

Design of Planning Methodology for Sustainable Urban Development

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Abstract – The study focuses on designing the planning methodology for the crafting of the 30-Year Sustainable Urban Development Plan for Naga City which will serve as a guide for its continuing progress in the years to come. The study aimed to determine the outputs generated by the Design Thinking Workshops; determine the outputs generated by the Expert Group Consultation Workshop; determine the outputs generated by the Detailing Workshop; determine the outputs generated by the Visualization Workshop; describe the outputs generated by the Writeshop; and determine the planning methodology developed; This study was made as a qualitative research under which a set of systematic inductive methods were undertaken to develop the proposed planning methodology. It involved five workshop stages and focus group discussions. The iterative process was made until the basic output has been reached and that no additional stage would be necessary. A five step planning methodology was developed which started with a series of Design Thinking workshops which determined the needs, developed ideas and provided solutions, Expert Group Consultation workshop, Detailing workshop, Visualization workshop and Writeshop. In the evaluations conducted after each workshop it was found out that the outputs needed fine-tuning thus was the main consideration in designing the succeeding workshops until the desired output was achieved: the 30-year Sustainable Urban Development Plan for Naga City. The methodology developed adopts the principles of participatory planning which the city highly promotes in eliciting strong acceptance of the SUDP from its population.

Keywords – Design Thinking Workshop, participatory planning, 30-Year sustainable urban development plan (SUDP), urbanization

INTRODUCTION

Naga City being one of the fast developing cities in the Bicol Region seeks to ensure its future. The city has been continuously experiencing progress through the years which has brought forth both positive and negative changes. Its desire to mitigate the ills brought forth by rapid urbanization has led it to conduct planning for its future with the crafting of a 30-Year Sustainable Urban Development Plan SUDP, a long term plan [1] which will serve as the guide for its continuing progress in the years to come. This plan should be attuned to the Philippine Development Plan to achieve a strongly rooted: *matatag*, comfortable: *maginhawa* and secure life: *panatag na buhay* by 2040 [2] and the sustainable development goals SDGs [3] of the United Nations for 2030.

The period of validity of the comprehensive land use plan is 9 years at a minimum and maybe updated every 3 years [4]. This would only be co-terminus with the maximum term of the mayor. The city, through its planning office conducts regular updating of its comprehensive land-Use Plan employing the 12-step

planning process [5] prescribed in the guidelines provided by the Housing and Land Use Regulatory Board. Consultants are hired to prepare this plan and participation of stakeholders are limited to the sectoral consultations and Public hearings for the presentations of the outputs.

The city desires to elicit commitment from stakeholders during the entire planning process [1] for this long term plan through participatory planning which will generally reflect the mission and goals of grass roots and community-based organizations [6]. Maximizing the participation from its stakeholders from the various sectors from needs assessment to conceptualizing solution will increase the desirability and ownership of the development plan. This led them to sought technical expertise from its partner Bicol State College of Applied Sciences and Technology to develop a planning methodology for the crafting of the 30-year Sustainable Urban Development Plan for Naga City [7].

The planning methodology developed when employed during the crafting of their 30-year Sustainable Urban Development Plan will enable the city

government of Naga to maximize the commitment of its stakeholders. This will also empower its constituents in planning for their city. The study is an additional methodology for participatory planning which will be an added contribution to the planning profession.

OBJECTIVES OF THE STUDY

The study aims to develop a planning methodology to be employed for the crafting of the 30-year Sustainable Urban Development Plan for Naga City. Further it aims to determine the outputs generated by the Design Thinking Workshops; identify the outputs generated by the Expert and Interest Group Consultation Workshop; identify the outputs generated by the Detailing Workshop; determine the outputs generated by the Visualization Workshop; determine the outputs generated by the Writeshop and determine the planning methodology developed.

MATERIALS AND METHODS

This study was made as a qualitative research under which a set of systematic inductive methods were undertaken to develop the proposed planning methodology. It involved five workshop stages and focus group discussions. The iterative process was made until the basic output has been reached and that no additional stage would be necessary.

