CONSERVATION AND THE USE OF MANGROVE ECOSYSTEM:
THE NEED OF RESEARCH ACTIVITY FOR RESTORATION AND REHABILITATION

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MANGROVE ECOSYSTEM IN INDONESIA

3.7 millions ha located in forest area

5.5 millions ha located outside forest area
UTILIZATION OF MANGROVE ECOSYSTEM AND POLICY

- RESIDENTIAL AREA, SOURCES OF INCOME (AGRI-AQUA AND FOREST PRODUCTS), RECREATION AND CONSERVATION

- POLICY: SUSTAINABLE MANAGEMENT OF MANGROVE ECOSYSTEM AS AN INTEGRAL PART OF NATIONAL DEVELOPMENT

- INVOLVING INTER MINISTRY: MOF, MOCF, MIA AND MOE
Mangrove Forest Function Significantly Reduced

Mangrove Ecosystem Heavily Degraded

Earthquake / Tsunami

Conversion

Unwise Utilization

Lack of Capacity To rehabilitate

Strong Market Incentive

Lack of Awareness of Ecosystem Function

Lack of Awareness of Eco-system Function

Weak Enforcement Of Rules/Regulation

Poorly adopted Technology

Lack of Feasible Plan

shortage of Finance

Lack of Skills

Lack of Institution Capacity

CHALLENGES TO MANGROVE MANAGEMENT
NATURAL DISASTER, *Tsunami* HIT ACEH DECEMBER 2004 HAS WIPED OUT MANGROVE FORESTS IN NORTHERN AND WESTERN PARTS OF ACEH

Before tsunami, the mangrove forest in Aceh and North Sumatra has been utilized by local community for various purposes causing lost of its functions to absorb ocean waves
PROGRAMS TO RESTORE TSUNAMI AFFECTED MANGROVE ECOSYSTEM IN ACEH AND NORTH SUMATRA

- THE ESTABLISHMENT OF GREEN BELT ALONG THE WEST COAST TO MITIGATE NATURAL DISASTER

- REHABILITATION OF MANGROVE FORESTS (Part of National Movement for forest and land rehabilitation; development from ITTO funded assessment of damage by tsunami)
PROGRAMS TO REHABILITATE MANGROVE ECOSYSTEM IN LANGKAT NORTH SUMATRA

- IMPLEMENTATION OF A MODEL OF LOCAL COMMUNITY STEWARDSHIP FOR RESTORATION AND SUSTAINABLE USE OF MANGROVES. DEVELOPMENT FROM ITTO PPD95/04(F)
LESSON LEARNED FROM THE DISASTER

- THE IMPORTANCE OF MANGROVE FORESTS AS GREEN BELT TO MITIGATE THE DISASTER
PROGRAMS TO REHABILITATE MANGROVE ECOSYSTEM IN SUNGAI SEMBILANG, SOUTH SUMATRA

- DEVELOPING STRATEGIES FOR SUSTAINABLE MANAGEMENT AND THE USE OF THE ECOSYSTEM (ITTO PD 245/03 (F))

- INTEGRATED MANGROVE ECOSYSTEM MANAGEMENT FOR CONSERVATION AS A NATIONAL PARK AND UTILIZATION
PROGRAMS TO MANAGE MANGROVE ECOSYSTEM IN NORTH COASTAL ZONE OF CENTRAL JAVA

- DEVELOPING INTEGRATED UTILIZATION OF ECOSYSTEM FOR SILVO-FISHERY CULTURE SYSTEM TO PROMOTE SOCIO-ECONOMIC AND COMMUNITY PROSPERITY
PROGRAMS TO MANAGE MANGROVE ECOSYSTEM IN BALI

- MODEL ECOTOURISM MANGROVE ECOSYSTEM

- MANGROVE INFORMATION CENTER (JICA SPONSORED PROJECT)
PROGRAMS TO MANAGE MANGROVE ECOSYSTEM IN TELUK BENTUNI, PAPUA

- MODEL HARVESTING (SILVICULTURAL SYSTEM) OF MANGROVE FORESTS (TELUK BENTUNI, PAPUA)

- THE DEVELOPMENT OF MODEL GREEN BELT FORMATION FOR EACH ECOSYSTEM
THE NEED FOR RESEARCH AND DEVELOPMENT

WELL FUNCTION AS LIFE SUPPORT SYSTEM

TO ENHANCE THE RECOVERY OF MANGROVE ECOSYSTEMS

TO IMPROVE CAPACITY TO REHABILITATE, RESTORE AND MANAGE ECOSYSTEM
RESEARCH AND DEVELOPMENT ON MANGROVE ECOSYSTEM

- TO PROVIDE OF PACKAGE OF TECHNOLOGY

- TO OBTAIN BASIC INFORMATION ON BIOLOGICAL AND ECOLOGICAL PROCESS OF EACH ECOSYSTEM

- TO FIND APPROPRIATE MODEL FOR SUSTAINABLE MANAGEMENT AND INCOME FOR COMMUNITY
RESEARCH AND DEVELOPMENT HAVE BEEN CARRIED OUT

- NURSERY AND PLANTATION TECHNIQUES FOR SOME SPECIES

- COLLECTING SOME BASIC DATA AND INFORMATION ON NUTRIENT CYCLES WITHIN THE ECOSYSTEM

- SOME BIODIVERSITY ASPECT IN MANGROVE ECOSYSTEM
OUTPUTS UNTIL 2009

- NURSERY AND PLANTATION TECHNOLOGY FOR REHABILITATION

- MORE DATA AND INFORMATION ON NUTRIENT CYCLES WITHIN THE ECOSYSTEM

- MORE DATA AND INFORMATION ON BIODIVERSITY AND GROWTH OF MANGROVE SPECIES
OUTPUTS UNTIL 2009 --- cont

- ECONOMIC ANALYSES OF AGRO-, SILVO-, FISHERY CULTURE

- SUSTAINABLE UTILIZATION OF MANGROVE FOREST PRODUCT

- POLICY ON MANGROVE REHABILITATION, RESTORATION AND MANAGEMENT
CONCLUDING REMARKS

- THERE ARE STILL A NUMEROUS CHALLENGES ON THE MANAGEMENT OF MANGROVE ECOSYSTEMS IN INDONESIA WITH SPECIFIC TO REHABILITATION, RESTORATION AND SUSTAINABLE UTILIZATION FOR COMMUNITY PROSPERITY
CONCLUDING REMARKS --- cont.

- WE ARE LOOKING FORWARD TO ESTABLISHING TECHNICAL COOPERATION AND NETWORKS TO ENHANCE THE ACHIEVEMENT OF SCIENCE AND TECHNOLOGY FOR MANGROVE ECOSYSTEM MANAGEMENT