



**BIOCONVERSION OF PIG WASTES TO
BIOGAS,
TO RECYCLABLE PRODUCTS
AND MEET ENVIRONMENTAL STANDARDS**
engineering design, supervision of construction,
monitoring of plant operation with daily samplings
and evaluation of performance



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BioGas Farms     **.com**
www. Environmental Engineering Advisory Services since 1963

The BEGINNING a el principio

776 BC

King Augeios Stables with 30000 head feedlot



776 BC Olympic Games

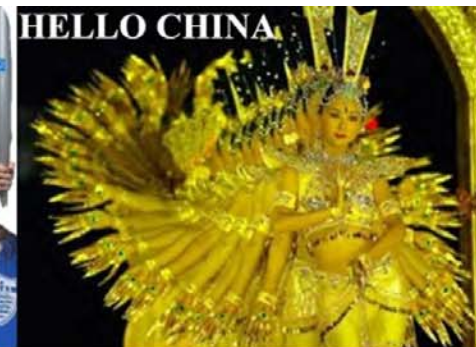


Hercules

The first

- Olympian
- Shud polemist
- Bio-engineer

**SOLVES
POLLUTION**



WHAT IS THE SOLUTION ?



HERCULES

SOLUTION TO POLLUTION.. is...

EPT1

Slide 4

EPT1

E PAUL TAIGANIDES, 4/23/2008



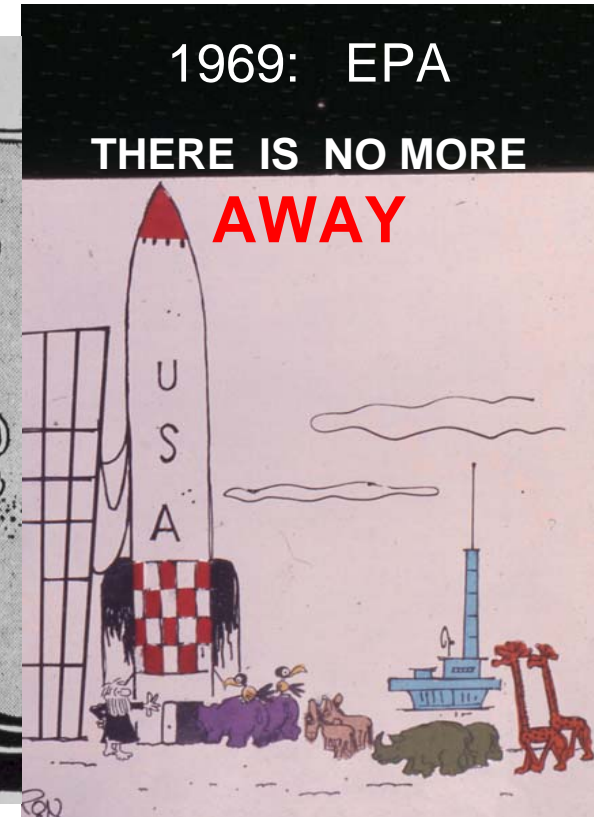
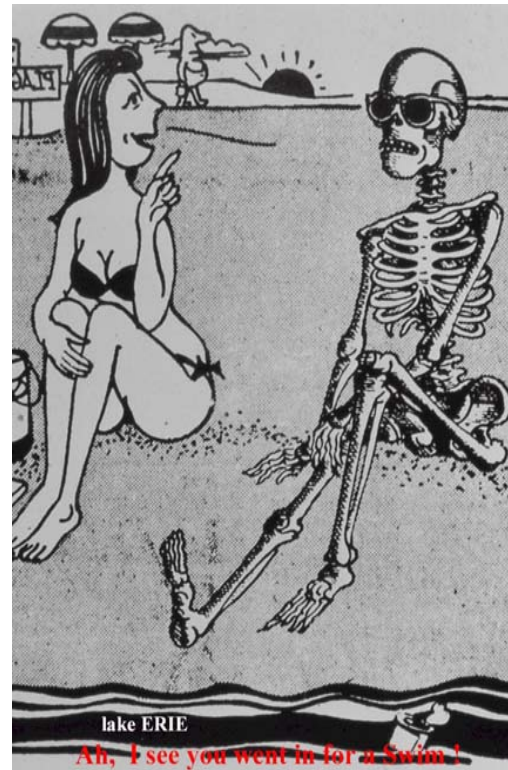
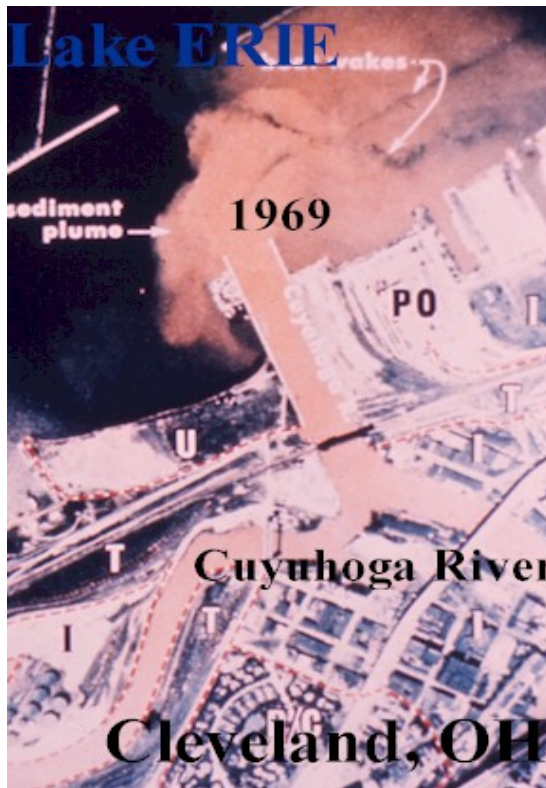
HERCULES
SOLUTION TO
POLLUTION..
is...

