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Patubas



Kabalaka

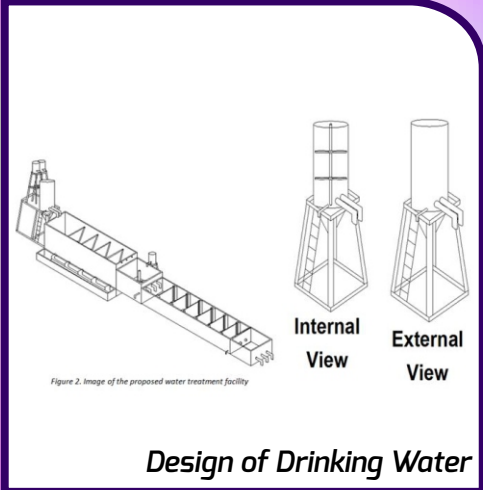


Figure 2. Image of the proposed water treatment facility

Design of Drinking Water



Political patronage



Heavy Metals Sea Salt

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Patubas

MULTIDISCIPLINARY RESEARCH JOURNAL

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Volume 11, Number 1, December 2016

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 - c.3. Theoretical/Conceptual Framework and Hypotheses (if applicable)
 - c.4. Significance of the Study
 - c.5. Scope and Limitation of the Study
 - d. Methodology
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**HEAVY METALS IN SEA SALT, SEAWATER
SOURCE AND IODIZED SALT LOCALLY
FOUND IN ILOILO, PHILIPPINES**

*Jun Ozbert M. Haguisan, Ann Marie P. Alguidano
and Isah Lou G. Nocal*

ABSTRACT

Eating food contaminated with heavy metals could lead to poisoning, long term health problem and even death. One common substance needed for food preparation is salt. Salt can be mined as rock salt or harvested in the sea by evaporating the sea water. Salt can contain heavy metals. This study aimed to determine quantitatively the cadmium, manganese, lead and copper content of sea salt, sea water source and iodized salt. The sea salt and sea water samples were taken from four locations in Iloilo which have salt industry. Iodized salt samples were purchased locally from different grocery stores located in the city of Iloilo. The cadmium content was beyond the allowable limits in both sea salt, sea water source and iodized salt set by DENR, CODEX and WHO. Manganese in sea salt exceeded the allowable limits. Lead exceeded the allowable levels in sea salt and some in sea water source while lead was not detected in iodized salt. Copper was above the allowable limits in sea water source and only on Site C sea salt sample while the iodized salt did not exceed the limits for copper set by DENR, CODEX and WHO.

INTRODUCTION

Background and Rationale

Heavy metals are metallic chemical elements that has a relatively high density range of 3.5 g/cm³ to above 7g/cm³ and is toxic at low concentrations (Duffus J.H., 2002). They are dangerous because they tend to bio-accumulate in various organs in biological organism over time. Heavy metals which may lead to health threats are lead (Pb), cadmium (Cd), copper (Cu) and manganese (Mn). Contaminated food and drinks are the major exposure path of heavy metals in most people (Zukowska & Biziuk, 2008).

Salt is a food additive that is commonly used to enhance taste, have countless uses as food preservative and is also used in industries and in medical field. Salt is an ionic white crystalline compound with a chemical formula of NaCl, a molar mass of 58.443 g/mole, melting point of 800.7⁰C and a boiling point of 1,465⁰C (Lide, 2009).

Sea salt is produced by evaporating seawater, leaving behind trace minerals and elements which affect the flavor, color, and texture of the salt obtained. Iodized salt from rock salts is commonly mined from underground salt deposits. The deposits are washed with water to dissolve the salt, forming a salt solution which is then evaporated to form crystals. Table salt added with iodine is called iodized salt (Venkatsh Manner & Dunn, 1995).

National and international agencies set limits on the safe and allowable contents for heavy metals in food and sea water. The Philippine's Department of Environment and Natural Resources (DENR) is the lead agency that monitors and regulates the heavy metal contents of sea water. The World Health Organization (WHO) is an international organization which sets the standards for food safety.

CODEX Alimentarius Commission is an international commission established by the United Nations Food and Agriculture Organization (FAO). It sets the allowable limits for heavy metals in different food stuff.

Lead can cause many health consequences if it enters our body. Inside the body, it accumulates in the bones and teeth which affect the different organs and systems such as central and peripheral nervous systems, gastrointestinal tract, kidney and brain. Ukwo and Edima-Nyah (2016) analyzed sample of iodized salts and reported that lead is present at a range of 0.11-4.21 mg/kg. The maximum level of lead in food grade salt permitted by CODEX is 2.0 mg/kg.

Exposure to cadmium causes bone damage, osteoporosis, and renal tubular dysfunction which eventually can lead to renal failure (Engstrom, et. al., 2012; AL-Rmalli, Jenkins, & Haris, 2012). In the study of Nwochoko, et. al., (2012) on cadmium content of some refined salts in southeastern Nigeria, the value was reported to be 0.02 mg/kg. Whereas Ukwo and Edima-Nyah (2016) reported a concentration 0.34-0.52 mg/kg of cadmium in local iodized salt samples. The maximum concentration of cadmium exceeds the permitted level of cadmium on food grade salt set by CODEX which should only be 0.5 mg/kg (CODEX Stan 2006).

Oral exposure to manganese can result to significant health effects such as neurological problems. Early signs of manganese toxicity include headaches, muscle cramps, fatigue, and aggressiveness which can then lead to Parkinson's disease-like symptoms such as tremors (Aschner, et. al., 2009). The World Health Organization International Standards for Drinking Water determined that 0.5 mg/liter is the allowable limit of manganese.

The World Health Organization (2003) stressed that a level of 2 mg/liter for copper will be the allowable level of copper for foods. Copper can irritate the nose, mouth, and

eyes. It can cause diarrhea, dizziness, nausea, cramps and headache. High intakes of copper can cause liver and kidney damage and even death.

Significance of the Study

The significance of this study is that those who use salt for different purposes maybe aware of the risk involve in using too much salt.

Objectives

This study determined the concentration of Cd, Pb, Cu and Mn in sea salt, sea water source and iodized salt and compare the levels of heavy metals found in these samples with the allowable limits set by WHO, DENR and CODEX.

Hypothesis

1. There is no significant difference in the amount of heavy metals in sea salt from the four sites in Iloilo.
2. Sea salt samples passed the limits for heavy metals contents set by CODEX and WHO.
3. Iodized salt samples passed the limits for heavy metal contents set by CODEX and WHO.

Scope and Limitation

This study measured the concentrations of Cd, Mn, Pb and Cu in sea salt, sea water source and iodized salt. Sea salt and sea water samples were taken locally from the salt production sites. Iodized salt samples were purchased from different grocery stores located within Iloilo City. The concentration of heavy metals were measured using Agilent

Technologies Atomic Absorption Spectrometer Model 55B. This study did not include the determination of physical properties of sea salt, seawater and iodized salt.

MATERIALS AND METHODS

Collection of Samples

The sea salt and sea water samples were taken from different sea salt production sites in Iloilo as shown in Figure 1.

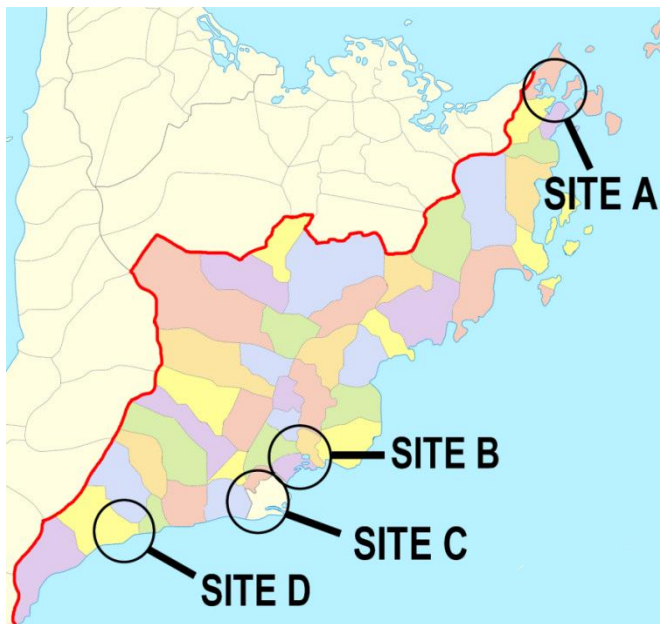


Figure 1. Iloilo Map where sea salt and sea water source samples were collected

Sampling was done between the months of April and May 2017. Three kg of sea salt were obtained from random salt beds, 3L of sea water were taken from production site and 500 gram triplicate iodized salt samples from eight

different brands of iodized salt were purchased from different grocery stores in Iloilo City for sampling.

Preparation of the Sample/Digestion Procedure

One gram of homogenized and quartered salt samples were placed on acid-washed 250ml beaker and dissolved with 100ml of distilled water. Five ml of concentrated nitric acid and 15ml of concentrated hydrochloric acid were added. The beakers were placed in a hot plate, heated and concentrated to about 50ml. The beakers were cooled and samples were filtered. The filtrates were collected in an acid-washed 100ml volumetric flask and then made up to 100ml with distilled water (AOAC, 1990).

One hundred milliliters aliquot sea water sample were placed in an acid-washed 250ml beaker. Five ml of concentrated nitric acid and 15ml of concentrated hydrochloric acid were added. The beakers were placed in a hot plate, heated and concentrated to about 50ml. The beakers were cooled at room temperature and were filtered. The filtrates were collected in an acid-washed 100ml volumetric flask and then made up to 100ml with distilled water.

Instrumentation

The Atomic Absorption Spectrometer assessed the concentration of analyte in the sample. It requires standards with known analyte content to establish the relation between the measured absorbance and the known concentration.

Preparation of Standard Solutions

From the stock 1000 ppm metal solution an aliquot of 10 ml were transferred to 100 ml volumetric flask. The

volumetric flask was diluted to mark with distilled water and this constitute 100 ppm of metal which was used for the preparation of calibration curve. For cadmium and manganese, an aliquot of 0.25, 0.5, 1.0, 1.5 and 2.0ml was pipetted from the 100ppm Cd and Mn solutions and was diluted to mark on a 100ml volumetric flask with distilled water. This constitutes the concentrations of 0.25, 0.5, 1.0, 1.5 and 2.0ppm Cd and Mn respectively. For lead calibration, an aliquot of 0.5, 1.0, 1.5, 2.0 and 2.5ml was pipetted from the 100ppm Pb solution and was diluted to mark on a 100ml volumetric flask with distilled water. This constitutes the concentrations of 0.5, 1.0, 1.5, 2.0 and 2.5ppm Pb respectively. An aliquot of 1.0, 2.0, 3.0, 4.0 and 5.0ml was pipetted from a stock 100ppm Cu solution and transferred to a 100ml volumetric flask and diluted with distilled water. This solution constitutes 1.0, 2.0, 3.0, 4.0 and 5.0ppm Cu respectively.

Analysis of Metals Using AAS

The standard solutions were aspirated to the instrument according to increasing order of concentration and gave absorbance result. Plotting the prepared concentration with its corresponding absorbance would produce a straight line which follow the line equation: $y=mx+b$ (y is the absorbance given by the instrument, m is the slope of the line, b is the line intercept and x is the unknown concentration). Determining the concentration of the unknown would have: $x=(y-b)/m$. Once a standard curve was established, the blank and the sample were aspirated.

