

Improving Food Security in Indonesia by Reducing Food Waste using Circular Economy Model



Arisman

CSEAS
Center for Southeast Asian Studies

Introduction

As Indonesia has been experiencing impressive economic advancement and emerging as an upper-middle income country, it has also recorded important progress in enhancing food security. While struggling to address long-standing food security challenges, Indonesia is currently facing an unprecedented crisis triggered by the COVID-19 pandemic. Thus, new and enhanced strategies are needed for the country to achieve the 2030 Agenda, especially Sustainable Development Goal 2 (SDG 2), which states that by 2030 the country will end hunger, achieve food security and promote sustainable agriculture.



Question

To what extent reducing food waste and food loss is an effective action to improve food security ?






Food Loss and Food Waste


The FAO estimates that roughly one-third of the edible portions of food produced for human consumption gets lost or is wasted globally, which is about 1.3 billion tons per year. The value of food lost or wasted annually at the global level is estimated at US\$1 trillion.

Food is lost or wasted throughout various stages of the food supply chain. During agricultural production, crops and harvest can become damaged or spilled, animals may die due to diseases, fish may be discarded during fishing and milk could be lost due to cattle diseases. Crops, animals, fish or milk may be lost during post-harvest handling, storage and in transportation. During processing, food may be lost or degraded during washing, peeling, slicing, canning, packaging etc.; or during slaughtering, smoking, freezing or pasteurising. During distribution, food may be lost or wasted during transport, at wholesale markets, supermarkets, retailers, etc. Finally, consumers may waste food by throwing it away.

FAO Global Food Losses and food waste

8% 

of global greenhouse emissions annually
(caused by gases released from rotting food and also energy used in food production that gets wasted).

20-30% 

of food is lost or wasted before reaching the consumer

It is inefficient to use financial resources, as well as land, water, energy and labour to produce food that is ultimately wasted or lost.



US\$2.7 trillion/year

By 2050, a circular economy for food could deliver up to US\$2.7 trillion per annum of benefits. \$700b resulting from reduced waste and value-added by-products, and the remainder from environment and health benefits.



5 key areas of the Indonesian economy with high potential for circularity

Sector

Problems that circularity can solve

Food and
beverage
(Food loss
and waste)



- Over **300 kg** of food loss and waste is generated in Indonesia per person every year

Textiles
(Textile
waste)



- ~**470,000 tonnes** of textile is lost during the production process in Indonesia

Construction
(Construction
waste)



- Indonesia aims to cut its emissions by 29-41% by 2030 (vs BAU). **11%** of global carbon emissions are associated with materials and construction processes used in buildings

Wholesale & retail
trade (Plastic
packaging waste)



- ~**71%** of plastic packaging waste in Indonesia is either burnt, dumped on land, sent to dumpsites, or leaks into the ocean

Electrical and
electronic
equipment
(E-waste)



- Indonesia generates **6.7 kg** of e-waste per capita, two to four times the amount generated by the Philippines, Vietnam, Laos, or Cambodia

What is Circular Economy?

The circular economy is an economic model that aims to avoid waste and to preserve the value of resources (raw materials, energy and water) for as long as possible. Products and materials are continuously (re) circulated – as opposed to a linear model in which they are discarded as waste after use.



Circular

Reduce. Reuse. Recycle.

vs



Linear

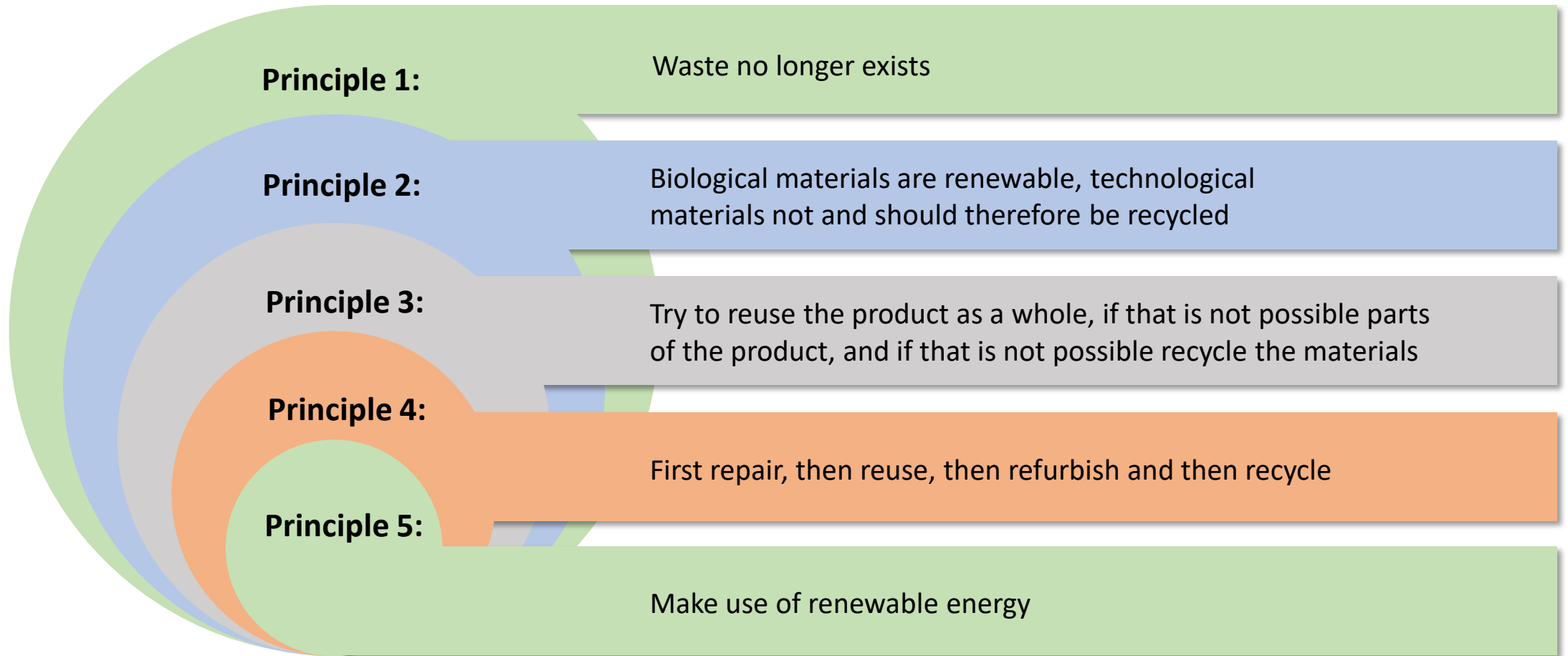
Take. Make. Dispose.

