

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
1 Permits and Explanation	(1) EIA and Environmental Permits	<ol style="list-style-type: none"> <li>1. Have EIA reports been officially completed?</li> <li>2. Have EIA reports been approved by authorities of the host country's government?</li> <li>3. Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied?</li> <li>4. In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?</li> </ol>	<p>1.2.3. The EIA report was approved by Ministry of Natural Resource and Environment (MONRE) by the Decision No. 2378/QĐ-BTNMT dated November 12, 2008 with conditions. A supplementary EIA is currently in the process of approval. The supplementary EIA report was submitted to MONRE in July,2010 and expected to be approved in October,2010.</p> <p>4. Permissions for use of borrow pits and disposal sites from Department of Natural Resource and Environment (DONRE) should be obtained for the project other than approval from of the EIA report.</p>
	(2) Explanation to the Public	<ol style="list-style-type: none"> <li>1. Are contents of the project and the potential impacts adequately explained to the public based on appropriate procedures, including information disclosure? Is understanding obtained from the public?</li> <li>2. Are proper responses made to comments from the public and regulatory authorities?</li> </ol>	<p>1.2. In 2008 before the preparation of the EIA report, PMU85 held 17 public consultation meetings. Before the meetings PMU85 sent letters to provincial committees and requested to hold public meetings. The local authorities announced the meetings by using notice boards, local radio and so on. The content of the project and potential impacts were explained to the stakeholders in the Consultation Meetings on EIA and RAP, which were held at 17 communes in 6 districts, Hoa Vang, Dien Ban, Duy Xuyen, Thang Binh, Que Son, Phu Ninh. In general, PAPs were very supportive for this project and expressed their hope to receive a satisfactory compensation to keep their living standard and requested the Government for support and help to change the jobs when their lands were handed-over. There was no objection against the project. During the preparation stage of the EIA report from December 2009 to January 2010, since the alignment had changed, one additional public consultation with Project Affected Persons(PAPs) was held in Hoa Nhon Commune, Hoa Vang District, Danang City. 17 PAPs participated in the meeting.</p> <p>The opinions raised in the meeting were about traffic safety, resettlement and so on. PMU85 responded properly and no objection to the project was raised. In the D/D stage, PMU85 will cooperate with District Compensation Committee to hold public consultations to explain about land acquisition and environmental issues. The EIA report approved in 2008 has been disclosed at DONRE, District Committees. The EIA report can be freely accessed by stakeholders and can be photocopied until completion of construction.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
<p>2 Mitigation Measures</p> <p>(1) Air Quality</p>		<p>1. Is there a possibility that air pollutants emitted from various sources, such as vehicle traffic will affect ambient air quality? Does ambient air quality comply with the country's ambient air quality standards?</p> <p>2. Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?</p>	<p>Confirmation of Environmental Considerations</p> <p>1. The method of simulation was changed from that in the EIA report to obtain more accurate results by considering the baseline data and applying more adequate formula. The result shows that the concentration of NOx at 20m from the center line(Maximum:353ug/m3),the point is near the border between the land for Expressway and private land, exceeds the Vietnamese standard(200ug/m3 : QCVN05:2009). However, most international standards including the Japanese standard and WHO standard(200ug/m3) are set for NO2. Considering the ratio of NOx to NO2 (less than 50% of NOx is NO2) , the predicted concentration of NO2 satisfies the international standards. The predicted concentrations of CO and SO2 satisfy the Vietnamese standard and the Japanese standard at 20m from the center line. The predicted concentration of TSP satisfies the Vietnamese standard. There is no international standard value for TSP.</p> <p>Since the distance from the tunnel to the nearest commune is more than 400m, no significant impact is foreseen.</p> <p>2. Though there are some industrial areas, the baseline data shows no significant impact from specific sources except for TSP. The main source of TSP is the dust from unpaved roads.</p>
<p>2 Mitigation Measures</p> <p>(2) Water Quality</p>		<p>1. Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas?</p> <p>2. Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater?</p> <p>3. Do effluents from various facilities, such as stations and parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas that do not comply with the country's ambient water quality standards?</p>	<p>1. VEC will request the contractor to use the surplus soil produced by the excavation as much as possible for road construction. The slope will be covered by grass soon after the filling work to prevent soil runoff. Waste water produced in the tunnel construction will be treated through settling tanks to remove solids.</p> <p>2. The water flow through the road surface is collected by drainage system before being discharged into rivers/channels.</p> <p>3. Parking areas and/or Service areas are planned in this project. The effluent will be treated before discharging into water body. The concentration of pollutants in the effluent will satisfy.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
2 Mitigation Measures	(3) Noise and Vibration	1. Do noise and vibrations from vehicle and train traffic comply with the country's standards?	<p>1. The noise level 20m from the center line of the Expressway is predicted maximum in 2030:(71.5dB in daytime, 67.6dB in night time, daily average 70dB ), which exceeds the standard TCVN 5949 1998(75dB in daytime,50dB in night time) and satisfy WHO noise criteria(24 hours:70dB). VEC will plant trees along the Expressway and take additional measures shown in the EIA report upon request from local communes depending on the degree of impact. Since the houses along the Expressway will be more than 20m away from the center line of the Expressway, the impact of vibration will not exceed the standard as long as the Expressway is maintained properly.</p>
3 Natural Environment	(1) Protected Areas	1. Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	<p>1. The project site is not located in any protected area. However, There is Phu Ninh lake area currently proposed as a National Nature Reserve. According to the MONRE Web Site (<a href="http://www.monre.gov.vn/">http://www.monre.gov.vn/</a>), Phu Ninh Lake area contains many green "oasis" with various kinds of flora: 621 species belonging to 438 different branches, in which there are many valuable and rare species such as: erythrophloeum fordi, Southern Kingwood, and 170 species of pharmaceutical plants. The fauna of Phu Ninh area is also diverse with: 80 species of birds. 34 species of animals, 26 species of reptiles and some rare animals: Red-faced monkey, red wolf, horse bear, antelope, white head laughing thrush and dapple deer, pheasant... which are suitable for studies and ecological tourism. Some of them are on Vietnam Red data Book. VEC will officially confirm the status of the proposed Phu Ninh Nature Reserve and the location of the Proposed Nature Reserve by obtaining the official document. VEC will send them to JICA by the end of October. VEC shall arrange to provide construction staff for the project with bio-diversity training to prevent impacts on the Wild life.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
3 Natural Environment	(2) Ecosystem	<ol style="list-style-type: none"> <li>1. Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?</li> <li>2. Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?</li> <li>3. If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem?</li> <li>4. Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock?</li> <li>5. Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered?</li> <li>6. In cases where the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments?</li> </ol>	<p>1.2.3.4.5.6 . The alignment of the Expressway runs parallel to an existing railway. Most section of the alignment passes through the land altered by human activities to farmland, rice field, residential area, and plantation.</p> <p>The project site does not encompass primeval forests, tropical rain forests, ecologically valuable habitats. There are two kinds of endangered snakes listed on Vietnam Red Data Book as endangered species (EN) (<i>Ptyas korros</i> (Indochinese rat snake) and <i>Bungarus fasciatus</i>).The distribution of those snakes is entire Vietnam and other countries.</p> <p>There are also endangered plants listed on Vietnam Red Data Book as endangered species(EN) such as <i>Hopea ferrea</i> and <i>Pterocarpus macrocarpus</i>. Those large trees will be left as it is if possible. When VEC cut down endangered species, VEC will replant the same kind and number of trees as they grow now. During the D/D stage, the number of those trees will be confirmed with their coordinates and During the construction stage, the trees will be replanted, if necessary.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
3 Natural Environment	(3) Hydrology	<p>1. Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?</p>	<p>1. Though the construction of tunnel may encounter the ground water, the application of proper construction method prevents ground water from leaking out from the construction site.</p>
	(4) Topography and Geology	<p>1. Is there a soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed?</p> <p>2. Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides?</p> <p>3. Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?</p>	<p>1.2.3. In order to avoid the soil runoff from the slope, the slope will be covered with grass or other plants soon after the completion of slope. During the construction, the contractor will be obliged to stock soil in a manner that soil runoff will not be caused by setting settling pond.</p> <p>Some sections of route may be constructed on soft soil conditioned areas. In order to prevent slope failures or landslides, VEC will carefully make stipulations and requirements in the technical specifications of the civil contract documents to request the contractors to comply; the consultant and PMU to supervise the work.</p>
4 Social Environment	(1) Resettlement	<p>1. Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?</p> <p>2. Is adequate explanation on relocation and compensation given to affected persons prior to resettlement?</p> <p>3. Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?</p> <p>4. Does the resettlement plan pay particular attention to vulnerable groups or persons, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?</p> <p>5. Are agreements with the affected persons obtained prior to resettlement?</p> <p>6. Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>7. Is a plan developed to monitor the impacts of resettlement?</p>	<p>1. There are approximately 2,200 households to be resettled because of the Project. In the examination of alternatives route, the option with less land acquisition was selected. PMU, in coordination with DN, QN PC, will prepare the necessary compensation plan, allowance and subsidy for PAPs in compliance with National Rules i.e. Decree 197/2004/ND-CP dated 03 December, 2004; Decrees No. 69/2009/ND-CP dated 13 August, 2009; No. 181/2004/ND-CP dated 29 October 2004; Circular 57/2010/TT-BTC dated 16 April, 2010; Decision 36/2009/QD-PC dated 24 December, 2009, by DN PC; Decision 46/2009/QD-PC dated 18 December, 2009, by Q.Nam PC. Stakeholder consultation meetings were held to explain project background, project scope, compensation policy, its entitlement and tentative implementation schedule to PAPs.</p> <p>2. Affected households were explained through consultation meetings, surveys and interviews for draft RAP preparation at-most effort. (Please also see the answer (1)).Public Information Letter was sent which include the explaining of grievance redress.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(1) Resettlement	<p>3. Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?</p> <p>4. Does the resettlement plan pay particular attention to vulnerable groups or persons, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?</p> <p>5. Are agreements with the affected persons obtained prior to resettlement?</p> <p>6. Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>7. Is a plan developed to monitor the impacts of resettlement?</p>	<p>3. The official RAP was finalized basing on the draft RAP with consultations and agreements among VEC, Da Nang - Quang Nam People's Committee and PMU85 jointly, satisfying the necessary compensation, allowance, subsidy and actions taken for PAPs in compliance with National laws and regulations. Prime minister will approve donor's policy for the project if there is a gap between donor's policy and notional law.</p> <p>Compensation cost will be calculated by District Compensation and Site Clearance Committees (DCSCC) under Da Nang, Quang Nam People's Committee upon request from VEC after replacement cost survey. Allowances and rehabilitation measures are included in the approved RAP.</p> <p>4. Under the project policy, the poor HHs will be entitled additional special care such as assistance of change for job, and support allowance.</p> <p>5. Consultation with the PAPs shall be made before any action to resettlement taken. In the resettlement schedule, construction will start after the compensation payment.</p> <p>6. An organizational framework will be established involving the People's Committees to implement resettlement. DCSCC will prepare the detailed resettlement plan and confirm that compensation will be paid by DN, QN PC.</p> <p>7. Social Monitoring on the impact of resettlement including the quality of life of relocated people will be conducted by independent body until 1 year after the completion of the resettlement.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(2) Living and Livelihood	<p>1. Where roads or railways are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts?</p> <p>2. Is there a possibility that the project will adversely affect the living conditions of inhabitants other than the affected inhabitants? Are adequate measures considered to reduce the impacts, if necessary?</p> <p>3. Is there a possibility that diseases, including communicable diseases, such as HIV will be introduced due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?</p> <p>4. Is there a possibility that the project will adversely affect road traffic in the surrounding areas (e.g., by causing increases in traffic congestion and traffic accidents)?</p> <p>5. Is there a possibility that roads and railways will cause impediment to the movement of inhabitants?</p> <p>6. Is there a possibility that structures associated with roads (such as bridges) will cause sun shading and radio interference?</p>	<p>1,2. There will be no considerable impact existing means of transportation and the associated workers. Compensation measures for those who are subject to changing job are described in (1) resettlement. The priority in employment of the project construction workers is given to PAPs. Local government is also willing to have a policy of long training plan of young labor force. Rehabilitation Assistance such as job training is prepared for farmers whose land is affected.</p> <p>3. The influx of workers to the project area may increase the risk of HIV and other STDs. HIV/AIDS prevention program will be implemented.</p> <p>4. Since the Expressway will serve to reduce congestion around the project site, this project will decrease traffic congestion. However, During construction stage traffic volume at interchanges with NH14B, NH14E, PR 605 and other local roads will be increased due to the involvement of construction materials transportation vehicles resulting to potential traffic accidents, especially for children and pupils. To minimize the risk, the road safety awareness program will be included in the Project. Safety facilities of the expressway shall be: Guardrail, Fence, Prevention dazzle with opposite lights, Traffic signs, and Lighting system.</p> <p>5. Underpasses/overpass bridges will be constructed after consultation with local communities in D/D stage. As of now, about one underpass every 500m in a residential area is planned.</p> <p>6. The latitude of the project area indicates that the sun shading will not cause significant inconveniences for the local residence. If any TV radio interference happens due to the existence of the elevated structures constructed in this project, VEC will recover to the original status.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(3) Heritage	1. Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?	1. There are four (4) archaeological sites within or close to the right of way. 2 sites are within the ROW and the other two are outside. To cope with the archaeological issues, VEC includes the cost for the survey and excavation work into the resettlement cost. The test excavation and preservation work will be conducted by District Compensation and Site Clearance Committee (DCSCC). The work will last about 11 months and complete before the construction work. VEC will manage the schedule of the archaeological works. VEC explained that according to Vietnam Institute of Archaeology the construction of the Expressway after the preservation work will not affect the current status of My Son World Heritage. In case, another archeological, historical, cultural, and religious heritage site was found during construction, VEC will stop the construction temporarily and report that to the relevant authorities.
	(4) Landscape	1. Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	1. The bridge design will take into account the surroundings and try to be in harmony with the surrounding environment in color, and structure to minimize adverse visual impacts. The slope will be covered with grass to match the local environmental settings in color.
	(5) Ethnic Minorities and Indigenous Peoples	1. Where ethnic minorities and indigenous peoples are living in the rights-of-way, are considerations given to reduce the impacts on culture and lifestyle of ethnic minorities and indigenous peoples? 2. Does the project comply with the country's laws for rights of ethnic minorities and indigenous peoples?	1. There are no migratory or nomad life-styled minorities who inhabit in/around the area demarcated by the right-of-way of the proposed alignment. 2. There is no potential for violating the relevant legal provisions as they are not migrating or living in the project area.
5 Others	(1) Impacts during Construction	1. Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?	1. To reduce impact during construction, the following measures will be taken. <Noise & Vibration> -To Forbid night time construction with noisy machines(22:00-6:00) -Coordinate work hours as much as possible -Set up temporary sound barriers for a generator, etc. -Maintain machinery and vehicles in good conditions <Water> -The muddy water from tunnel construction will be collected and treated before

