

Preliminary Finding of the AP-FAST Pilot Activity 1 on

# WASTEWATER MANAGEMENT IN TIMOR-LESTE



**Zulmira Ximenes da Costa, M.Sc.**  
Faculty of Engineering, Sciences and Technology  
Universidade Nacional Timor-Leste

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# Scheme of responsibilities for the sustainable solution



# OUTLINES

- ❑ Introduction
- ❑ Current Situation on Wastewater in Timor-Leste
- ❑ Wastewater Management
- ❑ Preliminary Conclusion



# □ INTRODUCTION

- Looking for the impacts of wastewater, such as:
  - Air and water pollutions;
  - degradation of environmental quality;
  - marine environment;
  - water security
  - Including public health
  - Water supply from 30 points of groundwater
- As a great motivation for us to deeply gather, compile and better understanding about the wastewater

management and its potential problems in Timor-Leste.

- Therefore, this study as one of the significant tools which help us to well identify and better understand the real circumstances of wastewater treatment and management in the country.



## □ Aims

The objectives of this study are such as following:

- ✓ To map out the wastewater management in Timor-Leste;
- ✓ To identify, gather and compile all the potential problems, challenges and opportunities regarding the wastewater treatment;
- ✓ To understand the government policies on wastewater management in Timor-Leste;
- ✓ To provide some alternatives and recommendations to the relevant government entity relating to wastewater management and treatment.



# ❑ CURRENT SITUATION ON WASTEWATER IN TIMOR-LESTE

## ➤ Infrastructure: Open sewerage



- ✓ As good space to put solid waste into wastewater when the population has no conscience in keeping clean environment and health;
- ✓ Produce air pollution no fresh air;
- ✓ Create impacts for water pollution;
- ✓ Direct effect for human health;
- ✓ Not makes city resilience.



# ❑ CURRENT SITUATION ON WASTEWATER IN TIMOR-LESTE

- Lack of community's conscience and awareness in throw solid waste mixture with wastewater



# ❑ CURRENT SITUATION ON WASTEWATER IN TIMOR-LESTE

- House construction without wastewater channels or sewerage



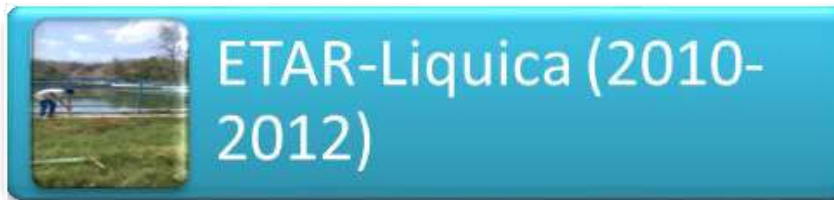
Very dangerous for  
our health and  
environment





# ❑ WASTEWATER MANAGEMENT

- Urban Areas: Dili Capital and the other Municipalities
- ✓ Three provisory wastewater treatment stations were built during the UN mission in Timor-Leste: **One in Taci-Tolu, One in Baucau and One in Suai.** All in during the UN mission.
- ✓ Currently the government of TL has build three new treatment stations:



**In function**



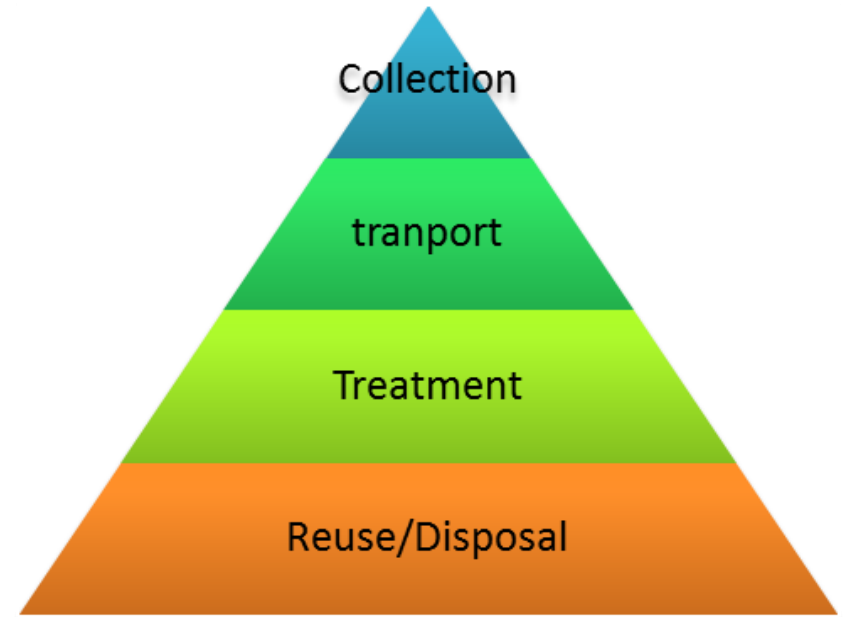
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**Not in function**