It's good for the environment and our communities. It's good for business.


Circular economy is all about **value chains & ecosystems.**



Five principles for a circular economy include:

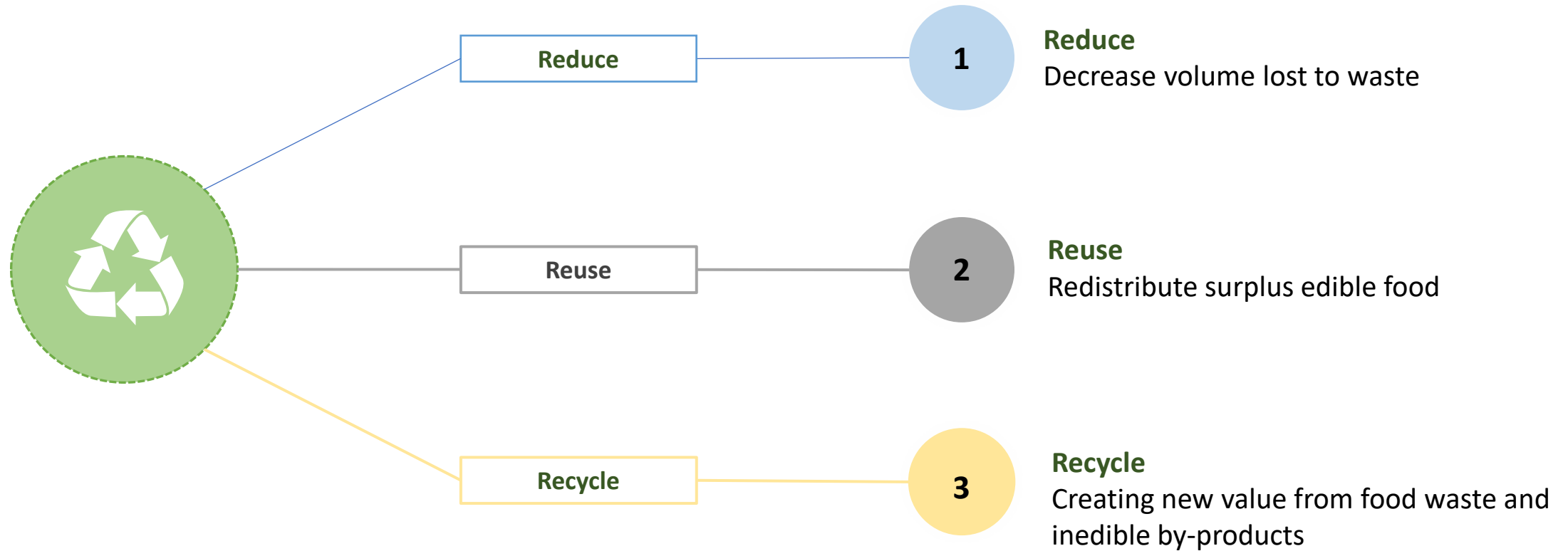


Circular Economy & Reducing Food Waste

- The circular economy has mainly focused on engineering or the processes of production, manufacturing, business and industry. However, the transition towards a circular economy requires, in addition to new technologies, infrastructures and innovations, a societal change and a change in everyday practices.
 - The circular economy create moral categories and responsibilities in everyday food consumption.
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What does Circular Economy mean for food?



