

Assessing the Environmental Impacts of Paperless Trade

A Case study: Export
Process in Bangladesh
Textile and Clothing Sector



Mahezabin Natasha

01.03.2023

Methodology

(Case study: Bangladesh textile and clothing export sector)



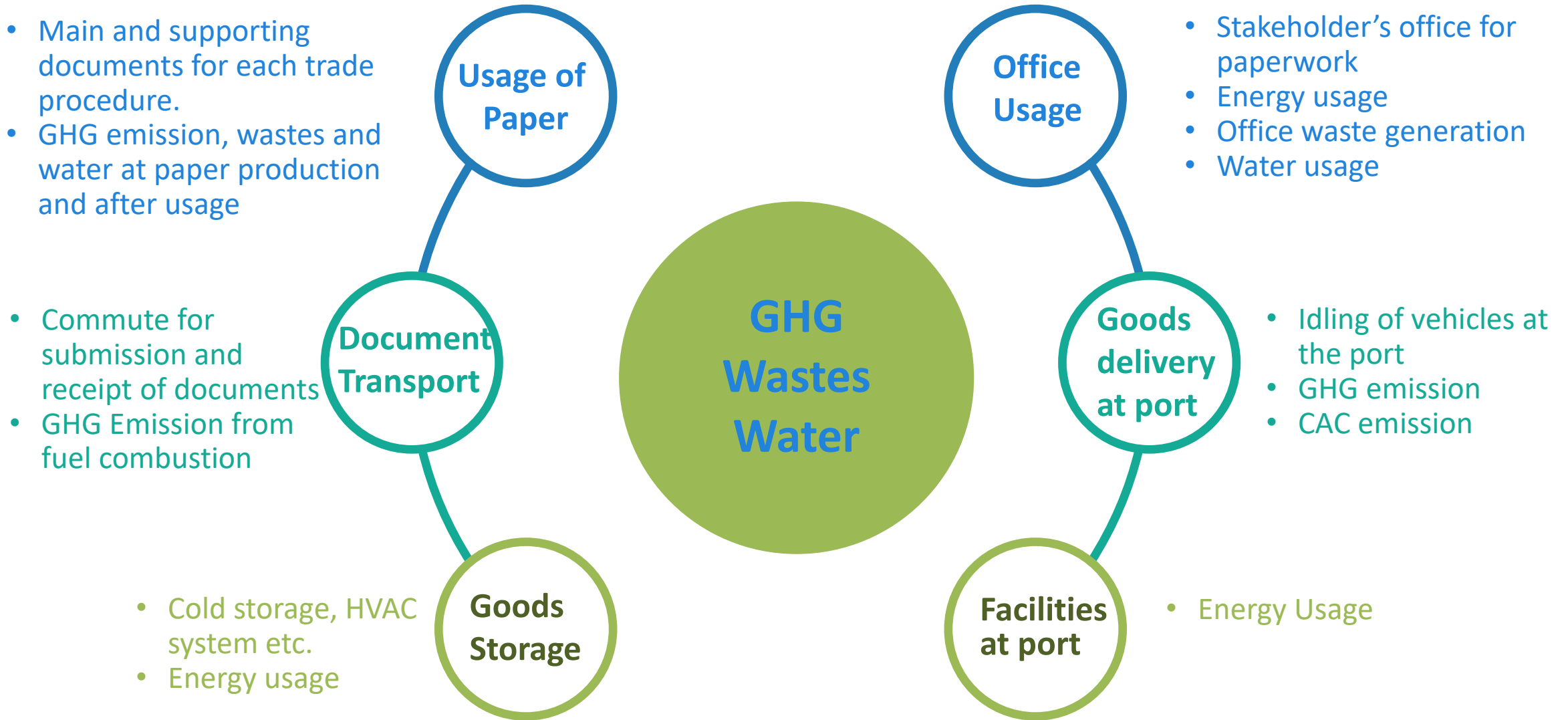
*The applicability of the emission factors and parameters are subject to change depending on the geographical location, scope and the activities.

