Greenhouse Gas Emissions in Jordan

Jordan Numbers at a Glance (2011)

27 $MtCO_2e$*
Total GHG emissions (0.06% of world total)
World: 46,906 $MtCO_2e$

6,181,000
Population
World: 6,964,618,177

4.44
tCO_2e per capita
World: 6.73 tCO_2e

US$17,474 Million
GDP**
World: US$54,034 Billion

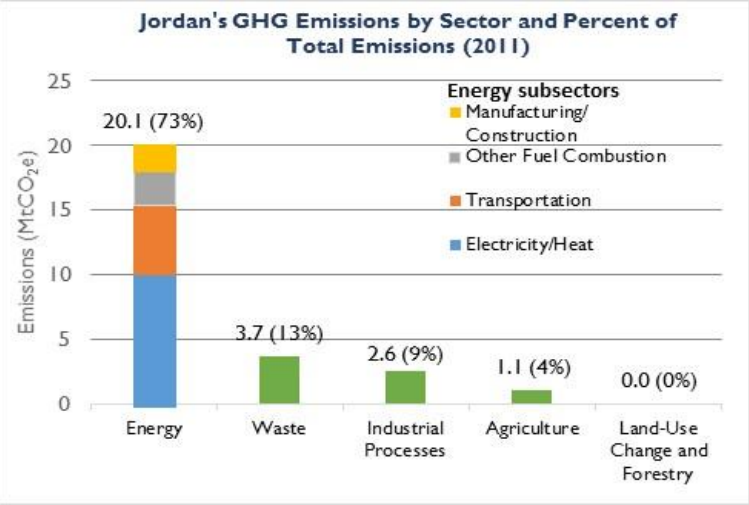
1,571
tCO_2e/million US$ GDP
World: 868 tCO_2e/million US$ GDP

+10.1 $MtCO_2e$ (+59%)
Change in GHG emissions (1990–2011)
World: +12,969 $MtCO_2e$

Sources: WRI CAIT 2.0, 2016. Emissions including Land-Use Change and Forestry
*Million metric tons of carbon dioxide equivalent
**Gross Domestic Product (GDP) in constant 2005 US$

Greenhouse Gas (GHG) Emissions by Sector

According to the World Resources Institute Climate Analysis Indicators Tool (WRI CAIT), Jordan's GHG profile in 2011 was dominated by emissions from the energy sector (73%), followed by the waste (13%), industrial processes (IP) (9%) and agriculture (4%) sectors. Emissions from the land-use change and forestry (LUCF) sector were zero, indicating that activities in this sector emitted as much as they absorbed.[1]



Source: WRI CAIT 2.0, 2016
Note: Totals do not add up to 100% due to rounding

Change in GHG Emissions in Jordan (1990-2011)

Jordan's total GHG emissions grew 59% from 1990-2011. The average annual change during this period was 2.3%, with sector-specific average annual change as follows: energy (3.8%), waste (-2.1%), IP (7.8%), agriculture (4.5%), and LUCF (0%).[2]

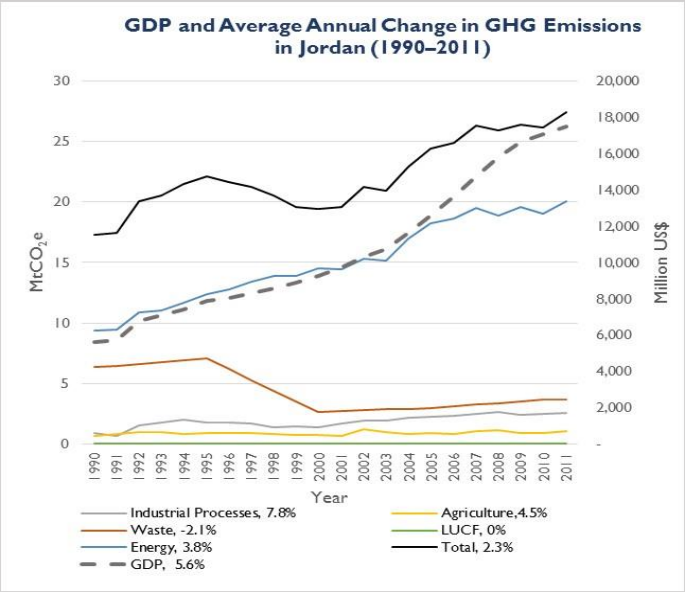
Energy: According to WRI CAIT, Jordan's energy emissions increased by 10.7 $MtCO_2e$ from 1990 to 2011, with electricity and heat production contributing 60% of the increase.[3] Jordan's Third National Communication (TNC) notes that the rapid growth in economic activities and population, and successive influxes of refugees over the last decade, have increased electricity demand.[4] To satisfy this demand, Jordan's installed electricity generation capacity grew from 1,535 MW in 2000 to 3,380 MW in 2011.[5] At the same time, natural gas supply declined, causing Jordan to turn to fuel oil for power. Until 2010, Jordan generated 80% of its electricity from natural gas (NG), much of which was supplied from Egypt through the Arab Gas pipeline. The 2011 explosion of the pipeline limited gas supply to the country and drove the government to replace NG with heavy fuel oil, which is more carbon-intensive.[6]

GHG emissions from transportation contribute 26% of energy emissions and grew by 95% from 1990-2011.[7] Jordan's transportation sector lacks rail networks and is dominated by road transport. Its capital city, Amman, has a public transportation mode share of only 11%, one of the lowest in the world. To address emissions from passenger cars, which account for 57% of transportation energy use, the Jordan Cabinet of Ministers issued a resolution to stop imports of cars older than five years and to set up a hybrid car exchange policy.[8]

