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Ulaanbaatar Air Quality Improvement Program

Policy-Based Loans

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Air Pollution problem

- Temperatures: below -10◦C for 6 winter months; temperature inversion
- Climate change driven migration; uncoordinated urban planning; and lack of infrastructure for heating

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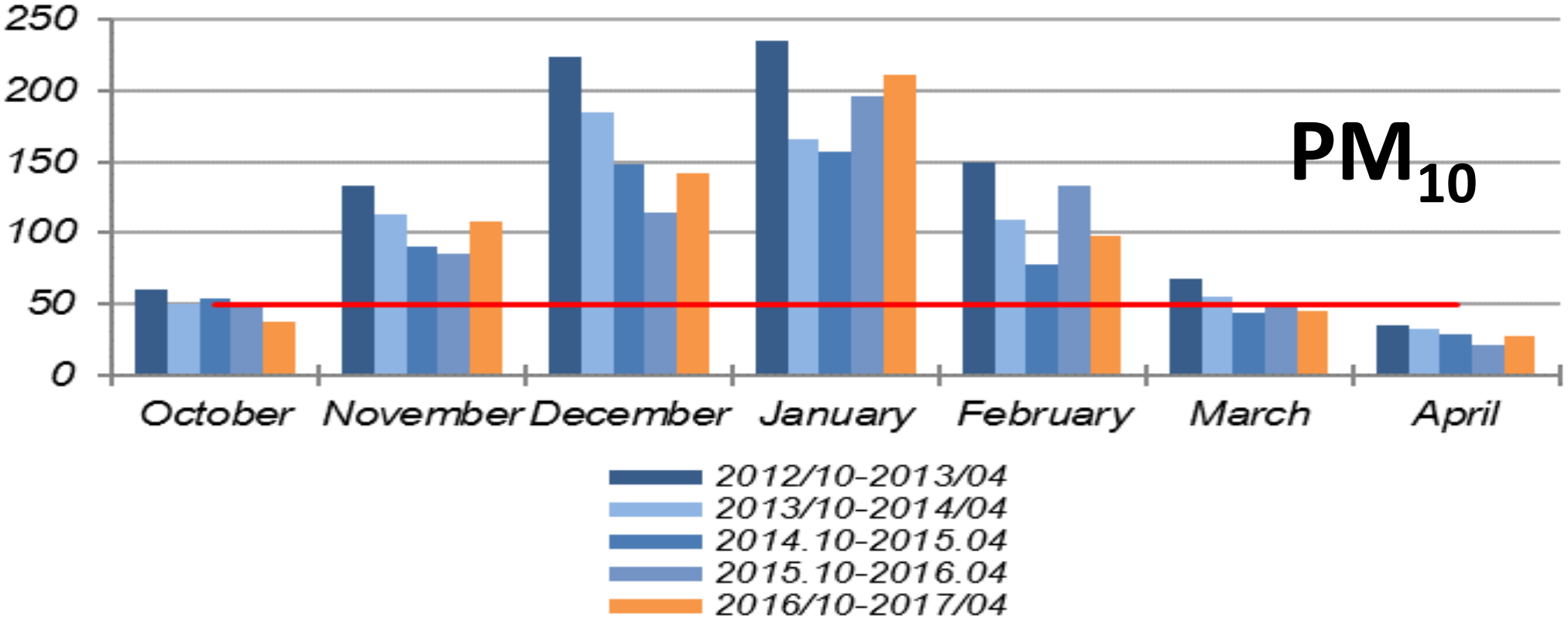

- **Severe winter air pollution**
  - 2016 annual average of ambient $PM_{2.5}$ concentration was **80 µg/m³**
  - January 2017, peaks of $PM_{2.5}$ as high as **1017 µg/m³**
- **World Health Organization's recommended standard is 10 µg/m³**