Environmental Aspects

An environmental aspect is the way an activity, service or product impacts the environment (e.g. GHG emission)



Activities in trade processes and related environmental aspects



Environmental impact of paper-based trade process in a single export transaction (Phase 1)

Trade Processes	GHG Emission (gCO ₂ e)		Waste generation (g)		Water Usage (L)	
	Min	Max	Min	Max	Min	Max
1. Buy	1117	6216	11627	34899	2.27	8.17
2.1 Import raw material	5075	20239	23283	81566	6.81	30.87
2.2 Arrange shipment	116	1128	11600	34800	0	0
2.3 Prepare export documents	208	2254	11610	46483	0.91	7.26
2.4 Arrange inspection	276	6108	11616	34993	1.36	16.34
2.5 Obtain cargo insurance	2006	5041	1163e3	34908	2.72	9.08
2.6 Provide customs declaration	177	469	13050	13050	0.454	0.454
2.7 Transport to POD	85	951	11600	11600	0.454	4.99
2.8 Clear goods through customs	1102	2289	11628	34854	2.27	4.54
2.9 Handle container at terminal	2154	4839	11638	34923	3.18	10.44
2.10 Prepare documents required by importer	1291	2350	11638	23297	3.18	8.17
3. Pay	2410	3387	11661	23323	4.99	10.44
Total	16016	55272	152585	408696	29	111

Potential savings in environmental impact through the full implementation of paperless procedures (per transaction)

Environmental aspects	Trade Activities	Estimated environmental impact (per export transaction)			Potential savings in environmental impact from implementing paperless trade (per export transaction)		
		Min	Max	Avg	Min	Max	Avg
GHG emission (gCO ₂ e)	Paper usage	3001	11428	6331	16016	55,272	28381
	Ink usage	10	42	24			
	Document Transport	9600	20000	12320			
	Energy usage	3404	23802	9707			
	Total	16016	55272	28381			
Waste generation (g)	Paper usage	1784	2754	2191	68135	181394	110367
	Office usage	150800	406000	245856			
	Total	152584	408754	248047			
Water usage (L)	Paper usage	29	111	64	29	111	64
	Total	29	111	64			

Potential savings in environmental impact through the full implementation of paperless procedures (Global Level)



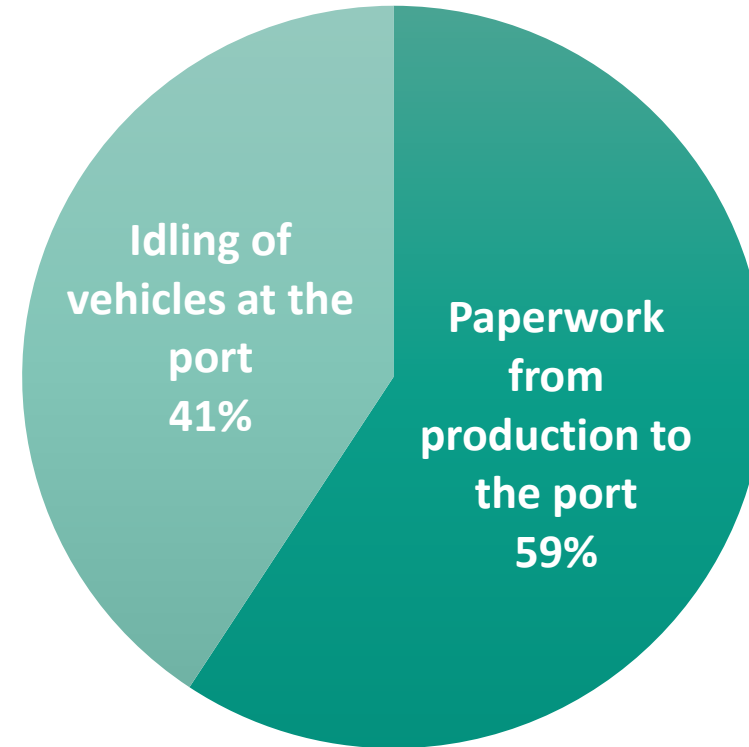
GHG savings is equivalent to planting 7 to 23 million trees in a year

