DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH)
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE FEASIBILITY STUDY AND IMPLEMENTATION SUPPORT ON THE CALA EAST-WEST NATIONAL ROAD PROJECT

(CALA East-West)

3rd Stakeholders' Meeting

23 September 2005

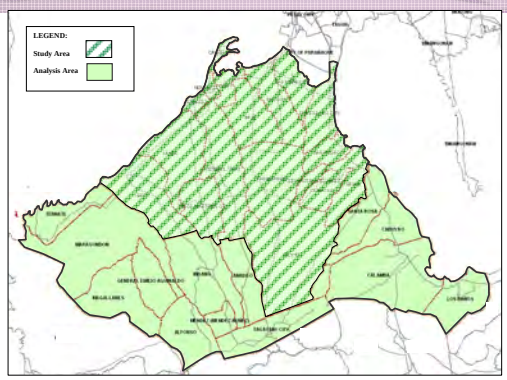
Topics

1. Background
2. Possible development scenarios for CALA
3. Alternative regional transport network
4. Selection of priority roads
5. Target roads for FS
6. Environmental/social considerations
7. Next steps

Study Objectives and Background

i. Review of CALA regional transport network development scenario.
ii. Examination of the feasibility of CALA East-West road and related projects and preparation of project implementation plan.
iii. Capacity development for staff of counterpart agency and other related agencies.

Study Area

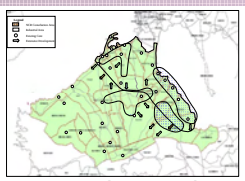


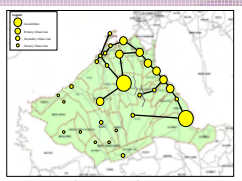
Study Outline

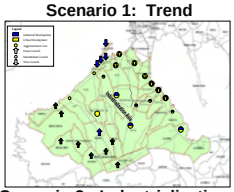
Tasks

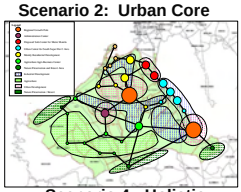
Task 1:	Inception Study	Jan. 2005
Task 2:	Surveys and Preliminary Scenario Development	Jan. – Mar 2005
Task 3:	Evaluation and Selection of Scenarios	May – Aug. 2005
Task 4:	Evaluation and Selection of Priority Projects	Sept. – Dec. 2005
Task 5:	FS of Priority Projects	Jan. – Sept. 2006

Four Candidate Development Scenarios


Scenario 1: Trend

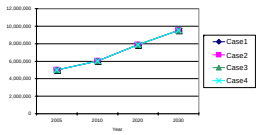

Scenario 2: Urban Core


Scenario 3: Industrialization

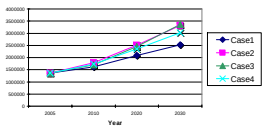

Scenario 4: Holistic

Case Comparison

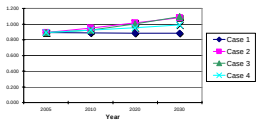
Population



Employment at Workplace



W/R Ratio
(Employment: at Workplace/at Residence)

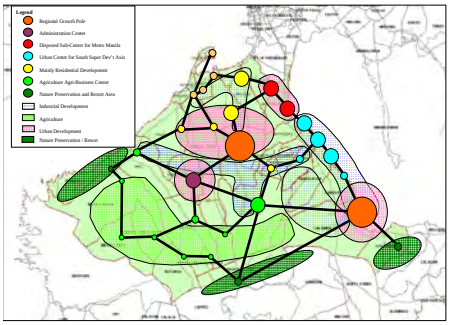


Case comparison in terms of W/R Ratio

	2005	2010	2020	2030
Case 1	0.893	0.888	0.884	0.882
Case 2	0.893	0.951	1.015	1.082
Case 3	0.893	0.925	1.001	1.095
Case 4	0.893	0.922	0.954	0.989

(Source): Projected by the Study Team

Holistic Development



Regional Growth Pole
Dasmariñas/Imus
Calamba

Administration Center
Trece Martires

Dispersed Sub-Center of Metro Manila
Muntinlupa/Las Piñas

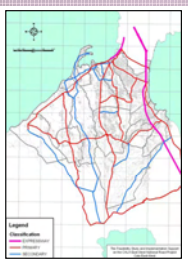
Urban Centers
Bacoor, Cavite/Kawit/Noveleta/Rosario, Cabuyao/Carmona/Biñan/San Pedro/Sta. Rosa, GMA

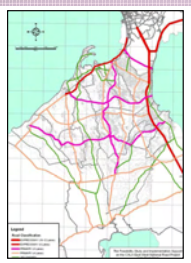
Agro-business Center
Silang

Nature Preservation/Resort
Tagaytay / Los Baños / Ternate

Agriculture
Maragondon, Magallanes, Gen. E. Aguinaldo, etc.

