

ASIA CLEAN BLUE SKIES PROGRAM | KNOWLEDGE SHARING EVENT
SYNERGIES AND CO-BENEFITS OF AIR QUALITY AND CLIMATE CHANGE ACTION



Logika Noise
Air Quality
CONSULTANTS



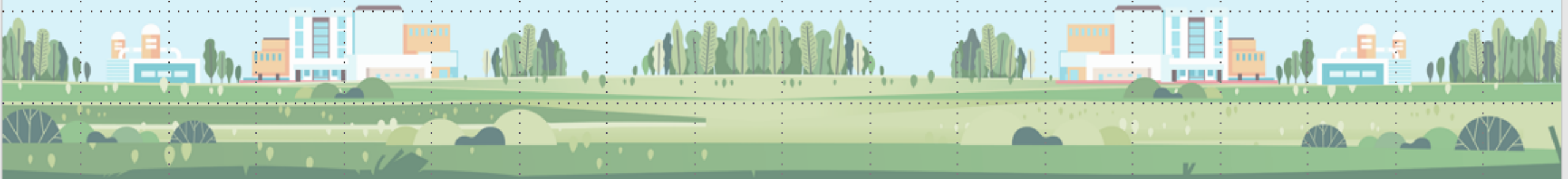
Sustainable and Inclusive Solutions to Air Pollution and Climate Change in Southeast Asia

Eric Zusman

Research Director

zusman@iges.or.jp

This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.



Outline

- Policy Brief and Other Asian Co-benefit Partnership Products
- Case Study: Renewables in West Java
- Climate Health Check Planning Tool
- Concluding Thoughts



Key Messages

- **Social benefits:** Who benefits is as important as the size of the benefits
- **Implementation matters:** The institutions and enabling policies are critical to achieving benefits
- **Analyse institutions and enabling policies:** sectoral integration is not the same thing as social inclusion