Annually 46 to 123 thousands of garbage trucks of wastes can be less generated

Water saving is equivalent to the amount of water required to operate 76 to 296 thousands of residential clothes washers annually

Estimated Air Emission per transaction from Idling of vehicles during the export procedures at Chittagong Sea-port area (Phase 2)

Air emission	Estimated emission from idling (kg/ transaction)		
	Min	Max	Seasonal Demand
GHG emission (CO ₂ e)	11	24	146
NO _x	0.11	0.26	0.78
CO	0.10	0.19	0.57
HC	0.05	0.13	0.38
PM	0.01	0.02	0.07



Annual GHG and CAC emission from idling of vehicles during export procedures at Chittagong port area

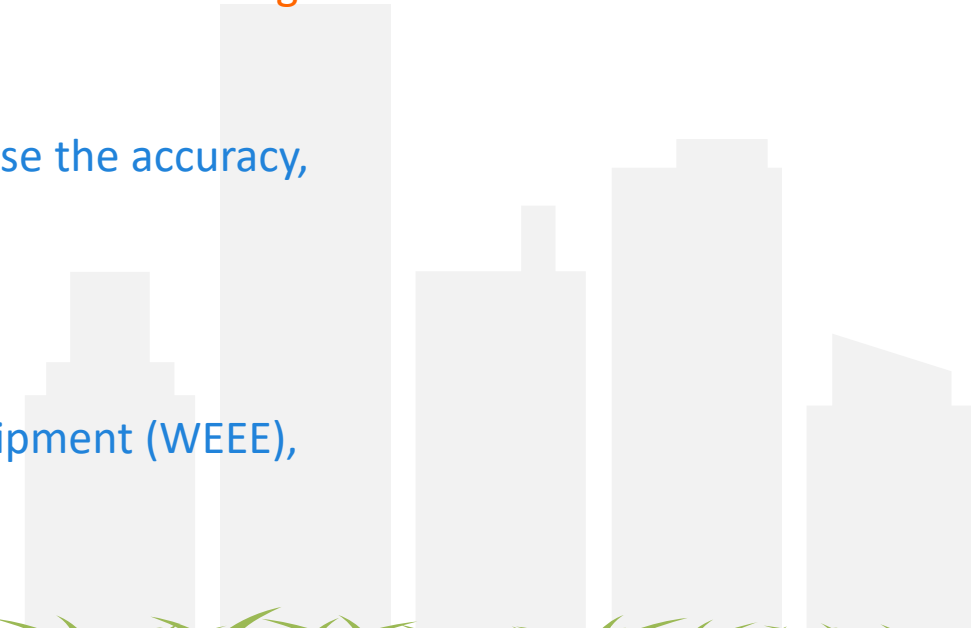
Air emission	Estimated annual emission from idling (tons/ year)	
	Min	Max
GHG emission (CO ₂ e)	17346	39517
NOx	185	423
CO	154	308
HC	89	203
PM	15	35

Adding up the emission from idling vehicles at the port, the total GHG emission from the textile export procedures in Bangladesh starting from the initial phase of paperwork to the delivery at the port is estimated at

- 27-78 kg CO₂e per transaction and 26-69 thousand tons CO₂e annually.
- This is equivalent to 0.8 to 2 million trees required offsetting this emission in a year.

Next steps towards climate-smart trade procedures

- A detailed Business Process Analysis (BPA) (supported by Time Release Study, if available) to identify the actual procedures and related times of export or import, and identify the sources of delays.
- Comprehensive primary research with multiple components and precise data to estimate the impact due to the procedural delays e.g. emission from the waiting of the ships, locomotives or cargo handling equipment, energy consumption in the building facilities, depots at the port etc.
- Assumptions need to be verified with further detailed research to increase the accuracy, e.g., time-delays, emission factors etc.
- More research in different sectors of trade e.g. Perishable goods
- Other environmental aspects e.g. Waste electrical and electronic equipment (WEEE), Fugitive emission etc.



THANK YOU

For further information, please contact: natasha.mahezabin@gmail.com

Case study available at:

<https://www.unescap.org/kp/2021/assessing-environmental-impact-trade-procedures-case-study-export-process-bangladesh>