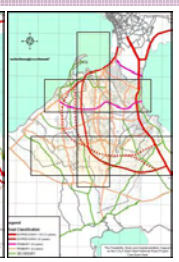
y





Alternative 0 Alternative 1

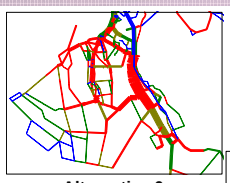
- **Alternative 0: Existing Network (zero-option)**
  Zero-option is Do-nothing Case. There is no improvement from current road network except for on going projects.
- **Alternative 1: Arterial Grid-Pattern Economic Road Structures and Balanced Development**
  Based on MMUTIS and WB CALA Study, grid-pattern road network system is provided, which will be consisted of arterial road with 4lanes to 6lanes. Due to the low class of design standards (compared with expressway), the construction cost will be lower and the alignment will be more flexible to minimize the impacts to the existing built-up areas.
  Through traffic between Metro Manila and Laguna region shall be shouldered on the planned new expressway such as C6.



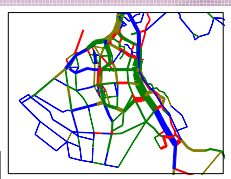
Alternative 2 Alternative 3

- **Alternative 2: Metro Manila – Laguna Transport Corridor Enhancement (Two North-South Axis)**
  Alleviation of traffic congestion on North-South Corridor and enhancement of the network in the corridor by providing a new north –south axis (high-standard highway including expressway) parallel to the South Luzon Expressway, forming the ladder pattern in the corridor.
  The corridor from Metro Manila – Laguna – Batangas Corridor will be one of the significant economic development corridors in the country, for industrialization and urbanization. Improvement of the transport accessibility will lead to further industrialization and urbanization.
- **Alternative 3: East-West and North-South Axis Scenario (Strategic Industrialization and Urbanization in the region)**
  High-standard Highways will be provided for East-West and North-South axis. The urbanization and industrialization in the region will be promoted according to the hierarchy of the road network system.
  A part of the through traffic between Metro Manila and Laguna will be transferred to the new axis contributing to the alleviation of the traffic congestion on and around the Metro Manila boundary.

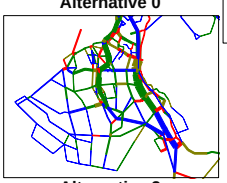
Future Traffic Demand (2020)



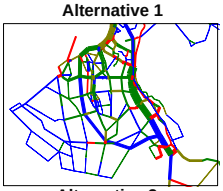
Alternative 0



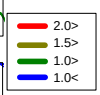
Alternative 1



Alternative 2



Alternative 3



Project Cost and Economic Evaluation

	Cost (Billion Pesos)			Benefit (Billion Pesos/year) (2020)	Evaluation		
	Const.	ROW	Total		EIRR (%)	NPV (Billion Pesos)	B/C
Alternative - 1	25.8	18.6	44.7	106.3	26.7	72.5	3.0
Alternative - 2	30.9	15.3	46.2	106.3	26.9	72.2	3.0
Alternative - 3	31.2	15.9	47.1	110.4	27.1	75.6	3.0

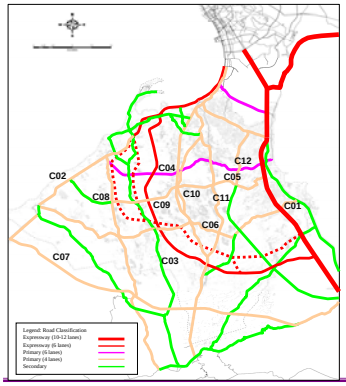
Social Impacts by Alternative

Item	Unit	Alternative 0	Alternative 1	Alternative 2	Alternative 3
i) Area to be newly acquired in the existing built-up area	km^2	-	3.84	3.18	2.92
ii) Number of building / structure to be relocated	House	-	4.026	2.956	2.762
iii) Area where new road passes through the SAFDZ	km^2	-	1.07	1.12	0.90
iv) Area where new road passes through informal settlements areas from past projects	km^2	-	0.36	0.31	0.32

