

FISHERIES DEVELOPMENT AND MANAGEMENT – SOME REFLECTIONS ON VIETNAM

OLA FLAATEN, THE NORWEGIAN COLLEGE OF FISHERIES SCIENCE, UNIVERSITY OF TROMSO, N-9037 TROMSO, NORWAY. olaf@nfh.uti.no

ABSTRACT

With a coastline of 3300 km, and numerous rivers and bays, Vietnam is as if created for the production of food from the ocean, estuaries and rivers. The development of the fishing industry has been closely linked to the development of the general economy of this country. This is particularly so for the doi moi – economic reform – period from 1986, following a period of centralised command and control economy after the end of the war in the mid-1970s. Has the time now come for more emphasis on fisheries management than development? The number of fishing vessels has increased significantly over the last 25 years and engine power even more so, from 0.28 million HP in 1980 to 5.4 million HP in 2006. This corresponds to an annual increase of 23.4 per cent, whereas the average annual growth of the fish harvest in the same period was 6.1 and 3.9 per cent for volume and real value, respectively. Aquaculture, of mainly shrimp and fish, has grown even more than the traditional fisheries in the period 1991–2004, with an average of 10.4 and 23.8 per cent per year of production volume and export value (nominal USD), respectively. It is not just the fishing industry that has grown over the last couple of decades: the overall economic development, measured by annual growth rates of GDP and GDP per capita, was 7.0 per cent and 5.3 per cent, respectively. Fishing has been, and still is, mainly an open-access industry, regulated by some area and gear technological restrictions, and may now have reached its peak. Our costs and earnings surveys for 2004–5 in the Khanh Hoa province demonstrate that both offshore and some inshore fisheries were highly profitable, for both vessel owners and crew members. Some resource taxes have been collected by provincial and local authorities, but were abolished in 2006. This paper also discusses some policy issues and instruments for future development and management, including a resource export tax (RET), marine protected areas (MPAs), technical regulations and international cooperation in the South China Sea.

INTRODUCTION

This presentation is a personal reflection on Vietnamese fisheries and some policy issues, based on the experience from my own work and from paper and Internet sources.^a Over the last five years, I have had the privilege to cooperate with Nha Trang University on fisheries economics research and education, financed partly by the Norwegian Agency for International Development Cooperation (NORAD) and partly by the Ministry of Education and Training, Vietnam (MOET). The paper consists of three main parts: fisheries in the national economy, fisheries development, performance and income, and a brief discussion of five policy issues. The five policy issues are poverty alleviation, fuel efficiency and subsidies, resource taxes, marine protected areas (MPAs) and disputed international areas – the South China Sea case. As we shall see, the fishing industry has grown more or less steadily since the mid-1980s, when the doi moi – the economic reform – policy was enacted. For the last ten or so years in particular, the aquaculture growth has been very strong.

With a coastline of 3300 km, and numerous rivers and bays, Vietnam is as if created for the production of food from the ocean, estuaries and rivers. The development of the fishing industry has been closely linked to the development of the general economy of this country. This is particularly so for the doi moi – economic reform – period from 1986, following a period of centralised command and control economy after the end of the war in the mid-1970s. Has the time now come for more emphasis on fisheries management than development? The number of fishing vessels has increased significantly over the last 25 years and engine power even more so, from 0.28 million HP in 1980 to 5.4 million HP in 2006. This corresponds to an annual increase of 23.4 per cent whereas the average annual growth of the fish harvest

in the same period was 6.1 and 3.9 per cent for volume and real value, respectively. Aquaculture, of mainly shrimp and fish, has grown even more than the traditional fisheries in the period 1991–2004, with an average of 10.4 and 23.8 per cent per year of production volume and export value (nominal USD), respectively. It is not just the fishing industry that has grown over the last couple of decades: the overall economic development, measured by annual growth rates of GDP and GDP per capita, was 7.0 per cent and 5.3 per cent, respectively. Fishing has been, and still is, mainly an open-access industry, regulated by some area and gear technological restrictions, and may now have reached its peak. Our costs and earnings surveys for 2004–5 in the Khanh Hoa province demonstrate that both offshore and some inshore fisheries were highly profitable, for both vessel owners and crew members. Some resource taxes have been collected by provincial and local authorities, but were abolished in 2006. This paper also discusses some policy issues and instruments for future development and management, including a resource export tax (RET), marine protected areas (MPAs), technical regulations and international cooperation in the South China Sea.

Some facts about Vietnam

Vietnam is a long and rather narrow country. The land area is about 330 thousand km² and the not fully delineated Exclusive Economic Zone (EEZ) about three times as big as the land.^b A large number of lakes and rivers add 4000 km² to the productive waters of the country.