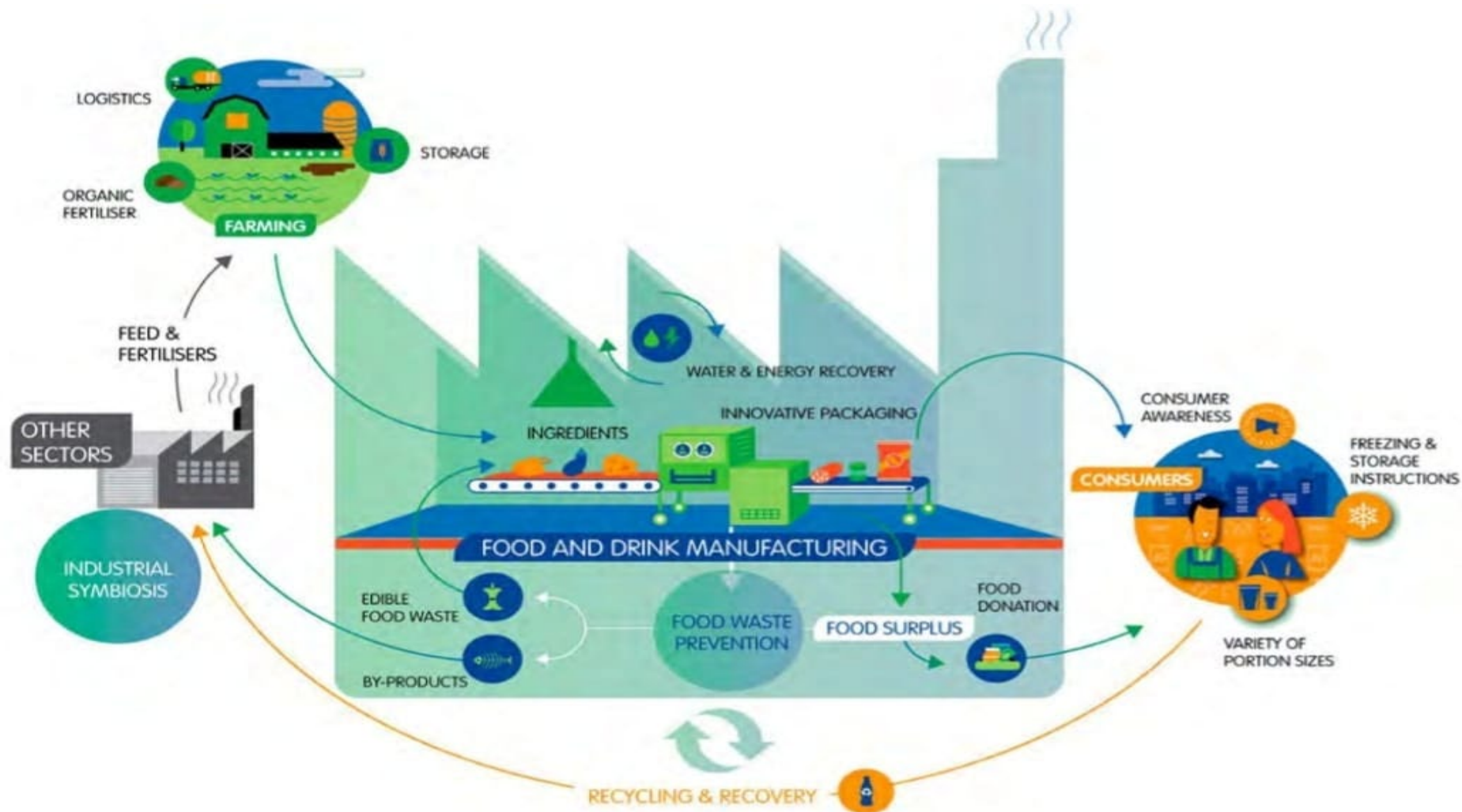
Food Recovery Hierarchy

The 'Food Recovery Hierarchy' notes that to address food waste with a circular mindset, the preferred outcome is to reduce the volume of surplus food generated or reuse it. Least preferred is sending the waste to landfill.

To fight food waste through circular, it is key that the agri-food value chain work together in finding ways to keep food fresher for longer through improved storage conditions and logistics, creating products from all harvested produce, seeking opportunities to convert waste into energy, feedstock, fertilizer or other products, and in informing consumers about the process from farm to plate, the impact of food waste, portion sizes, and storage instructions.

Food brands, retailers, chefs, and other food providers have a major influence on what we eat. In circular models, they have an important role in designing food products, recipes and menus that are healthy for people and the environment. This extends to food packaging that preserves food and is also compostable so it be recycled as nutrients into the soil. Marketing and branding is also important to tell the story of the food to consumers so that benefits such as increased margins and new markets can be realized.

A Circular Economy for the Food and Beverage industry



The perspectives and assumptions aiming at reducing food waste, which can broadly be classified in the following three points:

1. Economic perspective: production costs of food products could fall by reducing or reusing waste. Waste represents a wasted investment that can reduce farmers' and businesses' incomes and increase consumers' expenses.
2. Environmental perspective: reducing waste can reduce the claim on natural resources (land, water, energy) that were used in producing the food. This perspective can also be focussed on the reduced emission of greenhouse gasses as a result of reduced waste of food.
3. Ethical and social perspective: reducing waste can increase food security of people in need of food