Assessment on Road Network Alternatives

	Alternative 0	Alternative 1	Alternative 2	Alternative 3
Traffic situation	1	4	4	4
Economic condition	1	4	4	4
Industrialization	1	3	5	5
Easiness for operation (Finance)	5	3	2	2
Easiness for operation (ROW)	5	2	3	3
Regional development	1	3	3	5
Natural environment	1	3	2	3
Social environment	5	2	3	4
Total Score	19	24	26	30

Road Project Components in Selected Road Network

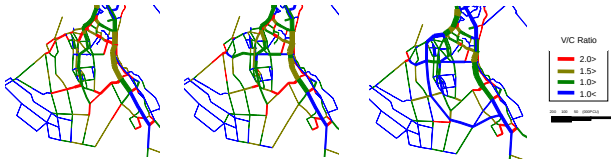


		Cost Estimates (Billion Pesos)		
		Const.	ROW	Total
C01	South Luzon Expressway	4.9	0.0	4.9
C02	West Coastal Road	2.2	0.7	2.9
C03	CALA Expressway	10.6	4.4	15.0
C04	E/W 1 (Daang Hari Ext.)	2.5	2.1	4.6
C05	E/W 2 (Calibuyo Ext.)	1.8	1.2	3.0
C06	E/W 3 (Governor's Drive)	1.2	1.8	3.0
C07	E/W 4 (Maragondon)	3.8	1.9	5.7
C08	N/S 1 (Tanza – Tagaytay)	0.7	0.5	1.2
C09	N/S 2 (Aguinaldo)	0.5	0.3	0.8
C10	N/S 3 (Bacoor – Dasmariñas)	1.6	1.4	3.0
C11	N/S 4 (Molino)	0.9	0.7	1.6
C12	N/S 5 (Daang Hari Ext.)	1.1	0.7	1.8

Result of Economic Evaluation of Each Project

		Benefit (Billion Pesos/ year) (2020)	Evaluation			Rank
			EIRR	NPV (Billion Pesos)	B/C	
C01	South Luzon Expressway	5.2	19.7	1.9	1.6	12
C02	West Coastal Road	5.5	25.1	3.4	2.6	8
C03	**CALA Expressway**	**51.6**	**33.0**	**41.0**	**4.5**	**3**
C04	**E/W 1 (Daang Hari Ext.)**	**29.4**	**41.1**	**26.2**	**7.8**	**2**
C05	E/W2 (Calibuyo Ext.)	10.4	32.1	8.2	4.4	4
C06	E/W 3 (Governor's Drive	8.6	27.9	6.2	3.4	6
C07	E/W 4 (Maragondon)	11.9	25.6	7.7	2.7	7
C08	N/S 1 (Tanza – Tagaytay)	1.7	21.2	0.8	1.9	11
C09	N/S 2 (Aguinaldo)	2.6	22.1	0.7	2.0	10
C10	**N/S 3 (Bacoor- Dasmariñas)**	**21.1**	**42.7**	**19.0**	**8.6**	**1**
C11	N/S 4 (Molino)	3.0	23.6	1.8	2.3	9
C12	N/S 5 (Daang Hari Ext.)	5.9	31.4	4.6	4.2	5

