

Plenary – Breaking Down Barriers: Enabling Climate and Clean Air Action

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IGES

12 March Plenary Session



The Global Economic Assessment of Climate and Clean Air

The Assessment at a Glance

- A pioneering study that examines the combined economic costs of air pollution and climate change, the costs and benefits of *integrated measures*, and potential reforms enabling the implementation of key measures.
- The integrated approach addresses the interconnected crises of climate change and air pollution, providing policymakers with the economic justification for urgent, coordinated action.
- Identifying cost-effective solutions, **strategies to overcome implementation barriers**, and the socio-economic benefits of action, the assessment aims to mobilize investment, guide policy, and accelerate progress toward a sustainable future where pollution is under control.
- **25** measures that maximise benefits for near-term climate and air quality, accounting net impact of all co-emitted compounds (one atmosphere approach).

Problems

Solutions



Transport



Euro 6

Agriculture/Cookstove



Tech Barrier



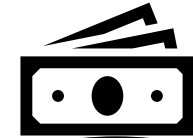
Inst Barrier



Socio Barrier



Econ Barrier



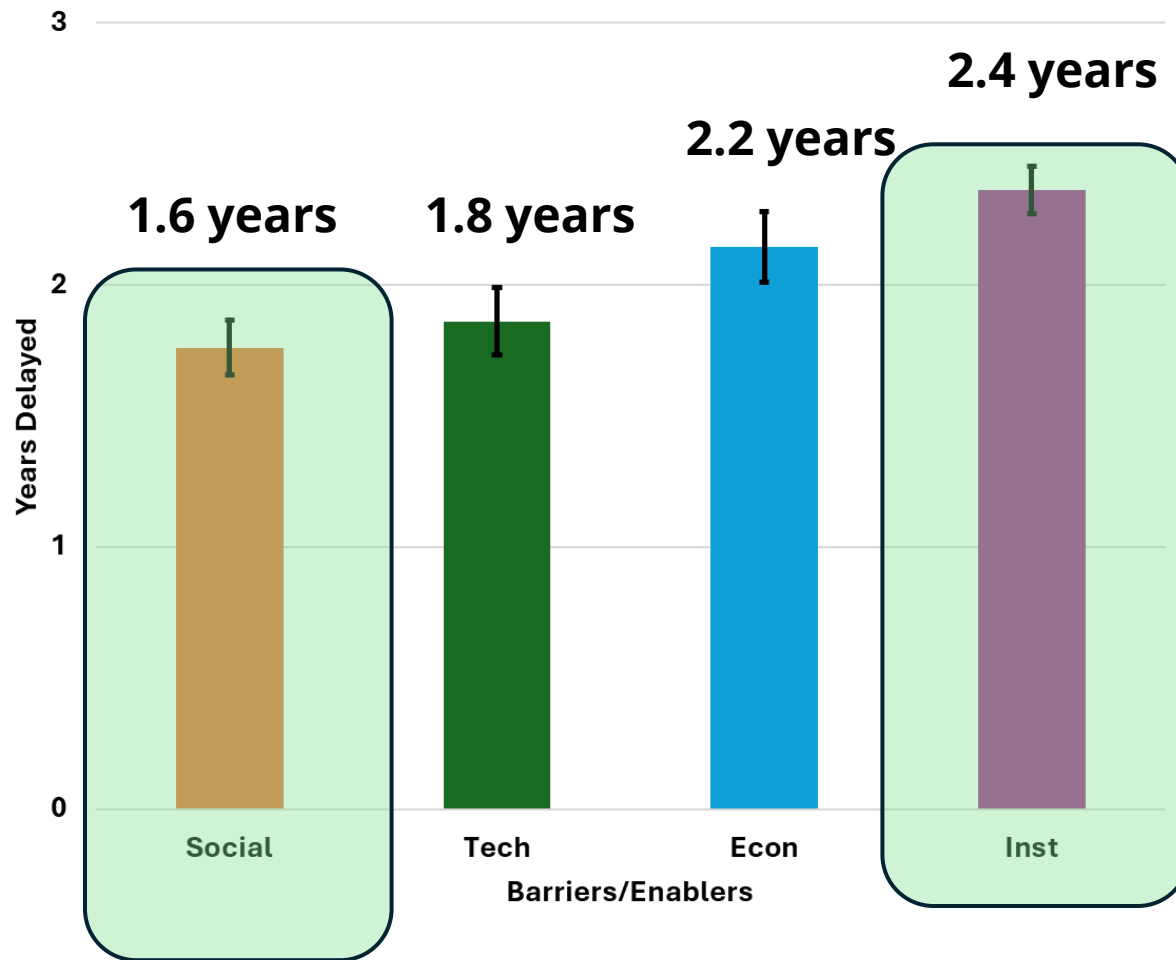
Waste



Description of Barriers

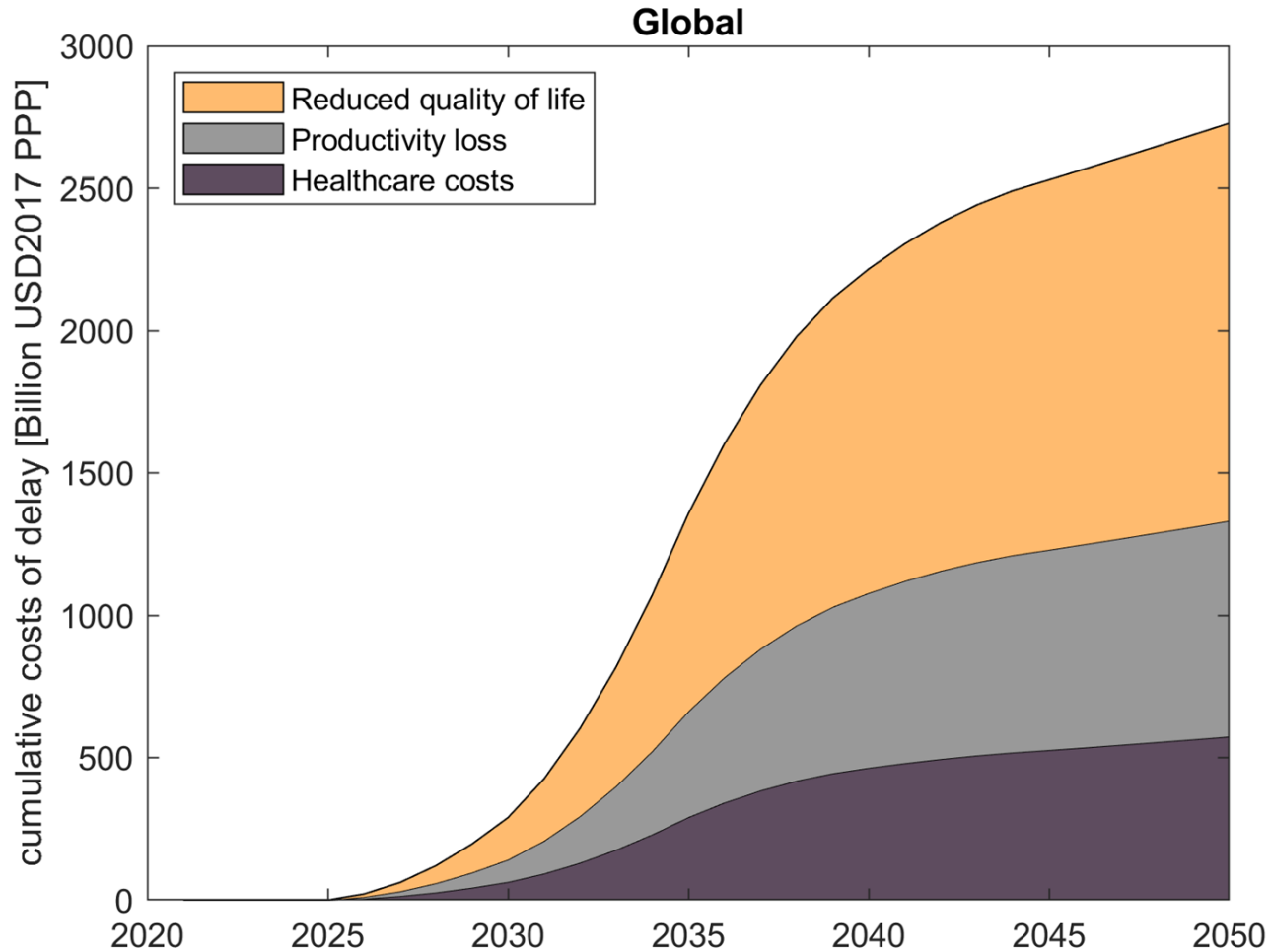
Technological	<ul style="list-style-type: none">• The limited access to cleaner technology/fuels• The lack technologies/infrastructure enabling the implementation of a solution
Economic	<ul style="list-style-type: none">• The high costs of cleaner technology• Policies (i.e. subsidies) that lower prices of resource-intensive options
Institutional	<ul style="list-style-type: none">• The lack of interagency coordination/capacity• Design flaws in policies
Social	<ul style="list-style-type: none">• The limited acceptance or awareness of benefits of the cleaner alternatives• The lack of stakeholder engagement