Table I. Some facts about Vietnam – country, people and economy

Area, land	329,560 km ²
Shelf area	700,000 km ²
EEZ	1,000,000 km ²
Coastline, excluding islands	3,400 km
Population (2005)	85,260,000
Population growth (2004)	1.3%
GDP per capita (2005)	638 USD
HDI (rank, country) ^c (2005)	0.733 (105)



Fig. 1: Map of Vietnam with coast and seas [1]

ECONOMIC DEVELOPMENT

It is not just the fishing industry that has grown over the last couple of decades: the average annual economic growth, measured by GDP and GDP per capita, was 7.0% and 5.3%, respectively, in real terms in the years 1986–2005, as shown in Figure 2. Growth rates have varied between roughly 2 and 10 per cent in this period, as Figure 3 shows. This is a very strong economic growth both in the historic context of this country and internationally, especially compared with other developing countries. Nationally, development was difficult with the division between North and South and the devastating war from 1955 until 1975. Vietnam is still a poor country, with a GDP per capita of 634 USD in 2005. Of course, the purchasing power of USD in Vietnam is significantly higher than in the USA or any other developed country.

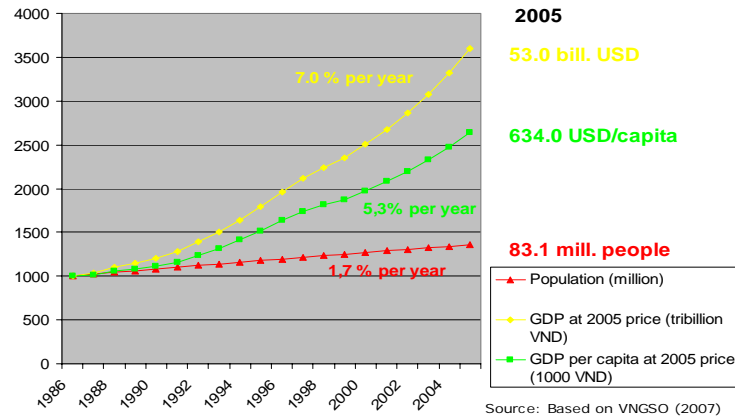


Figure 2. GDP at constant 2005 prices, population and GDP per capita (2005 prices), 1986–2005 [2].

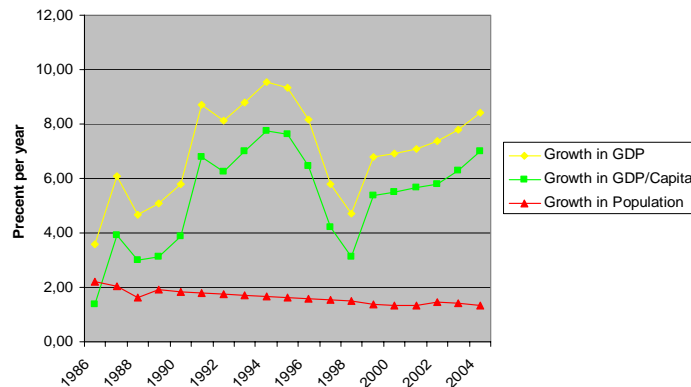


Figure 3. Annual growth rates of GDP, population and GDP/capita, 1986–2005 [3].

Fisheries development and economic performance

The total harvest of fish, shrimp and shellfish has increased on average by more than 6 per cent per year from the mid-1980s until 2006.^d This is a continuation of the growth that started after the Second World War. Even if the statistical system for reporting catches may not be complete, for example regarding fish for own and local consumption, Figure 4 demonstrates an incredible long-term growth of the fish harvest in Vietnam. In this figure, the catch is distributed across commercial groups instead of species. There are more than 130 commercial species of fish, out of a total of about 2000 fish species in Vietnamese marine

waters. In addition, there are 2500 species of shellfish and 1600 species of crustaceans, as well as many species of seaweed. Thus, to obtain an exact account of catches across species is practically impossible.

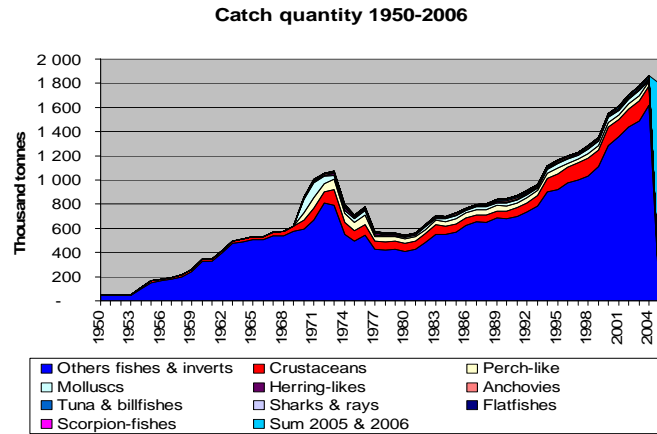


Figure 4. Fish harvest, main commercial species groups and total, 1950–2006. Thousand tonnes [4,5] and [6].

Figure 5 shows the value of fish catches from 1950 to 2004, distributed across the main commercial groups. Note that crustaceans make up a significantly greater share of the value in Figure 5 than of the volume in Figure 4.