Network Performance by Combination of Priority Project

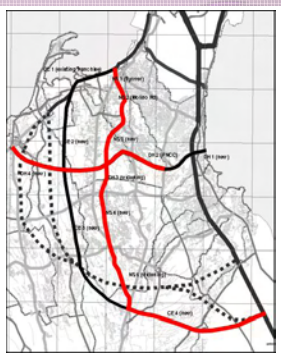


C10 **C10 + C04** **C10 + C04 + C03**

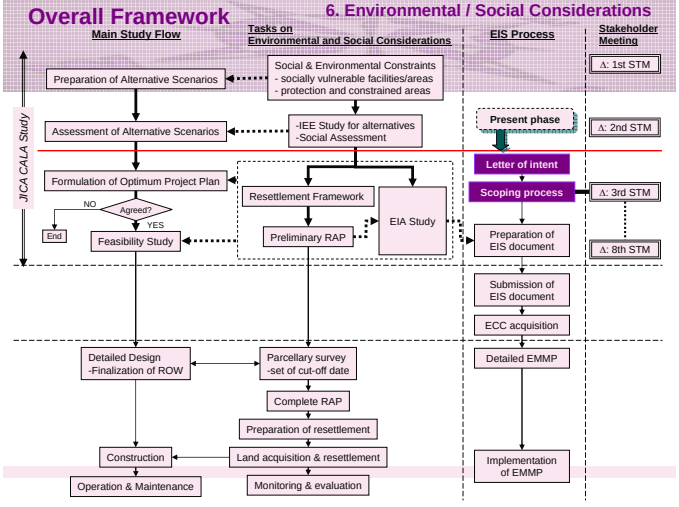
Priority Projects and Network Performance (2010, 2020)

Priority Project		2010		2020	
		V/C Ratio	Ave. Speed	V/C Ratio	Ave. Speed
C10	N/S 3 (Bacoor – Imus) (C10)	1.30	19.9	1.93	14.5
C04	E/W 1 (Daang Hari Extension) (C10+C04)	1.23	21.6	1.82	16.1
C03	Cavite Expressway (C10+C04+C03)	0.91	27.2	1.36	21.4

1) North-South 3 (Bacoor – Dasmariñas, "Busway Alignment")
   NS1, NS2, NS3, NS4, and NS5
2) East-West 1 (Daang Hari Ext.)
   DH3 and DH4
3) CALA Expressway
   CE 4



Overall Framework



Commencement of EIS Process for Priority Project

Schedule of the Scoping Process

(1) Submission of the Letter of Intent to DENR by DPWH:

(2) 1st Level Scoping Meeting: Technical meeting by EIA Review Committee (EIARC) *14 September*

- The EIA study will commence .
  - In case there is any study items to be added based on subsequent scoping process, they will be added during implementation of the EIS study.

(3) Official Scoping Session: *23 September*

- This session is also considered as 3rd Stakeholder Meeting under the series of STM to be conducted in the study.

(4) Submission of Formal Scoping Report

(5) Validation letter from EMB

=> draft EIS report will be prepared during the JICA study.

Next Steps

- **Preparation on Feasibility Study**

  Based on the selection of priority projects, the detailed examination on the projects should be undertaken. Namely, detailed examination on alignments by conducting a field survey, designing of alignment and cross-section, demand forecasting by packaging and phasing of the development, particular consideration on project operating and financing, examination on the proper toll price when the toll road would be introduced, a series of meetings among various stakeholders, and so on.

- **Environmental Impact Analysis**

  In accordance with the official procedure, the EIA will be conducted. Moreover, the resettlement plan shall be formulated carefully in order to process this project smoothly and successfully.

3rd STAKEHOLDERS' MEETING/FORMAL SCOPING SESSION
Island Cove, Kawit, Cavite Province

The Feasibility Study and Implementation Support on the CALA East-West National Road Project

(CALA East-West)
Part II – Environmental and Social Considerations

September 23, 2005

Department of Public Works and Highways o Japan International Cooperation Agency

PROGRESS OF STUDY
JICA ENVIRONMENTAL AND SOCIAL CONSIDERATON REVIEW COMMITTEE MEETING

- Environmental and Social Considerations Review Committee meeting
  - 1st meeting: Held on 25 July 2005 in JICA HQ
  - Themes of inquiry:
    - Evaluation of alternatives
    - Environmental scoping
  - Various comments and advices from committee members
- => An Environmental & Social Considerations Study at EIA level (EIA study) will be conducted based on the results of the above meeting and official scoping process of the EIS system.

JICA'S ENVIRONMENTAL GUIDELINES AND REQUIREMENTS FOR THIS PROJECT

- Environmental Category A
  1. Environmental and social consideration study at EIA level has to be conducted during the study.
  2. Environment and Social Considerations in the Study are reviewed by JICA Environmental Review Committee.
  3. Information on the Study incl. environment and social considerations are open to the public though JICA Web-site, etc. for soliciting public comments.