The study was conducted in Naga City during the preparation of its 30 Year- Sustainable Urban Development Plan, during which the various stages of the planning process were observed and documented. The respondents were all those people who participated in the planning process, including the persons representing different sectors such as leaders, experts, consultants, students, etc. The second stage, which consisted of experts and interest group involved persons having technical background. The third stage and fourth stage consisted of the same group of people. The last stage involved experts and students.

Research Procedure

The steps undertaken in the conduct of the research included the following: (a) prepared the research proposal, (b) conducted Design Thinking Workshops for 7 sectors namely: transport, housing, waste management, disaster risk reduction management, vulnerable, education and health (c) evaluated the result of all Design Thinking Workshops, identified and separated projects from ideas, (d) conducted the expert group consultation which translated ideas generated in the first stage to

projects and also which drew the project map, (e) evaluated the result of the expert group consultation which determined the projects that have been clearly defined on the maps and conducted rating for each project, (f) conducted the site inspection which verified on site the appropriateness of the proposed projects as well as established the project prioritization, (g) conducted the workshop on describing the projects on paper as well as providing project labels, (h) conducted the workshop on project visualization where projects were conceived by describing them in 3D models, photos and even videos, (i) report writing and results presentation.

The research proposal that was prepared included the first three chapters of this study. Highlighted in the proposal were the research title, the background, and context of the study, methodology and literature review (une.edu.au).

Stage I – Design Thinking Workshop. Commenced by gathering qualitative data from various concerned sectors in the first stage which adopted the Design Thinking Process with its 5 phases—Empathize, Define, Ideate, Prototype and Test [8]. There were 7 sectors that were asked under this stage of the process.

A focused group discussion 1 was conducted which assessed and evaluated the outputs of the design thinking workshops. It allowed planning for the next workshop.

Stage II – Expert Group Consultation Workshop. The second stage involved technical people and other experts in various fields. It was made to fine-tune the results of the initial stage and resulted to identification of projects and project mapping [9].

A focused group discussion 2 was conducted which assessed and evaluated the outputs of the Expert Group Consultation Workshop. It also permitted planning for the next workshop.

Stage III - Detailing Workshop. In the third stage, ocular inspections were conducted on the various project sites and projects prioritization was also made.

A focused group discussion 3 was conducted which assessed and evaluated the outputs of the Detailing Workshop and at the same time planning for the next workshop was made.

Stage IV – Visualization Workshop [10]. At this stage, the proposed projects were translated into visuals through architectural plans, perspectives and 3D models which also generated walkthroughs for some identified projects.

A focused group discussion 4 was conducted which assessed and evaluated the outputs of the Visualization Workshop and allowed planning for the next workshop.

Stage V – Writeshop. The fifth stage involved the preparation of maps, project labels and project descriptions.

Focus Group Discussions (FGD). The core team which consisted of three members from Bicol State College of Applied Sciences and Technology (BISCAST) and two members from Naga City Planning and Development Office (CPDO) conducted the focus group discussions. During this process, the data gathered from the workshops were analyzed and decisions on the need to conduct succeeding workshops were made. Activities and participants of succeeding workshops were also decided upon.

After collection, analysis, and interpretation of data, the report on stakeholders’ perceptions were used to justify the development initiative. The suggested modifications gathered during the focus group discussions were considered and the final development concept which constituted the proposed 30-year Sustainable Urban Development Plan for Naga City was completed.

RESULTS AND DISCUSSION

What were the outputs generated by the Design Thinking Workshops?

The workshops were able to define the needs and provided solutions for the various sectors namely: transport, housing, waste management, disaster risk reduction management, vulnerable, education and health. The Design Thinking method was employed during the workshops conducted. This was done with the use of “personas” which represented various stakeholders. Various needs of different personas were determined. At the end of the workshop each group produced prototypes and determined their approximate cost which addressed the identified needs. These were presented and critiqued.