New Publication on Co-benefits from Asian Co-benefits Partnership

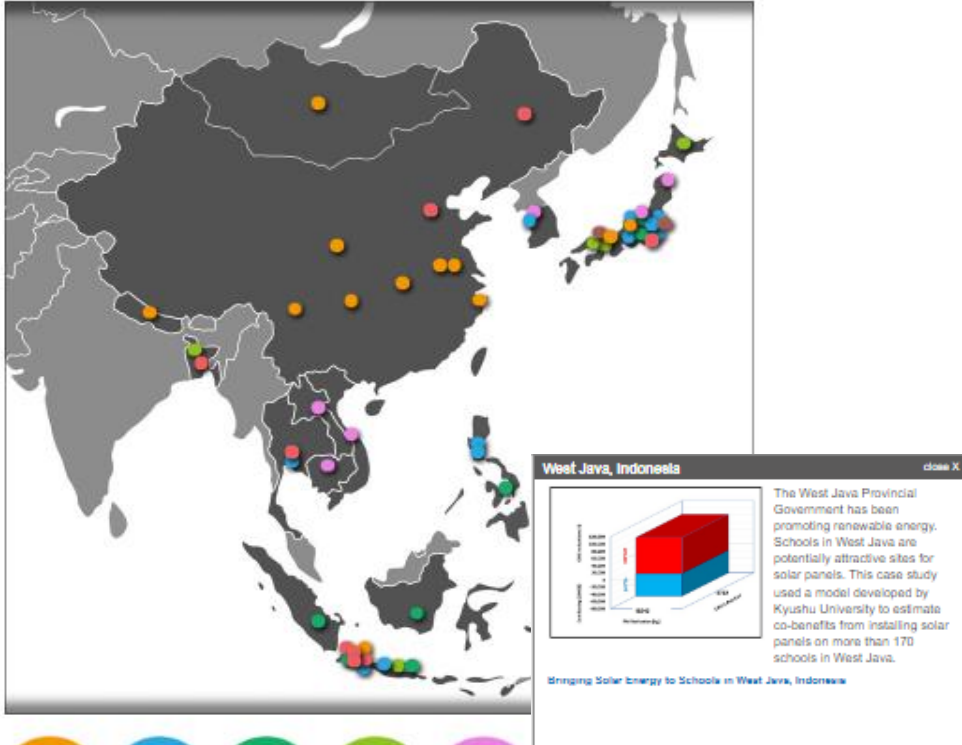


Table 1.1: Recent Research on Co-benefits

Authors/Year	Scope	Quantif.	Strengths/Focal Areas		
			Policy Integration	Beyond Climate-Air-Health	Equity
Cui et al., 2024	Quantifies health co-benefits from the closure of coal mines in China between 2016 and 2022	X			
Finn & Brockway, 2023	Survey of 50 co-benefits studies in Europe to analysis of energy demand-side reduction	X	X		
Lamba et al., 2023	Estimates carbon sequestration co-benefits of efforts to protect tigers	X		X	
Shi et al., 2022	Climate co-benefits from China's efforts to control air pollution from 2013 to 2020	X			
Dong et al., 2022	Local and spill-over effects of emission trading pilot programmes in China	X			X
Jiang et al., 2023	Estimates co-benefits and integrates in marginal abatement cost and evaluates in China	X			
Garcia et al., 2023	Assesses air quality and health co-benefits from zero emission vehicles in California notes possible concerns about equity	X			X
Salmifard et al., 2023	Demonstrates tool to estimate the future health/climate co-benefits in buildings in the United States through 2050	X			X
Dong et al., 2022	Estimates the effects of pilot SO ₂ and CO ₂ emissions trading schemes individually and together in China	X			
Boyd et al., 2022	Assesses mitigation co-benefits from eight cities adaptation policies (Durban, Cape Town, London, Manchester, Surat, Indore, Montreal, and Vancouver)		X		
Karlsson et al., 2023	Sets up a typology to categorize three different entry points for co-benefits and applies framework to Sweden		X		
Chatterjee et al., 2022	Underlines the context-specific nature of co-benefits from energy efficiency measures in the European Union and South Asia		X		
Song et al., 2023	Estimates the co-benefits from high organic content industrial wastewater (HOCIW) in several parts of China	X		X	
Nowakowski et al., 2023	Provides a quantitative assessment of the co-benefits (or trade-offs) between marine protected areas (MPAs) (especially highly protected areas (HPAs)) and fish yields and livelihood benefits in Mesoamerican region	X		X	
Khatri-chhetri et al., 2022	Assesses climate co-benefits of development assistance programmes for more than 100 sustainable agricultural projects in 51 countries	X		X	
Tennhardt et al., 2022	Evaluate social and economic co-benefits from cocoa farms in Ecuador and Uganda			X	X
Cai et al., 2023	Traces the evolution of policies and institutions promoting co-benefits/synergies in China		X		
Anwar et al., 2022	Estimates the co-benefits from air pollution strategies in Pakistan	X			
Silect, 2023	Assesses the air quality co-benefits of the 2008 carbon tax in British Columbia, Canada	X			X
Roggero et al., 2023	Underlines the disconnect between empirical research showing sizable co-benefits and impacts on policy using Paris, Montreal, and Moscow		X		
Zhang et al., 2024	Estimates the air quality and climate co-benefits from the transport sector in China's Henan province	X			
Bragge et al., 2021	Conducts a systematic review of the work on co-benefits in the buildings sector as well as stakeholder interviews in Southeast Asia	X	X		
González-garcía et al., 2023	Quantifies the multiple co-benefits (based on an estimate of 4 types of ecosystem services) of nature-based solutions (NbS) for 85 cases in the Alps	X			X
Vandyck et al., 2020	Assesses the air quality and health co-benefits from 1.5 and 2 C degree climate change scenarios for 56 regions	X			
	between climate change mitigation and SDGs		X	X	

- All
- Bangladesh
- Cambodia
- China
- Indonesia
- Japan
- Korea
- Lao PDR
- Mongolia
- Nepal
- Philippines
- Thailand
- Vietnam

ALL



- Energy/Industry
- Transportation
- Waste management
- Biomass / Fuel
- Livelihood
- Agriculture
- Quantitative Tools

BACK | TOP



About this site Site map



The Asian Co-benefits Partnership (ACP) website is hosted and maintained by the Institute for Global Environmental Strategies (IGES) under the initiative of the Ministry of the Environment, Japan.

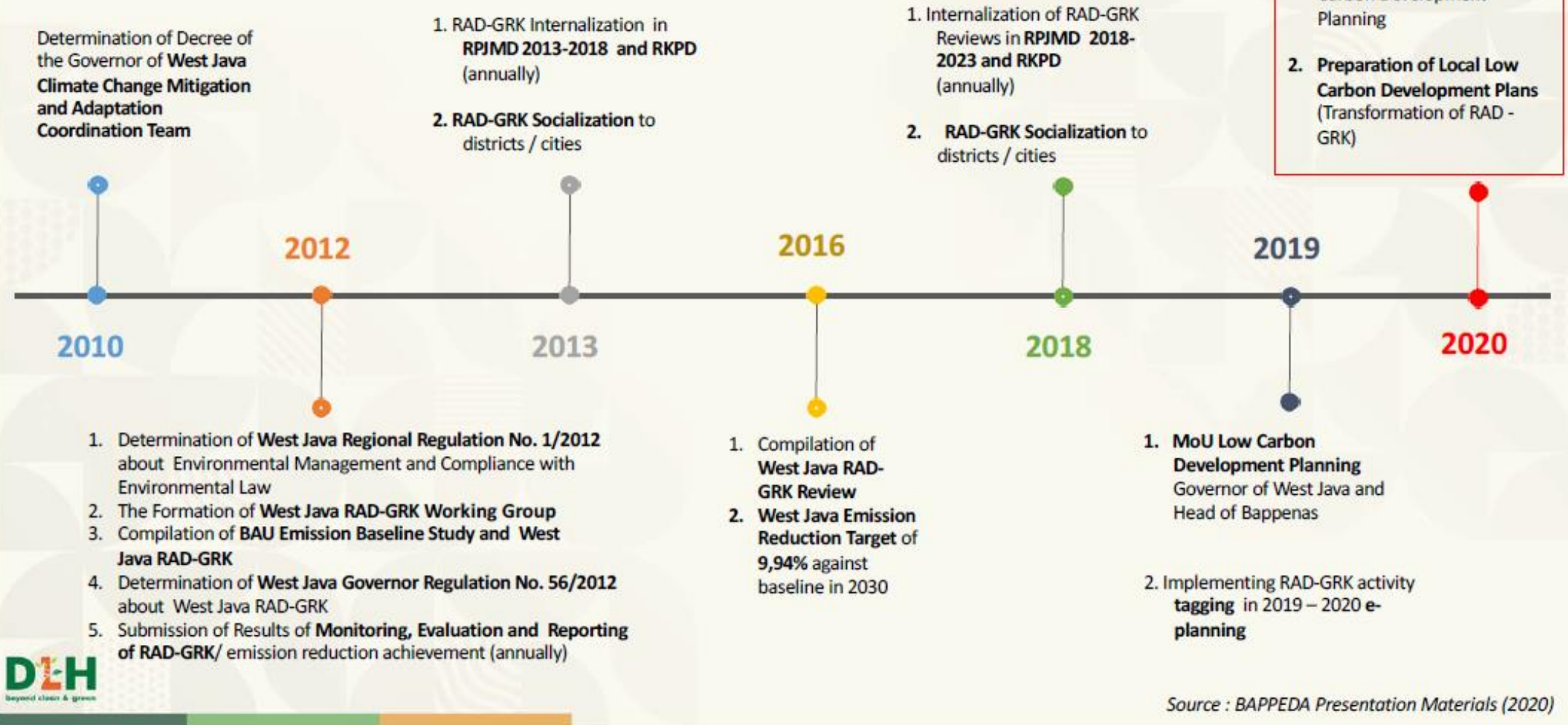
Asian Co-benefits Partnership good practice map

