

# **THE WASTEWATER TREATMENT FOR REDUCTION POLLUTION IN MUSI RIVER**

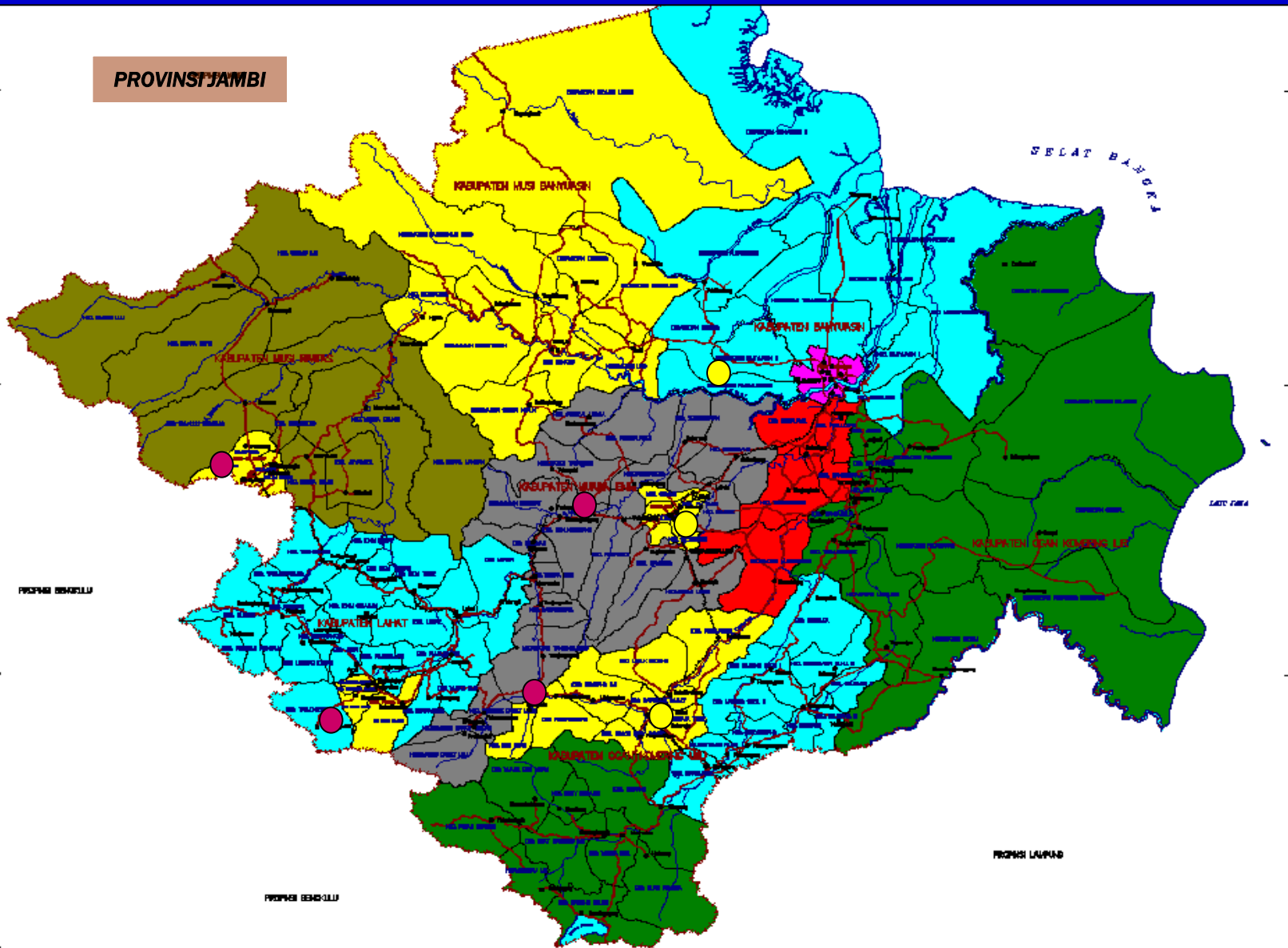
THE PRESENTED ON THE SEMINAR "WATER POLLUTION MANAGEMENT FOR THE  
ENVIRONMENTAL QUALITY, HELD IN PALEMBANG ON NOVEMBER 27,2007

