one of the most efficient terminals in Asia. The port is owned and operated by First Logistic Development Company and investor s are SOWATCO of Vietnam, Mitorient Co., a joint venture between NOL group of Singapore and Mitsui & Co of Japan. 800 vessels calls the port annually and throughputs in TEUs is exceeding 320.000.

**For NIS 2** it is of great interest to accept an invitation to connect Norwegian companies with VICT's chairman in utilising a common knowledge for future concepts leading to improved logistic, cargo handling, satellite assisted management control system.

## **4. THE OFFSHORE FISHERIES**

Both in relation with the NIS 2 study and the NME study, issued earlier this year, there is a lack of direct information from Vietnams private offshore fisheries. NIS 2 is familiar with the Governments impressive plans for development of the Aquaculture, but this study have not collected enough information from Private sectors offshore fisheries and the companies development plans.

Meetings with The Ministry of Fisheries and research institute of sea fisheries is thus basic for this report.

### **1.4.1. The fleet**

The latest figure for registered fishing vessels reach a total number of 81.300 boats with engine. Of these are 6.673 with engines between 49 exceeding 90 HP. Of these are 1362 with engine of 90 hp, built in 1996 to handle coming offshore fisheries.

In North 33-35% of the vessels are fishing with trawl and bottom gears and 65% Pelagic, in central provinces figures are 31-32% with bottom gears and 68-69% pelagic, while in south it is split equally 50 – 50.

More specific with regards to fishing gears:

1. Trawling : 33%
2. Purse seining: 21%
3. Gill Net 20%
4. Longline: 17%
5. Net and handlines: 9%

## **4.2 Equipment and Technology**

Defined figures states that a large percentage of the catches are lost due to bad handling of the fish. Included lack of equipment for proper cooling of the fish. It is furthermore stated:

- The existing equipment is old and worn out
- Modern equipment for catching, fish finding and cooling is missing
- Capital is missing
- Management and the operative fishermen need training
- Specific competence in Fishery Technologies is too low
- The vessels are too small for longer trips and the crew is not trained for several days offshore.
- No standard for fishing vessels adapted to the demands of the Vietnamese offshore fisheries is existing.

## **4.3 Resources**

It is stated that the inshore fisheries is heavily harvested, and demand for fisheries on dept above 50 to 100m ( offshore fisheries) is needed increased to reach annual catch of 1,4 mill tons. During the year 2000 Vietnams Fishery Research Institutes evaluated the resources and information stated the volume of marine spices to be 42 mill. tons in Vietnams water with acceptable harvest of 1,7 mill tons pr. Year. This figure is later on adjusted to 1.4 mill tons in accordance to recent information from MOF.

## **4.4 Demand for support**

### **The Proposed “NIS 2 Project”**

Test fisheries has been done on the fishing fields of both Brunei and Malaysia to explore the competence of the “long distance” fishing fleet. These trial fisheries where not successful. The requirement for equipment, training, standards and larger vessels are extreme in order to bring the Offshore Fishing Vessel fleet up to a standard which can secure growth, profit, and competence into this sector of the Vietnamese fisheries.

Both in meetings with MOF and The Research Institute of Marine Fisheries it appears as a common opinion that if Norway shall support the Offshore Fisheries it should be done by a Direct Operative Fishery Technology program.

### **NIS 2 Proposal. A project for development of next generation Offshore Fishing Vessel**

- 1 Verify with MOF and private fishing companies, and the 3 Fishery Corporation and R.I.M.F. and VASEP`s and VINAFA`S their view of a future Offshore Fishing Fleet.
- 2 Lend or Purchase a Norwegian Fishing vessel of approx. 30 m with alternative fishing gears and with a slurry ice plant or with a RSW plant and with accommodation for a suitable crew. The project shall include two Norwegian fisherman capable of assisting local fisheries included training in operative fisheries, fish handling and operation (in Vietnam).
- 3 Next phase is, on basis of the experience gained, to design the coming generations of Offshore Fishing Fleet.
- 4 Build a prototype of the vessel in VINASHIN yard with Norwegian fish finding- and catch-equipment technologies and proper refrigerates financed by a ODA loan or others. Survey to be DNV.

10.05.04,

Per S. Vadseth, Vadseth Consulting A/S

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## Annex 4      Sector report Fishery and Aquaculture

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#### **1. Vietnam's fisheries and aquaculture industry**

The Vietnamese marine capture fisheries can be divided into coastal fishery, inshore fishery (having land sight), shallow water offshore fishery (up to approx. 50 m depth) and deep-sea fishery.

There is an ancient tradition for both collecting and capturing fish directly from the beach or in shallow mangroves, estuaries, lagoons and river deltas, helped by the influence of tidal water. A variety of simple, as well as sophisticated, fishing gear is used for capture of all kinds of fish and shellfish species. This provides a substantial amount of protein to the coastal population. Due to the increase in human population, there is an enormous pressure on these resources. Exact data are not available, but estimates can be drawn from behavioural analysis. According to these estimates, in addition to the 8 million people whose livelihood depends on these fisheries as the household primary income source, there are an additional 12 million who get part of their income or subsistence from fisheries.

Inshore fishery (up to 4-5 n mi from the coast) depends on a fleet of about 28 000 non-mechanised canoes and boats, and approximately 45 000 smaller mechanised boats with attached long-tailer or stationary 1-cylinder diesel engines up to approximately 20 hp, mainly of Chinese and Japanese make. All these vessels operate directly from the beach without using harbour facilities. The most popular fishing gears are gillnet, longline, lift-net, pushnet and traps. Statistics covering these gears are approximate

since landings can take place nearly anywhere along the coast. The bulk landings end up in local town and village markets, but high-value species are sold to professional dealers and factories.

In the shallow-water offshore fisheries, it is mostly small trawlers that are used, but also deploying many other types of fishing gear, such as purse seines, longlines and various traps. The offshore fisheries supply about 90% of the commercial landings – less than 60% of estimated marine capture landings. The total fleet consists of approximately 20 000 vessels, almost all of them made of wood. Total engine power is approximately 1 000 000 hp, an average of 50 hp per boat. Most vessels are equipped with second hand truck engines.

Only about 100 vessels are equipped with engines of 400-500 hp, with the capacity for deep-sea fishing. This fleet comprises either trawlers or purse seiners. Trawlers are used in waters 35-80 m deep in south-eastern waters, whereas purse seiners fish pelagic species in deep waters, mainly off the central region.

Overcapitalisation (increased fishing effort/number of vessels and fleet horsepower combined with decreased catch per unit effort) is a common feature for coastal, inshore and shallow water offshore fisheries. This is aggravated by the fact that there are no regulations to exclude bigger vessels off shallow-water fishing grounds.

Marine fishing areas are the Gulf of Tonkin (in north central, south-east and south-west Vietnam) and the south Vietnamese fishing grounds of the Mekong river delta.

Problems encountered include *inter alia* monitoring and control of deep-water fishing grounds, as well as illegal fishing by vessels from other nations, mainly China and Thailand. With the vast area under Vietnamese control, surveillance is a big problem. The authorities do not have the resources to patrol the areas properly.

A major problem for the fishing fleet, particularly the smaller and medium size vessels, is on-board handling. Although the use of ice is fairly common, handling practices and long trips lead to a deterioration of the quality of the fish landed. The use of RSW (Refrigerated Sea Water) systems is unknown. A major improvement in the quality of the landed fish could be achieved with the introduction of RSW systems.

## **2. Production**

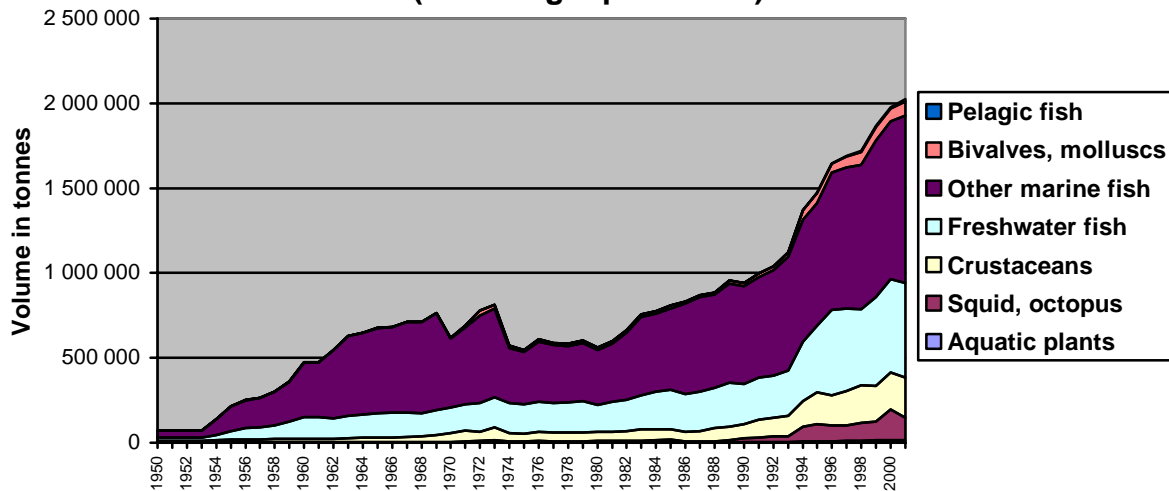
Vietnam's fisheries have grown remarkably over the past ten years, and total production (capture plus culture) was in 2003 some 2.4 million tonnes. According to official Vietnamese statistics, capture fisheries constituted some 1.4 million tonnes, while aquaculture production reached almost 1 million tonnes<sup>3</sup>.

Unfortunately, the statistics do not include much detail, for example with regard to species landed/produced. Thus, most species are lumped together in the "Other marine fish" group.