- More emphasis on who benefits
- More emphasis on implementation
- The case of West Java illustrates this more holistic approach

https://cobenefit.org/good_practice/



Commitment Chronology West Java Province Low Carbon Development



Source : BAPPEDA Presentation Materials (2020)

Regional Action Plan for West Java Greenhouse Gas Emission Reduction 2010 - 2030



Forestry

- Rehabilitation of critical land and mangroves
- Forest protection and security

Agriculture

- Application of the fertilization system
- Cultivation Technology

Energy

- Renewable energy development
- Fossil Fuel Substitution
- Energy efficiency

Transportation

- ITS/ATCS development
- Bus Rapid Transit (BRT) Development
- Rejuvenation of general transportation
- Car Free Day
- Smart Driving Training
- Parking Management

Waste and Domestic Waste

- Rehabilitation of open dumping landfill
- Development and operation of regional TPPAS
- Construction and operation of TPS3R
- Construction and operation of Waste Bank
- Sludge Treatment Plant Construction
- Construction and Operation of Sanimas (MCK++ or WWTP)

13,5 Million tonnes CO₂eq Emission Reduction



9,94% of BAU Baseline Projection in 2030



Source: West Java RAD-GRK (Governor Regulation No. 56/2012) which was reviewed in 2016 and 2018

There is significant potential for solar PV in Bandung

Figure 6. Hourly solar PV with hillshade analysis.