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Staf Edukatif pada Jurusan Teknik Kimia  
Tim Teknis Bapelda Propinsi Sumsel

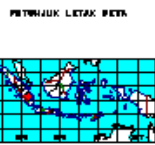
# INTRODUCTION

- MUSI RIVER, THE BIGGEST AND THE LONGEST RIVER IN THE SUMATERA , HAS BROADED SMALL RIVERS IN THE ISLAND.
- MUSI RIVER HAS DIVIDED PALEMBANG CITY INTO HULU AND ILIR SECTION.
- ALMOST 400 INDUSTRIES HAS BEEN SETTLED IN THE FLOWSIDE ON MUSI RIVER.

# THE SOUTH SUMATERA PROVINCE



DAFTAR PETERBUKHA KETERBUKHA  
**ADMINISTRASI**  
 PROPINSI SUMATERA SELATAN



- KETERANGAN**
- ▣ Balok Kabupaten
  - Balok Kecamatan
  - Balok Desa
  - ▬ Batas Provinsi
  - ▬ Batas Kabupaten
  - ▬ Batas Kecamatan
  - ▬ Jalan Aspal
  - ▬ Jalan Bata
  - ▬ Jalan Tanah
  - ▬ Rel Kereta Api
  - ▬ Sungai
  - ▬ BUK
  - ▬ Ombak