Data Processing and Analysis

Data were analyzed by One-Way ANOVA and Duncan Multi Range Test (DMRT) using SPSS 17 for significant differences, mean and standard deviations. The data were analyzed at 95% confidence level.

RESULTS AND DISCUSSION

The comparison of heavy metals in sea salt from different locations in Iloilo is shown in Table 1. Results showed that Cd and Mn levels in all locations exceeded the allowable limit by both CODEX and WHO. Sea salt from all sites passed the limits set by CODEX for lead. Copper result in Site C showed that it is above the limits set by WHO and the sea water source was also beyond the limits set by DENR. All other three sites have lower Cu values.

Table 1. Heavy Metal Content in Sea Salt from Different Locations in Iloilo.

Location	Cd in mg/kg Mean \pm SD	Mn in mg/kg Mean \pm SD	Pb in mg/kg Mean \pm SD	Cu in mg/kg Mean \pm SD
Site A	4.52 \pm 0.19 ^c	2.82 \pm 0.15 ^a	0.57 \pm 0.06 ^a	1.21 \pm 0.00 ^a
Site B	3.86 \pm 0.19 ^a	2.93 \pm 0.17 ^a	0.60 \pm 0.05 ^a	1.62 \pm 0.15 ^b
Site C	4.10 \pm 0.17 ^b	2.96 \pm 0.16 ^a	0.82 \pm 0.03 ^b	2.70 \pm 0.20 ^c
Site D	4.27 \pm 0.26 ^b	3.83 \pm 0.16 ^b	0.57 \pm 0.06 ^a	1.51 \pm 0.33 ^b
WHO/CODEX Allowable limits	0.5	0.5	2.0	2.0

Note: Values are mean \pm standard deviation. Values having different superscripts within a column are significantly different at $p < 0.05$. Lowest value are assigned with a superscript a.

From Table 2, cadmium and copper in all sea water sources have exceeded the limit set by DENR. Only Site B sea water source passed the limit set by DENR for manganese. Site B and D sea water samples passed the limit set by DENR for lead. Site A contain a significant amount of heavy metals. These evaporated water samples

from different concentration ponds would basically contain heavy metals.

Table 2. Heavy Metal Content in Sea Water Source.

Location	Cd in mg/L Mean \pm SD	Mn in mg/L Mean \pm SD	Pb in mg/L Mean \pm SD	Cu in mg/L Mean \pm SD
Site A	1.41 \pm 0.01 ^d	0.55 \pm 0.02 ^d	0.24 \pm 0.00 ^d	0.29 \pm 0.01 ^c
Site B	0.40 \pm 0.01 ^a	0.15 \pm 0.01 ^a	0.03 \pm 0.00 ^b	0.10 \pm 0.01 ^a
Site C	0.84 \pm 0.01 ^b	0.30 \pm 0.01 ^b	0.06 \pm 0.00 ^c	0.19 \pm 0.00 ^b
Site D	0.86 \pm 0.02 ^c	0.35 \pm 0.01 ^c	0.01 \pm 0.00 ^a	0.19 \pm 0.01 ^b
DENR Allowable limits	0.005	0.20	0.05	0.02

Note: Values are mean \pm standard deviation. Values having different superscripts within a column are significantly different at $p < 0.05$. Lowest value are assigned with a superscript a.

Table 3 shows the heavy metal content on different iodized salt brands. Brand A has higher Cd, Mn and Cu content. Brand F has a higher Pb content. Other samples did not exceed the allowable limits for lead, copper and manganese but all samples exceeded the limit set by CODEX for cadmium.

Table 3. Heavy Metal Content in Local Iodized Salt.

Brand	Source	Cd in mg/kg Mean \pm SD	Mn in mg/kg Mean \pm SD	Pb in mg/kg Mean \pm SD	Cu in mg/kg Mean \pm SD
A	Local	2.26 \pm 0.06 ^e	0.37 \pm 0.01 ^e	0.00 \pm 0.00 ^a	0.07 \pm 0.00 ^c
B	Imported	1.93 \pm 0.07 ^d	0.24 \pm 0.00 ^a	0.00 \pm 0.00 ^a	0.06 \pm 0.00 ^b
C	Imported	1.75 \pm 0.09 ^c	0.26 \pm 0.00 ^b	0.00 \pm 0.00 ^b	0.06 \pm 0.00 ^b
D	Imported	1.64 \pm 0.05 ^b	0.28 \pm 0.01 ^d	0.01 \pm 0.00 ^c	0.06 \pm 0.00 ^b
E	Local	1.59 \pm 0.08 ^a	0.27 \pm 0.00 ^c	0.00 \pm 0.00 ^b	0.06 \pm 0.00 ^b
F	Local	1.68 \pm 0.07 ^b	0.25 \pm 0.00 ^a	0.01 \pm 0.00 ^e	0.06 \pm 0.01 ^a
G	Local	1.68 \pm 0.11 ^b	0.29 \pm 0.01 ^d	0.01 \pm 0.01 ^c	0.06 \pm 0.00 ^b
H	Imported	1.68 \pm 0.09 ^b	0.25 \pm 0.00 ^a	0.01 \pm 0.00 ^d	0.06 \pm 0.00 ^b
WHO/CODEX Allowable limits		0.5	0.5	2.0	2.0

Note: Values are mean \pm standard deviation. Values having different superscripts within a column are significantly different at $p < 0.05$. Lowest value are assigned with a superscript a.

Cadmium was the common contaminant element in both sea salt and iodized salt. Heavy metal contamination of the sea salt may have come from contaminated sea water. Heavy metals are natural constituents of the marine environment which are generally found in very low concentrations. They enter the marine environment through weathering, erosion of rocks, and dust particles. Also, human activity increased the levels of heavy metals contamination in water systems through offshore oil and gas exploration, mine drainage, domestic and industrial (fertilizers, pesticides, paints, leather, textile, and pharmaceuticals) effluents, acid rain and agricultural runoff. Heavy metals in the marine environment are mostly concentrated in coastal areas, near densely populated and

industrialized regions. Iodized salt samples have generally lower heavy metal content than sea salt as they undergo purification process. All heavy metals can be toxic when present above threshold concentrations. Once salt contaminated with a heavy metal is consumed and enters the body, these metals are deposited in bone and fat tissues and overlaps other essential minerals. Adverse health effects of heavy metal consumption are kidney dysfunction, liver toxicity, impairment of periphery and central nervous system, increase risk of some cancers and many more (Jang & Hoffman, 2011; Wu, Du, Xue, & Zhou,2010).It could be noted that salt is safe for consumption as long as salt does not exceed the limits set by CODEX and WHO.

CONCLUSION AND RECOMMENDATION

Based on the study, all the sea salt samples contain cadmium and manganese which are above the allowable limits set by CODEX and WHO. Lead on sea salt samples were below the allowable limit set CODEX. Only site C sea salt samples exceeded the allowable limits for copper set by WHO while all other sea salts have copper content that were below the allowable limits.

For the iodized salt, only cadmium exceeded the limits set by CODEX. Copper, lead and manganese did not reached the limits set by CODEX and WHO.

All sea water source contain cadmium and copper which exceeded the limits set by DENR. The manganese content of Site B sea water source are below the allowable limits while other sites contain this heavy metal which are above the allowable limits. Site B and D sea water sources have lead contents which are below the allowable limits while the other sites of sea water source contain lead which are beyond the allowable limits.

It can be concluded that even though significant amount of heavy metals were detected in sea salt, it cannot generalize that the sea water surrounding Iloilo is contaminated with heavy metals. Factors like soil and pond contamination and pH of soil contribute to heavy metal content (Yong and Phadungchewit,1993).Based on the study, iodized salt contain less heavy metals than sea salt.

It is recommended that the data obtained will be used by the government to confirm the presence of heavy metals in all salt types for food security. It is also recommended that other toxic heavy metals must also be analyzed in food to increase consumer awareness.

Sea salt producers are recommended to make concentration ponds that are either concrete- walled or provide barrier to prevent the soil from contaminating the concentration pond when obtaining their samples for production.

It is recommended to all households, culinary industries and food industries to use salt in moderation.

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To GOD be the glory!

**DESIGN OF DRINKING WATER TREATMENT FACILITY
SYSTEM IN CENTRAL PHILIPPINE UNIVERSITY**

Dahlia H. Pescos and Nelson V. Golez

ABSTRACT

This project study presents an innovative way of constructing a drinking water treatment facility system within Central Philippine University. It starts with the preparation of a preliminary process flow that can treat raw water supplied by the Metropolitan Iloilo Water District to produce a potable drinking water supply. Laboratory scale experiments performed in the chemical engineering laboratories tested the effectiveness of the prepared process flow and after necessary adjustments, the relevant information necessary for the preparation of the final process flow and equipment design were collected. The final process flow and design of equipment based on the laboratory work results followed. The facility is composed of five major process tanks namely: coagulation, settling, chlorination, filtration, and treated water tanks. The facility can operate 24 hours a day, seven days a week and can treat 1.2 liters of water per minute. The flow of water in the facility is by virtue of gravity. It has a total land area of 456 square feet or 42.4 square meters and is located near the University Gymnasium. The drinking water treatment facility is estimated to cost PHP 154,000.00.

INTRODUCTION

Background of the Study

Water is man's most important resource in life. No matter how rich a person is, without water, he cannot possibly exist because water is both the least expensive and most essential commodity that man has ever used.

This resource has been exploited and along with it, the problem of water contamination arose has become a serious problem. A glass of what seems to be a crystal clear drinking water from an unknown source may contain thousands of particles which may be in the form of salts, silt, inorganic minerals, bacteria, germs, and viruses. Contaminated water can cause arthritis, kidney stones, gallstones, arteriosclerosis, enlarged heart, emphysema, obesity, constipation, glaucoma, diabetes, and diarrhea. This seemingly unbelievable danger is strengthened by a World Health Organization report that 80% of all diseases are caused by contaminated water (water.me.vccs.edu).

Flooding became a frequent phenomenon at Central Philippine University and the surrounding communities, thus, the demand for safe drinking water has tremendously increased. The university does not have an existing water treatment facility system. It was on this premise that the research was conducted. Although the CPU community will primarily benefit from the results of the research, the researchers do not discount the possibility that the surrounding communities might be adopting it into their system as well.

If ever this water treatment facility will be put up inside the CPU Campus, it will generate not only safe drinking water for the students but will also create income for the university.

Objectives of the Study

The purpose of this study is to design a water treatment facility system that will serve the CPU community. Specifically, this study was conducted to:

- Prepare a preliminary process flow that can treat raw water supplied by the Metropolitan Iloilo Water District and to produce a potable drinking water supply.
- Conduct laboratory work in order to:
 - Test the effectiveness of the prepared process flow and do all the necessary adjustments;
 - Establish the process variables given the water parameters like raw water flow rate, the concentration of undesirable substances present in the raw water, etc., and;
 - Collect all the relevant information necessary for the preparation of the final process flow and equipment design.
- Prepare the final process flow and design of equipment based on the laboratory work results, and;
- Prepare a report that will include the technical and financial feasibility of the project.

Significance of the Study

Due to frequent flooding in the vicinity of the university, the demand for safe drinking water tremendously increased. Through this project, CPU students are provided with an ample supply of potable and safe drinking water with good physical quality, free from unpleasant taste or odor, and free from substances which might be detrimental to their health. Through the services of the existing water laboratory of the university (DOH accredited to conduct water quality testing in Region VI), this project also ensured that the water

used by the entire CPU community is free not only from bacterial pathogens but also from harmful biological organisms and from deleterious inorganic matter. If ever this water treatment facility will be put up inside CPU Campus, it will generate not only safe drinking water for the students but will lessen the university's expenses in buying purified drinking water for its own consumption from outside sources.