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<sup>3</sup> Official Vietnamese statistics deviate from the statistics published by FAO. Furthermore, FAO statistics include figures only until 2001, while Vietnamese statistics are much more up-to-date.

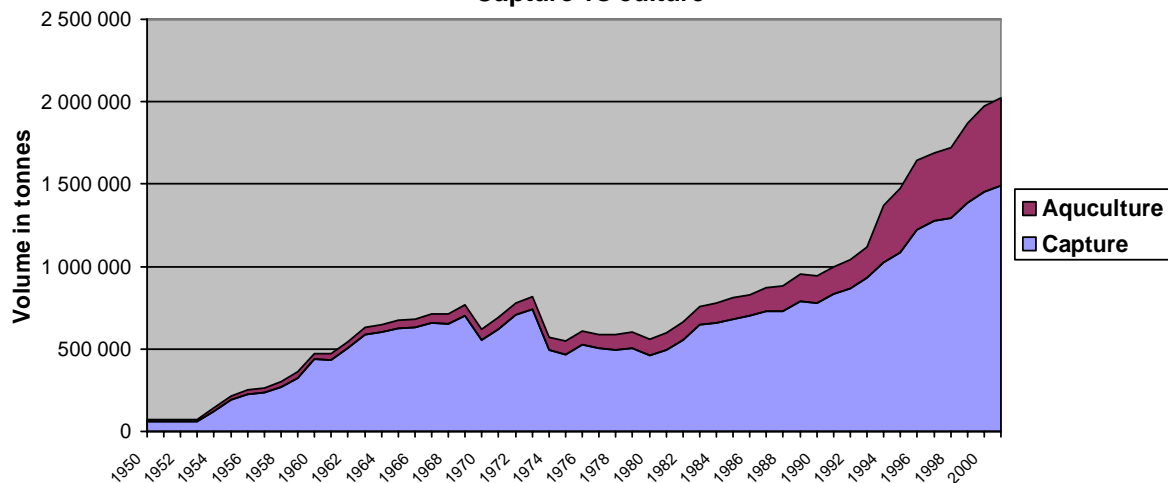
## Vietnam's catches and landings (Including aquaculture)



*Source: FAO FISHSTAT*

Although capture fisheries have grown rapidly through the 1990s, the resources are now considered fully exploited, and one does not expect any significant growth in landings. In stead, the focus is on aquaculture, which still has a considerable potential for expansion.

## Vietnam's seafood production Capture vs culture

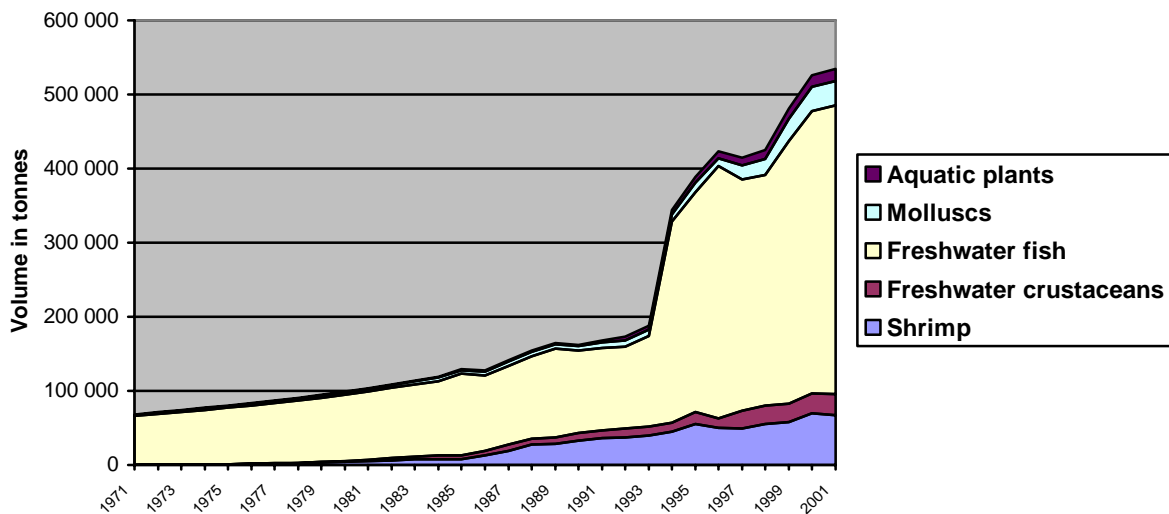


*Source: FAO FISHSTAT*

### 3. Inland fisheries and aquaculture

Almost any freshwater body in populated areas is subject to fisheries utilisation. For centuries, the Mekong river delta in the south and the Red River delta in north have been used for capture fishery, as well as for extensive fish farming. The Mekong river delta covers an area of 40 000 km<sup>2</sup> and is very productive.

## Vietnam's aquaculture production



Source: FAO FISHSTAT

The total area of natural inland water bodies (lakes and rivers) is estimated to be about 4 200 km<sup>2</sup>, and additional ponds and seasonal flooded areas of 6 000 km<sup>2</sup>. A number of dams and reservoirs have also been constructed. In 2003, about 1 million ha have been made available for inland aquaculture.

According to MOFI<sup>4</sup>, the aquaculture production of Vietnam has now (2004) reached about 1 million tonnes. There is still a considerable production of carp (by traditional methods), but in recent years shrimp farming has grown rapidly, as has farming of freshwater finfish such as catfish (tra) and basa. Vietnam now also wants to develop the tilapia farming sector.

In shrimp farming, modern pond culture is used, and although there may be some problems with water quality and disease from time to time, this industry is in general doing well.

Finfish farming is a mixed bag. The catfish industry is well developed, and the basa farming industry is small, but growing very rapidly. The main problem is the availability of juveniles and feed. There is therefore a need to expand the hatchery production for basa.

Tilapia farming is still small, but the authorities as well as private enterprises want to develop this in order to secure larger supplies for the processing industry. The main problem is the production of fry and fingerlings, and there is thus a need to establish more hatcheries and to improve hatchery operations.

Modern marine aquaculture is still in its infancy, but both the authorities and the research institutions are focusing on this now. There are a number of areas both in the

<sup>4</sup> Ministry of Fisheries

middle of Vietnam and in the north that are suitable for cage culture. There is an interest in farming several species, including cobia and grouper. For both species there is a need for juveniles, thus hatcheries must be built.

#### **4. The processing industry**

A large part of the marine capture landings and the freshwater production is consumed domestically. There is a strong demand for traditionally preserved fish (dried, salted, and fermented products such as paste and sauce).

After the Vietnam war, a number of state-owned processing plants were set up (some financed and delivered by Norway) with a view to producing for exports. These plants were important in developing the export industry, but the plants are today run-down and out-dated. Over the past ten years, the private sector has been investing in seafood processing, and the standard of the private plants is outstanding. Practically all of these new plants are producing for exports.

The processing industry today consists of more than 300 processing plants. This number has grown rapidly through the 1990s as a result of the government policy to increase exports. In 1990 there were just 102 processing enterprises, all of them state-owned. The processing plants mainly pack shrimp, frozen fish fillets, and, to some extent, squid and cuttlefish from the marine capture fishery. Value-added products are also being produced. Almost the entire output goes for export. There are also private fish canning factories, which deal mainly with farmed shrimp for export.

Domestic production of fishmeal is not known, but it may constitute a substantial part of marine landings.

The quality of the new, private processing plants is exceptionally high by any standard. In a very short time, the private sector has adopted the highest standards in the world, and today, some 100 enterprises have received top approval from the EU, and 200 enterprises are approved by the USA. It is probably correct to say that the best processing plants in Vietnam would rank as the best in the world.

There are, however, also a number of small, traditional operations that produce mainly dried (sun-dried) fish and fish sauce for the domestic market and for exports to China. This operation leaves much to be desired with regard to quality and hygiene, and there is room for major improvement.

#### **5. Exports**

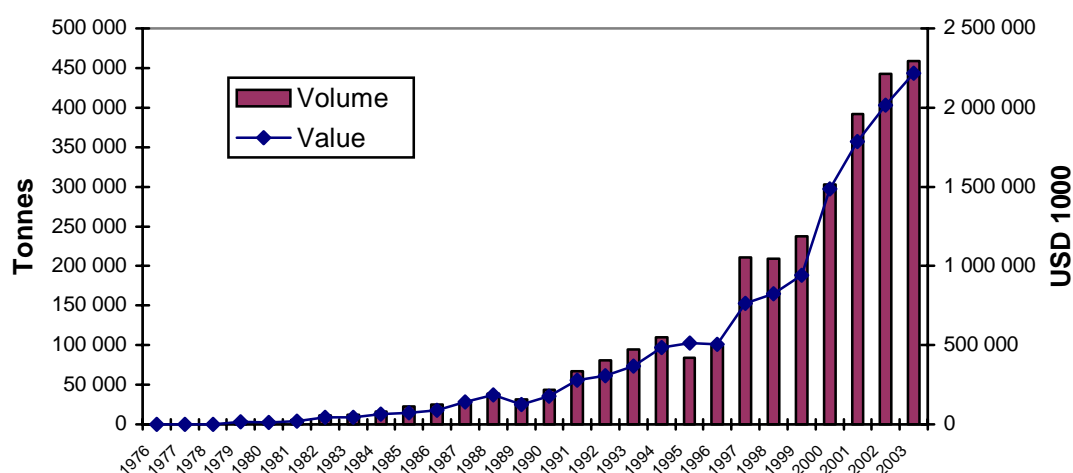
Marine landings can roughly be divided into three categories: high value species for export; medium value species for domestic consumption; and low value species for fishmeal.