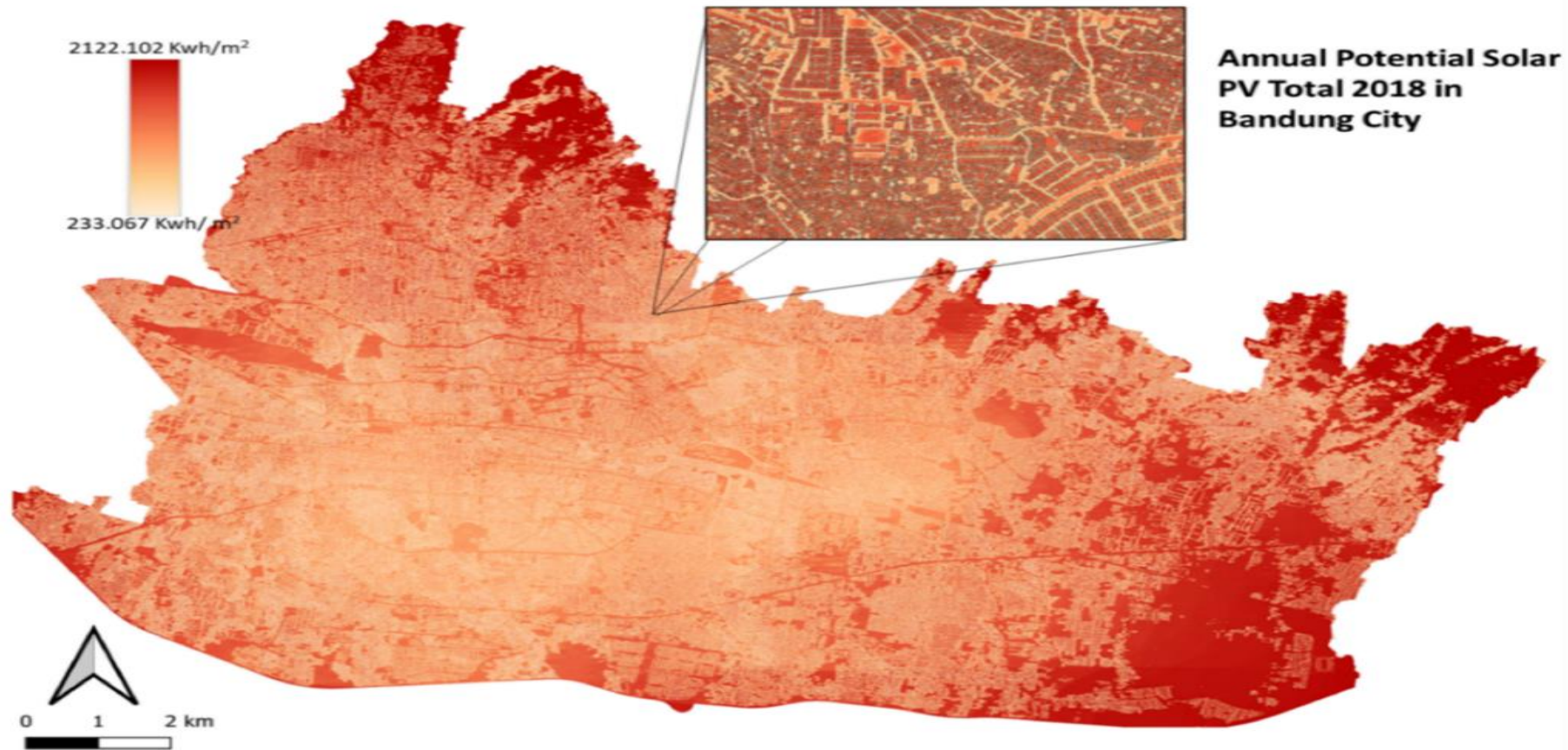
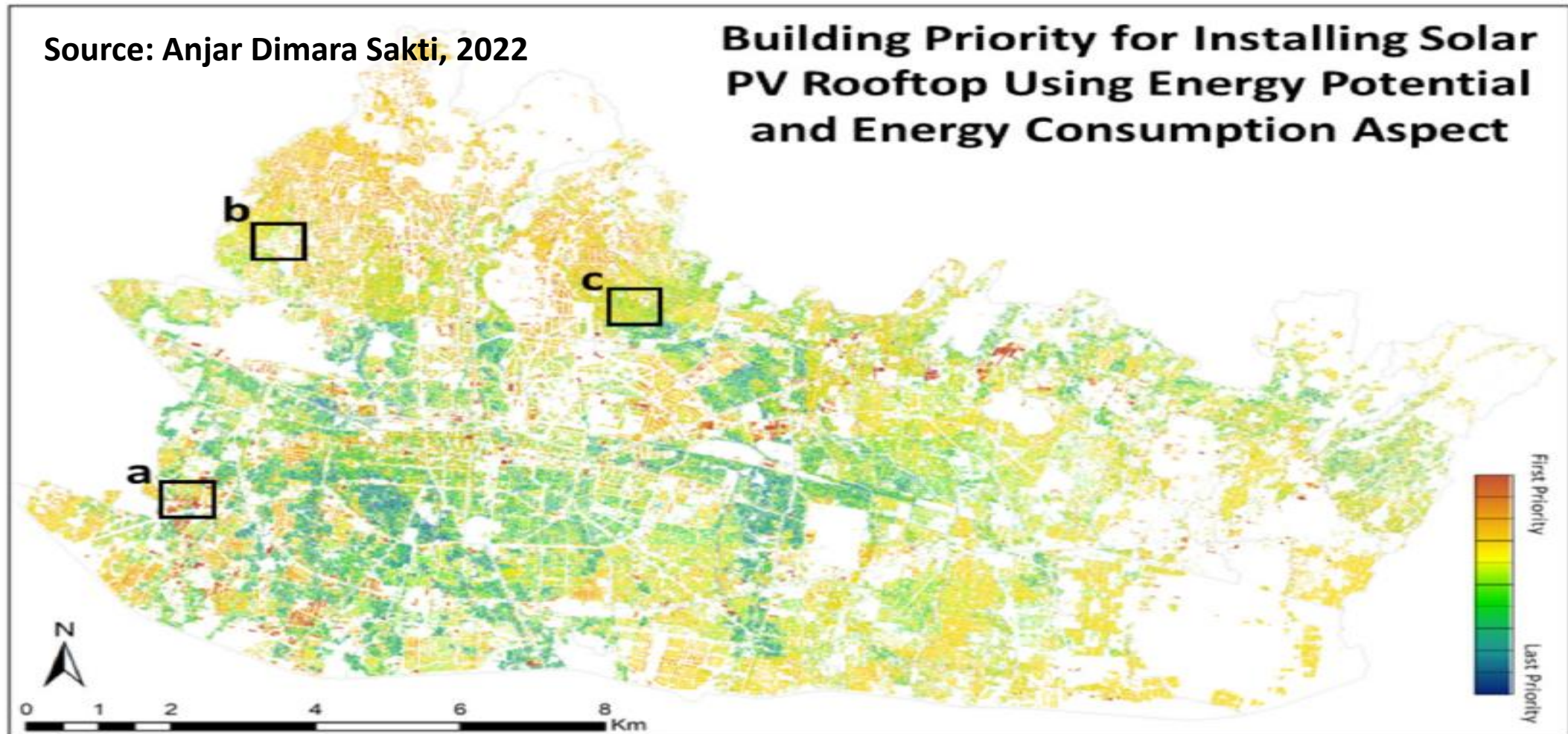


Figure 7. The annual potential of solar PV energy in Bandung.