Table 1. Approximate Cost of Prototypes

Sectors	Prototypes	Approximate Project Cost in Millions
Transport	PWD	
	Enhance Naga City (Transportation, Security and Livelihood/Education)	10.6435
	Accessibility, Convenience and Safety in Naga City	8.366
	Naga Transport Management Code	0.225

Table 1 (cont.) Approximate Cost of Prototypes

Sectors	Prototypes	Approximate Project Cost in Millions
Housing	Construction of Low-Rise Building & Construction of Row Houses	11.528
	Socialized Housing for Informal Settlers	60.20
	Casa de Naga	123.25
	Pabahay para kay Aling Nena	0.06
		(livelihood only)
Waste Management	Integration of all Programs on waste management from various agencies.	0.65
	Transform Naga: Making Change Happen	1.20
	School-based SWM Program	0.16
	Barangay Pag-asa 2047 Sustainable and Resilient	77.04
	Urban Community: Sitio Furturo	6.80
Disaster Risk Reduction Management	Integrated Food Production (within the home)	0.0425
	Women Empowerment on Sustainable Urban Development and Climate Change	0.182
	Women Empowerment	55
	Barangay Grow Negosyo Program	250
	Less Fortunate Elderlies Program	1.18
Education	Average Family Empowerment Council	4.0
	Sa Naga Pamilya an inot: Pusog na Pundasyon kan Edukasyon	0.50
	Council for Persons with Special Needs	
Health	Naga City Elderly Programs	198
	Comprehensive Health Program	4.5
	Health Management Council: <i>Nagueno ako salud ko kapot ko</i>	

What were the outputs generated by the Expert and Interest Group Consultation (EIGC) Workshop?

The outputs generated during the experts and interest group consultation workshop were projects which translated the wish lists, broad ideas and concepts from the Design Thinking workshops into tangible forms. Naga City was divided into 3 areas. Each area was assigned to two groups which generated 2 sets of projects mapped on different areas of the city as shown in Figures

1,2 and 3. These mapped projects were also given ratings per group which ranked them from the most popular to the least popular, see Table 2.

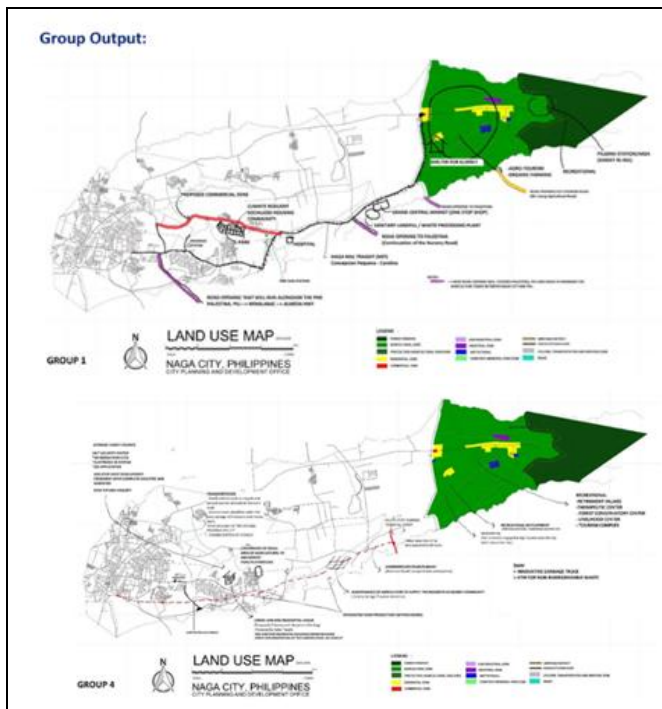


Figure 1. Mapped Proposals for Area A.

