

## EXPLORING THE INSTITUTIONAL ALTERNATIVES FOR REQUIRING TRAFFIC IMPACT ASSESSMENT IN THE PHILIPPINES

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### ABSTRACT

*The UPNCTSFI Study Team that developed the guidelines for traffic impact assessment (TIA) proposed four mechanisms for institutionalization. These include incorporating TIA within the existing systems such as the Environmental Impact Analysis (EIA) required for environmentally critical projects and local government processes that give clearance for developments to be undertaken including those that will necessitate a change in the land use. This paper expounds on these proposed mechanisms, recommends a practical set-up and tackles the prerequisites for TIA to be applied in the Philippines. Capability building on the part of the government is discussed thoroughly, as well as the issues of accreditation and costs associated with TIA. As such the paper is able to achieve its primary objective of providing a comprehensive discussion on the institutionalization of TIA in the Philippines.*

*Keywords: traffic impact assessment, institutionalization, capability building*

### 1. INTRODUCTION

Traffic impact assessment (TIA) guidelines were developed by a study team from the National Center for Transportation Studies of the University of the Philippines (UPNCTSFI, 2001). It was initially intended to be a set of stand-alone guidelines that would eventually be required for developments that are perceived to have a critical impact on traffic and transportation within a defined area of influence. Discussions with government agencies were undertaken during the course of developing the guidelines and these brought about encouragement as to the practical importance of requiring TIA for various types of development. However, it was not clarified what path is best to tread in terms of the government requiring TIA. An approach to be applied in the short-term was proposed but the questions hangs whether this can be realized or maybe, employed in the long-term. Thus, it is important to elaborate further into the institutionalization of TIA in the Philippine context.

## II. OBJECTIVES

This paper seeks to address the issue of institutionalizing TIA in the Philippine context. In particular, the following will be the focus of the discussions:

- a) To expound on proposals made by the UPNCTSFI Study Team;
- b) To recommend on the realistic and practicable short- and long-term paths for requiring TIA for various types of projects.
- c) To discuss the requirements for the application of TIA including the need to develop capability to conduct TIA;

In the process of exploring the options for institutionalization, it cannot be avoided that many other relevant issues will crop up. In particular, there is the question on the capability of government to assess traffic impacts of various types of development and therefore their capability to evaluate reports that will be submitted by developers or consultants. Such will also be explained and rationalized with respect to current practices and existing systems in government, especially within the local government unit.

## III. REQUIRING TRAFFIC IMPACT ASSESSMENTS

### 3.1 *Proposed Mechanisms*

The UPNCTSFI Study Team (2001) proposed four institutional mechanisms. These are:

- a. Incorporate the TIA guidelines in the Implementing Rules and Regulations (IRR) of the existing Environmental Impact Assessment (EIA) guidelines;
- b. Incorporate the TIA guidelines in a local government unit's Zoning Ordinance;
- c. Enact an ordinance specifically for the institutionalization of TIA with the jurisdiction of a particular local government; and
- d. Incorporate the TIA guidelines in the Housing and Land Use Regulatory Board (HLURB) subdivision and condominium guidelines.

The first proposal can actually be undertaken along two alternatives, one that will require legislation and one that would not. Legislation can be a long process that may eventually result in the proposed law not being passed. Normally, this process will require a congressman to file a bill in the House of Representatives (Lower House), where its merits and demerits will be discussed at the committee level (i.e., the House Committee on Transportation and Communications). The committee votes, in executive session, whether to pass the bill or not. If passed, it is referred for floor deliberations. The chairman of the committee usually becomes the principal sponsor of the bill and defends it at the floor deliberations. The House then votes to pass the bill or not on second reading.

A similar bill may be filed in the Senate (Upper House), where it will undergo a similar process of deliberation and voting at the appropriate committee (i.e., Senate Committee on Urban Planning, Housing and Resettlement). If it is passed at the committee level then it will be referred to the floor for deliberation and defense. Upon passage of the bill in both houses, a bicameral conference committee is created, composed of senators and congressmen from the Upper and Lower Houses, respectively. This committee in turn conducts deliberations and crafts a bill. The bill from the bicameral committee need not be purely based on the bills from the Houses. The bicameral bill is returned to each House where deliberations are again conducted and voting is done to pass the bill on third reading.

