



# Factsheet

## Waste & Climate Change

### How does waste contribute to climate change?

#### Organic Waste

Waste generated everyday in the Pacific region contains readily biodegradable organic matter such as kitchen waste, garden waste and paper, which on average accounts for about 58% of the total weight of waste generated.

In some of the larger cities, the amount of organic waste accounts for almost 70% of the total waste generated. Most of this rubbish ends up in dumpsites or in landfills.

When organic waste decomposes, carbon dioxide and methane gas is created. Methane is created when there is no air present while carbon dioxide is the natural product when anything rots in air.

Both carbon dioxide and methane are greenhouse gases, which contribute to global warming and climate change.

In the Pacific islands region, the reported methane emissions from solid waste disposal systems such as landfills and dumps, account for 1.7% of the total emissions from the region<sup>1</sup>. Meanwhile, the Pacific islands region total contribution to the World's total greenhouse gas emissions is only 0.03%<sup>1</sup>.

#### Inorganic waste

Inorganic waste does not contribute directly to greenhouse gas emissions, unless it is incinerated. However it does represent greenhouse gases emitted previously during the manufacturing process.

All manufactured goods use natural resources such as water, fuel, metal, timber in their production and this results in the emission of greenhouse gases, particularly carbon dioxide and other pollutants.

Thus, rubbish sent to a dumpsite or landfill represents a significant amount of greenhouse gases already emitted to the atmosphere and have contributed to climate change.



### How will climate change affect the waste sector?

#### Increased sea level rise

Many Pacific island countries and territories are low lying with very small land size and many of the dumpsites are located in swampy areas or in coastal areas. Rising sea levels due to the warming climate will lead to increased flooding and erosion of coastal dumpsites causing increased pollution of coastal waters.

#### Changing weather patterns

Rainfall patterns are changing and there is increased likelihood of extreme events such as cyclones. Such events have the potential to cause damage to infrastructure and property, giving rise to disaster waste which must be managed. More severe weather events can also disturb sunken World War II wrecks, of which there are over 800 in the Pacific, and increase the risk of marine pollution.

#### Changing technology

Measures for mitigating climate change effects include a shift towards renewable sources of energy generation such as solar and hydro. In the longer term, this shift will eventually result in obsolete petrol-based, energy generation technology that will require disposal. Moreover, renewable energy technologies will eventually give rise to new waste streams such as from damaged parts.

<sup>1</sup>Hay, J.E, and Sem, G. 2000. GHG Inventories in PICCAP Countries: Evaluation and regional synthesis of national greenhouse gas inventories: General assessment and regional synthesis. Apia: SPREP.

## Preparing for climate change through better waste management?

Even without the threat of climate change, waste management in the Pacific has been a pressing issue. Our islands have limited land area and we cannot afford to commit more land to dump sites and landfills.

Climate change has accelerated the need to find measures to reduce and manage the waste we create. Reduction and reuse of waste will help reduce pressure on the planet's natural resources while potentially reducing emission of greenhouse gases created through mass production and burning of fossil fuels.

Although it will be up to governments to develop policies and structures to deal with increasing waste at the national level, individuals and communities can help to reduce the production of waste.

There are some things we can all do.



### **Refuse** *what you don't need:*

By doing this you reduce the generation of waste. Every item refused reduces the demand for the production of that item. In doing so it avoids GHG emissions associated with the production, transport, use and disposal of that item.

### **Reduce** *what you do need:*

There are some things we can't live without, but we can reduce the use of those items. As an example, purchase goods in bulk, rather than individually-packaged items. Smart thinking like this will reduce the amount of waste to be managed and thus reduce the GHG emissions.

### **Reuse** *what you can't reduce:*

By doing this it prevents the return of the carbon within the materials to the environment for as long as possible. Reuse also reduces demand for new raw materials and therefore reduces climatic impacts from this and associated materials transportation.

### **Recycle** *what you can't reuse:*

Recycling is not as effective as reducing or reusing waste, since it requires the waste to be transported to a processing centre where its original raw materials are extracted – all of which generates GHG emissions. However, it does avoid the GHG emissions associated with extracting and processing virgin raw material.

### **Recover** *what you can't recycle:*

Recover refers to activities which convert waste into another useable form. Examples include the incineration of waste and harvesting the heat to generate electricity, or the composting of organic waste to produce compost. Recovering value from the waste offsets the GHG emissions, the electricity produced from incinerated waste avoids the production of electricity using fossil fuels; the compost produced 'locks in' some of the carbon and can absorb more carbon over time.



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