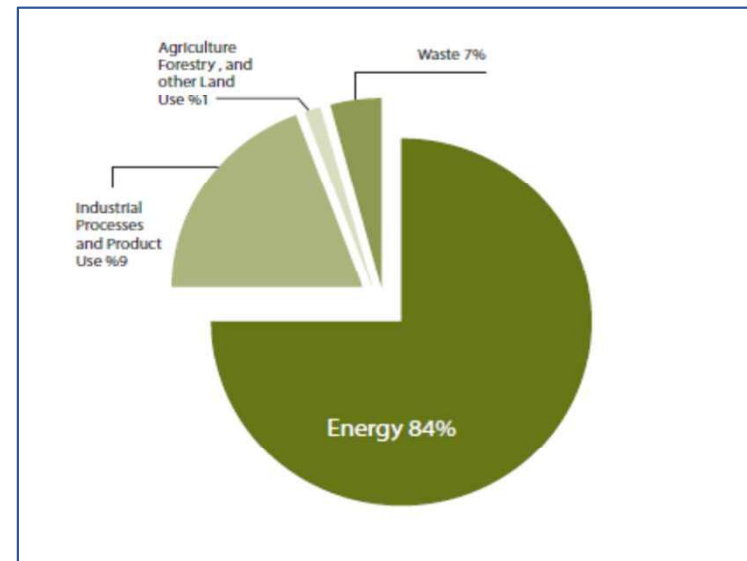


Preparation of National GHG Inventories for 2010 and 2012

- Base Year: (2010-2012).
- Sectors: (Energy, Industrial processes, Agriculture, Forestry and Other Land Use and Waste)
- Estimates will be performed according to “*2006 IPCC Guidelines for National Greenhouse Gas Inventories*”

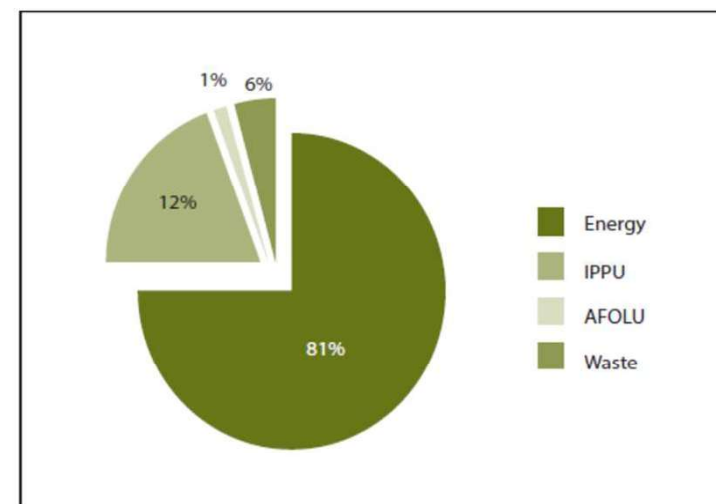
National GHG Inventory -2010

Categories	Emissions CO ₂ Equivalents (Gg)	Percentage of the overall
Total National Emissions and Removals	23140.06	100%
Energy	19410.88	84%
Industrial Processes and Product Use	1982.04	9%
Agriculture, Forestry, and Other Land Use	180.50	1%
Waste	1567.49	7%



National GHG Inventory -2012

Categories	Emissions CO ₂ Equivalents (Gg)	Percentage of the overall
Total National Emissions and Removals	27997.73	100%
Energy	22756.83	81%
Industrial Processes and Product Use	3368.47	12%
Agriculture, Forestry, and Other Land Use	237.29	1%
Waste	1635.14	6%



