



# Improving Agra Forest Lands and Drains

## Facts

- ❖ Making persistent efforts to Improve Yamuna watershed near Agra for 18 years
- ❖ The Proposed improvement has the two major objectives:

### **Objective 1:**

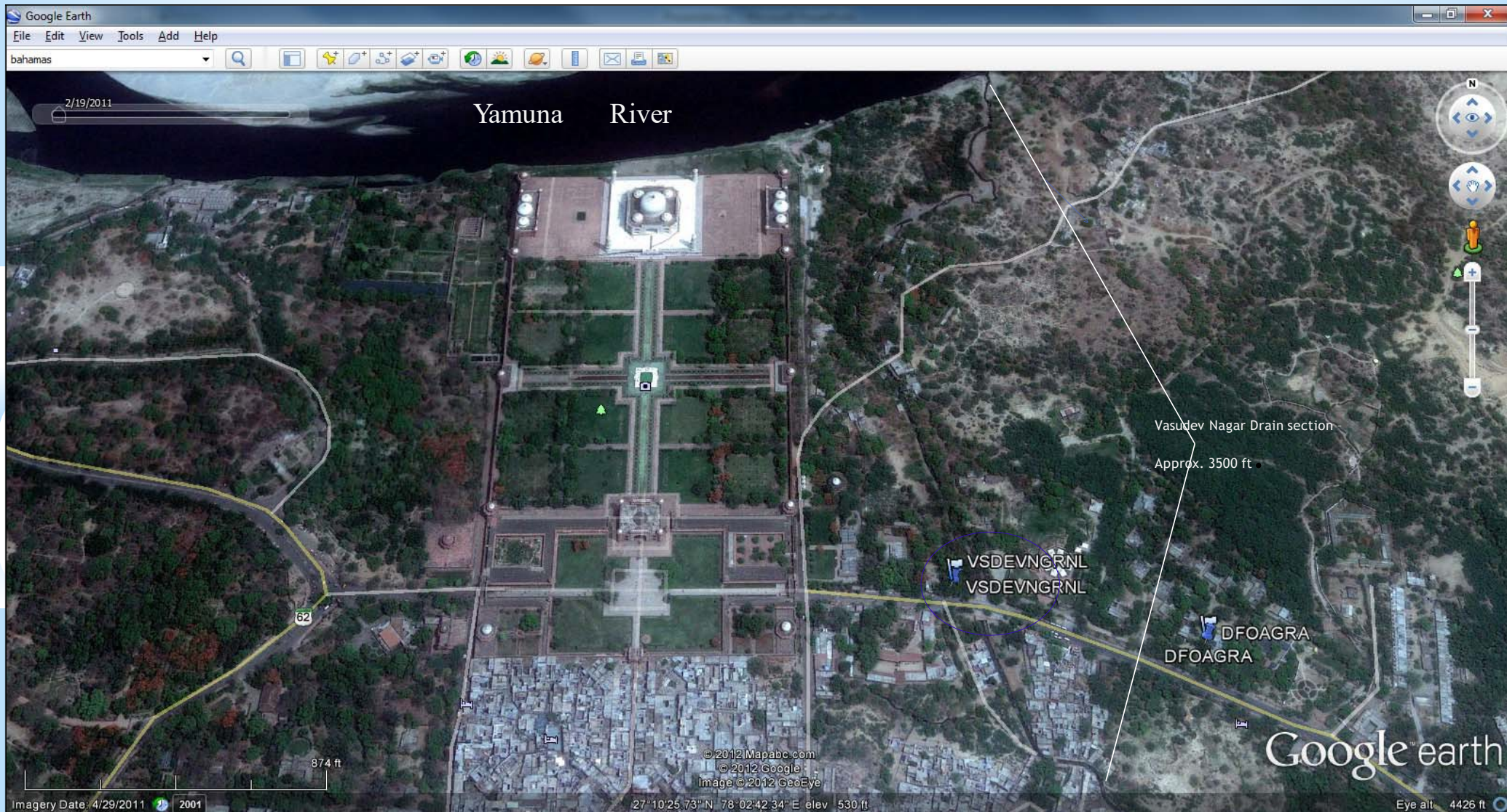
To improve the Forest Growth and the water quality

### **Objective 2:**

To transform the drains into valuable resources yielding Forest growth, Eco diversity, Tourism, and improved water quality

- ❖ The improvement is expected to be significant (as observed in projects elsewhere - example included)
  - ❖ Vigorous Forest Growth in the Floodplains of the Yamuna River
  - ❖ Vibrant Rebounding Of a Diverse Ecosystem in Agra Area

# Improving Agra Forest Lands and Drains



# Example: Vasudev Nagar Drain

Flowing East towards Yamuna River



0513



0516



0526



0527



0515



0529



0530

0520

## Local Drains in Agra

Concept plan

Install Constructed Wetlands here for vigorous growth of Trees lead towards Improvement in water quality and local eco-Environment.



Treated/clean water to be discharged to the Yamuna River bringing back life to the Yamuna River

### NOTE:

This proposal will initially cover Kakhretta and Vasudev nagar drains (as the data have already been acquired already for these two drains by SNM Engineering).

