

ADB Presentation

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Gina Lopez
April 24, 2012

Effect on the Environment



Estero de Paco - Headwater Section

Effect on the Environment



Estero de Paco - Headwater Section

Effect on the Environment



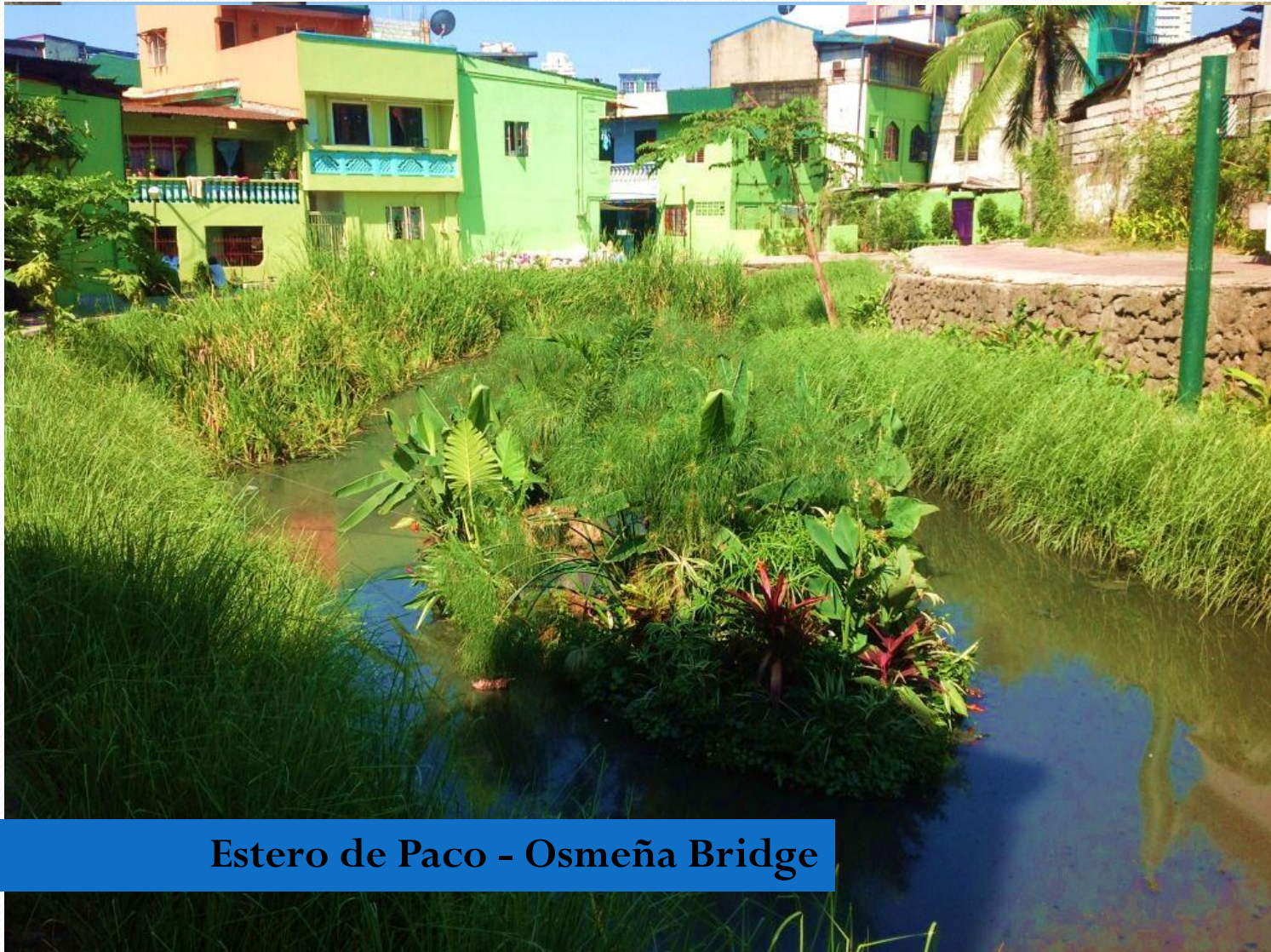
Estero de Paco - Headwater Section

Effect on the Environment



Estero de Paco - Headwater Section

Effect on the Environment



Estero de Paco - Osmeña Bridge

Effect on the Environment



Estero de Paco - Quirino Bridge

Effect on the Environment



Estero de Paco - Paco Market

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Effect on the Environment



Quirino – Trece de Agosto

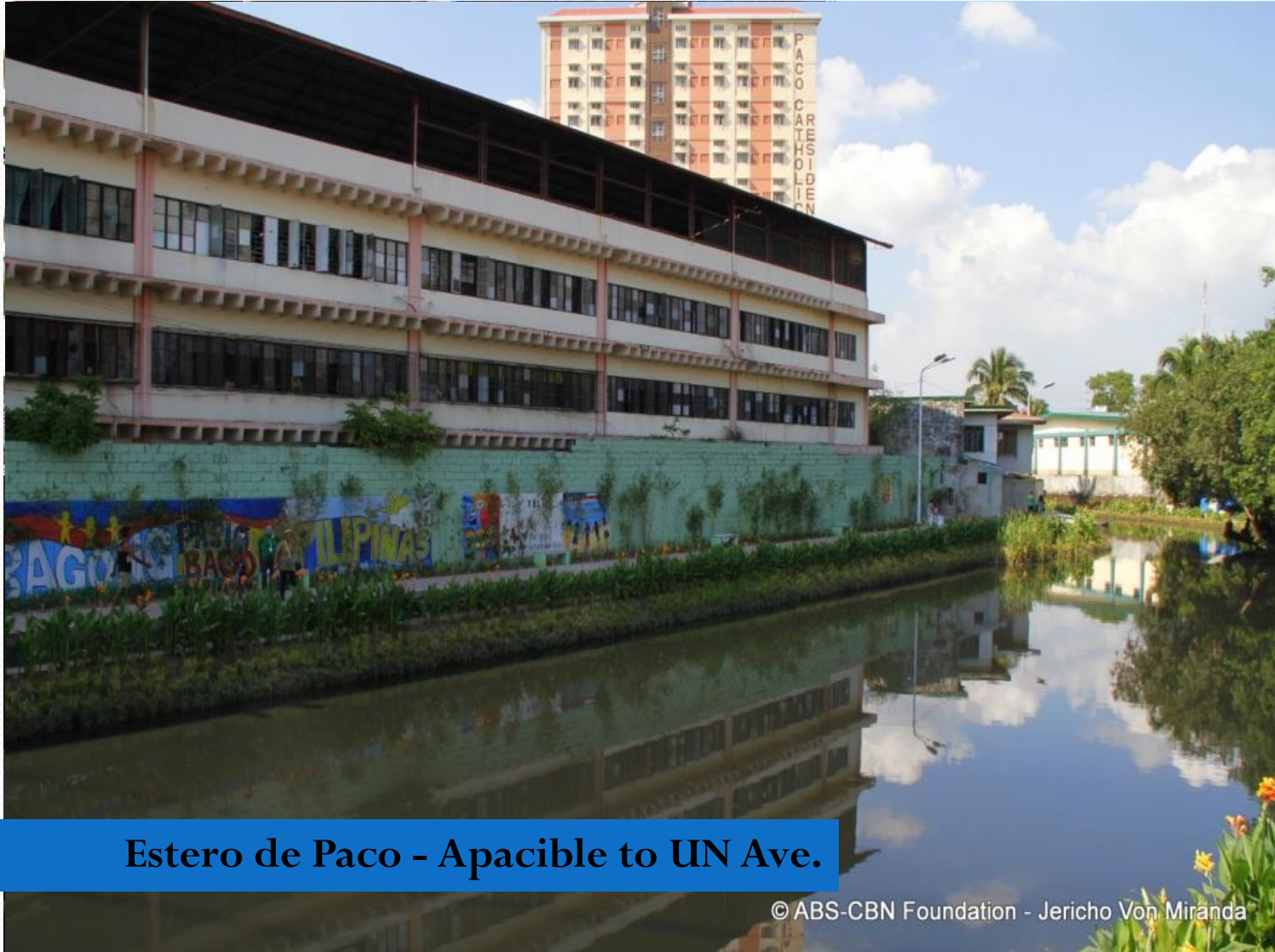
