

***ACTION No.9: CLEAN-UP, REHABILITATION
AND MAINTENANCE OF WATERWAYS***

CONTENTS:

OVERVIEW	3
<ul style="list-style-type: none">• Due to the alarming situation of the waterbodies all over the world, the City Government of Parañaque holds different activities for the cleanliness, rehabilitation and preservation of waterways within the City’s jurisdiction	
PARAÑAQUE RIVER WATER SAMPLING	4
<ul style="list-style-type: none">• Water sampling of the Parañaque River was done with the help of Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB)	
WATER SAMPLES ANALYSIS RESULTS	5
<ul style="list-style-type: none">• Parañaque River is considered to be biologically dead	
OPERATION LINIS ILOG (RIVER CLEAN-UP)	6
<ul style="list-style-type: none">• Donation of trashboat by DENR-EMB for easier operation	
MANILA BAY COASTAL CLEAN-UP	8
<ul style="list-style-type: none">• LPPCHEA CLEAN-UP<ul style="list-style-type: none">✓ Coastal clean-up in LPPCHEA in partnership with different government agencies, NGOs and even private sectors.• INTERNATIONAL COASTAL CLEAN-UP (ICC)<ul style="list-style-type: none">✓ Participation in the Annual International Coastal Clean-Up (30th ICC)	
DECLOGGING OF DRAINAGE AND CANALS	12
<ul style="list-style-type: none">• Declogging operations in the city with the use of Vactor / Jet Sewer Truck	
APPENDICES	
Appendix 1. Operation Linis Ilog	16
Appendix 1.A Total Volume of Wastes Collected as reported in AIP	16
Appendix 1.B Total Volume of Wastes Collected using Trashboat	18
Appendix 2. Tarpaulin Used in Clean-Up, Rehabilitation and Maintenance of Waterways	20

CLEAN-UP, REHABILITATION AND MAINTENANCE OF WATERWAYS

OVERVIEW

Water is one of the most important substances on earth. All plants and animals must have water to survive. If there was no water there would be no life on earth. Clean water is needed for all to live. This means water must be free from bacteria and chemicals. But as technology improves / industrialization increases and as the urbanization of the cities goes higher, researchers are able to detect more pollutants in Earth's freshwater bodies including rivers, streams and groundwater. Water can be collected in many sources and one of them is from lakes and rivers. Since researchers detect more pollutants in these waterbodies, it is not safe for people to use the water from these waterbodies directly.

Clean water provides the foundation for prosperous communities since people rely on it and yet the world is heading towards water crisis. Changing climate patterns are threatening lakes and rivers. The sources that our community tap for drinking water are being tainted with pollution.

Water pollution or the alteration of water quality is the world's biggest health risk that threatens both quality of life and public health in the world. It produces large scale of waterborne diseases and deaths accounting for approximately 50 million deaths per year worldwide.

Trash or solid waste is one of the major contributors in water pollution. It is often transported by stormwater runoff and illegally dumped directly into a waterbody or wetland, or deposited along riverbanks or lakeshores. Stormwater can pick up debris, chemicals, dirt, and other pollutants into a storm sewer system or directly to a lake, stream, river, or coastal water which results to water pollution.

Due to the alarming situation of the waterbodies all over the world, the City Government of Parañaque holds different activities for the cleanliness, rehabilitation and preservation of waterways within the City's jurisdiction. This is made possible with the help of the City Environment and Natural Resources Office (CENRO). These activities are *Operation Linis Ilog (River Clean-Up)*, *Manila Bay Coastal Clean-Up and Declogging of Drainage and Canals*. These activities are done regularly based on requests or based on the submitted report of monitoring team roaming the City. The primary aim of the said activities is for the city to have waterbodies free from wastes that causes water pollution and contributes to global warming.

PARAÑAQUE RIVER WATER SAMPLING


The Parañaque River System is one of the major river systems in the National Capital Region (NCR) that is considered to be biologically dead. Last September 25, 2015, water sampling of the Parañaque River was done with the help of Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB). The samples were taken at four different stations namely, Don Galo, Sto. Niño, Libjo and NAIA Avenue.