GHG Source and Sink Categories	Gg CO ₂ -Eq	Sectors (%)	Subsectors (%)
Total National Emissions and Removals	27998	100%	
1 - Energy	22757	81%	
1.A - Fuel Combustion Activities	22756	81%	
1.A.1 - Energy Industries	11296		40%
1.A.2 - Manufacturing Industries and Construction	1249		4%
1.A.3 - Transport	7392		26%
1.A.4 - Other Sectors	2334		8%
1.A.5 - Non-Specified	485		2%
2 - Industrial Processes and Product Use	3368	12%	
2.A - Mineral Industry	1531	5%	
2.A.1 - Cement production	1163		4%
2.A.2 - Lime production	8		0%
2.A.3 - Glass Production	0		
2.A.4 - Other Process Uses of Carbonates	360		1%
2.B - Chemical Industry	157	1%	
2.B.2 - Nitric Acid Production	157		
2.C - Metal Industry	40	0%	
2.C.1 - Iron and Steel Production	40		
2.D - Non-Energy Products from Fuels and Solvent Use	227	1%	
2.D.1 - Lubricant Use	227		
2.F - Product Uses as Substitutes for Ozone Depleting Substances	1399	5%	
2.F.1 - Refrigeration and Air Conditioning	1193		4%
2.F.3 - Fire Protection	206		1%
2.G - Other Product Manufacture and Use	14	0%	
2.G.3 - N ₂ O from Product Uses	14		

GHG Source and Sink Categories	Gg CO₂-Eq	Sectors (%)	Subsectors (%)
Total National Emissions and Removals	27998	100%	
3 - Agriculture, Forestry, and Other Land Use	237	1%	
3.A - Livestock	480		2%
3.A.1 - Enteric Fermentation	448		
3.A.2 - Manure Management	32		
3.B - Land	-254		-1%
3.B.1 - Forest land	-254		
4 - Waste	1635	6%	
4.A - Solid Waste Disposal	1488		5%
4.C - Incineration and Open Burning of Waste	5		0.02%
4.D - Wastewater Treatment and Discharge	142		1%

Key source Analysis

In the total national GHG emissions various Fuel Combustion Activities subcategories were among the top five sources accounting for around 65-75% of all emissions, mainly:

- Energy Industries (Gaseous Fuels),
- Energy Industries (Liquid Fuels),
- Road Transportation,
- Manufacturing Industries and Construction (Liquid Fuels), and
- Other sectors (commercial/institutional and residential-Liquid Fuels).

Mitigation Actions and Effects

Key Parameters for Mitigation Analysis

- Timeframe (2015-2040)
- Scope (Primary energy & energy demand, RE, EE, Transport, AFOLU, solid waste & wastewater, Industrial processes).
- Methodologies:
 - Baseline Scenario
 - Mitigation Scenario
 - Using LEAP SOFTWARE for Energy Analysis.

Mitigation Projects Tabular Updates

Name and brief description of the mitigation action	Sector and subsector (and GHG reduced)	Implementing institution	Status	Main assumptions used in the mitigation analysis	Project Duration	Emission reductions during project duration (Gg of CO ₂ eq)
Electricity T&D Network Losses	Electricity (CO ₂ , N ₂ O, CH ₄)	NEPCO and Distribution Companies	planned	Reduce the T&D losses to 12% in 2022 compare to 16% in 2015	2017-2022	8435
Adding a 100 MW Combined cycle in AsSamra Power Plant	Electricity (CO ₂ , N ₂ O, CH ₄)	CEGCO	planned	Utilize the waste heat	2018-2019	3564
Natural Gas Distribution Network in Amman, Zarqa, Aqaba	Supply (CO ₂ , N ₂ O, CH ₄)	MEMR and Private Sec.	planned	Replace the Oil products with NG in demand sectors	2020-2030	3442
Demand Side Management	Electricity (CO ₂ , N ₂ O, CH ₄)	NEPCO and Distribution Companies	planned	Reduce the system peak load	2018-2022	2842

OBJECTIVE OF THE MITIGATION ACTION

The objective of these mitigation actions is to reduce emissions by:

- Reducing electricity consumption which will result in reduced quantity of fuels used for electricity generation.
- Replacing used fuel oil products with natural gas.