THE PHILIPPINE ENVIRONMENTAL IMPACT STATEMENT(EIS) SYSTEM

1977 Presidential Decree (PD) No. 1151, *Philippine Environmental Policy*
Section 4 explicitly requires "*all agencies and instrumentalities of the national government, including government-owned and controlled corporations, as well as private corporations, firms and entities to prepare an environmental impact statement (EIS) for every action, project undertaking which significantly affects the quality of the environment.*"

1978 Presidential Decree (PD) No. 1586, *Establishment of the Philippine EIS System*
Reiterating the policy statement under PD 1151, PD 1586 declared environmentally critical projects (ECPs) and projects within environmentally critical areas (ECAs) as projects which require the submission of an EIS, (section 4) "*no person, partnership or corporation shall undertake or operate any in part such declared ECP or project within an ECA without first securing an Environmental Compliance Certificate (ECC).*"

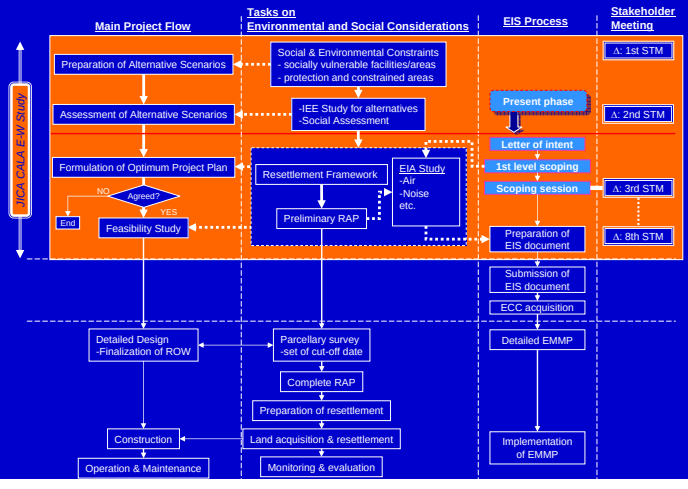
THE PHILIPPINE ENVIRONMENTAL IMPACT STATEMENT(EIS) SYSTEM

1987 Philippine Constitution
Section 16, Article II "The state shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature."

Section 15, Article II mandates the state "to protect and promote the people's right to health."

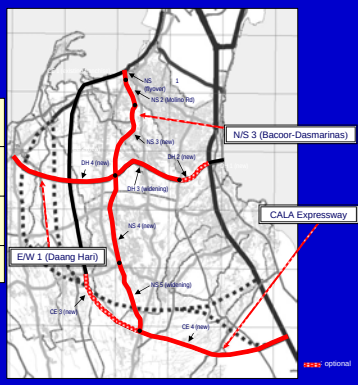
Executive Order No. 192
Designates the Department of Environment and Natural Resources (DENR) as the "primary government agency responsible for the conservation, management, development and proper use of the country's environment and natural resources." The Environmental Management Bureau (EMB) is specifically tasked "to recommend rules and regulations for environmental impact assessment and provide technical assistance for their implementation and monitoring."

Overall Framework of Environmental & Social Considerations for the CALA East-West National Road Project

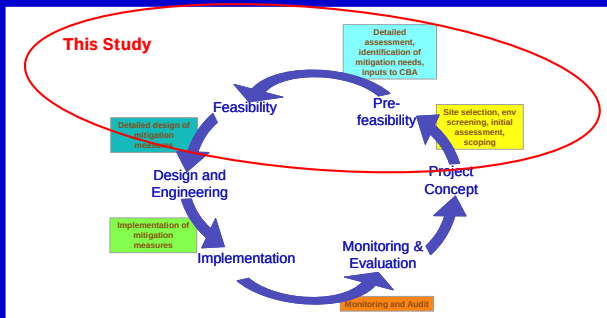


PROJECT DESCRIPTION
TARGET PROJECTS

Proposed Road	Road Category	Road Length	Design Speed	Traffic Lanes	ROW Width
N/S 3 (Bacoor-Dasmarinas)	national highway	27.6km	60km/h	6 lanes	30m
E/W 1 (Daang Hari Extension)	national highway	22.5km	60km/h	6 lanes	30m
CALA Expressway	expressway	23.9km	100km/h	6 lanes	50m



FRAMEWORK OF ENVIRONMENTAL AND SOCIAL CONSIDERATION (Philippines)



EIA and the Project Cycle

(PROCEDURAL MANUAL FOR DAO 2003–30, DENR)

The Environmental Impact Assessment Process

STEP 1 : Scoping

The 1st Formal Scoping Session
(The Technical Scoping Session)

The technical scoping is done to define the range of actions, alternatives, and impacts that are to be examined. It is a formal step governed by guidelines and requires documentation of outcome under the regulatory system for EIA. It also provides an early link between the DENR and the proponent so as to ensure that the EIA addresses relevant issues and presents results in a form consistent with the regulatory review requirements.