Figure 1. Water Sampling of Parañaque River taken at four (4) different stations



Figure 2. Actual reading of water quality monitoring equipment in Don Galo Station


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 Department of Environment and Natural Resources
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PCD-LSS-14-1047


SOURCE PARANAQUE RIVER (MULTI-PARALIZAP)
 SAMPLED BY H. Macanip
 DATE SAMPLED September 25, 2014 DATE SAMPLED September 25, 2014
 DATE ANALYZED September 25, 2014 DATE ANALYZED October 6, 2014


FIELD DATA				
Sample Lab Number	Station No.	Time	Station Identification/Description*	
14-1995WR	1	1045H	DON GALO	
14-1996WR	2	1105H	STO. NINO	
14-1997WR	3	1200H	LIBSO	
14-1998WR	4	1220H	NAIA AVENUE	

RESULTS OF ANALYSES				
Parameter/s	Station 1	Station 2	Station 3	Station 4
BOD, mg/L	48	60	42	30
Dissolved Oxygen, mg/L	0	0	0	0
Total Suspended Solids, mg/L	40	50	40	40
Phosphate-Phosphorus, mg/L	18.4	23.5	16.1	14.9
Nitrate-Nitrogen, NO ₃ -N, mg/L	8.9	9.8	8.4	7.9


METHODS OF ANALYSIS: Standard Methods for the Examination of Water and Wastewater, 19th Edition 1995, APHA-AWWA

Analyzed by:



 NEIL JHON G. TADEO


 LEA P. FERRIS

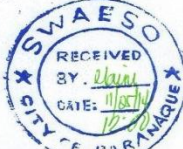
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 JENNYLYN C. VICENTE
 Head, Laboratory Services Unit

Noted by:


 VIZMIN A. SORIO
 OIC, Regional Director and Concurrent Chief, Pollution Control Division

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 ENVIRONMENTAL MANAGEMENT BUREAU
 NATIONAL CAPITAL REGION
 DENR Compound, Brgy. Central,
 East Avenue, Diliman, Quezon



WATER SAMPLES ANALYSIS RESULTS

The samples were analyzed at the laboratory in DENR-EMB. The results of the analyses showed that Parañaque River is considered to be biologically dead. The pH of the water samples and the Nitrate – Nitrogen content are within the range yet the Biochemical Oxygen Demand (BOD), Dissolved Oxygen (DO), Total Suspended Solids (TSS) and Phosphate – Phosphorus content of the samples exceeded the standards of EMB as stated in the Philippine Clean Water Act of 2004.

Figure 3. Parañaque River Water Sample Results

OPERATION LINIS ILOG (RIVER CLEAN-UP)

Operation Linis Ilog or River Clean-Up is one of the activities of CENRO that is done once a week. Refer to Appendix 1.A for the total volume of wastes collected by the task force last 2014.



Figure 5. CENRO Task Force during Operation Linis Ilog

The DENR has donated one trashboat that made the work of the task force easier. The trashboat is 30 ft long, and 12 ft wide. It is made up of fiber glass and there are 14 trash bins where the wastes are being collected. It's operating once a week in Parañaque River. Refer to Appendix 1.B for the volume of wastes collected by the task force using the trashboat.



Figure 6. Trashboat donated by DENR-EMB to Parañaque City

Operation Linis Ilog & Manila Bay



TRASH BOAT OPERATION

Operation Linis Ilog along **Parañaque River** using trash boat donated by DENR.

Operation Linis Ilog & Manila Bay



Operation Linis Ilog & Manila Bay



Figure 7. Trashboat during *Operation Linis Ilog* in Parañaque River

MANILA BAY COASTAL CLEAN-UP

- **LPPCHEA CLEAN-UP**

The City of Parañaque conducts coastal clean-up in LPPCHEA in partnership with different government agencies, NGOs and even private sectors.



LPPCHEA Clean-up



After the Coastal Cleanup drive of NDRRM



LPPCHEA Clean-up



2nd Quarter Manila Bay Clean- Up activity held at LPPCHEA on May 16, 2015 conducted by the Manila Bay SUNSET Partnership Program, Inc. (MBSPPPI).



LPPCHEA Clean-up



After the 2nd Quarter Manila Bay Clean-up activity



- **INTERNATIONAL COASTAL CLEAN-UP (ICC)**

The City of Parañaque is also active in participating in the Annual International Coastal Clean-Up. Last September 19, 2015, the 30th ICC was held at Bulungan in Barangay La Huerta.

30th International Coastal Cleanup 2015

Bulungan Market, Barangay La Huerta



30th International Coastal Cleanup 2015



30th International Coastal Cleanup 2015



30th International Coastal Cleanup 2015



DECLOGGING OF DRAINAGE AND CANALS

The City does not only involve in the cleanliness, rehabilitation and preservation of the major river system. Declogging of the community's drainage and canals is also part of the cleanliness project.