The Enabling Environment is Critical for Accelerating Implementation and Maximizing Benefits: A Novel Method for Bringing Implementation into Modelling



- A novel data driven method using survey data from China, India, Mexico, and Nigeria was employed to estimate the effects of barriers/enablers on implementation of 9 solutions
- The method convert qualitative assessments into time delays that can be entered into modelling scenarios
- Results suggest that inattention to enabling environment could stall implementation by about 8 years over a 15-year period
- The most important enabler were institutions (2.4 years), often left invisible in modelling frameworks
- Institutions matter a great deal for maximizing the health/economic impacts
- This approach helps make institutions and other enablers more explicit in the modelling and can lead to concerted efforts to improve the enabling environment

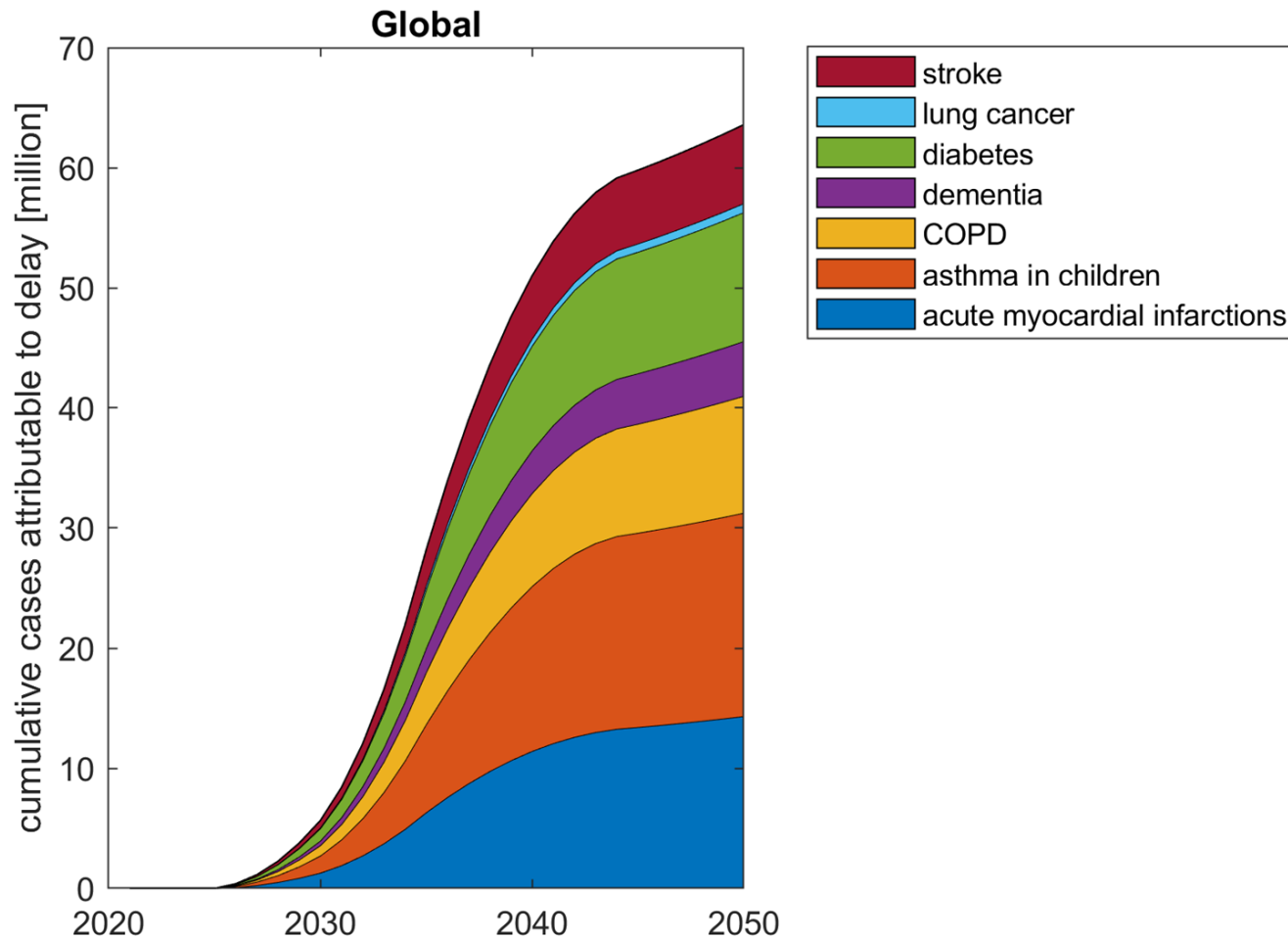
Economic Assessment



Cumulative global morbidity-linked market and non-market costs due to implementation delays

- Investing in enabling environments could deliver market and non-market benefits totalling up to approximately **8 trillion USD by 2040 (morbidity benefits only)**, providing strong justification for investment in enabling actions

Economic Assessment



Cumulative global morbidity impacts due to implementation delays.

- Investing in enabling environments for the 25 measures, can deliver significant domestic public health, such as preventing up to 17 million cases of asthma in children within this century across the globe.