Status of the TNC primary energy mitigation projects

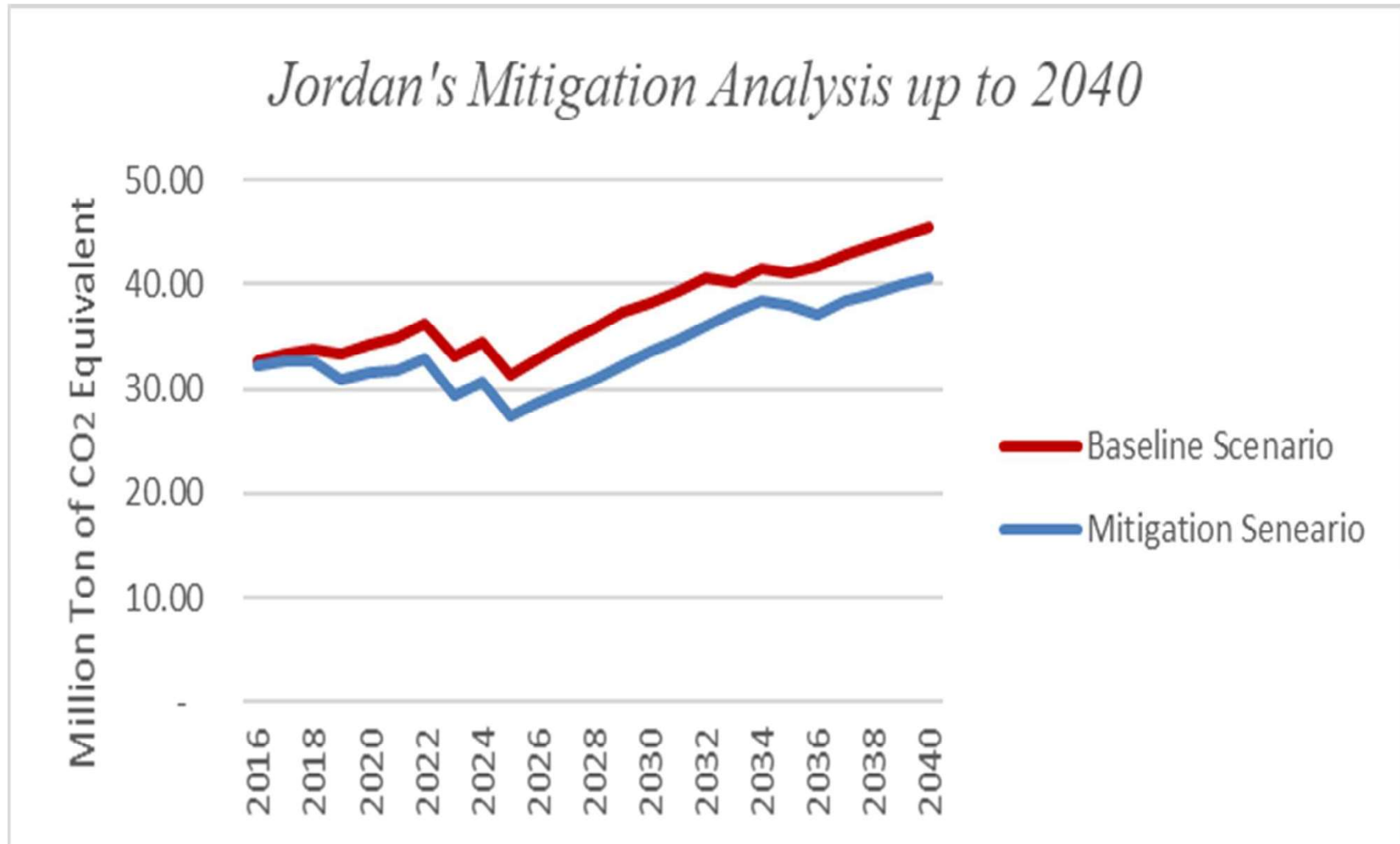
Project Name	Status
Loss Reduction in Electricity Transmission and Distribution Network	Still valid and considered in the current mitigation scenario
Improving Combustion in Rehab Power Plant	Cancelled -no longer valid
Combined Cycle Gas Turbine in Risha Plant	Cancelled due to reduction of natural gas production and delay in implementation of Risha field development
Distribution Network of Natural Gas in Aqaba	Still valid and considered in the current mitigation scenario to include Zarqa and Amman in addition to Aqaba
Demand Side Management	Still valid and considered in the current mitigation scenario
Nuclear Power Plant (1000 MW)	Moved from the TNC mitigation scenario and considered within current BUR baseline scenario according to the updated energy strategy 2015-2025