Some analyses have looked at multiple criteria to capitalize on that potential



Solar Energy Rooftop



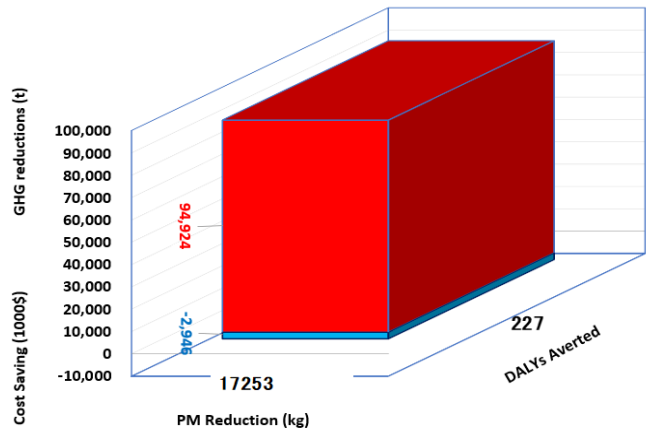
Source : West Java Energy and Mineral Resources Agency (2020)

Solar Panel Rooftop is developed as a new renewable energy which is planned to be installed in government buildings, schools, sports buildings and health facilities.

- Bandung has 849,421 state electricity company (PLN) customers
- Energy consumption in 2018: 1,585,382 MWh
- High-end residential developments are required to cover at least 25% of their rooftop with solar PV

Source: Anjar Dimara Sakti, 2022

Estimated co-benefits of installation of solar pv in residences in Bandung (2022-2032)

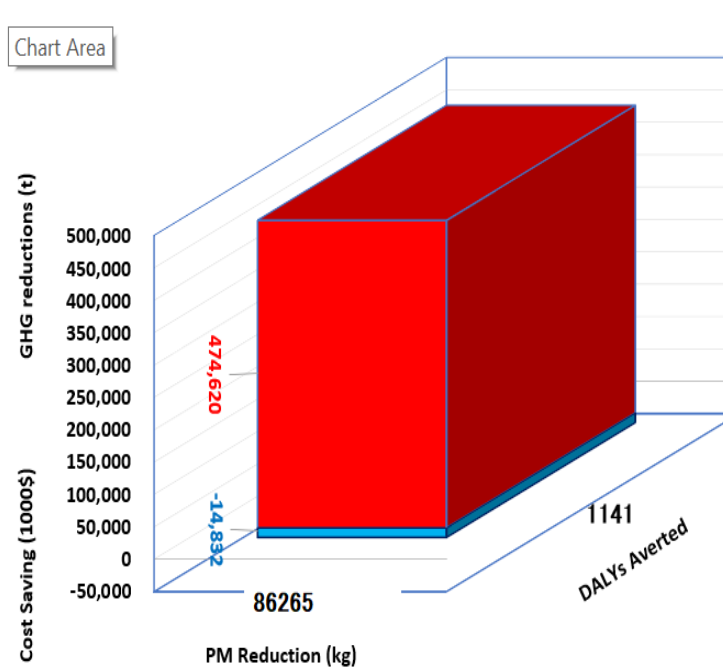


Avoided Emissions	Solar
GHG (t/y)	9,492.4
PM2.5 (kg/y)	1,725.3
CO (kg/y)	1,357.0
SO2 (kg/y)	116,311.7
NOx (kg/y)	42,259.9

2022

Total Energy: 60,000 kW/year

Units: 85,000

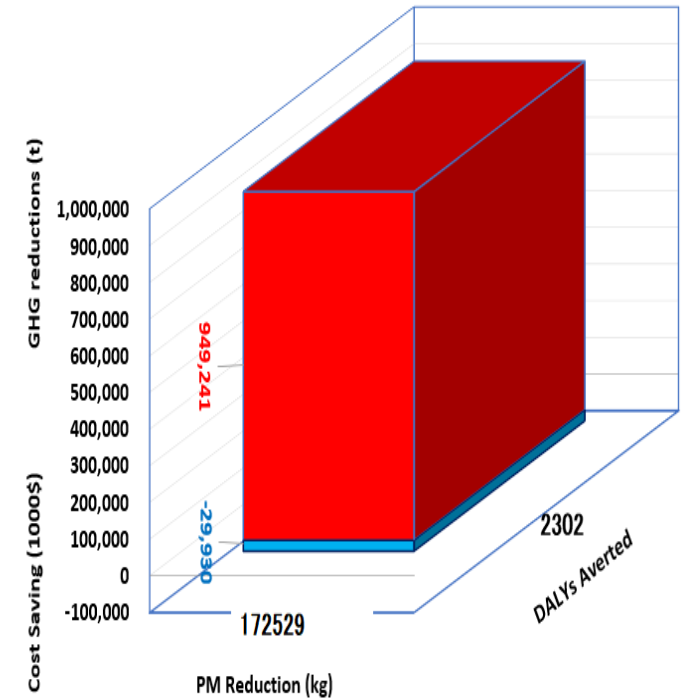


Avoided Emissions	Solar
GHG (t/y)	474,620.4
PM2.5 (kg/y)	86,264.5
CO (kg/y)	67,848.5
SO2 (kg/y)	5,815,587.4
NOx (kg/y)	2,112,996.7