Limitations of the Study

Time limitation. This study starts immediately after it was approved and terminates after 12 months.

Place and subject limitation. This is a research study to determine the most feasible and most economical design of a water treatment facility system for Central Philippine University, Iloilo City.

Content limitation. This study includes a preliminary process flow, the performance of laboratory work to test its effectiveness, the establishment of the process variables (i.e. raw water flow rate, concentrations of unwanted substances present, etc.), and gathers the necessary information for the preparation of the final flow process. Based on the laboratory work results, this study will prepare the design of the equipment needed for the treatment facility.

METHODS

Research Design

Descriptive research was used in this study because laboratory work was done to test the effectiveness of a preliminary process flow needed in the design of the water treatment facility, taking into consideration the factors like availability, quality, and sufficiency of the present water

supply. After having proved the effectiveness of the preliminary process flow, the process variables which were necessary for the preparation of the final process flow process and equipment design were established.

Water source. The source of drinking water of CPU comes from the Metropolitan Iloilo Water District. This is the water that is treated in the designed drinking water treatment facility. The water input to the water treatment facility is about 1.2 liters of water per minute.

Preliminary process flow. The preliminary process flow shown in Figure 1 was followed to treat the water to ensure that it is safe for drinking. The raw water first entered the coagulation tank where it underwent coagulation with the use of lime and alum. After coagulation, the water underwent sedimentation or settling process in the settling tank. The water then proceeded into the chlorination tank where chlorine was added.

Upon finishing the chlorination process, the water was filtered in the filtration tank using activated carbon as the filter media. After filtration, the water was stored in the final treated water tank. In the treated water tank, the filtered drinking water was subjected to ultraviolet light. The drinking water was then collected and stored inside portable drinking water containers.

Process Description

Coagulation. In the coagulation tank, alum and lime were added and mixed to the water. For 1.2 liters per minute of water entering the tank, 0.048 gram per minute of alum was added, along with 24 milligrams per minute of lime. The alum and lime tanks added alum and lime to the raw water, respectively. After addition and mixing of lime and alum to water, the particles and impurities present in the water started to agglomerate. The water with agglomerated

particles will then leave the coagulation tank and entered the settling tank.

Sedimentation or settling. In the settling tank, the agglomerated particles in the water were allowed to settle down in the bottom of the settling tank. While at the bottom of the settling tank, there were pipes that collected the agglomerated particles. The pipes then transferred the agglomerated particles from the settling tank to the slurry tank. The water free of agglomerated particles will then leave the settling tank and entered the chlorination tank.

Chlorination. In the chlorination tank, chlorine was added and mixed with the water. Approximately, 4.8 milligrams per minute of chlorine were added to the water. The chlorine tank added chlorine to the water. After addition and mixing of chlorine, the water will then leave the chlorination tank and entered the filtration tank.

Carbon filtering. In the filtration tank, the water was made to pass through six layers of filter, wherein activated carbon was used as the filter media. The dimensions of the filter were 0.914 meters (three feet high) and 1.524 meters (five feet) wide. After passing through all filters, the water will then leave the filtration tank to enter the treated water tank.

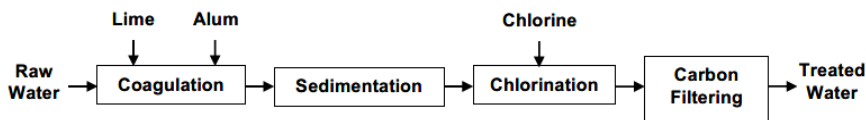


Figure 1. Schematic diagram of preliminary flow process

Water testing. The treated water from the treated water tank was then collected and placed into small sterilized water vials. Water samples for laboratory tests were collected from the treated water tank. The effectiveness of the process flow was tested through a series of laboratory experiments. Necessary adjustments were made to establish the process variables (raw water flow rate, etc.) that were necessary for the preparation of the final flow process and design of the equipment. Samples of water from the treated water tank were taken and tested using various laboratory tests. Parameters such as color, pH, dissolved oxygen, total dissolved solids, conductivity, alkalinity, acidity, calcium and chlorine content, and total hardness were tested to determine the quality of water produced by the water treatment facility.

RESULTS AND DISCUSSION

Water Treatment Facility Design

The water treatment facility was comprised of five main process tanks and three support tanks. The main process tanks were the coagulation, settling, chlorination, filtration and treated water tanks. The supports tanks were the alum, lime and chlorine tanks. The water treatment facility had a total floor area of 17.374 meters by 2.438 meters (57 feet by eight feet) or 42.36 square meters (456 square feet). The facility operated 24 hours a day, seven days a week. Maintenance was done monthly or as needed.

Equipment

The bulk part of the facility was fabricated using stainless steel plate and bars because of its high resistance to corrosion, economical aspect of construct the facility, availability of materials and low maintenance.

Coagulation tank. This was the tank where the coagulation process occurred. Water to be treated in this facility first entered this tank. Alum, a coagulating agent, was added to the water. Alum formed particles called “floc” in the water. The “floc” attracted dirt and other impurities present in the water. The tank comprised of a cylindrical body with a conical tip. The diameter of the tank was about 0.96 meters (3.152 feet). The height of the cylindrical body and the conical tip was about 1.829 meters (six feet) and 0.783 meters (2.57 feet), respectively.

Due to the presence of stresses, the weight of the equipment and its contents, it was supported by columns which were capable of absorbing the stresses due to the load and the operation of the tank. Four columns were designed to be attached to the tank. The height of each column was approximately 1.829 meters (six feet). The alum and lime tanks contained the alum and lime, respectively, which were eventually mixed to the raw water.

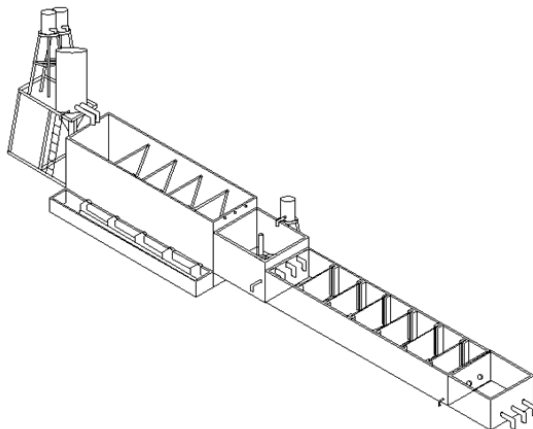


Figure 2. Image of the proposed water treatment facility

In order to thoroughly mix the alum and lime added to the water, two pairs of rotating blades were placed inside the coagulation tank. Each of the blades was 0.381 meters (1.25 feet) in length.

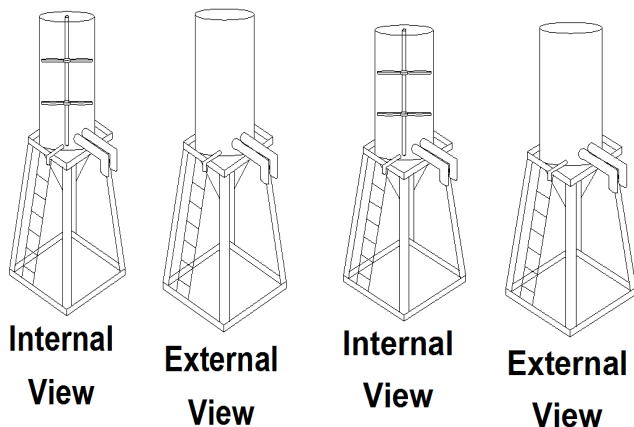


Figure 3. Images showing the internal and external views of the coagulation tank

For every liter of water that would be treated by the facility, 0.04 grams of alum was needed to make impurities in water coagulate, while 20 milligrams of lime was needed to neutralize the effect of alum to the pH of the water. While for 1.2 liters per minute of water entering the water treatment facility, 0.048 grams per minute of alum and 24 milligrams per minute of lime were added to the water. The total volume of the coagulation tank was 1.518 cubic meters (53.503 ft³) which accommodated about 1,515 liters of water at a time. By virtue of gravity, the water from the coagulation tank flowed to the settling tank through a tube located at the bottom side of the tank.

Settling or sedimentation tank. The settling or sedimentation process occurred in the settling or

sedimentation tank. The particles that formed during the coagulation process were allowed to settle in the tank. Rectangular in shape, the length of the tank was 5.182 meters (17 feet) while the height and width of the tank were 1.524 meters (five feet). The tank contained five baffles. The first baffle was 1.372 meters (4.5 feet) away from the inlet of the tank and the succeeding baffles had a distance of 0.914 meters (three feet) from the previous baffle. The baffles were 1.524 meters (five feet) long and were inclined 45 degrees with respect to the bottom of the tank. The baffles ensure that the coagulated particles settle at the bottom of this tank. At the bottom end of the baffle, there are pipes with holes that would collect the coagulated particles and transport these particles to the slurry tank.

The slurry tank collected all the coagulated particles that settled at the bottom of the settling tank. The slurry tank was 0.914 meters (three feet) wide, 5.182 meters (17 feet) long and had a height of 0.61 meters (two feet). The sedimentation tank had a total volume of 12.058 cubic meters (425 ft³) accommodated about 12,034 liters of water at a time. The large volume of the tank allowed water to have enough residence time in the tank to ensure that the agglomerated particles settled at the bottom of the settling tank. By virtue of gravity, the water from the settling tank flowed to the chlorination tank through holes located at the top end of the last baffle.

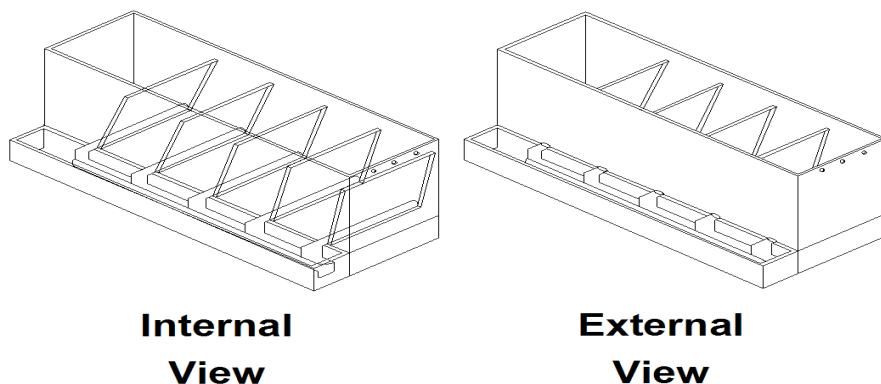


Figure 4. Images showing the external and internal views of the settling tank

Chlorination tank. The disinfection process occurred in the chlorination tank. Chlorine, a disinfecting chemical, was added to the water and destroyed the pathogens present in the water. The tank was rectangular in shape with dimensions 1.829 meters (six feet) long, 1.219 meters (four feet) high and 1.524 meters (five feet) wide. The chlorination tank contained the chlorine that will be added to the water. In order to mix the chlorine to the water thoroughly, a rotating baffle was placed inside the tank. The blade of the rotating baffle was about 0.762 meters (2.5 feet) long.

For every liter of water that would be treated by the facility, four milligrams of chlorine was needed to destroy the pathogens present in the water. The total volume of the chlorination tank was approximately 3.405 cubic meters (120 ft³) which accommodated 3,398 liters of water at a time. By virtue of gravity, the water from the chlorination tank flowed to the filtration tank through three pipes located at the side of the tank. There were three holes through which water passed to get into the filtration tanks. The holes were one foot in diameter and were 0.152 meters (0.5 foot) away from each other and from the edge of the tank.

