

Inventory of Lead Acid Batteries and Used Lead Acid Batteries in Bangladesh

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Used Lead Acid Batteries in Bangladesh

1. Introduction

Bangladesh is one of the world's most densely populated countries, and especially in the delta region where the rivers of the Ganges Delta flow into the Bay of Bengal.

Poverty is widespread, but Bangladesh has in recent years reduced population growth and improved health provisions and education services.



Bangladesh was formerly part of Pakistan and known as East Pakistan, a legacy of Indian Independence and only came into being in 1971, when West Pakistan split with East Pakistan after a bitter war that was only brought to an end when the Indian army intervened on the side of East Pakistan.

Following the war, the population of the new country of Bangladesh spent 15 years under military rule and, although democracy was restored in 1990, the political scene can, at times, seem somewhat unstable.

Islamist extremism has also been rising in the traditionally tolerant country.

Much of Bangladesh is low-lying and vulnerable to flooding, cyclones and potentially climate change if sea levels continue to rise.

Dhaka is the capital of Bangladesh and largest city with a population of over 18 million. It is also the country's main financial centre and cultural hub. Chittagong, the largest seaport, is also the second largest city. The population of Bangladesh is approaching 169 million citizens.

The country's biodiversity includes a vast array of plants and wildlife, including the world's largest mangrove forest and the endangered Bengal tiger, the national animal.

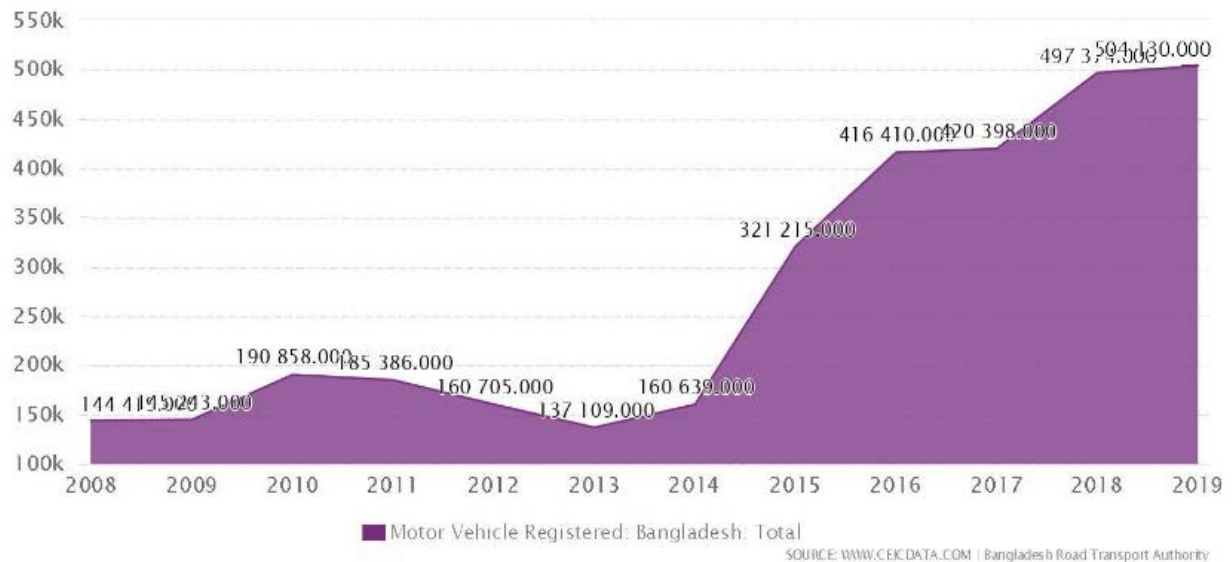
Bangladesh is a major textile and clothing manufacturer and exporting with the sector contributing USD\$ 35 billion to the economy.

Total GDP amounts to nearly \$317.5 billion USD (2019) and the annual growth rate is 8%¹.

¹ World Bank

2. Vehicle population

The number of motor vehicles registered in Bangladesh is reported to be 504,130 units as of units December 2019. The number of vehicles is, however, dwarfed by the number of motorcycles, amounting to over 2 million, that are not included in the official vehicle registration data published by the Government.