Effect on the Environment



Estero de Paco - Trece de Agosto

© ABS-CBN Foundation - Jericho Von Miranda

Effect on the Environment



Estero de Paco - Apacible to UN Ave.

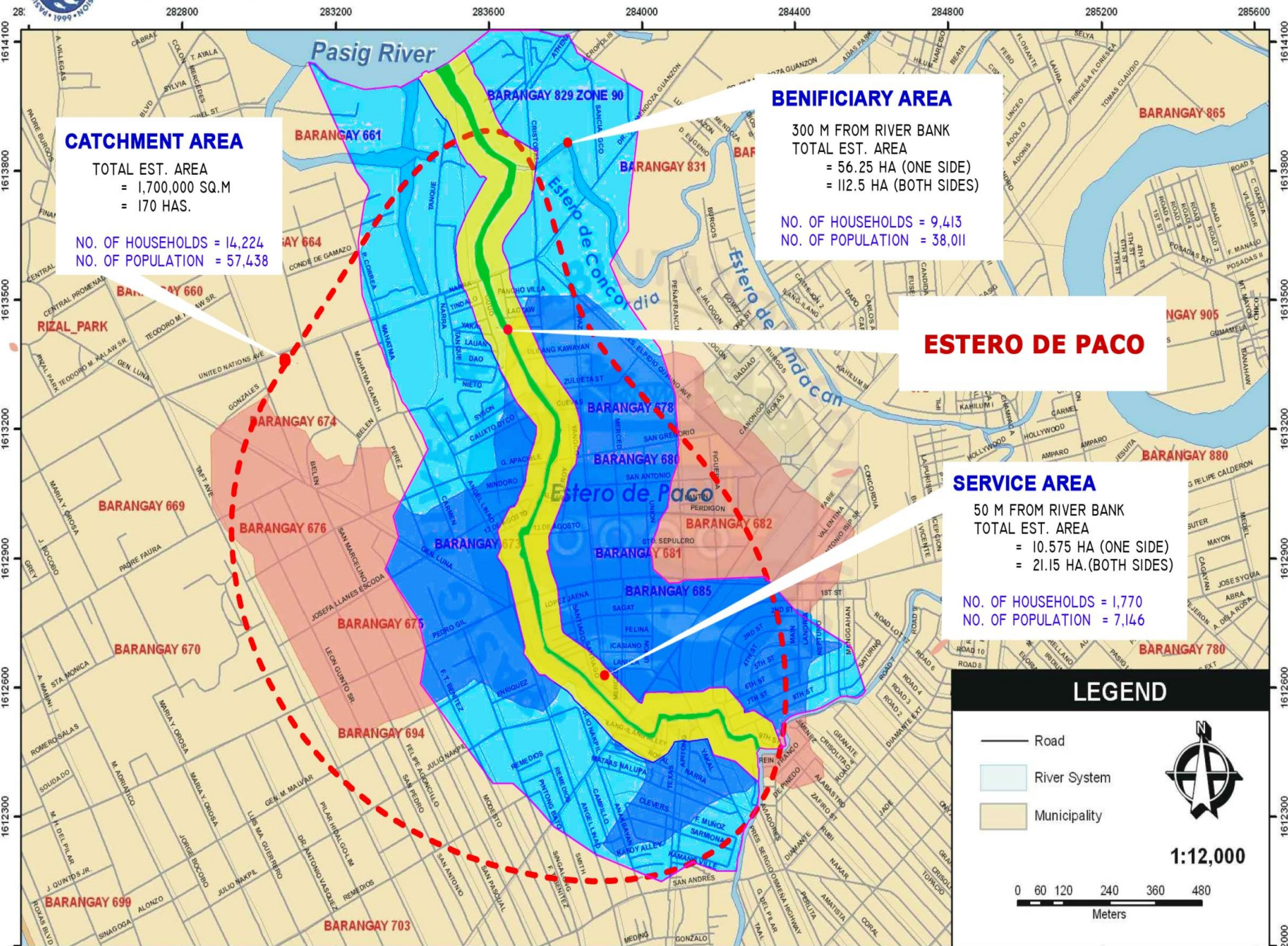
River Warriors





ESTERO DE PACO

VICINITY MAP



CATCHMENT AREA

TOTAL EST. AREA
= 1,700,000 SQ.M
= 170 HAS.

NO. OF HOUSEHOLDS = 14,224
NO. OF POPULATION = 57,438

BENEFICIARY AREA

300 M FROM RIVER BANK
TOTAL EST. AREA
= 56.25 HA (ONE SIDE)
= 112.5 HA (BOTH SIDES)

NO. OF HOUSEHOLDS = 9,413
NO. OF POPULATION = 38,011

ESTERO DE PACO

SERVICE AREA

50 M FROM RIVER BANK
TOTAL EST. AREA
= 10.575 HA (ONE SIDE)
= 21.15 HA. (BOTH SIDES)

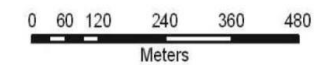
NO. OF HOUSEHOLDS = 1,770
NO. OF POPULATION = 7,146