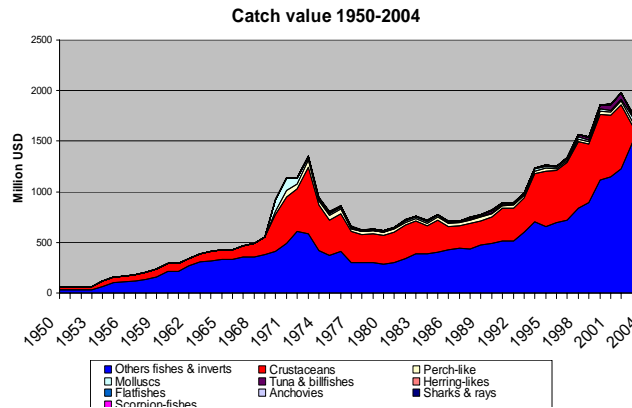


Figure 5. Value of the fish harvest, main commercial species groups and total, 1950–2006. Million USD [5].

Has the peak marine harvest already been met? Has the time now come for more emphasis on fisheries management than volume development? According to [7], the annual total sustainable harvest has been estimated at 1.7 million tonnes, including 850 thousand tonnes of demersal species, 700 hundred thousand tonnes of pelagic species and 120 thousand tonnes of pelagics from the high seas, and all this should come from a standing biomass of 4.2 million tonnes. The actual catches of the latest years shown in Figure 4 are amazingly close to this estimate of the sustainable total harvest.

Figure 6 shows the development of the motorised fishing fleet in number of vessels and horse power. The number of fishing vessels has increased significantly over the last 25 years and engine power even more so, relatively speaking, from 0.28 million HP in 1980 to 5.4 million HP in 2006. This corresponds to an average annual increase of 23.4 per cent whereas the average annual growth of the fish harvest in the same period was 6.1 and 3.9 per cent for volume and real value, respectively, as demonstrated above.

Based on the volume figures, a couple of rough indicators for catch per unit of effort may now be computed. For the period covered in Figure 6, catch per vessel shows a little increase, whereas catch per unit of engine power, in tonnes/HP, has declined dramatically as demonstrated in Figure 7.

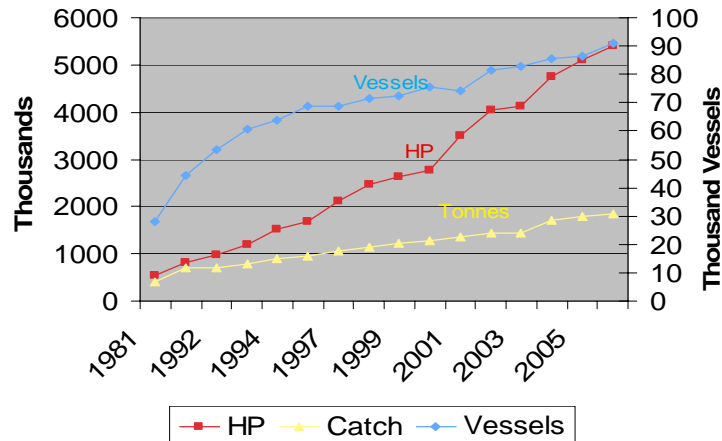


Figure 6. Catch and fleet development, 1981 and 1991–2006 [8, 9] and [10].

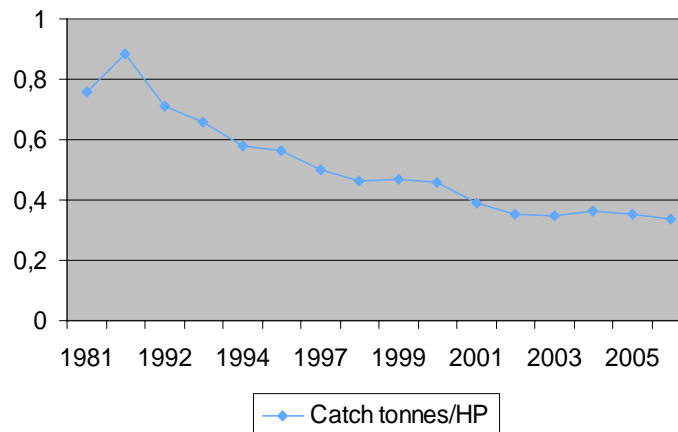


Figure 7. Catch per unit engine power, in tonnes/HP, 1981 and 1991–2006 [8, 9] and [10].

Aquaculture is the most expansive branch of the fishing industry as shown in Figure 8. In 2006, it had reached about the same production level as the total capture fisheries. Economically, the most important species groups are catfish and shrimp. Catfish (two species of *Pangasius*, named Basa and Tra in Vietnam) have proved to be very well adapted to the Mekong delta environment. In one decade until 2007, the *Pangasius* production increased from just a little more than 20 thousand tonnes to 825 thousand tonnes. This was possible through technological change from previously mainly floating house-cages to mainly pond production along the river banks. In the lower part of the Mekong, pond water is exchanged inexpensively by using the natural changes between ebb and tide. Even further upstream in Vietnam, the actual water cost is of far less importance than the feed cost. The sale of all this fish has been made possible through a significant increase in the number of factories approved for export to the best paying markets, especially the EU, Japan and the USA; from a couple of dozen factories in 2000 to about 250 in 2007.