	Type of Vehicles	Up to-2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
1	Ambulance	2793	219	181	243	338	480	378	495	172	5299
2	Auto Rickshaw*	126763	20423	23545	15697	19897	20000	11173	9168	2425	249091
3	Auto Tempo*	14266	175	626	395	500	1095	1322	1592	451	20422
4	Bus	27778	1761	1439	1107	1488	2391	3833	3760	817	44374
5	Cargo Van	3522	489	282	687	608	399	1017	1413	413	8830
6	Covered Van	5658	2354	1421	2271	2869	2354	3340	5176	1675	27118
7	Delivery Van	17063	1004	774	894	1176	1719	2181	2410	715	27936
8	Human Hauler*	6520	1152	715	385	225	1142	3487	3393	497	17516
9	Jeep (Hard and Soft top)	32286	2134	1569	1314	1870	3601	4892	5425	1346	54437
10	Microbus	66379	4051	3044	2537	4313	5224	5804	5575	1248	98175
11	Minibus	25644	276	249	148	256	323	472	492	102	27962
12	Motorcycle	759257	114616	101588	85808	90685	240358	332057	326550	94740	2145659
13	Pick Up (D/Cabin)	32240	10460	7625	6553	9554	10257	11371	13512	3587	105159
14	Private Passenger Car	219830	12950	9224	10472	14699	21062	20304	21959	5160	335660
15	S P Vehicle	6371	396	226	227	172	296	620	993	305	9606
16	Tanker	2706	317	195	226	362	324	394	319	96	4939
17	Taxicab	44380	75	172	51	374	88	44	15	32	45231
18	Tractor	20600	5200	3494	1885	1522	1699	2576	2777	1114	40867
19	Truck	82871	7327	4335	5129	8136	6330	7275	10353	3325	135081
20	Others	1317	7	1	1080	1595	2073	3870	5021	1558	16522
	TOTAL	1498244	185386	160705	137109	160639	321215	416410	420398	119778	3419884

Bangladesh's Motor Vehicle Registrations: Totals from 1995 to 2019 (RTA)

The vehicle described as a “Human Hauler*” may not be a term familiar to anyone outside of Bangladesh, but it is best described as a converted open truck that carries people.



A typical “Human Hauler”

To avoid any confusion with the vehicles described and known as “Auto Tempo” and “Auto Rickshaw”, here are illustrations of both vehicles. As can clearly be seen in the photographs, the Tempo can carry more passengers than the Rickshaw



Typical Auto Tempo



Typical Auto Rickshaw

Human Haulers, Auto Tempos and Auto Rickshaws are currently banned from main highways in Bangladesh due to the high accident rates associated with these vehicles².

² Road Transport Authority

Estimates for the number of e-rickshaws vary from the Dhaka tribune's report of approximately 500,000 to the e-rickshaw's association's estimate of 1,500,000. These vehicles are typically powered by 4 to 6 lead acid batteries³ weighing 20 to 30 kilos, and taking about four hours to fully recharge providing a range that will serve for a full days' work.

It should also be noted that the number of auto rickshaws of all descriptions listed in the official government statistics may be a serious underestimate of the actual number of rickshaws on the road. The reason being that some 30 years ago the Dhaka City Corporation stopped issuing licences to rickshaws, because the rickshaws were considered by the City Corporation to be one of the main contributors to traffic gridlock in the capital. Since then it would appear that licence plates are still being issued, albeit illegally, with some drivers paying up to Tk 15,000 (USD\$ 180), which amounts to about 3 months earnings. On top of the initial outlay, in order to "keep" the license plate, divers are required to pay about Tk 500 every quarter. This trade in license plates means the municipal authority is losing income and worse still, the government have no idea how many rickshaws are on the streets. According to the two Dhaka city corporations, there are nearly 80,000 licenced rickshaws in the capital, but a Buet⁴ study put the number of illegal rickshaws at about one million, in fact, more that the total number of officially licensed rickshaws in Bangladesh, which number nearly 290,000.

3. Solar Power Generation

More than a quarter of the rural population in Bangladesh do not have access to a main grid electricity supply and that means for millions of families, cooking, working and studying are difficult, or even impossible, after sundown.

However, the Government of Bangladesh have initiated one of the world's most ambitious domestic solar energy programmes. With the support of the World Bank and other international development organizations and donors, together with the private sector, affordable home and work place solar-powered electricity is being installed in locations where grid electricity would be too expensive to install or where the geography makes it difficult to reach.

The small-scale solar systems have been installed in more than 4 million properties, including 13 mini-grid installations, providing electrical power to over 20 million of the population and irrigation to over 1,000 small holdings and 6,000 farmers⁵.

Of note here is the fact that the energy storage media of choice is the Lead Acid Battery.