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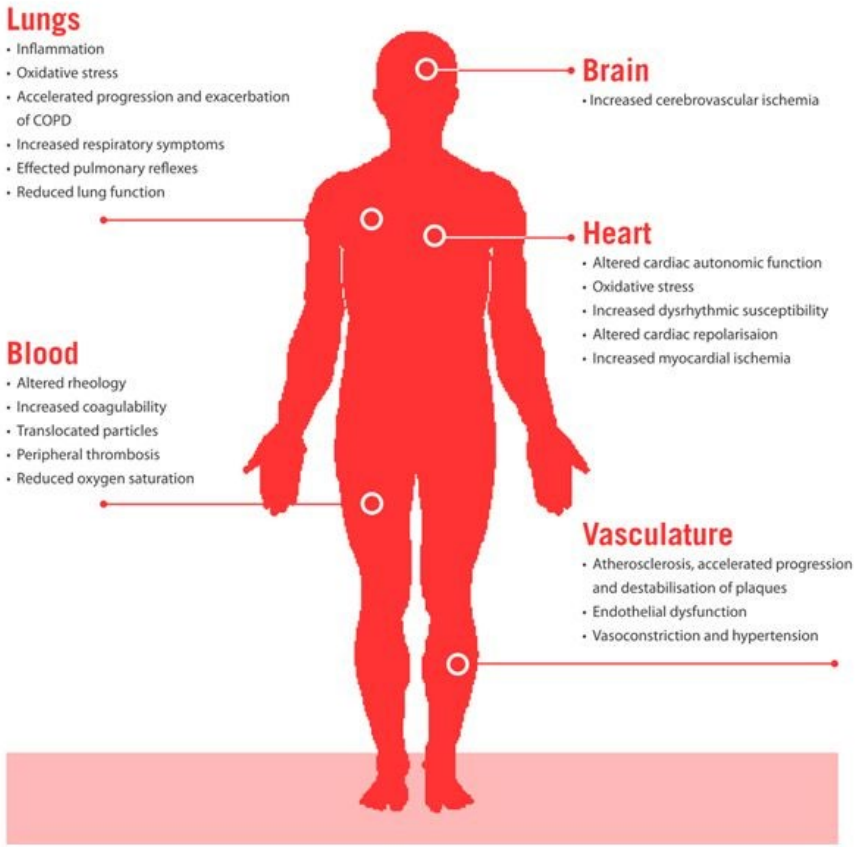
Health effects of $PM_{2.5}$ exposure



PM health impacts, Amman, Nov 2015

HEAL 2013

- **10%: mortality attributable to air pollution in Ulaanbaatar**
- **$463 million: annual health cost of air pollution**