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
5 Others	(1) Impacts during Construction	<p>2. If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>3. If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p> <p>4. If necessary, is health and safety education (e.g., traffic safety, public health) provided for project personnel, including workers?</p>	<p>discharging into water body.</p> <ul style="list-style-type: none"> <li>- Installation of temporary sediment ponds</li> <li>- To Store the construction materials such as toxic chemicals at adequate place.</li> <li>-To restore the damaged irrigation, drain system and pond.</li> <li>-To keep the irrigation and drain system from clogging.</li> <li>-Installation of car wash area with oil collection system.</li> </ul> <p>&lt;Air&gt;</p> <ul style="list-style-type: none"> <li>-Spray water in hot and dry weather at least twice per day..</li> <li>-Cover the material with tarpaulin during transportation.</li> </ul> <p>&lt;Wastes&gt;</p> <ul style="list-style-type: none"> <li>-Treat wastes according to current regulations.</li> <li>-The waste and hazardous waste will be stored separately following the instructions given by the producer.</li> </ul> <p>2. The possibility to affect the natural environment will be little. Adequate measures to minimize impact on water quality will be taken as mentioned before. Bio-diversity training will be given to construction staff.</p> <p>3. Followings are some measures which will be taken to reduce possible impacts on the social environment:</p> <ul style="list-style-type: none"> <li>- Watering service roads to reduce dust</li> <li>- Collecting waste to designated sites</li> <li>- Reasonably limiting construction time, etc.</li> </ul> <p>In addition, measures will be established to maintain good relationship between workers and local residents.</p> <p>&lt;Cultural Site&gt;</p> <p>4. First aid and medical facilities will be provided to employees. Proper explanation will also be provided to workers. The health care for the labor will be periodically made by the health care staff of the Contractors following the Vietnamese regulation. The construction will be equipped with sufficient safeguard kits.</p>

Attachment ENV001

CHECK LIST

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
	(2) Monitoring	<ol style="list-style-type: none"> <li>1. Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</li> <li>2. Are the items, methods and frequencies included in the monitoring program judged to be appropriate?</li> <li>3. Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</li> <li>4. Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</li> </ol>	<p>Confirmation of Environmental Considerations</p> <ol style="list-style-type: none"> <li>1.VEC developed the Environmental Management Plan(EMP) including monitoring plan for this project.</li> <li>2.The monitoring items includes resettlement, ambient air quality, surface water quality, groundwater quality, effluent and soil noise and vibration.</li> <li>3.VEC is responsible for carrying out monitoring activities in construction stage and 2years after the construction work. In order to realize the EMP and related activities, PMU85 will establish an Environmental and Social Unit(ESU). ESU will supervise the EMP implementation, and review the monthly environmental report from contractors, as well as addressing any comments or complaints from local community.</li> <li>4. Environmental monitoring reports prepared by ESU will be submitted to DONRE and MONRE periodically. Monitoring reports will be placed at DONRE and VEC/ ESU.</li> </ol> <p>Beside submission of the reports to DONRE, VEC will submit the reports to JICA with its monitoring form, which will be attached to PSR, filled out properly.</p>
6 Note	<p>Reference to Checklist of Other Sectors</p> <p>Note on Using Environmental Checklist</p>	<ol style="list-style-type: none"> <li>1. Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation).</li> <li>2. Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).</li> <li>1. If necessary, the impacts to transboundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).</li> </ol>	<ol style="list-style-type: none"> <li>1.2. N.A.</li> <li>1. N.A.</li> </ol>

**DECISION**

**ministry of transport**  
No. 2378/QD-BTNMT

**socialist republic of Vietnam**  
**Independence - Freedom - Happiness**

*Hanoi, dated November 12, 2008*

on Approval of Environment Impact Assessment (EIA) Report  
for North - South Expressway Construction Project (Da Nang - Quang Ngai Section)

**MINISTER OF natural resources and environment**

- Pursuant to environment protection law dated November 29, 2005;
- Pursuant to Vietnamese Government's Decree No. 80/2006/ND-CP dated August 9, 2006 guiding the implementation of environment protection law;
- Pursuant to the Vietnamese Government' Decree No.21/2008/ND-CP dated February 28, 2008 regarding some modifications and supplementation of Decree No. 80/2006/ND-CP dated August 9, 2006 guiding the implementation of environment protection law;
- Pursuant to Vietnamese Government's Decree No.25/2008/ND-CP dated March 3, 2008 stipulating functions, tasks, rights and structure of MONRE;
- Pursuant to the Primer Minister's Decision No. 132/2008/QD-TTg dated September 30, 2008 stipulating functions, tasks, rights and structure of MONRE;
- Pursuant to Vietnamese MONRE's Circular No. 08/2006/TT-BTNMT dated September 8, 2006 guiding strategic environment assessment, EIA and environment protection commitment;
- Pursuant to Minister of natural resources & environment's Decision No. 13/2006/QD-BTNMT dated September 8, 2006 stipulating regulations on organization and operation of Appraisal Committees on strategic environment assessment and EIA reports;

Upon the request of EIA appraisal committee for North - South Expressway Construction Project (Da Nang - Quang Ngai Section) (the Project) at the meeting dated May 29, 2008 at the MONRE;

In view of the revised EIA report for the Project and PMU85 under MOT's explanation letter No. 1093/BQL-KHDA2 dated September 01, 2008

Upon the request of the General Director of Vietnam General Environment Administration ,

**Decides**

**Article 1:** Approving the contents of PMU85 under Ministry of Transport (the project owner)'s Environment Impact Assessment Report (EIA) for the Project by PMU85 under Ministry of Transport (the Project Owner).

**Article 2:** The project owner shall be responsible for obeying all contents specified in the EIA report and mandatory regulations as follows:

1. Coordinate with local authorities to solve resettlement, compensation and land acquisition in accordance with current laws.
2. Collect and treat all waste arisen from construction and solid waste in daily life during the process of construction and operation of the expressway to meet the environmental hygiene requirements in accordance with the Vietnamese Government's Decree No. 59/2007/ND-CP dated April 9, 2007 on solid waste management.
3. Design and construct the system for collection and treatment of sewage arisen during construction of the expressway before it is discharged into the environment according to respect recipient sources to meet the standard TCVN 5945-2005.
4. Comply with Vietnamese standards of TCVN5945-1998, TCVN 6962-2001, TCVN 5939-2005, TCVN5940-2005 and other Vietnamese current environmental standards on noises, vibration, dust and exhaust fumes.

