



## ENHANCEMENT OF CAPACITY BUILDING ON TRANSPORT PLANNING AND TRAFFIC MANAGEMENT IN THE CONTEXT OF PHILIPPINE LOCAL CITIES: A NEEDS ASSESSMENT APPROACH

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**Abstract:** Urbanization in the Philippines is one of the fastest in the region, as the Philippine economy continues towards service and industrial orientation and away from rural agriculture. Already more than 60% of the population resides in cities, and it expected to continue to grow relentlessly. Likewise, rapid urbanization led to uncontrolled developments, which contribute to the deterioration of urban environment. Among this is the increasing traffic congestion due to improper planning and inefficient traffic management. Pressure is therefore mounting for Philippine local cities to address urban service requirements including transportation, thus the capacity of local government units to deal with these issues is a critical element in the promotion of sustainable urban development. To examine the needs of cities in developing its capacity to deal with transport and traffic problems, a nationwide survey on 120 cities was. This paper will present the results of the survey, with the aim of illustrating a comprehensive and clear picture of the needs of cities in the area of enhancing capacity building in transport planning and traffic management.

**Key Words:** capacity building, Philippine cities, transport planning, traffic management, survey

## **1. INTRODUCTION**

Urbanization in the Philippines is one of the fastest in the world. Metro Manila, the premier urban agglomeration, is already bursting at the seams with a population of around 11.5 million. Along with the high concentration of people and activities, Metro Manila is severely wanting in basic infrastructure, specifically in the transport sector. Poor and ineffective performance of the public sector in responding to the challenges of urbanization has brought about traffic congestion, air pollution, and traffic accidents. Sadly, other major cities, like Cebu, Davao, and Iloilo City, are trudging this same ignominious path. Smaller cities may

have a better chance for avoiding the problems that the major cities have experienced. However, if things continue as they have, it is not difficult to imagine that they too, will experience the same undesired conditions that the more established cities are experiencing.

Thus, it is imperative to come up with a standard transport planning and traffic management framework that will consider the rapid development of cities, as well as growing urban centers and regions, while at the same time considering their peculiarities, conditions, and environments. Similarly, it is already appropriate to equip these cities, urban centers, and regions with the strategies to best address their growing transport requirements and properly manage their respective traffic situations. This would necessitate the development of modular capacity-building programs suited for their levels of development and urbanization.

However, in developing capability-building programs for Philippine cities on transport planning and traffic management, it is necessary to assess the cities' current levels of capability in and knowledge of transport planning and traffic management, as well as their understanding of the roots and manifestations of transport and traffic problems. It is also imperative to assess the technical know-how of the personnel responsible for transport planning and traffic management.

Therefore, to get an in-depth but rapid appraisal of the current state of transport planning and traffic management in the Philippines, a survey of Philippine cities using a self-assessment questionnaire was conducted and this paper shows the results of the inventory of their transport and traffic management capabilities.

With the help of the Project Team of the City Development Strategy Study Phase 3 (CDS3), a World Bank-funded initiative, the Study Team was able to get the League of Cities of the Philippines (LCP) to endorse the survey to the league's 120 member-cities. Excluded from the survey are the 16 new cities whose conversion is still being discussed. The questionnaire was distributed mainly by courier and a few by express mail.. The survey was conducted from February to May. Of the targeted 120 cities, 105 sent accomplished questionnaires, putting the response rate at 87.5%.

## **2. METHODOLOGY, SCOPE AND LIMITATIONS**

The questionnaire covered queries on the institutional and technical capabilities of the cities on transport planning and traffic management. It also attempted to draw information on the cities' level of understanding of transport in general and the basic tools used in transport planning and traffic management, in particular. The respondents administered the survey themselves, thus, a degree of subjectivity is inherent in the results. Nonetheless, given that the respondents are senior technical staff in the city, the results can be considered authoritative and representative of the conditions in the city.