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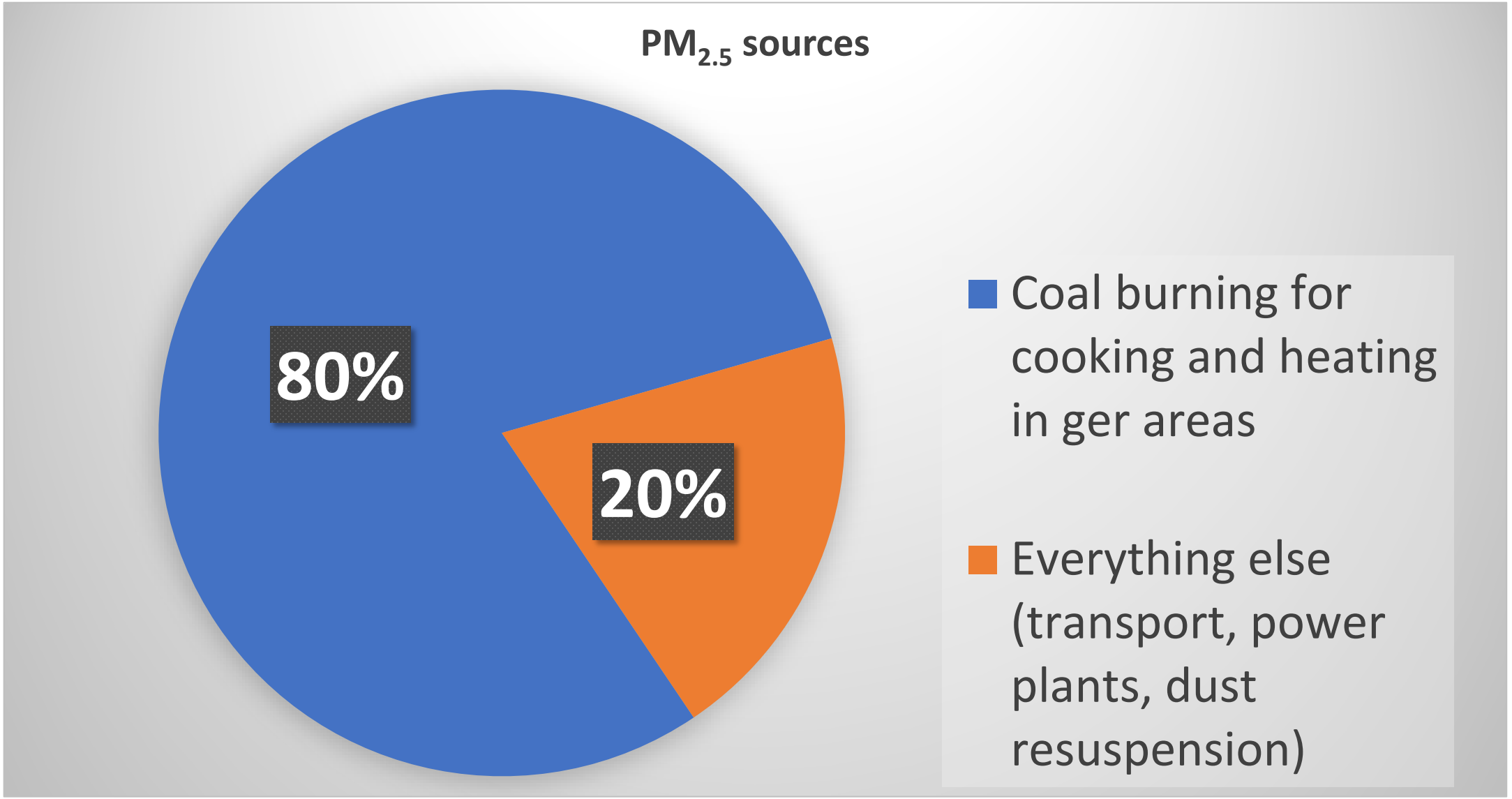
Winter air pollution: sources



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UB *Ger* areas (~200,000 households)

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Problem Analysis

Inconsistent energy and environment policymaking

- Incomplete environmental regulation
- No cost-benefit analysis for decision making
- Limited coordination and communication among ministries
- Fragmented and discontinuous energy subsidies

Highly polluting urban systems

- Raw coal burning for cooking and heating; poorly insulated houses
- Uncontrolled resuspension of fly ashes; dust from unpaved roads
- Lack of infrastructure for cleaner energy
- Old and/or poorly maintained private and public transport
- Lack of financial resources to redevelop ger areas

Uncoordinated urban development

- Limited consistency among city urban and energy master plans
- Limited control over in-migration and urban settlement patterns
- No income diversification for rural households

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Phase 1 Policy actions

Output 1: Key measures on air pollution reduction and health protection

- Cleaner coal for *ger* households
- Heat-only boilers retirement
- Pneumonia vaccination
- Indoor AQ in public buildings

Output 2: Improved IAP efficiency and air pollution control regulatory framework

- AQ awareness and monitoring
- Cleaner heating technologies
- Legal and technical regulatory framework upgrade

Output 3: Environmentally sound and integrated urban, energy, and transport plans

- Mechanisms for integrated and cleaner urban & energy systems

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Priority policy actions

Expand district heating infrastructure to enable HOBs retirement

Provide improved fuel to *ger* households for targeted areas

Vaccination against pneumonia: 40,000 children age 0-5; filtration for better indoor air in kindergartens and hospitals