5. Locate camp sites for workers, material and equipment yards to mitigate impacts on the environment and socio-economic objects in the surrounding areas.
6. Implement protection and prevention measures and rescue plans in case of incidents arisen during construction and operation of the expressway, especially stone fall, embankment settlement, ship collision and bridge fall; Strictly comply with regulations on fire protection and extinction, labour safety and other relevant technical specifications during the implementation of the Project aiming at preventing and mitigating risks for the environment.
7. Applying environment protection measures and Environmental Monitoring Plan strictly and fully as stipulated in the E.I.A; Monitoring data shall be updated and saved for the Government authorities' inspection.
8. Strictly comply with requirements of communicating and reporting the implementation of contents stipulated in the approved EIA and other requirements indicated in this Decision, in compliance with Vietnamese Government's Decree No. 80/2006/ND-CP dated August 9, 2006 guiding the implementation of environment protection law and MONRE's Circular No. 08/2008/TT-BTNMT dated September 8, 2008 guiding strategic environment assessment, EIA and environment protection commitment.

**Article 3:** EIA report for this project and mandatory requirements mentioned at Articles 2 of this Decision are the basis for the Government authorities to inspect and control the implementation of environment protection for the Project.

**Article 4:** During the implementation of the Project, if there are modifications of the approved EIA report, the project owner shall report to MONRE in writing and shall implement the modified contents upon MONRE's approval letter.

**Article 5:** Authorize Vietnam General Environment Administration to presiding over coordination with relevant units of MONRE, Departments of natural resources and environment (DONRE) of Quang Nam, Quang Ngai and Da Nang in supervising, checking and certifying the implementation of environment protection within their areas as specified in the approved EIA report and regulations of Article 2 of this Decision.

**Article 6.** This Decision shall be effective since the signing date./.

***Recipients:***

- Da nang, Quang nam and Quang ngai People Committees;
- PMU85 under MOT;
- Da nang, Quang ngai and Quang Nam DONREs;
- Vietnam General Environment Administration;
- Inspectors of MONRE;
- Filing in Administration office.

**FOR AND ON BEHALF OF pp MINISTER  
VICE-MINISTER**

(signed and sealed)

**Tran Hong Ha**

# Simulation of Air Pollutants Diffusion

## 1 Method

To evaluate impacts of the expressway on air quality in operation phase, the model of Sutton for pollutants emission prediction will be used. Starting from the basis of statistical theory and ideas of Gauss, Sutton resolved a differential equation which describe the process of diffusion of the chemical pollutants in the atmosphere to find the formula of pollutants emissions for a continuous point source. Then, Sutton considered line source is a collection of point sources and use the Gauss diffusion coefficients ( $\sigma_z$ ) to calculate the average concentration of pollutants emitted from line source following formula below:

$$C(x,z) =$$

In which:

$C(x,z)$ : The average concentrations of contaminants at the coordinate  $(x,0,z)$ , ( $\text{mg}/\text{m}^3$ )

$$Q_i = \sum_{i=1}^k \frac{N_i \cdot E_i}{3600} \quad (\text{mg}/\text{m}\cdot\text{s}): \text{Pollutant discharge source intensity, mg/s}\cdot\text{m}.$$

$N_i$ : Number of vehicle class  $i$  in 1 hour;

$E_i$ : Air Emission Inventories of vehicles, g/km.

$u$ : Average wind velocity (m/s) at the height of air pollution source, and in case the wind direction is perpendicular to the road..

$h$ : Height of linear air pollution source.

$z$ : Height of forecast point (m)

$\sigma_z$  (m): Gauss diffusion coefficient toward  $z$  dimension

For the air pollution source is a expressway,  $\sigma_z$  is usually determined by the Slade formula (1968), corresponding to conditions of atmospheric stability category "B" as follows:

$$\sigma_z = 0.53 \cdot x^{0.72}$$

## 2 Parameters Determination

### 2.1. Air Emission Inventories of vehicles

The prediction and assessment factors chosen for this project are TSP, SO<sub>2</sub>, NO<sub>x</sub> and CO. Air Emission Inventories of vehicles are listed in Table below.

#### Air Emission Inventories of vehicles according to WHO

Unit: g/kg/vehicle

Vehicle class	TSP	SO <sub>2</sub>	NO <sub>x</sub>	CO
Car	0.07	1.74	1.31	10.24
Bus	0.07	2.15	1.13	6.46
Truck	0.90	4.76	10.30	18.20

### 2.2. Traffic Volume ( $N_i$ )

According to the results of traffic volume projection offered by the feasibility study report, the average projection traffic volume data which is used for Simulation model of Air Pollutants Diffusion are shown in Table below.

#### Traffic volume Projection by section in JICA portion

Unit: Vehicles/ hour

Section	Type of Vehicle	2015	2020	2025	2030
Tuy Loan- My Son (Km 0 – Km 21)	Car	119	292	502	787
	Bus	72	114	172	243
	Truck	107	230	423	668
	<b>Total</b>	<b>298</b>	<b>636</b>	<b>1,097</b>	<b>1,698</b>
My Son – Ha Lam (Km21 – Km42)	Car	127	314	542	846
	Bus	73	116	174	246
	Truck	105	234	438	691
	<b>Total</b>	<b>305</b>	<b>664</b>	<b>1,154</b>	<b>1,783</b>
Ha Lam – Tam Ky (Km42 – Km 65)Total	Car	134	323	555	864
	Bus	74	118	176	250
	Truck	110	244	452	711
	<b>Total</b>	<b>318</b>	<b>685</b>	<b>1,183</b>	<b>1,825</b>

### 2.3. Other parameter

No.	Parameter	Sign	Unit	Value	Remark
1	Height of forecast point	Z	m	2	
2	x-coordinate	x	m	10; 20; 40; 60; 80; 100	Coordinate of forecast points
3	y-coordinate	y	m	0	Coordinate of forecast points
4	Wind velocity	U	m/s	2	
5	Hight of linear air pollution source	h	m	2	
6	Atmospheric stability category			B	

### 3 Prediction results of air pollutants diffusion

#### Result of Air Pollutants concentration within 100m away from the expressway in Section Tuy Loan- My Son (Km 0 – Km 21)

Unit: mg/m<sup>3</sup>

Predicting	Year of	Predicting distance (m)						Vietnamese
		10	20	40	60	80	100	
TSP	2015	0.006	0.004	0.003	0.002	0.002	0.002	0.300
	2020	0.013	0.009	0.006	0.005	0.004	0.003	0.300
	2025	0.023	0.017	0.011	0.009	0.007	0.006	0.300
	2030	0.036	0.027	0.018	0.014	0.011	0.010	0.300
SO <sub>2</sub>	2015	0.047	0.035	0.023	0.018	0.015	0.013	0.350
	2020	0.099	0.074	0.049	0.038	0.031	0.026	0.350
	2025	0.175	0.130	0.087	0.066	0.054	0.047	0.350
	2030	0.272	0.203	0.135	0.103	0.085	0.073	0.350
NO <sub>x</sub>	2015	0.072	0.054	0.036	0.027	0.022	0.019	0.200
	2020	0.154	0.115	0.077	0.059	0.048	0.041	0.200
	2025	0.279	0.208	0.139	0.106	0.087	0.075	0.200
	2030	0.439	0.327	0.218	0.167	0.137	0.117	0.200
CO	2015	0.195	0.145	0.097	0.074	0.061	0.052	30.000
	2020	0.424	0.316	0.211	0.161	0.132	0.113	30.000
	2025	0.747	0.558	0.372	0.284	0.233	0.199	30.000
	2030	1.167	0.871	0.581	0.444	0.364	0.311	30.000

**Result of Air Pollutants concentration within 100m away from the expressway in  
Section My Son – Ha Lam (Km21 – Km42)**

*Unit: mg/m<sup>3</sup>*

Predicting Items	Year of Prediction	Predicting distance (m)						Vietnamese standard in average 1 hour
		10	20	40	60	80	100	
<b>TSP</b>	<b>2015</b>	0.006	0.004	0.003	0.002	0.002	0.002	0.300
	<b>2020</b>	0.013	0.010	0.006	0.005	0.004	0.003	0.300
	<b>2025</b>	0.024	0.018	0.012	0.009	0.007	0.006	0.300
	<b>2030</b>	0.037	0.028	0.019	0.014	0.012	0.010	0.300
<b>SO<sub>2</sub></b>	<b>2015</b>	0.047	0.035	0.023	0.018	0.015	0.013	0.350
	<b>2020</b>	0.102	0.076	0.051	0.039	0.032	0.027	0.350
	<b>2025</b>	0.182	0.136	0.091	0.069	0.057	0.049	0.350
	<b>2030</b>	0.283	0.212	0.141	0.108	0.088	0.076	0.350
<b>NO<sub>x</sub></b>	<b>2015</b>	0.071	0.053	0.035	0.027	0.022	0.019	0.200
	<b>2020</b>	0.158	0.118	0.079	0.060	0.049	0.042	0.200
	<b>2025</b>	0.290	0.217	0.144	0.110	0.091	0.077	0.200
	<b>2030</b>	0.456	0.340	0.227	0.173	0.142	0.122	0.200
<b>CO</b>	2015	0.197	0.147	0.098	0.075	0.062	0.053	30.000
	2020	0.441	0.329	0.219	0.168	0.137	0.118	30.000
	2025	0.785	0.585	0.390	0.298	0.245	0.209	30.000
	2030	1.223	0.913	0.608	0.465	0.382	0.326	30.000

**Result of Air Pollutants concentration within 100m away from the expressway in  
Section Ha Lam – Tam Ky (Km42 – Km 65)**