Figure 8. Vector / Jet Sewer Truck

The one unit vector / jet sewer truck is the equipment used in the declogging operations. It is used to extract / siphon sludges that clog the drainage system. It has a capacity of 2.27 tons.

Drainage De-clogging Operation



1st Drainage Declogging at La huerta Public Market.

Drainage De-clogging Operation



Drainage De-clogging Operation at Budoni 4th estate San Antonio

Drainage De-clogging Operation

During the operation, using vector truck



Before the operation, drainage overflow



After drainage declogging operation



Drainage De-clogging Operation at Sunrise 4th estate San Antonio

Drainage De-clogging Operation



Drainage De-clogging Operation at Landscape, 08.2.15

Drainage De-clogging Operation



Drainage De-clogging Operation at Landscape, 08.2.15

Drainage De-clogging Operation



Drainage De-clogging Operation Felicity Malacañang (Dulo)

APPENDICES

Appendix 1. Operation Linis Ilog

Appendix 1.A Total Volume of Wastes Collected as reported in AIP

CY 2014 ANNUAL ACCOMPLISHMENT REPORT By Program/Project/Activity by Sector January to December 2014 CITY ENVIRONMENT AND NATURAL RESOURCES OFFICE (CENRO) SOLID WASTE MANAGEMENT AND ENVIRONMENTAL SANITATION OFFICE (SWAESO)					
PROGRAM/PROJECT/ACTIVITY DESCRIPTION	IMPLEMENTING OFFICE / DEPARTMENT	DATE OF ACCOMPLISHMENT	STATUS	VOLUME	REMARKS
I. Manila Bay Continuing Mandamus Compliance					
A. Waterways Clean-Up					
1. Operation Linis Ilog/Estero (Rivers/Creeks Clean-Up)	CENRO	January to December 2014	On-going	1,231 cu m or 370 tons	City Wide
2. Manila Bay Coastal Clean-Up (Bulungan Area/Freedom Island)		January to December 2014	On-going	645 cu m or 194 tons	
3. International Coastal Clean-Up (ICC)	CENRO/DENR	September 27, 2014	Completed	66 cu m or 20 tons	Brgy. Don Galo
B. Survey on Violations of Sewerage Disposal System					
a. Commercial Establishments	CENRO, City Health, Engineering, Legal, City Building Official & BPLO (Special Action Team)		Completed	Total CEs Inspected: 201	CEs Compliant – 79 CEs Non-Compliant – 122
b. Institution (Schools)		September 24 to November 30, 2014	Completed	Total Inst. Inspected: 7 Private School – 5 Public School – 2	Inst. Compliant – 1 Inst. Non-Compliant – 6
c. Factories			Completed	Total Fs Inspected: 7	Fs Compliant – 5 Fs Close Operation – 2
d. Households			Completed	Total HH Inspected: 1,897	HH Compliant – 662 HH Non-Compliant – 1,235
C. Liquid Waste Cluster (Water Sampling)	CENRO/DENR	September 25, 2014	Completed		Parañaque River & Other Connecting Waterways: Sto. Niño Bridge, Don Galo – La Huerta Bridge and NAIA Bridge
II. Environment Sanitation					
A. Collection & Disposal of Residual Waste (LEONEL Waste Mgt)	CENRO	January to December 2014	On-going	651,141 cu m or 195,342 tons	City Wide
B. Collection & Disposal of Garden Waste	CENRO	January to December 2014	On-going	1,222 cu m or 367 tons	City Wide
C. Sidewalk Clearing	CENRO	January to December 2014	On-going	4,809 cu m or 1,443 tons	City Wide
D. Grass Cutting	CENRO	January to December 2014	On-going	87 cu m or 26 tons	City Wide
E. Waste Analysis Characterization Study (WACS)	CENRO, DILG & MMDA	September 29 to October 3, 2014	Completed		Results with MMDA
III. Information, Education & Communication Campaign					
A. IEC Campaign on SWM and Air & Water Pollution					
1. Sixteen (16) Barangays (Residential) – Ecological Solid Waste Management for Home Owners Associations (HOAs)	CENRO/DENR	January to December 2014	On-going	No. of HOAs visited: 2,976 6,463 <u>19,211</u> Total: 28,650	Barangays visited: Brgy. BF Brgy. San Antonio Brgy. San Isidro
2. Industrial & Commercial Establishments	CENRO	January to December 2014	On-going	No. of Industrial and Commercial Establishments informed: 987	See attached leaflets