Adjust transportation fuel excise tax to promote higher-quality transportation fuels in Mongolia

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Phase 2 Policy actions

i. switching to briquettes, supported by a community engagement program to help households use briquettes safely and efficiently;

ii. studying replacing budget subsidies for winter electric heating costs with a new heating tariff that responds to affordability concerns; and

iii. a new immunization policy, including for pregnant women and newborns

iv. improvement of AQ monitoring standards

v. allocation of funding, staff and premises to make the secretariat to the National Committee fully functional

vi. EDGE Mongolia

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Complex Implementation arrangements

- **Executing Agency**: Ministry of Finance
- **Implementing Agencies:**
  - Ministry of Environment (IAP coordination, AQ monitoring, env laws, env technologies, education/outreach)
  - Ministry of Construction and Urban development (urban planning, building standards)
  - Municipality of Ulaanbaatar (urban planning, AQ monitoring, distribution of improved fuel)
  - Ministry of Energy (energy planning, production of improved fuel)
  - Ministry of Road and Transport Development (roadmap for higher transport fuel quality)
  - Ministry of Mining and Heavy Industry (roadmap for vehicle emission standards)
  - Ministry of Health

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2017 - 2020 ADB Budget Support Program

- Phase 1, $130 ml 23, March 2018 - 31 December 2019
- Phase 2, $160 ml 5 December 2019 - 17 December 2020

During the 2019–2020 winter, the maximum PM 2.5 concentration was reduced to 46% and PM 10 concentration to 55%, compared to the mean maximum values of the previous 5 years.

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Key lessons

- ✓**Comprehensive Policy Framework and Coordination.** By involving various ministries and agencies, the program ensured that efforts across energy, health, and urban policies were synchronized and reinforced.
- ✓**Effective Implementation of Immediate and Long-term Measures.** Blend of short-term and long-term actions ensured immediate reduction in pollution levels while setting the foundation for sustained improvements in air quality.
- ✓**Strong Political Commitment and Institutional Strengthening**. The government's active role and the establishment of a National Committee to oversee and implement the air quality initiatives ensured consistent progress and accountability.

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Thanks!

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Mongolia's economy

- **GDP growth**
  - 2012 **12.3%**

sharp decline of commodity prices

  - 2016 **1%**

2017 IMF Three-Year Extended Fund Facility:
$440 million and up to $3 billion in budget and project support

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Mongolia and ADB

In the Spotlight

ADB Begins New Mongolia Partnership with $250 Million to Avert Crisis in Social Services, Banking Sector

ADB's Country Partnership Strategy for Mongolia envisages total assistance of $1.2 billion over 2017-2020, and approved two policy-based loans totaling $250 million. The loans will help maintain funding for social welfare programs for the poor and vulnerable, and stabilize and restructure the banking industry.

2015: Social Welfare Support Program (PBL)

2017: Social Welfare Support Program Phase 2 (PBL)

2017: Banking Sector Rehabilitation and Financial Stability Strengthening Program (PBL)

2018: Ulaanbaatar Air Quality Improvement Program (PBL)

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What has been done…

Till 2015, over 100 billion MNT spent:

- GoM: 20 bill MNT of subsidies for improved stoves and fuels
- U.S. Millennium Challenge Corporation (MCC) in 2011: 73 bill MNT of subsidy for improved stoves through the Energy and Environment Project (EEP)
- World Bank: 14 bill MNT of subsidies for over 40,000 households to purchase energy efficient stoves in 2013-2015
- In 2011-2014, GoM provided 8 billion MNT to 69,800 households for 50% discount on night-time electricity tariff

From Jan to March 2017, 2.5 billion MNT for the zero night-time electricity tariff (110,895 households)

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… Did it work? Improved stoves

Households with normal and low pressure stoves that previously used improved stove:

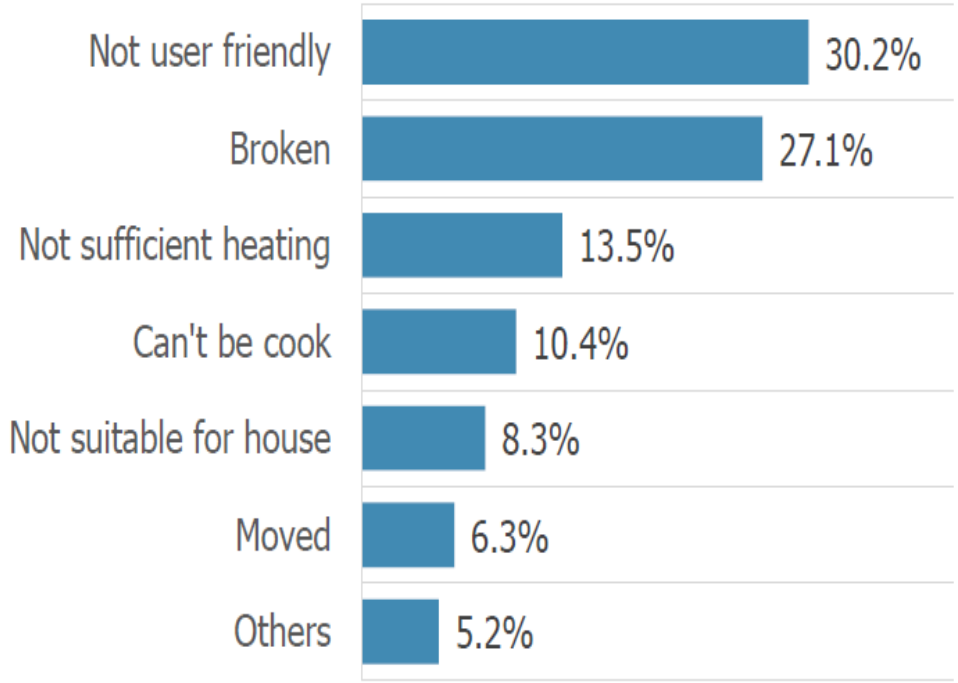
27.7%

Used improved stove

72.2%

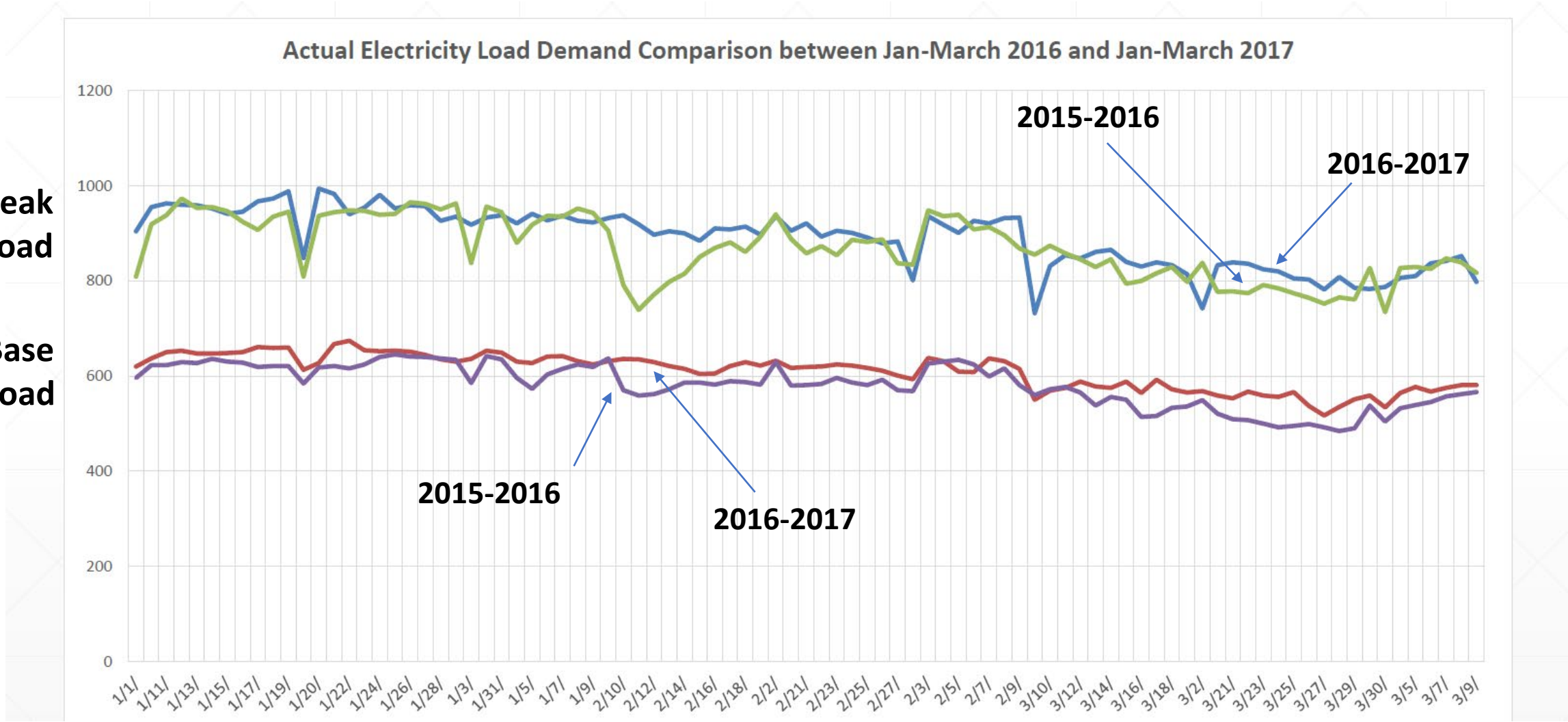
Didn't use any of improved stoves

Reasons for stopped using improved stoves



- From households that using stoves other that improved ones, 27.7 percent or 96 households are previously used improved stoves.