*Unit: mg/m<sup>3</sup>*

Predicting Items	Year of Prediction	Predicting distance (m)						Vietnamese standard in average 1 hour
		10	20	40	60	80	100	
TSP	2015	0.006	0.005	0.003	0.002	0.002	0.002	0.300
	2020	0.013	0.010	0.007	0.005	0.004	0.004	0.300
	2025	0.025	0.018	0.012	0.009	0.008	0.007	0.300
	2030	0.039	0.029	0.019	0.015	0.012	0.010	0.300
SO <sub>2</sub>	2015	0.049	0.037	0.024	0.019	0.015	0.013	0.350
	2020	0.106	0.079	0.053	0.040	0.033	0.028	0.350
	2025	0.187	0.140	0.093	0.071	0.058	0.050	0.350
	2030	0.291	0.217	0.145	0.111	0.091	0.078	0.350
NO <sub>x</sub>	2015	0.075	0.056	0.037	0.028	0.023	0.020	0.200
	2020	0.165	0.123	0.082	0.063	0.051	0.044	0.200
	2025	0.299	0.223	0.149	0.114	0.093	0.080	0.200
	2030	0.468	0.349	0.233	0.178	0.146	0.125	0.200
CO	2015	0.206	0.154	0.103	0.079	0.064	0.055	30.000
	2020	0.456	0.340	0.227	0.173	0.142	0.122	30.000
	2025	0.806	0.602	0.401	0.307	0.252	0.215	30.000
	2030	1.254	0.936	0.624	0.477	0.391	0.335	30.000

#### 4 Concentration of air pollutants around the Expressway in the future

##### Air Pollutants concentration around the expressway in Section Tuy Loan- My Son (Km 0 – Km 21)

Unit: mg/m<sup>3</sup>

Predicting Items	Year of Prediction	Background Data (A)	Predicted concentration within 20m away from Expressway (B)	Concentration in the future (A+B)	Vietnamese standard in average 1 hour
TSP	2015	0.273	0.004	0.278	0.300
	2020	0.273	0.009	0.283	0.300
	2025	0.273	0.017	0.290	0.300
	2030	0.273	0.027	0.300	0.300
SO <sub>2</sub>	2015	0.014	0.035	0.049	0.350
	2020	0.014	0.074	0.088	0.350
	2025	0.014	0.130	0.144	0.350
	2030	0.014	0.203	0.217	0.350
NO <sub>x</sub>	2015	0.017	0.054	0.071	0.200
	2020	0.017	0.115	0.132	0.200
	2025	0.017	0.208	0.226	0.200
	2030	0.017	0.327	0.345	0.200
CO	2015	0.950	0.145	1.095	30.000
	2020	0.950	0.316	1.266	30.000
	2025	0.950	0.558	1.507	30.000
	2030	0.950	0.871	1.821	30.000

**Air Pollutants concentration around the expressway in Section My Son – Ha Lam  
(Km21 – Km42)**

*Unit: mg/m<sup>3</sup>*

Predicting Items	Year of Prediction	Background Data (A)	Predicted concentration within 20m away from Expressway (B)	Concentration in the future (A+B)	Vietnamese standard in average 1 hour
<b>TSP</b>	<b>2015</b>	0.250	0.004	0.254	0.300
	<b>2020</b>	0.250	0.010	0.260	0.300
	<b>2025</b>	0.250	0.018	0.268	0.300
	<b>2030</b>	0.250	0.028	0.278	0.300
<b>SO<sub>2</sub></b>	2015	0.006	0.035	0.041	0.350
	2020	0.006	0.076	0.082	0.350
	2025	0.006	0.136	0.142	0.350
	2030	0.006	0.212	0.217	0.350
<b>NO<sub>x</sub></b>	2015	0.003	0.053	0.057	0.200
	2020	0.003	0.118	0.121	0.200
	2025	0.003	0.217	0.220	0.200
	2030	0.003	0.340	0.343	0.200
<b>CO</b>	2015	0.595	0.147	0.742	30.000
	2020	0.595	0.329	0.924	30.000
	2025	0.595	0.585	1.180	30.000
	2030	0.595	0.913	1.508	30.000

**Air Pollutants concentration around the expressway in Section Ha Lam – Tam Ky  
(Km42 – Km 65)**

*Unit: mg/m<sup>3</sup>*

Predicting Items	Year of Prediction	Background Data (A)	Predicted concentration within 20m away from Expressway (B)	Concentration in the future (A+B)	Vietnamese standard in average 1 hour
<b>TSP</b>	<b>2015</b>	0.270	0.005	0.275	0.300
	<b>2020</b>	0.270	0.010	0.280	0.300
	<b>2025</b>	0.270	0.018	0.288	0.300
	<b>2030</b>	0.270	0.029	0.299	0.300
<b>SO<sub>2</sub></b>	2015	0.003	0.037	0.039	0.350
	2020	0.003	0.079	0.082	0.350
	2025	0.003	0.140	0.142	0.350
	2030	0.003	0.217	0.220	0.350
<b>NO<sub>x</sub></b>	2015	0.003	0.056	0.059	0.200
	2020	0.003	0.123	0.126	0.200
	2025	0.003	0.223	0.227	0.200
	2030	0.003	0.349	0.353	0.200
<b>CO</b>	2015	0.640	0.154	0.794	30.000
	2020	0.640	0.340	0.980	30.000
	2025	0.640	0.602	1.242	30.000
	2030	0.640	0.936	1.576	30.000



## Result of Noise Level Prediction

### Averaged Noise level (24hours) Standard: WHO criteria

Section Tuy Loan- My Son (Km 0 – Km 21) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	60.4	57.9	55.9	54.3	52.8	51.5	50.4	49.4	48.4	70.00
2020	63.7	61.2	59.3	57.6	56.1	54.9	53.7	52.7	51.7	
2025	66.3	63.9	61.9	60.2	58.8	57.5	56.4	55.3	54.4	
2030	69.7	67.6	65.9	64.5	63.3	62.2	61.2	60.4	59.6	

Section My Son – Ha Lam (Km21 – Km42) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	60.3	57.8	55.9	54.2	52.7	51.5	50.3	49.3	48.3	70.00
2020	63.7	61.3	59.3	57.7	56.2	54.9	53.8	52.8	51.8	
2025	66.5	64.0	62.1	60.4	58.9	57.7	56.5	55.5	54.5	
2030	69.8	67.8	66.1	64.7	63.4	62.4	61.4	60.5	59.7	

Section Ha Lam – Tam Ky (Km42 – Km 65) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	60.5	58.1	56.1	54.4	53.0	51.7	50.5	49.5	48.5	70.00
2020	63.9	61.5	59.5	57.8	56.4	55.1	54.0	52.9	52.0	
2025	66.6	64.2	62.2	60.5	59.1	57.8	56.6	55.6	54.7	
2030	70.0	67.9	66.2	64.8	63.6	62.5	61.5	60.6	59.9	

### Noise level in Daytime (From 6a.m to 6p.m) Standard:TCVN5949 1998

Section Tuy Loan- My Son (Km 0 – Km 21) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	61.2	58.7	56.7	55.1	53.6	52.3	51.2	50.2	49.2	75.00
2020	64.5	62.0	60.1	58.4	56.9	55.7	54.5	53.5	52.5	
2025	67.1	64.7	62.7	61.0	59.6	58.3	57.2	56.1	55.2	
2030	71.2	69.3	67.7	66.4	65.2	64.2	63.3	62.4	61.7	

Section My Son – Ha Lam (Km21 – Km42) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	61.1	58.6	56.7	55.0	53.5	52.3	51.1	50.1	49.1	75.00
2020	64.5	62.1	60.1	58.5	57.0	55.7	54.6	53.6	52.6	
2025	67.3	64.8	62.9	61.2	59.7	58.5	57.3	56.3	55.3	
2030	71.4	69.4	67.9	66.5	65.4	64.3	63.4	62.6	61.8	

Section Ha Lam – Tam Ky (Km42 – Km 65) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	61.3	58.9	56.9	55.2	53.8	52.5	51.3	50.3	49.3	75.00
2020	64.7	62.3	60.3	58.6	57.2	55.9	54.8	53.7	52.8	
2025	67.4	65.0	63.0	61.3	59.9	58.6	57.4	56.4	55.5	
2030	71.5	69.6	68.0	66.6	65.5	64.5	63.5	62.7	62.0	

### Noise level at Nigh-time (From 6p.m to 6a.m) Standard:TCVN5949 1998

Section Tuy Loan- My Son (Km 0 – Km 21) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	59.4	57.0	55.0	53.3	51.9	50.6	49.4	48.4	47.5	50.00
2020	62.7	60.3	58.3	56.6	55.2	53.9	52.7	51.7	50.8	
2025	65.3	62.9	60.9	59.3	57.8	56.5	55.4	54.4	53.4	
2030	67.3	64.9	62.9	61.3	59.8	58.5	57.4	56.4	55.4	

Section My Son – Ha Lam (Km21 – Km42) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	59.3	56.9	54.9	53.2	51.8	50.5	49.3	48.3	47.4	50.00
2020	62.8	60.4	58.4	56.7	55.3	54.0	52.8	51.8	50.8	
2025	65.5	63.1	61.1	59.4	58.0	56.7	55.5	54.5	53.6	
2030	67.5	65.1	63.1	61.4	60.0	58.7	57.5	56.5	55.6	

Section Ha Lam – Tam Ky (Km42 – Km 65) <span style="float: right;">unit:dB</span>										
Year	20m	25m	30m	35m	40m	45m	50m	55m	60m	Standard
2015	59.5	57.1	55.1	53.4	52.0	50.7	49.6	48.5	47.6	50.00
2020	63.0	60.5	58.6	56.9	55.4	54.2	53.0	52.0	51.0	
2025	65.6	63.2	61.2	59.6	58.1	56.8	55.7	54.7	53.7	
2030	67.6	65.2	63.2	61.5	60.1	58.8	57.7	56.6	55.7	

Note: Distance from the center line is shown in the table.