2026

Total Energy: 300,000 kW/year

Units: 425,000



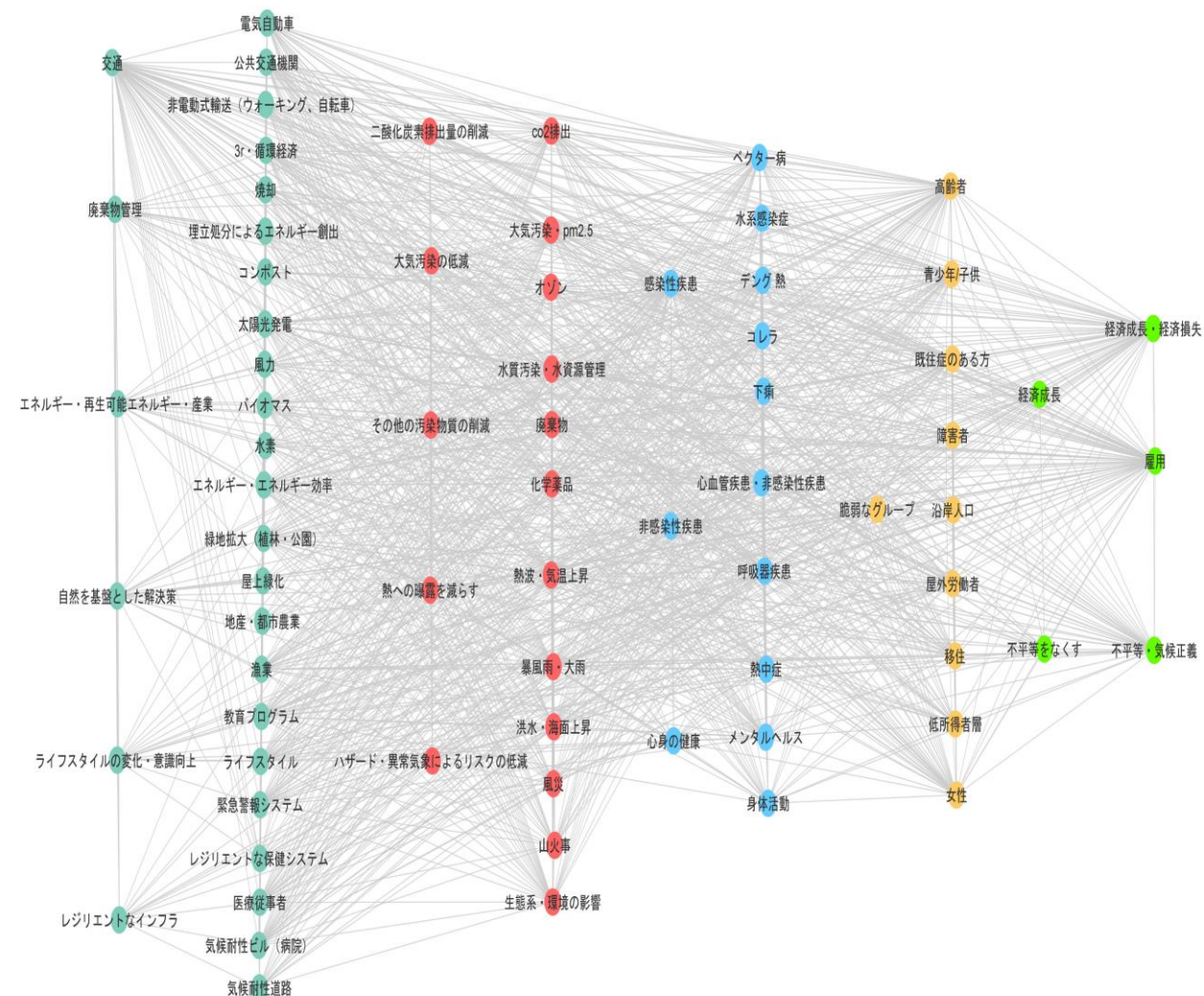
Avoided Emissions	Solar
GHG (t/y)	949,240.7
PM2.5 (kg/y)	172,529.1
CO (kg/y)	135,697.0
SO2 (kg/y)	11,631,174.7
NOx (kg/y)	4,225,993.5

2032

Total Energy: 600,000 KW/year

Units: 850,000

Synergies Features SDG Interactions



Source: based on <https://sdginterlinkages.iges.jp/>

Research suggests connections between:

- 1. Climate actions
- 2. Environmental impacts
- 3. Health impacts
- 4. Impacted groups