Daftar Rata :  
 1. 000.000  
 2. 100.000  
 3. 200.000

# MUSI RIVER FLOW TO BANGKA OCEAN

MARINE PORT OF TANJUNG API-API

SUNGSANG WATER FRONT CITY

PALICK SLAND

KAWASAN TRANSMIGRASI  
PULAU RIMAU

KAW. TRANSMIGRASI  
DELTA UPANG

KAWASAN TRANSMIGRASI  
SUGIHAN KIRI

KAWASAN TRANSMIGRASI  
SUGIHAN KANAN

SEBALIK CANAL

KAW. TRANSMIGRASI  
TELANG II

KAW. TRANSMIGRASI  
TELANG I

KAW. TRANSMIGRASI  
SALEH

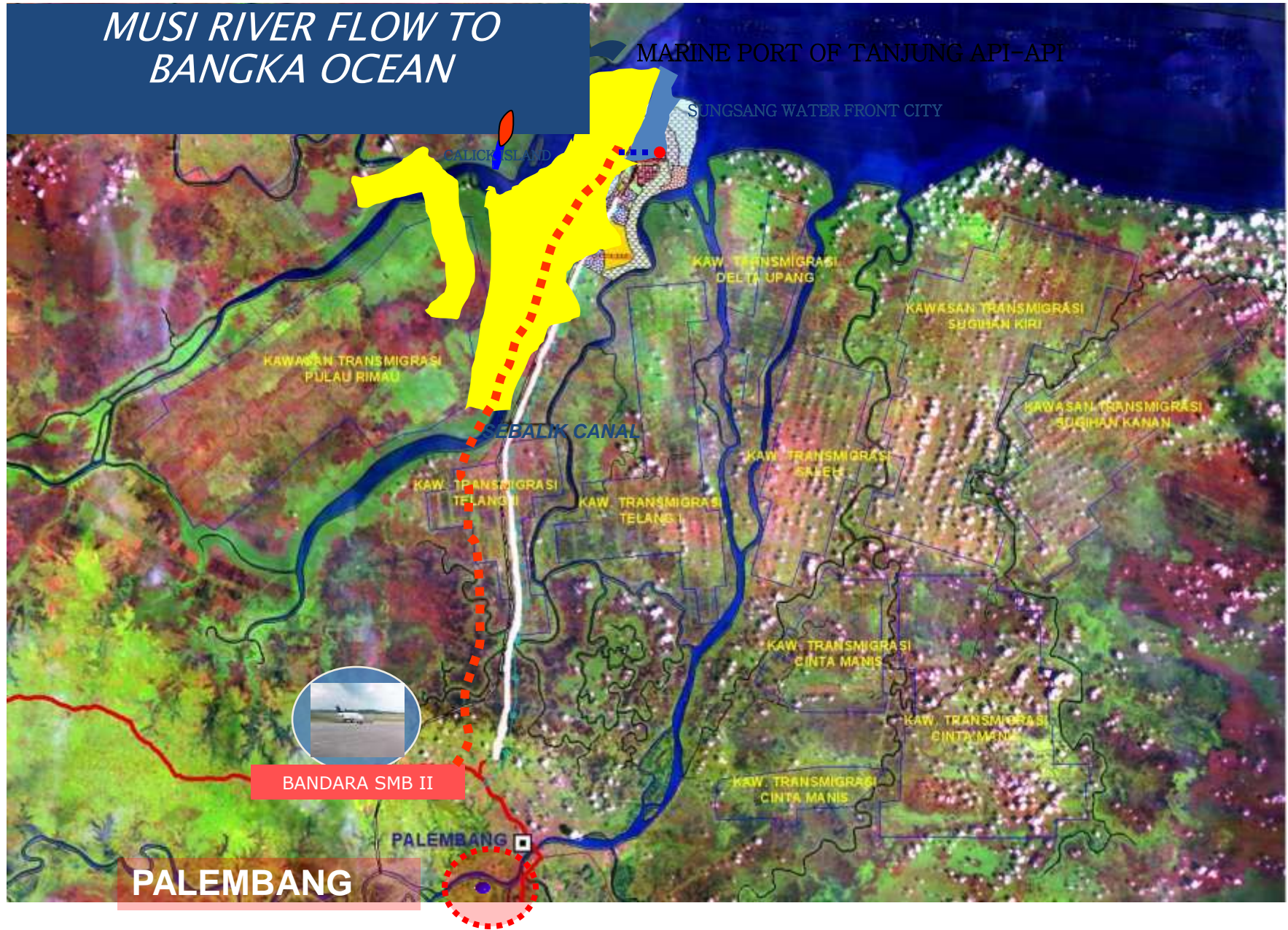
KAW. TRANSMIGRASI  
CINTA MANIS

KAW. TRANSMIGRASI  
CINTA MANIS

BANDARA SMB II

PALEMBANG

PALEMBANG



PALEMBANG – TJ. API API = 68,8 Km

## DAERAH ALIRAN SUNGAI DI SUMATERA SELATAN

<b>Daerah Aliran Sungai (DAS)</b>	<b>Luas (Ha)</b>	<b>Ket</b>
Musi	598.100	42 industri yg buang limbah ke sungai
Komering	91.500	
Lematang	85.000	
Ogan	47.300	
Banyuasin	35.000	
Lakitan	21.200	
Semanggus	16.000	
Rawas	14.000	
Rupit	13.900	
Kelingi	11.800	
Kikim	1.700	