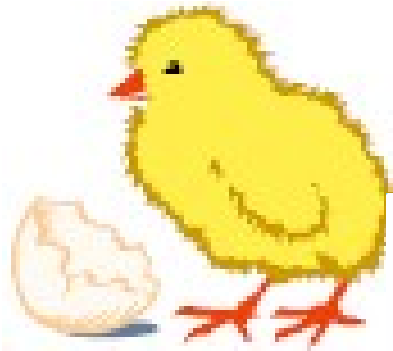
DILUTION

HERCULES SOLUTION TO POLLUTION WORKS UNTIL 1969

BY PUTTING WASTES:

- INTO **RIVERS**: THEY GO **AWAY**
- INTO **AIR**: THEY GO **AWAY**
- INTO **SOIL**: THEY GO **AWAY**





which came first the chicken
or the egg?

PRODUCT: A RESOURCE [GNP]
WHICH IS WHICH?
excreted **egg** or the **excreta** is the **resource**

PANEL MEMBERS TO DECIDE

- ENGINEER
- NUTRITIONIST
- WOMAN



CRITERIA
to decide whether the
excreted **egg** or **excreta** is THE **resource**

ENGINEER **QUANTITY**

NUTRITIONIST **QUALITY**

WOMAN **APPEARANCE**

DECISIONS: **EGG** = RESOURCE, DEVELOP
MANURE = **WASTE**, NEGLECT

“Wastes are: «RESOURCES OUT OF PLACE!»

“It is not wastes that are thrown into a river that cause pollution”

If eggs are thrown into a river, they would cause pollution, too.

“POLLUTION is: when you throw something **away**, and nobody picks it up and **use it again**”