For the purpose of making broad but robust characterizations, the study's methodology used a simple approach in the analysis of data. For each question, issues were weighted, whenever applicable, with 1 point as the most critical and 2 points for the next most critical and so on (or similar). These indicators are then averaged and, where applicable, ranked. The respondent cities were classified into large, medium-sized, and small, depending on population, i.e. large cities have a population of more than 250,000, medium-sized cities 100,000-250,000, and small cities less than 100,000.

**Table 1. Respondent Cities by Population<sup>1</sup>**

Island Group	Participation Rate (%)	
Luzon	54 out of 62 cities	87
Visayas	29 out of 32 cities	91
Mindanao	22 out of 26 cities	85

### 3. ASSESSMENT OF INSTITUTIONAL AND TECHNICAL CAPABILITIES ON TRANSPORT PLANNING AND TRAFFIC MANAGEMENT

#### 3.1 City-wide Issues

Table 2 illustrates the self-ranking of cities of city-wide issues. Livelihood and employment issues are rated as the most serious issues being tackled by the city, while transport and traffic issues ranked 6<sup>th</sup> overall. Traffic and transport, however, are more critical in large cities, ranking 2<sup>nd</sup> among 11 other city-wide issues. To some extent, medium-sized cities consider transport and traffic as relatively lower in priority, although this varies among cities.

**Table 2. Ranking of City-wide Issues**

Issue	Large City	Mid-size City	Small City	Overall
1. Livelihood & Employment	1	1	1	1
2. Environment	3	2	2	2
3. Health & Nutrition	7	5	3	3
4. Sanitation and Sewerage	8	3	6	4
5. Housing	4	7	7	5
6. Transport and Traffic	2	6	9	6
7. Flood Control	6	4	11	7
8. Tourism	9	8	3	8
9. Water	10	9	5	9
10. Security & Criminality	4	10	8	10
11. Power & Electricity	11	11	10	11

Source: TPTM Self-assessment Survey, 2008.

Note: 1 = most critical to 11 = least critical. Answers of cities were assigned weights (i.e. 1 for low priority and 5 for high priority) and averaged then ranked.

Cities that consider transport and traffic as a high priority is manifested in 17 of 32 large cities (53%), 18 of 48 medium-sized cities (37%), but only five of 25 small cities (20%). This reflects that as cities get bigger, transport and traffic issues rise prominently in their list of problems. What is troubling though is that even in some medium-sized cities urban transport already begins to deteriorate. The weak capacity of urban transport systems is suspected to be the key factor. Capacity-building programs should therefore cover not only larger cities but also medium-sized cities and even some smaller cities so they could pro-actively avoid the problems brought about by urbanization.

#### 3.2 Key Transport Issues

Table 3 shows that the ranking of issues being faced by larger or smaller cities is quite similar

<sup>1</sup> The cities that did not participate in the survey are: Cabanatuan, Candon, Digos, Gapan, Gingoog, Himamaylan, La Carlota, Lapulapu, Las Pinas, Lucena, Makati, Malolos, Manila, Marawi, and Pagadian.

– but looking into detail each city has varied ranking of issues. This finding highlights that even though general issues can be ranked, the appreciation of priority issues should be coordinated with each city, i.e. to tailor-fit capacity-building programs to the needs of specific cities.