- Due to difficulty to use and broken, these households have replaced their stoves with normal and low pressure stoves
- For the remaining 251 households, they have never used improved stoves

… Did it work? (as of September 2017)
Night-time electricity tariff



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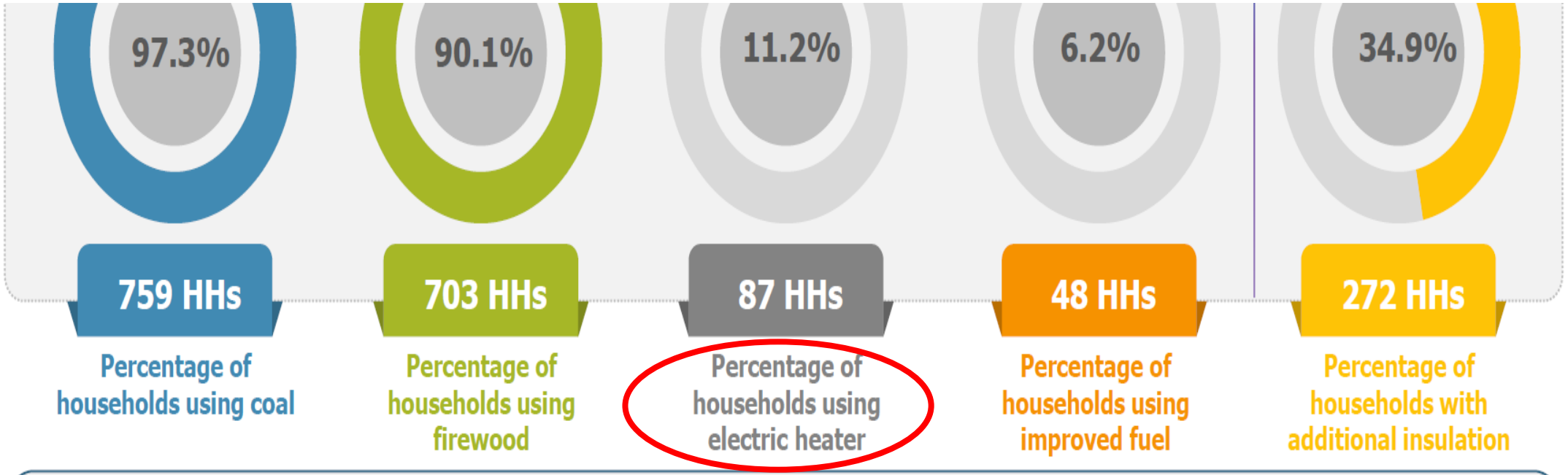
… Did it work?
Electric stoves