## Details of public consultation regarding LA&R

Attachment Env005

No	Meeting	Time	Venue	Participants	Contents of Explanations	Concerns from the participants
1	Hoa Nhon Commune, Hoa Vang district, Da Nang City	20 December 2009	People's Committee office of Hoa Nhon Commune	02 Leaders of Commune People's Committee and 20 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune and potentially affected people may face the challenge of difficulty to restore their livelihoods to the pre-Project level.</p>
2	Hoa Phong Commune, Hoa Vang district, Da Nang City	21 December 2009	People's Committee office of Hoa Phong Commune	02 Leaders of Commune People's Committee and 23 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services.</p>
3	Hoa Tien Commune, Hoa Vang district, Da Nang City	21 December 2009	People's Committee office of Hoa Tien Commune	2 Leaders of Commune People's Committee and 23 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical</p>

No	Meeting	Time	Venue	Participants	Contents of Explanations	Concerns from the participants
						<p>infrastructure and social services.</p> <p>The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.</p>
4	Dien Tien Commune, Dien Ban District, Quang Nam Province	22 December 2009	People's Committee office of Dien Tien Commune	2 Leaders of Commune People's Committee and 20 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.</p>
5	Dien Tho Commune, Dien Ban District, Quang Nam Province	23 December 2009	People's Committee office of Dien Tho Commune	02 Leaders of Commune People's Committee and 22 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services.</p>
6	Dien Quang Commune, Dien Ban District, Quang Nam Province	24 December 2009	People's Committee office of Dien Quang Commune	02 Leaders of Commune People's Committee and 18 affected	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>Land acquisition, compensation and resettlement activities must be conducted following regulation and the prepared plan.</p> <p>The cost of compensation for land acquisition need to be based on prices at</p>

No	Meeting	Time	Venue	Participants	Contents of Explanations	Concerns from the participants
7	Duy Trinh Commune, Duy Xuyen District, Quang Nam Province	24 December 2009	People's Committee office of Duy Trinh Commune	2 Leaders of Commune People's Committee and 21 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.</p> <p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.</p> <p>The participants expect that The project can bring more job opportunities for local people during the project time, such as working along the project site.</p>
8	Duy Son Commune, Duy Xuyen District, Quang Nam Province	25 December 2009	People's Committee office of Duy Son Commune	2 Leaders of Commune People's Committee and 20 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The cost of compensation for land acquisition need to be based on prices at the market price.</p> <p>The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.</p>
9	Duy Trung Commune, Duy Xuyen District, Quang Nam	26 December 2009	People's Committee office of Duy Trung	2 Leaders of Commune People's Committee and 24 affected	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The cost of compensation for land acquisition need to be based on prices at</p>

No	Meeting	Time	Venue	Participants	Contents of Explanations	Concerns from the participants
					entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	the market price. Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services. The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.
10	Que Xuan 1 Commune, Que Son District, Quang Nam Province	27 December 2009	People's Committee office of Que Xuan 1 Commune	2 Leaders of Commune People's Committee and 22 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The compensation for land acquisition need to be based on an adequate cost. The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.
11	Que Xuan 2 Commune, Que Son District, Quang Nam Province	27 December 2009	People's Committee office of Que Xuan 2 Commune	2 Leaders of Commune People's Committee and 20 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money. The compensation for land acquisition need to be based on an adequate cost. The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.
12	Phu Tho Commune, Que Son District, Quang Nam	28 December 2009	People's Committee office of Phu Tho	2 Leaders of Commune People's Committee and 22	PMU85 introduces further detailed information related to the project and planning for compensation and	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money. The compensation for land acquisition need to be based on an adequate

No	Meeting	Time	Venue	Participants	Contents of Explanations	Concerns from the participants
			Commune	affected people.	resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	cost. Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services. The participants expect that The project can bring more job opportunities for local people during the project time, such as working along the project site.
13	Binh Quy Commune, Thang Binh District, Quang Nam Province	28 December 2009	People's Committee office of Binh Quy Commune	2 Leaders of Commune People's Committee and 20 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money. The cost of compensation for land acquisition need to be based on prices at the market price. Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services.
14	Binh Chanh Commune, Thang Binh District, Quang Nam Province	29 December 2009	People's Committee office of Binh Chanh Commune	2 Leaders of Commune People's Committee and 20 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money. The cost of compensation for land acquisition need to be based on prices at the market price. Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services. The project need to give assistance for the ceremony which will be held when the graves in the project area have to be relocated.
15	Binh Que Commune, Thang Binh District, Quang Nam	29 December 2009	People's Committee office of Binh Que	2 Leaders of Commune People's Committee and 23	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money. The compensation for land acquisition need to be based on an adequate

No	Meeting	Time	Venue	Participants	Contents of Explanations	Concerns from the participants
			Commune	affected people.	entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	cost. The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.
16	Tam Thai Commune, Phu Ninh District, Quang Nam Province	30 December 2009	People's Committee office of Tam Thai Commune	2 Leaders of Commune People's Committee and 19 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money. The compensation for land acquisition need to be based on an adequate cost. Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services.
17	Tam Phuoc Commune, Phu Ninh District, Quang Nam Province	30 December 2009	People's Committee office of Tam Phuoc Commune	2 Leaders of Commune People's Committee and 25 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	The participants agree with the construction of the expressway and the planning for compensation and resettlement. The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money. The compensation for land acquisition need to be based on an adequate cost. The participants also suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality. The project need to give assistance for the ceremony which will be held when the graves in the project area have to be relocated. The participants expect that The project can bring more job opportunities for local people during the project time, such as working along the project site.

No	Meeting	Time	Venue	Participants	Contents of Explanations	Concerns from the participants
18	Tam Dan Commune, Phu Ninh District, Quang Nam Province	31 December 2009	People's Committee office of Tam Dan Commune	2 Leaders of Commune People's Committee and 22 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>The participants suggested that local authorities should consider letting the households who are fully affected on residential land to convert some areas of their other land to residential land in order to reduce the need for the resettlement site development in the locality.</p> <p>The participants expect that The project can bring more job opportunities for local people during the project time, such as working along the project site.</p>
19	Tam Thanh Commune, Phu Ninh District, Quang Nam Province	31 December 2009	People's Committee office of Tam Thanh Commune	2 Leaders of Commune People's Committee and 20 affected people.	PMU85 introduces further detailed information related to the project and planning for compensation and resettlement (draft entitlement policy, effort in seeking replacement land for compensation, economic restoration programs and so on).	<p>The participants agree with the construction of the expressway and the planning for compensation and resettlement.</p> <p>The leader of the commune said that There is no surplus agricultural land in the commune for compensation. The project should compensate by money.</p> <p>The compensation for land acquisition need to be based on an adequate cost.</p> <p>Participants request that if the relocation site would be constructed for the relocating households, it must be developed with good quality of physical infrastructure and social services.</p> <p>The project need to give assistance for the ceremony which will be held when the graves in the project area have to be relocated.</p>



### Schedule for key activities of RP implementation

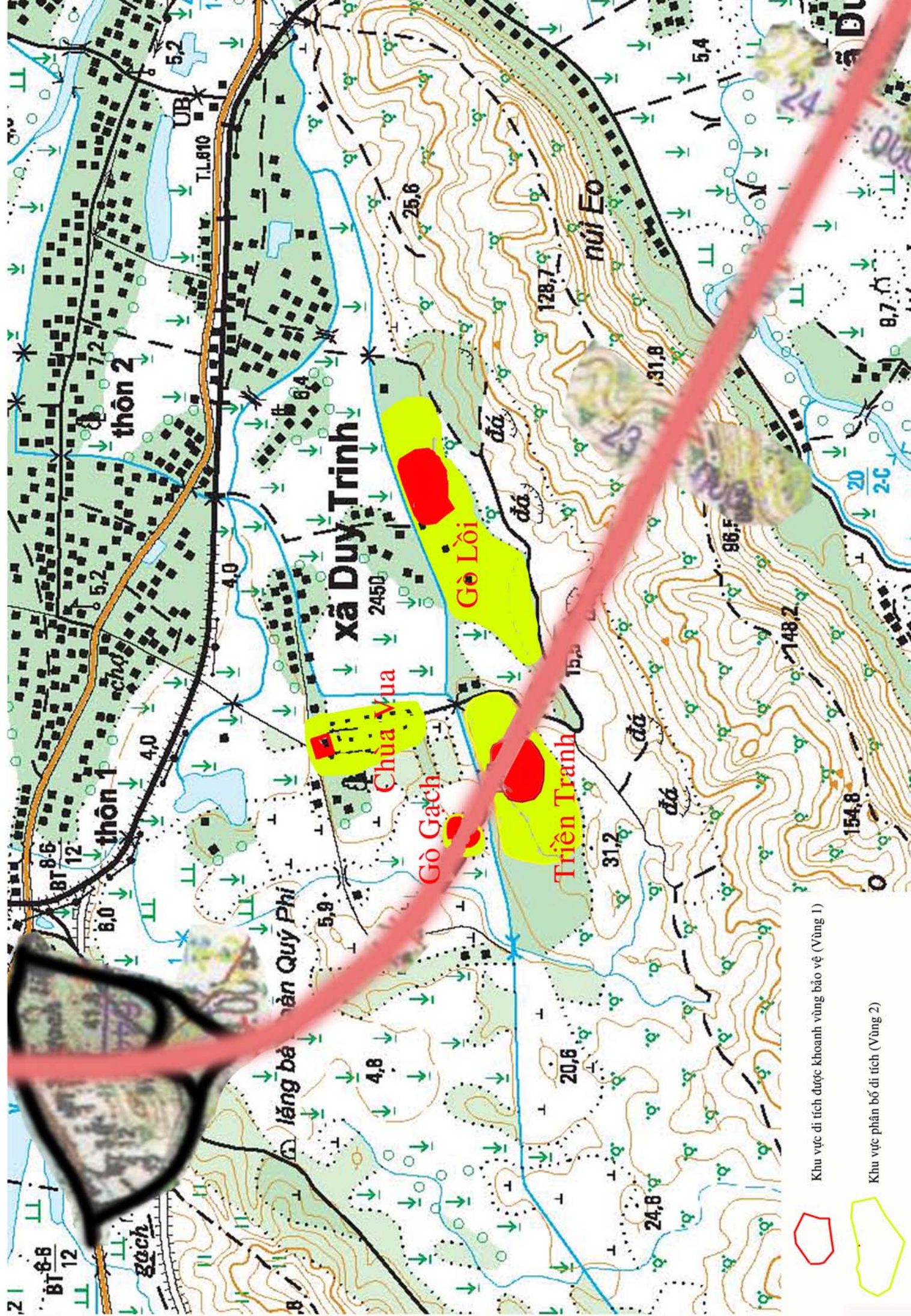
Activities	Target dates/time
<b>1. Land Acquisition schedule</b>	
1.1. Preparation of draft RAP	December 2009 to 30 June 2010
1.2. Public consultation regarding LA & Resettlement (Regarding draft RAP)	December 2009
1.3. Cut-off date	30 November 2010
1.4. Updated DMS	1 December 2010 to 30 June 2011
1.5. Preparation of draft compensation alternatives and agreement of compensation	1 January 2011 to 30 June 2011
1.6. Payment of compensation	1 June 2011 to 30 June 2012
1.7. Preparation of Revised RAP	January 2011 to 31 July 2011
1.8. Approval of Local PC	1 February 2011 to 31 August 2011
1.9. Land clearance	15 June 2011 to 31 July 2012
1.10. Declare of cut-off Date	30 November 2010
<b>2. Resettlement Schedule</b>	
2.1. Preparation plan for resettlement site	1 February 2011 to 31 July 2011
2.2. Determination of resettlement site from potential sites	15 February 2011 to 31 August 2011
2.3. Selection of constructor for construction of the resettlement site	1 March 2011 to 31 October 2011
2.4. Construction of the site	1 April 2011 to 31 May 2012
2.5. Construction of houses in construction site	1 September 2011 to 31 December 2012
2.6. Relocation of DPs to Resettlement site	1 March 2012 to 28 February 2013
2.7. Determination of Numbers of Relocation HHs to the sites	1 January 2011 to 30 June 2011