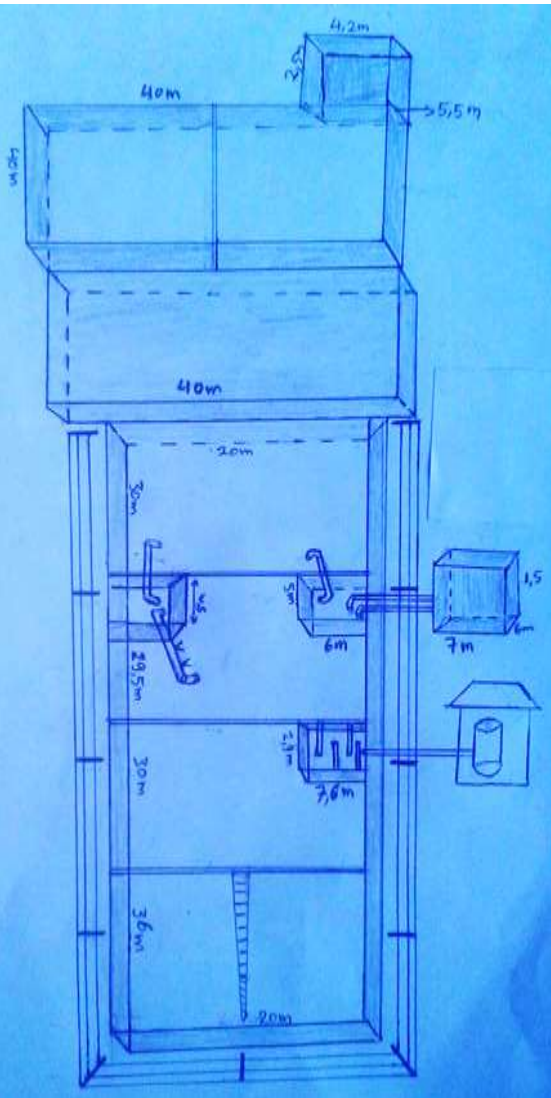
# ❑ WASTEWATER MANAGEMENT

- Wastewater deposits processing in ETAR Tibar



# □ Brief Documentation of Treatment Technology in ETAR

✓ This wastewater treatment station is composed of six treatment tanks and one laboratory.



- ✓ 1 tank is filter to receiving first wastewater deposit
- ✓ 2 tank is facultative tank that receiving first wastewater deposits; Reservation Tank
- ✓ 3 tank with closed condition to separate water from macro bacterial-anaerobic;
- ✓ 4 tank is for boiling wastewater and bacterial-aerobic;
- ✓ 5 tanks are for bacterial deposit-sedimentation;
- ✓ 6 tank is final wastewater treatment which ready to give the chlorine
- ✓ 7 tank is ready to collect the samples to perform laboratory analysis.

# ❑ WASTEWATER MANAGEMENT

## ➤ ETAR or Wastewater Treatment Station in Tibar area



- ✓ The parameters used for the laboratory analysis based on WHO standards are composed of BOD, COD, TSS and pH;
- ✓ **The objective:** to measures the amount of dissolved oxygen required or consumed in five days at a constant temperature for the microbiological decomposition (oxidation) of organic material in water;
- ✓ When all values of these parameters are fulfilled the WHO standards that water can canalize to outside areas or to the sea.

Based on result of BOD parameters of Water pollution in Dili Stream is 8.4 related of the Ground water Level