Neraca kualitas lingk.hidup daerah sumsel th.2000,  
Bapedalda Propinsi Sumsel

# THE MOST SOURCES OF LIQUID-WASTE FROM INDUSTRIES IN SOUTH SUMATERA

- a) KILANG MINYAK (PETROCHEMICAL)
- b) KARET (CRUMB RUBBER)
- c) KELAPA SAWIT (CRUDE PALM OIL)
- d) PUPUK UREA (FERTILIZER)
- e) INDUSTRI KAYU LAPIS
- f) PULP DAN KERTAS
- g) SODA KOSTIK
- h) TAPIOKA
- i) GULA TEBU
- j) KAYU DAN PENGGERGAIAN (SAWMILL)
- k) RUMAH SAKIT (HOSPITAL)
- l) MINUMAN (SOFT DRINK)
- m) PRODUK MAKANAN DARI KACANG KEDELAI
- n) PERTAMBANGAN BATUBARA (COAL MINING)
- o) PLTU
- p) PRODUK MAKANAN(KOPI, MIE, DAN PERMEN)
- q) PASAR
- r) PEMOTONGAN HEWAN
- s) PAKAN TERNAK
- t) DOMESTIC WASTE
- u) RESTORAN/HOTEL
- v) RUMAH TANGGA
- w) FARMASI
- x) PENGOLAHAN IKAN/KERANG-KERANGAN
- y) PRODUK SEMEN
- z) POLYPROPYLENE



# THE TREATMENTS OF INDUSTRIAL WASTEWATER IN SOUTH SUMATERA

NO	JENIS INDUSTRI	JENIS LIMBAH	PENGENDALIAN	KET
1	Kilang Minyak	Limbah cair;BOD,COD, Minyak dan lemak, Phenol, Ammonia dan Sulfida, Limbah setengah padat	Limbah cair, unit pemisah air bekas limbah padat,bioremediasi	
2	Pupuk Urea	Kondensat yg mengandung Ammonia, nitrogen organik, urea,metanol,Blowdown dari sistim pengolahan air, demineralisasi	Instalasi Pengolah Limbah Cair (IPAL),daur ulang air limbah,lumpur aktif,aerasi,denitrifikasi	
3	Karet	Air sisa pemrosesan, sedikit latex yg tdk menggumpal,bersifat asam pH 4.2 dan 6.3	Kolam limbah secara biologis, sistim selokan oksidasi, Deaerob ditambahkan dlm ;proses	
4	Gula	Air pendingin pada kondensor, air proses pd penghilangan warna,pencucian saringan tekan, air cuci lantai dan alatr,BOD,TSS tinggi	Ekualisasi dan pengaturan pH, air cuci dan gedung tebu hrs diolah dalam penjernih, pemisah minyak yg tertumpah ml pemisah flotasi	
5	Pulp dan Kertas	Air buangan kadar BOD tinggi,padatan tersuspensi rendah,air pencucian pulp stlh pemasakan dan pemisahan secara mekanis,kadar COD,jumlah zat padat terlarut	Pengelantngan dg oksigen, pengelatantangan dengan penukaran zat warna dg pemutih	
6	Ethanol	Limbah cair berwarna coklat mengandung zat organik 5.5%,BOD 40.000 mg/L,Padatan terlarut 10%, Temp >80C, Unsur hara 1%N,0.2%P,1.5%Ca	Penanganan Limbah Cair,pengolahan primer, sekunder	

# THE RECOVERY OF INDUSTRIAL WASTEWATER IN SOUTH SUMATERA

NO	JENIS INDUSTRI	JENIS LIMBAH	PENGENDALIAN	KET
7	Minyak Sawit	COD,BOD,TSS, minyak dan lemak, ammonia,Nitrogen, air pencucian alat	Instalasi Pengolahan Air Limbah (IPAL) secara anaerob, aerob.	
8	Kayu Lapis	Pengulitan kayu,TSS, Phenoldan asam resin, BOD	Pengolahan Limbah Cair Pengolahan limbah padat	
9	Tapioka	Kegiatan pencucian dan pengupasan, padatan tersuspensi, kulit singkon, potongan singkon, tanah	Proses pemisahan air bekas cucian dan pengupasan dipisahkan dari padatannya, penghematan dlm penggunaan air proses	
10	Soda Kostik/Klorin	Penghasil limbah sel merkuri, lumpur garam yg mengandung tanah jarang (trace metal),kondensasi, air cucian, bocoran dan tumpahan yg mengandung asbestos	Penanganan proses primer, sekunder.	