## Land Acquisition and Resettlement Cost estimate in Da Nang

No	Items	Total cost (VND)	Exchange USD (1USD = 19,000 VND)
I	Compensation land types	42,261,500,000	2,224,289
II	Compensation Structure	3,036,664,000	159,824
III	Compensation Other Structures	2,368,330,000	124,649
IV	Compensation crops and trees	3,525,051,000	185,529
V	Cost of resettlement site development	14,048,000,000	739,368
VI	Cost of Public Facilities	430,000,000	22,632
VII	Cost of Loss of Businesses	307,500,000	16,184
VIII	(Allowances/Assistance)	17,254,000,000	908,105
IX	Cost of Management (2% of I - VII)	1,319,540,900	69,450
X	Cost of RCS	30,000,000	1,579
XI	Cost of External Monitoring & Evaluation (1% of I-VII)	659,770,450	34,725
XII	Total (I - VIII)	83,231,045,000	4,380,581
XIII	Contingency 10%	8,323,104,500	438,058
	Grand Total	93,563,460,850	4,924,393

## Land Acquisition and Resettlement Cost estimate in Quang Nam

No	Items	Total cost (VND)	Exchange USD (1USD = 19,000 VND)
I	Compensation land types	<i>184,178,702,000</i>	9,693,616
II	Compensation Structure	<i>29,493,280,000</i>	1,552,278
III	Compensation Other Structure	<i>18,746,500,000</i>	986,658
IV	Compensation crops and trees	<i>13,783,611,600</i>	725,453
V	Cost of resettlement site development	<i>72,714,400,000</i>	3,827,074
VI	Cost of Public Facilities	<i>908,500,000</i>	47,816
VII	Cost of Loss of Businesses	<i>365,500,000</i>	19,237
VIII	(Allowances/Assistance)	<i>101,902,100,000</i>	5,363,268
IX	Cost of Management (2% of I - VII)	6,403,809,872	337,043
X	Cost of RCS	<i>160,000,000</i>	8,421
XI	Cost of External Monitoring & Evaluation (1% of I-VII)	3,201,904,936	168,521
XII	<b>Total (I - VIII)</b>	<b>422,092,593,600</b>	<b>22,215,400</b>
XIII	Contingency 10%	42,209,259,360	2,221,540
	<b>Grand Total</b>	<b>474,067,567,768</b>	<b>24,950,925</b>



Khu vực đi tích được khoanh vùng bảo vệ (Vùng 1)

Khu vực phân bố đi tích (Vùng 2)

To: *Management Board of Project 85*

VIETNAMESE INSTITUTE OF  
ARCHAEOLOGY

SOCIALIST REPUBLIC OF VIETNAM

Independence - Freedom - Happiness

-----  
Hanoi, October 2010

**PROPOSAL OF TEST EXCAVATION PLAN FOR THE PROJECT OF HIGHWAY ĐÀ NẴNG -  
QUẢNG NGÃI**

The result of the archaeological investigation stage 1 along the highway route Đà Nẵng - Quảng Ngãi has identified and localized those areas where contain the archaeological sites and the potential ones that might probably be found during the construction. In order to evaluate the distribution of archaeological sites under the ground and the influence intensity of the construction on the archaeological sites as well as create a further sound foundation toward an excavation plan for the directly-affected archaeological sites and a solution to the indirectly-affected ones with the aim of clearing the culturally-caused hindrances from the highway construction, the consultative group proposes a plan of archaeological investigation and test excavation stage 2 as below:

**1. Sites for test excavation**

The test excavations will be launched at four Champa architectural ruins (Triền Tranh, Gò Gạch, Chùa Vua, Gò Lôi) in the valley of Chiêm Sơn Tây, Duy Trinh commune, Duy Xuyên district, Quảng Nam province.

- The site of Triền Tranh is located in Chiêm Sơn hamlet, Duy Trinh commune, Duy Xuyên district. Its coordinate is at 15<sup>0</sup>49'181 North latitude and 108<sup>0</sup>12'161 East longitude. This area corresponds with the highway stretch from Km 22 + 000 to Km 22 + 300.

- The site of Gò Gạch is located in Chiêm Sơn hamlet, Duy Trinh commune, Duy Xuyên district. Its coordinate is at 15<sup>0</sup>49'366 North latitude and 108<sup>0</sup>11'467 East longitude. This area corresponds with the highway stretch from Km 21 + 800 to Km 21 + 950.

- The site of Gò Lôi is located in Chiêm Sơn hamlet, Duy Trinh commune, Duy Xuyên district. Its coordinate is at 15<sup>0</sup>49'231 North latitude and 108<sup>0</sup>12'346 East longitude. This area corresponds with the highway stretch of Km 22 + 450.

- The site of Chùa Vua is located in the centre of Chiêm Sơn hamlet, Duy Trinh commune, Duy Xuyên district. Its coordinate is at 15<sup>0</sup>49'422 North latitude and 108<sup>0</sup>12'106 East longitude.

Of four sites, Triền Tranh and Gò Gạch where the route goes through will be received more attention in an attempt to determine the site distribution toward a finalized excavation plan prior to the construction implementation. At the site of Gò Lôi, in spite of the fact that the route only cuts a small part of the mound tail, it is still necessary for the test excavation to be conducted for study. Although the site of Chùa Vua has been ascertained as not under the direct influence of the route, it still needs to be test-excavated over an appropriate area for study purposes as an integral part of the entire group of ruins.

As for the area of Gò Cây Đa at Đông Thuận hamlet, Bình Trung commune, Bình Sơn district, stretching from Km 108+400 to Km 108+600, we have proposed a test excavation designed to better define its characteristics. However, on the basis of the subsequent evaluations made by the consultative group in coordination with the research results obtained from colleagues of the Institute of Archaeology and the cultural staff of Quảng Ngãi, we see that the archaeological vestiges in this area is poorly identified and therefore there is no need to undertake a further study.

**2. The area for test excavation**

In the report, we have proposed test excavations at 5 locations over an area of 900m<sup>2</sup>. However, after the field trip together with the Management Board and members of TEDI on the 25<sup>th</sup> of September 2010 in association with new perception about Gò Cây Đa (as having mentioned above), we make some changes in this proposal.

- As for the site of Triền Tranh, because the highway route runs directly through the mound top, not the mound side as previously defined, we propose an additional area of 100m<sup>2</sup>. Thus, the total area for test excavation at this site is 300m<sup>2</sup>.

- As for the site of Gò Lôi, because the highway route only cuts a part of the mound foot, it is not necessary to do a big test excavation. Therefore, we propose a test excavation over an area of 100m<sup>2</sup> instead of

200m<sup>2</sup> as having said previously.

- As for two sites of Gò Gạch and Chùa Vua, the test excavation area remains unchanged as having mentioned in the report.

The total area for test excavation in this proposal is 700m<sup>2</sup> as specifically below:

- The area of 300m<sup>2</sup> is for the site of Triền Tranh.
- The area of 200m<sup>2</sup> is for the site of Gò Gạch.
- The area of 100m<sup>2</sup> is for the site of Gò Lôi
- The area of 100m<sup>2</sup> is for the site of Chùa Vua

Each test pit of 10m<sup>2</sup> is expected to excavate. The shape of these pits will vary with 2m x 5m or 1m x 10m in two dimensions.

### **3. Process to implement**

The procedures needed for a test excavation are expected as following:

- Make a detailed plan on the tasks to be done (comprising the plan of test excavation and the detailed expenditure estimate) to submit to the investor for an approval.

- Apply for an authorization from the Ministry of Culture – Sport & Tourism

- Tasks prior to the test excavation: seek labour source; purchase various tool types for fieldwork; prepare means of transport and so on.

- Conduct the test excavation at each site on fieldwork.

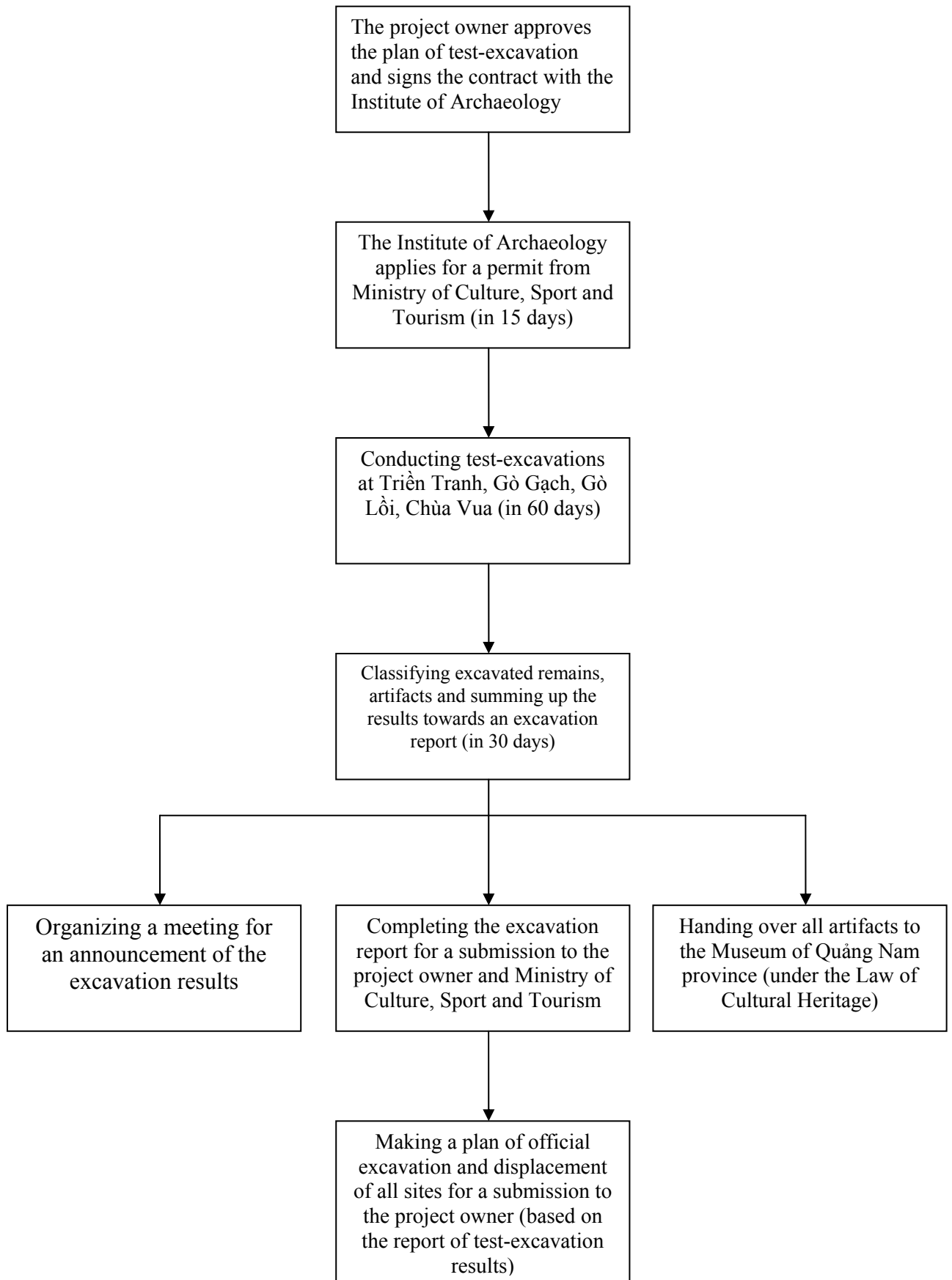
- Tasks after the fieldwork: study sites and artifacts collected, and hand them over to the Provincial Museum for storage and preservation.