Therefore: must RECYCLE & REUSE OUR RESOURCES

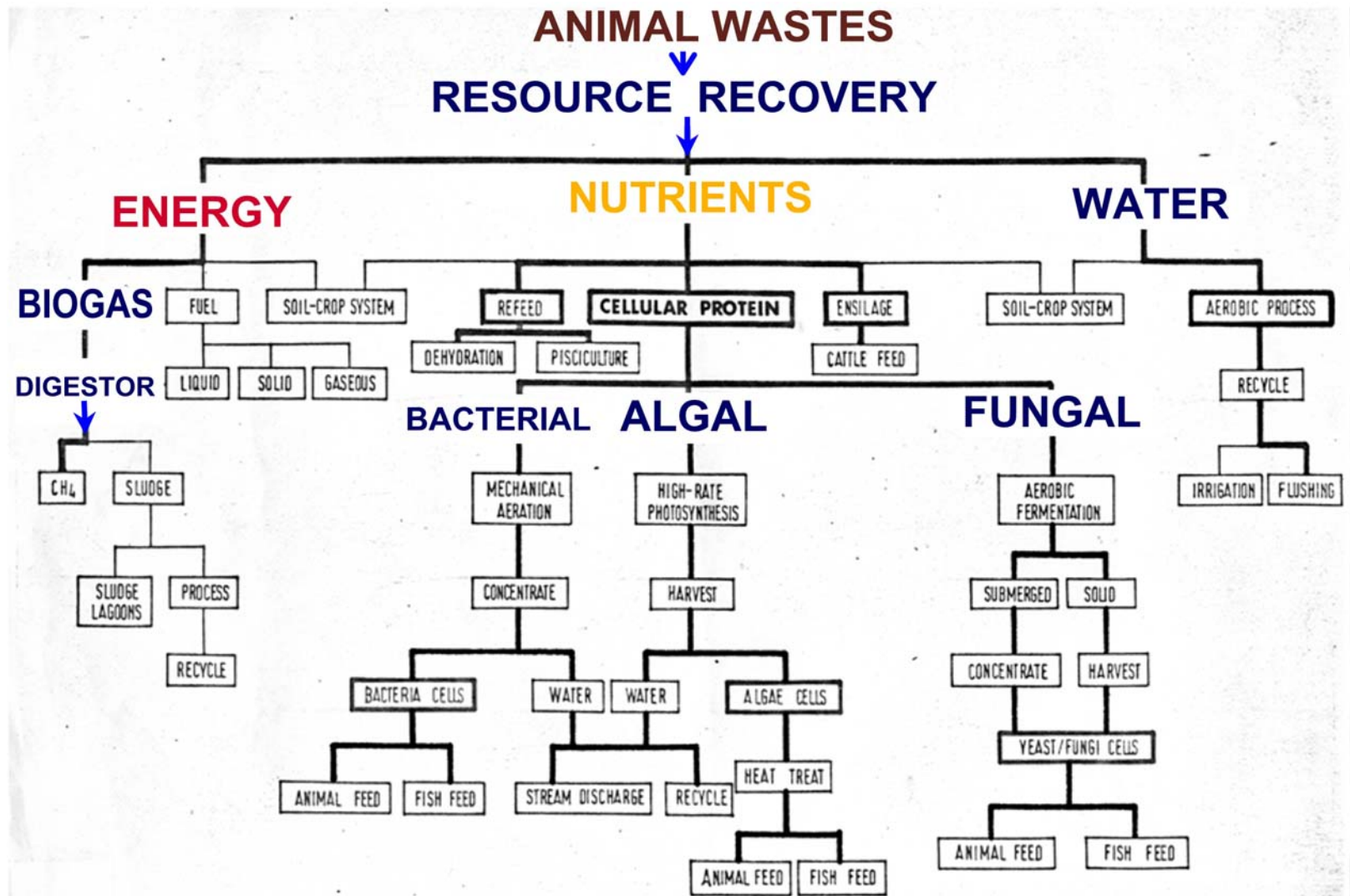
SINGAPORE 2003



m2m Morelia MEXICO

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SINGAPORE REREARCH & DEVELOPMENT