Basis for the Enabling Environment Framework

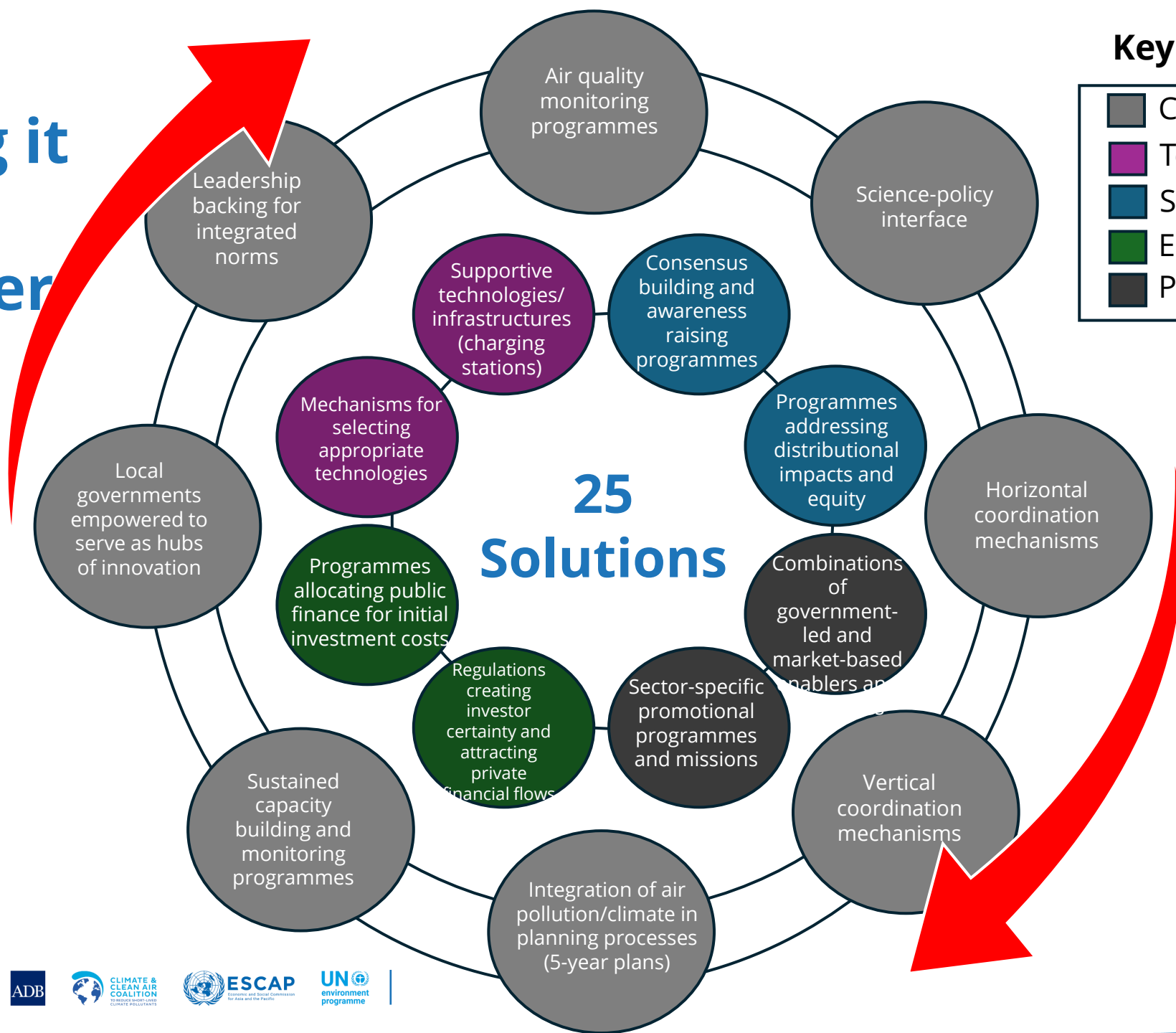
- 4 countries
- 4 sectors
- 9 solutions

Sector	Description of Solutions
Energy	Accelerate transition away from traditional to clean fuels (e.g. LPG, gas and electricity) and efficient stoves
	Renewables for power generation
Transport	Emission standards for road vehicles
	Emission standards for non-road vehicles
	Vehicle inspection and maintenance
	Increase number of electric vehicles
Agriculture	Prevention of agricultural crop residue burning
Waste	Municipal solid waste management
	Industrial solid waste management

Targeted Enablers	Country Specific Examples	How Enablers are Operationalized
Mechanisms for selecting appropriate technologies	Mexico's national cookstove projects	Extend user co-payments, pilot tailored stove designs, and support community-based monitoring efforts
Supportive technologies/infrastructures	China's support for electric charging stations	Local governments encouraged investing in critical supporting infrastructure
Consensus building and awareness raising programmes	Nigeria open burning awareness raising workshops	Incentivize the use of waste/residue for productive purposes
Programmes addressing distributional impacts and equity	India's Pradhan Mantri Ujjwala Yojana (PMUY) cookstove programme	Targeted effort to ensure women and poorer households are afforded access to cleaner fuels
Programmes allocating public finance for initial investment costs	Nigeria's funding for clean energy projects	Public budgets appropriated specifically for a critical mass of pilot projects
Regulations attracting private financial flows	Mexico national strategy for electric mobility	Participation encouraged through market guarantees for private operators