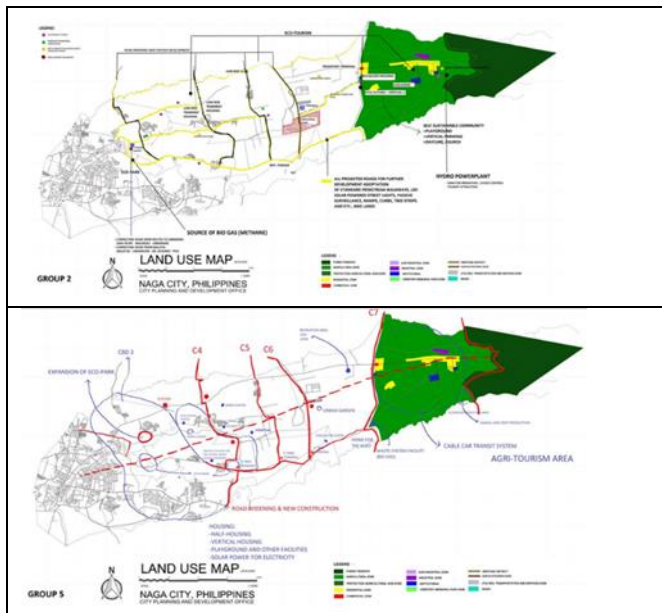


Figure 2. Mapped Proposals for Area B.

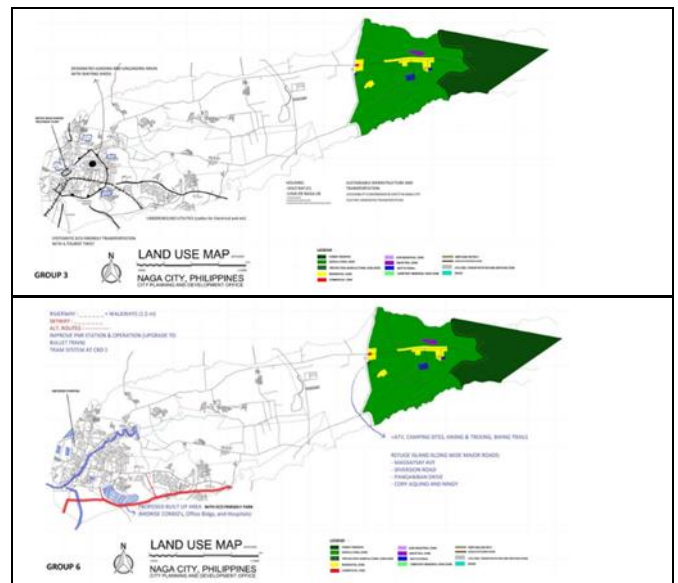


Figure 3. Mapped Proposals for Area C.

Table 2. Projects and Programs

No.	Raw Score	Project/Program	Group
1	9	Bike lanes	3
2	9	CCTVs	3
3	9	Urban Forestry	3
4	9	Beautification of Plazas and Parks	3
5	9	Covered Path walks	3
6	9	Hydro-Powerplant	2
7	7	Improvement of Riverways	6 & 3
8	7	Road widening and New Construction	5
9	7	Metro-Naga Sewage Treatment Plant	3
10	6	E-park (Kadlagan sa Tahaw kan Ciudad)	1
11	5	Solar Power for Electricity	5
12	4	Policy Options	6
13	4	Road and Skyway	6
14	4	Cable Car Transit System	5
15	4	Loop Shuttle Bus Service	4
16	3	Sustainable Infrastructure and Transportation	3
17	3	Diversion Dam	3
18	3	Multi-level Parking	3
19	3	Eco-tourism Zones (Carolina, Pacol and Panicason)	2
20	2	Sitio Futuro Concept	4

What were the outputs generated by the Detailing Workshop?

During the detailing workshop the outputs of the 6 groups in the previous workshop (experts and interest group consultation) were assessed and analyzed as to

their feasibility, viability and prioritization/ranking. The ocular visits conducted validated these projects. The output of this workshop is the draft map of the consolidated proposed 30-year SUDP projects, see Figure 4 and the finalized list of programs/ projects as follows:

(1) Sustainable Urban Transport System which included: train transport system, roads, single transport organization with salary based drivers and replacement of existing public utility jeepneys to electric jeepneys. Upgraded method of collecting fares using transport card. Electric Jeeps units which could be owned by an operator but all services will be handled by the transport management or the aforementioned single entity owner.