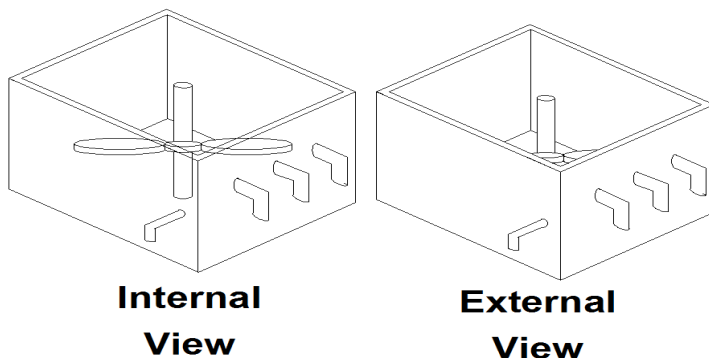


Figure 5. Images showing the internal and external views of the chlorination tank

Filtration tank. Filtration process occurred in the filtration tank. In the tank, water passed through all the six pads of activated carbon. Activated carbon adsorbed the contaminants from water. The rectangular tank is 6.401 meters (21 feet) long, 0.914 meters (three feet) high and 1.524 meters (five feet) wide. The first activated carbon filter or pad was placed 0.914 meters (three feet) from the inlet of the tank and the succeeding pads were 0.914 meters (three feet) away from the previous pad. The total volume of the filtration tank was 8.937 cubic meters (315 ft³) which accommodated about 8,919 liters of water at a time. The length and large capacity of the filtration tank allowed the water to have more contact time with the activated carbon that permitted full adsorption of all the contaminants and impurities in the water. By virtue of gravity, the water from the filtration tank flowed to the settling tank through three holes located at the bottom side of the tank. The holes were 0.305 meters (one foot) in diameter and were 0.914 meters (0.5 feet) away from each other and from the edge of the tank.

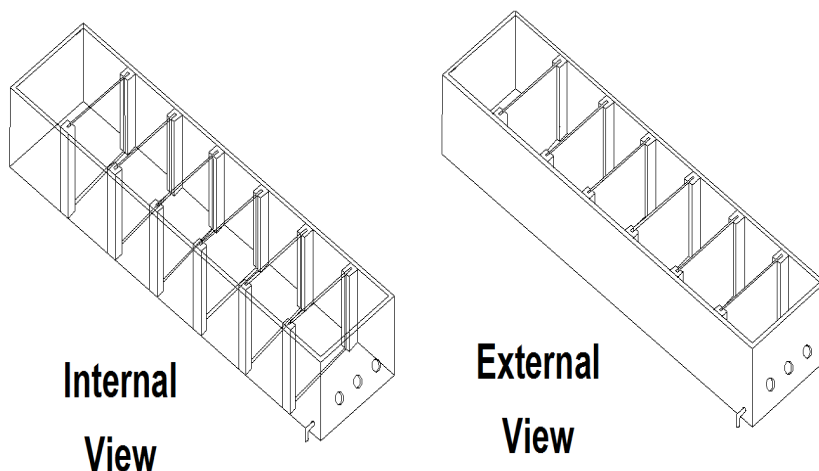


Figure 6. Images showing the internal and external views of the filtration tank

Treated water tank. Finally, this tank was where the treated water resided before they were stored in small containers. The tank is a rectangular in shape, 1.524 meters (five feet) long, 0.914 meters (three feet) high and 1.524 meters (five feet) wide. The total volume of the treated water tank was 2.123 cubic meters (75 ft^3) which accommodated about 2,123 liters of water at a time. By virtue of gravity, water flowed from the treated water tank to the storage containers through delivery tubes. The delivery tubes were approximately 0.0127 meters (0.5 inch) in diameter. The tubes were located at the center side of the tank. The tubes were 0.61 meters (two feet) away from the edges of the tank and were about 0.127 meters (five inches) away from each other.

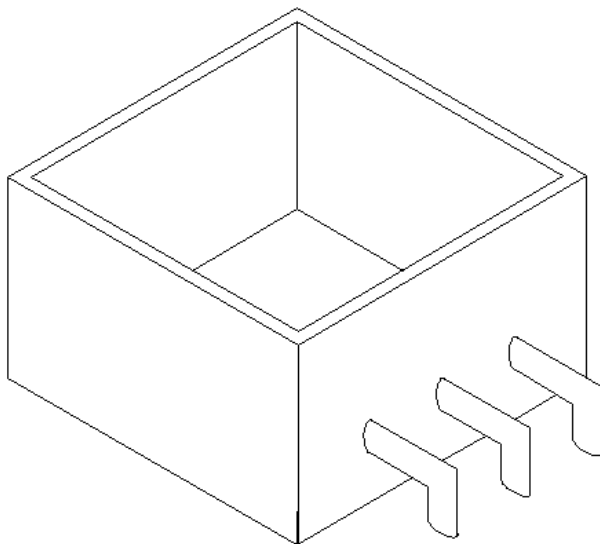


Figure 7. Image of the treated water tank

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The results of the study showed that the proposed drinking water treatment facility was effective in providing potable and safe drinking water for the community inside Central Philippine University. The laboratory test results revealed that water parameters of the treated water met with the standards for potable drinking water set by the Department of Health. Thus, to ensure that the university will always have a source of potable and safe drinking water, a water treatment facility should be installed inside the university.

In order to meet the demand safe drinking water in the university, a water treatment facility will treat 1.2 liters of water per minute must be constructed. As long as there were

enough storage containers for the treated water, the facility will be able to operate for 24 hours a day and seven days a week. The facility has a total land area of 456 square feet or 42.4 square meters and will be located near the university gymnasium. Finally, the facility is estimated to cost ₱154,000.00 but will increase during the actual implementation due to a possible increase of prices of the materials involved in the study.

Recommendations

The favorable results of the study indicated the possibility of installing a drinking water treatment facility within the university. The effectiveness of the designed facility and having met the standard levels of the water parameters set by the Department of Health prompted the proponents of this study to recommend another undertaking that will improve the quality of water being treated by this facility. An aeration process and ultraviolet exposure should be included within the water treatment facility. Aeration is a water treatment process in which water is brought into intimate contact with air. Moreover, the process increases the oxygen level of water, reduces the carbon dioxide level of water, and removes methane, hydrogen sulfide, and other volatile organic compounds, which are responsible for taste and odor, present in the water. With the aeration, the treated water will have a much better quality and taste. Furthermore, an ultraviolet light exposure system in the water treatment facility will ensure the effective elimination of bacteria and pathogens which were not totally removed by chlorination.

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**ILONGGO PERCEPTIONS ON THE EXTENT
OF PATRONAGE PRACTICES AND THEIR
ATTITUDES TOWARD INTRA-FAMILIAL
SUCCESSION IN ILOILO**

Ernesto S. Saquibal, Jr. and Ma. Lindy B. Saquibal

ABSTRACT

The study examined politics in Iloilo by looking into Ilonggo voters' perceptions of patronage practices of local politicians, and how these conditions influence their attitude towards dynastic politics or intra-familial succession in the local level. A total of 384 respondents were surveyed through face-to-face interview. Chi-square and Gamma tests were used to determine the significant relationships between variables. Findings of the study reveal that the use of patronage has contributed to the election success of the Governor, Congressman, Mayor and Punong Barangay to Some Extent (40.8%) and to a Great Extent (18.3%). One in four (24.5 %) of the respondents were Not Sure or Uncertain of its effect while 11.8 percent noted that its effect is Negligible. With regard to their attitude towards 'dynastic' politics or intra-familial succession, one in five (22.1%) among the Ilonggo voters holds a positive attitude compared to three-fourths (74.5 %) who exhibit a Neutral Attitude towards these politicians. These findings thus suggest that the Ilonggo voter perceived that the extensive use of patronage has generally contributed to the election success of local politicians in the Province.

INTRODUCTION

After four successive presidential elections and more than a dozen electoral 'turn-overs' in both local and barangay positions since 1986, political families have become formidable structures in local politics. Aptly referred to as political dynasties, this phenomenon is viewed as an anathema to the Filipino democratic way of life and is characteristic of the patronage system of politics that has been a hindrance to national development (Nachura in HB 463, 1999) for it stifles meaningful political competition and electoral choice.

A political dynasty is said to exist when a member of a politically dominant family, by consanguinity or affinity, holds a local elective office simultaneously with other immediate members of the same family or occupies the same position immediately after the term of the incumbent elective official has ended to ensure political succession and continuity in office of said political family for generations (Fegan, 1994; Simbulan, 2005; Dal Bo, 2008; Feinstein, 2009). In essence, it is the concentration, consolidation, or perpetuation of public office and power by persons related to one another (HB Nos. 463; 1642). A key factor to the evolution and persistence of this pattern of political recruitment and succession in local politics is the extensive use of political patronage - considered as an important strategy for political mobilization and obtaining electoral support. Patronage refers to a condition where there is a trade of votes and other partisan support in exchange for public decisions with divisible benefits, i.e., jobs, goods, and services as well as cash, which constitute the object of the exchange between patrons and clients (Roniger, 1994; Piattoni, 2001).

Why this brand of politics and mode of political recruitment and succession have persisted in local electoral politics is the primary question which the current study seeks to explore and explain.

Specifically, the study aims to examine Ilonggo voters' perceptions on the extent of patronage practices as well as their attitudes toward dynastic politics or intra-familial succession. Does their positive perception on the practice of patronage significantly influence their attitude towards dynastic succession, thereby unwittingly cultivating a system of 'dynastic' patrons in local governance? To what extent does the practice of patronage contribute to the persistence of intra-familial succession in local politics in Iloilo?

The main thesis of the study claims that the extensive practice of patronage politics among local politicians is strongly associated with the prevalence of dynastic or intra-familial succession in local politics. Simply put, the greater extent patronage practices are employed by local politicians, the higher the prevalence of intra-familial succession over local elective offices.

Objectives of the Study

The study examines politics in Iloilo Province by looking into Ilonggo voters' perceptions on the extent of political patronage as it is practiced by local politicians, and how these conditions influence their attitude towards dynastic politics or intra-familial succession in the local level. Specifically, this study aims to:

1. Determine the socio-economic, demographic and political characteristics of the respondents of the study;
2. Determine the extent of patronage practices as perceived by Ilonggo voters;
3. Determine the Ilonggo voters' attitude towards dynastic or intra-familial succession in local politics;
4. Determine the relationship between the respondents' socio-economic, demographic and political characteristics such as household size, age, sex, civil status, monthly income, occupation, location of

- residence, level of education, involvement in socio-civic and political organizations, and having served as ward leaders, and their perceptions toward the extent of patronage practices by local politicians;
5. Determine the relationship between the respondents' socio-economic, demographic, and political characteristics such as household size, age, sex, civil status, monthly income, occupation, location of residence, level of education, involvement in socio-civic and political organizations, and having served as ward leaders, and their attitude towards dynastic politics or intra-familial succession; and,
 6. Determine the relationship between the extent of patronage practices as perceived by the respondents and their attitude towards the dynastic politics or intra-familial succession in local politics.

Theoretical Framework

The patron-client relationship (PCR) framework first developed by Carl Lande was also utilized. It explains that the patron-client ties or dyadic contract basically serve as the social structural roots of Filipino political behavior. These traditional kinship-based dyadic ties, i.e., landlord-tenant are vertical bonds of mutual assistance based on kinship (e.g. utang na loob), and instrumental friendship between persons of greater socio-economic position and those of lesser means in society.

