

Pioneering Education and Empowerment of a Community to reclaim and preserve rivers and mangrove forest in Probolinggo City East Java - Indonesia



**ENVIRONMENTAL DIVISION OF
PROBOLINGGO MUNICIPALITY
(BADAN LINGKUNGAN HIDUP)**

MAIN CHALLENGE AND PROBLEMS



Satellite Photo of Probolinggo City

The coast is characterized by fishponds, a narrow belt of mangrove forest and the old port. A new sea port adjacent is still under construction.

The forest protects the coast against waves, flood, and erosion and produces a rich flora and fauna.

If the forest is reduced or damaged the ecosystem of the fishponds is also affected negatively.

The mangroves get nutrition from the rivers coming from volcanic mountains – but they also get polluted especially by waste dumped into the rivers.

MAIN CHALLENGE AND Problems



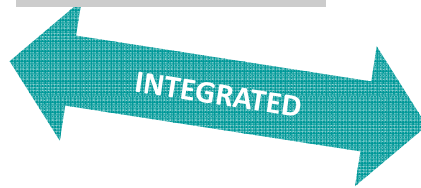
RIVER

Extreme pollution of all rivers by human waste, household- and industrial waste



MANGROVE

Sensible coastal ecosystem destroyed by tree cutting, dumping of waste, land use change and river pollution



East Javas coast is protected by mangrove forests, a breeding place for birds and fishes and plancton. Generations of fishermen have built fishponds and reduced the forest. It is a challenge to preserve the remaining forest belt and to prevent its pollution by waste dumping and transport of plastic waste from rivers. If the river and mangrove eco system is damaged also the fishponds are suffering.



Municipality meets the community to discuss the challenges



INSTITUTIONAL SETTING

PROBOLINGGO MUNICIPALITY

CITY POLICY : "TO CREATE THE WELFARE OF WHOLE COMMUNITIES THROUGH EQUITABLE ECONOMIC GROWTH & **ENVIRONMENTAL FRIENDLY** DEVELOPMENT"

Total Area : 56.667 Km²

Total Population : 216,000 people

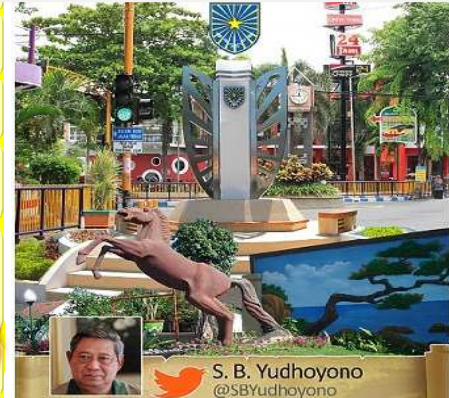
Climate : Tropical (2 season)

Altitude : 0 to less than 50 meters above sea level

Socio Cultural : Agrarian culture (farmers and fishermen) and develop into urban communities

Number of Rivers : 6 rivers

Mangrove Forest area : 585 Ha



S. B. Yudhoyono
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I am very impressed with Probolinggo city. Clean, Beautiful, good waste management and good traffic. Really deserve to become City of Adipura. Keep the spirit ! *SBY* (ex-President of Indonesia)

JUNIOR RIVER DETECTIVES

- ENVIRONMENTAL DIVISION WITH THEIR CHEMICAL LABORATORY COOPERATES WITH **SCHOOLS** AND TRAINS CLASSES TO ANALYSE BIOLOGICAL LIFE IN RIVERS
- INSTRUMENTS / TOOLS USED ARE **CHEAP, SIMPLE AND EASY**
- BIOLOGICAL MONITORING RESULT CAN BE USED WITH CHEMICAL AND PHYSICAL DATAS AS INPUT FOR **ENVIRONMENT POLICY**
- LEGAL REGULATION OF **CENTRAL GOVERNMENT**



REHABILITATION OF MANGROVE AREA

- ✓ STAKE HOLDERS INVOLVED ARE LOCAL GOVERNMENT (THROUGH AGRICULTURE DEPARTMENT, DEVELOPMENT PLANNING DIVISION, TOURISM DEPARTMENT)
- ✓ LEGAL REGULATION OF CENTRAL GOVERNMENT
- ✓ MANGROVE FOREST HAS BEEN DAMAGED FOR ABOUT 4% PER YEAR BECAUSE OF **DEFORESTATION** AND **ERUPTION IMPACT** OF MOUNT BROMO
- ✓ COMMUNITY GROUPS INVOLVED SPECIALLY FOR PEOPLE WHO LIVE NEAR MANGROVE AREA
- ✓ URGENT FOR **CLIMATE CHANGE ADAPTION**



APPROACH AND METHODS

JUNIOR RIVER DETECTIVES

1). METHOD :