LEGEND

- Road
- River System
- Municipality



1:12,000



RDO NO. 34		PACO/PANDACAN/STA. ANA	
		DO No.	37-03
CITY/MUNICIPALITY: MANILA/METRO MANILA		Effectivity date	1-Mar-04
RDO NO. 34		PACO/PANDACAN/STA. ANA	
		DO No.	37-03
CITY/MUNICIPALITY: MANILA/METRO MANILA		Effectivity date	1-Mar-04
BAKANGAY: 6//		ZONE: /4	
		CLASSI-	4TH REVISION
STREET/SUBDIVISION		FICATION	ZV/SQ.M.
BATUTE	EST. DE PACO-CRISTOBAL	RR	4,040.00
CRISTOBAL	ROTONDA ZULUETA	CR	11,070.00
CHIVAS	ULILANG KAWAYAN-PAZ	RR	4,040.00
LACTAO	EST. DE PACO-CRISTOBAL	RR	4,040.00
PAZ	SAN GREGORIO-QUIRINO AV	RR	5,100.00
PAZ	SAN GREGORIO-QUIRINO AV	CR	13,125.00
QUIRINO AVENUE	ROTONDA PAZ	CR	33,400.00
SAN GREGORIO	EST. DE PACO-PAZ	RR	6,060.00
ULILANG KAWAYAN	EST. DE PACO-END	CR	8,820.00
UN AVENUE	EST DE PACO-ROTONDA	CR	48,750.00
UN AVENUE	EST DE PACO-ROTONDA	I	33,750.00
UN AVENUE	EST DE PACO-ROTONDA	RC	48,750.00
ZULUETA	CRISTOBAL-PAZ	RR	4,040.00

Simple Benefit Calculation

Benefit to the Land Owners Benefit to the Government

Total Area: 668,250 sq. Meters

Less Road

and Common Areas : 133,650

Residential and Com Area: 534,600

Land Value Increase:

Ave. Land Value in Affected Area: 7,000/sq.m

Value After 20 years: 50,000/sq. meter

Gain in Value: 42,000/sq. meter

Average Land Size: 50 sq. meters

Ave. Benefit per Land Owner: P2,100,000

TOTAL BENEFITS FOR Land Owners :

p22,453,200,000 after 20 years

Land Tax:

Ave. Increase in Value in 20 Years

$42,000/20 = 2,100$

$2,100 \times 534,600 = 1,122,660,000$

$1,122,660,000 \times 2.5\% = \text{P}28,000,000/\text{year}$

$28,000,000 \times 20 = \text{561,330,000}$

Real Estate Tax:

Ave. Increase in value of Real Estate

Structures in 20 years = $75,000 - 15,000/20$
 $= 3,000$


$3,000 \times 534,600 = 1,603,800,000$

$1,603,800,000 \times 2.5\% = 40,095,000$

$40,095,000 \times 20 = \text{P}801,900,000$

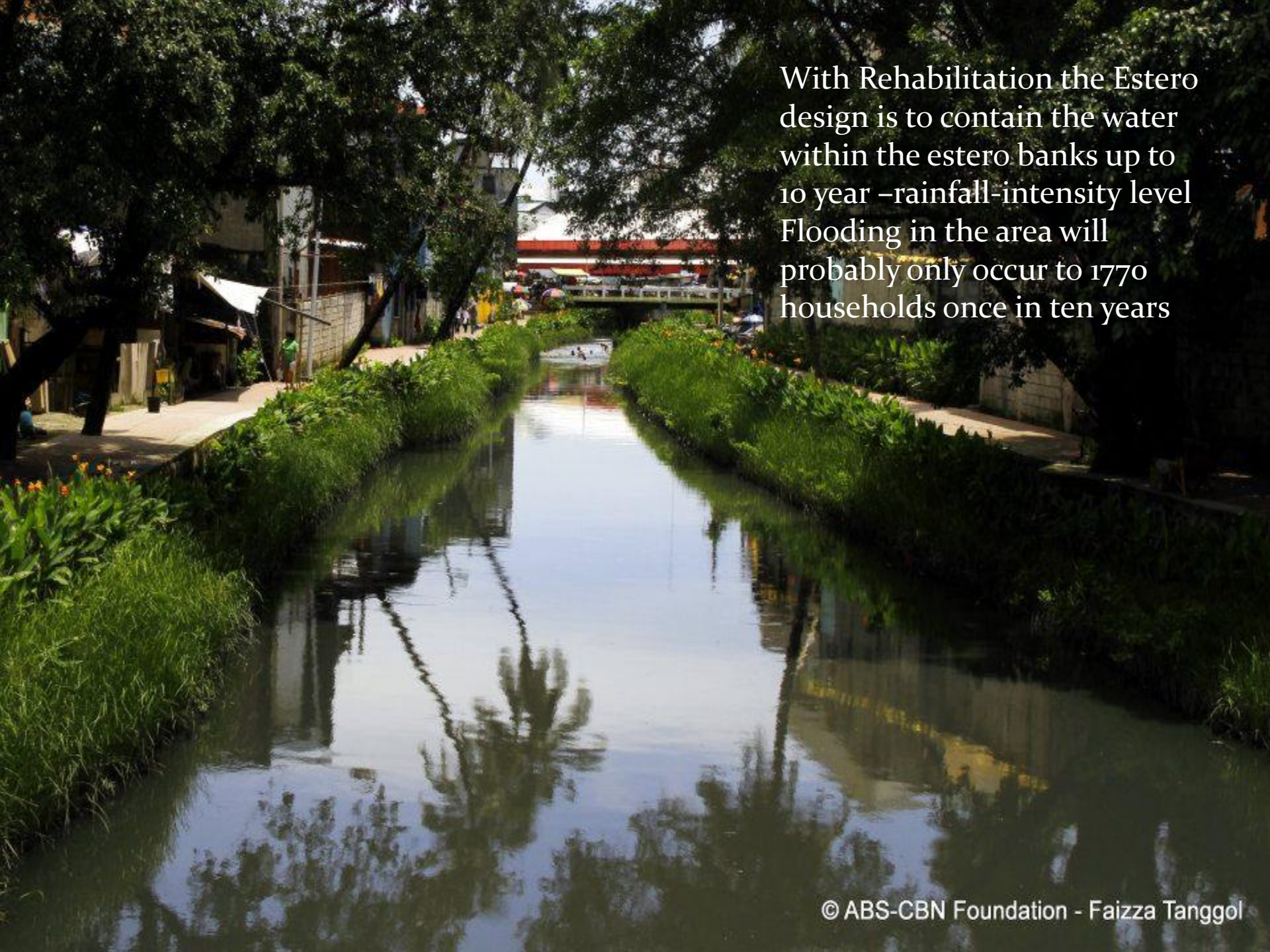
TOTAL BENEFIT FOR GOVERNMENT FOR

20 YEARS: 1,363,230,000



Clogged and Shallow Estero de Paco, about 1,770 households are flooded every year for up to 12 hrs.

An additional 4,500 households are flooded every 3 years for 6 to 12 hrs



With Rehabilitation the Estero design is to contain the water within the estero banks up to 10 year –rainfall-intensity level Flooding in the area will probably only occur to 1770 households once in ten years



Each household loses an average of P3,500 for temporary transfer to other locations, repairs and clean-up, and income loss due to failure to report for work, every flood incidence.