- Organize a meeting to announce the results obtained.

- Write a report.

The tasks are expected to be done in three months. Of which, about 2 months are spent on fieldworks and 1 month for classifying artifacts and writing report.

### Diagram of Work Procedures



#### **4. Legal procedures**

According to the Law of Cultural Heritage, all research activities, archaeological test excavations, excavations must be agreed and permitted (in writing) by the Ministry of Culture – Sport & Tourism. Apart from that, contacts and coordination with the related local institutions are a must. The procedures are as below:

- Send official documents to request a coordination with the Service for Culture – Sport & Tourism of related provinces and to apply for an authorization from the Bureau of Cultural Heritage.
- Send reports and make coordination with the Museums and the Board of Site Management of related provinces.
- Send reports to the People’s Committees and the Bureaus of Culture of related districts and communes.

According to regulations, any institution or organization that propose studies or solutions to sites must be of specialized research function in cultural field. In this case, it is the investor who chooses and nominates the research institutions for implementing tasks.

#### **5. Protection and Preservation of sites and artifacts**

Although we are at the stage of test excavation, it is necessary to take the matter of protection and preservation of sites and artifacts collected from test pits into account. This job requires a coordination from a number of institutions such as the investor, institutions of cultural management, local authorities at all levels and so on. Its implementation is based on the Law of Construction, the Law of Cultural Heritage and the results gained from the archaeological investigation stage 1. It is required that the nominated institutions be in charge of keeping and preserving all excavated artifacts during the job implementation, and that the excavated artifacts be handed over to the Museums of related provinces after the job is finished.

#### **6. The matter of expenditure**

Expenditure is spent for all tasks including test excavations (payment for specialists and labourers, expenses for purchasing tools and machines, costs for travel, transportation, living and so on) and research activities (payment for specialists and labourers in classifying and processing artifacts, analyzing samples, and writing report and so on).

Given the volume and requirement of work, the consultative group estimates the expenditure of about 1,820 millions VND (Vietnamese currency), including all costs accrued and tax obligation. The items are listed as below:

Order No.	Items	Units	Quantity	Unit Price	Money
<b>1</b>	<b>Tasks prepared prior for test excavation</b>				<b>1,500,000</b>
	Making detailed outline and work progress rate	outline	1	1,500,000	1,500,000
<b>2</b>	<b>Expenditure for test excavation</b>				<b>952,800,000</b>
<b>2.1</b>	<i>Archaeological experts working on-site</i>				<b>264,000,000</b>
	Salary for archaeologists working on-site (8 people x 60 days)	per diem	480	200,000	96,000,000
	Expense	night	480	200,000	96,000,000
	Stay	day	480	150,000	72,000,000
<b>2.2</b>	<i>Payment for local cultural staffs</i>				<b>112,800,000</b>
	Salary for 4 local cultural staffs (province, district, commune)	per diem	240	120,000	28,800,000
	Expense	night	240	200,000	48,000,000
	Stay	day	240	150,000	36,000,000
<b>2.3</b>	<i>Payment for test excavation workers : 120 per diem x 60 days</i>	<i>per diem</i>	<b>7,200</b>	<b>80,000</b>	<b>576,000,000</b>
<b>3</b>	<b>Expenditure for setting up scientific files of archaeological sites and artifacts</b>				<b>22,000,000</b>
	Photo albums	photo	1,000	15,000	15,000,000
	Notes of artifact registration	sheet	100	15,000	1,500,000
	Measuring and drawing sites and artifacts	sheet	100	30,000	3,000,000
	A4 papers for recording decorative patterns	sheet	50	50,000	2,500,000
<b>4</b>	<b>Expenditure for travel and transport</b>				<b>84,540,000</b>
	Transports for specialists from Hà Nội to Đà Nẵng and vice versa	Plane ticket	16	1,500,000	24,000,000
	Hiring means of transports to travel: 1 transports x 60 days	vehicle	60	1,000,000	60,000,000
	Taxi from Nội Bài to Hà Nội and vice versa	xe	2	270,000	540,000
<b>5</b>	<b>Tools, materials, stationery for test excavation</b>				<b>10,500,000</b>
	50m - tape measures	specimen	2	100,000	200,000
	5m - tape measures	specimen	10	30,000	300,000
	Specialized compasses	specimen	2	200,000	400,000
	Plastic bags for containing artifacts and samples	kg	20	80,000	1,600,000
	Squared papers for relics, artifacts drawing	roll	10	50,000	500,000
	Glazed papers for relics, artifacts drawing	volume	10	150,000	1,500,000
	A4-sized papers for printing artifacts and making notes of artifact registration...	volume	10	90,000	900,000
	Oil-covered pens for numbering artifacts	specimen	100	12,000	1,200,000
	Glues S02 for refitting artifacts	glue	50	8,000	400,000

	Covers for photo and drawing albums	sheet	100	20,000	2,000,000
	Papers for sticking photos and drawings	sheet	500	2,000	1,000,000
	Blank CDs for storing data	specimen	50	10,000	500,000
<b>6</b>	<b>Expenditure for classification and completing reports (30 days)</b>				<b>242,400,000</b>
<b>2.1</b>	<i>Archaeological specialists classify artifacts</i>				<i>132,000,000</i>
	Salary for archaeological specialists classify artifacts (4 people x 30 days)	per diem	240	200,000	48,000,000
	Expense	night	240	200,000	48,000,000
	Stay	day	240	150,000	36,000,000
<b>2.2</b>	<i>Salary for 4 local cultural staffs for participating classification</i>	<i>per diem</i>	<b>120</b>	<b>120,000</b>	<b>14,400,000</b>
<b>2</b>	<i>Payment for workers' classification : 40 per diem x 30 days</i>	<i>per diem</i>	<b>1,200</b>	<b>80,000</b>	<b>96,000,000</b>
<b>7</b>	<b>Test excavation report</b>				<b>342,000,000</b>
<b>7.1</b>	<i>Writing reports</i>				<i>328,000,000</i>
	Writing an preliminary report	report	1	4,000,000	4,000,000
	Writing reports each test excavation pits of sites	report	70	4,000,000	280,000,000
	Writing an overview report each sites	report	4	8,000,000	32,000,000
	Writing an overview report	report	1	12,000,000	12,000,000
<b>7.2</b>	<i>Tasks on revising and completing reports</i>				<i>11,000,000</i>
	Translating reports into English	page	200	50,000	10,000,000
	Printing and binding materials	volume	10	100,000	1,000,000
<b>7.3</b>	<i>Conference for test excavation result report and project check before acceptance</i>				<i>3,000,000</i>
	Supportive expenditure for eating at conference x 50 people	person	50	60,000	3,000,000
<b>8</b>	<b>Sum</b>				<b>1,655,740,000</b>
<b>9</b>	<b>VAT(10%)</b>				<b>165,574,000</b>
<b>10</b>	<b>Total</b>				<b>1,821,314,000</b>
<b>11</b>	<b>Round</b>				<b>1,821,000,000</b>

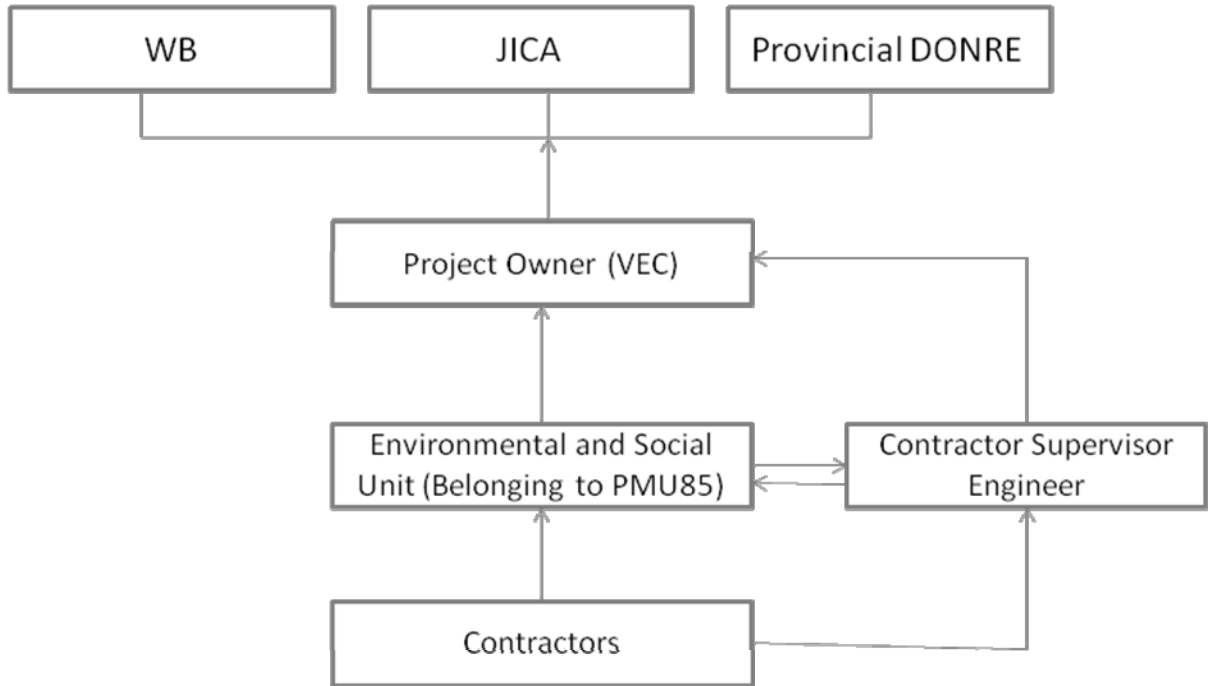
(One billion eight hundred twenty one million VND)

We are looking forward to your acceptance to our above mentioned proposal.