When the bill has passed the scrutiny of both Houses, it is sent to the President of the Republic for final approval. The bill may also be discussed at the Cabinet level or passed on to the appropriate department (i.e., the one proposed to implement the contents of the bill) for evaluation. Upon the recommendation of the Cabinet and advisers, the President may approve or veto the bill. If the bill is vetoed, it is sent back to Congress for reevaluation, undergoing the processes described in the previous paragraphs. If the bill is approved, then it is signed into law and forwarded for implementation by the responsible agency.

It is obvious the first path is time consuming. An easier path is through the Department of Environment and Natural Resources (DENR). The DENR through the Environmental Management Bureau (EMB) is tasked to implement the guidelines for EIA as per Department Administrative Order (DAO) 96-37. The EIA system has been legislated and passed as a law (Presidential Decree 1586). Under the EIA guidelines, a TIA is also required as part of the report submitted for the purpose of getting an Environmental Compliance Certificate (ECC). However, there are no details to guide the consultant how to prepare a TIA. The proposed TIA guidelines developed by the UPNCTSFI Study Team fills this gap, fitting well within the context of the established EIA system. The DENR through its secretary would have to publish a Department Order supplementing the existing EIA guidelines with those for TIA. However, the apparent weakness of considering this alternative alone in requiring TIA is the fact that not all projects may be classified as environmentally critical. Thus, the construction of a parking facility, for example, may not be required a TIA due to the technicality that it may not be an environmentally critical endeavor.

The second mechanism is easier in that it will only require a council resolution for the TIA guidelines to be incorporated into the local government unit's Zoning Ordinance. This is well within the power of the local government unit and is guaranteed by the Local Government Code. This, however, may not be the best way to integrate TIA into the system and seems to be limited to cases of rezoning.

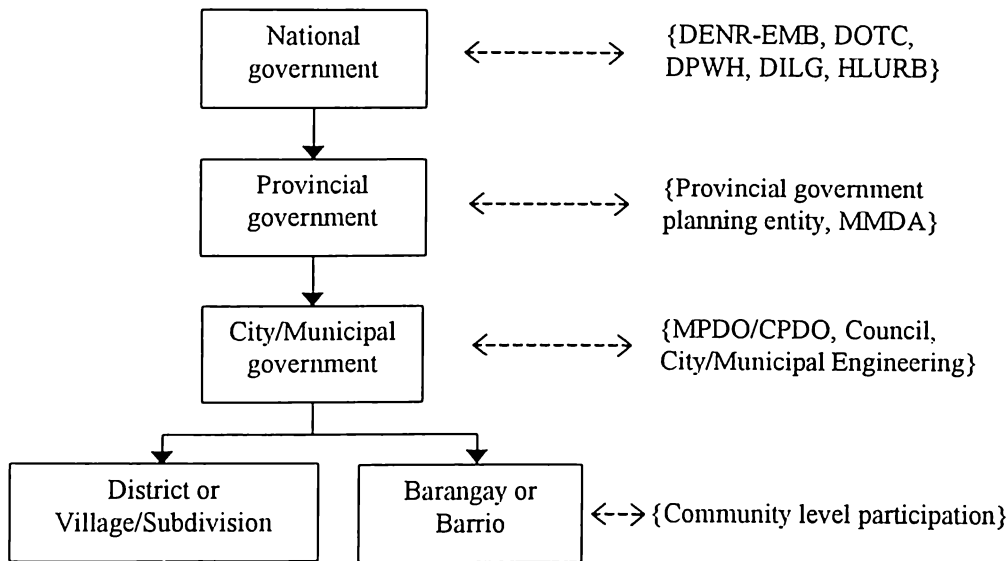
The third mechanism is very attainable with the Laguna provincial government enacting a law (Resolution No. 28, Series 2000) requiring TIA for all developments. This resolution is also complemented by implementing rules and regulations (Provincial Ordinance No. 2, Series 2000). This presents a very good example of a local government recognizing the importance of undertaking traffic impact studies due to various types of developments in order to address a worsening situation in congestion as the province and its cities and municipalities experience continued growth. The resolutions also provide other LGU's with a template for enacting their own resolutions for requiring TIA.