The need for foreign currency coupled with state ownership of the processing industry have created a price regime with high prices for shrimp and squid species. At the same time, due to low purchasing power in the domestic market, most species for human consumption are low priced. Over the last ten years, private enterprises have taken over much of the processing and export activities previously controlled by state owned companies, and it appears that state ownership is now slowly being phased out.

In the decade since Vietnam opened up its economy, the authorities have sought to increase its seafood exports significantly. The target for 2010 is that seafood exports should reach a value of USD 4 billion. In 2003, total seafood exports amounted to USD 2.2 billion. Thus, one is on schedule to reach the target.

This has been achieved by focusing on building a processing industry of a high standard, and by increasing the supplies of raw material particularly through building an efficient aquaculture industry. However, supplies of raw material are beginning to become a problem, and some enterprises are interested in importing frozen raw material for processing and re-export.

**Vietnam's seafood exports**  
Volume in tonnes; value in USD 1000



Source: FAO FISHSTAT

**Vietnam's seafood exports by products**  
Value in USD. Source: VASEP

Major products	1999	2000	2001	2002	2003
Shrimp	480 202	662 494	781 474	966 709	1 058 122
Fish	120 520	242 590	310 070	462 781	466 528
Cephalopods	109 655	108 631	118 415	142 786	113 880
Dried seafood	77 167	185 155	188 503	138 368	73 720
Other	150 200	228 548	379 023	312 177	504 444
<b>Sum</b>	<b>937 744</b>	<b>1 427 418</b>	<b>1 777 485</b>	<b>2 022 821</b>	<b>2 216 694</b>

The most important export products include frozen shrimp (48% of the total in 2003), frozen fish (21%) and cephalopods (squid, cuttlefish and octopus) (5%). There is some uncertainty about export developments in 2004 because of the cases pending against the shrimp and catfish industries in the USA (anti-dumping). According to some shrimp farmers, production of shrimp will probably be somewhat reduced in anticipation of market problems. Catfish (tra) exports will probably also be reduced, but this may be replaced by exports of other species, such as basa and tilapia.

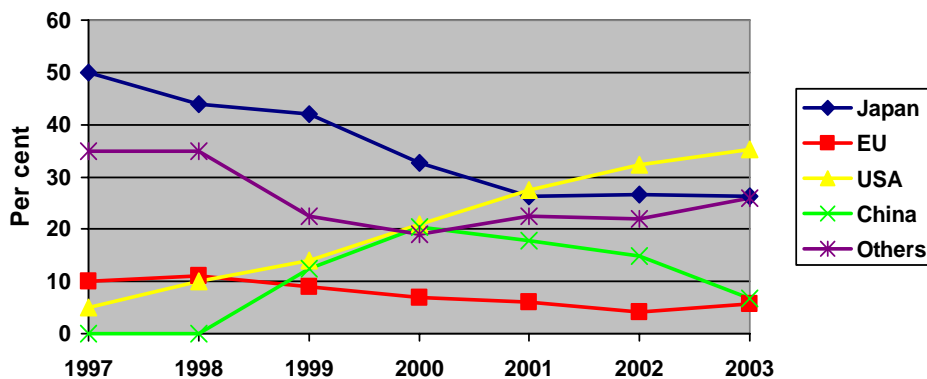
## Vietnam's seafood exports by major markets

Volume in tonnes; value in USD 1000. Source: VASEP

Market	2001		2002		2003		
	Tonnes	USD 1000	Tonnes	USD 1000	Tonnes	USD 1000	% share
USA	70 934	480 032	98 665	655 655	123 472	782 238	35,3%
Japan	75 896	465 901	96 251	537 968	98 310	582 902	26,3%
China	68 179	316 719	77 175	302 261	42 902	147 786	6,7%
EU	30 442	106 716	31 368	84 404	41 200	127 240	5,7%
South Korea					56 021	106 708	4,8%
ASEAN	22 813	64 930	29 183	79 209	28 536	73 080	3,3%
Taiwan					19 668	71 056	3,2%
Others	89 572	334 185	111 400	363 005	48 388	325 685	14,7%
<b>Total</b>	<b>358 833</b>	<b>1 777 486</b>	<b>444 043</b>	<b>2 022 821</b>	<b>458 496</b>	<b>2 216 694</b>	<b>100,0%</b>

Source: VASEP, Vietnam

## Vietnamese seafood exports: Market shares



Source: VASEP, 2004

The main markets for Vietnamese seafood are the USA, Japan, China and the EU. However, exports to the USA have grown rapidly since the early 1990s, and the dominance of the USA as a market for Vietnamese seafood exports is now a cause of concern for the authorities. Their concern has grown as the country has encountered problems of anti-dumping charges in the USA for two of their most important products (catfish and shrimp). This has led to efforts to increase exports to other markets, in particular the EU.

## 6. Brief summary on discussions with government organisations, business organisations etc.

### 6.1 VASEP

VASEP (Vietnam Association of Seafood Exporters and Producers) is the central organisation for promotion of exports. At the same time, VASEP represents the

exporters and producers in relation to the Government. A key concern for the organisation is to help increase the production and exports of seafood.

In this, VASEP has focused on aquaculture production, processing, and product development, leaving the sea fisheries sector to other organisations.

During our meetings, the following items were discussed:

- **Hatchery production:** The need to increase production of “seed” (i.e. hatchery production). This is a concern mainly for finfish production, as the shrimp farming industry appears to be well supplied. The main species of interest are basa (*Pangasius bocourti*), tilapia (*Oreochromis niloticus*) and catfish (*Pangasius hypophthalmus*). In marine farming, there is also an increasing interest in cobia (*Rachycentron canadum*).
- **Cage cultivation** is growing rapidly, as it appears to be quite lucrative. However, it is a capital-intensive operation that tends to exclude the poorer farmers. Therefore, there is now a focus on other methods of cultivation, such as using net enclosures, which are much cheaper than floating cages. With regard to marine aquaculture, Vietnam is interested in large floating cages for species such as cobia. There is also an interest in grouper farming.
- **Feed production and development:** although some operators are now producing their own feed based on private formulas, there is little or no structured development of feed adapted to specific species. Furthermore, there is a lack of raw material, especially for marine fish feed, and much of the raw materials used must be imported. A better utilisation of fish waste is therefore on the agenda so that this may be used in fish feed production.
- **Disease prevention and treatment:** VASEP feels there is a need to establish a better veterinary service as part of the infrastructure for the country’s fish farming industry. In addition, they see a need to work more closely with the vaccine producers (such as Intervet Norbio and Alpharma) to be prepared for disease outbreaks for the species that Vietnam is producing.
- **Live fish transport:** there is a growing demand for live fish transport in the Vietnamese fish farming industry. Firstly, the fingerlings often have to be transported live over some distance from the hatchery/nursery to the grow-out locations, and secondly, there is a need to transport the live fish from the grow-out location to the processing plants at harvest time. In addition to this, some exporters would like to be able to transport the fish live to the main markets in the region, such as Hong Kong, Guangzhou, Shanghai and Singapore, because live fish commands a much higher price than fresh fish on ice. VASEP was therefore very interested in the Norwegian well-boat industry.

- **Processing:** VASEP is interested in improvements in three areas within Processing: a) development of value-added products for the European market much after the Fjordland model; b) production of standardised products for world markets (for example whitefish fillets) based on imported raw material, using the “Chinese/Thai model”; and c) improving management in processing.
- **Export promotion:** VASEP is a relatively young organisation (established five years ago), and is still working on the development of its services and functions. They are aware of the successes of the Norwegian Seafood Export Council (NSEC) in export promotion and information collection and dissemination, and would like to emulate NSEC. They therefore asked specifically whether it would be possible for Norway to support VASEP in such a development, perhaps with the involvement of NSEC. VASEP is also in contact with INFOFISH in these matters, but it is felt that they need advice from a national export promoting organisation on a number of matters, including long-term financing of the operation.

## **6.2 Research Institute for Marine Fisheries (RIMF)**

RIMF is involved in research issues in resource mapping, fishing technology, and post-harvest technology. Most of the discussion centered on post-harvest technology, but RIMF was also concerned about the cost of operating the research vessel “Bien Dong”. It is old and expensive to operate, and RIMF would like to replace it with a smaller and more modern vessel. It was explained that this question was outside the scope of our mission.

They were also concerned about the quality of the fresh fish landed from the coastal fleet, i.e. the small and medium sized vessels. Today, they are using ice, but processors complained about poor quality. It was suggested that they should look into using RSW (Refrigerated Sea Water) technology, which they did not know. One Norwegian company has developed RSW systems for small and medium sized vessels, and it is therefore suggested that such systems be considered for use in Vietnamese vessels.

### **Fresh fish processing and packaging**

RIMF saw a need to develop new fresh fish products, and suggested that Modified Atmosphere Packaging (MAP) might be a solution. With regard to portion-packed MAP products, which are becoming very popular in western markets, this is not an option for distant markets, as MAP portion-packaged products must be packaged close to the retail market. It was therefore suggested that they instead look into the possibility of semi-processed fresh products, using for example supercooling technology.

### **Supercooling**

With regard to fresh fish exports, RIMF saw a need to develop value-added products in the fresh sector, and mentioned that they had been looking at MAP (Modified Atmosphere Packaging). However, MAP portion packing is not suitable for exports to distant markets, as such packing must be done very close to the consumer market. It was therefore suggested that they consider “supercooling” instead (i.e. cooling fillets,

loins, portions to  $-0.5^{\circ}$  C. This method preserves the fish better, while still allowing the producer to call it fresh. Supercooling has been experimented with by Matforsk, but they are no longer involved in seafood. It is suggested that some of the persons who were involved in this project be contacted.