³ <https://www.dhakatribune.com/bangladesh/power-energy/2017/09/27/pdb-bringing-battery-run-vehicles-tariff-regulations>

⁴ Rickshaws Revisited: Saimum Kabir, 2018 - <https://contextbd.com/rickshaw-revisited/>

⁵ World Economic Forum, 2018, Riccardo Puliti: <https://blogs.worldbank.org/energy/grid-bringing-power-millions>

4. Telecommunications

Mobile communications in Bangladesh are improving at a pace, and need to, to maintain the economic momentum. Currently there are four main players, namely:

- Banglalink (by international. Vimpelcom)
- Grameenphone (joint venture with Telenor)
- Robi-Airtel (Malaysian Axiata Group and Indian Bharti Airtel merging their networks).
- Teletalk (state-owned)

Out of the Four operators, Teletalk, Grameenphone, Robi, & Banglalink offer 3G nationwide, and 4G services in 64 districts of Bangladesh, and Banglalink provides a 3G service in all regions.

None of the telecoms companies have any CDMA Base Stations and only have GSM systems. In total there are over 47,269 GSM stations, but most of them are equipped with Lithium Ion batteries and not Lead Batteries. It would appear that the telecoms equipment adopted by the companies in Bangladesh has been imported from China⁶, and the equipment would have been installed with batteries manufactured in China. As telecoms batteries are made to a high specification with a guaranteed life of at least 15 years, it is not unreasonable to assume the any replacement batteries would be imported from China. Assuming that is the case, then the replacement batteries would be recorded in the Comtrade data base as Industrial batteries. Although it is not possible to determine exactly how many tonnes of used Lead batteries are generated currently, because many, if not most of the GSM stations are not 15 years old and so will not be adding to the recycling burden for a few more years. However, as and when replacement Telecoms VLRAs batteries do come to the end of their working lives, it is likely that they will be replaced on or just before their guaranteed life expectancy, so that the telecoms network does not fail. Therefore, in a mature Bangladesh telecom network nearly 2,000 mt of ULAB will be generated annually, assuming no growth in the network. Going forward as consideration is given to developing a strategy for managing the Lead risk posed by ULAB recycling, this estimate of telecoms ULAB will become more significant and so it is included in the current estimates, especially as the mobile network will expand.

Network	GSM Stations	VRLA @ 24/unit	LAB Weight mt	ULAB Weight mt
Banglalink	14,000	336,000	9,744	584
Grameenphone	15,900	381,600	11,066	664
Robi	8,392	201,408	5,841	350
TeleTalk	8,977	215,448	6,248	375
Totals	47,269	1,134,456	32,899	1,973

⁶ <https://www.ceicdata.com/en/indicator/china/exports-telecommunication-equipment>

For many people in Bangladesh, affordability is an issue, but despite this barrier, the mobile communications industry in Bangladesh has increased dramatically over the last decade to become the fifth largest mobile market in the Asia Pacific region with over 85 million subscribers in 2017, or half the population of Bangladesh⁷. Projections suggest that by 2022 the number of mobile phone subscriber will reach 100 million.

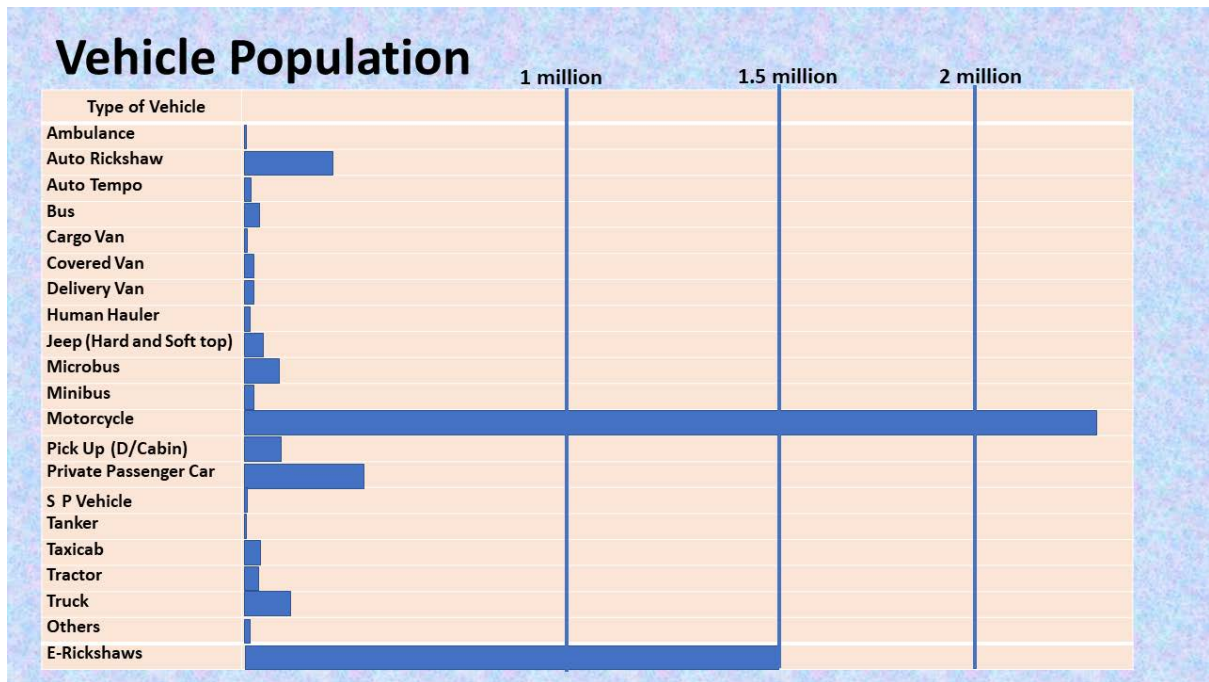
5. Used Lead Acid Batteries (ULAB) in Bangladesh