The fourth proposal relies on the HLURB guidelines for subdivision and condominium development. The developers of major residential developments such as subdivisions and condominiums are required to submit documents to the HLURB regarding their proposal for site development. These are stipulated under the Condominium and Subdivision Laws. This fourth mechanism seeks to insert a provision within these laws for the requirement of TIA specifically targeting major residential development that is perceived to generate and attract a critical number of trips.

It is clear that all four mechanisms are founded on firm ground. However, it is also important to explain how these mechanisms can actually be integrated within the Philippine system of government, from the national to the community level. In the succeeding sections, we focus on integrating these mechanisms into the government systems and present proposals for capability building for local government units. We also explore the idea of accreditation to provide an assurance of the quality of TIA reports.

### **3.2 *General Framework***

The diagram in Figure 1 shows the ideal flow for requiring TIA of various developments by government. This diagram is based on the policy hierarchy for design developed by Punter and Carmona (1997) and shows the government agencies or entities that are relevant to the TIA cause.



**Figure 1** Hierarchy of flow for institutionalizing TIA in the Philippine context.

Based on the diagram in Figure 1, the TIA process must first be required from the national government for it to be firmly accepted within the other levels. Looking back at the proposed mechanisms in the preceding section, such a requirement may not require full legislation but rather a supplement to the existing EIA guidelines through an amendment to DAO 96-37 of the DENR. Meanwhile, the HLURB may provide amendments to the Subdivision and Condominium Laws to require TIA for major residential developments. The inclusion of the Department of Interior and Local Government (DILG) recognizes the role of this agency in promoting the interest of local government units and serving as a catalyst for them on the national level. By issuing an Executive Order to all local government units, the DILG can require all units to include TIA in their land use planning system.

At the provincial level, it is easy to relate the current structure of Metro Manila where the Metro Manila Development Authority (MMDA) would have the jurisdiction for requiring TIA. This is particularly important in the light of the perceived flaws of major developments (e.g., large shopping malls) in Metro Manila that bring about increased congestion and additional safety concerns. The only question would be regarding its mandate over the powerful cities that often do not follow the MMDA. In general, provincial governments are more influential in the manner of integration and cooperation among the cities and municipalities under it. The province can also organize a committee composed of all municipal and city planning and development coordinators much like that in the Province of Laguna. Concerned provincial board members (i.e., the provincial legislature) may also be included to provide a legal framework for the discussions. It is through this committee that TIA may be required and recommended for

legislation at the provincial level, resulting in a Provincial Resolution or Ordinance.

At the City or Municipal level, it is the City or Municipal Planning and Development Office (CPDO/MPDO), which have a direct hand at requiring TIA in the city/municipality. The municipal council (i.e., local legislature) will be involved as they would have the mandate in approving any changes for the city's/municipality's zoning ordinance in the context of changes in the land use brought about by development.

At the community level, the basic unit is the barangay. Anything smaller than this level may also be relevant but then in the political structure, villages, barrios or sitios are within the scope of the barangay. While the officials of this unit may not have any power to require TIA within the area, they may call the attention of city or municipal officials regarding developments that are perceived to have a detrimental impact on traffic.

Perhaps a more powerful entity at this level are the organizations formed by building owners and establishments within central business districts like the ones found in Makati City (Ayala Center) and Mandaluyong City (Ortigas Center) in Metro Manila. The associations manage the districts and they are tasked with planning for the needs of the establishments. Part of this is traffic management and therefore, they are directly responsible for any assessments of traffic impact by any establishment or facility located within the district.