### **Trash fish processing**

Vietnamese vessels are presently catching volumes of “trash fish”, mostly small pelagics and other small fish. RIMF was interested in finding ways to process this fish into edible products, either for local consumption or for exports. It was suggested to them to look into the possibility of large-scale, controlled drying. Norwegian companies have developed low-cost technology for this, and can assist in setting up the operation and providing the equipment. The challenge may be to find a suitable market for these products.

### **GMO**

They also expressed an interest in GMO (Genetically Modified Organisms). On this question, they were warned against getting involved in this, as it is generally not accepted by the market.

### **Pelagic processing**

According to RIMF, there is a need to develop processing of small pelagics, which is being landed in some quantity. The traditional processing often consists of sun-drying or conversion into fishmeal. There may be a possibility to introduce controlled drying of these species, but the market potential will have to be ascertained.

### **Small vessel fishing**

Vietnam has a large number of small vessels (about 19 hp) that can spend as much as 20 days at sea. There is a need to improve fish finding methods (equipment) and fishing gear as well as on-board handling methods. While no immediate solutions could be proposed, it may be an area that should be studied.

### **Offshore fishing**

RIMF believes there is also a need to modernise the offshore fleet. On this matter, It was suggested that a closer contact with the Norwegian Oceanographic Institute in Bergen be established. RIMF has on its staff personnel who have been educated in Bergen, and who could work with Havforskningsinstituttet.

### **Hatchery production**

The ample supply of fish fry and fingerlings is seen as a bottleneck in the further development of Vietnamese aquaculture. RIMF would therefore like to come into contact with companies or institutions that could help them increase production of several species (catfish (tra), basa, tilapia, grouper).

## **6.3 Ministry of Fisheries (MOFI)**

During our discussion, we went through a list of priorities for MOFI for the coming years.

A major concern for MOFI is the great dependence of the exporting industry on the US market. It was clear that they are worried about the US tendency for protectionism (ref. the catfish case and the pending case regarding shrimp imports). The Ministry

would therefore like to develop exports to the EU at the expense of exports to the USA.

MOFI is interested in help from Norway at the institutional level regarding this matter, and agreed that a closer co-operation between NSEC and VASEP would be desirable.

In freshwater aquaculture, MOFI would like to see the tilapia farming industry develop further. They are interested in co-operation between Vietnamese fish farmers and Norwegian companies in producing enough fingerlings for the grow-out industry.

In marine aquaculture, the Ministry sees an opportunity in developing cobia farming. There is already some development in this, but it is felt that Vietnamese fish farmers are not efficient enough. They therefore welcomed the news that a Norwegian company is involved in a cobia farming project.

However, they are also worried about disease, and would like to establish contact with a vaccine company and with the Norwegian veterinary service.

MOFI is also worried about the new trend in “organic aquaculture”, and is hosting a conference on the subject, together with INFOFISH, in June this year.

This issue is linked with their concern for environmental issues in aquaculture. They feel that the strong growth in aquaculture is detrimental to the aquatic environment, and would like to have some assistance in handling this matter from the authorities’ point of view. It was suggested that a closer contact with the Norwegian ministries of Fisheries and Environment might be a possible way to go.

In processing, the emphasis is on development of value-added products.

There was an interest in developing better-quality products for domestic consumption as well as for exports, for example to China. On this subject, the possibility of introducing new, controlled drying methods was discussed, and they showed great interest in this, and would like to explore the possibilities further. It was therefore proposed that they be put in contact with a Norwegian company which can provide the technology and the equipment.

The five processing plants that were built in the 1970s were mentioned. These are now old and in serious need of upgrading. This was tried in the early 1990s, but the project fell through. MOFI would now like to discuss the possibility of upgrading these facilities under a new Norwegian programme.

Another concern regarding the aquaculture development was the question of feed supply. MOFI is worried that raw materials for fish feed will be in short supply in the future, and they are also interested in developing more efficient feeds for their aquaculture species.

There is also an interest in waste utilisation, and the work that has been done by RUBIN over the past 14 years was mentioned by the consultant. MOFI expressed an interest in establishing contact with RUBIN for discussion regarding waste utilisation, also with a view to solving part of their feed supply problem.

#### **6.4 Research Institute for Aquaculture No. 1 (RIA No. 1)**

Although RIA 1 was, according to VASEP, supposed to concentrate on marine aquaculture, they were also very much involved in tilapia farming. Their focus is on producing juveniles, and they have established contact with Norwegian research institutes to work on breeding through genetic selection.

In marine aquaculture, RIA 1 is involved in work on several marine species, including grouper, cobia, red drum, oysters and clams. They claim to have succeeded in reproducing grouper on a large scale, and want to develop this activity into commercial grouper farming.

They are also involved in establishing cobia farming along the coast, and have been involved in cobia hatcheries, but admitted that they have had some problems with cobia.

In RIA's view, the main problem areas in developing marine aquaculture are:

- Seed production (hatcheries)
- Feed production (including raw material supplies)
- The need for mechanisation of the farming operation
- Marketing of the products

With regard to training, it was the view of Dr. Luu that a more practical training program than what is presently offered would be beneficial. In his view, the present training offered is at a too high academic level. What is needed is a practical training program for fish farmers, more along the lines of the training leading to a vocational diploma (similar to "Fagbrev" in Norwegian aquaculture).

### **7. Business opportunities based on environmental needs**

#### **Environmental aspects of aquaculture**

The authorities fear that environmental problems caused by aquaculture, both freshwater and marine, may arise soon because of the rapid growth in the sector. Thus, there is a need for establishing guidelines to ensure environmentally safe development of the aquaculture sector. In several places, coastal zone plans have been made, but some authorities fear that they may lose control over the development. A potential co-operation with Norwegian authorities involved in aquaculture may therefore be beneficial to Vietnam.

#### **Utilisation of waste from fish processing**

Although in general Vietnamese processors utilise most or all of the biomass, there is still a considerable amount of fish waste that can be utilised. It does not constitute a direct environmental problem, as much of the waste is used for example as fertiliser. However, a better economic utilisation of fish waste is possible, and this would also alleviate any environmental problems they have with fish waste.

#### **Water treatment**

Water treatment, both in aquaculture and in fish processing, can be a problem. In aquaculture, a better treatment of water going into the dams is needed in some places.

In processing, both water intake and water emissions can be a big problem, and improvements are needed. The most modern, new processing plants have solved these problems, but there are still a number of processing plants that need improvement.

## **8. Focus areas based on Norwegian competitive advantages within fisheries and aquaculture**

Norway may have a competitive advantage in a few areas within fisheries and aquaculture. These include:

- Resource mapping and fisheries management
- On-board handling and quality improvement (incl. RSW)
- Hatchery production
- Marine cage culture
- Disease prevention and vaccine development
- Live transport of fish (well boats)
- Processing (supercooling and controlled drying)
- Feed production

### **8.1 Potential specific business projects**

#### **Improvement of the seafood export promotion efforts (VASEP)**

VASEP is familiar with the Norwegian Seafood Export Council, and would like to establish a similar service for its own members. They are therefore interested in establishing contact with NSEC and study its operation, including the particular funding of NSEC (seafood export tax) with a view to introducing the same funding mechanism for Vietnam.

#### **Small vessel on-board handling**

As mentioned above, the introduction of better on-board handling methods, including the use of RSW, would be a potential commercial project. Partner in Norway has been identified. This project will need to be developed through a preparatory phase, and partners in Vietnam will have to be identified.

#### **Tilapia hatchery joint venture**

Two specific projects for tilapia hatchery are under development. One is between Akvaforsk and RIA 1, while the other is a purely private sector project with one Norwegian company and one Vietnamese company.

#### **Cobia aquaculture project**

RIA1 is also involved in cobia farming together with SINTEF. In addition, one Norwegian company is ready to start operations, having obtained all the permits, the land and the water locations (12 locations), but is still looking for a partner to finance the operation.

#### **Controlled drying**

For the production of dried products for the domestic market and for exports to China, there is potential for setting up controlled drying using Norwegian technology

developed by a Norwegian company. This project will need considerable work in a preparatory phase, including the identification of a local partner.

## **9 Available support incentives**

### **9.1 Needs for more specific Norwegian support incentives in order to trigger investments**

The situation in the Norwegian fisheries and aquaculture industry is such at present that very few companies are in a financial position that allows them to make investments. Thus, support incentives are of great importance if Norwegian companies are to be able to follow up the opportunities identified in this report.

The existing support mechanisms within the NORAD system are important, but additional mechanisms may have to be considered. For example, a matchmaking program would be valuable in the early stages of project development.

Support for feasibility studies under the present rules is a useful and important tool for developing projects. This mechanism should be retained and used actively in the follow-up of NIS2.

Investment funding: Norwegian companies are, as mentioned, in need of capital to invest. For some of the projects identified, investment funding would be a prerequisite to such investments being made. It is, however, important that the companies be allowed to capitalise their preparatory efforts in order to qualify for funding, i.e. that work done and expenses incurred during the preparatory phase be capitalised as equity in the project.

For some of the “support” or “infrastructure” projects identified, direct and full financial support from NORAD would be necessary in order to materialise the projects. This is the case for example for the project mentioned above regarding VASEP and NSEC.

### **9.2 Possible Matchmaking Program**

It is obvious that some form of matchmaking program could be applied in the Vietnamese fisheries sector to help explore the possibilities of co-operation between individual Norwegian companies and Vietnamese companies in the fisheries and aquaculture sector. As has been demonstrated above, there are a number of project ideas, and these will have to be explored further with Norwegian companies. A matchmaking program would therefore be very useful in the initial phases of contact between Norwegian and Vietnamese companies, as this would reduce the costs involved for both parties.