Sector-specific promotional programmes and missions	India's solar mission	Set clear, time bound targets for expanding renewable energy baseload capacity
Combinations of government-led and market-based enablers and incentives	China's clean energy transition	A well-sequenced mix of incentives enables transition from government finance to private sector investment

Cross-Cutting Enablers	Country Specific Examples	How Enablers are Operationalized
Leadership backing for integrated norms	China's decision to move down co-control or synergistic pathways	Embed integrated air-pollution-climate objectives across major environmental policy and planning frameworks
Science-policy interface	Mexico's work on SNAP	Enhance data sharing and monitoring links on integrated GHG/air pollutant emissions inventories
Horizontal coordination mechanisms	Mexico's Inter-Secretarial Comm on Climate Change	Strengthening alignment among central ministries responsible for climate, energy, health, and urban development
Vertical coordination mechanisms	China's mainstreaming of synergies into local environmental plans/actions	Improve coordination across state and city authorities implementing air quality management and climate actions
Integration of air pollution/climate in planning processes (5-year plans)	Nigeria's integration of SLCPs in its NDC	Strengthening provisions that directly target specific SLCPs such as methane and black carbon
Local governments empowered to serve as hubs of innovation	Mexico City's designation as transport leader	Promote integration between urban planning, public transport, and regional air-quality management

Putting it All Together



Key

- Crosscutting enablers
- Technical enablers
- Social enablers
- Economic enablers
- Policy/institutional enablers

One Last Point: A Clean Air SDG Would Help Build Institutional Support For Many Solutions