What Paco Residents do not have to Spend

Flood Occurence	Affected Households	Per Year	Amount of Damage for 20 years
One -Year Rainfall Intensity	1,770	6,195,000	123,900,000.00
Three -Year Rainfall Intensity	4,500	15,750,000	94,500,000.00
Total	6,270		218,400,000.00

Recreational Value

Paco Residents do not have to go to a faraway park or seaside to take a leisurely walk and relax

Recreational Value Of Estero de Paco



- A sample pre-survey questionnaire taken from 7,000 households living within 200 meters from the 2.7 km Estero de Paco revealed that they save about P180 a month from not going to other places to relax

Paco at Night



What Paco Residents do not Have to Spend

Number of Households	Average Savings/month	Savings /year	20 Years Savings
6,270	180	13,543,200.00	270,864,000.00

HEALTH

Maybe it is psychological due to more healthy environment. But there is a significant improvement in health of Residents along the Estero

Health Benefits of Estero de Paco Development

- A sample pre-survey questionnaire taken from 7,000 households living within 200 meters from the 2.7 km Estero de Paco, 85% of the respondents revealed that they spent about P2,659 before Estero Clean-up and P1,840 for a savings of P819 a month



What Paco Residents do not Have to Spend

85% of the Number of Households	Average Medical Savings/month per household	Savings /year	20 Years Savings
5,078	819	49,913,463.60	998,269,272.00



Close Up

Water Quality Before:



Water Quality Before

Before Active Zones:

WATER QUALITY:

We have come a very long way,
and we still have lots of work to do.
Two more treatment phases proposed
< 10% on Active Water Quality So Far.

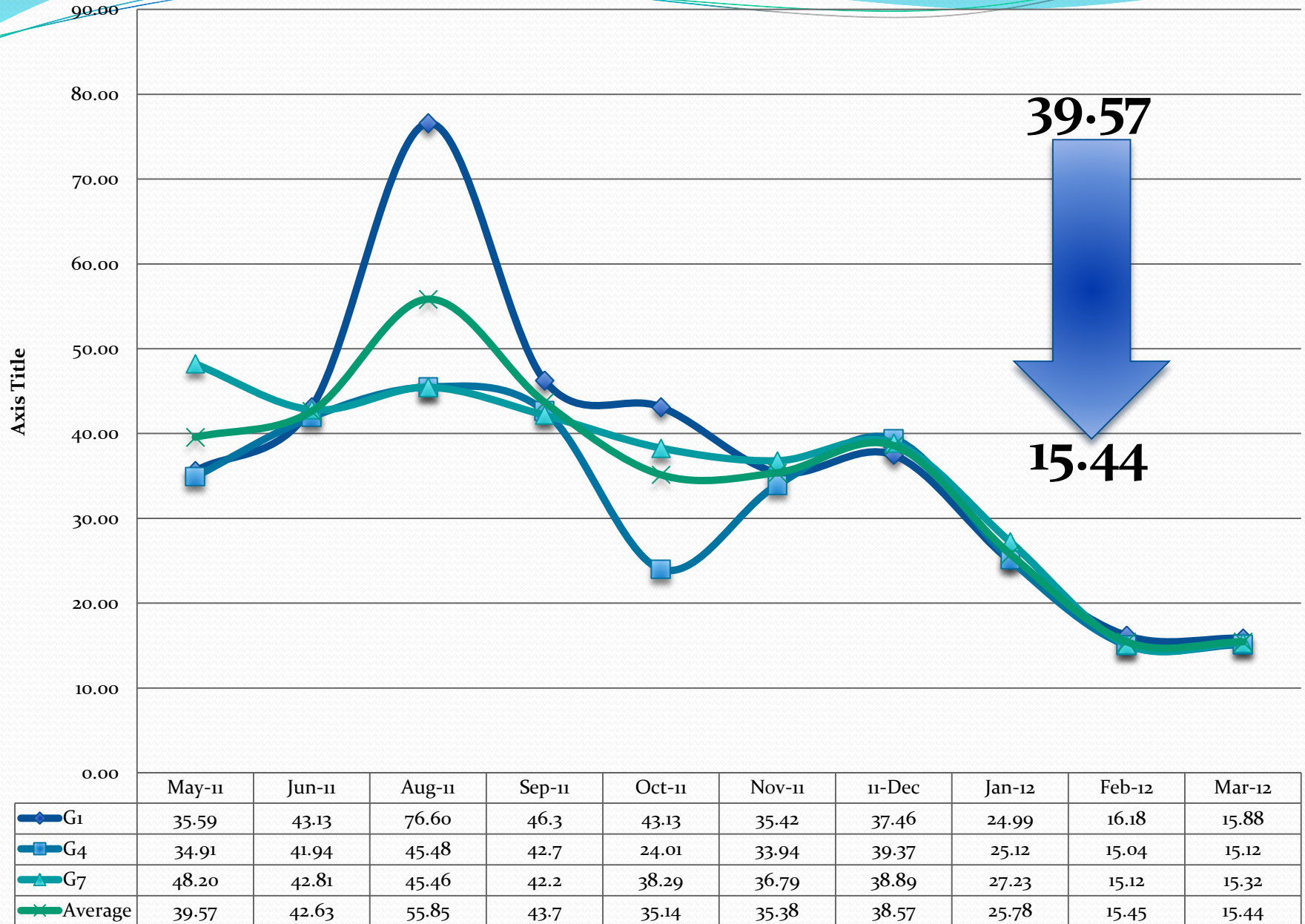


Water Quality Current

Lighter Water In Active Zone:



Total Coliform



Other Benefits

Reduced Crime Incidence: A sample of 7 barangays out of 16 in the Estero de Paco revealed a 40% reduction in crime incidence in the area based on the barangay blotter.

Increased Employment Opportunities: After an urban river Rehabilitation, increase in economic activities follow and employment opportunities increase by at least 300% over a 20 year period.

Estero de Paco Residents' Perceptions on the Benefits of the Estero de Paco Rehabilitation

Perceived Benefits of Residents of Paco	Agree	Disagree
Feel Less Sick	89%	11%
Lower Medical Expenses	85%	15%
Community Pride	97%	3%
Happier Community	97%	3%
Stronger Unity	96%	4%
Feel Safer	89%	11%
Motivation to Clean Up	97%	3%
Greater Peace of Mind	97%	3%
Getting More Exercise	100%	0%
Greater Life Satisfactopn	97%	3%

Total Benefits

The River is a very important component of a city's growth. There is no way of accurately measuring the total value of bringing it back to life. There are only some which we can project for 20 years and quantify:

	For the Residents	For the Government
Land Value	p22,453,200,000.00	
Land Tax		P561,330,000.000
Real Property Tax (Buildings)		P801,900,000.000
Savings from Less Flooding	P218,400,000.00	
Recreational Value	P270,864,000.00	
Savings from Decreased Medical Expenses	P998,269,272.00	
TOTAL	P 23,940,733,272.00	P1,363,230,000.00

