



Urban
Pathways

INDONESIA SUMMARY

BERLIN, 2018



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Urban Pathways Replication Cities

ABSTRACT

This paper will help identifying policy measures in line with the New Urban Agenda and in the context of the respective Nationally Determined Contributions for Indonesia. The project will take a holistic approach and optimise the synergies between transport, energy and resource management operations.





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SUMMARY OF NATIONALLY DETERMINED CONTRIBUTIONS

With a population of 254 million (2014) Indonesia has experienced a stable economic growth in the last decade and the government of Indonesia is envisaging an annual economic growth of 5% and reducing poverty below 4% by 2025 (UNFCCC, 2016; World Bank, 2017). Indonesia has joined the Paris Agreement in October 2016 and is committed to an unconditional target (including land-use and land-use change reduction) to at least 29% to a business-as usual BAU scenario (baseline in 2010) and a conditional 41% target with international support (Fulton, 2016).

Indonesia is committed to reduce GHG emissions by 29 to 41% by 2030 relative to a business-as-usual scenario. The success of the reduction is related to international support. The first phase of Indonesia's approach is planning for a 26% emission reduction by 2020 against a business-as-usual (BAU) scenario. The country's goal is to reduce emissions by sustainable production and consumption of food, water and energy.

At this point, Indonesia is among the 10 biggest contributors to global CO₂ emissions with 435.4 MtCO₂e (1.37% globally) and figure 1 shows an exponential emission increase over the last decades, yet the government is determined to put forward the transition into a low carbon and climate resilient country (WRI, 2017). As the figure highlights the country is highly reliant on fossil fuel for its emission reduction strategy.

Additionally, the country's target is to improve land use and planning, energy conservation, improve its waste management and promote clean and renewable energy sources. For that purpose, Indonesia had a substantial policy reform after the 2014 election, cutting subsidies for fossil fuels, while keeping subsidies for electricity and other petroleum fuels in place (ADB, 2015). Indonesia's current energy comes from oil (33%), biomass and waste (26%), natural gas (16%), coal (16%) and geothermal energy (8%) (IEA, 2016).

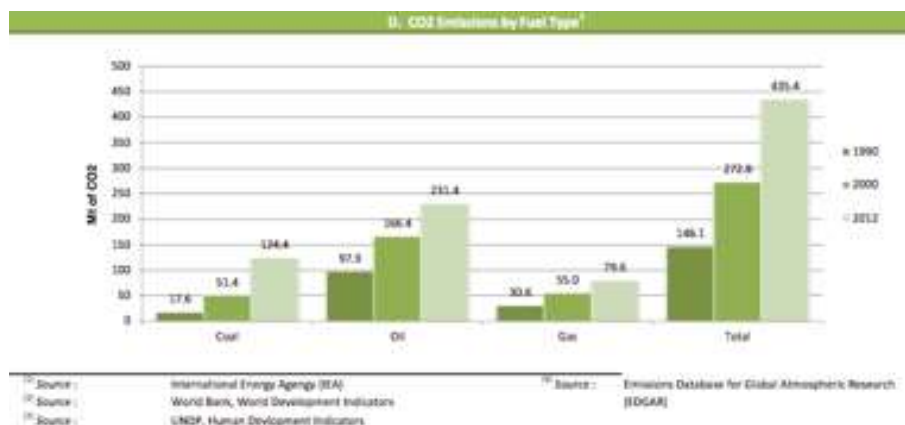


Figure 1 MtCO₂e emissions for Indonesia (UNFCCC, 2017)

Future prognostics show a continued energy demand over the next years, which will be met, as announced by the government, by additional coal fire plants and renewable electricity (hydro and geothermal).

Figure 4 divides the emissions into sectors, which puts the energy industries at the peak of emission production, but shows that the transport sector is catching up fast.

Additional emissions come from Indonesia's forestry, from intended and unintended fires, which are estimated to be between 554 MtCO₂e and 917 MtCO₂e (Gol, 2015). In an BAU scenario, Indonesia's emissions from forestry are likely to quadruple to more than 1,600 MtCO₂e in 2030, if left unattended. The main increase is expected to be from the energy sector (6.7% annually) and waste (6.3%) (MEMR, 2016).