- According to our survey, 97.3 percent of households have used coal as the main source of heating in last winter. After coal, the main fuel used is firewood.
- 13 out of 87 households, that using heater, didn't use any stoves. On the other hand, remaining 74 household uses heater and stoves inseparably. Also, 4 out of 48 households, that using improved fuel, didn't use any coal. Remaining 44 household uses coal and improved fuels inseparably. In addition, 2 households use only sawdust.

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National Program for Reducing Air Pollution

Activity 4. 50-100% discount in night time energy consumption for HHs with two tariffs in ger district							
	1.4.1	Discount in night time electric energy consumption by HHs in ger district of UB	Discounting in night time energy	Reduced air pollution due to raw coal burning	ME, ERC	CGO	2017-2020
√	1.4.2	Support with Supply the target group HHs of AQ improvement zone with improved stove, fuel and electric heaters	Supported HHs of target group supplied with stove	At least 1000 HHs of target group are supported	MET, CGO	ME, MET, ХАНХЯ	2017
			Supported HHs of target group supplied with improved fuel	13000 HHs of target group are supplied with improved fuel	MLSP	CGO, PE	2017-2019
Activity 5. Implement heat loss reduction project programs, Improve insulation of gers and houses							
	1.5.1	Implement the project in the construction sector on reduction of GHG suitable for the nation's specificity	Research report on building heat loss, and GHG emissions, related trainings	Pilot project is implemented	MCUD	ME, ERC,MET	2017-2019
√	1.5.2	Policy support of plants producing environmentally friendly building insulation materials to reduce building heat loss	Research on production of Green construction materials	Researched on insulation materials production and policy supported	MCUD	PE	2017
			Environmentally friendly thermal insulation materials, glass, steel and cement factories	Developed environmentally friendly thermal insulation materials, glass, steel and cement factories	MCUD	PE	2018-2021
X	1.13.2	Implement project on “Plant to produce Synthetic natural gas form coal"	Performance and approval of the Technical and economic feasibility study and ESIA of a "plant to produce synthetic natural gas from coal"	TEFS, ESIA performed	MMHI	ME, MCUD, CGO	2017-2018
			Selection of investor, start construction of plant facility	Selected investor	MMHI	ME, MCUD, CGO	2017-2021

!

how?

Technical Assistance

TASF6 ($400k)

- Environmental education outreach program (including for pregnant women, with UNICEF)
- Air quality monitoring network – needs assessment
- Transport roadmap (with UNEP)

CDIA ($250k)

- Financing mechanisms (credit guarantee products)
- Semi-cokes distribution mechanisms; monitoring and evaluation
- Action plan for coordinated energy and urban planning

UEFI (~$60k)

- District heating expansion; safeguards

CEPF ($400k)

- Social survey on acceptability and barriers for selected air pollution reduction measures
- Technology information centers
- Study on barriers to green heating and building technologies