Projects and main outcomes

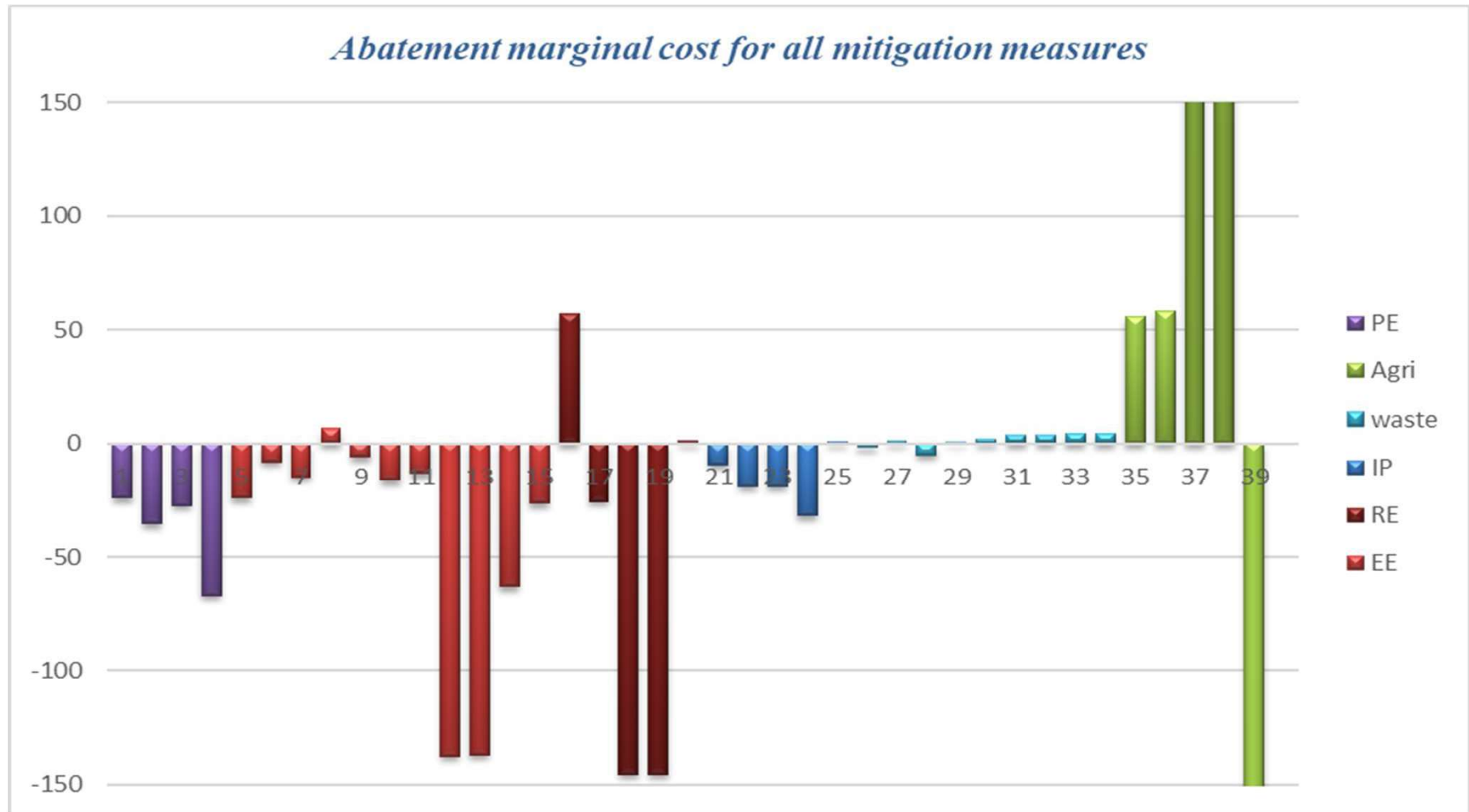
- Thirty-nine GHG mitigation projects have been proposed in several sectors and subsectors including primary energy, RE-EE, waste, and agriculture.
- The cumulative GHG emissions reduction in 2025 and 2040 were 7.85 and 9.32 million ton of CO₂eq, respectively.