# THE TREATMENTS OF INDUSTRIAL WASTEWATER:

- PHYSICAL PROCESS
- CHEMICALLY PROCESS
- BIOLOGICAL PROCESS
- INTERMEDIATE PROCESS

## THE PHYSICAL PROCESS INCLUDED :

- ❖ REDUCTION OF TEMPERATURE
- ❖ FILTRATION
- ❖ EQUALITY
- ❖ SEDIMENTATION
- ❖ FLOTASION
- ❖ MIXED

## THE CHEMICAL PROCESS INCLUDED:

❖ COAGULATION

❖ PRECIPITATION

❖ Ph CONTROL

❖ OXIDATION

❖ DESINFECTION

# THE BIOLOGICAL PROCESS INCLUDED:

## ❖ THE GROWTH SUSPENDED PROCESS

-ACTIVATED SLUDGED PROCESS

-SEQUENCHING BATCH REACTOR

-LAGOON

# THE GROWTH OF BIOLOGICAL ATTACHED

❖ ROTATING BIOLOGICAL CONTACTOR

❖ TRICKLING

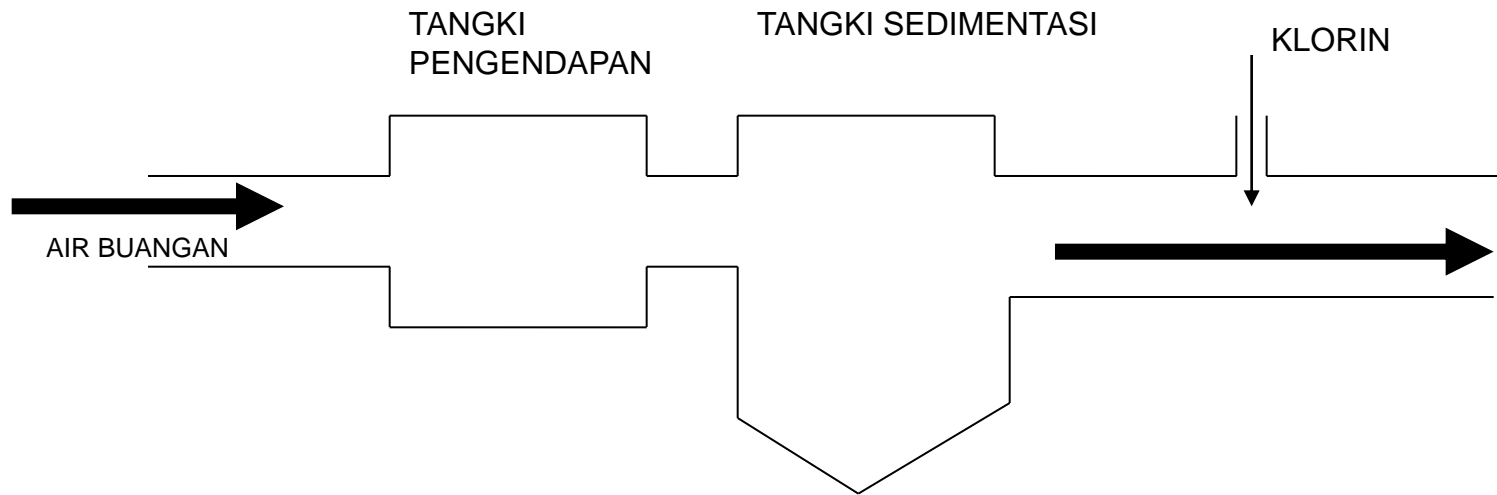
# THE TREATMENT WATER DISPOSAL

THE WATER THAT DISPOSED FROM INDUSTRIES IS DIVIDED  
THREE STEPS:

- THE PRIMER PROCESS
- THE SECONDRY PROCESS
- THE TERSIER PROCESS

# THE PRIMER PROCESS

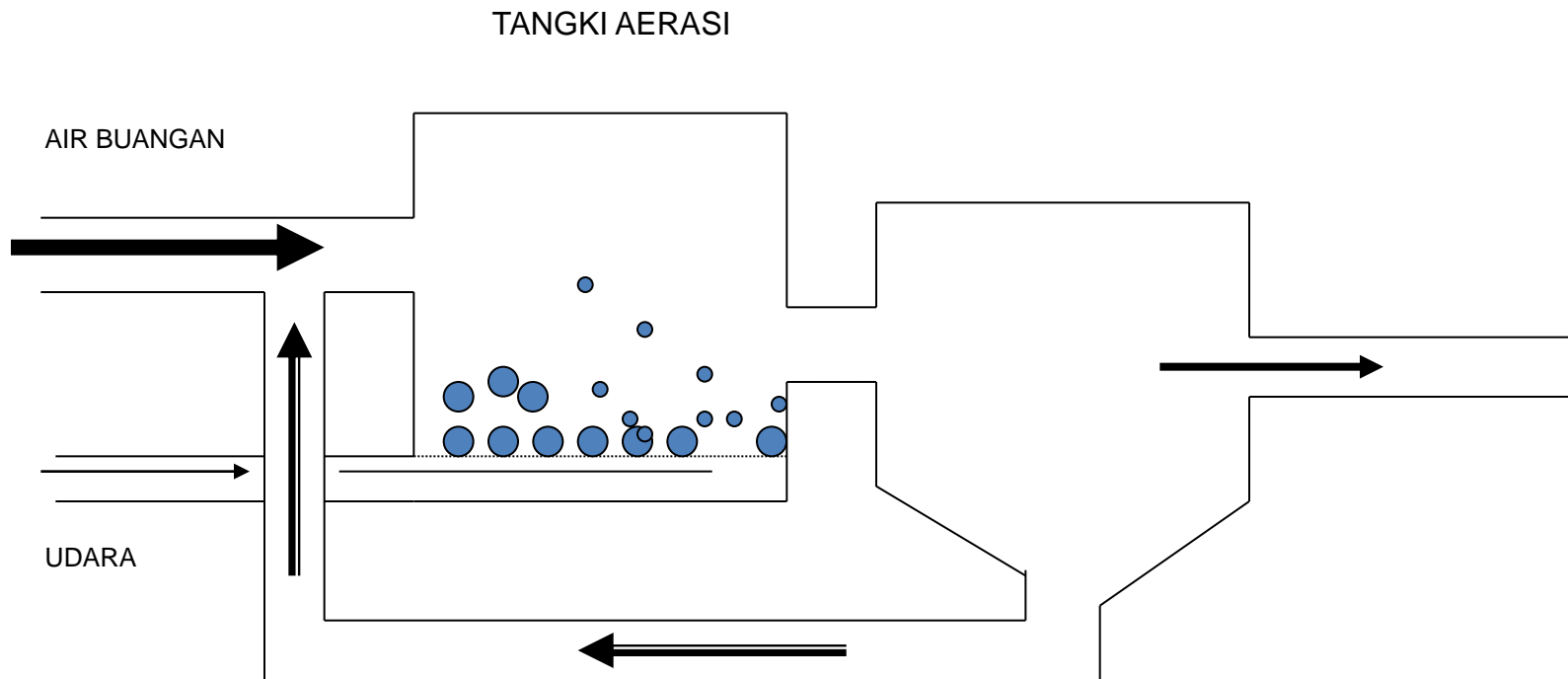
- FILTRATION
- SEDIMENTATION AND FILTRATION OF SMALL PARTICLE
- FILTRATE SEPARATION