However, there is a gap between the “opportunity identification phase” (such as NIS2) and the matchmaking phase, and this gap needs to be bridged. The situation after NIS2 is that consultants are aware of the opportunities, but these opportunities need to be presented to potential Norwegian investors and co-operation partners before one can move into the matchmaking phase.

The task of contacting the Norwegian companies and presenting the cases to them must be done by somebody, and the most suitable persons to do this are probably the consultants who have undertaken the NIS-2 study.

## **10. Strategic recommendations for follow up**

- The most important immediate action would be to ensure that a quick follow-up of both Vietnamese companies visited and potential Norwegian investors/co-operation partners be done as soon as possible. A number of mechanisms can be used, including industry seminars and personal one-to-one contact between the NIS2 consultant and the Norwegian companies.
- Once interest among the Norwegian companies has been created, the Norwegian company should be put in direct contact with the Vietnamese partner. In this task, a matchmaking program would be very useful, but since there is not yet a matchmaking program for Vietnam, other mechanisms will have to be used.
- One possibility is to go straight to a feasibility phase, preferably done in two steps: first a visit by the Norwegian company to the Vietnamese counterpart, followed by a full feasibility study. The possibility of stopping the project after the first visit must be kept open.
- For the infrastructure projects, Norad should take the lead and invite Norwegian institutions/organisations or even companies to participate. These projects would probably have to be part of the country programme and be financed under this.

20.05.2004/Erik Hempel

**FISHERY AND AQUACULTURE APPENDIX**
**PERSONS MET**

16.04.2004	VASEP (Vietnam Association of Seafood Exporters and Producers) 10-12 Nguyen Cong Hoan Ba Dinh Hanoi Tel: +84 4 771 5055 Fax: +84 4 771 5084 Mob: +84 912 321 956 EM: <a href="mailto:phuongnt@vasep.com.vn">phuongnt@vasep.com.vn</a>	Ms. Nguyen Thai Phuong Manager, Information Chamber Prof. Dr. Nguyen Huu Dung General Secretary
17.04.2004	Namviet Co., Ltd My Quy Ward Long Xuyen City An Giang Vietnam Tel: +84 76 834 060 Fax: +84 76 834 054 Mob: +84 913 877 005 EM: <a href="mailto:namvietagg@hcm.vnn.vn">namvietagg@hcm.vnn.vn</a>	Mr. Doan Toi President/Director/Owner
19.04.2004	FIMEX VN Saota Foods Joint-Stock Company Km 2132, National Road 1A Soc Trang Province Vietnam Tel: +84 79 822 203 Fax: +84 79 822 122 Mob: +84 913 983 081 EM: <a href="mailto:fimexvn@hcm.vnn.vn">fimexvn@hcm.vnn.vn</a>	Mr, Pham Hoang Viet Sales Manager Ms Duong Ngoc Kim Vice General Director
20.04.2004	Ministry of Fisheries 10-12 Nguyen Cong Hoan St. Da Dinh District Hanoi Vietnam Tel: +84 4 771 6709 Fax: +84 4 771 6702 EM: <a href="mailto:yuvantrieu@mofi.gov.vn">yuvantrieu@mofi.gov.vn</a>	Dr. Vu Van Trieu Acting Director International Cooperation Department
20.04.2004	Research Institute for Marine Fisheries (RIMF) 170 Le Lai Str. Haiphong Vietnam Tel: +84 31 836 135 Fax: +84 31 836 812 EM: <a href="mailto:dokhuong@hn.vnn.vn">dokhuong@hn.vnn.vn</a>	Prof. Dr. Do Van Khuong Director of RIMF Dr. Nguyen Van Le Head of Department – Harvesting Technology

21.04.2004	Halong Investment & Development Co. Ltd BIMCO Hung Thang New Urban Area Ha Long Quang Ninh Vietnam Tel: +84 33 847 043 Fax: +84 33 844 498 EM: <a href="mailto:bim.qn@hn.vnn.vn">bim.qn@hn.vnn.vn</a>	Ms. Khong Thi Hien Vice Director Dr. Luong Dinh Trung Head of shrimp farm
21.04.2004	American Technologies, Inc. – Vietnam Halong Ward Van Don District Quang Ninh Province Vietnam Tel: +84 33 793 156 Mob: +84 912 469 269 Fax: +84 33 793 674 EM:	Mr. Vu Hoang Anh Director
22.04.2004	Research Institute for Aquaculture No. 1 RIA 1 Dinh Bang Tu Son Bac Ninh Tel: +84 4 827 3072 Fax: +84 4 827 3070 EM: <a href="mailto:rial@hn.vnn.vn">rial@hn.vnn.vn</a>	Dr. Le Thanh Luu Acting Director
22.04.2004	Nghean Fishery Department 14 Truong Thi Street Vinh City Vietnam Tel: +84 38 843 088 Mob: +84 913 273 136 Fax: +84 38 843 088	Mr. Tran Cao Muu Director
22.04.2004	SINTEF Vietnam office	Mr. Niels Svennevig Head of International Projects Department +84 (0) 904137769 e-mail: <a href="mailto:niels.svennevig@post3.tele.dk">niels.svennevig@post3.tele.dk</a>

## **Annex 5      Sector report Trade**

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### APPENDIX

#### **Add on Industry - Furniture's**

#### **1.0    Details on meetings with the Ministry of Trade, trade and sector associations**

A total of 22 meetings were organised within the garment and shoe sector (+4 in furniture) during our stay. Below we bring a report and conclusion of meetings with the Ministry, trade promotion, trade & investment and sector organisations. All the organisations visited were eager to contribute in a planning process of future delegations and institutional cooperation.

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<b>1) Meeting with</b>	<b>Ministry of Trade</b>
<b>Date:</b>	<b>13 April 2004</b>
<b>Present:</b>	<b>Tran Trong Chinh (TTC) and Ellen D. Gjeruldsen (EDG) Deputy General director, Mr. Nguyen Thai Binh</b>

#### **Background**

EDG wished to inform the political leadership in this Ministry of the mission of the PSD study. The Ministry of trade wished to inform us about their focus on establishing a positive business environment through the legal framework, trust and long-time relation perspective.

#### **Issues discussed**

The Deputy general stressed that they had a strong focus on the lack of textile production in Vietnam as an input to both the garment and shoe industry. The focus has resulted in a heavy investment plan for the coming three years.

#### **Next Step**

No concrete follow-up needed.

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**2) Meeting with** **VIETRADE** (Ministry of Trade of Vietnam, Trade promotion Agency)  
**Date:** **13 April 2004**  
**Present:** **TTC, EDG, Deputy Director, Mr. Ta Hoang Linh, Dep. of Promotion and Business support, Ms. Tran N. Diep**

### **Background**

**VIETRADE** on behalf of the Royal Norwegian Embassy plays a major part in the planning of EDGs program for the garment and shoe industry. **VIETRADE** represents the Government and has offices both in Hanoi and Ho Chi Minh City. Due to the fact that **VIETRADE** represents the government the program was dominated by state-owned companies which are controlling 60% of the production of textiles.

### **Issues discussed**

Reorganisation of the program was discussed in light of the balance between state-owned, former state- owned and private entrepreneurship companies and various company/manufacturer sizes.

The deputy director informed us about the change of management style in the state-owned and former state- owned companies, making a shift from product orientation to market orientation. He informed us about important fairs and what measures they were taking to internationalize these fairs to become even more attractive to foreign importers/wholesaler/private label producers.

### **Next Step**

No specific follow-up is needed, but we were invited to involve **VIETRADE** in the planning of tailor made programs for future trade delegations coming to Vietnam. However, **VIETRADE**, should only be involved in the planning in the Hanoi Area and not in the Ho Chi Minh area.

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**3) Meeting with** **Vietnam Textile & Apparel Association (VINATEX)**  
**Date:** **13 April 2004**  
**Present:** **TTC, EDG, General Secretary, Le Van Dao**

### **Background**

**VINATEX**, was established in 1999 and has approximately 500 members which represent 1 200 enterprises . The 1 200 enterprises, stand for 90% of Vietnam's textile & apparel production capacity. We wished to be informed about **VINATEX** engagements on different levels within the industry.

### **Issues discussed**

We touched upon several important issues within this industry. The main part of our discussion, however, was the need for cooperation in running a training centre. We discussed a target program that would include a step by step approach and covering activities consisting of practical training and technical assistance, focusing on five critical competitiveness factors.

Further more we discussed the raw-material situation in Vietnam as an important input to the industry, sub suppliers of accessories, International QA control possibilities, transportation, contract production, the interest for increased foreign investments and the multi-fibre agreement coming to an end in 2005.

#### **Next Step**

To discuss with NHO-bi if there is a possibility to plan a similar training program as the one being executed in Indonesia, involving VCCI, VINATEX, LEFASO, NHO, HSH and NORAD

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<b>4) Meeting with</b>	<b>Vietnam Leather and Footwear Association (LEFASO)</b>
<b>Date:</b>	<b>13 April 2004</b>
<b>Present:</b>	<b>TTC, EDG, Secretary General, Nguyen Thi Tong</b>

#### **Background**

Lefaso has been an independent memberbased organisation since 1987 and has about 120 members, which represents 380 enterprises. The total production capacity per year is about 470 million pieces. 70% of the production is based on “make to order” and only 30% is indigenous production. We wished to learn about Lefaso’s engagement on the different levels within the industry.

#### **Issues discussed**

We learnt that the shoe industry faced similar challenges as the textile & apparel industry in more or less the same fields. Lefasos stressed the need for practical training and technical assistance focussing on the same five critical competitiveness’ factors.

Further more, we discussed the raw-material situation in Vietnam, where 70% of the input is imported to Vietnam, International QA control possibilities, transportation cost, price levels and the export through trading offices versus the wish to increase direct production.

