DIGITAL SOLUTIONS FOR CLIMATE ACTION

Using ICT to raise ambitions on climate action in low- and middle-income countries

GeSI ENABLING DIGITAL SUSTAINABILITY

Report Focus

This **report focuses on how digital technologies can support the achievement of the NDCs for 7 countries,**

Brazil, Chile, China, India, Kenya, South Africa, Vietnam

…… taking into consideration their particular circumstances:

agricultural vs industrial, coal vs renewables, levels of economic development

Which ICTs?

- **Digital Access**
- **Fast Internet**
- **Cloud**
- **IoT (Internet of Things)**
- **Artificial Intelligence**
- **Blockchain**

Report Scope

Decarbonisation scenarios

Reference Carbon Scenario

IEA ETP Reference Scenario
(current NDCs)

+ 2.7°C

Ambitious Carbon Scenario

IEA ETP Sustainable
Development Scenario

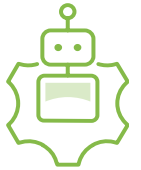
< 2.0°C

Carbon abatement use-cases

Smart grids and buildings

Intelligent transport systems

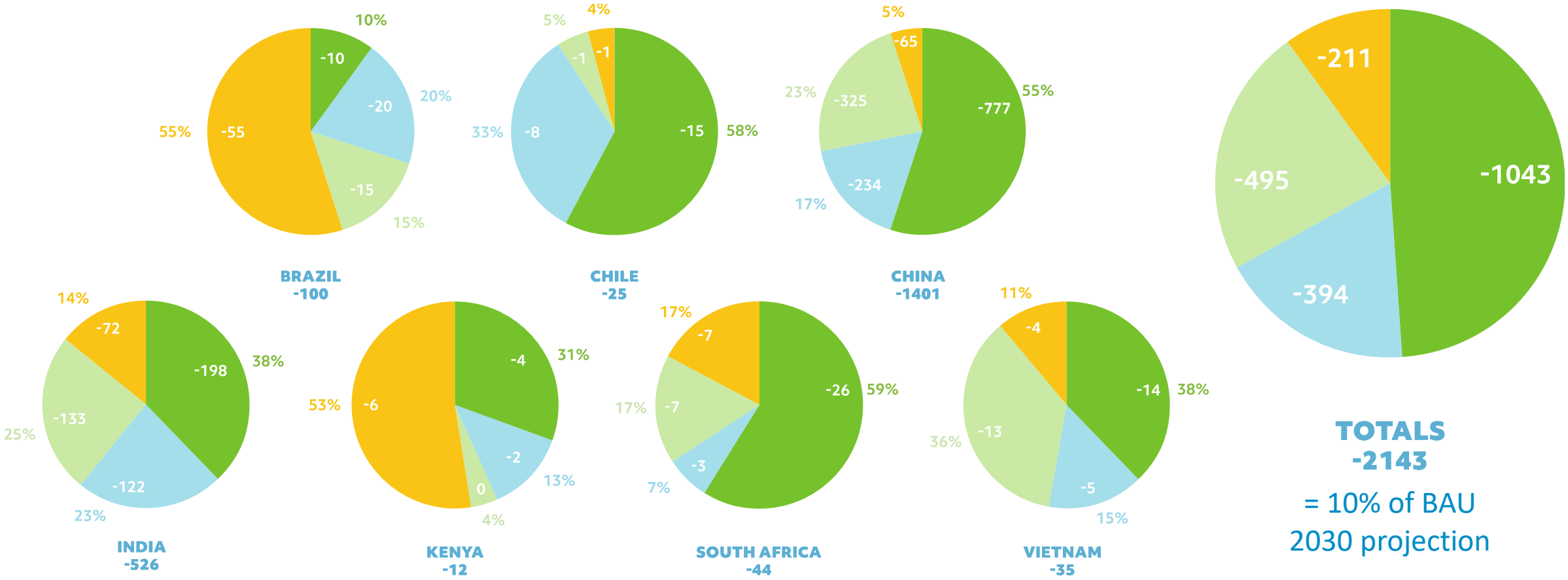
Industry 4.0



Precision agriculture

Main findings

Carbon abatements for the Ambitious Scenario (Mt CO2e/annum)