Before

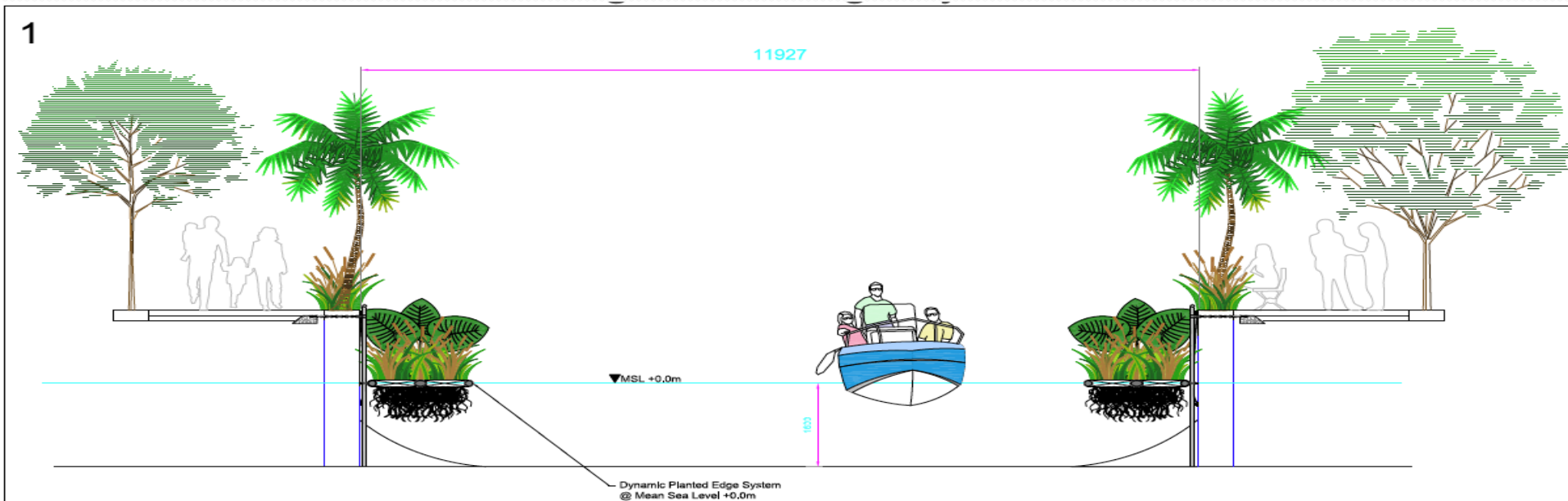


High Water Level

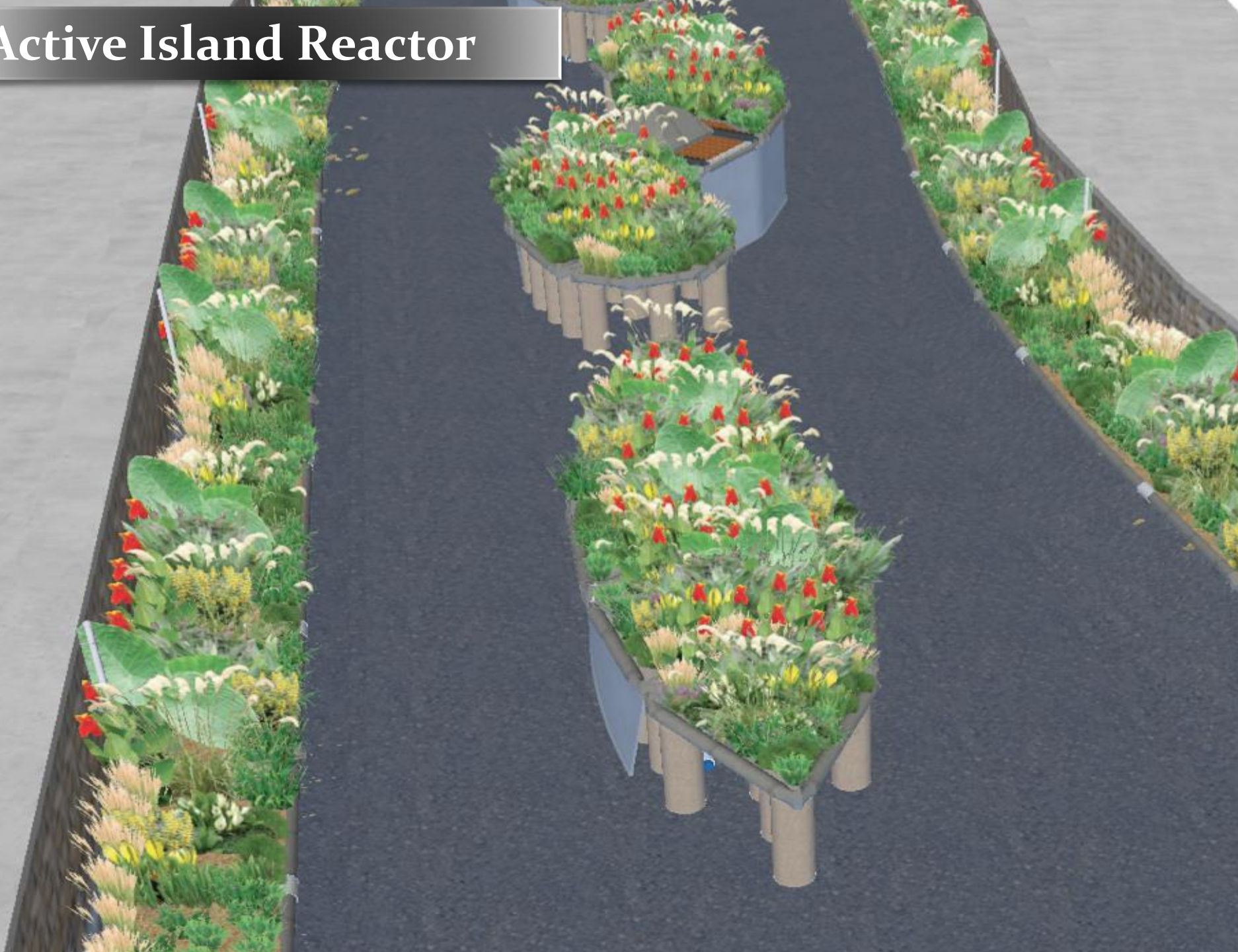


FLOATING ACTIVE EDGE® TECHNOLOGY

- Prevents flooding, > 50% more cross sectional area, half the water velocity.
- Bioremediation area increased by 10 times.
- Rapid implementation Scottish technology.
- No construction below water level.