#### **Next Step**

To discuss with NHO if there is a possibility to incorporate a similar training program as the one being executed in Indonesia, involving VCCI, VINATEX, LEFASO, NHO, HSH and NORAD

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<b>5) Meeting With</b>	<b>People’ Committee of Ho Chi Minh City, Investment &amp; Trade Promotion Centre (ITPC)</b>
<b>Date:</b>	<b>19 April 2004</b>
<b>Present:</b>	<b>President, Ms. Vu Kim Hanh. Manager, Mr. Vu Xuan Duc</b>

#### **Background**

ITPC was founded in 1963, stopped in 1975 and restarted in 1982. ITPC was established to strengthen the local business in the local market for consumer products and strengthen the export of: food products, furniture and garments. ITPC cooperates closely with CBI in the Netherlands (Centre for Promotion of Imports from Developing countries. ITPC develops guides for investments and doing business in Ho Chi Minh City.

### **Issues discussed**

ITPC and CBI cooperation, private entrepreneurship companies, furniture sector, investment costs, transportation costs, differences in production from China, opportunities, weaknesses, CSR concept and the planning possibilities for a future business delegation coming to Ho Chi Minh.

### **Next Step**

To involve ITPC in the planning of tailor made programs for participants in an eventual trade delegation to Vietnam 2004.

## **1.1 Concluding remarks – Next Step**

Meetings with the Ministry, sector associations, trade and investment organisation have given us a viable insight in the business environment within the garment and shoe industry in Vietnam. There are common features to be found and there is no doubt that Vietnam represents trade opportunities. However, it is important to recognise that Vietnam is in the middle of a process going from product- to market orientation and that most of their export has been canalised through foreign trading offices situated in e.g. Hong Kong, Singapore and/or Taiwan. This underlines the need for institutional corporation, which partly should contain practical and technical training. Within the trade sector the five following critical competitiveness factors should be approached step by step:

1. Productivity
2. Product Development
3. Marketing Issues
4. Promotion
5. Management

Further more, Norway is no large country, and we represent a small market compared to the majority of Vietnams trading partners. This means that we need to select viable manufacturers/exporters in Vietnam, and fair sized enterprises on the Norwegian side to obtain a fruitful and long-term business relation.

## **2.0 Textile & Garment Industry (apparel)**

Manufacturers Visited: Viet Thang, Dapcau, Mua Dong Knitwear, Arksun, Hiep Hung, Norfolk Hatexo, Vtec, Winter Wool and Artsun

### **Background**

We were interested to find out the different companies total supply chain management, from both a logistic perspective and an integrated management perspective. We studied each company's physical flow of goods and important core competences.

### **Issues Discussed**

We discussed different factors: Production capacity, production flexibility, product development, samples, export quota, prices and terms of payment, lead times and transportation costs, technical capabilities, management & marketing issues,



Prices are always a subject to negotiations, quantity level, relationship, level of workmanship, construction, weight and material quality.

In general the terms of payment is L/C, however D/P at sight is negotiable (after having established a relationship).

### **Production & transportation lead-time**

The fabric mills ask for 35 to 45 days lead time for dyeing. A 15 days extra should be included for transport of the fabric from the mill to the garment factory. The CM lead-time (processing) is approximately 30 days. Thus the total garment lead-time is 80 – 90 days.

Shipment by sea to Australia via Singapore will take 21 days. The transit time from Vietnam to major European ports (via Singapore) is 25-30 days by sea. Shipments to Canada and USA via Kaoshung, Taiwan is 15-18 days.

### **Technical capability**

All manufacturers had a high level of technical capability, i.e. several different types of embroidery machines, technical department and test laboratories.

### **Management and Marketing Issues**

In general the management is focused on turning their capabilities from a product-oriented perspective to a market orientation. The management are through laws and regulations obliged to follow labour codes. Further more, large foreign clients impose strict codes of conduct following the standard ILO conventions.

#### **2.1.1 Concluding remarks – Next Step**

Generally speaking, Vietnam is very able in producing jackets, shirts and trousers. In particular jackets are Vietnam's strong side. Exports of jackets to EU under category 21 became quota free in 2001, so also from a cost point of view is this category of interest to European buyers.

What makes Vietnam Unique is the quality of the workmanship. The workers are very conscientious and take pride in producing high quality. As mentioned earlier most of the factories still produce on CM, however, a handful of garment factories not only provide good quality workmanship but can also offer both CM and FOB production.

From a cost perspective, Vietnam can offer some of the lowest labour costs in the region, and thus the price of processing is indeed very attractive. Further, more the Vietnamese are willing and fast to learn. There is not much left of the old communist "Way of doing things" unless you work with big state owned enterprises with an old-fashioned management.

Vietnam's weak side is a limited access to locally produced fabric and accessories. Vietnam has several knitting factories, but the country seems to experience some difficulties competing with its major rival China in this area.

Further more, Vietnam lack the skills of R&D and other core competences which is necessary to turn to a market-oriented perspective.

### **Next Step**

As our program included an overweight of large state owned and former state owned companies we have in addition to our visit cooperated with CBI in the Netherlands and ITC in Ho Chi Minh City. We have studied a handful of smaller private enterprises that could be a more suitable match for a broader group of medium sized Norwegian companies. These companies, including a selected group of the visited enterprises could form the base in preparing tailor made visiting programs.

### **3.0 Shoe industry**

Manufactures visited:            Hanshoes, Thuong, Dinh Footwear, Aseco, H. Hung  
and Bitis

#### **Background**

We were interested to find out the different companies total supply chain management, from both a logistic perspective and an integrated management perspective. We studied each company's physical flow of goods and important core competences.

#### **Issues Discussed**

We discussed different factors: Production capacity, production flexibility, product development, samples, export quota, prices and terms of payment, lead times and transportation costs, technical capabilities, management & marketing issues,

#### **Production capacity**

The 6 enterprises visited had a production capacity pr. year from 3 million pairs of shoes up to 7 million pairs a year.

#### **Production flexibility**

All the shoe enterprises visited were flexible concerning production quantities, however the material suppliers (canvas, leather, rubber etc) require minimum quantities. The minimum production quantities varied from 1 000 pairs of shoes up to 2 500 pairs. If the manufacturer keeps stock of imported material minimums are more flexible.

The shoe industry mainly produces on CM contracts.

#### **Product development**

A few of the companies visited had their own product development department for developing their own designs for the national market (30% of total production). For the export market they do not do product development, but carry out contract production. Most of the factories get know how transfer from their foreign partners.

70% all input to production is imported from other countries like i.e. Hong Kong, Japan, Taiwan or Korea. 2-3 fabric mills of cotton/canvas are established in Vietnam. From abroad, Vietnam import approximately 220 million square feet of leather.

#### **Sampling**

If producing on a CM basis, both counter (QA and size speck control) and sales samples will be provided. In FOB production, sales samples are usually difficult to obtain.

All companies provide counter samples for quality check, size speck adjustment and colour lap dips for approval, without extra charge. All companies provide sales samples with an additional cost from production quoted prices.

### Quotas, Prices, & Terms of Payment

Vietnam is a GSP country and therefore there are no quotas to Norway.

There are two types of quotations, one for FOB Production and one for CM Production. FOB production means, that the garment producer is sourcing fabric and accessories themselves according to the customer specification. Most factories are still only producing under CM conditions (cutting and making) i.e. customers must supply the fabric and accessories. Investments cost (encl. no. IV). Some examples on prices quoted based on 4 000 pcs. Per style and packed in normal polybag (+0.20 box)

		FOB Price		CM Price
<b>CANVAS</b> Basic Shoes:	Children	USD 1.8 - 2.0	Size 10 - 27	
	“ “ Ladies	“ 2.5 - 3.0	“ 35 - 41	Approx – 5%
	“ “ Men’s	“ 2.7 - 3.8	“ 42 - 46	
<b>SPORT</b> Shoes:	Children	USD 4.0 – 6.0	Size 10 - 27	
“	Ladies	“ 6.0 – 7.0	“ 35 - 41	Approx – 3-4%
	Men’s	“ 6.0 – 8.0	“ 42 - 46	
<b>Leather</b> Shoes:	Children	USD 4.0 – 5.0	Size 10 - 27	
	Ladies	“ 6.0 – 7.0	“ 35 – 41	Approx –5%
	Men’s	“ 7.0 - 9.0	“ 42 – 46	

The CM prices given above means that the cm price varies from USD 1.2 – 1.9. Filling a 40 feet container takes approximately 8’ to 10 000 pairs of shoes, packed in a normal polybag.

Prices are always subject to negotiations; quantity level, relationship, level of workmanship and quality on input to production.

### Production & transportation lead-time

The fabric mills ask for 35 to 45 days lead time for dyeing (canvas shoes). A 15 days extra should be included for transport of the fabric from the mill to the shoe factory. The CM lead-time (processing) is approximately 30 days. Thus the total garment lead-time is 80 – 90 days. The FOB lead-time is approximately 45 – 65 days.

Shipment by sea to Australia via Singapore will take 21 days. The transit time from Vietnam to major European ports (via Singapore) is 25-30 days by sea. Shipments to Canada and USA via Kaoshung, Taiwan is 15-18 days.

### Technical capability

All manufacturers visited were ISO certified and had a high level of technical capability, i.e. technical dep. and test laboratory.