Bangladesh is a hot country and the average life of SLI automotive and motive Lead batteries in such countries is normally two years, although e-rickshaw batteries are sometimes failing after 3 or 6 months. Nevertheless, assuming that SLI vehicle battery life is about two years and the e-battery lasts for about 6 months, the following tabulation can be prepared and the approximate number of ULAB determined. Other assumptions are that the Lead average weight of automobile SLI batteries is 14 kilos, the fully electric e-rickshaw battery weighs around 20 kilos and the cycle version 14 kilos with one LAB in the cycle version and at least four in the e-version, and the average weight of truck and bus batteries is 25 kilos. The average weight of a solar system battery is taken at 10 kilos with a useful life of 5 years.

Lead Battery Use	Numbers	Av. Weight kg	Total Weight mt	ULAB Generated mt
Automotive – cars + vans and taxis	613,977	14	8,596	4,298
Motorcycles	2,245,659	5	11,228	5,614
All Rickshaws (+ minibuses)	1,000,000	5	5,000	2,500
e-rickshaws	1,500,000*	30	45,000	90,000
Trucks + Tractors + Ambulances	186,116	25	4,653	2,326
Buses (+ mini-buses + others)	88,858	25	2,221	1,111
Telecom	1,134,456	29	32,899	1,973
Industrial	Unknown	Unknown	10,330	2,066
Solar systems	4,000,000	10	40,000	8,000
Totals			159,927	117,888

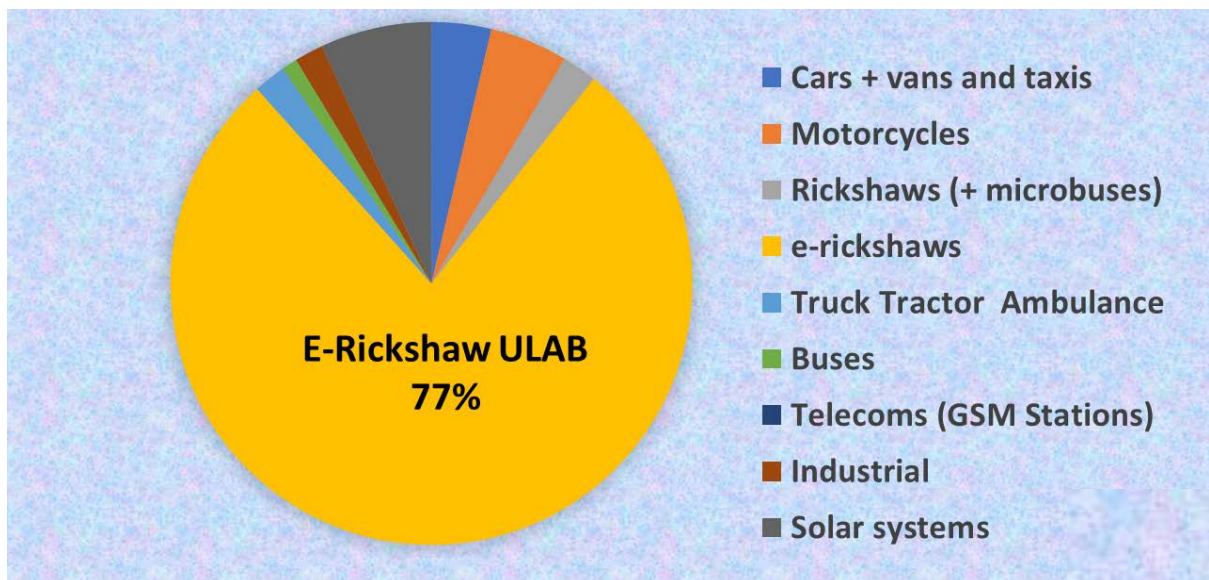
*Estimate based on data provided by the e-rickshaw association

⁷ GSMA Country overview: Bangladesh, Mobile industry driving growth and enabling digital inclusion, Mike Rogers, 2017: <https://www.gsmaintelligence.com/research/?file=a163eddca009553979bcdfb8fd5f2ef0&download>



Motorcycles and e-Rickshaws dominate the LAB replacement market

The data once collated and analysed shows that the amount of Lead Batteries in use is nearly 160,000 mt and ULAB generated annually is almost 118,000 mt and this figure also represents the LAB replacement market.



