

UN sustainable development goal 12: *to ensure sustainable consumption and production patterns.*

Goal 12 aims to make sure all countries sustainably consume and produce resources. To break that down, to sustainably consume a resource means to only use it up at a rate equal or lower than rate of production for finite resources (in a practical sense) such as fossil fuels any use is unsustainable so instead the UN aims to promote alternatives such as solar power. Similarly, unsustainable production can also link to the use of a finite resource or use of a resource at a rate which is not reasonable. Alternatively, it can also refer to the pollution caused by a production process which may be deemed as excessive. Goal 12 has links to other development goals such as goal 7(clean energy use) and goal 13 (climate action).

Both developing and developed countries are responsible for and affected by the implications of unsustainable production, this constitutes it as a global issue. It is estimated that by 2060 the worlds reserve of fossil fuel will run out, considering that 80% of the worlds energy is produced through methods which involve the consumption of fossil fuels it remains essential that replacement methods are designed implemented and improved to an extent which allows for the reliance on fossil fuels to be largely relieved. Similarly, many precious metals, such as lithium and platinum, are being used at a rate which will leave future generations without access to these resources. Without reserves of metals common items such as batteries and computers will be unable to be made with current production methods.

This issue generally isn't contained to a specific region or country. There are examples of both developed nations and developing nations being wasteful. In fact, it's not only countries; some companies are hugely to blame for the irresponsible use of the worlds resources. Many developing countries produce unnecessary amounts of waste because of a lack of infrastructure and poor production methods resulting in a process which uses more resources than completely needed. Some developing countries which compete on a global economic scale have unsustainable rates of consumption nations such as America and China use methods of production focused on tight profit margins meaning often sustainability is not considered.

A great example of where this goal could have prevented natural resource is the case of the Aral Sea in Kazakhstan. The sea originally was the 4th largest salt water lake in the world but has been reduced to a 10th of its size. The excessive cotton planting along the river which fed the lake and around the lake itself drained the sea, what used to be a plentiful resource providing a variety of benefits such as fishing and agricultural activity has now been turned into an unusable and desolate area. Had goal 12 of the UN been applied to this case the use of water could have been monitored and the excessive planting of cotton plants prevented. This would have allowed the use of the sea for future generations.

2 huge barriers to the resolution of this problem are the exponentially growing population and what is known as the rebound effect. The rapid population growth is resulting in means of sustainable production to be dismissed in favor of less sustainable production methods which can produce the abundance of products needed. Additionally, the growing population results in global increased consumption and therefore greater consumption of finite resources. The second issue dubbed the "rebound effect" is a limitation to the benefit of improved efficiency and technological advancement. Lets take the example of car manufacturing, as cars become more ecological and efficient they become less expensive to own and therefore more people can afford them. This event can also be observed in production processes; as the manufacturing of cars becomes more efficient and consumes less energy it becomes cheaper for businesses to produce these cars and therefore price of these cars is reduced resulting in more people having these cars. This is a huge problem

because it means if we experience a 20% increase in consumption 20% more efficient production processes and products will not prevent global consumption from increasing. This limitation means that it is important to consider that a global increasing population increasing exponentially will supersede the ability to create efficient processes and products. This is evidenced by the fact that mean material use pre capita (individual) rose by 40% in recent years.

This is a delicate problem to try and resolve fairly. The intricate balance of global economics related to human needs and the vast difference between the abilities/impacts of developing countries compared to developed countries results in this issue needing a multi-stage case by case resolution. Currently the UN has a variety of goals and targets for future years, for example one of the UN's targets is that by 2030 halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses. I believe a great way to tackle these problems would be to make use of the current technological advancements made in recent years; many new technologies and processes have been developed and implemented into one country but not another. There are a variety of reasons that this may be the case but a centrally stored catalogue of information regarding all new processes and techniques regarding the action of the process, the required materials, and any needed machinery would be a great way to share information between countries. A great way to become more sustainable is through the use of recycling, by developing new ways to recycle materials which previously couldn't it would result in lower rates of these materials being used up