Year	Baseline Scenario	Mitigation Scenario	Avoided	Cumulative Reduction
	Million Ton of CO ₂ Equivalent			
2020	34.33	31.65	2.68	4.95
2025	31.45	27.44	4.01	7.85
2030	38.18	33.64	4.53	9.46
2035	40.99	38.07	2.92	5.96
2040	45.56	40.73	4.83	9.32

Mitigation scenario compared with the baseline scenario, 2016-2040



Abatement Marginal Cost (JD/ton of CO₂eq) for all Mitigation Measures Grouped by Sector



NAMAs AND CDM

- Jordan has limited experience with **NAMAs** and **clean development mechanism** (CDM) projects.
- CDM: Out of 15 project proposals that received letters of approval from the Ministry of Environment, the **Designated National Authority** (DNA), only 4 projects have been registered.
- 10 proposed projects: 9 concept notes need support for preparation, and one needs support for implementation.

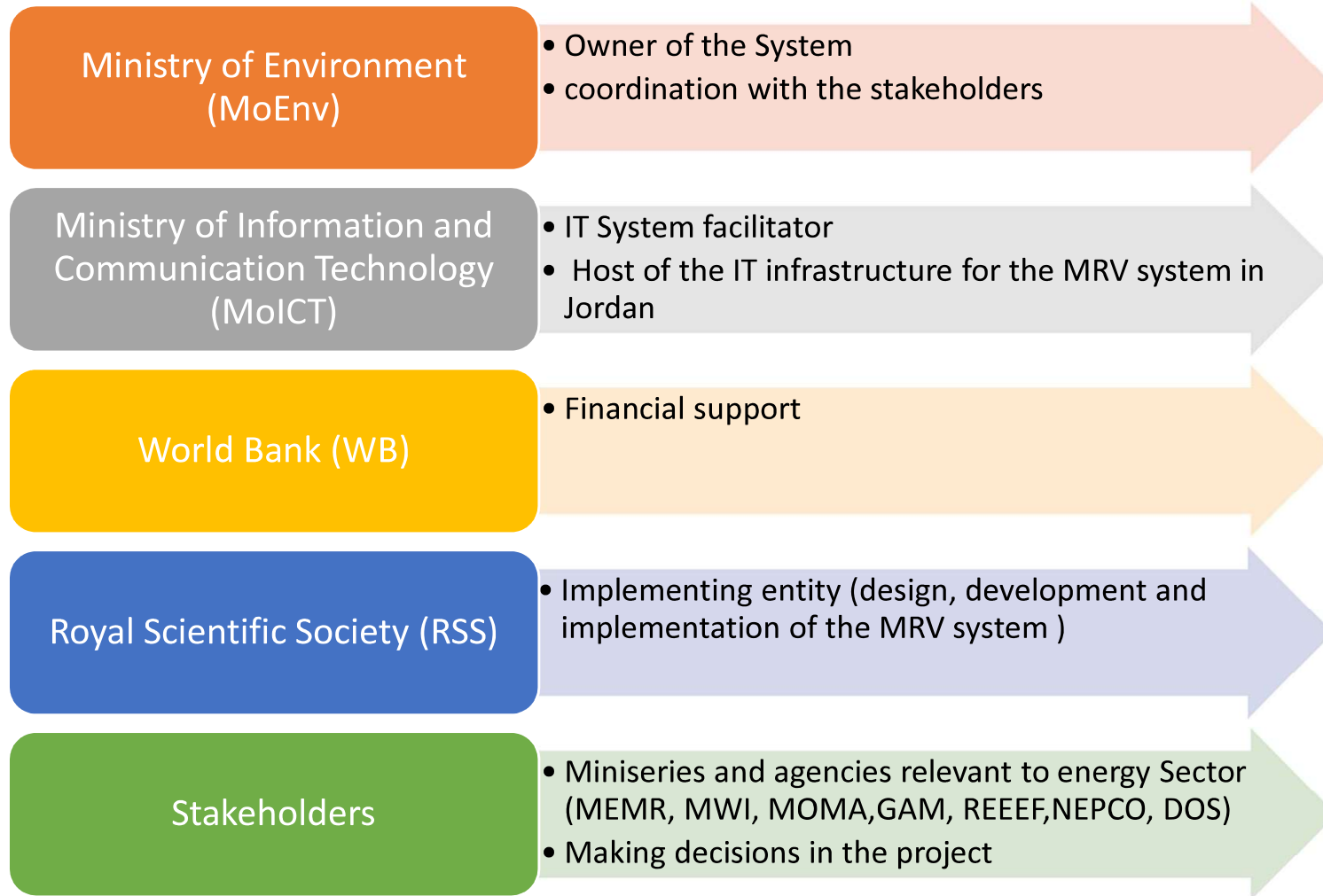
Lessons learned:

- There is a need to strengthen **institutional frameworks** and **technical capacity** in order to deliver verified mitigation activities.
- This includes the need to **develop capacities** for gathering data and for monitoring and verifying the effect of mitigation actions.

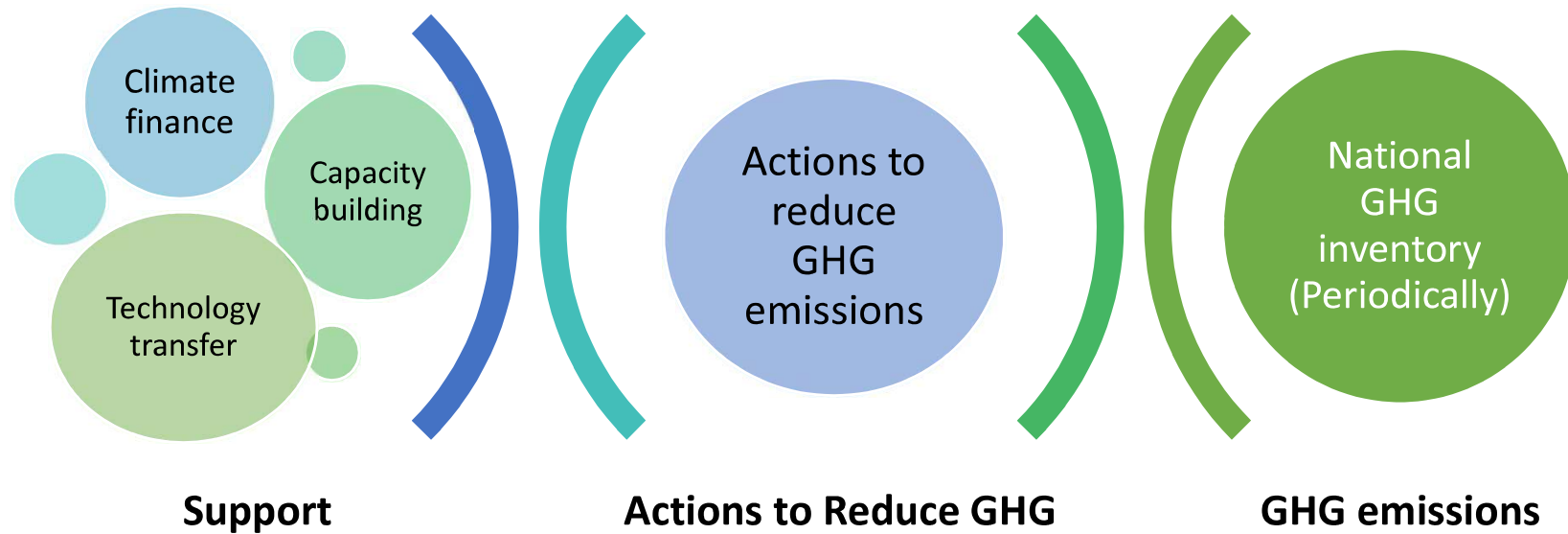
Developing Multi-level integrated
Monitoring, Reporting and Verification (**MRV**)
system for Jordan