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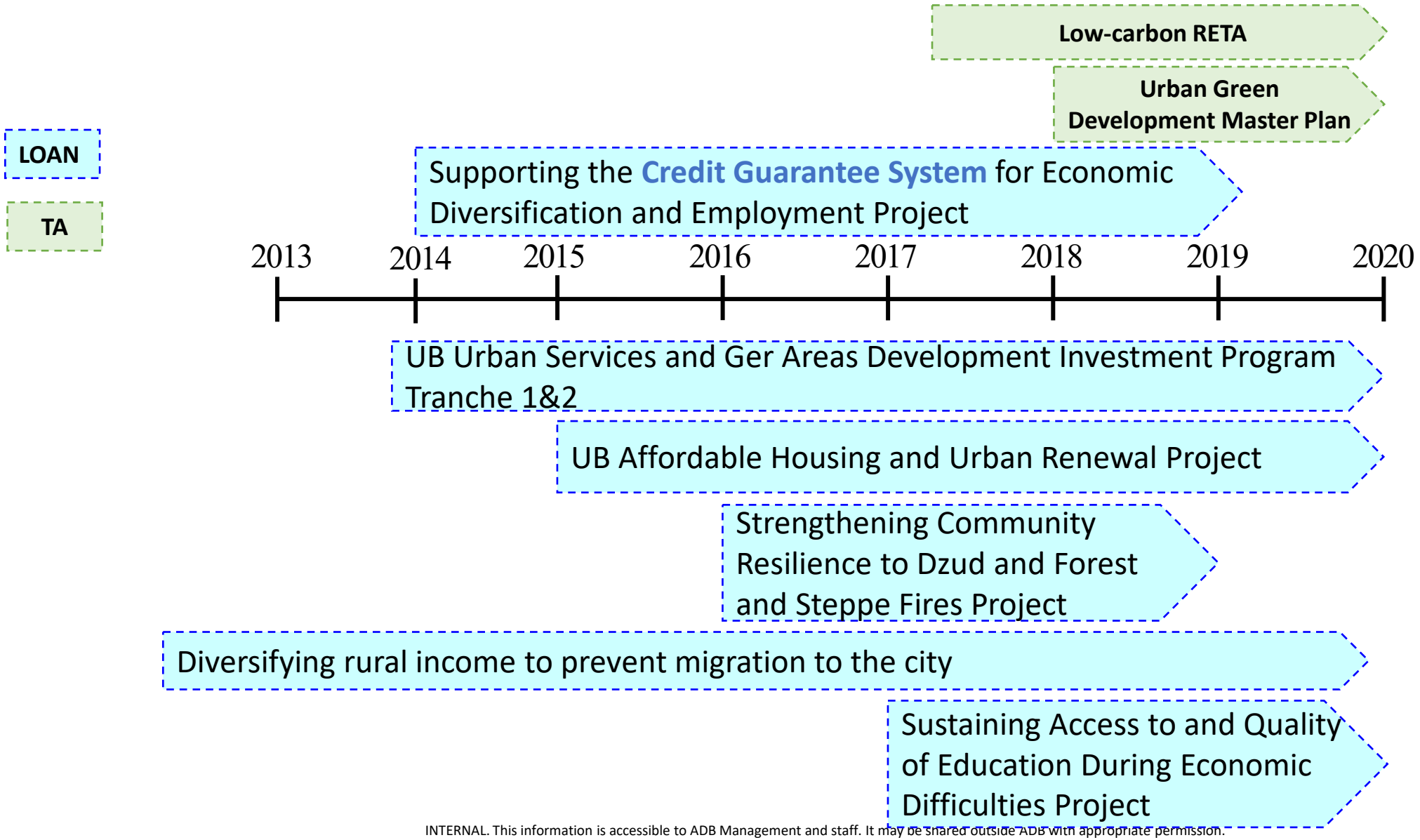
Complementarity within ADB ("One EARD")



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….and with other donor interventions

AQ monitoring capacity

- JICA

Energy efficiency in buildings

- Global Green Growth Institute
- giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
- UNEP
- SWISS AGENCY FOR DEVELOPMENT AND COOPERATION SDC

Transport emissions

- JICA
- UNEP United Nations Environment Programme

Cleaner combustion

- WORLD BANK
- MILLENNIUM CHALLENGE CORPORATION UNITED STATES OF AMERICA

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