**Table 3. Overview of Transport Issues in Cities**

Transport Issues	Large City	Mid-size City	Small City	Overall
1. Disorderly loading and unloading on streets	2	1	5	1
2. Inadequate and/or disorderly parking	4	2	6	2
3. Limited road capacity	5	5	2	3
4. Difficulty in funding projects	8	3	1	4
5. Increased use of automobiles	1	7	8	5
6. Traffic congestion	2	4	13	6
7. Disorderly movement at intersections	6	6	12	7
8. Difficulty in right-of-way acquisition	13	9	4	8
9. Lack of/ Ineffective public transport terminals	7	8	15	9
10. Heavy trucks in urban center	9	10	9	10
11. Poor road maintenance	17	12	2	11
12. Lack of road and/or bridges	14	14	6	12
13. Poor road hierarchy (e.g. no bypasses)	20	11	11	13
14. Disorderly public transport system	12	12	17	14
15. Dangerous crossings for pedestrians	10	19	14	15
16. Air pollution	15	15	17	16
17. Accidents	19	19	10	17
18. Unmanageable land development impacts on traffic	11	23	16	18
19. Noise pollution	21	17	17	19
20. Ineffective traffic flow scheme	16	22	23	20
21. Weak project preparation and justification	23	18	23	21
22. Weak institutional capacity	27	16	17	22
23. Ineffective traffic law enforcement	18	25	23	23
24. Uncompetitive logistics / freight transport	26	19	21	24
25. Excessive and disorderly urban sprawl	22	26	22	25
26. Missing links in the urban highway network	24	24	26	26
27. Inadequate public transport	28	27	26	27
28. Conflicts between city and provincial traffic	25	29	28	28
29. Declining public transport ridership	29	28	28	29

Source: TPTM Self-assessment Survey, 2008.

Note: 1 = most critical to 29 = least critical. Answers of cities were assigned weights (i.e. 1 for big problem and 5 for small problem) and averaged then ranked.

Nonetheless, the key areas that capacity building needs to address are the following:

- (i) Management and planning of public transportation operations;
- (ii) Management of automobiles and trucks in cities;
- (iii) Management of traffic flow at intersections;
- (iv) Planning of transport networks; and
- (v) Project funding.

### 3.3 Tools in Transport Planning and Traffic Management

Equipment, key documents, and references to aid cities in traffic and transport planning are generally wanting, as shown in Table 4. Special equipment for monitoring and enforcing vehicle emissions is only present in a few cities. Computers needed for scientific planning are

lacking and software is non-existent. The lack of basic references is a tell-tale sign of the lack of resources and know-how to scientifically deal with transport and traffic issues.

**Table 4. Percent of Cities with Availability of Equipment and References Related to Transport Planning and Traffic Management**

	(%)			
Equipment/Reference	Large City	Mid-sized City	Small City	All
1. Traffic Lights	72	25	13	37
2. Vehicles for Enforcers	94	90	72	87
3. Tow Trucks	50	15	4	23
4. Ambulances	69	88	84	81
5. Communication System for traffic police	76	85	75	80
6. Computers for Planning Use	69	65	80	70
7. Geographic Information System	33	38	25	33
8. Gas Analyzer (for emission test)	19	8	8	11
9. Opacimeter (for emission test)	33	2	8	13
10. Traffic Simulation Software	0	0	0	0
11. Demand Forecast Software	0	0	0	0
12. Highway Design Reference	48	42	48	46
13. Road Maintenance Reference	59	55	64	58
14. Traffic Engineering Reference	53	33	24	37
15. Transport Planning Reference	53	32	32	39
16. Land Use Planning Reference	77	88	84	84

Source: TPTM Self-assessment Survey, 2008.

Data needed for a scientific analysis is not sufficient; only basic data is present (see Table 5). This creates a problem in that decisions have to be made with incomplete information, and it focuses only on localized solutions rather than on system-wide changes.

**Table 5. Percent of Cities with Available Planning Databases**

	(%)			
Planning Database	Large City	Mid-sized City	Small City	All
1. Population Database	87	91	100	92
2. Socioeconomic Database	84	76	91	82
3. Natural Conditions Map	45	66	77	62
4. City Road Map	88	94	96	92
5. Land-use Map	87	91	88	89
6. Parcel Map	72	79	75	76
7. Traffic Flow Map	47	41	46	44
8. Origin-Destination Database	37	24	46	33
9. Traffic Accident Database	50	56	54	54
10. Road Inventory/Map	75	83	88	81
11. Road Quality Assessment Inventory	47	60	71	58
12. Public Transport Terminal Inventory	67	70	67	68
13. Public Transport Operator Inventory	63	66	58	63
14. Public Transport Route Inventory	71	72	54	67
15. Traffic Signs & Regulations Inventory	62	56	46	55
16. Parking Space Inventory	40	34	38	37
17. Air Pollution Records	13	17	8	14

Source: TPTM Self-assessment Survey, 2008.