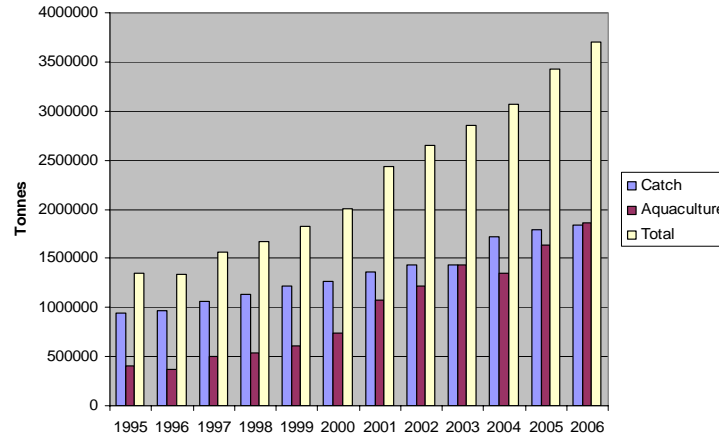


Figure 8. Fish harvest, aquaculture and total production, 1995–2006 [9] and [10].

Seafood export has increased significantly more than production over the last couple of decades; in fact, in volume terms, the export was almost twenty times higher in 2007 than in 1990. Almost eighty per cent of all seafood export in 2007 went to three markets: the EU, Japan and the USA [11]. It is not just seafood export that has increased, but also several other key products such as crude oil, textiles and footwear, as well as rice and other food products. Total export and the seafood share are shown in Figure 9. Until 2002, the seafood export increased more than the total export, increasing the seafood percentage. However, since 2002, the seafood share has decreased.

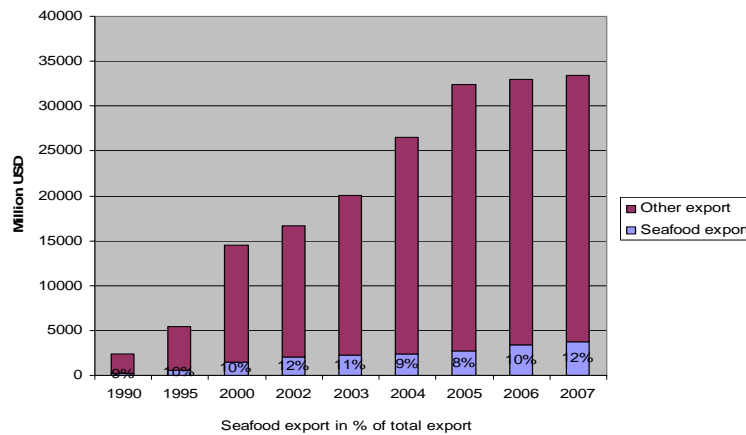


Figure 9. Total export value and seafood export value in nominal USD (1990–2007).⁶ Percentage numbers shown are seafood export as a percentage of the total export [2,12].

Economic indicators, including those on performance, are needed for the proper management of fisheries. In the case of Vietnam, governmental fisheries institutions do not conduct cost and earning surveys on a regular basis. However, at Nha Trang University, several master and PhD students have been involved in such a project for fishing vessels in the Khanh Hoa province. Some of the findings are presented in an Annex and in Figure 10. This figure, based on the data in the Annex tables, shows net profit as a percentage of gross revenue per fishing vessel. Small-scale trawlers are the smallest vessels with an average length of 11.7 m (2005) and, together with anchovy purse seiners, with an average length of 13.7 m, these make up the inshore fleet in this presentation. The offshore vessels are somewhat bigger with 16.2 and 15.1 m length (2005) for tuna–mackerel gill net and offshore longline, respectively. For the offshore vessels, crew sizes are 10.5 and 9.0 men (2005), for gill net and longline, respectively. Despite

just a two-metre average length difference between the two inshore vessel groups presented, the crew size differs considerably with 3.3 and 12.3 men for trawl and purse seine, respectively.

Table II

Annex table 1. The main technical characteristics and economic data of some main fishing vessel groups in the Khanh Hoa province, Vietnam. Average per vessel per year (with st. dev. in parenthesis). 2004.