MRV System Organizations

(BUR and the ongoing MRV project)

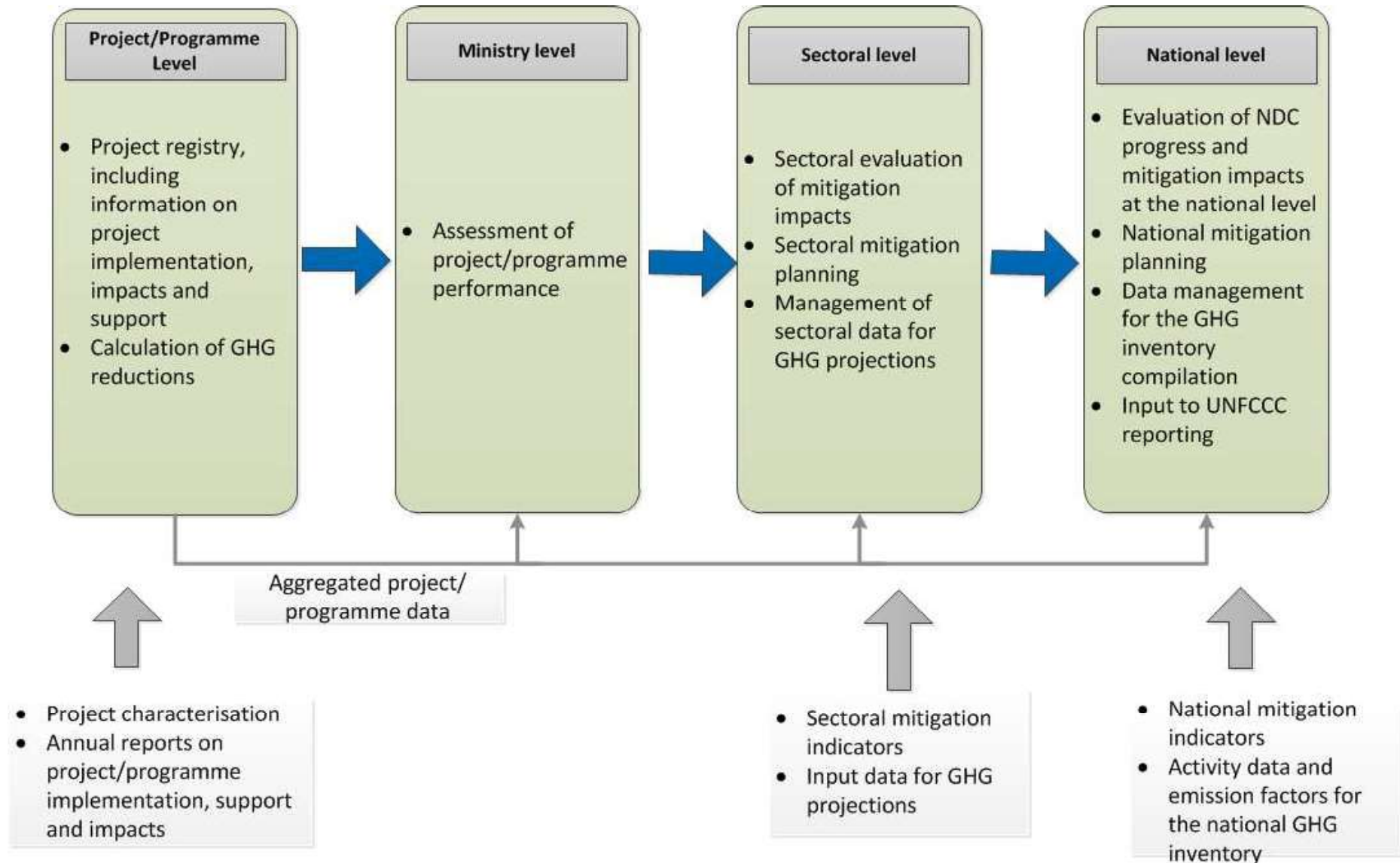


Pillars of domestic MRV system



MRV System levels

The expected output will be **an automated web-based system** designed to benefit all stakeholders



Obstacles and barriers