Need a simple tool to demonstrate the benefits of making these connections

Climate Health Check Planning Tool | City Version



Climate Actions



Environmental Impacts



Health Impacts



Impacted Groups

Estimated Benefits

Related Policies

Transport

Waste/3Rs

Energy/
Renewables/
Industry

Nature Based Solutions

Lifestyle change/
awareness raising

Resilient Infrastructure

Transport

- EVs
- Public Transport
- Non-motorized Transport



Climate Health Check Planning Tool | Hachinohe Version



Climate Actions



Environmental Impacts



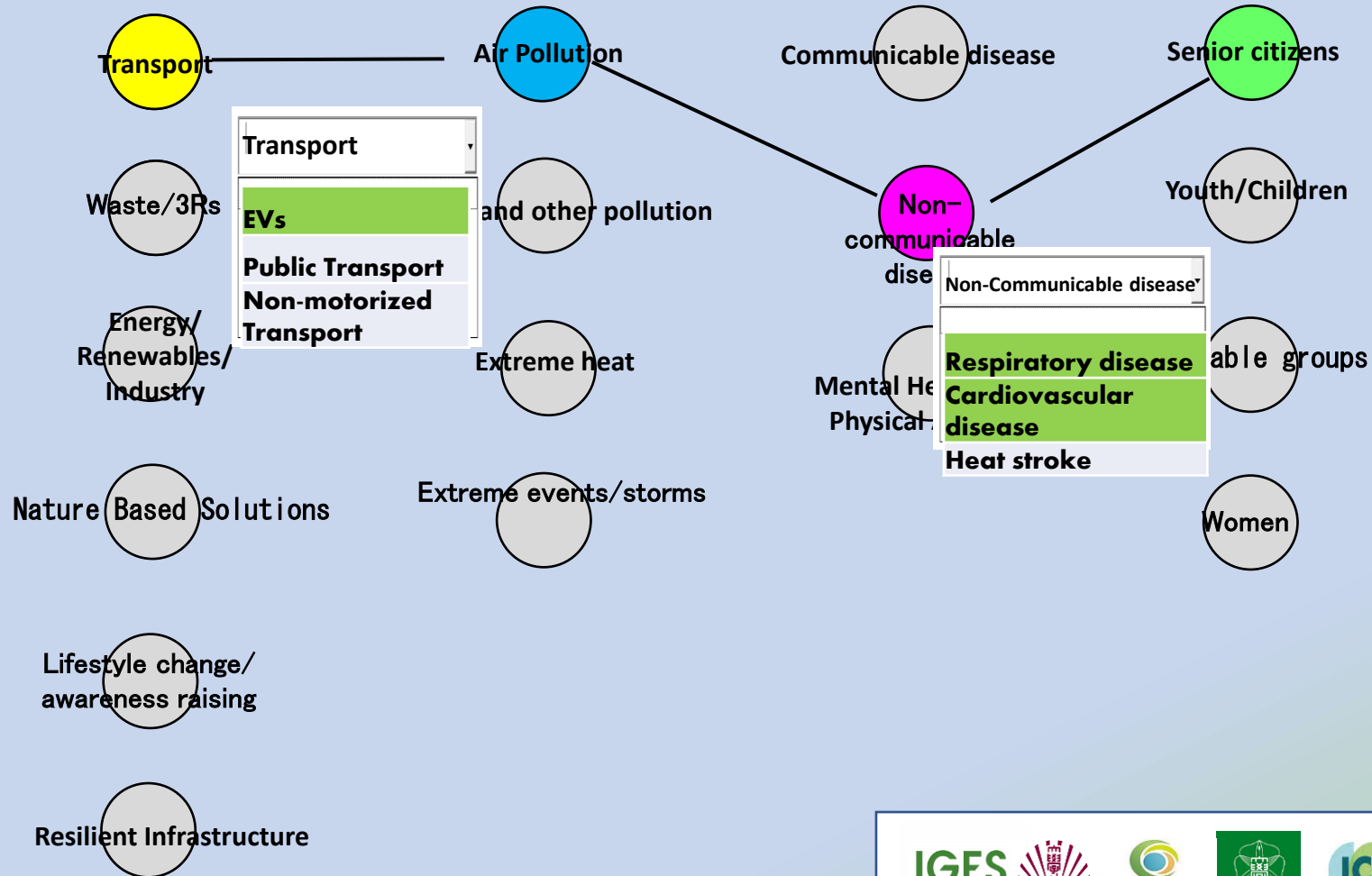
Health Impacts



Impacted Groups

Estimated Benefits

Related Policies



Climate Health Check Planning Tool | City Version