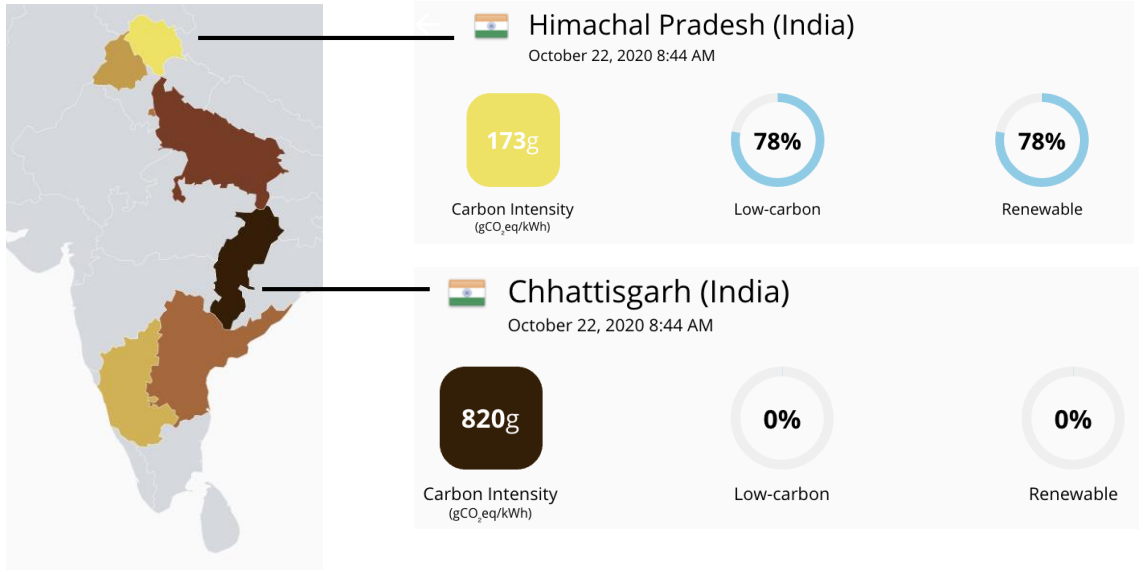
TOTALS
-2143

= 10% of BAU
2030 projection

Use cases

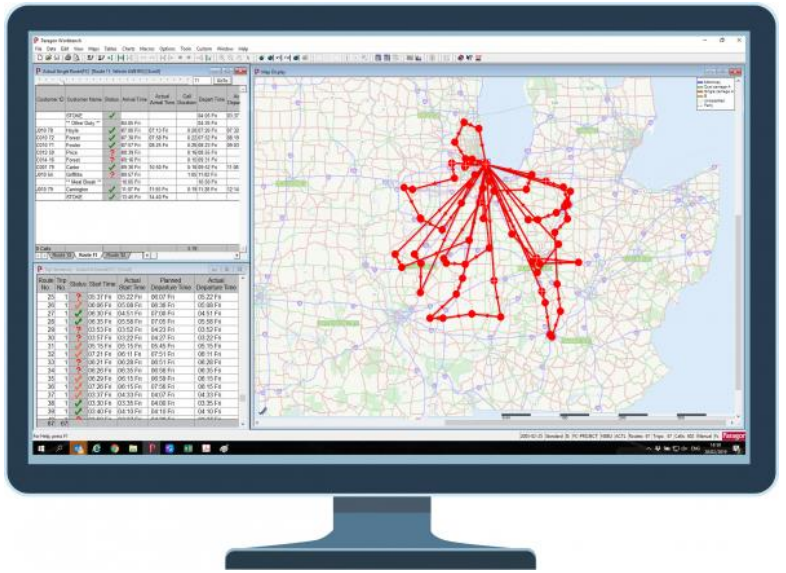
Real-time grid monitoring and applications

ElectricityMaplive displays real time generation sources, carbon intensity and pricing. Data can be used to facilitate demand management with real time tariffs and low carbon intensities. Eg for EVs



Transport optimisation software

Paragon's routing software helped global food group Glanbia cut 106,000 km a year in delivery routes through modeling routes and testing scenarios, saving over 100 tonnes of CO_2 per year.



Emissions Resulting from the Use of Digital Technologies - Considerations

- Future emissions are difficult to predict due to many uncertain factors including: **future energy efficiencies, power grid decarbonisation, and growth rates of digital technologies.**
- A study by the International Telecommunications Union (ITU), estimates that for all data centres, telecoms networks and ICT end-user devices, the 2015 carbon footprint was 740Mt CO_2e and the figure will remain in 2020.(1)
- Research has shown that the ICT sector carbon footprint will continue to be dominated by applications like: **video streaming, gaming, social media, and conventional commercial transactions.**
- **ICT applications addressing climate change are unlikely to be a major contributor to the sector own carbon footprint**

Key messages

Digital abatement opportunities were estimated across four key sectors: power, transport, manufacturing and agriculture. Two key messages have been drawn:

- Digital technologies can enable very significant abatement contributions. In the case of the power sector, a smart grid is considered as essential for many countries.

- The greater a country's political and regulatory ambition is to decarbonise, the greater the role digital technologies will play.

Recommendations

- Introduce market regulation to increase diffusion while encouraging decarbonization in the sector
- Support divestment and coal exit efforts through digital technologies
- Establish a fair, balanced and consistent regulatory approach to ICT solutions
- Integrate digital technologies in public procurement contracts
- Create incentives to invest in broadband infrastructure deployment

Recommendations

- Collect and provide open access data to facilitate the development and exploitation of digital applications
- Promote the benefits of smart home and smart building solutions
- Consider ICT within the UNFCCC process as a key instrument to support countries in achieving their climate targets
- Undertake in-depth assessments which investigate the role of digital technologies in agriculture, including rice cultivation
- Undertake in-depth examination of the impacts of e-commerce in low- and middle-income countries

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