### ***3.3 Practical Set-Up***

The NCTS study team (2001) proposed a strategy for mainstreaming the TIA process within existing regulatory processes. This is shown in the diagram in Figure 2 where three specific instances are identified when TIA will be required: site development in a critical area, urban renewal or industrial site development, and rezoning. As such, appropriate steps are shown leading to the permit for construction or a zoning ordinance, where applicable.

It is also obvious that two general paths can be considered in mainstreaming TIA, consistent with the proposed mechanisms mentioned in the previous section. One is through the existing EIA system and the other is through local government processes. These appear to be both practical and realistic for both the short- and long-term time frames. As such, Figure 2 also illustrates the concept of mainstreaming TIA in existing processes.

The framework shown in the Figure 2 is realistic and practicable for the following reasons:

- It practically covers all types of development including those that may not be defined as environmentally critical to require an EIA.

- It is very much within the context of existing systems and thus will not involve the introduction of any new processes.

In the EIA system, the additional requirement of a TIA actually reinforces the impact assessment process. Increased traffic translates into emissions, noise and vibration due to vehicle activity. However, there will always be instances when TIA will not be required even within the EIA system and these are stated within the TIA guidelines (i.e., When is a TIA required?).

In local governments, the TIA provides an opportunity for preventing traffic related problems that might be encountered due to development. Also, costs for introducing solutions or countermeasures will be shouldered by the developers. This will mean that government funds will not be strained by taking on every problem brought about by traffic generated by new development.