FORMING DETECTIVE OF RIVER WHO ABLE TO MONITOR WATER QUALITY USING **BIOASSESSMENT METHOD**

FUN INTRODUCTION



DIRECT PRACTICE IN THE RIVER



DISCUSSING POLLUTION SOURCES & RESULT PRESENTATION



TEACHERS AND PARENTS ARE INVOLVED



CONDUCT DETECTIVE COMPETITION EVERY YEAR



2). TOOLS AND INSTRUMENT, TOOLS USED ARE VERY SIMPLE AND CHEAP : NET, LOOP, SMALL PLASTIC CONTAINER, TOOTH BRUSH, PENCIL, INDICATOR, ETC



REHABILITATION OF MANGROVE AREA

1). METHOD :

REHABILITATE MANGROVE FOREST BY **EMPOWERING COMMUNITY** TO HAVE ECONOMIC VALUE FROM MANGROVE AREA

MANGROVE NURSERY DEVELOPMENT, PLANT NEW TREES



PROMOTE ECOTOURISM



CONDUCT TRAINING FOR MEN & WOMEN



CONDUCT MANGROVE PLANTING MOVEMENT (GOTONG ROYONG)



DEVELOP NEW SYSTEM ON PLANTING NEW TREES IN THE MIDDLE OF FISH POND



2). TOOLS AND INSTRUMENTS

POLYBAG, AGRICULTURAL EQUIPMENT, BAMBOO WOOD, COMPOST FERTILIZER, ETC





CHANGE ON THE **ENVIRONMENT QUALITY** OF PROBOLINGGO CITY WITH **INCREASING AWARENESS AND CHANGING BEHAVIOUR** OF THE SOCIETY (STUDENTS AND COMMUNITY) BY THESE EFFORTS, SOCIETY IS EXPECTED TO BE MORE ACTIVE AND RESPONSIVE TO THE ENVIRONMENTAL ISSUES

- 1). COMMUNITY INVOLVED HAS MORE **CONCERN** ON MANGROVE AND RIVER ISSUES
- 2). COMMUNITY KNOWLEDGE AND **CAPACITY** IS INCREASED
- 3). **ENVIRONMENT QUALITY** OF MANGROVE AREA INCREASED WHICH HELPS ALSO PRODUCTIVITY OF FISH PONDS



- 1). RIVER MONITORING DATA RESULT BASED ON **BIOLOGY PARAMETER**
- 2). INCREASING NUMBER OF **WORKING PARTNERS** ON ENVIRONMENTAL PROTECTION
- 3). DAMAGED MANGROVE AREA HAS BEEN **REDUCED** AND MANGROVE AREA HAS BEEN PLANTED IS 185 Ha (**31.6 %**)

- 1). DEVELOP **NETWORK** BETWEEN SCHOOLS AND COMMUNITY GROUPS RELATED TO THIS PROGRAM
- 2). INVOLVES **COMMUNITY LEADERS** OF THE CITY
- 3). INPUT TO THE LONG TERM PLAN / ENVIRONMENTAL POLICY OF THE CITY





MAIN LESSONS

- ✓ TO INCREASE AWARENESS AND TO CHANGE BEHAVIOUR OF SOCIETY REALLY NEED HARD EFFORT, IT TAKES **TOTAL COMMITMENT** FROM ALL STAKE HOLDERS TO BE INVOLVED ON THIS CHANGING MOVEMENT
- ✓ LAW ENFORCEMENT IS VERY DIFFICULT BECAUSE MOST SOCIETY MEMBERS ARE **NOT AWARE** FOR REGULATION RELATED
- ✓ ENVIRONMENT MESSAGE THAT WE HAVE SHARED TO THE SCHOOLS AND SOCIETY IS VERY WELL **ACCEPTED AND DELIVERED** TO THEIR FAMILY AND IN THEIR SURROUNDING ENVIRONMENT

QUESTION :

WHAT ARE THE BEST WAYS TO OPTIMIZE THE EMPOWERMENT OF ALL COMMUNITIES IN CITY SOCIETY TO SUPPORT LOCAL GOVERNMENT ON ENVIRONMENT MANAGEMENT ??

NECESSARY PRE CONDITIONS TO TRANSFER

- ✓ **COMMITMENT** FROM THE MAYOR / CITY LEADERS
- ✓ **TARGET COMMUNITY GROUPS** BY EDUCATION AND PARTICIPATION
- ✓ **PLACE** ON WHERE THE PROGRAM IS TO BE CONDUCTED
- ✓ **RAISE BUDGET** FOR THIS PROGRAM FROM LOCAL GOVERNMENT/PRIVATE SECTOR/NGO
- ✓ **WORKING PLAN/IMPLEMENTATION PLAN** FOR THE INTEGRATED PROGRAM
- ✓ **CAPABLE HUMAN RESOURCES / TRAINERS** FROM LOCAL GOVERNMENT OFFICERS

TERIMA KASIH



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