Indicator	Small scale trawlers	Tuna-mackerel offshore gill net	Offshore long line
Hull length (m)	11.5 (1.5)	16.2 (1.2)	15.1 (1.3)
Engine power (HP)	33.5 (14.4)	126.4 (86.3)	121.9 (81.2)
Crew size (Persons)	3.1 (0.7)	10.5 (0.974)	9.2 (0.7)
Gross revenue (USD)	9,571.6 (8,406.9)	42,176.6 (12,842.61)	36,033.6 (13,112.4)
Fixed costs (USD)	2,162.2 (1,492.3)	12,085.98 (4,371.08)	3,578.8 (1,704.3)
Variable costs, total (USD)	8,007.1 (6,449.5)	26,708.17 (7,313.07)	28,082.4 (9,754.7)
-Fuel costs (USD)	4,684.1 (3,321.5)	10,649.83 (3,255.20)	11,446.5 (4,869.4)
-Crew costs (USD)	1,564.5 (2,121.3)	8,403.30 (3,988.83)	8,389.9 (4,272.3)
Net profit (USD)	-597.8 (2002,2)	3,749.92 (7,803,31)	4,372.4 (4,840.8)
Income per fisherman (USD)	474.2 (558.4)	790.12 (330.87)	917.8 (466.1)
Household size		-	-
Profit margin (net prof in % of gross revenue)	-6.24%	8,81%	12.13%
Relative fuel cost ^f	48.94%	25,03%	31.77%
n survey (N registered population)	39	50 (286)	32 (200)

Sources: Thanh Thuy et al. (2007), Tuan Nguyen et al. (2007), Khanh Ngoc et al. (2008), Long et al. (2008).

Annex table 2. The main technical characteristics and economic data of some main fishing vessel groups in the Khanh Hoa province, Vietnam. Average per vessel per year (with st. dev. in parenthesis). 2005.

Indicator	Small scale trawlers	Anchovy purse seine	Tuna-mackerel offshore gill net	Offshore long line
Hull length (m)	11.7 (1.8)	13.74 (1.04)	16.2 (1.2)	15.1 (1.2)
Engine power (HP)	33.3 (12.03)	55.15 (39.08)	126.4 (86.3)	124.3 (77.4)
Crew size (Persons)	3.3 (0.9)	12.28 (1.99)	10.54 (0.994)	9.0 (0.7)
Gross revenue (USD)	12,144.4 (5,552.1)	27,905.92 (8,915.35)	53,879.75 (17,740.5)	36,048.7 (14,131.1)
Fixed costs (USD)	1,993.5 (1,250.8)	3,151.38 (1,625.73)	12,085.44 (4,338.53)	3,158.5 (1,622.4)
Variable costs, total (USD)	10,369.9 (4,582.5)	18,029.50 (6,082.43)	35,250.00 (9,828.82)	29,724.4 (10,785.3)
-Fuel costs (USD)	6,242.6 (2,827.1)	5,693.80 (2,183.31)	15,524.05 (4,584.85)	14,504.0 (6,135.7)
-Crew costs (USD)	1,774.5 (1,241.7)	10,360.74 (3,672.94)	9,793.67 (5,094.63)	6,718.1 (3,802.8)
Net profit (USD)	-219.1 (1031.6)	6,725.04 (4,496.60)	6,546.20 (11,313.48)	3,165.8 (4,147.7)
Income per fisherman (USD)	514.1 (275.1)	829.20 (202.74)	929.11 (646.33)	741.5 (401.8)
Household size	6.2	5.54 (1.70)		-
Profit margin (net profit in % of gross revenue)	-1.80%	24.10%	12.15%	8.78%
Relative fuel cost ^g	51.40%	20.40%	28.81%	40.23%
n survey (N registered population)	71	39	50 (286)	58 (200)

Sources: Thanh Thuy et al. (2007), Tuan Nguyen et al. (2007), Khanh Ngoc et al. (2008), Long et al. (2008).

Figure 10 demonstrates that there is a significant difference in economic performance between the two inshore vessel groups, with a negative result for small-scale trawlers in both 2004 and 2005, whereas anchovy purse seiners in fact have the highest result of all four groups in 2005, which is the only year data is available for this group. The two offshore groups, gill net and longline, have about the same average percentage profit across the two years, but they differ to lead one year each.

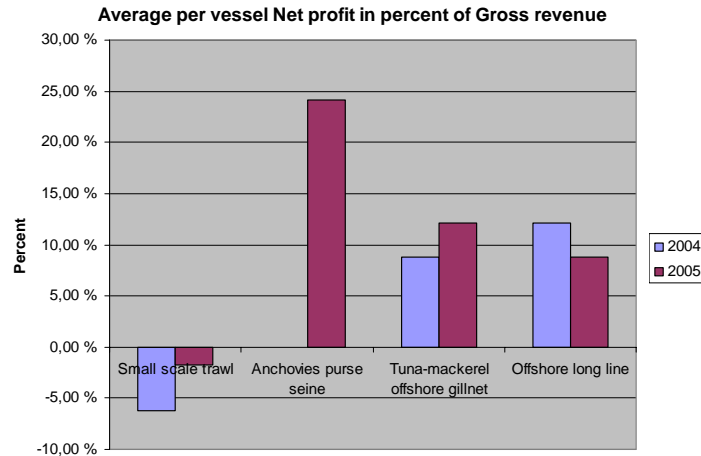


Figure 10. Average per vessel net profit as a percentage of gross revenue (2004 and 2005) [13,14,15,16, 17,and 18] .