Date : September 14, 2005
Participants : EM/DENR Staff
EIS Review Committee Memeers
DPWH Counterpart Team Members
JICA Study Team Members
Activity : Site Inspection & Technical Scoping Session

The Environmental Impact Assessment Process

STEP 1 : Scoping

The 2nd Formal Scoping Session
(The Stakeholders Meeting)

The key purpose of this scoping is to allow interested parties (e.g., the stakeholders) to make their concerns known, and the step helps ensure that the EIA study proper actually addresses issues and potential impacts of concern by all parties.

Through a formal scoping within the regulatory EIA system, an agreement is made at the outset of the EIA study to identify what issues and alternatives would be examined, and to define the responsibilities of the various parties or stakeholders.

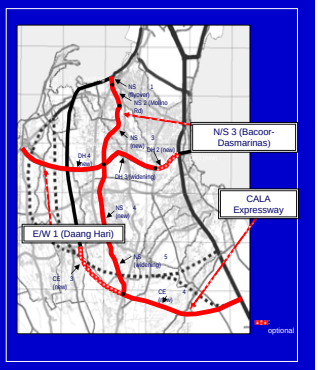
The Environmental Impact Assessment Process

STEP 2 : Baseline Study

The term baseline means a description of the existing ecosystem situation before development against which potential impacts of the proposed project may be identified and subsequent actual changes detected through monitoring.

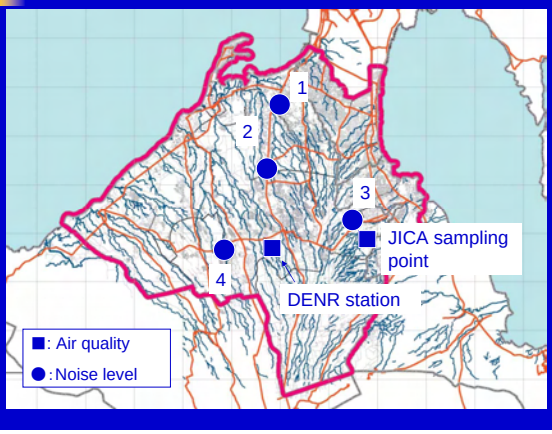
Baseline study is the data gathering phase of the EIA study. It should focus on gathering data relevant to the issues and concerns raised during the scoping.

Depending on the adequacy of the available secondary data to address the issues raised, primary data should be generated to supplement available data in order to build a sufficient picture of the project area and the impact zone.



CURRENT CONDITION OF THE AREA
Resettlement Sites/Informal Settlements

CURRENT CONDITION OF THE AREA
AIR POLLUTION AND NOISE LEVEL (STATION)



CURRENT CONDITION OF THE AREA
AIR POLLUTION

Unit: μg/NCM

Items	JICA Point	DENR Station	National guideline
TSP	84	11-334	230
SO_2	ND	-	180
NO_2	ND	-	150
CO	ND	-	10(8hr)
Pb	-	<0.04-0.41	1.5(3months)

ND: Not detected

−: Not measured

CURRENT CONDITION OF THE AREA
NOISE LEVEL

Unit: dB

Period	Station				DENR Standard
	1	2	3	4	
Morning	74	80	79	75	60
Daytime	72	80	78	79	65
Evening	72	77	73	75	60
Night time	72	75	72	58	55

Morning: 5:00 to 9:00

Daytime: 9:00 to 18:00

Evening: 18:00 to 22:00

Night time: 22:00 to 5:00

The Environmental Impact Assessment Process

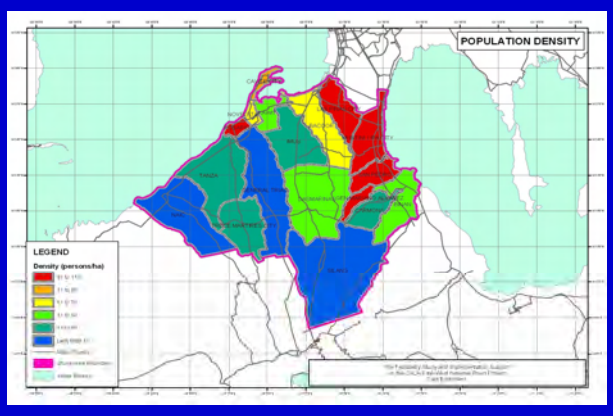
STEP 3 : Impact Identification

This step basically answers the question :
"What will happen as a result of the project?"

