Green Our Cities
GROW Our WORLD

TEAM AMETHYST

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By 2030, rising heat from climate change could lead to 80 million jobs loss, with developing countries hardest hit.

A temperature rise of 1.5°C leads to a 2.2% drop in working hours because of the health risks, equal to 80 million full-time jobs, costing the global economy $2.4 trillion.
Out of 10 countries in SEA, there are 8 countries included to moderate unhealthy. Without intervention, worldwide premature deaths due to ambient air pollution are expected to rise (annually) 3 million (2012) $\rightarrow$ $>6.5$ million (2050) with the majority in Southeast Asia and the Western Pacific region.

Source: Trading Economics, 2017

Source: The Globe Post, 2019
South East Asia Pollution Contributor

Source: World Health Organization, 2018

Transportation

- In SEA megacities, it would be no surprise that road transport is the number one driver of toxic air pollution levels.
- The problem is compounded by poorly regulated tailpipe emissions for vehicles and traffic that is regularly at a standstill.

Industry

- By 2030, the 4th industrial revolution (Industrial Internet of Things) will transform traditional factories into high performance, fully optimized plants.
- However, developing countries also have argued they should be allowed to continue increasing emissions as they industrialize.
Industries annual growth in all SEA countries from 2015 – 2018 mostly are showing increasing trend and also positive percentages of growth.

Asia-Pacific trend are the most increasing one, which means SEA transportations usage is one of the biggest in the world.

Source: World Bank, 2019

Source: Auto Wards, 2017
1\textsuperscript{st} SOLUTION (transportation)

**SMART CITY MAPPING**

- Analyze top congestion points in the city
- Map it all around the city
- Monitor the impacts through air pollution index
- Grow more trees around the congestion points
2\textsuperscript{nd} SOLUTION (industry)

Payback Emission Apps

Application to \textit{calculate} the number of \textit{trees} that must be planted in \textit{substitution} of \textit{emissions} issued by factory machinery, with considering the types and levels of pollutants, tree absorption ability, length of time to grow, and other variables.

\textbf{AIMS:}

- **Industry** becomes \textit{responsible} for \textit{air pollutants} produced
- Can \textit{replace green open space} that lost due land clearing / land use
- As an innovation, it can be \textit{combined} with the amount of \textit{tax rates}, where trees that successfully grow are made into \textit{tax credits}
WHY PLANT TREES?

**Temperature Reducing**

*Indiana Temperature (Before and After Reforestation), in °C*


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**Removal of Air Pollutants**

*New York PM 2.5 Pollution (Before and After Reforestation), in ppm*

Cities are key contributors to air pollution and also climate change, as urban activities are major sources of greenhouse gas emissions.

At the same time, technology can be used to support in preventing and reducing the city problems.
REFERENCES

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