The schematic diagram in Figure 1 further clarifies the PCR framework. The diagram in Figure 2 shows the assumed relationship between the variables examined in the study, hopes to establish the validity of the foregoing propositions.

Purpose and Significance of the Study

To a large extent, the findings of the study hope to benefit the following prospective audiences:

Researchers and Academics. The findings of the study can be a rich source of baseline data on the realities of electoral politics and governance in Iloilo in view of increasing the quality of data and analysis especially among local researchers. The pertinent information that the study may disclose will also be able to assist researchers and scholars to further pursue studies on family-based oligarchies and patronage in order to expand the level of knowledge on the subject.

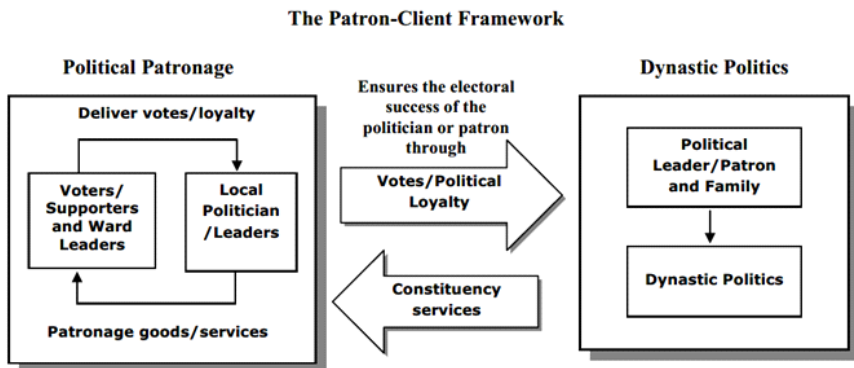


Figure 1. Ensures the continuous flow of "privatized" goods/services

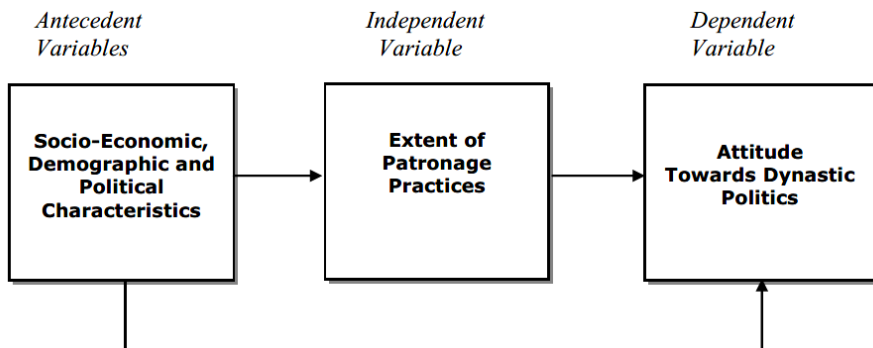


Figure 2. Assumed Relationship among Variables

Students, Voters, Community Leaders, and Civil Society Groups. The study can raise the electorate’s consciousness regarding the consequences of dynastic politics and political patronage, especially the impact of these practices on their lives as participants of a democratic society. The findings can help guide local leaders and well-meaning groups in civil society to adopt programs that will effectively educate and empower people, and help them make informed decisions in the choice of political leaders.

Government Officials and Policy-Makers. The findings of the study may provide empirical evidence to help enlighten and convince members of Congress that implementing the constitutional policy on political dynasties, and other laws regulating campaigning and election spending need to be acted upon with urgency and dispatch for the interest of the nation.

Scope and Limitations of the Study

The current investigation primarily focuses on the dynamics of local politics in selected areas in Iloilo Province by looking into Ilonggo voters’ perceptions on the extent of patronage practices, as an independent variable and their

attitudes toward dynastic politics or intra-familial succession, as the dependent variable. Moreover, the study also attempted to establish whether or not there exists a significant relationship between the two variables.

The study primarily utilized the survey design using an interview schedule to gather the data on the study variables. Though the study covered only a sample of the population, this methodology is expected to provide a more representative view of the opinions of the cross-section of the Ilonggo electorate.

METHODS

Research Design

The study utilized a one-shot survey design as a primary tool of investigation. The survey was conducted utilizing a structured interview schedule to gather the responses of Ilonggo voters from the sample barangays in the Province of Iloilo.

The Study Area and Respondents

The study area covered the sample barangays located in the selected towns (or component city) randomly chosen from the list of municipalities in Iloilo province. The target respondents were Ilonggo voters and the sample size of 384 registered voters out of the total 1,257,607 (NSCB, 2010) in the Province of Iloilo.

Sampling Procedure

Using a combination of multi-stage and simple random sampling techniques, five (5) municipalities of the province were chosen by simple random, sampled from the list of municipalities or towns (and city) based on their grouping by Congressional districts, and two sample barangays were chosen from the list of barangays located in the selected municipalities.

The sample population or survey respondents were chosen from the list of registered voters in the sample barangays using a systematic random sampling technique. The sample size was determined using the sampling formula in Parel, et. al's (1978) with 0.05 sampling error.

Data Collection

A structured personal interview was scheduled to generate data on the study variables. The personal interviews were conducted in the homes of the respondents or their workplaces, whichever was feasible and convenient to them.

Data Processing and Analysis

The data generated from the survey was computer processed and analyzed using the Statistical Package for the Social Sciences (SPSS+PC) version 17.0 for Windows. Simple descriptive analysis of data using the percentage distributions and measures of central tendency (means and median) were used to analyze survey responses.

Chi-Square and Cramer's V were used as primary statistical tools to determine whether there was a significant relationship between the respondents' perceptions on the extent of patronage practices, and their socio-economic,

demographic, and political characteristics particularly HH size, income, level of education, etc.

The same statistical tools were utilized to analyze whether a significant relationship existed between the respondents' socio-economic and political characteristics particularly HH size, income, and level of education, and their attitudes toward dynastic politics or intra-familial succession.

Gamma was used to test whether the respondents' perceptions of the extent of patronage practices was associated with their attitudes toward dynastic politics or intra-familial succession.

Finally, Chi-Square was used to analyze whether the extent of patronage practices as perceived by the respondents had a direct bearing on their attitudes toward dynastic or intra-familial succession in Iloilo politics.

RESULTS

Survey Respondents' Profile: District of Origin, Age, Sex, Civil Status, and Household Size

Table 1 shows the distribution of respondents according to their profile that includes the district of origin, age, sex, civil status, and household size.

Socio-Economic Characteristics

Table 2 presents the distribution of respondents according to their socio-economic characteristics such as educational attainment, occupation and monthly income. Results show that majority of the respondents (43.8 %) finished high school, 58.0 % are working, 65.15% have regular monthly income, and among those who have

monthly income, 49.73% earns between ₱3,000.00 – ₱6,000.00 per month.

The data indicate that with a mean monthly income of ₱4,948 most of the respondents who are working or are engaged in some kind of work, live way below the poverty level.

Table 1. Distribution of Respondents according to their District of Origin, Age, Sex, Civil Status, Household Size (n= 384).

Indicators	f	%
District of Origin		
1 st District	115	29.95
2 nd District	53	13.80
3 rd District	49	12.76
4 th District	72	18.75
5 th District	95	24.74
Age		
18- 30	85	22.1
31- 40	78	20.3
41- 50	95	24.7
Above 50	126	32.8
Mean Age: 44		
Sex		
Male	117	30.5
Female	267	69.5
Civil Status		
Single	52	13.5
Married	293	76.3
Living-In	15	3.9
Separated	4	1.0
Widowed	20	5.2
Household Size		
1-3 members	107	27.86
4-6 members	197	51.30
7 and above	80	20.83
Mean Household size: 4.89 or 5		

Respondents' Involvement in Socio-Economic, Civic and Political Organizations

Table 3 presents the involvement of the voters in Iloilo Province in socio-economic, civic and political organizations. Half (52.87 %) of the respondents are members of various socio-economic, civic and political organizations which operate in the Province of Iloilo, and the remaining 47.13 % have no organizational involvement.

Table 2. Distribution of Respondents According to Socio-Economic Characteristics (n= 384).

Characteristics	f	%
Educational Attainment		
Post-Graduate	2	.05
College graduate	78	20.3
College level	49	12.8
High school level	168	43.8
Elementary level	87	22.7
Occupation (Multiple response)		
Farmer/Fishing	58	15.0
Business/Sales (sari-sari store, vending, etc.)	73	19.0
Practice of Profession(teaching, government/private employee)	24	6.0
Barangay Official	24	6.0
Barangay Worker (BNS, BHW, Tanod)	17	4.0
None/Unemployed	161	41.9
Monthly Income		
Php 15,001 and above	12	3.12
12,001 – 15,000	10	2.60
9,001 – 12,000	13	3.4
6,001 – 9,000	24	6.3
3,001 – 6,000	64	16.66
3,000- and below	127	33.07
No Income	134	34.89
Mean Monthly Income: ₱4,948.00		

Among those who are actively involved in organizations, 44.3 % belong to civic-political organizations, 42.3 % are actively involved in socio-economic organizations, and the remaining 13.29 % are either members of non-governmental organizations (8.37 %) and religious organizations (4.92 %).

The data show that a typical *Ilonggo* voter is active in organizations which either promote economic well-being or advance their political and civil rights.

Table 3. Distribution of Respondents According to their Involvement in Civic and Political Organizations (n= 384).

Indicators	f	%
No Organizational Involvement	181	47.13
With Organizational Involvement	203	52.87
Type of Organization (MR) (n=203)		
Socio-Economic Organizations (KALIPI, 4Ps, Farmers Association, Women's Organization)	86	42.3
Civic-Political Organization (Senior Citizens, PTA, party-list organization, Liga ng Barangay, etc.)	90	44.3
NGO (e.g., TSKI, Local coop, waterworks, Guardians)	17	8.37
Religious Organizations (Couples for Christ, Women's Brigade, Knights of Columbus, etc.)	10	4.92

Extent of Political Patronage

Table 4 shows that almost two-thirds (59.1 %) of the *Ilonggo* voters said that the practice of political patronage has to a *Some Extent* (40.8 %) and to a *Great Extent* (18.3 %) contributed to the election success of the local politicians in the province.

A quarter (24.5 %) of the respondents said that they were *Uncertain or Not Sure* of the contribution of patronage practices to the electoral fortunes of local politicians, and 11.4 % disclosed that the contribution of patronage practices

to the electoral success of these politicians, if any, is *Negligible*.

Table 4. Summary Table on the Distribution of Respondents According to Perception on the Extent of Political Patronage (n=306).

Extent of Political Patronage	f	%
Great Extent	56	18.3
Some Extent	125	40.8
Uncertain	75	24.5
Lesser Extent	14	4.6
Negligible	36	11.8
TOTAL	306	100.0

Respondents Attitude towards Dynastic Politics or Intra-Familial Succession

A summation of the respondents' categorized scores on Table 16 reveals that 22.1 % of *Ilonggo* voters have a *Positive Attitude* towards 'dynastic' politics or intra-familial succession. A significant majority (74.5 %) exhibits a *Neutral Attitude or was Undecided* whether or not to vote for candidates belonging to "dynastic" families, and 3.4 % have a *Negative Attitude* towards dynastic politicians.

Table 5. Summary of the Distribution of Respondents by Attitudes towards Dynastic Politics or Intra-Familial Succession (n= 384).

