

# ENVIRO-PURE FOUNDATION

DEVELOPMENT / CONCEPTUAL DESIGN / INTEGRATION / CONSULTANCY  
Netherlands/Thailand



## WHAT ARE WE DOING WITH WASTE PLASTICS IN ASEAN (and beyond)

Developments in the past years and our research have formed an insight of the way forward to a sustainable solution for the MIXED waste plastic problem in SE-Asia (and beyond).

Plastics in many forms and applications have become an important part of modern life and cannot completely be banned or replaced in the next 25-50 years, despite wishful thinking by know-alls in western countries. With intelligent approach and proper technologies, it can be recycled numerous times, thus limiting, and even removing completely over time, the now hideous amounts of waste plastics clogging water ways, mangroves and beaches, floating in rivers, seas and oceans and built-up in nature and (illegal) dumps, slowly, decomposing into microplastics during hundreds of years.

***The collected amount of plastic in Guatemala by “The Ocean CleanUp” leaves nothing to the imagination.  
The Philippines are even worse with the largest consumption of Coca Cola per capita in the world.  
The USA is the largest consumer per capita of bottled water (because tap water tastes horrible?)***

*The recent DW video (Deutsche Welle TV) on waste plastic in general and focus on Coca Cola as the largest polluter with PET bottles in the world gives us a better estimate of volumes and pay-out options to scavengers. Information from Coca Cola Australia shows it is found expensive but acceptable to pay scavengers AUD 1 (USD 0.67) per kg for returned PET bottles with caps and labels removed; 30 x 1.5 L bottles weigh 1 Kg, collected, flattened and baled on Samoa and delivered in sea containers via Samoan Breweries, the CC distributors, to Sydney at USD 4,000 (ex landing and handling costs) which amounts to a total estimated cost of > USD 0.20/bottle without further processing costs. CC accepts for now the increased cost (virgin plastic is much cheaper) for CSR/PR purposes.*

**We look at this with the SITUATION in SE Asia in mind and not through the eyes of Australian, USA or European consultants and others from behind their key-boards, but with our feet on the ground in the region. First of all, most countries in what we call the developing world, do not have proper waste collection, or none at all, let alone waste processing in any form but setting fire to it. Western (USA) bad appetites, particularly post WW2, for carbonated sugary drinks and fatty fast food have been brought to Asia through ruthless marketing without thinking/caring for the consequences, like causing diabetes and obesitas.**

Reviewing many videos of riverbanks, beaches, (illegal) waste dumps etc. the most **visible** waste plastic seems to be **PET bottles** as used by the worldwide soda-and drinking water bottlers. They stay/float on top (the bottles), you can read the labels. The flattened bottles come from bales in containers originating from USA, UK and Europe and dumped randomly, with documents stating: green material for recycling. **HOW, WHERE?**

Earlier initiatives by Coca Cola showed a maximum of 10% of recycled PET feedstock, having dwindled to almost zero. The petrochemical industry has upped production of PET to compensate for lost revenues in car-fuels (electrification/biofuel/more efficient engines?) and shareholders are pushing the bottlers for maximum value. The call to reduce virgin plastic production becomes louder but lobbying by this industry and vested interests in many countries active in the petrochemical industry will remain a main stumbling block. **But let's not blame Coke only!**

***UNEP resolutions in the making will not be signed by China, India, Russia, Saudi Arabia, USA and more because they do not want to reduce production of virgin plastics. Investments and plans up to 2040 have been made to increase production by 60% ! The EU has mandated 25% of PET must be recycled by 2025; DREAM ALONG, there are not enough recycling plants to achieve this. A single CC bottling plant in Türkiye needs approx. 250 million bottles a year, (info from our own sources) meaning they would need 2.1 Million Kg of recycled PET each year.***

**AND THIS IS FOR 1 BOTTLING PLANT OF 1 BRAND IN 1 COUNTRY ONLY!**

*The oil-petrochemical industry will not agree to reduce production voluntarily despite public opinion.*

***Taxation of virgin PET and other single use plastics is the only way but takes political will and courage, not abundantly available in most countries.***

The populous ASEAN countries Indonesia, Malaysia, Philippines, Thailand, Vietnam represent approx. 0.5 billion people of which 70-80% live under the internationally **assumed** poverty level. Real income of low-/non-schooled people is around USD 5-6/day, Income of small individual rice-sugar cane-, corn-farmers, with 10 acres of land is kept far lower through corrupt middlemen, politicians, the Cargills' and Monsanto's of this world. Farmers need to have side jobs to get by and based on our own observations in Cambodia and Thailand, income can be as little as USD 4 / day/family and are hostages of loan sharks. The present Thai government states an income of USD 150/month is sufficient to get by, a college graduate (Bachelor degree) gets USD 450/month, just to set the record straight!