### Management and Marketing Issues

In general the management is focused on turning their capabilities from a product-oriented perspective to a market orientation. The management are through laws and regulations

obliged to follow labour codes (re: ITPC). Further more, large foreign clients impose strict codes of conduct following the ILO, conventions (re: Suppliers)

### **3.1.1 Concluding Remarks – Next steps**

Generally speaking, Vietnam is able in producing canvas, sport and leather shoes. In particular canvas and sport shoes are Vietnam's strong side. The main export goes to EU, but also other ASEAN countries, Australia, Mexico, US... However, the export still goes through trading offices situated in Hong Kong, Singapore, Japan and Taiwan.

What makes Vietnam unique is the quality of workmanship. The workers are very conscientious and take pride in producing high quality. As mentioned earlier most of the factories still produce on CM, however a handful of shoe factories as for garment factories not only provide good quality workmanship but can also offer both CM and FOB production.

From a cost perspective, Vietnam can offer some of the lowest labour costs in the region, and thus the price of processing is indeed very attractive. Further, more the Vietnamese are willing and fast to learn. There is not much left of the old communist "Way of doing things" unless you work with big state owned enterprises with an old-fashioned management.

Vietnam's weak side is a limited access to locally produced input and accessories, except from canvas.

There are several common features between the textile & garment and shoe industry as i.e. the need for training within the five core competences mentioned earlier. Both industries are mainly based on: By-back, technology transfer and joint ventures (mainly for shoes).

#### **Next Steps**

As our program included an overweight of large state owned and former state owned companies we have in addition to our visit cooperated with CBI in the Netherlands and ITCP in Ho Chi Minh City. We have studied a handful of smaller private enterprises that could be a more suitable match for a broader group of medium sized Norwegian companies. These companies, including the six enterprises visited could form the base for preparing tailor made visiting programs.

## **4.0 Suggested Guidelines for establishing activities in Vietnam**

It is important to visit Vietnam so you can get a feeling of the country, its people, investigate the market potential for production facilities available (and their quality). It is also important to find out if Vietnam is the right place for you considering the quantities required and lead times.

As a Norwegian company you can contribute to the development scope like: transfer of technology, job creations and improve working conditions and decrease pollution from the production.

### **Selecting a partner (Long-term, commercially viable partnerships)**

The most important thing is to make sure, that the relationship is good. If you find the “Right” partner, who has the spirit of cooperation, everything else is possible. Otherwise, you might end up with a narrow-minded management, who believes, that it is your duty to give them orders first, before they are ready to do anything from their part.

You chances of choosing the right partner before going into a more committed relationship is to allow for a trial period of 12 months.

**Cooperation agreement (legally binding co-operation agreement)**

Make sure, that all agreement (obligations and penalties) are included in the contract and be prepared to follow up the agreement.

**Have your own staff in Vietnam**

It is a must to have your own representative in Vietnam. One of the major reasons why some partnerships are falling apart is the lack of understanding between the 2 partners, miscommunication and the fact that the problems turns into big problems, if nothing is done to solve the problems immediately. The main task of your local representative will be training of the local partner, follow-up on the daily work, ensure things are done, and to communicate instructions.

**The Authorities**

A company producing products in Vietnam for export, will find that the authorities is flexible and, leave the businesses alone to focus on their daily business . Work permits are easily obtained, visas are available for 1 year and reporting is minimal.

The bureaucracy and red tape in the government administration may be of a different magnitude if you plan to sell goods to Vietnam.

**The Country and the people**

Vietnam is a beautiful country, the people is friendly, hard working and proud and they are willing to learn. But be patient! Things takes a bit more time.

Ellen D. Gjeruldsen  
27 May 2004

## **Trade Appendix**

## **Add on Industry - Furniture's**

### **Furniture manufacturers in Vietnam**

**Manufacturers visited:** Sadaco, Truong Tien, Saigon Forest Products and Tan Thanh Wood company

### **Background**

A few furniture manufacturers were visited in the Ho Chi Minh Area. There are several common features with both the shoe and textile & garment industry, hence import of raw material, R&D competence

### **Issues Discussed**

We discussed different factors similar to the issues within the SCM concept in the textile & garment and shoe industry.

### **Concluding remark**

The trading opportunities for outdoor furniture's in particular, could be of interest to several Norwegian chain stores.

### **Next Step**

In cooperation with CBI in the Netherlands, we are currently studying their portfolio of companies which are ready for export and the ones who are under training. A well prepared background study and tailor made programs can be presented to interested Norwegian chain stores.

## Annex 6            Companies and institutions met in Experience study

<b>Date</b>	<b>Organisation</b>	<b>Contact person(s)</b>
15.04.2004	Royal Norwegian Embassy Metropole Centre 56 Ly Thai To Street Hanoi, Vietnam Tel: +84 8 262 111 Fax: +84 8 260 222 EM: <a href="mailto:jib@norad.no">jib@norad.no</a>	H.E. Ambassador Per Stavnum Secretary Jo Inge Bekkevold Mr. Tran Trong Chinh, Advisor
16.04.2004	NORAD Royal Norwegian Embassy Metropole Centre 56 Ly Thai To Str. Hanoi Tel.: +84 8 262 111 Fax: +84 8 260 222 EM: <a href="mailto:dag.larsson@norad.no">dag.larsson@norad.no</a>	Mr. Dag Larsson Minister-Counsellor/regional Advisor
16.04.2004	Vietnam Chamber of Commerce and Industry (VCCI) 5 Floor, 9 Dao Duy Anh Str., Hanoi Tel. +84 4 574 2164 EM: <a href="mailto:huy@siyb.org.vn">huy@siyb.org.vn</a>	Mr. Phung Quang Huy Director General Bureau for Employers' Activities in Vietnam
16.04.2004	DANIDA Private Sector Program in Vietnam Royal Danish Embassy 19 Dien Bien Phu Str. Ba Dinh, Hanoi Tel. +84 (4) 823 1888 <a href="mailto:Mogpou@um.dk">Mogpou@um.dk</a>	Mr. Mogens Poulsen Counsellor
16.04.2004	Central Institute for Economic Mangement (CIEM)	Mr. Vo Tri Thanh
16.04.2004	Freshfields Bruckhaus Deringer #05-01 International Centre 17 Ngo Quyen Street Hanoi Tel.: +84 4 8247 422 Fax: +84 4 8268 300 Mob.: +84 903 403 622 EM: <a href="mailto:tony.foster@freshfields.com">tony.foster@freshfields.com</a>	Mr. Tony Foster Managing Partner
16.04.2004	Australia and New Zealand Banking Group Ltd (ANZ) 14 Le Thai To Street Hanoi Tel: +84 4 8258 190 Fax: +84 4 8258 188 Mob: +84 903 464 800 EM: <a href="mailto:yuuq@anz.com">yuuq@anz.com</a>	Ms. Vu Thuy Quynh Chief Manager

16.04.2004	Vision & Associates 17 Ngo Quyen Street Unit 092, First floor International Centre Hanoi Tel: +84 4 934 0629 Fax: +84 4 934 0631 Mob: +84 903 251 617 EM: <a href="mailto:vision@hn.vnn.vn">vision@hn.vnn.vn</a>	Mr. Luu Tien Ngoc Partner, Attorney-at-Law Mr. Pham Minh Hai Director
16.04.2004	IKEA Ngo Quyen Str., Hanoi Tel. +84 (4) 935 0342 EM: <a href="mailto:WING@memo.ikea.com">WING@memo.ikea.com</a>	Mr. August Wingardh Chief Representative
17.04.2004	ViaNova Systems Vietnam Ltd. 45 Kim Dong, Hanoi Tel. + 84 4 664 3970	Dr. Nguyen Nhat Quang General Manager
17.04.2004	Dansk Industri Sofitel Metropole Hotel, Hanoi (H.C. Andersens Boulevard 18 1787 København) Tel. +45 3377 3727 EM: <a href="mailto:jak@di.dk">jak@di.dk</a>	Mr. Jacob Kjeldsen Regional Manager
19.04.2004	Jotun Paints Vietnam Co. Ltd. No. 1 Str. 10, Song Than 1 Ho Chi Minh City Tel. +84 903 985 500 EM: <a href="mailto:martin.chew@jotun.com">martin.chew@jotun.com</a>	Mr. Martin Chew General Manager
19.04.2004	Atlas Copco Vietnam Co. Ltd. No. 42, Str. 37, Thao Dien Ho Chi Minh City Tel. +84 (0) 8 898 9638 EM: <a href="mailto:martin.hagen@vn.atlascopco.com">martin.hagen@vn.atlascopco.com</a>	Mr. Martin Hagen General Manager
19.04.2004	Danida, Royal Danish Embassy Sun Wah Tower # 1801 115 Nguyen Hue Ho Chi Minh City Tel. +84 8 821 9373 EM: <a href="mailto:daneconomic@hcm.vnn.vn">daneconomic@hcm.vnn.vn</a>	Ms. Le Trinh Thao Head of Section
19.04.2004	Tetra Pak Vietnam Metropolitan Building 235 Dong Khoi Str. Ho Chi Minh City Tel. +84 8 825 7100 EM: <a href="mailto:anders.emblad@tetrapak.com">anders.emblad@tetrapak.com</a>	Mr. Anders Emblad Commercial Director
20.04.2004	Sea Saigon Shipping Ltd. 70 Pham Ngoc Thach Str. Ho Chi Minh City Tel. +84 8 914 4734 EM: <a href="mailto:son@sea-saigon.com">son@sea-saigon.com</a>	Captain Pham Ngoc Son Deputy General Manager Mr. John Schlotfeldt Technical Manager
20.04.2004	Thoi Lai Precision Establishment 654-656 Le Quang Dinh Str. Ho Chi Minh City Tel. +84 8 985 3625 EM: <a href="mailto:lthuonghai@hcm.vnn.vn">lthuonghai@hcm.vnn.vn</a> EM: <a href="mailto:thuesen@thuesen.dk">thuesen@thuesen.dk</a>	Mr. Lam Anh Tuan Director Mr. Jørgen Thuesen General Manager