Attitude towards Dynastic Politics	f	%
Negative (10-23.3)	13	3.4
Neutral/Undecided (23.31-36.6)	286	74.5
Positive (36.61-50.0)	85	22.1
TOTAL	384	100.0

Extent of Political Patronage and Education

Table 6 shows whether or not there is a significant relationship between the respondents' perception of the extensive practice of patronage in local politics and their educational achievement. The Gamma of .023 with a *p*-value of .738 at the .05 level of significance reveals no significant relationship between the respondents' education and their perception towards the extent of political patronage. Thus, respondents' educational achievement has nothing to do with their perception toward the extent of political patronage.

Extent of Political Patronage and Income

Table 7 reveals a significant relationship between the respondents' perception of the extent political patronage and their income. Chi-Square value of 38.725 with a *p*-value of .007 at the .05 level of significance indicates a significant relationship between the *llonggo* voters' income and their perception of the extent of patronage.

Table 6. Distribution of Respondents according to Perception of Extent of Political Patronage and their Level of Education (n=306)

Extent of Political Patronage	Level of Education								TOTAL	
	College Graduate		College Level		High School Level		Elementary Level			
	f	%	f	%	f	%	f	%		
Negligible	7	10.37.4	5	12.8	13	9.9	11	16.2	36	7.4
Lesser Extent	5	25.0	-	-	7	5.3	2	2.9	14	14.9
Uncertain/Undecided	17	38.2	9	23.1	31	23.7	18	26.5	75	30.1
Some Extent	26	19.1	19	48.7	56	42.7	24	35.3	125	30.5
Great Extent	13		6	15.4	24	18.3	13	19.1	56	17.1
TOTAL	68	100.0	39	100.0	131	100.0	68	100.0	306	100.0

Gamma = .023

p = .738

Table 7. Distribution of Respondents According to Extent of Political Patronage and Level of Income (n=205)

Extent of Political Patronage	Income												TOTAL	
	P15,000 & above		P12,001- P15,000		P9,001- P12,000		P6,001- P9,000		P3,001- P6,000		P3,000 and below		f	%
	f	%	f	%	f	%	f	%	f	%	f	%		
Negligible	1	11.1	5	50.0	-	-	2	9.1	2	4.2	10	9.3	20	9.8
Lesser Extent	3	33.3	1	10.0	-	-	1	4.5	2	4.2	5	4.7	12	5.9
Uncertain Extent	2	22.2	1	10.0	3	22.7	5	22.7	12	25.0	19	17.8	42	20.5
Some Extent	2	22.2	2	20.0	3	45.5	10	45.5	22	45.8	49	45.8	88	42.9
Great Extent	1	11.1	1	10.0	3	18.2	4	18.2	10	20.8	24	22.4	43	21.0
TOTAL	9	100.0	10	100.0	9	100.0	22	100.0	48	100.0	107	100.0	205	100.0

Chi-Square = 38.725

p= .007*

The data reveal that respondents whose monthly income falls below P6,000.00 felt that project such as infrastructures, i.e., roads, bridges, streets, drainage, etc., implemented by local politicians do contribute to *Some Extent* (45.8 %) and to a *Great Extent* (20.8 %) to the electoral chances of concerned local officials as similarly perceived by respondents who have the lowest income.

This finding suggests that a poor or poorer *Ilonggo* voter is more inclined to support a politician or candidate who is a dispenser of patronage.

Political Patronage and Membership in Socio-economic, Civic, Political and Religious Organizations

Table 8 reveals that 47.3 % of the respondents who are not members of socio-economic, civic and political organizations felt that the practice of patronage has an effect to *some extent* on the electoral chances of local officials, 34.6 % of those belonging to organizations hold a similar view, and 28.0 % among the non-organization members is *uncertain/undecided* about its effect.

The Chi-square value of 15.995 with a *p*-value of .003 at the .05 level of significance shows that a significant

relationship exists between the respondents' membership in socio-economic, civic and political organizations and their perception towards the extent of patronage. This finding implies that the *Ilonggo voter* recognizes the extent to which patronage affects the electoral fortunes of local officials, regardless of the nature of his or her organizational involvement.

Table 8. Distribution of Respondents according to their Perception of Extent of Political Patronage and their Membership in Socio-Economic, Civic, Political and Religious Organizations (n=306).

Extent of Political Patronage	Membership in Socio-Economic, Civic and Political Organization					
	Member		Not a Member		TOTAL	
	f	%	f	%	f	%
Negligible	27	17.3	9	6.0	36	11.8
Lesser Extent	10	6.4	4	2.7	14	4.6
Uncertain	33	21.2	42	28.0	75	24.5
Some Extent	54	34.6	71	47.3	125	40.8
Great Extent	32	20.5	24	16.0	56	18.3
TOTAL	156	100.0	150	100.0	306	100.0

Chi-Square = 15.995

p = .003

Attitude Toward Dynastic Politics and Level Of Education

The Gamma value of .024 with a p-value of .800 at .05 level of significance shows that respondents' perception on the extent of political patronage is not significantly related to their level of educational achievement. Table 9 shows that respondents manifest a *neutral or undecided* attitude (quite high among High School educated at 79.2 %) towards dynastic politics regardless of their educational achievement, and only 26.4 % exhibit a *positive* attitude towards dynastic politics. In other words, respondents' level of education does not determine or influence their attitude towards dynastic politics.

Attitude toward 'Dynastic' Politics and Income

Table 10 reveals that *respondents* who belong to the lowest income bracket were *Neutral or Undecided* (73.2 %) whether or not to support a member of a dynastic family running for office, but 22.8 % of the respondents belonging to the same income group hold a *positive* attitude towards dynastic politicians. Significantly, the no income group holds a *negative* attitude towards dynastic politics.

The Gamma value of .148 with a *p*-value of .173 at .05 level of significance shows that no significant relationship exists between the respondents' attitude towards dynastic politics and their level of income.

Attitude towards dynastic politics and membership in socio-economic, civic, political and religious organizations

Data in Table 11 reveal that respondents, whether members (76.8 %) of socio-economic, civic and political organizations or not (71.8 %), are *Not Sure* whether or not to support a candidate coming from a dynastic family. The Chi-Square value of 1.183 with a *p*-value of 0.404 at .05 level of significance reveal that no significant relationship exists between the respondents' attitude towards 'dynastic' politics and their involvement in socio-economic, civic and political organizations. Respondents' attitude towards dynastic politics is not influenced by their organizational involvement.

Extent of Political Patronage and Attitude towards Dynastic Politics

Table 12 shows that 66.7 % of the respondents' combined scores reveal that *Ilonggo* voters felt that the use of patronage has to a *Greater Extent* (25.0 %) and to *Some Extent* (41.7 %) determine the election success of local

officials. The same group holds a *Positive* attitude towards dynastic politics. Furthermore, 56.3 % of their combined scores, were *Not Sure or Undecided* whether to support a candidate coming from a dynastic family.

Table 9. Distribution of Respondents According to Attitude towards Dynastic Politics and Level of Education (n=384)

Attitude towards Dynastic Politics	Level of Education								TOTAL	
	College Graduate		College Level		High School Level		Elementary Level			
	f	%	f	%	f	%	f	%	f	%
Positive (36.61-50.0)	21	26.3	11	22.4	30	17.9	23	26.4	85	22.1
Neutral/Undecided (23.31-36.6)	54	67.5	37	75.5	133	79.2	62	71.3	286	74.5
Negative (10-23.3)	5	6.3	1	2.5	5	3.0	2	2.3	13	3.4
TOTAL	80	100.0	49	100.0	168	100.0	87	100.0	384	100.0

Gamma = .024

p = .800

Table 10. Distribution of Respondents According to Attitude towards 'Dynastic' Politics and Income (n=252)

Attitude Towards Dynastic Politics	Income												TOTAL	
	P15,000 & above		P12,001-P15,000		P9,001-P12,000		P6,001-P9,000		P3,001-P6,000		P3,000 and below			
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Positive (36.61-50.0)	4	33.3	7	70.0	2	15.4	7	29.2	14	21.9	29	22.8	63	25.2
Neutral/Undecided (23.31-36.6)	7	58.3	3	30.0	11	84.6	17	70.8	46	71.9	95	73.2	179	70.8
Negative (10-23.3)	1	8.3	0	0	0	0	0	0	4	6.3	5	3.9	10	4.0
TOTAL	12	100.0	10	100.0	13	100.0	24	100.0	64	100.0	129	100.0	252	100.0

Gamma = .148

p = .173

Table 11. Distribution of Respondents According to Attitude towards Dynastic Politics and Membership in Socio-Economic, Civic, Political and Religious Organizations (n=384)

Attitude towards Dynastic Politics	Membership in Socio-Economic, Civic, Political and Religious Organizations				TOTAL	
	Member		Not a Member		f	%
	f	%	f	%		
Positive (36.61-50.0)	42	20.7	43	23.8	85	22.1
Neutral/Undecided (23.31-36.6)	156	76.8	130	71.8	286	74.5
Negative (10-23.3)	5	2.5	8	4.4	13	3.4
TOTAL	203	100.0	181	100.0	384	100.0

Chi-Square = 1.183

p = 0.404

Table 12. Distribution of Respondents According to Perception on the Extent of Political Patronage and Attitude Towards Dynastic Politics

Extent of Political Patronage	Attitude towards Dynastic Politics						TOTAL	
	Positive (36.61-50.0)		Neutral/Undecided (23.31-36.6)		Negative (10-23.3)		f	%
	f	%	f	%	f	%		
Negligible	10	13.9	25	11.3	1	8.3	36	11.8
Lesser Extent	1	1.4	13	5.9	-	-	14	4.6
Uncertain/Undecided	13	18.1	59	26.6	3	25.0	75	24.5
Some Extent	30	41.7	90	40.5	5	41.7	125	40.8
Great Extent	18	25.0	35	15.8	3	25.0	56	18.3
TOTAL	72	100.0	222	100.0	12	100.0	306	100.0

Chi-Square = 7.857

p= .448

One in four (26.6 %) who remains *Uncertain/Undecided* about the effects of patronage practices on the election chances of local officials also hold the similar attitude towards dynastic politics, and a negligible number of respondents hold a *Negative* attitude towards dynastic politics.

The Chi-Square value of 7.857 with a *p*-value of .448 at .05 level of significance indicates no significant relationship between respondents' perception on the extent of patronage and their attitude towards dynastic politics. This finding

suggests that the practice of patronage cannot clearly account for the *Ilonggo* voters' ambivalent attitude towards dynastic politics or intra-familial succession.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the salient findings of the study, the following conclusions and inferences are derived:

1. The study shows that typical *Ilonggo* voters in the Province of Iloilo are female, in their mid-40s, married and quite well-educated, having reached college level or obtained a college degree. Despite their college education, most of the respondents still live way below the poverty level due to lack of employment opportunities and a regular paying job. The bulk of the respondents' source of income comes from engaging in small-scale business, i.e., sari-sari store, buy and sell, fishing/ farming, and other forms of employment which fail to provide economic security. Thus, even their involvements in organizations, e.g., KALIPI, 4Ps are motivated by these economic considerations.

2. The study shows that the *Ilonggo* voters perceived that the extensive use of patronage has generally contributed to the election success of local politicians in the province – the Governor, Congressman, Mayor, and *Punong Barangay*. These findings validate a previous study on political patronage in Iloilo City by Saquibal (2008) that local politicians are more inclined to implement projects that have “immediate, tangible ‘personal’ impact on constituents especially those that are highly ‘visible’ such as infrastructure, e.g., roads, artesian wells, and water hand pumps, social welfare services, and personal assistance”. They have served as functional ‘promotional’ tools for the local officials from where to draw their political strength and support comes election time.