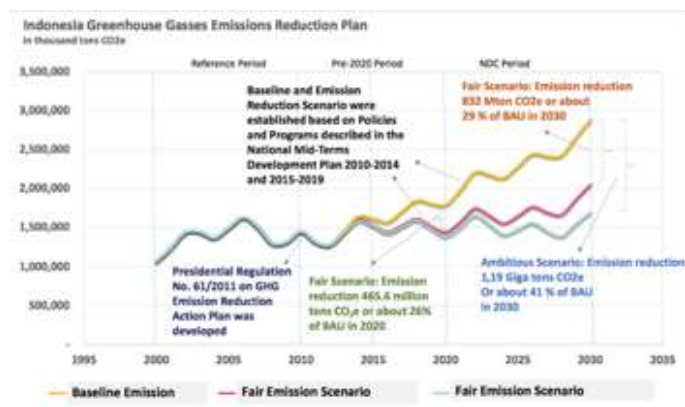


Figure 3 Indonesia emission BAU scenario (Medrilzam, 2016)

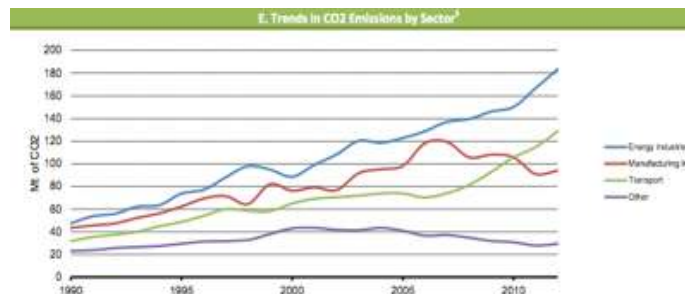


Figure 4 Indonesia emissions by sector (UNFCCC, 2017)

NATIONAL POLICIES AND PLANS SUPPORTING THE NDC TARGET

The government has established a Directorate General of Climate Change under the Ministry of Environment and Forestry, which is exclusively committed to the NDC targets, e.g. facilitate ongoing projects, oversees implementation by other government sectors and reports to the UNFCCC (WRI, 2017). The Ministry of the Environment and Forestry, Industry, Agriculture, Public Works and Energy and Mineral Resources formulated the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK) to use synergies for a cross-sectoral framework and to plan Indonesians Nationally Appropriate Mitigation Action (NAMA). The RAN-GRK formulated seven mitigation actions, which are now the foundation of the NDC mitigation strategy:

1. Sustainable land management;
2. Reducing the deforestation and land degradation rate;
3. Developing carbon sequestration projects in forestry and agriculture;
4. Promoting energy efficiency;
5. Developing alternative and renewable energy sources;
6. Reducing solid and liquid waste and
7. Shifting to low-emission transportation mode.

These established national policies and programmes are in line with the process of Indonesia's NDC targets:

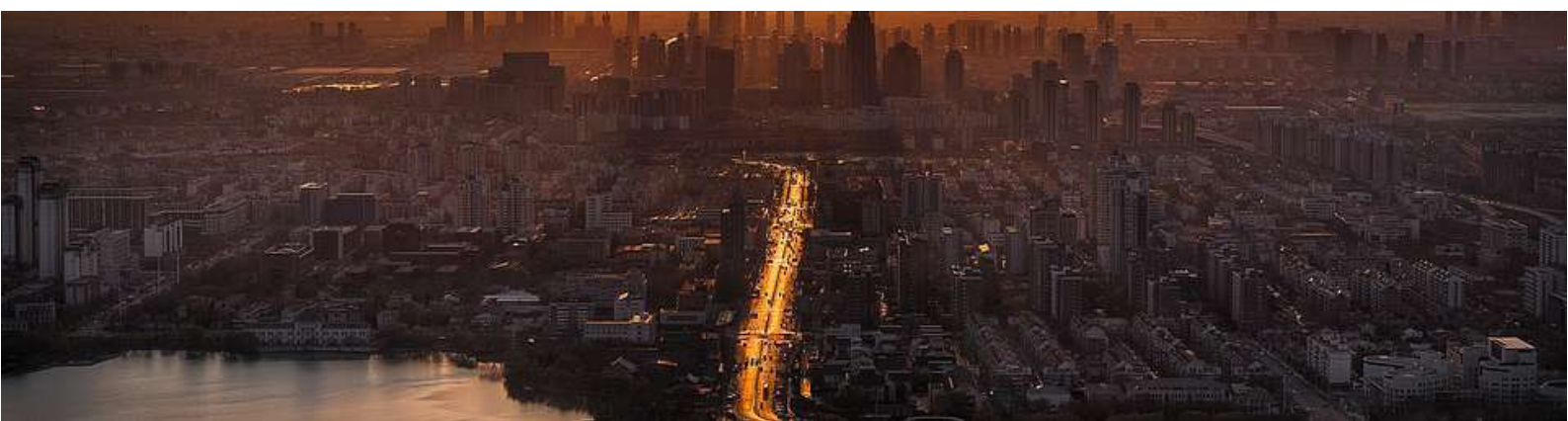
- The priority of Indonesia's National Medium-Term Development Plan is adaptation and mitigation to climate change (2015-2019)
- National Greenhouse Gases Emission Reduction Action Plan