(2) Revitalization of the River which included reclaiming the easement occupied by the property owners, use of the Naga River for transport, trade and tourism. Providing walkways along the rivers (esp. for devotees going to Basilica).

(3) Bike Lanes were planned along river banks. Combined pedestrian zones and bike zones along the roads and bike rentals. Separate bike lanes from public transport.

(4) Multi-level Parking / Park and Ride for terminals

(5) Metered Parking Option for residential area and in any place where people would not be allowed to park a car.

(6) Train transport system included the rehabilitation of old tracks and upgrading of facilities. This could be started with a single track railway with passing loops to accommodate two trains in a single hour which may be upgraded to two-track in the future.

(7) Electric Bus System would be a replacement of the original Tram System Proposal in the CBD 1, the previous proposal was found not flexible and practical.

(8) New Transport Route would cover all terminals. Visitors coming from nearby municipality could drop their vehicles in various multilevel parking and parking sites upon entry in Naga and could utilize the public transport.

(9) Road widening and Road opening which would connect nearby municipalities located along its periphery should be considered in the near future.

(10) Foot Bridge constructions would connect heavy pedestrian areas.

(11) DAM and Hydropower plant capturing water from Mt. Isarog would lead it to identified areas for Irrigation.

(12) Proposed Built-up area with Eco Friendly Park Midrise Condo, Office building and Hospitals.

(13) Urban Greens and implementation of a localized Green Building Code for commercial and residential buildings especially located within the business districts. This would also encourage existing adjacent communities to adapt. This would also be applied to the retrofitting of old buildings. Promotion and awareness of the Green Building Code and green rating systems would be conducted.

(14) Eco-Parks - Ecotourism Zones Intertwined with housing which would include Green rated Housing and Agriculture via Vertical Farming.

(15) Eco-tourism Zone Areas would comprise of low density residential and commercial areas with playground and pilgrim Park.

(16) Inclusion of the proposed Heritage District to the 30-year sustainable urban development plan.

(17) Small Markets/ Satellite Market “bagsakan” would be provided in every barangay.

(18) Pilgrimage District would utilize the riverfront from Magsaysay Bridge going to Basilica. An Ecumenical Park could be constructed in Isla Sison, Brgy. San Felipe.

(19) Proposed Commercial Zone in Balatas – Cararayan

(20) Use of Solar Power for electricity would be included along with housing proposal

(21) Casa de Naga Mid-rise residential buildings with commercial stalls on the ground floors.

(22) Retirement Village could be incorporated in residential areas for its elderly population.

(23) The city could intervene with the rehabilitation of Parks in Residential Areas/ subdivisions and conduct review of the existing policies and its strict implementation.

(24) Waste Treatment System Treatment Plant beside riverbanks underneath the bike lanes and installation of flap gates.

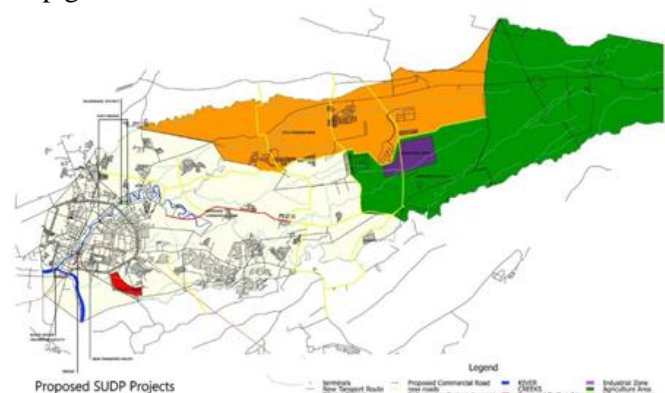


Figure 4. Map of the Consolidated Proposed Projects for the 30-Year Sustainable Urban Development Plan

The ocular visit also validated the following (1) the proposed TRAM system would not be feasible, (2) the DAM project was found not practical because of the low water level of the Yabu river, (3) location of road openings, (4) location of Park and Ride/ Multi-level Parking, (5) Location and feasibility of other projects identified.