77% of the ULAB generated annually are from e-rickshaws

The estimates calculated from the data collected indicates that the ULAB generated by the e-rickshaws account for 77% of the total ULAB generated annually.

6. UN COMTRADE Data Analysis

The only full set of data available is from 2018.

6.1 Imports of Lead Acid Batteries

HS Code	Type of LAB	Tonnage – Metric tonnes
850710	Automotive for cars, trucks, buses and motorbikes	1,044
850720	Non-Automotive Industrial batteries	3,939
	Total	4,983

The cost of the Automotive Battery imports was USD\$ 3,297,767 and the cost of the Industrial Battery imports amounted to USD\$ 19,682,116. 55% of the Automotive Lead Battery imports were from India and 24% from China. 92% of Industrial Lead Battery imports were from China.

The fact that 92% of Industrial LAB imports were from China adds weight to the assumption that the OEM Telecom LAB used in the GSM stations were manufactured in China and the replacement LAB are also being imported from China together with Industrial LAB for other applications.

It is therefore likely that the 3,939 mt. of imported Industrial LAB were replacement LAB and if just over 1,900 mt. of LAB were destined for the Telecommunications sector, then the amount of replacement Industrial LAB is just over 2,000 mt. On the basis that Industrial LAB are manufactured to last at least 5 years, the amount of Industrial LAB in use is in the region of 10,000 mt.

6.2 Imports of Refined Lead and Lead Scrap

HS Code	Type of LAB	Tonnage – Metric tonnes
780110 – 780191 - 780199	Refined Lead	19,417
780200	Lead Scrap	1,729
	Total	21,146

The cost of importing the refined Lead was USD\$ 56,574,885 and the cost of the Lead Scrap was USD\$ 495,000.

Bangladesh does not have any indigenous supplies of Lead and so any shortfall in supply that cannot be met by domestic recycling must be imported either as refined Lead ingots or scrap Lead.

Of the imported refined Lead, 47% of the refined Lead was imported from India, 22% from Thailand, 15% from the Republic of Korea and 9% from other non-specified countries in Asia (listed as Asia NES).

One significant omission from the Comtrade data was ULAB and cross referencing every country in the world exporting ULAB confirmed that Bangladesh is not importing ULAB.

6.3 Exports of Lead Acid Batteries and Refined Lead

HS Code	Type of LAB	Tonnage – Metric tonnes
850710	Automotive for cars, trucks, buses and motorbikes	11,277
850720	Non-Automotive Industrial batteries	99
780110 - 780191 - 780199	Refined Lead	7,189
	Total	18,565

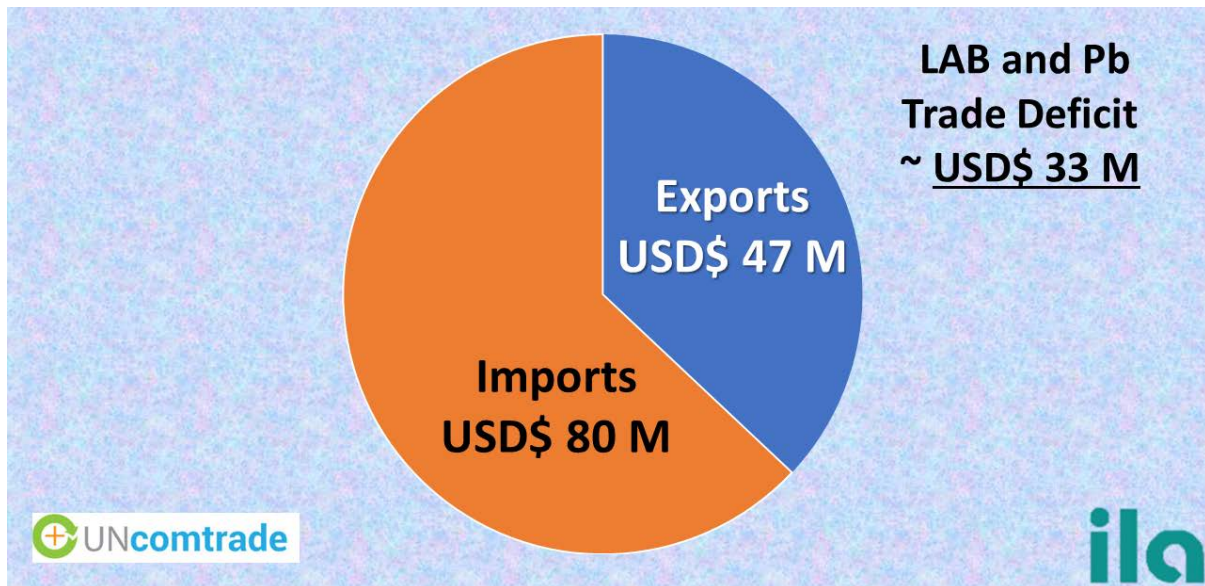
Bangladesh exports Automotive LAB to over 70 countries and in 2018 exported nearly 11,300mt of batteries earning USD\$ 29,115,528 for the Industry.