- Letter of Intent for a partnership with Norway on REDD+ strategy (2010)
- Law 30/2007 Legislation on future energy systems
- National Energy Conservation Master Plan (RIKEN)
- National Energy Policy (KEN)
- Electricity Supply Business Plan 2016-2025 (RUPTL)
- Sustainable Urban Transport Programme Indonesia (NAMA SUTRI)
- UNFCCC's Clean Development Mechanism (CDM)

However, the government does not provide how Indonesia explicitly will achieve its target. While Indonesia is targeting a 23% renewable energy share by 2025 it is increasing its share of coal-fired power plants to meet its increasing electricity demand (Fulton, 2016). Indonesia's National Energy Plan is planning currently with a 30% energy supply from coal plants by 2030.

Especially the emission reduction from forestry (together with the energy sector) will be Indonesia's mitigation strategy for the NDC target. Yet, no sufficient policy in place to combat deforestation sufficiently with an expected forest loss of 25% in 2030, which will contribute to emission increase in the coming years (ClimateActionTracker, 2017).

While Indonesia's government has been very ambitious by setting their NDC targets, reduction from 650 MtCO_{2e} in 2010 to 64 MtCO_{2e} (conditionally) (Gol,



2016), it's political agenda as well as the implementation has not specified sufficiently. First moves in the right direction is the moratorium on palm oil concessions, which will provide a forestry mapping system for Indonesia.

The transport sector will play a crucial role in achieving the NDC targets of Indonesia, which will require the switch to renewable energy supply and natural gas (Siagian, et. al., 2017). Energy consumption (dominated by oil) has annually increased by 3.6%, from industrial, residential and the transport sector (Siagian, et. al., 2017) and Indonesia is planning to build new coal fired power plans until 2025, increasing emis-

sions in the future.

Measures for the Energy and Transportation sector are:

- promoting clean coal technology,
- promoting renewable energy,
- increase the use of gas powered generation,
- improve energy intensity by 1% annually,
- reduce fossil fuel subsidies,
- efficiency standards for automobiles,
- fuel-switching from gasoline to natural gas/CNG,
- increase biofuel in diesel fuel and gasoline (Siagian, et. al., 2017).



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INDONESIA'S CLIMATE CHANGE ACTION PLAN

Indonesia struggles in its effort to implement policies at the national level, due to its high degree of decentralization, which faces the obstacle of translating policies from a national to a local level and their multitude of ministries with overlapping responsibilities often hinder the process additionally. Existing energy subsidies and low energy cost in Indonesia are another key barrier, hindering the market for renewable energy and energy efficiency programmes.

The submitted NDC document doesn't specify how exactly Indonesia will cut the promised 29-41% of

emission by 2030, yet stressing the point that the country's economic growth will result in an emission increase, before cutting emissions again.

Furthermore, Indonesia is a fossil fuel producer, exports coal, natural gas and oil and it is estimated that its reserves will last another 11 years (oil), 14 years (coal) and 40 years (natural gas) (US Energy Information Administration, 2013). It is unlikely that Indonesia will not exploit fossil fuel reserves to increase their GDP in the next decade.

CONCLUSION

Indonesia's energy consumption is unlikely to decline in the near future, as the country will experience economic growth (quadrupling its GDP from 2005 – 2030), which comes with increased energy consumption for all energy related sectors. Yet, the measures for the energy and transport sectors will help decoupling economic growth from energy consumption somewhat. The responsible agencies in Indonesia are the Ministry of Energy, Ministry of Transport and the Ministry of Industry.

Scenarios based on the current set of policies show that electricity is likely to rely on gas and coal, while renewable energy supply, such as hydro, geothermal, wind, solar has the potential to only reach 4% (Sia-gian, et. al., 2017). To decrease emissions by 15% energy efficiency measures and increased renewable energy use are suitable. Higher emission reduction would require a high carbon price for coal plants (Sia-gian, et. al., 2017).

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More information about the
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WWW.URBAN-PATHWAYS.ORG

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