PROSES PENANGANAN PRIMER TERHADAP AIR BUANGAN

# THE SECONDARY PROCESS

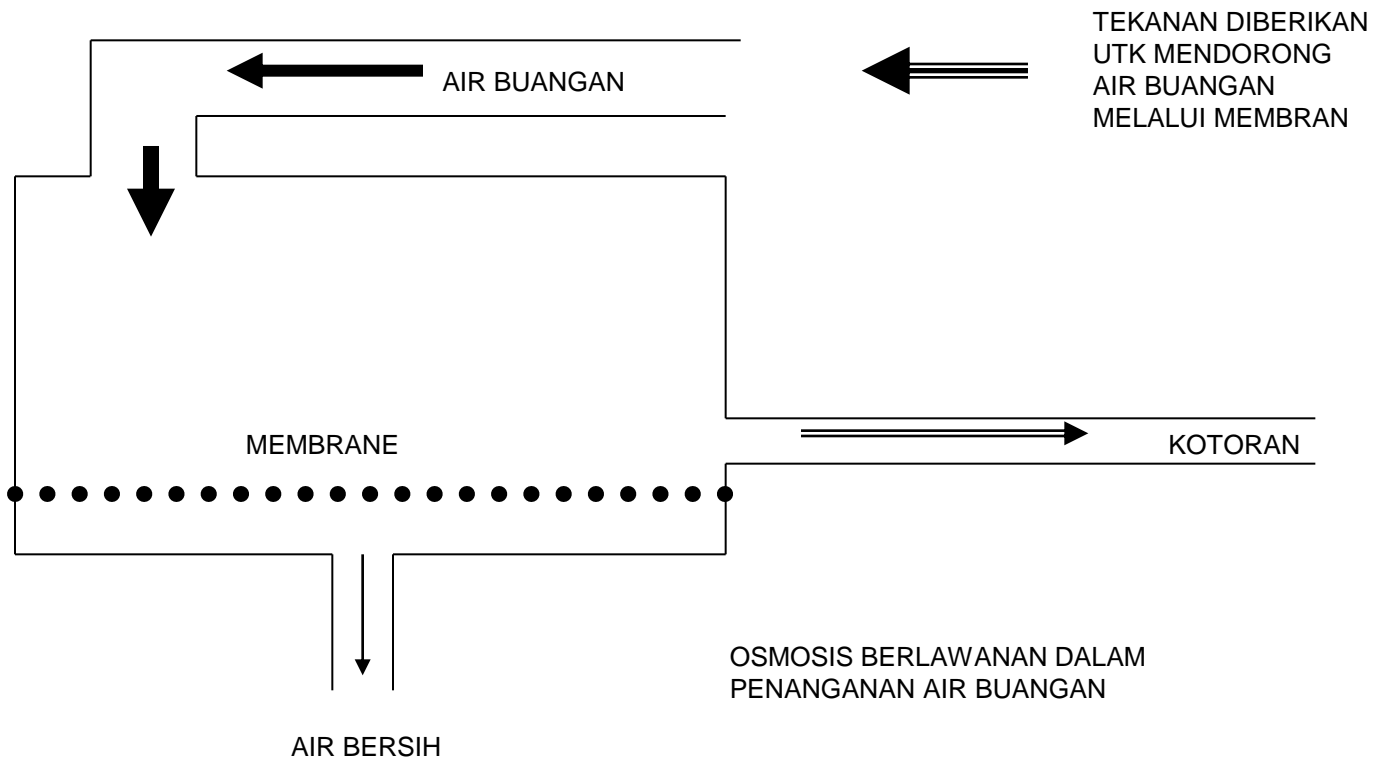
- ❖ FILTRATION TRIKEL
- ❖ ACTIVATED SLUDGE





# THE TERSIER PROCESS

- THE SOLUBLE MATTER (ORGANIC AND UNORGANIC) WAS UNSEPARATE
- TERSIER PROCESS DONE BY MEMBRANE TECHNOLOGY



# CONCLUSION

- THE WASTE TREATMENT SHOULD BE ORGANIZED BY THE INDUSTRIES IT'S SELF BY USING SEVERAL TREATMENT
- THE INDUSTRIES WHO IS NOT RESPONSIBLE WITH THEIR WASTE SHOULD BE PUNISHED BY GOVERNMENT (FOCUSED ON THE BUILD OF ENVIRONMENTAL LAW)

**THANK YOU**