GW Already contaminated and Lower District in Dili Discharge more Pollutant

# ❑ WASTEWATER MANAGEMENT

➤ ETAR or Wastewater Treatment Station in Tibar area

Wastewater transport from Baucau  
FDTL Office and Ermera  
Municipality Office

✓ Source of wastewater

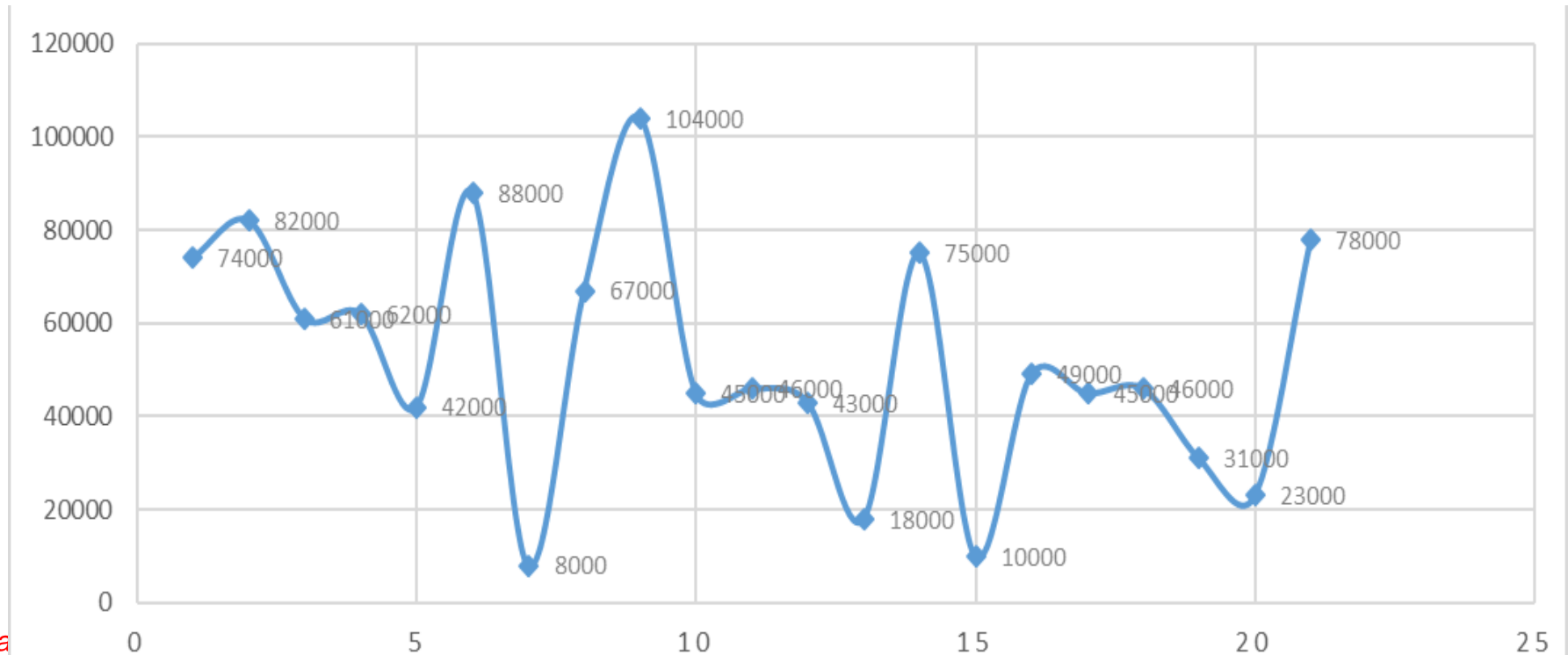


# ❑ WASTEWATER MANAGEMENT

## ➤ ETAR or Wastewater Treatment Station in Tibar area

### ✓ Daily Generated Amount of Wastewater in the Municipality

From Household: ETAR waste daily generated is about 1000m<sup>3</sup>/L/Month. currently, the max. amount of waste generated is more than 80 tons/day.



# ❑ WASTEWATER MANAGEMENT

## ✓ Operational cost

Time	Volume of Waste Water	Company Revenues	Government fees
March	1097000	10970	548.5
Abril	125700	1257	62.85
Mai	1239000	12390	619.5
Junho	1006000	10060	503
Julho	1186007	11860.07	593.0035
Total	4653707	46,537.07	2,326.85

- Company's revenue is 1%/ltr from communities' fees;
- Government's revenue is 5% from company's revenues.

The different is **44,210.22** for company revenues and on the other hand cost of a Septic Tank is \$ 65

**Where is the balance among private company's incomes and government?**

✓ Maintenance cost: In 2015 \$ 25,000 and In 2016 \$ 20,000



# ❑ WASTEWATER MANAGEMENT

## ➤ License companies

There are 11 private companies which operating in Tibar ;  
Anteater, Alfamima, Elemloi, Caltech, EDS, PAX, 3 Corentes,  
FICA, Waste Control, MTD and JYL





# ❑ WASTEWATER MANAGEMENT

## ➤ Human resources

There are 4 operational staffs which are responsible for:

- Administration;
- Electricity and laboratory technician;
- Monitoring;

- Cleaning service.

## ➤ Challenges:

- Lack of human resources;
- Limited experiences and knowledge;
- Limited capacity building or training;
- No health monitoring for staffs.