What were the outputs generated by the Visualization contest?

In the visualization contest conducted, programs/Projects in the previous workshop were visualized through architectural renderings, 3D modeling and walkthroughs. Architecture students who are residents of Naga City participated in the contest. The student teams were assigned different areas with respective programs/projects.

What were the outputs generated by the Writeshop?

Projects addressing similar sectors needed to be classified into programs. In this workshop 5 programs were identified under the following: (1)Housing, (2)Urban Transport, (3)Smart City, (4)Education and (5)Sustainable Naga. The projects relevant to each program were grouped accordingly. Final layout containing the visualization, brief description, project phasing and manner of implementation was produced.

What was the planning methodology developed?

The planning methodology developed involved a five-stage iterative process in order to arrive at a comprehensive and detailed physical development plan: (1) Series of Design Thinking Workshops served as a venue for determining the needs and generating concepts in addressing the identified needs. It highly promoted participation from stakeholders of diverse backgrounds, (2) Experts and Interest Group Consultation Workshop involved participants of technical background and occupation such as planners, architects, engineers, and government agency representatives of the key sectors, (3) Detailing Workshop involved a small group of selected technical persons from the academe (BISCAST), Naga City Planning and Development Office and City Engineers Office (4) Visualization Workshop fostered student participation through a competition (5) Write shop placed all the outputs into an organized layout for final presentation and critiquing.

Focused group discussions after each stage provided flexibility and refinement. The design of the succeeding workshops was dependent on the identified needs thus if a certain stage did not generate the desired outcome the

next workshop would be designed to ensure its achievement. The process has been iterative until the intended outcomes were realized.



Figure 5. The Planning Methodology

CONCLUSION AND RECOMMENDATION

Conclusions

The outputs of the series of Design Thinking workshops, though produced some proposed programs and projects, were not comprehensive enough to cover the majority of the development needs required. Most of the outputs were wish list to address the present problems. The ideas generated still needed further development.

The outputs of the Experts and Interest Group Consultation workshop provided several tangible projects with their corresponding locations mapped. These outputs lacked project details and their locations needed validation for viability of implementation.

The detailing workshop finalized and mapped the projects. Some projects were replaced or discarded after the ocular visit which validated their viability. The outputs of this workshop did not provide a clear picture of the sustainable urban development plan that can be easily understood, appreciated and accepted by the stakeholders.

Visualizations of the programs and projects based on the outputs of the contest provided clear and desirable pictures of the 30-year SUDP which can be easily accepted by the stakeholders. However projects were not

grouped. It also lacked the write-ups, proper organization and packaging for public presentation.

The write shop was able to produce a final draft of the 30-year sustainable Urban Development Plan for Naga City which has been ready for public presentation.

The planning methodology developed strongly fostered participative planning. Active participation of stakeholders from various sectors with different backgrounds and ages was fully realized. The process also promoted collaboration between the participants. Needs identification to solution conceptualization involved representatives from the grass roots during the first stage. The outputs of succeeding stages were built on them. The planning process allowed flexibility which enabled continuity of the stages and customization of the next. These outputs were refined and detailed in the succeeding stages until the draft of the 30-year Sustainable Urban Development Plan for Naga City was generated on the final stage. The process ensured desirability, viability and feasibility of the plan by verifying the final output from the Design Workshops Prototype which was its basis.

Recommendations

A workshop involving technical experts should be conducted as the second stage after the series of Design Thinking Workshops to translate the identified needs (in the form of ideas) to tangible projects which would not merely respond to the present concerns but also consider the future needs as well.

A Detailing workshop as the third stage would provide the details for the identified and mapped projects.

A visualization workshop as the fourth stage would provide clear pictures of the programs/projects included in the 30-year SUDP to ensure its effective communication to the stake holders.

A write shop as the final stage would properly organize the outputs and package them for public presentation.

The planning methodology developed may be adopted for conducting future development planning activities by cities and municipalities.

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