Other Agra drains can be undertaken after we begin implementation of the designs for one or both of these two drains.

0532

0565

# Meetings and Discussions



February 2013



February 2013



December 2011



February 2012

## Kakhretta Wetland Effluent from Pond 1



Clarity – 0 inches  
DO – unknown  
(likely very low)

July 2011



## Raingarden, Pond, Crofton, Maryland

Personally constructed by Subijoy Dutta with help from Neighbors



April 2011

**Objective 1:**  
To improve the  
Forest Growth and  
the water quality



# Kakhretta Wetland

Effluent from Pond 1 (existing)

## With Diffusers installed.. Schematic Design and benefits

conceptual design by Subijoy Dutta



Clarity – 0 inches  
DO – unknown  
(likely very low)

Installation of Diffusers To  
improve the  
Forest Growth and  
the water quality

Clarity – 30 inches  
DO -> 6.0 mg/l

High Nutrient-laden water  
to be supplied to the Trees and  
Shrubs for fast growth



## Use of Micromix to improve the Water Clarity and Provide more

nutrient to the Soil for rapid Forest Growth



## a Cunningham and

es to bring back the soil's nitrogen content to its  
est lands in 2 years time.

d reduces water requireent by 20 percent)  
make the fish farms non toxic.

tes organic fertilizer).

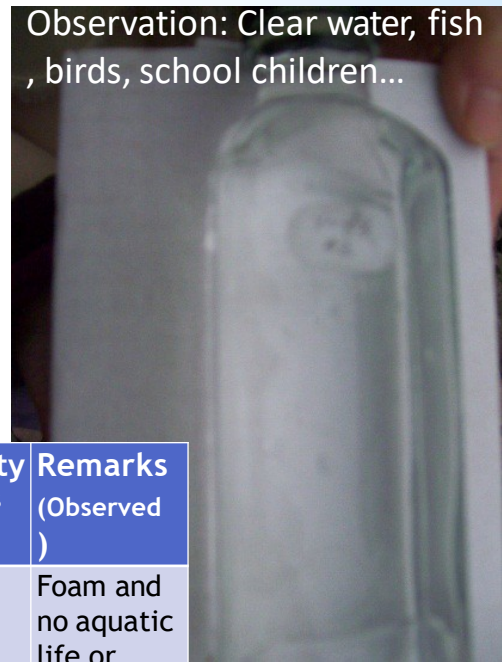
o oil spills and effluents from

Micromix can be used for reforestration initiatives  
to bring back the soil's nitrogen content to its original glory



Yamuna River (Gokul, UP)  
TDS – 908.6 mg/l

Joro River (Iloilo), Philippines  
TDS – 348.6 mg/l



Observation: Clear water, fish, birds, school children...

A simple comparison  
Two Rivers, Two Villages

River	Country	TDS (Total dissolved Solids) mg/L	Clarity Inches	Remarks (Observed)
Yamuna	India	908.6	16	Foam and no aquatic life or birds
Joro (tributary of Iloilo River)	Philippines	348.6	30	Clear water, fish, birds, school children...



February 2, 2013



January 26, 2013

## Example : Balog River Project, Philippines

### Eco-Park and Mangrove Rehabilitation Project



Due to its commitment to care for the environment, Global Business Power Corporation, through its subsidiaries, Pancy Energy Development Corporation and Pancy Power Corporation, in partnership with the City of Iloilo, the Department of Environment and Natural Resources Region VI and Bantogon, Ifigon and Hinactacan, will develop a seven-hectare ecological park on a 30-hectare mangrove area which will later be known as the Iloilo City Bird Sanctuary and Wetland Park.

This five-year project shall involve the active participation of the community who, through the spirit of volunteerism, will be the prime mover of the project towards sustainable development. The project shall also serve as a recreational area for the community to enjoy while at the same time increase awareness for the protection and management of the sensitive ecosystem. Finally, it shall also serve as a model for the community to see the benefits of clean energy production and the reduction of carbon emissions of the power plants allowing Global Power to provide clean energy to the residents of Iloilo City and the island of Pancy.





## Balog River Wetland System, Philippines



Vasudev Nagar drain

**Objective 2:**  
 To transform the drains into valuable resources yielding Forest growth, Eco diversity, Tourism, and improved water quality



## Suggested STEPS to Follow

- ❖ **Initiate a grant/contract** (Using Officially Acceptable Process)
- ❖ **Jointly with the Forest Department and the Commissioner's Office, SNM will -**
- ❖ **First Install the improvements in the Kakhretta Wetland Systems and Show results of improvements with one season of operation (Ex. Fall 2013 vs. Fall 2014)**
- ❖ **Secondly Develop Wetland system plans for the Vasudev Nagar Drain**
- ❖ **Only after initiation of the above two steps –**
  - Develop/Divide the Agra Watershed Drains and Forest lands into ~6-8 Sectors
  - Meet with Communities
  - Gather further Field data and Information
  - Conduct a complete analysis on potential Forest growth, and Eco-Environmental benefits
  - Get the directions from the Forest Department and Commissioner's Office to begin the next projects with proper Prioritization as acceptable to local authorities and citizens of Agra.

**Please send Questions/Comments to:-**

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