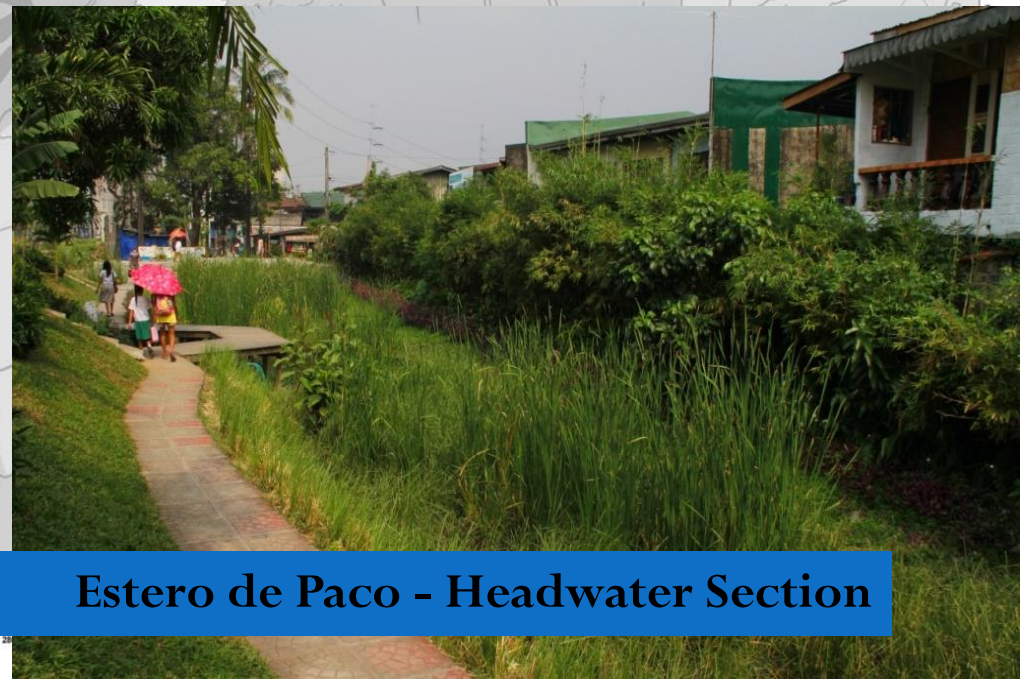
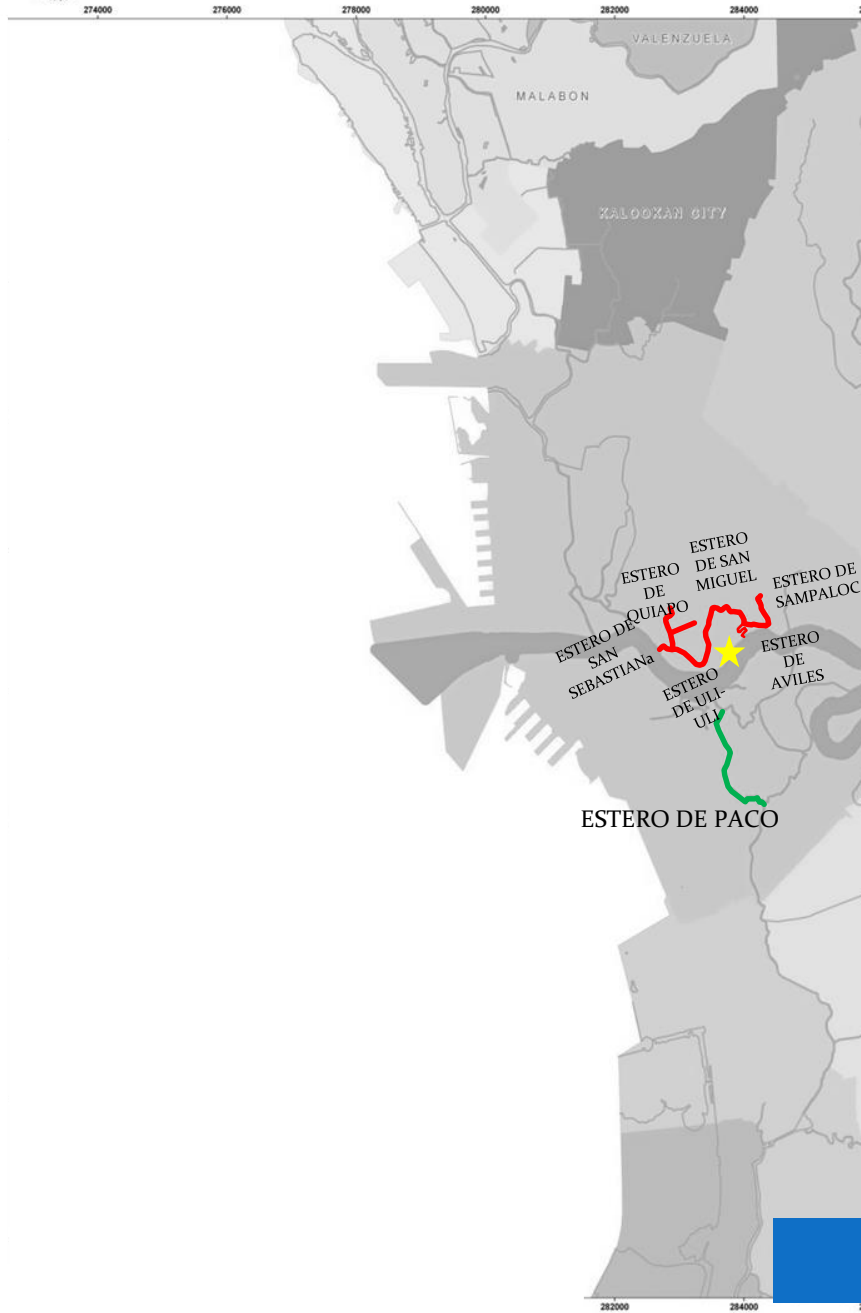