SOME POLICY ISSUES

Several policy issues could have been discussed, including destructive fishing methods, gear selectivity, technology transfer and development, aquaculture expansion, environmental problems, allocation of coastal areas for competing use, food safety and export markets, fisheries statistics and fisheries research. In this presentation, I have limited the discussion to the following five issues that are important and that are related to cooperative research between Nha Trang University and the Norwegian College of Fishery Science.

Poverty alleviation

Fuel efficiency and subsidies

Resource rent and taxes

Marine protected areas (MPAs)

Disputed international areas

Poverty alleviation

Are fishermen in developing countries poor? Are they poorer than other people? What “benefit” and “cost” elements should be included when discussing poverty? Is resource degradation a cause or effect of poverty? These and other questions are discussed in the literature on poverty and fisheries in developing countries [19, 20]. In this case, we shall limit the discussion to a presentation of average income data for fishermen in some fisheries inshore and offshore and compare these with those of people in different geographical and demographical groups in Vietnam. The data are presented in Table II [2,13,14,15,16]. One may conclude from these data, without conducting any statistical test, that fishermen in the surveyed vessel and fisheries groups do not seem to be any poorer than other people in the country. However, this picture changes somewhat if corrected for the number of persons per household, since fishermen and fishing villages on average have larger families than the national average.

Socioeconomic efforts for improving the living conditions of fishing people and communities may include support for social and human capital development, including educational support for the children of fishermen, and infrastructure (water, sewage, roads for the fishing villages, as well as fish processing

and trade facilities). The main point is not to use government financial transfers that may expand the fishing effort and contribute to further resource pressure.

Table III. Average annual income per person in some areas and fisheries.

Average annual income (2004):	
Whole country	359 USD
Rural	281 USD
Urban	605 USD
South central coast (incl. Nha Trang)	308 USD
Provincial government sectors Khanh Hoa ^h	1006 USD
Small-scale trawl	474 USD
Anchovy purse seine (2005)	829 USD
Tuna-mackerel gill net	790 USD
Offshore longline	918 USD

Fuel efficiency and subsidies

On the background of the strong increase in the world market price of crude oil, spilling over to prices of fuel and lubricant oil for domestic markets, many fishermen and other affected groups around the world have asked their governments for subsidies to alleviate their economic problems. Figure 11 demonstrates that fuel and lubricant oil is a significant cost of vessels in very different type of fisheries. However, not surprisingly, trawling is the most fuel cost intensive. From an efficiency point of view, subsidies to alleviate transitional poverty due to the oil price increase should rather be paid to fishermen according to some fisheries, socioeconomic or demographical criteria than to reduce the fuel price [21].

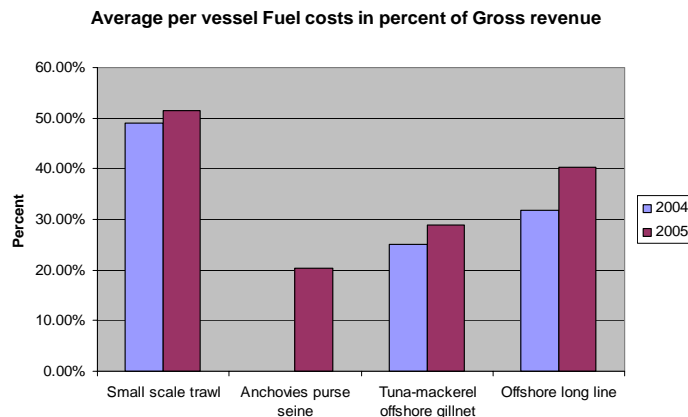


Figure 11. Fuel and lubricant costs as a percentage of gross revenue for some Nha Trang area fishing vessels, 2004 and 2005 [13,14,15, 16, 17 and 18].

Resource rent and taxes

Some resource taxes have been collected by provincial and local authorities, based on the type of fishery and vessel and on engine power, usually amounting to less than one per cent of the vessel gross revenue.ⁱ However, these taxes were abolished in 2006, as an answer to the fuel price hike.