FAO/UNDP, IDRC/CANADA, ADAB/AUSTRALIA







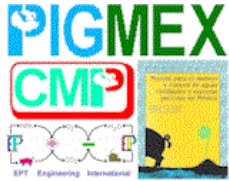


m2m Morelia MEXICO

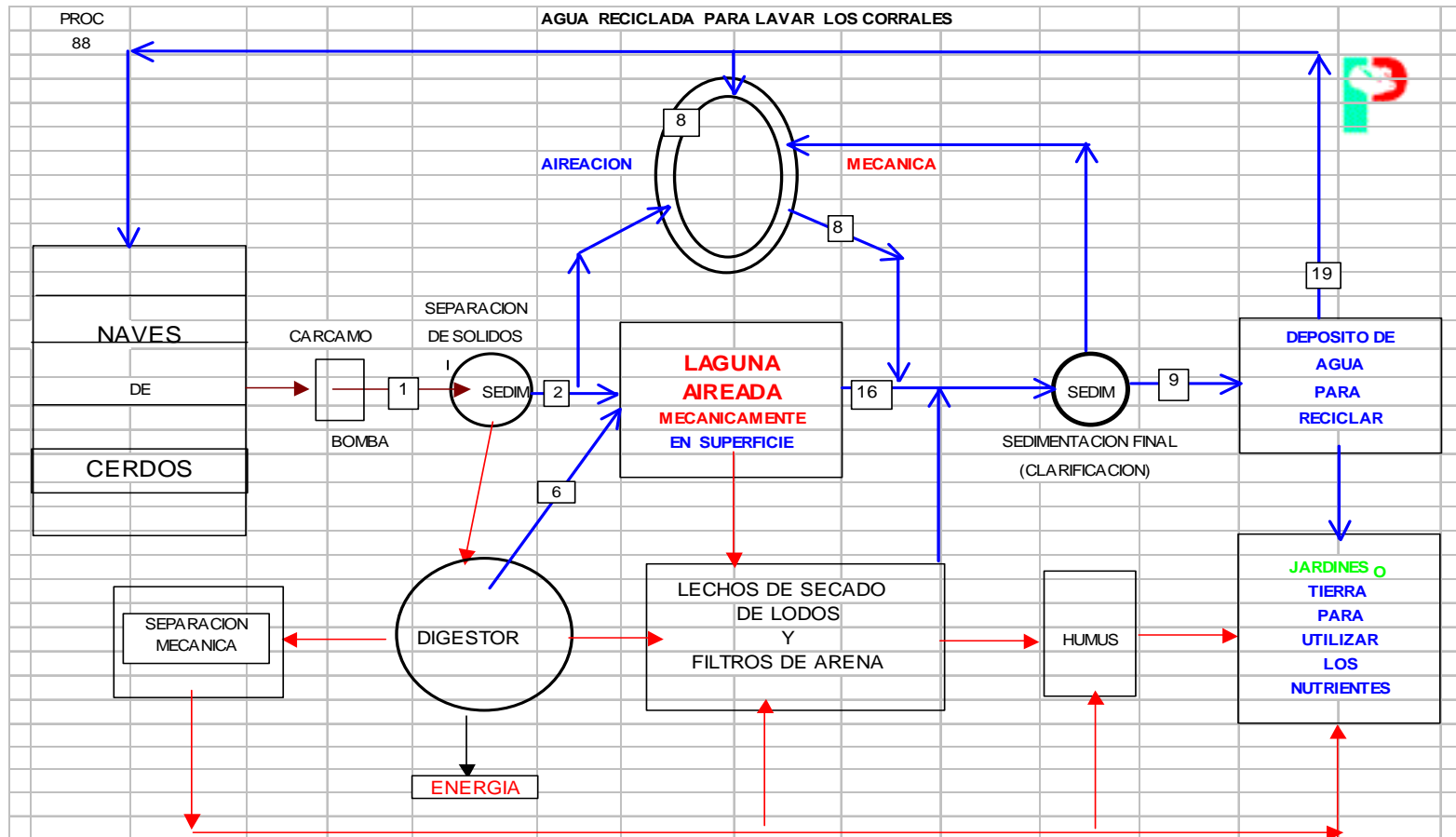
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ESHEMA DE UNA PLANTA TRATAMIENTO COMPLETO DECLARIFICACION DE LOS LIQUIDOS PARA ALCAZAR LOS ESTANDARES DEL EFLUENTE