The UAE purchased 15% of the exports, Kuwait 14%, Singapore 11%, India and the Russian Federation 10%, China 9% and Australia 7%.

Exports of Industrial LAB amounted to 99 mt, valued at USD\$ 422,392 and 83% of the exports were shipped to Australia. The export of 99 mt of Industrial LAB to Australia confirms that Bangladesh does manufacture Industrial LAB, but the amount is so small that the trade is probably linked to one specific item of equipment.

Bangladesh also exported 7,189 mt of refined Lead to India adding USD 17,346,213 to earnings for the recycling Industry sector.

Total sales of Automotive and non-Automotive LAB and refined Lead in 2018 amounted to USD\$ 46,884,133. Whilst export sales of LAB and refined Lead are impressive, it must be borne in mind that imports of LAB, refined Lead and Lead Scrap amounted to USD\$ 80,049,768 leaving a Lead trading deficit of USD\$ 33,165,635.



There is a USD\$ 33 M trading deficit in LAB, Refined Lead and Lead Scrap

7. LAB Manufacturers and ULAB Recyclers in Bangladesh

19 companies that either manufacture LAB, recycle ULAB, or are integrated and perform both operations are registered with the Government. 17 are listed below.

- Panna Group - <http://www.pannagroupbd.com/about-us/>
- Rahimafrooz Batteries - <http://www.rahimafrooz-batteries.com/about/>
- Silva- Abdullah Battery Co. Ltd. (HAMKO Gp) - http://www.hamko.com.bd/about_us.php
- Rimso Battery and Co. - <https://rimsobd.com/rb.php>
- J. Co. Battery Engineering Works - <http://www.jcobattery.com.bd/profile>
- Suntech Energy Ltd. (Update Group) - <https://updategroupbd.com/index.html>
- A&P Battery Industries Ltd. - <http://www.poushigroup-bd.com/about/>
- Geli Industrial Co. Ltd. - Ansar Road, Shripur , Gazipur, Gazipura, Dhaka, Bangladesh 1040
- General Battery Co. Ltd. - 192, Shahid Syed Nazrul Islam Swarani (5, Bijoy Nagar), Dhaka 1000, Bangladesh
- Rangspower Ltd. - <http://rangspower.com.bd/about/>
- ECO Batteries Ltd. – Distributer
- Electro Battery Co. Ltd. - <http://electrogroupbd.com/index.php/page/view/377>
- SAIF-Saif Powertec Ltd. - <http://www.saifpowertec Ltd.com/aboutus.php>
- DJDC-DongJin Longevity Industry Ltd. - <http://www.dongjin-battery.com/company/company-profile.html>
- Silicon Power Ltd. – Auto battery store
- Navana Batteries Ltd. - <http://navana-battery.com/about-us/>
- Fatema Traders Lead Smelting - Goalbari, Shimulia, Savar, Dhaka

Rahimafrooz Batteries Ltd is the largest lead-acid battery manufacturer in Bangladesh and the main exporter to overseas markets. The company manufactures about 200 different varieties of batteries for automobiles, IPS and other appliances at its manufacturing plants located at Ishwardi in Pabna, and Birulia and Zirani Bazar of Savar in Dhaka.

Further investigation is required to confirm which companies recycle ULAB.

8. Conclusions

Motor vehicle ownership at just over 2 vehicles per thousand of population in Bangladesh is one of the lowest in the world and this is reflected in the estimates for the tonnage of motor vehicle LAB in use at nearly 8,600 mt. However, motorcycle ownership amounts to nearly 2,500,000 and consumes over 11,000 mt of LAB.

The excellent weather conditions for Solar Energy production in Bangladesh and the Government's drive and commitment to introduce Green energy generation has led to the installation of over 4,000,000 home and business units with LAB the preferred energy storage medium.

The size and capacity of the LAB storage batteries will vary from about 10 kilos up to 50 kilos depending on the energy requirements, but initial estimates of the number of LAB units in operation indicates that about 40,000 mt of LAB are in use with an average useful life of 5 years. The solar energy program is still in the implementation stage and the number of installations is due to increase considerably as more villages in rural areas are supplied with the solar energy kits.