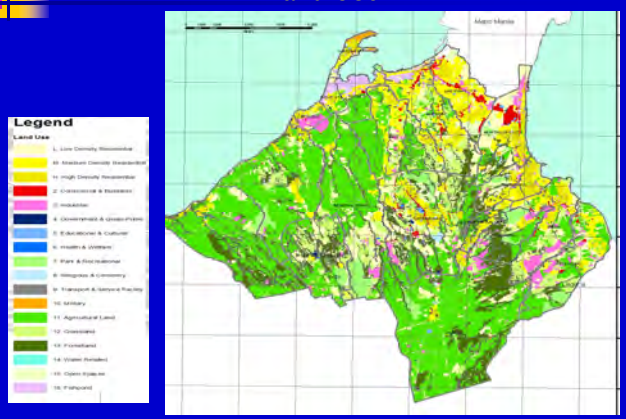
Impact identification usually involves meetings between the EIA team and the engineering team. It is heavily dependent on the experience of the teams. There are no *hard and fast* rules that spell out the steps or procedures in impact identification.

It is necessary that the members of the EIA team possess adequate knowledge and experiences to comprehensively identify the potential impacts.

CURRENT CONDITION OF THE AREA
Population Density



CURRENT CONDITION OF THE AREA
Land Use



MAJOR NEGATIVE IMPACT CAUSED BY ROAD PROJECT

Key aspects	Supposed negative impacts and the factors
Involuntary Resettlement	The involuntary resettlement would be unavoidable due to land acquisition, especially in the existing built-up area
Regional economic activities	While negative social impact are expected to agricultural, industrial, and commercial activities in some extent due to the land acquisition, industrial and commercial activities will be enhanced as positive impact of proposed project
Regional divide	Regional divide may occur due to new road development and/or upgrade of the present road class
Social vulnerable group	The land occupied by informal settlers may be acquired by the project
Air pollution	Degradation of the ambient air environment caused by increase in traffic volume is expected.
Noise and Vibration	Higher noise level caused by increase in traffic volume in the area.

The Environmental Impact Assessment Process

STEP 4 : Impact Prediction

This step basically answers the question :
"What would be the extent of the impact?"

Identified potential impacts should be studied further to estimate the magnitude of change. In predicting impact, one really formulates a hypothesis on the cause-and-effect interaction between project activities, which are represented as the independent variables and the valued ecosystem components and processes as the dependent variables. In making impact predictions, it is useful to include the estimates of the probability of occurrence and the associated risks, timing and direction of impacts.

IMPACT PREDICTION

Preliminary Impact Prediction

Environmental Impact Items	N/S 3 (Bacoor-Dasmarinas)	E/W 1 (Daang Hari)	CALA Expressway
A. Physical Environment			
1. Land	B	B	B
2. Water	B	B	B
3. Air	A	A	A
4. Noise and Vibration	A	A	A
B. Biological Environment			
1. Terrestrial	C	C	C
2. Freshwater	C	C	C
C. Land Use			
1. Land Use and Zoning	B	B	B
2. Aesthetics and Visual Effects	B	B	B
3. Archaeological and Historical Sites	C	C	C

IMPACT PREDICTION

Preliminary Impact Prediction

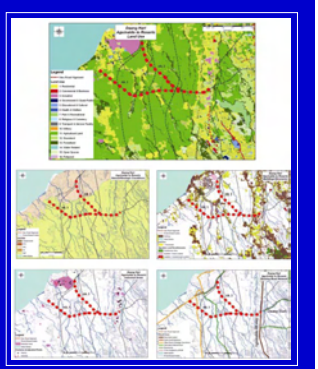
Environmental Impact Items	N/S 3 (Bacoor-Dasmarinas)	E/W 1 (Daang Hari)	CALA Expressway
D. Socio-Cultural Economic			
1. Population	A	A	A
2 Economic Activities	B	B	B
3. Labor and Employment	B	B	B
4. Housing and Social Services	B	B	A
5. Infrastructure and Public Utilities	C	C	C
6. Public Health and Safety	B	B	B
7. Culture, Lifestyle and Values	C	C	C
8. Women and Vulnerable Groups	A	B	A
9. Inequality between beneficiaries and project-affected people	B	B	B
10. Conflict of interests	B	B	B
11. Waste	B	B	B
12. Accident	B	B	B

The Environmental Impact Assessment Process

STEP 5 : Impact Evaluation

This step basically answers the question :
"How important is the predicted impact?"