# Meeting with head of department Water Supply in Dili Municipal



# Meeting with Lead Bobonaro Municipality



## □ Meeting with Lead Maliana Municipality



- Have good irrigation and drainage for Agriculture
- In Maliana town has a problem with drinking water (Borehole, illegal installation, lack of water supply management)

## ❑ Meeting with Lead Maliana Municipality



Wastewater from this toilet is flows to their own farm and garden.  
Inexistence of the Drainage for domestic wastewater

## □ Meeting with Lead of Ermera Municipality

- Ermera Municipality with tap water supply: Government/SAS and some of community use their own borehole water.
- In rain season, all of water pipe has contaminated with mud and filtered.
- WW Leave in public sewage effluent to the river and the community leave in their own farm or garden
- Not have good condition of the drainage; still using the Drainage from Indonesian time.
- Distance of Household
- Source pollution to regulate processes toward sustainable water use and ecosystem protection



## ☐ Meeting with Lead of Ermera Municipality



The President Authority of Ermera municipality has a good perspective on reuse of wastewater and indeed for TL

Water conservation is key for all of problem related of water and make good urban plan

Lack of joining monitoring program for water security

*Water is a life of everything*



## □ GAPS

1. Community Awareness ;Minimum of communities' understanding on wastewater management and reuse for the agriculture;
2. Institutional arrangement (Local leadership);
3. Lack of interministerial coordinating (Public Works, Agriculture and Environment); institutional arrangements
4. Monitoring team from National, NGO, International agencies, etc:Lack of monitoring and controlling of wastewater;
5. Limitation of Human Resources;
5. Minimum existence of research institutions focus on environmental and water resources issues;
7. Conflict of interest is very high.





## ❑ Existing Legislations

- According with article 25 of the Law n.o7/2007, 5 de Sep, defined by Government, namely by State of Administration and Territory Planning Ministry in article no 9, Cleaning and Sanitation Section , the District Administration service is responsible for the technic support.
- Decree Law N.o 5/2011 (East Timor) defines: “waste as any solid, liquid, gas or radioactive matter that causes transformations when unloaded in environment, and are a result of individuals or private and publics institutions activities.”
- Related for law of Wastewater still in Draft
- Decree Law No. 33 /2008: Public Hygiene
- Regulation no 8 2012- Timor Leste National Basic Sanitation Policy



## ❑ PRELIMINARY CONCLUSION

- ✓ In general, wastewater in Timor Leste, in the form of bathroom wastewater, wash and kitchen discharged directly to sewer, agriculture wastewater, ditch or directly to river / stream or any place that is not mastered and without preceding processing although simple.
- ✓ The household wastewater discharged into the roads, stream, drainage will eventually flow into the sea as well
- ✓ Society's understanding and perception of the impact of domestic wastewater is still low



## ❑ PRELIMINARY CONCLUSION

- ✓ Poor management of wastewater in Timor-Leste;
- ✓ There only three wastewater stations in Timor-Leste and only one in function;
- ✓ Lack of communités's concience on solid waste and waste water treatment;
- ✓ The negative impact for health, soils and enviroment, water and air pollutions, etc;
- ✓ There is lack of wastewater collection and treatment and facilities in urban Municipally.



## ❑ Constraints & Challenges

- Effective wastewater mangt facilities, technology and sound management;
- Impacts to environment & human health
- Waste recycling; Waste recycling;
- Enforcement of existing laws/regulations;
- Additional binding instruments developed;
- Lack of capacity and Human Resourch;
- Awareness raising program;
- Stakeholders' collaboration & public participation;
- Data collection & monitoring/evaluation; etc.



## ❑ Next Steps

- ❑ Data collection in other municipality and field trip to ETAR Suai and Baucau.
- ❑ Identified the community perspective related of the management of wastewater: Questionnaire
- ❑ NGO, International Agencies, ....etc
- ❑ Sanitation Infrastructure
- ❑ PHD; sanitation program implementation in Bobonaro (Atabae)



## □ The result of interview from some community, Government and local lead

”Be foer soe ba rai no rega estrada, se la halo hanesan ne ita halo saida, com certeza soe ba rai. Se kuando ita husk ba tanki sintina nian mos bele nakonu lalais no kareta atu supa be foer ne deit karun los”.

“Comunidade sira sempre soe be baleta kuak, kanal be foer nian nebe suli ba tasi hanesan maloa, bidau no seluk tan, be alin be foer ne ita atu halo saida. Karik ida ne ladiak entaun governu tenki iha atensaun, regulamentu no bandu para ami labele soe ba hodi nunee bele prepara fatin be foer nian” ita hatene katak be foer ne sei kontamina be mos, maibe ate agora ema hotu halo tuir ida-idak nia hakarak”

Husi intervista klean ho National Director Basic Sanitation hetan informasaun mak hanesan : ”Regulamento nebe foka ba gestaun be foer ne iha ona maibe sei iha Draft Hela. No entanto sei hein hela aprovasaun husi conselho Ministro no precisa tempo nebe naruk .



# Thank You