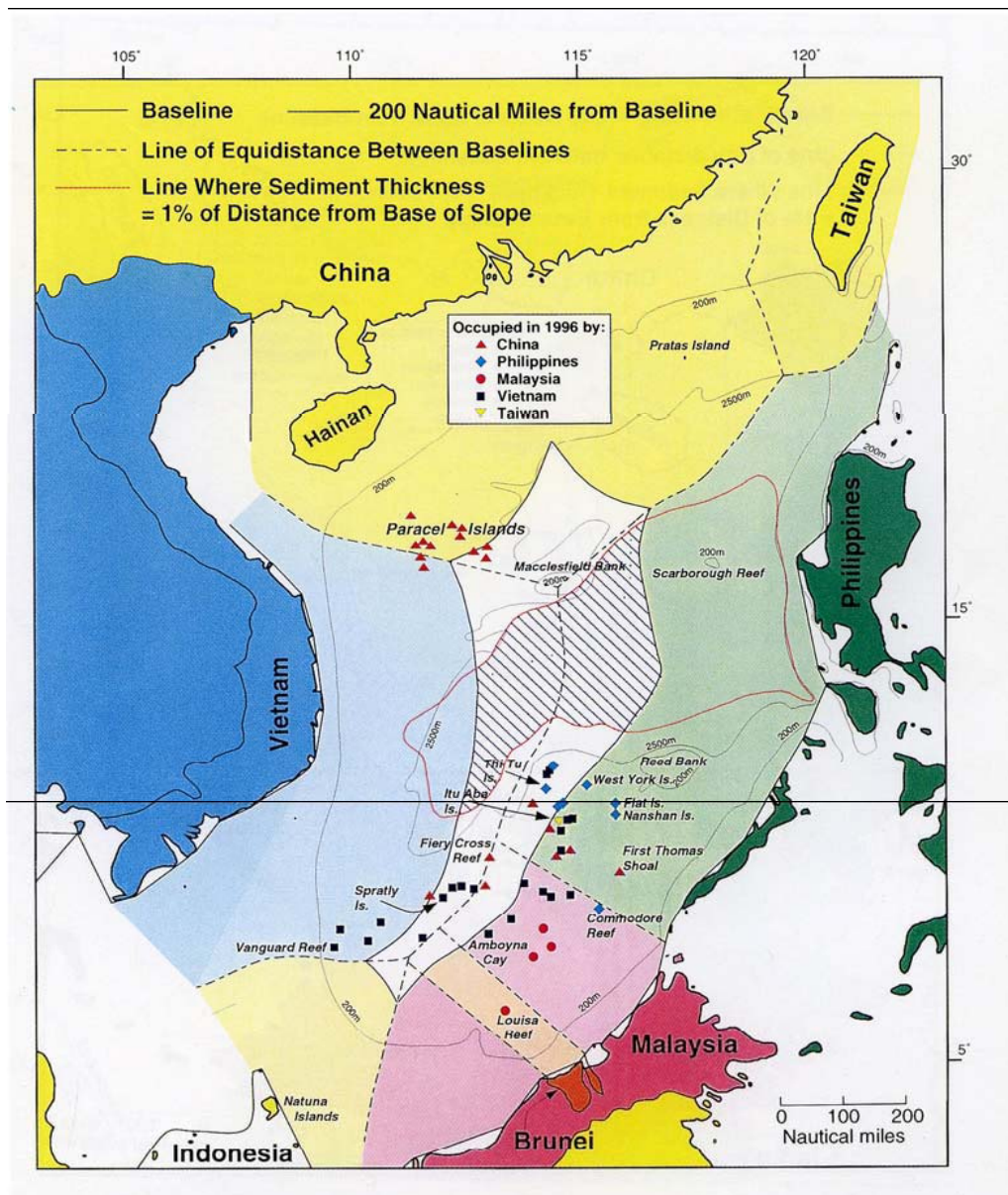


Figure 13. The South China Sea with possible boundaries and areas of conflict.

CONCLUSION

The Vietnamese fishing industry has demonstrated amazing growth over several decades, but the production of fish capture harvest may now have come to a peak. For this reason, and the increased competing use of coastal resources from fishing, aquaculture, tourism and industrial development, a diversified use of policy instruments is now required. Considering the specific characteristics of these industries, partly described above, and balancing economic efficiency with equitable distribution, I think Vietnam should place somewhat more emphasis on resource rent creation, but otherwise continue its wise use of a balanced mix of policy instruments, such as resource taxes, technical restrictions, MPAs and international agreements. Continued economic development and poverty alleviation come through sound economic policy also for the fishing industry and not through subsidies to fuel or vessel expansion.

REFERENCES

- [1] Wikipedia at <http://no.wikipedia.org/wiki/Bilde:Vm-map.png>.
- [2] VNGSO, 2006, Vietnam – 20 Years of Renovation and Development, General Statistics Office of Vietnam, Hanoi.
- [3] VNGSO, 2007.
- [4] VNGSO, 2008.
- [5] UBC, 2008, Sea Around US Project, at <http://www.searoundus.org/>, The Fisheries Centre, University of British Columbia.
- [6] NADAREP, 2008. National Directorate of Aquatic Resources Exploitation and Protection.
- [7] FAO, 2008, Fishery and Aquaculture Country Profile – Vietnam. At http://www.fao.org/fishery/countrysector/FI-CP_VN/en.
- [8] FAO, 2004, Report of the National Conference on Responsible Fisheries in Viet Nam. FAO/FishCode Review no. 9, Food and Agriculture Organization of the United Nations, Rome.
- [9] IFEP, 2005, Overall Planning for 2010 and Perspective 2020: Vietnam’s Fisheries Development (in Vietnamese), Institute of Fisheries Economics and Planning, Hanoi.
- [10] Kim Anh, N.T. , 2008, Pers. com., based on data from VNGSO and NADAREP.
- [11] Hien Thi, T., N.T. Kim Anh and L. Petersen, 2008, International Fish Trade and Fish Product Security in Viet Nam, Paper presented at IIFET, 2008, Nha Trang, Vietnam.
- [12] FIC (2008). Fisheries Informatics Centre, Hanoi, at <http://www.fistenet.gov.vn/>.
- [13] Thanh Thuy, T.P., N.T. Kim Anh and O. Flaaten (2007). Economic Performance Indicators for Coastal Fisheries – the Case of Purse Seining in South-Central Viet Nam. Submitted to a Journal.
- [14] Tuan Nguyen, N.T. Kim Anh, O. Flaaten, Dung Thi Phan, Tram Anh Thi Nguyen (2007), An Analysis of the Tuna-Mackerel Gillnet Fishery in Nha Trang, Vietnam, Submitted to a Journal.
- [15] Khanh Ngoc, T.Q., O. Flaaten and N.T. Kim Anh , 2008, Technical Efficiency of Fishing Vessels Affected by a Marine Protected Area – the Case of Small-Scale Trawlers and Marine Protected Area in Nha Trang Bay, Vietnam, In *Proceedings from the International Symposium on Integrated Coastal Zone Management*, 11–14 June 2007, Arendal, Norway. Blackwell (in press).
- [16] Long, L.K., O. Flaaten and N.T. Kim Anh, 2008, Economic Performance of Offshore Longline Vessels in Nha Trang, Vietnam, *Fisheries Research* (in press).
- [17] Kim Anh, N.T., T.P. Thanh Thuy and O. Flaaten, 2007a, Income Sharing Systems Among Purse Seine Fishermen in Cam Ranh and Nha Trang, Vietnam. *Fish for People* 5(2): 40–46.
- [18] Kim Anh, N.T., D.T. Tam Ngoc, O. Flaaten, T.P. Dung and T.N. Tram Anh, 2007b, Costs and Earnings from Offshore Tuna Long-Line Fishery in Nha Trang, Vietnam. *Fish for People* 5(1): 33–41.
- [19] Bene, C., 2003, When Fisheries Rhymes with Poverty: a First Step Beyond the Old Paradigm on Poverty in Small-Scale Fisheries. *World Development* 31(6): 949–975.
- [20] Neiland, A.E. and C. Bene (Eds.), 2004, Poverty and Small-Scale Fisheries in West Africa, FAO, Rome and Kluwer, Dordrecht.
- [21] OECD, 2000, Transition to Responsible Fisheries: Economic and Policy Implications, Organisation for Economic Cooperation and Development, Paris.

- [22] Flaaten, O. and Schulz C.E. ,2008, Triple Win for Trade in Renewable Resource Goods by Use of Export Taxes, Paper presented at the Fourteenth Biennial Conference of the International Institute of Fisheries Economics & Trade (IIFET), Nha Trang University, Vietnam, 22–25 July 2008.
- [23] Munro, G.R., 1979, The Optimal Management of Transboundary Renewable Resources. *The Canadian Journal of Economics* 12(3): 355–376.
- [24]Munro, G.R. , 1991, The Management of Transboundary Fishery Resources: a Theoretical Overview. In R. Arnason and T. Bjørndal (Eds.), *Essays on the Economics of Migratory Fish Stocks*. Springer-Verlag, Berlin.
- [25] Long and Flaaten, 2008, The Potential for Cooperation in Shared Fisheries, Paper presented at the Fourteenth Biennial Conference of the International Institute of Fisheries Economics & Trade (IIFET), Nha Trang University, Vietnam, 22–25 July 2008.

ENDNOTES

^aThe main sources are IFEP (2005), FAO (2008) and VNGSO (2006).

^b FAO (2008) gives somewhat lower figures for the “shelf area” with approximately 700 thousand km².

^c Source: <http://no.wikipedia.org/wiki/Vietnam>. No. 1 is Norway with HDI=0.968.

^d The source for the 2005–6 data is different from that for the previous years, which explains why distribution across species groups is not possible for the later years.

^e The other export in 2006 and 2007 is in this figure made equal to that of 2005 due to a lack of data. Thus, the seafood export shares are too high for these two years.

^f Fuel cost in percent of gross revenue

^g Fuel cost in percent of gross revenue

Note: Average price of diezen (fuel) is about 4,800 VND (0.3 USD) in 2004 and 6500 VND (0.41 USD) in 2005

^h Sources: Khanh Hoa Statistics, Annual Yearbook, Nha Trang, 2006, Table 12.

ⁱ See Tuan Nguyen et al. (2007) and Long et al. (2008).

^j See Khanh Ngoc et al. (2008).