20.04.2004	Yara Vietnam Ltd. (former Hydro Agri) Somerset Chancellor Court 21-23 Nguyen Thi Minh Khai, D.1 Ho Chi Minh City Tel. +84 8 829 6869 EM: <a href="mailto:arild.haugan@yara.com">arild.haugan@yara.com</a>	Mr. Arild Haugan General Director  Mr. Haugan is also Norwegian Consul General
21.04.2004	Embassy of Finland Central Building 31 Hai Ba Trung, Hanoi Tel. +84 4 826 6788 EM: <a href="mailto:pekka.seppala@formin.fi">pekka.seppala@formin.fi</a>	Mr. Pekka Seppala Counsellor
21.04.2004	Ministry of Planning and Investments (MPI) Investment promotion and International Co-operation 65 Van Mieu, Hanoi Tel. +84 4 823 5606 EM: <a href="mailto:hoabinh_99@yahoo.com">hoabinh_99@yahoo.com</a>	Mr. Tran Hoa Binh Senior Official
21.04.2004	Asian Development Bank (ADB) 23 Phan Chu Trinh Str., Hanoi Tel. +84 4 933 1374 EM: <a href="mailto:apio@adb.org">apio@adb.org</a>	Mr. Alessandro Pio Principal Programs Economist
21.04.2004	International Finance Corporation (IFC) 63 Ly Thai To, Hanoi Tel. +84 4 934 2282 EM: <a href="mailto:LQuang@ifc.org">LQuang@ifc.org</a>	Mr. Lam Bao Quang Investment Officer
22.04.2004	Short Cut Partners Ltd. 108 Xuan Dieu Rd., Hanoi Tel. +84 4 718 4395 EM: <a href="mailto:info@shortcutpartners.com">info@shortcutpartners.com</a>	Mr. Søren Feldthusen Husted Chief of Rep. Office
22.04.2004	Ministry of Planning and Investments (MPI) Dept. of Public Procurement Hoang Van Thu Str., Hanoi Tel. +84 4 843 0415	Dr. Nguyen Viet Hung Director
22.04.2004	Hercules Grundläggning Vietnam Repr. Office of NCC 100 Tue Tinh, Hanoi Tel. +84 4 943 3358 EM: <a href="mailto:nord.cofec@fpt.vn">nord.cofec@fpt.vn</a>	Mr. Bertil Nord Resident Manager
22.04.2004	Royal Norwegian Embassy Metropole Centre 56 Ly Thai To Str., Hanoi Tel. +84 4 826 2111 EM: <a href="mailto:noramb@fpt.vn">noramb@fpt.vn</a> EM: <a href="mailto:dag.larsson@norad.no">dag.larsson@norad.no</a>	Mr. Dag Larsson Minister-Counsellor/Regional Adviser Private Sector Development Asia
23.04.2004	ABB Vietnam Milestone 9, National Highway no. 1A Thanh Tri District, Hanoi Tel. +84 4 861 1010 EM: <a href="mailto:erik.rydgren@vn.abb.com">erik.rydgren@vn.abb.com</a>	Mr. Erik Rydgren President & Country Manager
23.04.2004	Ministry of Construction (Technical Infrastructure Developm. Projects) 37 Le Dai Hanh Str., Hanoi Tel. +84 4 976 1852 EM: <a href="mailto:dactn@hn.vnn.vn">dactn@hn.vnn.vn</a>	Dr. Pham Ngoc Thai Director
26.04.2004	Nordic Chamber of Commerce HITC Building, 1/F 239 Xuan Thuy Road, Cau Giay Distr., Hanoi Tel. +84 4 834 1326 EM: <a href="mailto:secretariat@nordcham.org.vn">secretariat@nordcham.org.vn</a> Web: <a href="http://www.nordcham.org.vn">www.nordcham.org.vn</a>	Mr. Preben Hjortlund Chairman

## **Annex 7      Terms of Reference: Study on Private Sector Development (PSD) and prospects for Norwegian Trade and Investment interests in Vietnam (Phase 2)**

### **1.      Background**

The Norwegian Government has presented an overall strategy for Norway's support for private sector development in developing countries. The main objective of the strategy is to promote economic growth and profitable production in developing countries which is essential for reducing by half severe poverty by 2015 as stated in the Millennium Development Goals (MDGs).

As part of the implementation of the strategy the Norwegian Agency for Development Co-operation (Norad) has undertaken studies of private sector development (PSD) in major partner countries in the Norwegian development co-operation.

Focus in phase I of the study in Vietnam has been to assess the status of the private sector and its environment and to identify possible areas for future Norwegian support of PSD, within the framework of Vietnamese and Norwegian development co-operation, including investment climate and private sector development policies as well as physical and social infrastructure. Present areas of co-operation and the efforts of other donors are also being described. The reports have included an assessment of areas of co-operation where Norwegian private sector organisations or enterprises can enhance the development effects in terms of poverty reduction.

The objective of phase II is to study in more detail the possibilities for enhanced Norwegian investments and trade relations in Vietnam, hereby commercial collaboration, including joint ventures and other forms for partnerships. The study will be carried out by a team under the leadership of a representative from Norwegian trade and industry as represented by the Confederation of Norwegian Business and Industry (NHO) on behalf of Norad.

### **2.      Purpose**

- identify business opportunities within chosen sectors and, if possible, identify specific project opportunities for business to business collaboration

### **3      Sector selection**

Based on recommendations from the NIS-1 study of Vietnam, different strategy documents for sector focusing and inquiries among business organisations and resource persons in Norway the following sectors with the best potential for Norwegian enterprises will be focused in NIS-2:

- Maritime
- Oil and gas
- Hydropower
- Fishery and aquaculture
- Trade
- Environmental technology (will be treated in combination with the other sectors)

#### **4. Team selection**

Preferred criteria for team-members:

- First hand knowledge and overview of players, opportunities, competence/strengths and export-potential within the sector in Norway
- International experience and knowledge of foreign markets, preferably South-East Asia
- Ability to “sell in” business opportunities to the sector and make commitments

As part of the preparations the team-members should obtain indications from their respective sector of possible constraints concerning investments in Vietnam.

#### **5. Task**

The team shall present an analysis covering:

- Business opportunities in Vietnam for Norwegian enterprises
  - Focus must be on solutions to Vietnamese commercial needs within sectors and a possible “package” of what Norwegian enterprises can contribute to
  - A win – win situation for both Vietnamese and Norwegian enterprises is the point of departure and both exports from Norway, import of Vietnamese goods, FDI from Norway, collaboration (e.g. Joint Ventures, partnerships etc.) will all be relevant alternatives for enhanced business relationships
  - The CSR-dimension (Corporate Social Responsibility) will be an important element in identifying business opportunities
- An experience study of foreign investments and trade relations within the chosen sectors. A few Norwegian companies and companies from other Nordic countries and Germany are relevant for harvesting experience
- Brief summary of background studies
- Needs for support incentives in order to trigger investments, hereby an assessment of a possible Matchmaking Program
- Strategic recommendations for possible follow up within each sector

#### **6. Target group:**

- Sector organisations and enterprises within chosen sectors both in Vietnam and Norway

#### **7. Implementation and support**

- The team shall through meetings/interviews with gov. officials, regional officials, international and foreign organisations, sector organisations and local key enterprises collect information and accomplish the study
- Initial joint meetings in Hanoi, then sector wise depth studies/field work
- The Norwegian Embassy in Hanoi will assist in making appointments for interviews and meetings in accordance with requests from the team and assist in making transportation available. The team will give debriefings at the Embassy before departure

#### **8. Time schedule**

- First working day in Hanoi will be Friday, April 16.

- Approximately 10 working days to accomplish the mission

## **9. Preparations**

In connection with the composition of sectors and team-members, preparations for NIS-2 Vietnam should strongly focus on a connection between general business opportunities for Vietnamese and Norwegian enterprises. Dispersal of findings/business opportunities to sectors in Norway and a plan for focused follow-up of business opportunities will be highly focused.

### **9.1 Background studies**

Background studies within the maritime, oil & gas and hydropower sectors will be executed by local consultants and in close co-operation with the Norwegian Embassy in Hanoi. The study will be a “fact finding mission” with main focus on identifying market opportunities for Vietnamese enterprises and enterprises for possible visits in NIS-2. The study will comprise:

- Structural conditions (no. of players, key players, ownership, exports, location, development drivers)
- Identify relevant enterprises for possible visits in NIS-2
- Profitability, financial strength (both sector wise and key players)
- Foreign donations as part of the framework and FDI (Foreign Direct Investments) in the sector
- Political priorities and reforms, public financial support and sector opportunities (including environmental technological opportunities)

### **9.2 Briefing**

1-3 briefings at NHO headquarter (or other suitable location), including sector wise input-meetings to prepare the team and drill the implementation.

## **10. Reporting**

Suggested timeframe for reporting:

- One debriefing with team members in Oslo medio May based on a draft main report with underlying sector reports prepared by each team-member (dependant on written reports during fieldwork)
- No later than May 28, 2004, will NHO receive a main draft report in English, with enclosed sector reports, not exceeding 20 pages including a two-page summary
- The draft will be presented and discussed in NHO during the first week of June. Final report shall be submitted no later than five days after comments from NHO have been received
- The report is public and will be available on Norads homepage ([www.norad.no](http://www.norad.no))

## **11. Follow up**

Suggestion (assuming relevant funding):

- A possible broad based seminar in Oslo medio June, 2004, presenting the findings of NIS-2 and as an important input event to the later official state visit to Vietnam (Nov.)
- Individual meetings with sector enterprises or groups of enterprises in Norway