Active Island Reactor

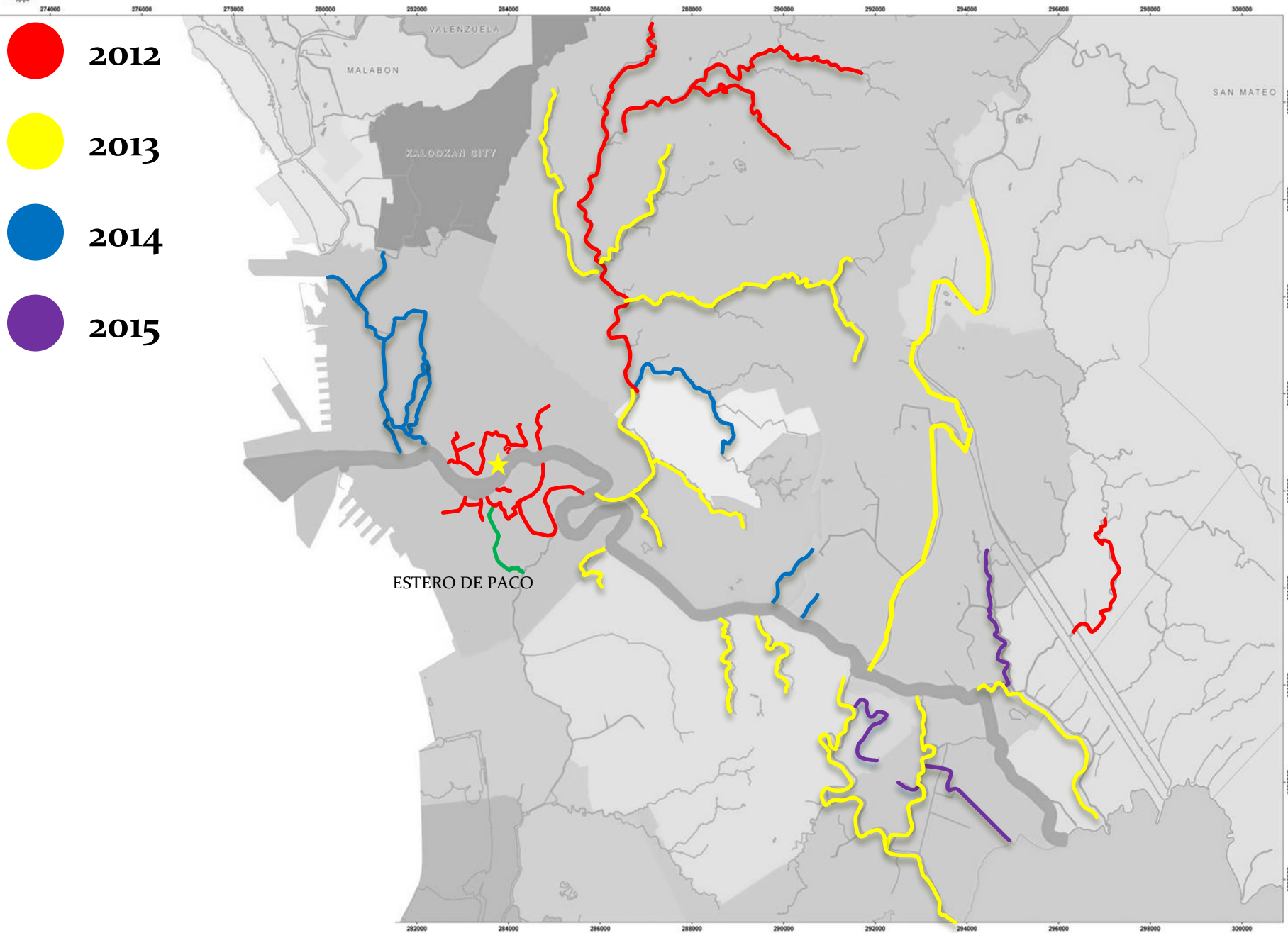


FLOATING ACTIVE EDGE





Estero de Paco - Headwater Section





2012

EXISTING CONDITION:



Estero de Aviles (RMMW-EDAVI-03) City of Manila

Length = **503.08 m**
Ave. Width = **6.02 m**
Ave. Depth =
Estimated = 28
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2012**

ESTIMATED COST: **PHP 16,150,908.82**



EXISTING CONDITION:



Estero De Uli-Uli (RMMW-EDU-02) City of Manila

Length = 596.83 m
Ave. Width = 8.39 m
Ave. Depth =
Estimated = 806
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: 2012

Estimated Cost: **PHP 24,096,199.33**



EXISTING CONDITION:



Estero De Quiapo (RMMW-EDQ-04) City of Manila

Length = **745.20 m**
Ave. Width = **13.71 m**
Ave. Depth =
Estimated = 1052
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2012**

Estimated Cost: **PHP 30,180,903.20**



EXISTING CONDITION:



Estero De San Sebastian (RMMW-EDSS-05)

Length = 377.53 m
Ave. Width = 10.04 m
Ave. Depth =
Estimated = 40
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: 2012

Estimated Cost: **PHP 14,351,558.64**



EXISTING CONDITION:



Estero De Sampaloc (RMMW-EDSAM-06)

Length = 1139 m
Ave. Width = 15.90 m
Ave. Depth =
Estimated = 82
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2012**

Estimated Cost: **PHP 44,272,507**



EXISTING CONDITION:



Estero De Valencia (RMMW-EDVAL-07) City of Manila

Length = 1121.73 m
Ave. Width = 7.71 m
Ave. Depth =
Estimated = 200
of ISF

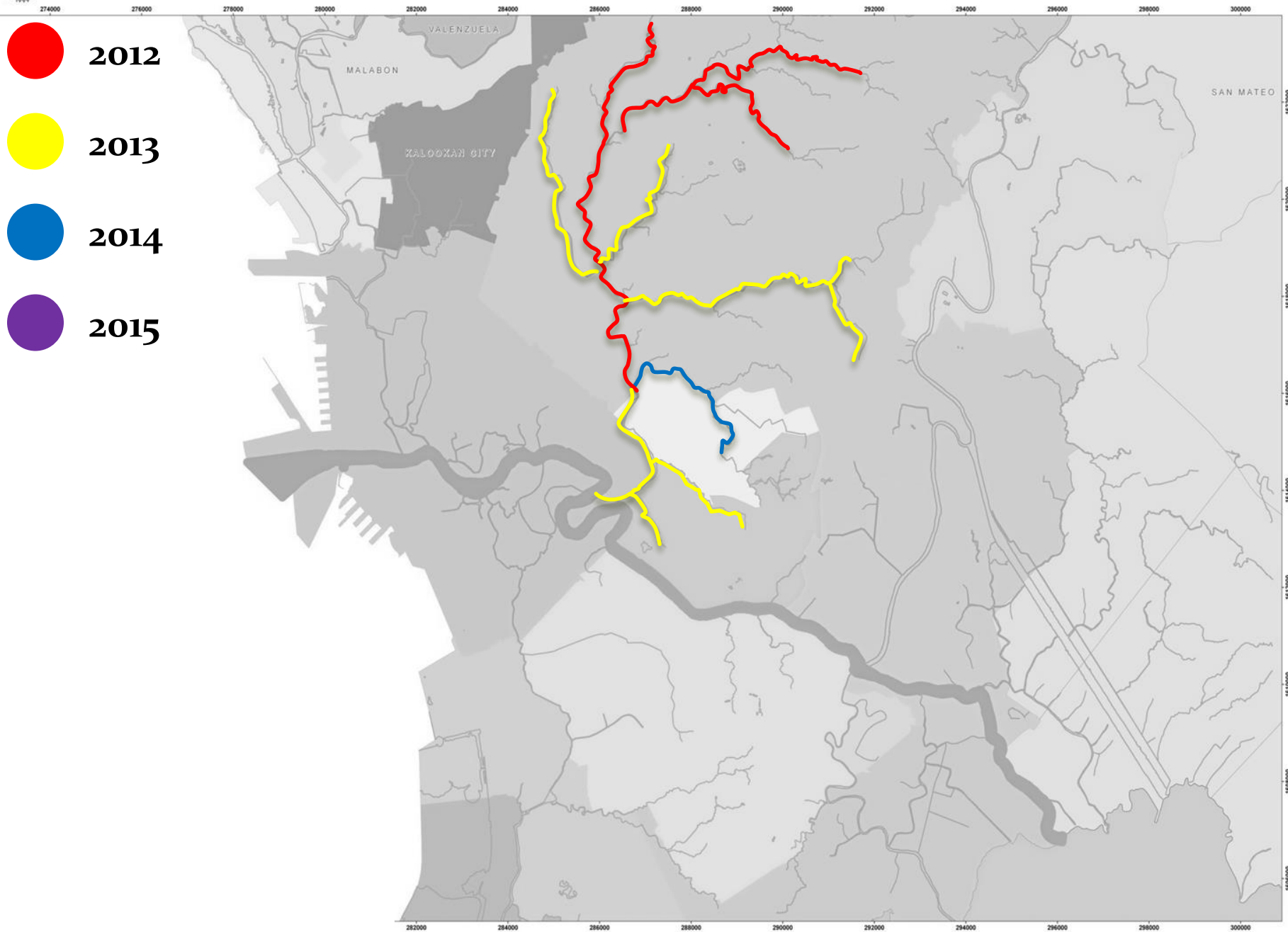
Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2012**