Organized scavenging/collection of PET bottles from dumps (euphemistically called landfills) and landing places such as from “Ocean CleanUp” can provide above average income for these people at the bottom of the pyramid and could lead to removal of the approximately 8% of waste PET plastic to start with.

A family of 2 adults and/or 15+ year olds can make an income of USD 30/day by each collecting 50 Kg in 8 hours and could get paid USD 0.30 per Kg. 500 families can collect feed stock for a 50 T/day recycling facility!

*To reduce local PET waste, a **kiosk** with our equipment can produce WHO-compliant drinking water in 10 or 20 L hygienic PE refillable containers located near the dumps/villages or pre-processing facility with a voucher system: 10 L for every 25 Kg of waste PET plastic collected. Surplus produced water may be sold, and supplied to schools and aged people for free or at reduced price, improving living conditions step-by-step.*

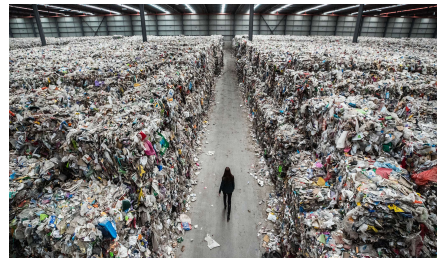
Forcing **all bottlers** to pay in a national or international fund USD 0.02- 0.05 per bottle sold, depending on size, and using this fund to pay the scavengers, will cost the bottlers hardly anything because the recycled PET pellets will now be cheaper. 500 families can collect the total daily requirement of a PET recycling facility for 50 Tons/day = **1.5 million bottles or 2.3 million litres/day Coke, Pepsi and bottled water (Nestlé, Danone etc.)**

Contribution from CO<sub>2</sub> funds because of the positive impact of this action should also be possible.

Obviously to control the money-trail is a challenge in these countries. Any realistic suggestions are welcome.



from this



through this



to this

## THE TECHNOLOGY

Production of PET pellets (granulates) from waste bottles is presently done on a limited scale but in our scheme serves as a pre-cursor for the final total recycling of all 7 plastics. Once the PET step is up and running, making money, the plant can be expanded to process the rest (92%) of collected/dumped waste plastic.

Our partners' latest generation machinery combined with advanced pre-treatment offers a new approach for durable, sustainable **and** profitable recycling of all 7 mixed waste plastics combined, producing building materials, fences, garden-restaurant-playground and outdoor-furniture, bridges, piers, beams. An important **new application is: permanent and emergency housing and public-facilities** and upgrading/rebuilding of entire villages in disaster struck areas. Replacing building materials by repurposed, or upcycled, plastics will have a significant positive effect on deforestation, reduction of use of fossil fuels, and CO<sub>2</sub> emissions contrary to the present limited incineration or pyrolysis and conversion into fuel that has been found to emit very toxic chemicals in the atmosphere (recent outcome of tests in California) leading to cancelling /prohibiting jet fuel (synthetic kerosine) production from waste plastics!

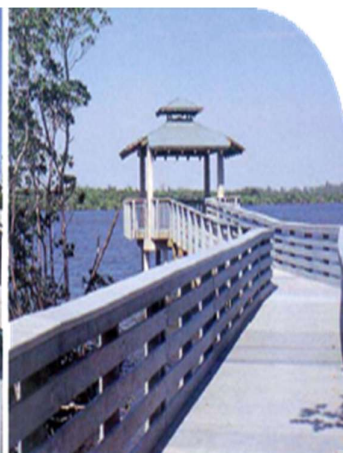
Formation of microplastics that end-up in the food-chain will be limited on a large scale.

Our partner is interested to co-invest in Indonesia, Malaysia, Philippines and Thailand and beyond, in Joint Ventures with investors, governments, municipalities etc. for commercial exploitation of the technology. Parties approached have already expressed genuine interest.

**ENVIRO-PURE FOUNDATION** of The Netherlands will serve as integrator and intermediary next to acting as consultant/supplier for the required water and wastewater facilities and reuse, its core business for > 46 years.

The plastic recycle technology, as used in Belgium, Bulgaria, Finland and Poland since 1998, presently has no washing, sorting and pelletizing facilities. The robust molding and extrusion machinery uses 3<sup>rd</sup> party supplies of selected plastic pellets and granulates. Govaerts -Belgium; a family owned company is a major supplier to the wood-replacing building and DIY markets in Belgium, France and The Netherlands with 280 products serving as an example of profitable upcycling. The latest generation machines can now **mix all plastics including films, reports are available**, and enable the use of all 7 grades with **no waste left**, instead of only 2 types of plastics with limited reuse opportunities.









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