Best regards

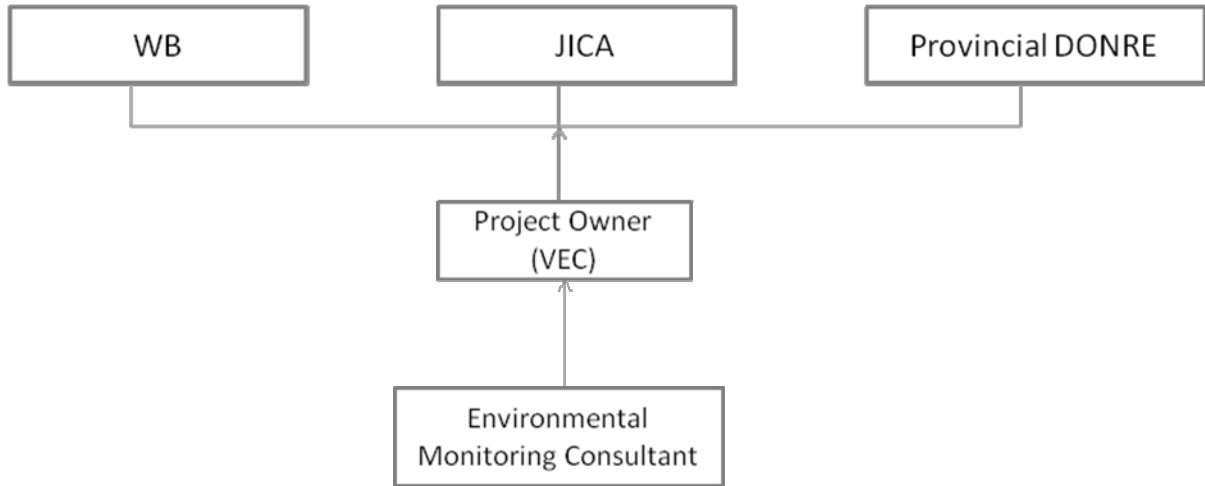
**THE CONSULTATIVE GROUP OF THE INSTITUTE OF ARCHAEOLOGY**

**Organizational framework for monitoring in construction phase**





**Organizational framework for monitoring in operation phase**





## MONITORING FORM (Pre-Construction, Construction and Operation Phases)

-If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

-When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase or development, operation and mine closure) should be considered.

### 1. Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
ex.) Comments and guidance from People's committee, Father Front Committee of communes and districts, and from DONRE	

### 2. Mitigation Measures

#### - Air Quality (Ambient Air Quality)

Station :

Timing:

Date :

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards (1hour value)	Standards for Contract	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
TSP	ug/m3			300	-	-	QCVN05:2009/BTNMT (Japanese environmental standard for PM10(1hour value)) (WHO guideline value for NO2)
PM10	ug/m3			-	-	200	
CO	ug/m3			30000	-	-	
NOx	ug/m3			200	-	-	
NO2	ug/m3			-	-	200	
SO <sub>2</sub>	ug/m3			350	-	-	
Micro-climate				-	-		-

Note: The number of stations, method and frequency are shown below.

Number of stations:

-3 monitoring stations(KK1: project's starting point;KK2: at tunnel;KK3: Intersection point with NH14E;)

Frequency:

-Before Construction: 1time(8samples/location, day)

-During Construction: 4times/year(8samples/location, day)

-In Operation: 2times/year(8samples/location, day)

#### - Water Quality (Surface Water Quality)

Station:

Timing:

Date:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
pH	-			5.5-9	-	-	QCVN08 2008/BTNMT (B1)
BOD	mg/l			15	-	-	
COD	mg/l			30	-	-	
Turbidity	mg/l			-	-	-	
SS	mg/l			50	-	-	
Oil & Grease	mg/l			0.1	-	-	

Note: The number of stations and frequency are shown below.

Number of stations:

-4 monitoring station (NM1:Thu Bon River ,Ba Ren River and NM3,4 Both sides of the Tunnel section)

Frequency:

-Before Construction: 1 time (samples/location)

-During Construction: 4times/year(2samples/ location)

(One sample at upstream of the construction site and the other at the downstream of the construction site)

-In Operation:2times/year(2samples/location)

#### - Water Quality (Groundwater Quality)

Station:

Timing:

Date:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
pH	-			5.5-8.5	-	-	QCVN09: 2008/BTNMT
Color	-			-	-	-	
Temperature	-			-	-	-	
Odor	-			-	-	-	
Hardness level				500	-	-	
Turbidity	-			-	-	-	
NO <sub>3</sub> <sup>-</sup>	mg/l			15	-	-	
NO <sub>2</sub> <sup>-</sup>	mg/l			1.0			
Pb	mg/l			0.01			
Cd	mg/l			0.005			
Cr6+	mg/l			0.05			
As	mg/l			0.05			
Coliform	MPN/100ml			3			
E.Coli	MPN/100ml			Not detected	-	-	

Note: The number of stations and frequency are shown below.

Number of stations:

-4 monitoring areas(NN1:Near Thu Bon River,NN2:Ba Ren River and NN3,4 Both sides of the Tunnel Section)(1 well/area)

Frequency:

-Before Construction: 1 time (1sample/well)

-During Construction: 4times/year(1sample/well)

-In Operation:2 times/year(1sample/wells)

#### - Water Quality (Discharge Water Quality)

Station:

Timing:

Date:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
pH	-			5-9	-	-	QCVN 14-2008 /BTNMT
TSS	mg/l			50	-	-	
Pb	mg/l			-	-	-	
Zn	mg/l			-	-	-	
COD	mg/l			-	-	-	
BOD	mg/l			30	-	-	
Oil	mg/l			10	-	-	
Coliform	MPN/100ml			3000	-	-	

Note: The number of stations and frequency are shown below.

Number of stations:

-During construction: 4 monitoring areas(NT1:Near Thu Bon River,NT2:Ba Ren River and NT3,4:Both sides of

the Tunnel Section)

-In Operation:1 monitoring station(Expressway Operation Center in Da Nang City)

Frequency:

-During Construction: 4times/year(1sample/location)

-In Operation:2 times/year(1sample/location(1sample/location))

**- Noise / Vibration**

**Station:**

**Timing:**

**Date:**

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level	dB			6-18h:75 18-22h:70 22-6h:50	-	-	TCVN 5949:1998
Vibration level	dB			Construction 75 Operation 7-19h:70 19-7h:65	-	-	Construction: TCVN6962:2001 Operation: TCVN 7211-2002 TCVN 7210-2002

Note: The number of stations, method and frequency are shown below.

Number of stations:

-3 monitoring stations(KK1: project's starting point;KK2: at tunnel;KK3: Intersection point with NH14E;)

Frequency:

-Before Construction: 1time (24samples/location, day)

-During Construction: 4times/year(16samples/location, day)

-In Operation:2 times/year(24samples/location, day)

**- Soil**

**Station:**

**Timing:**

**Date:**

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Standards for Contract	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
Cu	mg/kg			50			QCVN:03(For agricultural land)
Zn	mg/kg			200			
Cd	mg/kg			2			
Pb	mg/kg			70			

Note: The number of stations and frequency are shown below.

Number of stations:

-3 monitoring sites(3 plots of agricultural land)

Frequency:

-Before Construction: 1 time (3samples/3points)

-During Construction: 4times/year(3samples/ 3points)

**-Replanting**

The trees on Vietnam Red Data Book				
Location (section)		from (Section + ) to (Section + )		
Date of confirmation		from DD.MM.YYYY to DD.MM.YYYY		
Date of cutting down		from DD.MM.YYYY to DD.MM.YYYY		
Date of Replanting		from DD.MM.YYYY to DD.MM.YYYY		
	Name of cut down tree	Number of trees To be cut down	Number of trees Cut down	Number of trees Replanted
1	Hopea ferrea			
2	Pterocarpus macrocarpus			

\*Photos of replanted trees should be attached.

### III. Social Environment

#### - Resettlement

Monitoring Item	Monitoring Results during Report Period
<i>&lt;Internal Monitoring&gt;</i>	
Computation and payment of compensation and other entitlements to DPs in various categories according to the compensation policy described in the RAP	
Public information dissemination and consultation procedures	
Adherence to grievance procedures	
Income restoration programs	
Resettlement site location, design site construction and plot allocation	
Houses and its construction technical assistance, payment of subsistence and shifting allowances as described in the RAP	
Priority of DPs for the options offered	
The transition between resettlement and commencement of civil works	
<i>&lt;External Monitoring&gt;</i>	
Public consultation and awareness of resettlement policy and entitlements	
Coordination of resettlement activities with construction schedule	
Land acquisition and transfer procedures	
Relocation of temporary houses	
Construction/Rebuilding of replacement houses and structures on residual ROW or to new relocation sites (outside the ROW)	
Level of satisfaction of DPs with the provisions and implementation of the RP	
Grievance redress mechanism (documentation, process, resolution);	
Effectiveness, impact and sustainability of entitlements and income restoration programs and the need for further improvement and mitigation measures	
Relocation site development (housing and market) from identification of sites in consultation with DPs, to resettlement site development and relocation of DPs. Land title issues and process of land title granting.	
Capacity of DPs to restore/re-establish livelihoods and living standards. Special attention will be given to severely affected DPs and vulnerable DPs;	
Resettlement impacts caused during construction activities.	
Participation of DPs in RP updating and implementation	

#### - Archeological Excavation

Monitoring Item	Monitoring Results during Report Period
Progress of the Test Excavation	
Progress of the Detailed Excavation	

#### - Ordnance removal

Monitoring Item	Monitoring Results during Report Period
Results of the Grubbing of ordnance	
Progress of the Removal of ordnance	

**Organizational framework for Environmental Management in operation phase**