Note: Some cities may have databases but are outdated already.

Institutional tools for transport planning and traffic management are profiled in Table 6. While land-use plans are very common in most cities, in the case of transport there is almost no guiding document to provide the framework for a concerted effort to alleviate traffic, aside from some cities having passed traffic ordinances. The lack of a proper transport plan actually makes land-use plans rather difficult to manage.

**Table 6. Percent of Cities with Institutional Tools for Transport Planning and Traffic Management**

(%)				
Institutional Tool	Large City	Mid-sized City	Small City	All
1. Traffic Ordinance	97	83	83	87
2. Land Use/Development Plan	93	95	88	93
3. Transport Development Master Plan	14	7	13	10
4. Traffic Management Master Plan	29	9	25	19
5. Traffic Impact Assessment Ordinance	3	4	9	5
• Intention to adopt a TIA Ordinance	62	63	59	62
6. Capacity-building Program	46	13	29	26
• Workshops (for those with programs)	Mostly	Mostly	Mostly	
• Seminars (for those with programs)	Some	Mostly	Mostly	
• Long courses (for those with programs)	Limited	Limited	None	
Typical subjects of programs:	<ul style="list-style-type: none"> <li>• Basic courses in traffic engineering &amp; transport planning</li> <li>• Traffic enforcement improvements</li> <li>• Some advanced courses are offered in seminars: <ul style="list-style-type: none"> <li>- Transport planning</li> <li>- Traffic signals</li> <li>- Bus rapid transit</li> <li>- Sustainable transport</li> <li>- Parking regulations</li> </ul> </li> </ul>			

Source: TPTM Self-assessment Survey, 2008.

Another important and related tool is traffic impact assessment is not yet well-established, although many cities are aware of this tool and are examining its adoption. . This tool is vital in linking land development and the provision of transport infrastructure and services to avoid the mismatch of traffic generation and transport network capacity.

One other important aspect to note is that the opportunity for capacity building of city managers is still wanting. And in cities that have participated in capacity-building programs, such were conducted in a limited manner in terms of sustainability and scope. There is therefore a big and clear gap that needs to be bridged.

Table 7 shows the average budget of cities for transport planning and traffic management. The amount is much higher for large cities, reflecting the bigger tasks they need to accomplish as well as its stronger revenue base. Much of the budget, however, is spent on personnel and their operations cost. With the exception of a few cities, most have very little budget to conduct any substantial study much less afford capital investment.

**Table 7. Annual Budget for Transport Sector**

Item	Large City	Mid-sized City	Small City	All
Annual Total Budget (PhP), average	22,646,386	3,877,257	2,418,771	10,207,935
Primary Expense Item	Personnel	Personnel	Personnel	Personnel

Source: TPTM Self-assessment Survey, 2008.

The institutional setup of cities pertaining to transport planning is varied, as shown in Table 7. So far, city institutions are relatively established in areas of: (i) urban planning, (ii) road maintenance, (iii) traffic enforcement, as well as (iv) traffic safety and accident response. Planning aspects including transport planning, traffic engineering and management, highway engineering, public transport and air pollution control are generally weak in terms of clarity of institutional accountability, i.e. transport planning and traffic management is not identified clearly in the institutional workings of cities. This therefore needs to be addressed as a first step before any capacity-building program can be attempted. This issue is in some way reflected also in the lack of qualified staff in cities, i.e. most of the cities only have qualified technical staff in traffic enforcement, while primary planning fields (with the exception of urban planning) are critically lacking in qualified technical staff—not just in terms of qualifications but even in terms of manpower availability.