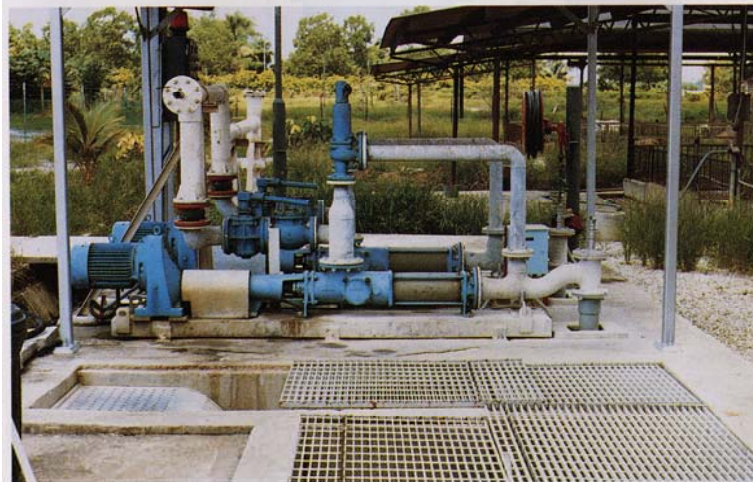








Waste Treatment and Utilization Demonstration Plant at Ponggol



Raw Wastewater Pumps and Sump



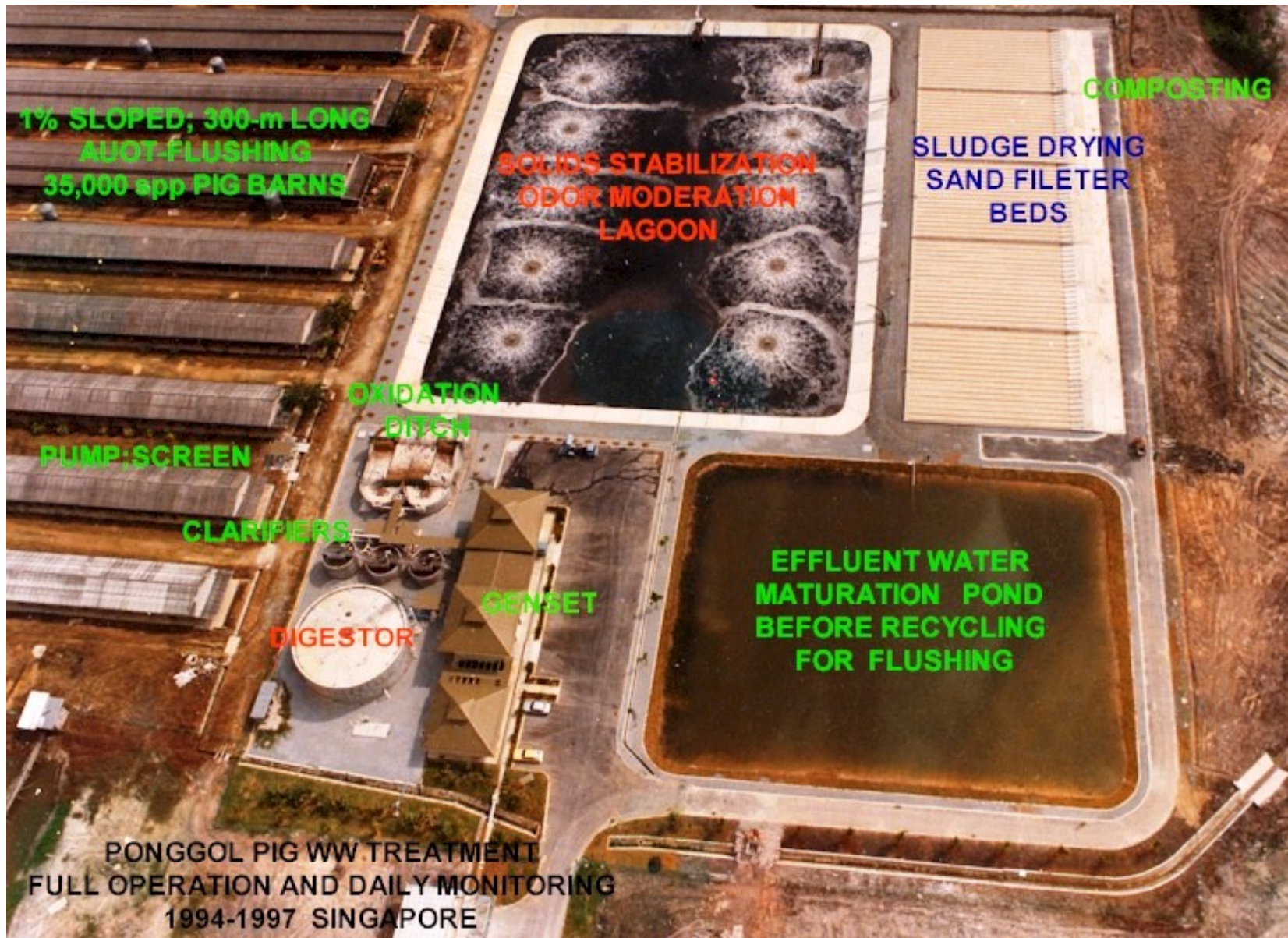
Sedimentation Tanks



Anaerobic Sludge Digester



Aeration Basins





Pig Waste Management and Recycling

Pig Waste Management and Recycling The Singapore Experience

For the island republic of Singapore, the years from 1979 to 1988 produced the most phenomenal changes in its history. This handbook is a research report derivative, one aspect of that change, the pig-farming industry. It reports on a decade of research and development and covers everything from disease control to nutrient preservation. This thorough and timely review satisfies the compelling needs for waste management and utilization in the livestock industry worldwide, and particularly in the tropical belts of the world.









E. Paul Taiganides

From 1979 to 1988, Professor E. Paul Taiganides coordinated and supervised a multitude of projects on Singapore's pig-farming industry. He received his doctorate in environmental engineering from Iowa State University in 1963, and currently works as a consultant in environmental protection technologies, Professor Taiganides lives in Columbus, Ohio.

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