3. In terms of attitude towards dynastic politics, the *Ilonggo* voters exhibit a *generally ambivalent* attitude toward candidates from 'dynastic' families. Considering the fact that a negligible percentage of the respondents have a negative attitude towards dynastic politicians, the *Ilonggo* voters would be more inclined to support candidates, especially "dynastic" politicians, who exhibit good personal qualities and performance or record of accomplishments while in public office. Conversely, the findings also suggest that their choice of candidates is influenced by some other factors, as already mentioned, rather than by "just" being members of political families.

4. Except for their levels of income and organizational involvement, the tests for association indicate that the *Ilonggo* voters' socioeconomic and political characteristics do not have any significant bearing with regard to their perception on the extent of patronage practices in local electoral politics in Iloilo Province. Indeed, income has a bearing on the respondent's perception towards patronage politics precisely because the poor often are the recipients of patronage projects.

5. On the contrary, the *Ilonggo* voters' socioeconomic and political characteristics were not significantly related to their attitudes toward dynastic politics or intra-familial succession in local politics. The findings suggest that the *Ilonggo* voters' attitude towards 'dynastic' politicians is not influenced nor determined by their educational achievement, income and involvement or membership in socio-economic, civic, political and religious organizations.

6. The test for association indicates that the *Ilonggo* voters' perception of the extent of patronage does not have any bearing on their attitude towards dynastic politics. *Ilonggo* voters believe that the practice of patronage largely contributes to the electoral success of local politicians yet, they exhibit a *generally ambivalent* attitude but definitely not

a *negative* one with respect to candidates from 'dynastic' families.

Recommendations

The following recommendations are presented based on the major findings and conclusions of the study:

1. The current study which covered the general *Ilonggo* voting population in the Province of Iloilo as respondents, only included a limited number of barangay and local officials, thus it is recommended that further studies be pursued to include a considerable sample of elected local officials.

2. Since the data were gathered primarily through a survey, thus limiting itself to quantitative results and analysis, it would have been meaningful if in-depth interviews of key informants were pursued.

3. Finally, given sufficient funding and ample time, scholars and researchers on Philippine politics should consider replicating this study in other cities and provinces in the Philippines as well as examine other significant variables (especially those which the current study did not consider) to expand our understanding of these phenomena in Filipino electoral politics in the local level.

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**LEARNINGS IN MANAGING AN OUTREACH PROJECT:
THE CASE OF CPU KATIN-ARAM CENTER**

Edwin I. Lariza and DZ Patriarca-Lariza

ABSTRACT

This study described the growth and development of the Katin-aran Center and its contribution to the community and University. It used the exploratory and descriptive design. A focus group discussion with pioneers and key players validated the data. Katin-aran emerged as a response to the needs of the Social Work Department for practicum field placement. Soon it grew with established development concept, framework and effective methods in organizing communities. Because of its track record, the Center earned recognition here and abroad. It has reached its peak as separate foundation implementing multi-million empowerment projects. The impacts of its programs and services have been translated into people's community involvement. Among the administrative factors that promote and hinder the development are, as follows: institutional support provided by the University; participatory and integrated/ holistic development approach; and the charismatic qualities and management style of the pioneer director combined with highly committed staff. However, the same factors created organizational problems and issues, namely: indeterminate structure, lack of a more definite framework for strategies, learning disability, and role confusion.

INTRODUCTION

Community Outreach is one of the trilogies of functions of Higher Educational Institutions (HEIs). While education, i.e., teaching is the primary duty of colleges and universities, they have major service obligations to their communities and their country. Most often, it is the outreach endeavors of the academic institutions that have a bearing in the lives of the people in the communities, as the programs and projects directly affect their lives. The impact is more when the outreach project is properly managed.

The Michigan State University, in its *Guidebook for Planning & Evaluating Quality Outreach* (2000), has identified four dimensions in managing an outreach project. Foremost, is the *significance* of the project. Next is *context* with the following components: consistency with university/unit values and the stakeholder interests, appropriateness of expertise, the degree of collaboration, appropriateness of methodological approach, and sufficiency and creative use of resources. The third dimension is *scholarship* which refers to the resources, application, generation, and utilization of knowledge. Finally, the last dimension includes the project's *impact* on issues, institutions, and individuals. This requires rigorous, thorough, understandable, and defensible documentation and interpretation.

At Central Philippine University, it is the major goal of outreach to implement social development programs that help improve the life of our people. Among the outreach projects in the University, the Katin-aran Center stands out in terms of concrete and lasting manifestations and the impression it has created. With various programs related to Social Development, Rural Productivity, and the Community-Based Health Program, the Katin-aran Center has earned recognition and respect locally, nationally, and internationally for its flagship of quality implementation of participatory, integrated community development programs.

With such experiences, it can be assumed that the University has already established a system of outreach mechanism that can be replicated in other communities and followed by other units. The reality, however, proves otherwise. Little has been made to document and assess such fate to serve as a basis to improve the current and future endeavors. While the University has rich experiences in outreach endeavors, it still has to establish a concrete model worthy of emulation.

This makes the study more significant. It hopes to offer insights on the processes involved in administering and sustaining the outreach project. Such knowledge is expected to provide directions on how other units can further enhance their capabilities as they continue in their development endeavors. In particular, the findings of the study will help outreach units assess their management styles and other administrative aspects of work so that they can improve their structure and operations in order to become more relevant in their development endeavors.

The study was conducted to describe the administration of Katin-aran Center in coping with the demands of times and circumstances in the development work. Specifically, it aimed to:

1. Describe the factors and processes that brought about the growth and development of the Katin-aran Center and the conditions under which it was organized.
2. Evaluate the structure, function, activities of the Katin-aran Center.
3. Appraise the significant achievements or contributions of the organization to both the University and the community it serves.
4. Look into the management styles of the organization and how these affect their sustenance/survival.
5. Identify issues and problems emanating from various management styles in administration.

6. Analyze the administrative factors that promote or hinder its development.

This study covered and limited itself to the growth and development of the Katin-aran Center under the management of the University. It did not exhaustively include the period when it became a Foundation independent from the University due to limited budget and sensitivity of the problem.

METHODS

The exploratory and descriptive design was used in this study, employing the historical approach as well as the qualitative method of research. Primary data were collected through interviews with key informants using a semi-structured interview guide. Secondary data were gathered either from the retrieved records in the office or from personal file of officers made available to the researchers. Data from those sources were validated through focus group discussions wherein initial findings were presented to pioneers and key players for confirmation and additional insights.

RESULTS AND DISCUSSION

Katin-aran Center emerged as a response to the needs of the Department of Social Work for practicum field placement. Soon it grew with established development concepts and framework and effective methods in organizing communities. It has reached its peak when it became a separate foundation implementing multi-million peso empowerment projects.

The achievements and contribution of Katin-aran to the community are highlighted by the establishment of federated people's organizations that became functional in respective

communities. The impacts of the programs and services to the personal lives of the Katin-aran members have been translated into community involvement in various forms and services. Foremost, is the development of self and service to the community. They learned to value their humanity, develop self-confidence and positive attitude in life. Becoming service oriented, they developed the courage and commitment to stand for and protect their rights, as well as the rights of others. The degree of such development was best described by the comment of one member, "Nangin tao kami" (We become human beings).

Such development has benefited the community, as well as the university. Katin-aran members became responsible, productive citizens, and effective leaders in the community. With developed skills in leadership and linkages, they served their respective communities in various ways. The initiatives and breakthroughs undertaken by the Center in communities gained recognition and awards from local to national level. These, in turn, benefited the University in its accreditation requirements, as well as in community relations.

With such experience in outreach endeavors, Katin-aran could have established a system of outreach mechanism in the whole University that can be replicated in other communities and followed by other units. Yet, the lack of documentation, assessment, and other studies has deprived the University of new opportunities for student learning and professional staff development, as well as innovations in curriculum and improvement in the institution's operations and visibility. This is where the Katin-aran Center failed based on the fundamental characteristics of the outreach project mentioned earlier. While it succeeded in the first two dimensions e.g. *significance* and *context*, the Katin-aran Center was not able to maximize the *scholarship* and *impact* of the outreach project.

Some administrative factors become responsible to promote and hinder the development. Prominently, are the

institutional support provided by the University; participatory and integrated/ holistic development approach; and the charismatic qualities and management style of the pioneer director combined with highly committed staff. However, the same factors that sustained the operation of the Katin-aran Center created some organizational problems and issues, namely: indeterminate structure, lack of a more definite framework for strategies, learning disability, and role confusion.

CONCLUSIONS AND RECOMMENDATIONS

Through decades of experiences, the Katin-aran Center has established clear development concepts and framework. It has also formulated the step- by- step process in organizing communities which has already been tested and proven to be effective. Comparatively, the communities it has organized have been sustained even until now, many years after the Center ceased to operate. Its track record has earned recognition and respect locally, nationally, and internationally for its flagship of quality implementation of participatory, integrated community development programs.

As such, the Katin-aran Center experience is indeed worthy of emulation as a model in community outreach. Its experiences, both happy and sad, provide valuable lessons and learnings for academic institutions undertaking outreach endeavors as part of the trilogy of the higher education institutions. With it, some recommendations are in place.

Foremost, is for the University to continue the partnership and assistance to the Katin-aran communities in various forms. Among others, the University should facilitate seminars, skills training, livelihood, and entrepreneurship follow up activities; and fund assistance in the form of loans, livelihood, and technology.

It would be good if the University, through the Department of Social Work and University Outreach Center,

will continue to lend its influence in helping revive, reorganize inactive communities, as well as establish linkages, a partnership with government, local government units, and NGOs to strengthen the Katin-aran communities. But such partnership must be institutionalized so that whoever will be in the helm of leadership of both units, the working relationship will continue.

A comprehensive evaluation research by the University Research Center or Department of Social Work is highly recommended so that the rich experiences in community organization and development work of Katin-aran Center can be properly documented and transformed into reference materials that will be used in classrooms and in other academic exercises.

The Department of Social Work can consolidate communities and based on the lessons learned, integrate the outreach program with the College of Arts and Science to involve and maximize the resources of other departments and the whole University. Likewise, the Department should maximize the learning opportunities for other departments under the Arts and Sciences, in particular, and other colleges, in general. This way, the outreach endeavors will benefit both the communities and the University, as new opportunities for student learning and professional staff development, innovations in curriculum, and improvement in the institution's operations and visibility will now be enhanced.

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STRENGTHENING LGU AND CSOs PARTNERSHIP TOWARDS PARTICIPATIVE, RESPONSIVE AND SUSTAINABLE DEVELOPMENT

*Mary 'O T. Penetrante, Dimpna C. Castigador,
Gilda G. Monsole and Lofel J. Diamante*

The study entitled Strengthening LGU and CSOs Partnership Towards Participative, Responsive and Sustainable Development is a technical assistance project that aimed to capacitate the tourism office of the City of Passi and the CSOs in the locality to effectively address the prioritized critical areas as identified in the Citizen-driven Priority Action Plan (CPAP) through a multi-stakeholder participatory approach.

Specifically the study aims to:

1. assess the current interventions or programs of the LGU tourism office to address the priority areas as identified in the CPAP;
2. present the results of the assessment to the stakeholders;
3. capacitate the stakeholders to develop the intervention/action plan that will effectively address the critical priority area identified;
4. capacitate the stakeholders to develop a monitoring and evaluation plan to ensure that the action plan is implemented, corrective measures are undertaken, and;
5. assess the results/outcomes of the technical assistance provided to the tourism office of the City of Passi and CSOs including the changes (if applicable) in the Citizen Satisfaction Index System indicators.