Climate Actions



Environmental Impacts



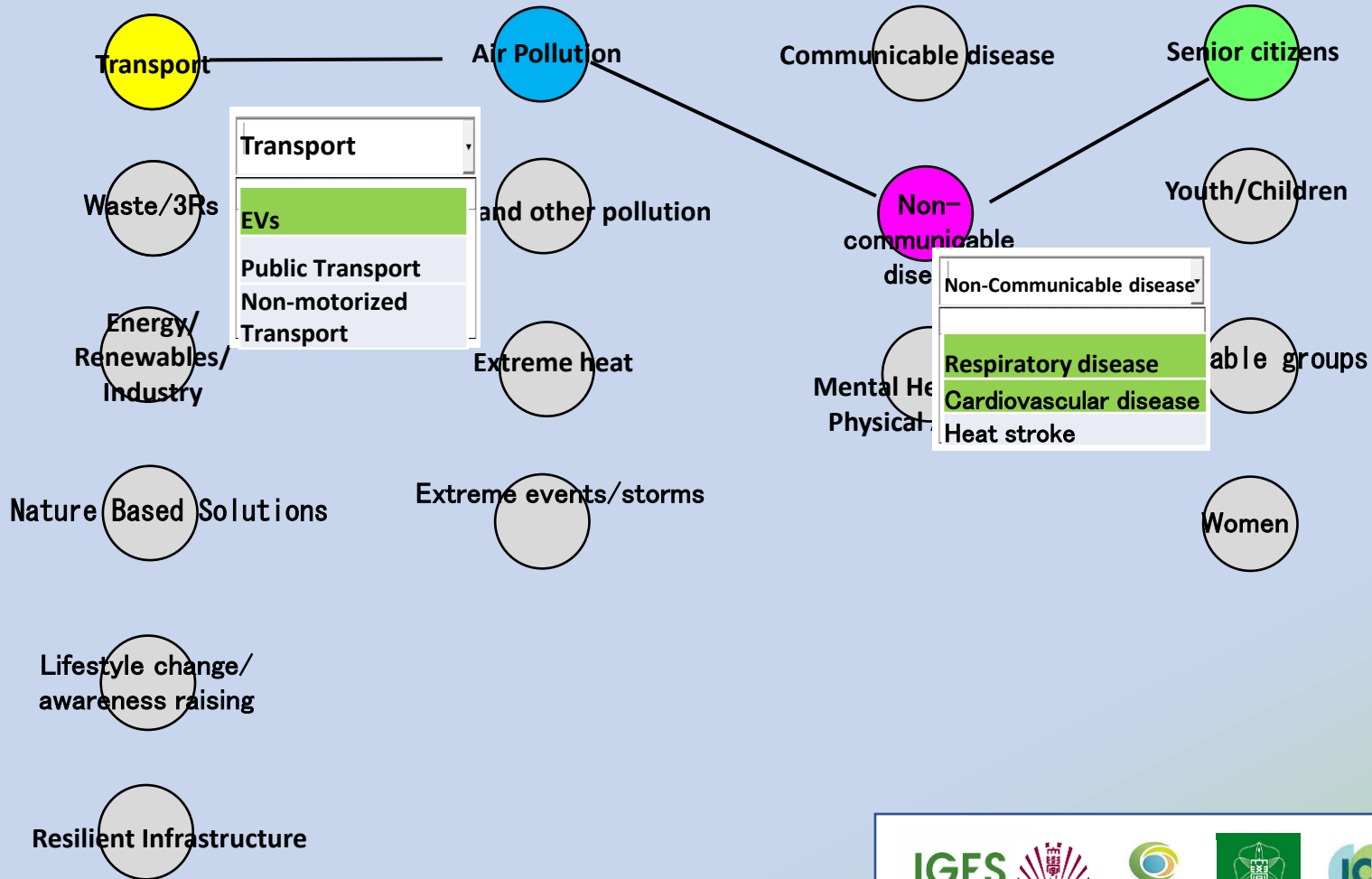
Health Impacts



Impacted Groups

Estimated Benefits

Related Policies



Co-benefits
2000mt CO ₂
20t PM _{2.5}
20 Avoided Deaths

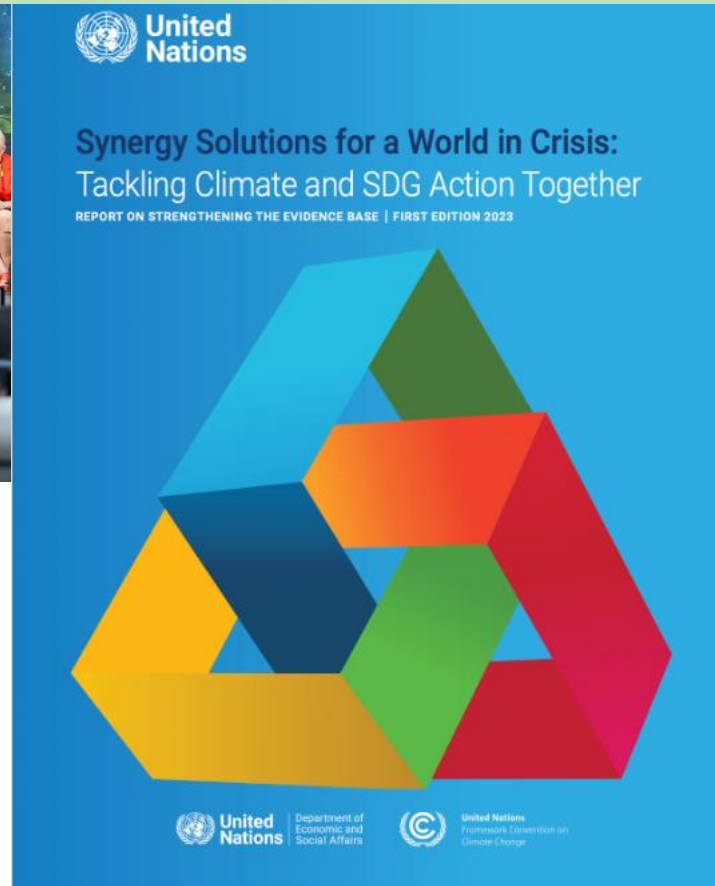
XX Plans
City Basic Development Plan
7 th Development Plan
Senior Citizen Welfare Plan
Regional Development Plan
Health and Wellness Plan



UNEA Resolution on Synergies



UNFCCC UNDESA Synergies Initiative



Article 6.4 on Sustainable Development Tool

ARTICLE 6.4 MECHANISM

A6.4-SB007-AA-A07

Concept note

Development of a sustainable development tool for Article 6.4 of the Paris Agreement

Version 02.0



United Nations
Framework Convention on
Climate Change