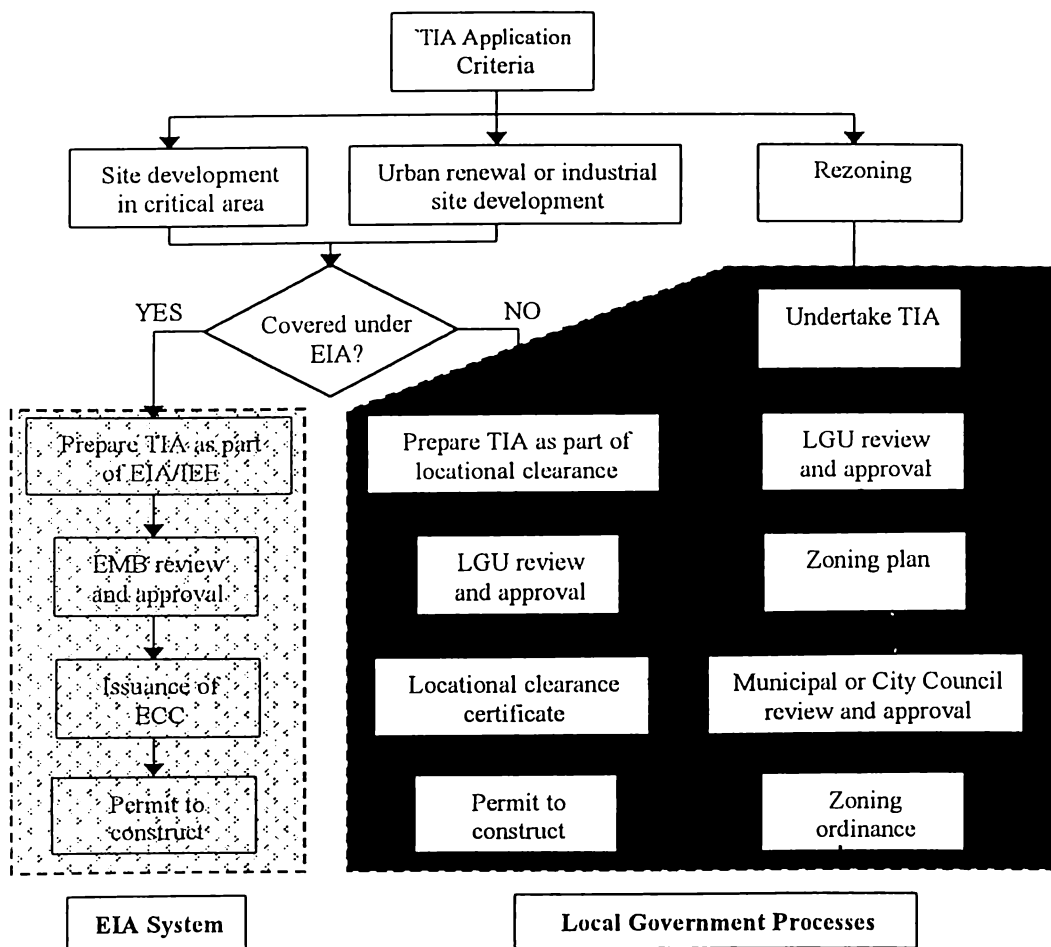


Figure 2 Mainstreaming TIA within existing systems.

The concepts of mainstreaming that have been discussed assure us that the systems and processes are in place for requiring traffic impact assessment. It is important that the capabilities to undertake TIA now be assessed. Included in the assessment are issues on capability building and the acquisition of pertinent hardware. These are discussed in the next section.

#### **IV. CAPABILITY BUILDING**

Before the national, provincial, city or municipal governments can require consultants to undertake traffic impact assessment for various types of development; it must itself have acquired the capability to conduct TIA by itself. Capability building, therefore, is not limited to the process of gaining experience for the purpose of reviewing the assessment reports submitted to the evaluation committee. It also includes the development of a capability to be able to make assessments for the purposes of managing the existing systems.

Several options for the development of a capability for traffic impact assessment can be considered:

##### *a. Agreements between municipalities and cities*

Under this scheme, local governments may forge formal cooperation among themselves. Small municipalities may ask cities for assistance regarding impact assessment capability building. Cities may also take the initiative by adopting less capable municipalities, especially those adjacent to it. It is recognized that development in one municipality or city will also have an impact on adjacent cities and municipalities.

##### *b. Shared resources in the provincial level*

The provincial government identifies “capable” and “less capable” cities and municipalities. This can follow the classification of cities and municipalities according to their income. At this level, the province takes the lead and coordinates among the cities and municipalities. Note from (a) that since development may impact more than one local government it is in the interest of the province to play a lead role in assessing impact for a more integrative approach. That is, it can closely coordinate development among cities and municipalities and broker any compromise regarding countermeasures.

##### *c. National government agency takes the initiative*

The DILG is in the best position to coordinate capability building for TIA at the national level. It is also in a good position to seek assistance in this endeavor from other national agencies like the DOTC and the DPWH, who would have the technical expertise for impact assessment. Other agencies that would have similar expertise would be the DENR and the HLURB. These agencies have



a wealth of experience in reviewing technical reports and such experience can be passed on to local governments. Moreover, national agencies would have the expertise for conducting TIA including making traffic forecasts and analyzing scenarios.

## **V. EVALUATION AND ACCREDITATION**

### **5.1 Introduction**

The evaluation process is important because it is at this stage when the TIA is reviewed for completeness and adequacy. There are two parties in the evaluation process. One is the government, represented by a review committee composed of qualified people, experienced in the TIA process. Another is the developer, who may be represented by consultants hired to undertake the TIA. This section discusses some issues concerning these two parties.

### **5.2 The Review Committee**

The UPNCTSFI Study Team (2001) suggested that at the city or municipal level an evaluation committee be composed of the following:

- a) A representative of the City/Municipal Planning and Development Office (CPDO/MPDO),
- b) A representative of the City/Municipal Engineer's Office,
- c) A representative of the Environment and Natural Resources Office (ENRO), and
- d) Other qualified persons who may be appointed by the mayor.

It is ideal that the evaluators have the qualifications to review TIA reports and are able to determine their adequacy according to minimum requirements set by the guidelines. The minimum qualifications for the first three mentioned persons should be close to those stated explicitly for the head of the offices in the Local Government Code of the Philippines.