**Table 7. Agencies Covering Key Functions in Transport Planning and Traffic Management in Cities**

Function	Responsible Unit in Cities
Transport Planning	<ul style="list-style-type: none"> <li>▪ CPDO (usually)</li> <li>▪ Traffic Division / Traffic Management Office / similar (usually)</li> <li>▪ 21 out of 76 respondents reported none</li> <li>▪ Others reported varied agencies (police, public safety office, engineering office, license and franchising, etc.)</li> </ul>
Urban Planning	<ul style="list-style-type: none"> <li>▪ CPDO (usually)</li> </ul>
Traffic Engineering and Management	<ul style="list-style-type: none"> <li>▪ City Engineers Office (usually)</li> <li>▪ Traffic Division / Traffic Management Office / similar (usually)</li> <li>▪ 21 out of 77 respondents reported none</li> <li>▪ Others reported varied agencies (police, public safety office, etc.)</li> </ul>
Highway Engineering	<ul style="list-style-type: none"> <li>▪ City Engineers Office (usually)</li> <li>▪ 11 out of 67 respondents reported none</li> </ul>
Road Maintenance	<ul style="list-style-type: none"> <li>▪ City Engineers Office (usually)</li> </ul>
Public Transport	<ul style="list-style-type: none"> <li>▪ Traffic Division / Traffic Management Office / similar (usually)</li> <li>▪ Varied agencies are reported</li> <li>▪ 11 out of 73 respondents reported none</li> </ul>
Traffic Enforcement	<ul style="list-style-type: none"> <li>▪ PNP and counterpart LGU unit (usually)</li> <li>▪ Traffic Division / Traffic Management Office / similar (usually)</li> </ul>
Traffic Safety and Accident Response	<ul style="list-style-type: none"> <li>▪ PNP and counterpart LGU unit (usually)</li> <li>▪ Traffic Division / Traffic Management Office / similar (usually)</li> </ul>
Air Pollution Control	<ul style="list-style-type: none"> <li>▪ CENRO (usually)</li> <li>▪ Very few have special units to monitor air pollution from vehicles</li> <li>▪ 19 out of 57 respondents reported none</li> </ul>

Source: TPTM Self-assessment Survey, 2008.

### 3.4 Know-how in Transport Planning and Traffic Management

It seems that across important subject matters, planning personnel of cities have inadequate knowledge on transport planning and traffic management according to their self-assessment, as illustrated in Tables 8 and 9. It is, however, noted that larger cities tend to have better knowledge in some aspects of traffic management—perhaps as a result of past programs and/or experiences. While the mainly low level of know-how is not surprising, it nonetheless validates that weak planning capacity is widespread. This is important for two reasons: first, it shows that past efforts have not made a significant dent to the issue; thus reforms of past

approaches are necessary; and second, it confirms that capacity building is still critically needed and should be given high priority.

**Table 8. Level of Knowledge in Transport Planning Concepts**

Transport Planning Concept	Small City	Mid-sized City	Large City	All
1. Preparation of feasibility studies for transport projects	1.57	1.38	1.58	1.48
2. Evaluation of project by cost-benefit analysis	1.53	1.50	1.52	1.52
3. Identification of network capacity expansion requirement by demand-supply gap analysis	1.34	1.33	1.32	1.33
4. Planning and promotion of public transport systems	1.60	1.43	1.52	1.51
5. Planning and promotion of logistics or freight movement	1.30	1.27	1.29	1.28
6. Planning, execution, and analysis of transport surveys to generate data for planning	1.63	1.43	1.39	1.48
7. Forecasting transport demand and analyzing how it impacts the present network	1.41	1.36	1.30	1.36
8. Techniques for innovative methods to fund transport projects, including PPP schemes	1.28	1.34	1.30	1.31
9. Use of GIS for transport and urban planning	1.53	1.38	1.50	1.46
10. Analysis of the impact of urban development to urban traffic (TIA)	1.69	1.40	1.52	1.52
11. Analysis of the impact of projects on society and environment (EIA)	1.40	1.55	1.67	1.53
12. Concepts in synergizing urban development and urban transport development	1.30	1.30	1.43	1.33

Source: TPTM Self-assessment Survey, 2008.