<p>2016 Finland 2020 Finland 2016 Estonia 2024 Lao 2024 Palau 2017 Luxembourg 2016 Switzerland 2024 Mauritius 2024 Spain 2024 Spain 2024 Spain(INAP) 2018 Paraguay 2017 Maldives 2019 Fiji 2019 Tonga 2014 Samoa 2024 Samoa 2016 Madagascar 2017 Japan 2024 Solomon Islands 2020 Solomon Islands 2024 Vanuatu 2014 Colombia 2020 Costa Rica 2022 Belarus 2017 Belarus 2024 Mexico 2017 Malaysia 2018 Ecuador 2021 Nicaragua 2016 Georgia 2019 Eswatini 2017 Zimbabwe 2024 Zimbabwe 2021 Dominican Republic 2021 Namibia 2018 Namibia 2020 Mozambique 2019 Philippines 2022 Philippines 2017 Honduras 2020 Honduras 2024 Honduras</p>	<p>2014 Morocco 2016 Turkey 2017 Guatemala 2024 Lao 2019 Lesotho 2022 Lesotho 2023 Cambodia 2023 Zambia 2017 Kenya 2020 Kenya 2022 Grenada 2020 Syria 2024 Syria 2024 Peru 2022 Ethiopia 2015 Jordan 2022 Jordan 2024 South Sudan 2024 Libya 2020 Libya 2020 Uganda 2024 Uganda 2014 China 2024 Yemen 2021 Iraq 2019 Oman 2024 Oman 2018 Cabo Verde 2022 Liberia 2014 Sierra Leone 2021 Sierra Leone 2024 Sierra Leone 2024 Nepal 2017 India 2014 Togo 2017 Togo 2018 Togo 2022 Togo 2018 Egypt 2017 Nigeria 2020 Nigeria 2022 Gambia 2023 Bahrain 2024 Mauritania 2021 Niger</p>	<p>2018 Australia 2018 Spain 2021 Uruguay 2022 Uruguay 2021 San Marino 2020 Comores 2023 Comores 2021 Madagascar 2019 Vanuatu 2017 Costa Rica 2022 Italy 2016 Venezuela 2013 Slovakia 2020 Georgia 2018 Bahamas 2018 Dom Rep 2022 Sri Lanka 2022 Kazakhstan 2017 El Salvador 2018 Viet Nam 2021 Guatemala 2017 Azerbaijan 2020 Malawi 2019 South Africa</p>	<p>2019 Saint Lucia 2020 Zambia 2019 Algeria 2019 Congo 2020 Congo 2017 Ethiopia 2017 Belize 2020 Burundi 2019 Rwanda 2019 Iraq 2019 Cameroon 2022 Cameroon 2021 Cabo Verde 2019 Sierra Leone 2017 Nepal 2020 Nepal 2021 Afghanistan 2018 Benin 2016 Egypt 2018 Mali 2022 Mali 2019 Mauritania 2020 Niger 2019 Liechtenstein 2017 Monaco 2019 Palau 2020 Austria</p>	<p>2017 Panama 2018 Malta 2017 Slovenia 2020 Moldova 2021 Malaysia 2021 Zimbabwe 2019 Kazakhstan 2018 Lao 2019 Serbiaglish 2019 Tanzania 2020 Trinidad 2022 Sao Tome-Principe 2018 Armenia 2020 Uzbekistan 2019 Central Afr Republic 2024 Yemen 2017 Tajikistan 2018 Guinea 2018 Sudan 2017 Afghanistan 2019 Cote d'Ivoire 2017 Benin 2020 Benin 2019 Burkina Faso 2023 Burkina Faso 2017 Qatar</p>	<p>2024 Palau 2018 Switzerland 2022 Switzerland 2019 Mauritius 2020 Slovenia 2020 Slovakia 2021 Cuba 2021 Bhutan 2016 Korea 2017 Peru 2022 Gabon 2024 South Sudan 2023 Central Afri Rep 2022 Djibouti 2020 Liberia 2017 Bangladesh 2022 Sudan 2022 Cote d'Ivoire 2018 Niger 2023 Liechtenstein 2018 Palestine 2017 Sweden</p>	<p>2020 Seychelles 2024 Spain 2016 Germany 2021 Marshall Isl 2022 Netherlands 2017 Belgium 2020 Micronesia 2017 Czech Republic 2021 Mexico 2019 Croatia 2020 Ecuador 2020 Papua NG 2019 Timor-Leste 2019 Turkmenistan 2021 Azerbaijan 2017 Chile 2019 Chile 2019 Cambodia 2022 Somalia</p>	<p>2024 Peru 2022 Eritrea 2016 Uganda 2020 India 2020 Gambia 2022 Senegal 2016 Norway 2019 Nauru 2019 New Zeal 2023 Ireland 2018 Latvia 2018 Romania 2017 Argentina 2016 Mexico 2018 Albania 2019 Tunisia 2020 Kyrgyz 2019 Guyana 2021 China 2022 Ghana</p>
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