B. Seminars, Workshops, Consultative Meetings Conducted	CENRO	1. SWM Seminar for Newly-Elected Barangay Officials	January 27-29, 2014	Completed	No. of CENRO Personnel/Attendees: 50	Tagaytay Country Hotel
		2. Lakbay Aral (visited MRF and Resources Recovery)		Completed	20	Las Piñas City
		3. SWM Board Meeting	January to December 2014	On-going	31	Every 1 st Fridays of the Month
		4. BantayKalikasan	November 4-6, 2014	Completed	159	
			November 10, 2014	Completed	74	
		5. Manila Bay Clean-Up, Rehabilitation & Preservation (MBCRP) Special Action Team – Survey Briefing	September 22, 2014	Completed	36	
		6. SWMB and MBCRP – Joint Meeting	September 26, 2014	Completed	11	Conference Rm. 1, Legislative Bldg., Parañaque City Hall
7. Environmental Summit	DENR – MBSCO /CENRO		October 24, 2014	Completed	36	
			September 12, 2014	Completed	49	
			December 5, 2014	Completed	29	
			October 22, 2014	Completed	50	ICON Hotel, Macapagal Don Galo, Parañaque City
C. Seminars, Workshops, Consultative Meetings Attended	CENRO/MMDA	1. WACS Trainers' Training (San Mateo, Rizal)		Completed	No. of CENRO Personnel/Attendees: 3	San Mateo, Rizal
		2. MUNTIPARLASPIZAP	October 10, 2014	Completed	38	Conference Rm. 1, Legislative Bldg., Parañaque City Hall
	DENR/NSWMC	3. Writeshop on the Formulation of 10-Year Solid Waste Management Plan For NCR LGU	October 15-17, 2014	Completed	2	Country Chateau, Tagaytay City
		4. MUNTIPARLASPIZAP RMC Year-End Assessment	December 3-5, 2014	Completed	4	Eurotel Hotel, Las Piñas City
IV. Special Operations						
A. Disaster Area Clean-Up	CENRO	1. Fire Debris	January to December 2014	Completed	312 cu m or 94 tons	
		2. Typhoon Debris	July & August 2014	Completed	553 cu m or 166 tons	

V. Environmental Protection						
A. Tree Planting	CENRO	1. Cleanliness, Beautification and Sanitation (CBS)	March to November 2014	Completed	As of Oct. 21, 2014: Planted 1,193 trees (Golden Duranta – 150, Banaba – 184, Molave – 90, Guyabano – 280, Mangga – 280, Bungang China – 129, Palmera – 80)	16 Barangays
		2. Bamboos along waterways	January to December 2014	Completed	As of Dec. 17, 2014: Planted 3,000 bamboos	4 Barangays (Brgy. Moonwalk, Brgy. Don Bosco, Brgy. San Isidro and Brgy. San Dionisio)

Submitted By:

BERNARDO N. AMURAO
OIC, CENRO-SWAESO

Appendix 1.B Total Volume of Wastes Collected using Trashboat

JUNE




CITY ENVIRONMENT AND NATURAL RESOURCES OFFICE
Parañaque City

TRASH BOAT OPERATION
Weekly Activity Report
C.Y. 2015

MONTH: JUNE

ACTIVITY UNDERTAKEN **As of DATE**



DATE	CLASSIFICATION OF GARBAGE/SOLID WASTE COLLECTED			LOCATION	LENGTH of River	SPECIAL	OUTPUT		
	BIODEGRADABLE	RECYCLABLE	RESIDUAL				TOTAL	#SACKS	REMARKS
3	765 Kgs.	375 Kgs.	135 Kgs.	PARAÑAQUE RIVER	1 Km.		1,275 Kgs.		
12	510 Kgs.	255 Kgs.	75 Kgs.	PARAÑAQUE RIVER	750 m		840 Kgs.		
20	330 Kgs.	190 Kgs.	30 Kgs.	PARAÑAQUE RIVER	500 m		550 Kgs.		
29	327 Kgs.	169 Kgs.	49 Kgs.	PARAÑAQUE RIVER	500 m		545 Kgs.		
TOTAL	1,932 Kgs.	989 Kgs.	289 Kgs.				3,210 Kgs.		
PERCENTAGE	60.19%	30.81%	9%						