Bangladesh is more likely to feel the adverse impacts of global warming than most countries, because so much of the land mass is not much above sea level and prone to flooding if the sea levels increase. There is, therefore, every reason for the Government of Bangladesh to implement Green policies so that it can make its case for other nations in the world to reduce Green House Gas emissions.

In this respect the Government has embraced the introduction of electric rickshaws, so much so, that unlike the owners of gasoline or LPG powered rickshaws (Tuc Tuc), the owners of e-rickshaws are not obliged to register them with the Road Transport Authority. The owners of the e-rickshaws welcome the fact that registration is not required, but the lack of any registration means that it is very difficult to determine how many e-rickshaws are in use. The best estimates are from local and national newspaper reports that suggest about 500,000 are in use, but the e-Rickshaw driver's association puts the estimate at 1.5 million.

What is clear from an economic perspective is that irrespective of any environmental benefits with the introduction of e-rickshaws, the fact that they cost about one tenth of the running costs of a traditional gasoline Tuc Tuc and that they pay for themselves in about 7 months, means that the number of e-rickshaws on the roads will increase.

The power assisted pedal e-rickshaws have only one LAB and the larger 4 and 6 seater models, between four and six LAB. Feedback from owners and drivers of e-rickshaws suggest that there is a problem with the motive LAB that are available for the e-rickshaws because many drivers have to buy replacement LAB every three to six months.

Ideally the LAB should last for at least 12 months and the fact that the useful life is so short, suggests that either the LAB on sale in Bangladesh are poor quality or they are the wrong type of LAB. Of course, it is also possible that the drivers are buying cheap and poor-quality motive LAB.

LAB used for motive power, especially in a country where only 9.5% of the roads are paved, should be of the Absorbent Glass Mat (AGM) type of LAB. The AGM battery is specially designed and assembled so that they are extremely resistant to vibration because the plates are compressed in an electrolyte gel with the battery sealed and under vacuum, thereby rendering it spill proof and maintenance-free.

If there are 1,500,000 e-rickshaws in operation⁸, then there is likely to be about 45,000 mt of LAB in use. Considering the short useful life of a rickshaw LAB, then the replacement market for Motive LAB for e-rickshaws will be in the region of 90,000 mt per annum based on information from the drivers that LAB only last about 6 months.

The precise data available for LAB use and consumption in the state-owned and private telecommunications companies GSM base stations (global system for mobile communication), reveals that most of the stations are using Lithium Ion batteries. Nevertheless, LAB account for over 1.1 million units in the GSM stations amounting to over 33,000 mt. The LAB currently in use in the GSM stations are manufactured to a very high standard and have a life span of 15 years. At present it is unlikely that the GSM LAB are at the end of their useful life as most of the stations are not 15 years old.

As the mobile network matures so will the tonnage of ULAB generated. If the network remains the same size as it is currently, then the tonnage of ULAB generated will be in the order of 2,000 mt., but the network will continue to grow for a number of years and the tonnage of telecoms ULAB will increase annually.

⁸ Data supplied by the e-rickshaw association

Only a few LAB manufacturers in Bangladesh appear to manufacture Industrial LAB, such as those used in Forklift Trucks (FLT), Rahimafrooz Batteries being one. Over 90% of the Industrial LAB imported are from China and could be a mix of Telecoms and Industrial LAB, indicating that the non-telecoms market for replacement LAB is just over 2,000 mt. This would imply that the amount of Industrial LAB in use will be in the order of 10,000 mt. given that the life of Industrial LAB is about 5 years.

The total amount of ULAB generated annually in Bangladesh is estimated to be in the region of 118,000 mt, based on the LAB inventory analysis and the various life cycles for each category of LAB and their respective applications. The annual tonnage of ULAB generated means that it is entirely possible for three or four medium sized ULAB recycling plants (30,000+ mt capacity) to operate in a sustainable, environmentally sound manner and be financially viable.

Such a scenario would be a major improvement in the environmentally sound management of ULAB, because the Lead Battery Manufacturers Association in Dhaka, believe that upwards of 80% of the Lead recycled in Bangladesh is produced in the informal sector. Without knowing exactly the tonnage of ULAB recycled in the formal sector, it is difficult to confirm the amount of ULAB recycled informally, but in the absence of any official Lead production data or records of the capacities of LAB manufacturers licensed to recycle ULAB, the default position is that the informal sector may well be the major source of Lead for the LAB manufacturing sector.

In addition to the domestic LAB replacement market of about 118,000 mt, the LAB industry sector also exports nearly 11,500 mt of Automotive and Industrial LAB indicating that the LAB manufacturing output from Bangladesh is in the order of 130,000 mt of LAB.