Estimated Cost: **PHP 44,204,867.87**







Quezon City

EXISTING CONDITION:



Estero de San Francisco (RMMW-EDSF-25) Quezon City

Length	=	4235.00 m
Ave. Width	=	20.00 m
Ave. Depth	=	
Estimated # of ISF	=	100

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2015**

Estimated Cost: **Php 209,989,723.96**



EXISTING CONDITION:



Estero de Culiat (RMMW-EDCUL-26) Quezon City

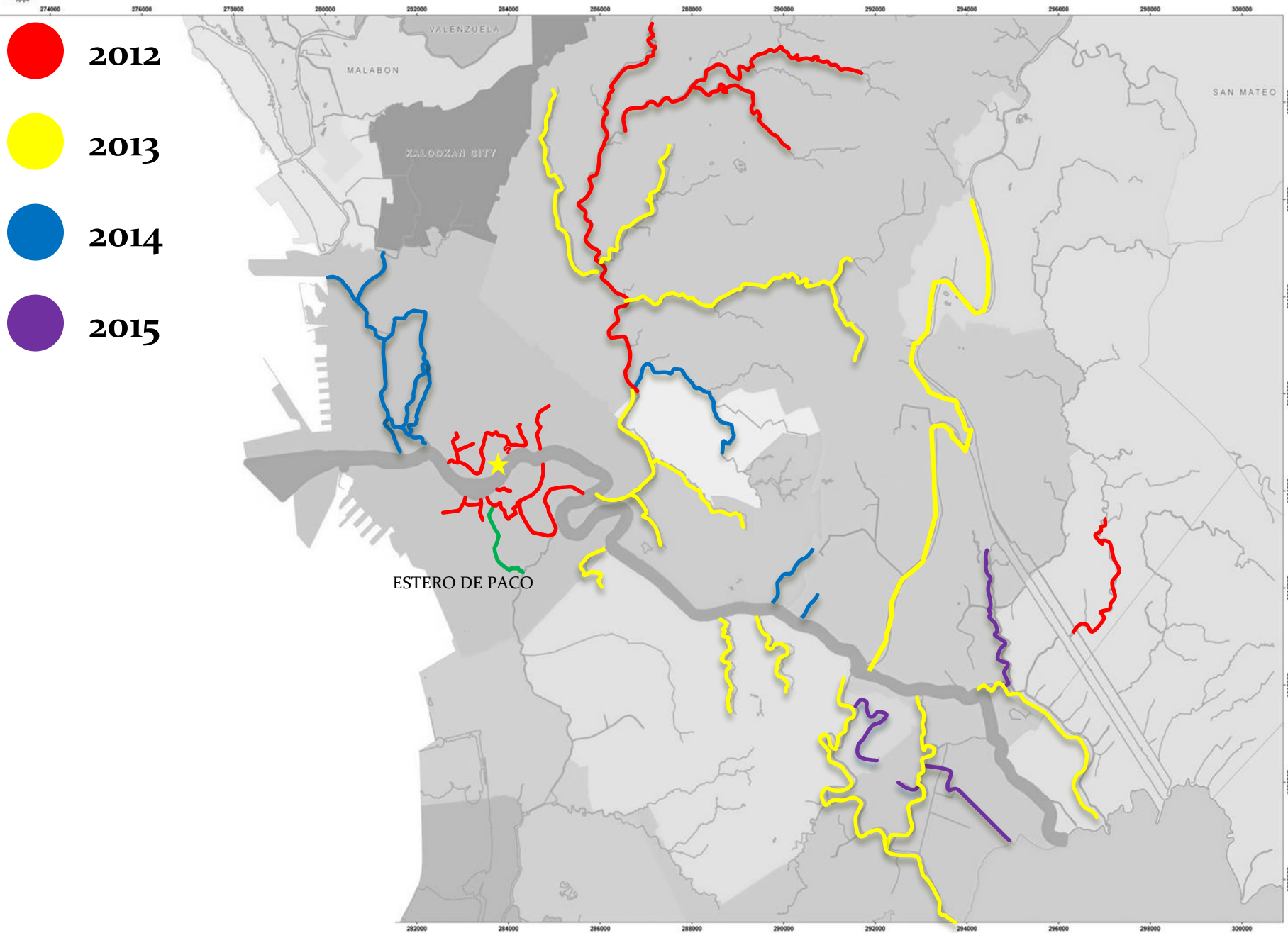
Length	=	3088.00 m
Ave. Width	=	6.00 m
Ave. Depth	=	
Estimated # of ISF	=	40

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation:	2015
Estimated Cost:	Php 113,048,393.13







San Juan and Mandaluyong

EXISTING CONDITION:



Maytunas Creek (RMMW-MCR-30)

City of San Juan

Length	=	2900.00 m
Ave. Width	=	2.00 m
Ave. Depth	=	
Estimated	=	31
# of ISF		

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation:	2016
Estimated Cost:	Php95,049,578.58



EXISTING CONDITION:



Ermitanyo Creek (RMMW-ECR-31) City of San Juan

Length	=	5508.00 m
Ave. Width	=	14.00 m
Ave. Depth	=	
Estimated # of ISF	=	520

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation:	2016
Estimated Cost:	Php241,824,153.34





Makati

EXISTING CONDITION:

Guadalupe Nuevo Creek



Length = 2373 m
Ave. Width = 4.27 m
Ave. Depth =
Estimated =
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2013**

Estimated Cost:



EXISTING CONDITION:

Balisampan Creek



Length = 1931 m
Ave. Width = 9.208 m
Ave. Depth =
Estimated =
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2013**

Estimated Cost:





Taguig

EXISTING CONDITION:

Pateros-Taguig River



Length = 9339 m
Ave. Width = 23.91 m
Ave. Depth =
Estimated = 600
of ISF

Proposed Development:

1. Dredging / Desilting Works
2. Bank Improvement
3. Surface Artificial Island Reactor
4. Floating Active Edge
5. Linear Park Development

Year of Implementation: **2015**

Estimated Cost:



