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연구논문

Strategic Environmental Assessment for the Master Plan of Tonkin Gulf Coastal Economic Belt Development: Lesson Learnt

Le Trinh, Prof. Dr

President of the Vietnam Association for Environmental Impact Assessment (VAFEIA)

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Abstract

Methodology and application of Strategic Environmental Assessment (SEA) for policies, plans, and programs are still new approach in Vietnam. With a support from Vietnam-Swedish Project (SEMLA) and Ministry of Natural Resources and Environment (MONRE), SEA for the Tonkin Gulf Coastal Economic Belt Development Plan was conducted in 2008. Lessons obtained from this SEA may contribute to improving methods and practicing SEAs for regional development. The main lessons summarized in this paper are: (i) close cooperation between the planning and environmental teams from the beginning phase of a master plan; (ii) SEA should focus not only on impacts to the natural environment but also on main issues of socio-economic aspects; (iii) approaches and methods used in SEA should be appropriate to properly predict the impacts at regional-levels and cumulative impacts; (iv) a good SEA study may be achieved when detailed data on the environment and socio-economy of the study area are available and have active engagement of stakeholders, including project affected sectors, ecologists, planners, policy makers, etc.

This paper is useful for whom, those work in SEA in regional development.

Keywords : SEA, regional development, sustainable development, Tonkin Gulf

I. Introduction

The Tonkin Gulf is bordered by Guangxi province of northern China, Hainan island at East, Quangninh, Haiphong, Thaibinh, Namdinh, Ninhbinh, Thanhhoa, Nghean, Hatinh, and Quangbinh provinces of Vietnam at West. The Tonkin Gulf Coastal Economic Belt (TGCEB) includes Quangninh province and Haiphong city, which not only are two large urban and industrial centers but also are locations of the most important natural heritages and reserves in Northern Vietnam. In this zone, there are the largest coal basins of Vietnam, Halong Bay Word

Corresponding Author: Le Trinh, Prof. Dr, President of the Vietnam Association for Environmental Impact Assessment (VAFEIA), B19, Lot 9, Dinhcong New Urban Quarter, Hoangmai District, Hanoi, Vietnam Email: vesdec@ yahoo.com

Heritage, Catba World Bioshere Reserve, Baitulong Natural Park, and various protected sites (See Figure 1). Therefore, an integration of economic development and natural conservation toward sustainable development is a vital orientation for this region.

The Master Plan for development of the TGCEB consists of 2 main components (Ministry of Planning and Investment, 2008):

(i) Development plan for driving force areas.

(ii) Development plan for economic sectors.

The aim of the Plan is to establish the TGCEB to be a dynamic economic region, a "vigorous growth pole" attracting a large territory in Northern Vietnam. It is also a primary integration area of Vietnam, China, and ASEAN countries; at the same time, it connects to other coastal areas to make a economic belt along the coast from Mongcai in Northern Vietnam to Hatien in the Southern Vietnam to quickly develop and promote other inland areas of Vietnam.

A number of development objectives are set out, which are as follows:

1. Establishing a transportation system in the economic belt especially main coastal axis routes from Mongcai (Quangninh Province) to Doson (Haiphong City) in order to link between the Vietnam-China Economic Corridors and Southern China, creating conditions to widen trade and development cooperation with China and ASEAN countries effectively and actively.
2. Focusing on developing driving force areas, central urban areas to make a breakthrough

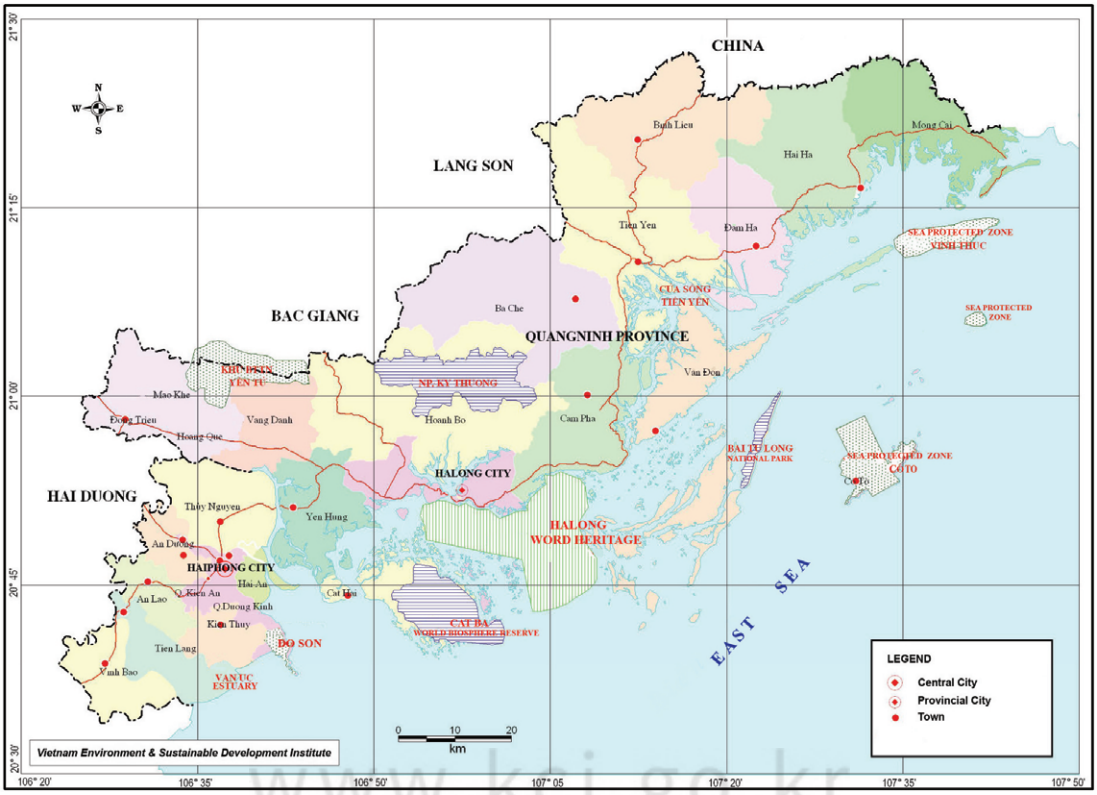

Figure 1. Map of Natural Reserve Sites and Natural Parks in the Study Region

acceleration for the whole Economic Belt to develop fast as well as to make a counterpoising side with the coastal Southern China.

3. Forming and developing a number of main sectors including: marine transport, shipbuilding, thermo-electricity, mining, mechanics, construction materials production, oil and gas processing, aquaculture processing to reach advanced level in the region.
4. Economic growth rate is 1.4-1.5 times higher than national GDP growth rate; total good circulation through the Economic Belt increases more than 20%/year. By 2020, the TGCEB will contribute to the whole country GDP about 6.5%-7%; GDP per capita achieves USD 3,500-4000 (Ministry of Planning and Investment, 2008).

In recent years, economy of the TGCEB has been fast developed, which brought more contribution to the Northern Economic Focal Zone (NEFZ) and the whole country. In many years, GDP of the Economic Belt always reaches high and sustainable growth rate, average of the period 2001-2007 achieved 12.1% /year, 1.6 times higher than nationwide GDP growth rate and nearly 1.2 times higher than growth rate in the NEFZ. Among them, industry-construction sector increases as 14.9%/year, 1.5 times higher than nationwide average; agriculture, forestry and fishery increases as 4.5%/year, 1.2 times higher than nationwide average and service sector increases as 11.4 %/year, 1.6 times higher than nationwide average (Ministry of Planning and Investment, 2008).

II. Research Framework

In order to integrate the Master Plan into environmental protection toward sustainable development, it is necessary to conduct Strategic Environmental Assessment (SEA) for the Master Plan. The SEA is carried out by the Vietnam Environment and Sustainable Development Institute (VESDI) in collaboration with the Development Strategy Institute (DSI)- Ministry of Plan and Investment (MPI) with the support of the Department of Appraisal and Environmental Impact Assessment- Ministry of Natural Resource and Environment (MONRE) and SEMLA Program. SEA study was implemented by following the guideline of MONRE and SEMLA (2007). Methods for cumulative impact assessment proposed by in the Guide Book prepared by Le Trinh and Le Thac Can for MONRE (2007) were also used.

III. Main Results of the SEA

From judgment and prediction, the SEA report gave following conclusions and suggestions.

1. Suitable level in terms of sustainable development of the Master Plan

1) In general, 6 decisive viewpoints and ideas of the Master Plan for the TGCEB are suitable for sustainable development orientation ("Combining closely economic development with social development, reinforcing security, protecting resources and environment toward sustainable development").
2) Mentioned planning named "Orientation of environmental protection, sustainable development" includes 3 general principles and 5 main solutions. General principles are in accordance with the Governmental policies on environmental protection, sustainable development in the period of promoting industrialization and modernization.

3) Main solutions to environmental protection toward sustainable development are:
   (1) Environmental protection for the Halong Bay
   (2) Suitable usage and protection of natural resources
   (3) Environmental protection for urban areas and industrial zones
   (4) Environmental protection for the seas and coastal line
   (5) Solutions in development and environmental policies.

The above solutions mention key issues need to be carried out in the plan implementation process.

4) The large scale of the Plan may create various social and environmental problems but such problems are not properly considered in the plans for regional and sectoral development. Therefore, some planned activities do not well focus on the ecological features and environmental protection targets in the specific regions.

2. Level of adverse impacts on the environment

From the results of the assessment of environmental impacts, it is possible to give some predictions in cases of lack of effective measures in environmental management:

1) The level of environmental pollution, especially in coastal zones, river, and air, would be risen during the plan implementation. The increased polluted environment will affect fishery resources, tourism sector, natural reserves and public health. The main affected areas include Halong city, Campha town, district of Damha, Haiha, Yenhung, Thuynguyen, Haian, Doson, coastal, and industrial parks areas.
2) Biological resources will be reduced because of the extension of industrial parks, urban areas, and tourism zones. The natural forest areas will be also decreased.
   This impacts are expected to be significant and large-scale but they are mitigated by proper management and technological measures.
3) A large number of households in rural area will be adversely affected due to loss of their land for the projects; consequently, various economic and social problems may be arisen.
   It is considered to be significant, but may be mitigated if the Governmental authorities and investors conduct proper policies in compensation, resettlement and support the projected affected peoples in restoration of their economic and cultural activities.
4) For minimizing the negative impacts on the natural environment and society, it is necessary for MPI, Provincial People's Committees, relevant ministries, agencies, and investors to reconsider and adjust some contents of the Plan, particularly number, location, area of industrial parks, types of industrial projects, location of ports, airport, etc. Some planned projects may be rejected, if they may not have high economic benefits but cause major environmental impacts.
5) For mitigating the impacts (partly, not all), the SEA report outlines basic orientations on environment management and technology which may serve as reference for MPI and relevant ministries and agencies.

The main negative impacts and solutions to mitigate the adverse impacts caused by the

development actions of the Master Plan for the Coastal Tonkin Gulf Economic Belt are clearly mentioned in the SEA report (Le Trinh, Le Thac Can, 2008).

IV. Lessons Learnt

1. Relationship between SEA and the Planning Process

Conduction of this SEA cooperation between the Planning Team (DSI) and the SEA Team (VESDI) was good. The following Table 1 shows the steps in SEA study and cooperation with the planning teams during the Master Plan process.

The main problems in linking the SEA to Master Plan (in a case of the Tonkin Gulf) are as follows:

1) No involvement of SEA team in the preparation of sector development plans.

Lesson:

Involvement of environmental team (environmental teams of the Ministries or inviting environmental teams from research institutes) in preparation of sector development should be made from the beginning stage of the MP formulation.

2) Information and data on the environment and social, cultural, historical sites, particularly, ecological zones, protected areas were not adequate in the stage of regional and sector development planning. When the sector ministries prepared these parts of the Master Plan (MP), the SEA team could not participate in their planning process since the mandate of the SEA team was limited to providing only recommendations to the DSI planning team. DSI planning team was integrating all comments obtained - from sector plans and proposals from the SEA team into one

Table 1. Cooperation between Planning and Environmental Teams in the process of SEA

Date	Planning Team (DSI)	Environmental Team (VESDI)
October - Dec/2007	Step 1: (i) Set out development strategies (ii) Line ministries/sectors proposed specifies Sector development plan (Industry, Transport, Agriculture, Tourism, Trade, etc.) (iii) Received comments from the Environmental Team	(i) Collected data/information on the environment of the region (ii) Sent environmental data to the Planning Team (iii) Reviewed the proposed Sector plans based on points of view of sustainable development (iv) Prepared thematic report of environment examination for each Sector plan (10 thematic reports) (v) Sent back to the Planning Team
Jan - Mar 2008	Step 2: (i) Reviewed and accepted various comments from the Environment Team (ii) Revised the proposed Sector development plans (iii) Prepared Initial Master Plan (iv) Sent to the Environmental Team for environmental consideration.	(i) Reviewed the revised Sector development plans and Initial Master Plan (ii) Sent back various environmental comments to the Planning Team
Apr - June 2008	Step 3: (i) Prepared Draft Master Plan, combining: Regional development Sector development	(i) Prepared Draft SEA Report (ii) Sent the Draft SEA Report to the Planning Team for comments and review the Draft Master Plan.
From July - December 2008	Step 4: (i) Organized public consultation meetings for review and comment on the Master Plan and SEA reports (ii) Reviewed and finalized Master Plan report and SEA report (iii) Submit SEA report to MONRE for review (iv) Revise SEA report with consideration of the comments from the Appraisal Committee	

comprehensive Master Plan.

Lesson:

SEA should formulate specific request for actually preparing their contribution to SEA of the MP as part of elaboration of their planning proposals. This request may include:

(1) Selection of the most important environment and SD issues for the specific proposals that should be considered by the key sectors when developing their proposals for the MP.

(2) Specific tips (or templates) for providing information on baseline trends for these sector-specific environment and SD issues.

(3) Specific tips (or templates) for preliminary consideration of impacts of sector proposals on these sector-specific environment and SD issues.

This request should be then formally sent by the DSI team to all sector teams. This would facilitate early integration of environmental issues (at least partly) into planning proposals submitted to DSI and submission of relevant environmental information to the SEA team for the MP. It may actually resemble small SEAs; thus, building capacities in the key sectors for conducting full-fledged SEAs for their formal plans that will follow the MP.

3) Discussions between the Planning and Environmental Teams on the possible conflicts between economic development and environmental protection were conducted but not detailed enough.

Lesson:

Team work and discussions should be better implemented. Planning team should explicitly consider proposals from SEA within certain deadlines and it should clearly explain which of these proposals were accepted or had to be rejected. Then, discussion between both teams should follow. The concluding SEA report should clearly explain any major outstanding recommendations which could not be integrated into the Master Plan. It should be noted that it is perfectly legitimate not to integrate certain recommendations from the SEA and SEA should influence the thinking of the planning teams and it may be more important than the report.

2. Focus of SEA (for all SEA studies but not only for the Tonkin Gulf)

A good SEA study should focus on assessment both environment and socio-economic issues and consequences of the potential impacts on the natural environment and socio-economic conditions. However, international and national references (the SEA reports obtained from internet) and guidelines, and SEA reports seem more deeply concentrate on the natural environment, than on the socio-economic aspects.

The main reasons are:

1) Prediction and assessment on the socio - economic impacts may be difficult, due to the impacts on socio - economic conditions may not be quantified, particularly social indirect impacts (consequences of the direct impacts).

2) Data/information on the plan's affected households (PAHs) are not available in the planning stage.

3) Time duration and fees for SEA are too small. With this fee required by MPI, the SEA Team may not invite a number of experienced specialists in sectors of economy, culture, history, demography, etc. to be members of the SEA Study Team.

Lesson:

The SEA should assess the MP in its entirety.

The specific focus of the SEA needs to be determined on case by case basis. It is not necessary to restrict the SEA upfront. Depending on the nature of each specific MP, SEA may focus on environmental issues, sometimes more on social or economic issues. It would make sense to make the EIA and SEA circular more flexible and allow scoping of each particular SEA based on consultations between MONRE and MPI.

3. Approach, methodology for SEA in regional development plan

The most suitable methods for SEA are network, checklist, map overlaying, matrix, and public consultation

Environmental modeling (for prediction of air and water pollution, noise dispersion) may be used but it may not be precise due to lack of detailed technical data of the projects proposed in the Master Plan. This pilot SEA for the Tonkin Gulf Belt used emission and waste calculations based on emission and waste coefficients which are proposed by international organizations and/or by the projects. These are commonly used tools in SEAs in Vietnam such as EIA of industrial and urban sites. Such calculations can be sufficient for forecasting waste and emissions based on known and stable factors population projections. They are, however, less precise for forecasting impacts of the whole industrial development in a region since composition of industries may quickly change due to rapid economic development in the country.