The refined Lead required to produce 130,000 mt of LAB is in the region of 78,000 mt. The ULAB generated annually will yield just over 70,500 mt of Lead, leaving a shortfall of approximately 7,500 mt.

However, in 2018 just over 19,400 mt of refined Lead was imported together with over 1,700 mt of Lead scrap (normally Lead scrap has a high Lead content approaching 99%), a total of approximately 21,150 mt.

The fact that the shortfall in refined Lead to produce LAB and the imports of refined Lead and Lead scrap to enable the LAB manufacturers to meet demand do not match, indicates:

- The licensed LAB manufacturers and ULAB recyclers are not collecting all the ULAB and recycling them within the licensed sector of the Industry
- Just over 13,500 mt of Lead content in ULAB is unaccounted for in the inventory

- The informal sector might be selling the Lead bullion they produce for export – albeit informally through a cross border trade
- That if the licensed LAB manufactures and ULAB recyclers could collect and recycle all the available ULAB, the shortfall in refined Lead would be close to 7,500 mt and save approximately USD\$ 35,000,000 on the balance of payments, because the industry would only need to import 7,500 mt of Lead instead of 21,000 mt.

The prices paid by LAB manufacturers in Bangladesh for the imported refined Lead included a premium to cover the cost of transport and so on, meaning that the price per metric tonne of Lead was over USD\$ 700 above the LME price per metric tonne. Paying such a premium over the LME Lead price would be unnecessary if more ULAB could be recycled by the formal industry sector. In house ULAB recycling means that the refined Lead can be transferred from the recycling cost centre to the LAB manufacturing sector at the LME price without any premium and a very low transport cost if the LAB manufacturer is integrated, that is manufacturing LAB and recycling ULAB in the same unit. Such measure will directly improve the bottom line of the balance sheet for any LAB manufacturer with and integrated LAB and ULAB operation.

Bangladesh Import / Export Trade Analysis 2018

Customs HS Code	Bangladesh Imports Auto LAB	Bangladesh Imports Other LAB	Bangladesh Imports Ref. Lead 780110 780191	Bangladesh Imports Lead Scrap 780200	Bangladesh Imports ULAB 854810	Bangladesh Exports Auto LAB 850710	Bangladesh Exports Other LAB 850720	Bangladesh Exports Ref. Lead 780110 780191	Bangladesh Exports Lead Scrap 780200	Bangladesh Exports ULAB 854810
Asia NES	850710	850720	70	1,766,517						
Australia				1,404,710		752,658	83,120			
Austria		10								
Bangladesh										
Bahrain						63,844				
Belgium		2,380				27				
Benin	74,000									
Bolivia						112,390				
Burundi						94,845				
Chile						1,080,247				
China	246,453	3,609,160	120,906					50,000		
Czech Republic		98								
Estonia		1,674								
France		16,513								
Germany	2,262	1,714								
China, Hong Kong SAR		2,215								
Indonesia	51,883					306,487				
Italy		12,409								
Cote d'Ivoire						45,234				
Japan	55,209	2,547				94,788				
Rep. of Korea	11,920	2,340	2,886,598							
Lebanon						390,769				
Kenya						32,972	15			
Kuwait						1,601,990				
Malaysia	615	309	700,850			9,071				
Maldives						35,196	13,754			
Mauritius						78,432				
Myanmar			147,274	200,000						
Pakistan						656	1,619			
Philippines						70,169				
Poland						92,527				
Qatar						474,327				
Russian Federation		163				1,152,545				
Saudi Arabia						79,818				
Sechelles						47,503				
India	577,752	171,610	9,104,229			1,165,894	646	7,139,000		
Singapore	1,354	73,950				1,221,620				
South Africa			477,288							
Spain		7								
Switzerland							1			
Tanzania						129,826				
Thailand	6,187	13,171	4,188,620			485,344				
Turkey		10,968								
UAE	16,380	2,409				1,657,886				
United Kingdom		13,690	24,360			33				
USA		1,191		124,004						
Totals	1,044,015	3,938,598	19,416,642	1,728,714	0	11,277,098	99,155	7,189,000	0	0
Totals in Metric Tonnes	1,044	3,939	19,417	1,729	0	11,277	99	7,189	0	0
Total Weight of Lead Metric Tonnes	626	2,363	19,417	1,729	0	6,766	59	7,189	0	0
Estimated value USD\$	3,297,767	19,682,116	56,574,885	495,000		29,115,528	422,392	17,346,213		
Gross Weight of Lead Imports mt	24,135									
Gross Cost of LAB and Lead Imports USD\$	80,049,768									
Gross Weight of LAB Exports mt						14,015				
Gross Income from LAB Exports USD\$						46,884,133				