Impact evaluation boils down to knowing or selecting the significant impacts since not all identified impacts are significant. Only important adverse environmental impacts will have to be mitigated. Hence, it is necessary to know which impacts are important.



The Environmental Impact Assessment Process

STEP 6 : Impact Mitigation and Preparation of EMP

In this step of the EIA study, a wide range of measures may be proposed to prevent, reduce, remedy or compensate for each of the adverse impacts assessed as being significant.

Possible mitigation measures generally include :

- Changing project sites, routes, processes, raw materials, operating methods, disposal sites, phasing of project activities, or engineering designs.
- Introducing pollution controls, waste treatment, monitoring, landscaping, personnel training, special social services, or public education, or
- Offering as compensation the restoration of damaged resources, including providing compensation money to affected persons, concessions on other issues, or off-site programs to enhance some other aspects of the environment or quality of life of the affected community.

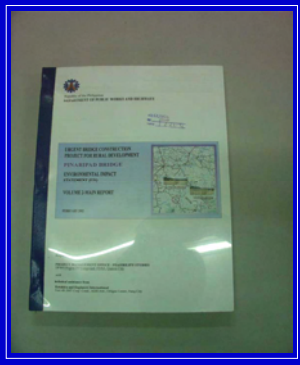
The Environmental Impact Assessment Process

STEP 7 : EIA Documentation

EIA documentation refers to the preparation of the formal and informal reports and records of the proceedings, findings, analysis, and results of the EIA processes. It includes such documents as Project Profile, Scoping Report, EIS documents, process documentations, proofs of social acceptability and other documents.

The purpose of the EIA documentation is to present and communicate to decision makers and other affected parties the data and information gathered during various stages of the EIA process; the methods by which they were gathered, the results of the EIA study, and the ways in which adverse impacts will be prevented, reduced, mitigated and monitored.

On the regulatory side, the decision to grant or deny an ECC for a proposed project depends on the quality of the EIA documentation, which in turn reflects the quality of the EIA performed.



Preparation of the Preliminary Resettlement Action Plan (Pre-RAP)

Main Items of the RAP

a) Evidence of avoiding and/or minimizing land acquisition and resettlement impact
b) Scale and location of the land acquisition
c) Number of families to be relocated
d) Socioeconomic profiles of the people affected by land acquisition and resettlement
e) Resettlement policy framework and entitlement matrix
f) Identification and preparation of resettlement sites
g) Consultation and participation of the affected people in resettlement management
h) Institutional arrangements for RAP implementation, including inter-agency coordination
i) Cost estimates and financial plan
j) Monitoring and evaluation arrangements

NEXT STEP
CONTENTS OF ENVIRONMENTAL/SOCIAL CONSIDERATION

- Future Plan
  - Baseline Survey (Natural and Social Environment)
  - Impact Identification
  - Preparation of Mitigation Measures
  - Preparation of Preliminary Resettlement Action Plan
  - EIS Preparation
  - Public Consultation

NEXT STEP
BASELINE SURVEY(NATURAL AND SOCIAL ENVIRONMENT)

- **Secondary data collection**
- **Field survey (Natural environment)**
  - Air pollution: TSP, SPM, NO, NO_2, SO_2, CO, O3, Pb, Wind speed/direction (8 stations)
  - Noise and Vibration: Average noise and vibration level (8 stations)
  - Water quality: Temperature, pH, TSS, River flow (4 river 16 stations)
- **Residents' Interview Survey**
  - Perception Survey
  - Focus Group Discussion
  - Household Inventory Survey for Resettlement

NEXT STEP
PUBLIC CONSULTATION

Stakeholder Meeting

No.	Study Phase	Approximate Period
1st	Preparation of Scenarios	March 17,2005
2nd	Evaluation of Scenarios	June 16,2005
3rd	Preparation of Optimum Project Plan	Sept 23,2005 ← Today
4th		Early Dec.,2005
5th		Mid-March, 2006
6th	F/S	Mid-May,2006
7th		Early July,2006
8th		Early Sept.,2006

THANK YOU