Note: 1=limited knowledge, 2=some knowledge, 3=good knowledge. Figures are averages of cities in the group.

**Table 9. Level of Knowledge in Traffic Engineering and Management Concepts**

Traffic Engineering and Management Concept	Small City	Mid-sized City	Large City	All
1. Concepts in the management of transport demand to improve efficiency with limited investment in infrastructure	1.57	1.30	1.39	1.40
2. Concepts in the promotion of bicycle and walking in urban transport	1.63	1.52	1.48	1.55
3. Management and control of intersections, including signalization	2.13	1.71	1.73	1.85
4. Geometric design of highways and intersections	1.86	1.51	1.57	1.63
5. Design of road signs and pavement markings	2.37	1.91	1.96	2.06
6. Analysis of traffic accidents and concepts to enhance road safety	2.00	1.74	1.71	1.81
7. Pavement design and maintenance	2.17	1.98	2.04	2.05
8. Concepts in traffic flow management	2.20	1.85	1.83	1.95
9. Concepts in urban highway network design	1.80	1.56	1.45	1.61
10. Concepts and strategies to reduce the environmental impacts of urban transport	1.60	1.42	1.54	1.51
11. Concepts and strategies to enhance traffic law enforcement	2.20	1.73	1.78	1.89
12. Use of information and technology in traffic management	1.83	1.46	1.52	1.59

Source: TPTM Self-assessment Survey, 2008.

Note: 1=limited knowledge, 2=some knowledge, 3=good knowledge. Figures are averages of cities in the group.



As part of the survey, cities were asked what subjects they desire the most to be included in any capacity-building program. The results show that the cities have varying preferences. Nonetheless, it would appear that most if not all enumerated subject matters in both transport planning and traffic management are desired by most cities. This is a reflection of the inadequacy of the staff's grasp of most subject matters; hence almost all are considered highly desirable.

### **3.5 Conclusions and Recommendations**

The key message that can be derived from the survey is that capacity building is desperately needed as cities are experiencing worsening transport and traffic problems, and that even medium-sized cities are already getting affected quite early in its urban growth stages. City planners are not equipped to deal with transport and traffic issues, not just in terms of know-how but also in terms of staffing, equipment, budget, and database. Almost the entire system needed to support planning agencies in cities is absent. Such a system needs to be established as quickly as possible while problems are still solvable and for cities to move from a problem-solving mode to a pro-active development mode. Another important insight is the scale of the problems in Philippine cities i.e. since the problem is widespread, the scope of interventions should also be such.

Any proposed capacity-building program therefore needs to scale up and a piece-meal city-by-city approach will be ineffective. The program has to be done at the national level and will have to build the transport planning and traffic management system in cities from the ground up. Moreover, the capacity-building needs of cities can be met more efficiently if conducted in a standardized and coordinated manner (e.g. joint classes and exercises, benchmarking, sharing of best practices, inter-city competition, etc.). This needs to include a mechanism whereby local cities will have a chance to work closely in the program, as shown in the workshops held in the three cities. Through this, local cities will be able to share not only their transport and traffic problems and concerns but also how they will perceive the measures in addressing these.

Moreover the survey points to a critical issue with regard to the inadequate institutional setup of cities in transport planning and traffic management, wherein there is a disconnect among agencies and/or there is a lack of clear assignment of key functions. This issue must be dealt with as the first step in any capacity-building program. Afterwards, the target(s) for improvement will be identified more explicitly and efforts will be focused towards personnel who are in the best position to effect improvements in how the city deals with transport and traffic issues.

Finally, this paper provided a practical approach in assessing local cities in terms of understanding their transport planning and traffic management needs and how to develop programs towards improving the capacity of local cities in addressing those needs.

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