[1] World Resources Institute Climate Analysis Indicators Tool (WRI CAIT) 2.0, 2016. WRI CAIT data are available for Jordan for 2012, however the 2012 data exclude emissions from the IP sector. This fact sheet uses 2011 data to present a more complete overview of economy-wide emissions.
[2] Ibid.
[3] Ibid.
[4] The Hashemite Kingdom of Jordan. Jordan's Third National Communication (TNC) to the UNFCCC, 2014.
[5] The Hashemite Kingdom of Jordan, Central Electricity Generating Company, Annual Reports, 2000 and 2011.
[6] The Hashemite Kingdom of Jordan. Jordan's TNC to the UNFCCC, 2014.
[7] WRI CAIT 2.0, 2016.
[8] The Hashemite Kingdom of Jordan. Jordan's TNC to the UNFCCC, 2014.

Waste: According to WRI CAIT, waste emissions decreased 42% from 1990 to 2011.[9] This decrease was largely due to new measures implemented at the Ruseifah landfill, the largest landfill site in Amman at that time, during the 1990s. In 1994, the Ruseifah landfill produced methane emissions equal to 4.7 $MtCO_2e$ per year.[10] Between 1994 and 2000, the Jordan Biogas Company established a two-stage gas recovery project in the landfill, which collected the biogas generated from the landfill site to produce electricity.[11] Accordingly, waste emissions decreased 61% during this period.[12] Later, between 2000 and 2006, emissions increased by 15% due to population growth. Management of solid waste, which accounted for 99% of waste emissions in 2006, has been improving in Jordan. However, with the exception of Amman which accounts for about half of total solid waste generation, safe waste disposal remains a concern.[13]

Industrial Processes: According to WRI CAIT, IP emissions increased by 1.7 $MtCO_2e$ from 1990 to 2011.[14] Cement industries alone were responsible for approximately 88% of the 2006 IP sector GHGs; the rest were produced by the chemicals industry. Since then, from 2006 to 2011, cement production decreased 19% while lime production increased six fold.[15]



Source: WRI CAIT 2.0, 2016

Carbon Intensity: GHG Emissions Relative to Gross Domestic Product (GDP)

According to WRI CAIT, GHG emissions grew 10.2 $MtCO_2e$ from 1990 to 2011, averaging 2.3% annually, while GDP grew by 212%, averaging 5.6% annually.[16] Jordan's Second National Communication, submitted in 2009, states that the overall energy intensity of GDP is higher than in most Middle East and North Africa countries. There is considerable scope for demand-side management and energy efficiency measures in Jordan.[17] With the carbon intensity of Jordan's economy at almost double the world average, there is potential to reduce Jordan's GHG emissions relative to GDP.

Climate Change Mitigation Targets and Plans

In 2013, Jordan developed its National Climate Change Policy 2013-2020 with short- (2013-2020) and long-term (beyond 2020) objectives. The main long-term objective of the policy is to achieve a proactive, climate risk-resilient country and remain a low carbon but growing economy. Jordan's Intended Nationally Determined Contribution states that Jordan aims to unconditionally reduce its GHG emissions by 1.5% by 2030 compared to a business as usual scenario. This target could be strengthened by an additional 12.5% conditioned on financial support from the international community. Proposed mitigation actions include the development of the 2016-2025 National Strategy and Action Plan for Transitioning towards the Green Economy in Jordan. In the energy sector, Jordan will strengthen renewable energy investment, development and utilization to achieve its target of 11% renewables in the total energy mix by 2025.[18] Supporting this goal is Jordan's 2012 Renewable Energy and Energy Efficiency Law, which among other actions established a Jordan Renewable Energy and Energy Efficiency Fund. In the waste sector, Jordan will develop a solid waste management system for sorting, re-using and recycling to be implemented nationwide. In the IP sector, Jordan aims to motivate industries to use alternative energy sources. Additional mitigation actions are proposed in the transport, agriculture and LUCF sectors.[19] The TNC also proposes 43 sectoral mitigation projects which will be implemented, conditionally or unconditionally, to reduce Jordan's GHG emissions.[20]

[9] WRI CAIT 2.0, 2016.
[10] The Hashemite Kingdom of Jordan. Jordan's Initial National Communication (INC) to the UNFCCC, 1997.
[11] Sweepnet, Country Report on Solid Waste Management in Jordan, 2010.
[12] WRI CAIT 2.0, 2016.
[13] The Hashemite Kingdom of Jordan. Jordan's TNC to the UNFCCC, 2014.
[14] WRI CAIT 2.0, 2016.
[15] The Hashemite Kingdom of Jordan. Jordan's TNC to the UNFCCC, 2014.
[16] WRI CAIT 2.0, 2016.
[17] The Hashemite Kingdom of Jordan. Jordan's Second National Communication (SNC) to the UNFCCC, 2009.
[18] In 2008, the RE share in the energy mix was 2%. In 2015, it was projected to reach 7% (Jordan's TNC to the UNFCCC, 2014).
[19] The Hashemite Kingdom of Jordan. Jordan's Intended Nationally Determined Contribution (INDC) to the UNFCCC, 2015.
[20] The Hashemite Kingdom of Jordan. Jordan's TNC to the UNFCCC, 2014.