4. Data issues in SEA

Availability of data on all components of the natural and social environment is a vital condition for a SEA study. Without sufficient data on the natural environment (topography, hydrology, soil, environmental quality, climate, and particularly ecological zoning) and social and economic issues, prediction of potential impacts, trends in environmental changes and proposal of mitigation are not detailed and precise enough.

In case of insufficient data and information in SEA study, use of international and/or national references for the similar cases may be a suitable method. For instance, impacts on the mangrove forest in the coastal wetland of the Tonkin Gulf may be initially predicted using the published papers on the mangrove forest in other regions of Vietnam or Malaysia, etc. Also, impacts by industrial parks in this region may be evaluated using pollution ratios and evidences of impacts from other industrial parks in Vietnam.

5. Stakeholder engagement

There were no specific constraints in organizing public hearing on the draft SEA report but participation of stakeholders was limited because:

1) Most of relevant representatives of stakeholders are busy with their own tasks in ministries, institutes, provinces. Time for reading Plan and SEA reports and participating in meeting is not available. The Plan and SEA reports are not widely distributed to the relevant participants in a convenient time (some days, weeks before meetings).
2) There are no fees for organization of public consultation meetings (in most of SEA studies).

Lesson:

Distribute the plan and SEA reports to well identified representatives of relevant ministries, provinces, and institutes for at least one week.

The best participants in SEA for regional development plans would be:

1) Representatives of Central line ministries: MPI, MARD, MOIT, MONRE, MOF, MOD (Specialists and heads of Departments of Planning; Sciences, Technology and Natural Resource and Environment).
2) Representatives of the involved provincial line departments (ditto).
3) Representatives of the Government, party at central levels and provincial levels.
4) Specialists in environment, economy, culture, social study in research institutes and universities.
5) Some NGOs related to environmental protection social associations.

In difference with EIA, participation of representatives of district, commune levels, and PAHs may not be ideal in SEA study.

6. Institutional dimension

The mitigation measures proposed by the SEA are realistic but they should be prioritized. A good SEA should include institutional consideration to assure that the proposed measures in the SEA will be well implemented by a proper institutional arrangement and adequate manpower. Analysis of institutional capacity could be done similarly with the WB guideline in Environmental Assessment.

Lesson:

SEA team should make 'soft recommendations' on institutional roles and responsibilities for their implementation, but does not have mandate to assign responsibilities for mitigation measures - this should be done by MPI and MONRE.

7. Results of the SEA for the Master Plan of the Tonkin Gulf Economic Belt

The most important element of assessment was the analysis of overall strategic impacts (key trends and their changes through cumulative impacts of proposed developments). Based on this, DSI planning team accepted many proposals from the SEA team, e.g.

1) Reducing number of oil refineries from initially proposal from 3 to 1 in the best location.
2) Scaling down of industrial areas.
3) Planning for centralized solid waste land fill areas.
4) Mitigation measures (not only waste treatment but also more macro-level measures such as better locations of industrial zones, etc.) such as consideration of climate change adaptation measures.

8. Lessons and proposal for future development of SEA system in Vietnam

1) To widely disseminate good experience in collaboration between SEA and planning team.
2) More detailed regulations on SEA which specify even a closer cooperation between SEA and planning is needed.
3) Wider uptake of SEA will require more detailed awareness raising about SEA among the planning teams and detailed training for SEA experts in the key planning institutions.
4) It is generally important to increase budget for SEA.

V. Conclusion

SEA for development policies, plans, and programs is newly required by the Vietnam Law on Environmental Protection (2005); therefore, current approach, methodology and experience of SEA should be developed. By implementing a SEA for the Socio-Economic Master Plan of the

Tonkin Gulf Coastal Economic Belt in Northern Vietnam, various lessons were obtained. To successfully conduct a SEA for regional development plan, the main conditions are: proper cooperation between planning and environmental team from the first to the last stages of plan preparation, sufficient data on environmental and socio-economic conditions, appropriate methodology, and capacity of SEA study team and proper public involvement. These lessons may be useful in SEA for most regional economic development plans in Vietnam and other countries.

* This is the revision of the paper from Vietnamese and Korean Experiences in Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) which was published in the Vietnam-Korea Workshop on August 21, 2009.

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