- BIODEGRADABLE - TREE CUTTINGS, WOOD CHUNKS, BAMBOOS, TRUNKS, BRANCHES
- RECYCLABLE - PLASTIC BOTTLES, SACHETS, SANDO BAGS, TOYS, OTHER PLASTICS
- RESIDUAL - BAGS, OLD CLOTHES, RUBBER SLIPPERS, SANDALS, OLD SHOES

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JULY

CITY ENVIRONMENT AND NATURAL RESOURCES OFFICE
Parañaque City

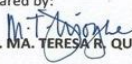
TRASH BOAT OPERATION
Weekly Activity Report
C.Y. 2015

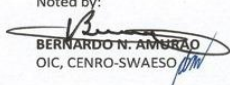
MONTH: JULY

ACTIVITY UNDERTAKEN **As of DATE**



DATE	CLASSIFICATION OF GARBAGE/SOLID WASTE COLLECTED			LOCATION	LENGTH of River	SPECIAL	OUTPUT		
	BIODEGRADABLE	RECYCLABLE	RESIDUAL				TOTAL	#SACKS	REMARKS
	649	352	137	PARAÑAQUE RIVER	1.5 Km		1,138 Kgs.		
	528	282	100	PARAÑAQUE RIVER	1 Km		910 Kgs.		
	499	280	96	PARAÑAQUE RIVER	750 m		875 Kgs.		
	438	235	83	PARAÑAQUE RIVER	750 m		756 Kgs.		
TOTAL	2,114	1,149	416				3,679 Kgs.		
PERCENTAGE	57.46	31.23	11.31				100%		
25	975	432	633	LPPCHEA (FREEDOM ISLAND)	1.5 Km		2,040 Kgs.		
PERCENTAGE	47.79	21.18	31.03				100%		

- * BIODEGRADABLE - TREE CUTTINGS, WOOD CHUNKS, BAMBOOS, TRUNKS, BRANCHES
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- * RESIDUAL - BAGS, OLD CLOTHES, RUBBER SLIPPERS, SANDALS, OLD SHOES

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AUGUST

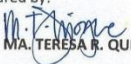
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 Parañaque City
TRASH BOAT OPERATION
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 C.Y. 2015

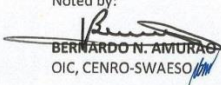
MONTH: AUGUST

ACTIVITY UNDERTAKEN **As of DATE**



DATE	CLASSIFICATION OF GARBAGE/SOLID WASTE COLLECTED			LOCATION	LENGTH of River	SPECIAL	OUTPUT		
	BIODEGRADABLE	RECYCLABLE	RESIDUAL				TOTAL	#SACKS	REMARKS
7	469	334	142	PQUE. RIVER	1 Km		945		
12	380	232	90	PQUE. RIVER	750 m		702		
18	449	332	117	PQUE. RIVER	1 km		898		
22	277	178	52	PQUE. RIVER	500 m		507		
TOTAL	1,575	1,076	401				3,052		
PERCENTAGE	51.60	35.26	13.14				100%		

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SEPTEMBER


CITY ENVIRONMENT AND NATURAL RESOURCES OFFICE
 Parañaque City
TRASH BOAT OPERATION
 Weekly Activity Report
 C.Y. 2015

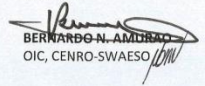
MONTH: SEPTEMBER

ACTIVITY UNDERTAKEN **As of DATE**

DATE	CLASSIFICATION OF GARBAGE/SOLID WASTE COLLECTED			LOCATION	LENGTH of River	SPECIAL	OUTPUT		
	BIODEGRADABLE	RECYCLABLE	RESIDUAL				TOTAL	#SACKS	REMARKS
3	525	304	338	PQUE. RIVER	1 Km		1,167		
9	409	264	179	PQUE. RIVER	750 m		852		
23	475	300	258	PQUE. RIVER	1 Km		1,033		
24	326	213	126	PQUE. RIVER	500 m		665		
27	441	281	216	PQUE. RIVER	1 Km		938		
TOTAL	2,176	1,362	1,117				4,655		
PERCENTAGE	46.74	29.26	24						
19	2,736	3,466	2,918	PQUE. FISHPORT (BULUNGAN) LOCALIZED-ICC	1 Km		9,120		
PERCENTAGE	30%	38%	32%						

* BIODEGRADABLE - TREE CUTTINGS, WOOD CHUNKS, BAMBOOS, TRUNKS, BRANCHES
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Appendix 2. Tarpaulin Used in Clean-Up, Rehabilitation and Maintenance of Waterways