The project used a multi-stakeholders' participatory approach and was implemented in the City of Passi, Iloilo from November 22, 2016 to March 22, 2017. It focused on assessing the service delivery performance of the local

government based on the citizen's level of knowledge, availment, and satisfaction of tourism promotion program/services of the tourism office. Sixty (60) sample respondents were selected using the multi-stage sampling technique.

The project was funded by the Department of Interior and Local government through their LRI Technical Assistance project in the amount of Two Hundred Thousand Pesos (P200,000). Its target beneficiaries include, the City of Passi local government unit (LGU) , civil society organizations (CSOs), business sectors, associations, and other groups/sectors in the local community. Key activities include conduct of desk review, conduct of face-to-face interview, processing and analyzing data, preparing reports and presentation slides, presentation of results to the stakeholders, conduct of stakeholders planning workshop, preparing report.

The following are the key findings:

Respondents' Demographic Profile. Majority of the respondents were female, age 43.88 years and married, household heads or spouses of household heads, had stayed in the household for more than 40 years, half of them attained college undergraduate or graduate education and some with high school or master education. Most of them were not attending school at the time of the study. Most of them were employed, working at least 40 hours per week within the barangay or city and receiving an average monthly income of P10,000.00.

Respondents Housing Profile. Two in every ten respondents own the house and lot where they live which were generally made of concrete materials. Majority use own flush/water-sealed toilets and bottled or deep well water for drinking. Almost all have own electrical connection and television where they source news.

The respondents' level of awareness of LGUs' Tourism Promotion Programs was very low (awareness net score of -20.67) and of the five the tourism promotion programs, the lowest was on regulation and supervision of tourism-related establishments and ecotourism program and/or natural conservation programs. Major challenges facing LGU were 1) lack of effective communication system and coordination among concerned agencies and local communities and 2) Limited human and financial resource to pursue more aggressive awareness programs.

The respondents' availment/Benefits of LGU's Tourism Promotion Programs/Services was low (availment/benefits net score of 31.21) particularly on regulation and supervision of tourism-related establishments and safety and security in tourism areas. The challenges facing the citizens were 1) limited information to complete the availment of these services and 2) high availment cost especially for residents of far flung barangays while the challenges facing the LGU were 1) lack of effective communication system and coordination among concerned agencies and local communities and 2) limited human and financial resource.

The respondents' overall assessment rating of the LGU's Tourism Promotion Programs/Services is Fair (area assessment is 56.08). This shows that LGU exhibited desired/satisfactory performance as expected and their on-going initiatives are delivering results. However low assessment rating was on the development and maintenance of tourism attractions and facilities and ecotourism program and/or natural conservation programs. The challenge is on low level of awareness and low level of availment of the government programs among the residents.

Very high importance net score (86.76) of the tourism promotion programs particularly on safety and security in tourism areas and on the development and maintenance of tourism attractions and facilities. The result

show that the respondents regard the tourism promotion services to be highly valuable in their own personal, household or business needs. It is therefore construed that there is an urgent demand for improvement in these services as mentioned above. The challenges is on addressing the issue on collaboration and commitment among individual and group's, prioritization, unintegrated implementation of programs and activities, and the almost non-existence of in-place monitoring and evaluation system for the programs/activities implemented.

Project Outcome

The beneficiary of the projects are the LGU and its tourism office and employees, CSOs, business sectors, associations, other sectors in the locality.

The project provided the opportunity for LGU Passi, particularly its tourism office to determine the citizens' level of awareness, availment/benefits, satisfaction, and the perceived relevance and importance of tourism promotion programs in their personal, households and business needs, thus a more informed plan of actions and interventions was developed. It is expected that these planned acts/interventions result to a more responsive public service.

The LGU, CSOs, business sectors, and other various groups who participated in this project were provided with opportunity to discuss together the critical issues related to tourism promotion programs and to identify interventions that can address these issues. As a result, more active participation of these sectors in public governance was achieved.

The stakeholders were provided with the avenue to share their experiences, thoughts and ideas and to learn from others experiences that informed their decision-making

process in identifying workable interventions to address the challenges they are or will be experiencing.

The project was able to capacitate the LGU and CSOs and other groups of stakeholders to come-up with an action plan that laid-out the agreed interventions to address the critical issues in their locality.

Capacitated the LGU and CSOs and other groups of stakeholders to develop a monitoring and evaluation plan that they will be using in ensuring that their planned activities are properly implemented.

Promoted increased learning opportunities among individuals and/or groups of stakeholders and capacitated the LGU and CSOs with tested model in conducting similar participatory workshops among their constituents.

Establishment of linkages among project partners and beneficiaries that encourages collaborations and cooperation among them.

Provided the LGU and CSOs and other stakeholders a venue to clarify some issues that had kept them from working together. As a result, stakeholders were more open to share their resources and to collaborate with each other.

For the project team, it has provided an opportunity to learn from the experiences of the LGU and CSOs and to develop new ways on how to effectively assist local communities towards better public governance.

Central Philippine University as the Local Research Institute and its faculty involved in this project were benefited as well from this project. The university and faculty have performed their mission of capacitating local communities to pursue development programs that promotes whole person education inside and outside the university.

The national government will benefit from the results of this project. It will inform their decisions on what programs to pursue and how to management using the experiences and results from this project.

Conclusions and Recommendations

Very low area awareness net score of Tourism Promotion Programs. The area awareness net score of the respondents was very low (-20.67). Of the five (5) tourism promotion programs, the development and maintenance of tourism attractions and facilities and tourism marketing and promotion assistance program have the highest percentage of aware respondents. On the other hand, regulation and supervision of tourism-related establishments and eco-tourism program and/or natural conservation programs have the lowest proportions of aware respondents.

Key Issues. It was discussed that the low level of awareness could results to low level of availment of services which in turn could result to low level of participation in public governance. The challenges identified in addressing this critical priority issue were: 1) lack of effective communication system and coordination among concerned agencies and local communities; 2) Limited human and financial resource to pursue more aggressive awareness programs.

Recommendations. The participants recommended the following: 1) more financial and physical support from the government; 2) strengthen the initiatives in promoting the tourism promotion programs (e.g. regular updating of tourism promotion collaterals, massive implementation of localized school curriculum in all levels in the city, use of tri and social media in promoting tourism promotion programs; and because of limited resources 3) encourage active participation from local residents.

Low availment/benefits net score from Tourism Promotion Programs. The area availment/ benefit net score is low (31.21). The program with highest proportion of respondents to have benefited were ecotourism and/or natural conservation programs and the development and maintenance of tourism attraction and facilities while the program with lowest proportion of respondents to have benefited were safety and security in tourism areas.

Key Issues. On the side of the LGU, the 1) lack of effective communication system and coordination among concerned agencies and local communities and 2) limited human and financial resource were identified as the perennial challenges. Likewise, these challenges constrained the residents due to their limited resources and effective communication system and coordination to avail/comply with the requirements to maximize the availment/benefits from these programs.

Recommendations. The recommendations for assessment result 1 were carried over, viz: 1) more financial and physical support from the government; 2) strengthen the initiatives in promoting the tourism promotion programs (e.g. regular updating of tourism promotion collaterals, massive information dissemination through tri and social media in promoting tourism promotion programs; and 3) transparency and accountability in delivering public service. These recommendations are the same recommendations from the interview respondents (refer to Table 6 above).

Fair assessment net score of the Tourism Promotion Programs. The assessment net score is fair (56.08). Of those who were benefited said they were generally “satisfied” of the tourism promotion programs of the LGU. Among the five (5) programs, safety and security in tourism areas and tourism marketing and promotion assistance program had the highest “definitely satisfied” rating while development and maintenance was the only program with “definitely dissatisfied” rating.

Key issues. It was highlighted in the discussions that the low level of awareness among the residents could have caused their low level of availment of the government programs and for those who were aware and availed of the services, have fair overall assessment of the delivery of these services. It is therefore important to address the awareness issue to address the availment issue. Moreover, the overall assessment issue can be addressed by strengthening/improving the on-going activities and/or additional efforts toward improvement is necessary.

Recommendations. The participants recommended that the interventions identified to address critical issues on awareness and availment/benefits as mentioned above should be pursued in addition/enhancement to the on-going activities being implemented in the city. In addition, they recommended that there is a need to improve and maintain the ecotourism-caves, the facilities and amenities of establishments or centers in eco-tourism sites, the road networks to/from these tourism sites, the transportation services to/from these tourism sites, and the security and safety regulations/policy/ordinances supporting tourism related programs. Other recommendations include financial and technical assistance on livelihood for local residents in support of tourism-related activities/programs in the locality. These recommendations are the same recommendations from the interview respondents (refer to Table 6 above).

Very high Importance of Tourism Promotion Services. The area importance net score is “very high” (86.76). Of the five programs, safety and security in tourism areas had the highest number of respondents who rated it “very important” followed by development and maintenance of tourism attractions and facilities. On the other hand, regulation and supervision of tourism-related establishments had the highest number of respondents who rated it “undecided”.

Key Issues. The interlocking challenges facing the LGU, CSOs, business sector, non-government and other sectors in the community require strong collaboration and commitment to address the critical priority issues. A failure of one sector has ripple effect to the other sectors. However, collaboration and commitment among these sectors are constrained by individual or group's short term interest and priorities, unintegrated implementation of programs and activities, and the almost non-existence of in-place monitoring and evaluation system for the programs/activities implemented. As a result, most of the programs and activities start on a high note but fail to sustain it.

Recommendations. The participants recommended that first, there is a need to organize the various groups/associations/agencies involve in promoting tourism initiatives in the city and together find ways on how each groups/associations/agencies initiatives can be integrated in the city's tourism promotion programs. A multi-stakeholder's participatory forum can be organized to provide avenue to discuss and prioritize the concerns of each group and to come-up with a workable plan. This plan will be used to guide each sector as they pursue the planned activities in respect to their roles and functions. A monitoring and evaluation system should be in-place so that the stakeholders and all sectors concerned are informed of what is going on in the community.

Future Plans (this part may also include future endeavors and/or partnerships that resulted from the project's outcome and the project team's collaboration with different stakeholders, i.e. CSOs, LGUs and other organizations)

The stakeholder's recommended action and monitoring and evaluation plan was submitted to the LGU for consideration during their strategic planning in February. Once approved, the tourism office will implement the

planned actions in collaboration with the concerned agencies identified during the workshop.

One of the activities identified in the CPAP of the tourism office is the development of their Tourism development plan. This activity is still on-going and currently the LGU is in need of consultants to help them develop this plan. It was agreed during the workshop that the Tourism office will formally ask assistance from CPU and take the opportunity to enroll this activity under the university's outreach program to minimize cost.

The LGU also needs assistance in developing and enhancing their tourism promotion collaterals. A possibility of a partnership between LGU Passi tourism office and College of computer Studies is being explored to address this need.

During the workshop, some business owners mentioned that they need technical assistance in terms of developing their product packaging. The College of Packaging Engineering of the university is offering these services to local SMES for free through its students immersion and research program. There are several business owners who have started exploring these opportunities.

It was recommended in this study that a follow-up assessment will be done to ensure continuous process improvement and enhancement of tourism promotion programs. A partnership between a local academe and the LGU will be beneficial as each would be able to achieve their common goal of economic and social development for local communities.