Members of the committee should preferably be permanent (i.e., career service persons). This is important for the following reasons. Firstly, permanent persons will allow for intensive training, concentrating on a core group for developing adequate knowledge of the TIA system. Subsequent trainings will involve only such persons who are in the committee. Secondly, permanent members will be able to accumulate the necessary experience over time. Changes in membership will often result in having a member or members who would not have experience (and even no knowledge) of TIA. Thirdly, permanent members will give consistency to the review process. Such will be evident in the appraisal of TIA reports, especially when evaluating the sufficiency of measures recommended and proposed to be adopted by the developer.

In the long run, it is envisioned that as knowledge, experience and awareness of TIA spreads, then the committee will eventually be enlarged or be composed by members who are appointed on a less permanent basis. However, the core of this committee would preferably be permanent and composed of the first three persons mentioned in the UPNCTSFI Study Team recommendation.

At the provincial level, it is possible to have a larger committee that will be composed of planning officers and engineers from the cities and municipalities comprising the province. However, these people would also have to undergo the same training described, for them to have at least a basic knowledge of TIA.

At the national level (i.e., for very big projects), the national agencies may designate a special committee from its pool of experts. Such a pool is derived from the Planning Divisions of these agencies. These will be appointed by the Secretary of the DOTC or DPWH and may include planning officers and engineers of the concerned cities or municipalities (i.e., which would be affected by the project).

### **5.3 *Accreditation and Related Matters***

Accreditation is both a process and a system for assuring the quality of traffic impact assessment. Competence in the conduct of TIA can be assured by developing an accreditation system for both individuals and firms. However, it becomes a touchy issue when requirements for accreditation

Several entities may be considered for the accreditation process. Among these are:

- a. National agencies will certify who can conduct TIA for anywhere in the country.
- b. Provincial government will certify who can conduct TIA within the province.
- c. City/Municipality will certify who can conduct TIA within the city/municipality.

National agencies like the DPWH and the DOTC engage in major development projects and would logically have a pool of experts in transportation and urban planning. Also, they would have a system for qualifying consultants for various types of projects including those that usually require TIA. The National Economic Development Agency (NEDA) usually manages foreign funded projects (i.e., big projects) and screens the consultants who get involved in these endeavors. Thus they would also have a system in place for qualifying people and companies who can undertake TIA.

These alternatives would logically follow a hierarchy wherein, for example, any consultant that is certified to be capable of doing TIA by a national agency would automatically be accredited everywhere without exception. However, recognition by a lower entity does not necessarily mean certification

anywhere else as guaranteed by a higher entity. Thus, a consultant who is certified by a particular city may not be qualified to do TIA in another. Such a mechanism can benefit those who are just starting to practice TIA within their locality and assumes that their familiarity with the area at least gives them an advance knowledge of transportation systems there. As the person or company gains expertise, they can be accredited by a higher entity until they can practice TIA at the national level.

It is important to clarify the qualifications in terms of knowledge (e.g., academic background) and experience (e.g., at least 3 years equivalent work on TIA) for one to be able to advance. Also, it may be recommendable for a merit and demerit system to be in place, whereas individuals or firms who give poor quality TIA are relegated or their accreditation is withdrawn. Such would be easy for the case of individual consultants. In the case of consulting firms, it is often their reputation that will be at stake should they fail to give satisfactory work.

Another option that can be explored for the accreditation process is to tap professional organizations/associations to certify who can conduct TIA. At least two organizations, the Philippine Institute of Civil Engineers (PICE) and the Philippine Institute of Environmental Planners (PIEP), are under the Professional Regulations Commission (PRC) and represent civil engineers and planners throughout the country. Then there are also organizations like the Transportation Science Society of the Philippines (TSSP) and the Road Engineers Association of the Philippines (REAP), that are comprised of specialists in the field of transportation. Such organizations can regulate their memberships and perhaps also provide accreditation for the practice of TIA according to a hierarchical classification similar to that described previously.

## **VI. COSTS ASSOCIATED WITH TIA**

By costs associated with TIA, we will focus only on the expenses concerning capability building and the conduct of TIA. Not include are costs as a result of the TIA (e.g., road improvements, signalization, parking facilities). The costs associated with traffic impact assessment would have to be classified as those borne by the government and those borne by the developers. Both would include hardware and software related expenses, including those that are administrative in nature (e.g., processing of papers).

The initial outlay for the government can be costly due to the required training and acquisition of equipment (i.e., computers for the forecasting and analytical software). However, the knowledge acquisition aspect of capability building need not be so expensive. Staff may be sent to study under scholarships sponsored by government programs as well as private institutions. Usually, there are also programs offered under the foreign sponsorship targeting government staff. These short-term programs are offered through NEDA and may be availed

of in coordination with the DILG. The local governments, through the mayor and governor, may endorse staff for training or graduate studies.

Software for both forecasting and analysis can be very expensive. Thus, the process of acquiring software can be a challenging endeavor as various sources of funding are explored and tapped. Such a process usually is coursed through the NEDA, which manages, for example, foreign fund sourcing programs (e.g., through JICA, AusAid, USAID). Table 1 shows the prices of some of the more popular software in use.

**Table 1** Commercial prices of some software.

Software Name	Forecasting	Simulation	Signals	Mitigation	Network Analysis	Estimated Price (PHP)*
TRAFFIX	x		x	x	x	145,000**
TRANPLAN	x					250,000
aaSIDRA			x			58,500
Synchro Plus		x	x		x	144,950
AVENUE		x			x	1,200,000
TRAF-NETSIM		x			x	380,000
PARAMICS		x			x	348,000
TissNET		x			x	280,000

\*Prices were derived from U.S. Dollars using an exchange rate of 1 USD = 50.PHP.

\*\*Prices indicated are based on license use on 1 PC only. Subsequent PC's will entail higher but tapering prices. Site and agency licenses are usually available for multiple computer use.

Costs that have to be borne by the developer include expenses for hiring consultants to do the TIA and for data collection. Such costs will be dependent on the scale of the project. That is, the bigger the project, the more data required and the more complex the TIA becomes. Indirectly, the cost of software can also be attributed to the developers as consultants usually factor-in the acquisition of software to their projects. It is logical to assume that a consultancy company's investment on forecasting and analytical software entirely devoted for TIA will be passed on as overhead to their clients. Then there will be the fees charged by local government for processing the TIA reports. These fees will cover expenses directly related to the evaluation of the report.

## VII. CONCLUSION

In the preceding sections, the discussions were able to accomplish the objectives of the paper. Firstly, the UPNCTSFI Study Team's proposals were presented in more detail and the alternatives for institutionalizing TIA were clarified. The legislative path was described in-depth and the mechanisms for applying TIA under a general hierarchical framework were described thoroughly.

Secondly, the most realistic and practicable mechanism towards the mainstreaming of TIA into the present system for both long and short terms was identified. This was illustrated in Figure 2 where TIA is shown to be applied within the context of the existing EIA system and local government processes. Such a methodology gives some flexibility into the application of TIA without having to go through a tedious or rigorous process through the Philippine Legislature.

Lastly, the prerequisites for the practice of TIA were discussed. In particular, capability building on the part of the government was taken up along with the subjects of evaluation and accreditation. Accreditation poses a potentially controversial issue, as it will basically inhibit anyone from undertaking TIA. However, this is easily justified by the objective of having TIA done by certified experts who are capable to of coming up with good assessment and recommendations to address the potential problems arising from the development.

It is quite clear that one cannot avoid the political aspect of requiring TIA especially considering that at both the provincial and municipal/city level, the cooperation of provincial board and the city/municipal council is critical. Thus, it is also important that national, provincial and local government officials have an appreciation of the importance of TIA and realize its benefits to their constituents. Such an appreciation may be acquired through participation in the TIA process and maybe even in the deliberations arising from the evaluation of TIA reports.

## **VIII. ACKNOWLEDGMENTS**

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