

Assembly and Refurbish of Mobile Handsets in Nepal

Final Report

On

Assembly and Refurbishing of Mobile Handsets in Nepal

For

Nepal Telecommunications Authority

Jamal, Kathmandu

June, 2021

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ACKNOWLEDGEMENT

It is our pleasure and privilege to bring out this final report on Assembly and Refurbish of Mobile Handsets in Nepal. The Working Group is grateful to Mr. Purushottam Khanal, Chairman of Nepal Telecommunications Authority for entrusting the Committee Members for this important Assignment. We are especially thankful to the concerned stakeholders including NTA, Department of Custom, Nepal Mobile Distributors Association (NMDA) and other concerned stakeholders with regard to contribution by providing relevant data, valuable suggestions and guidance during the assignment period to derive this Final Report.

The Working Group would like to extend special thanks to Expert Member Er. Subash Bajracharya from NH Nepal Pvt Ltd who has significant contribution to prepare this Report incorporating the suggestions, guidance and feedback from the other officials of the Working Group. We hereby would also like to thank to all who directly and indirectly assisted in preparation of this Report.

June, 2021

Working Group


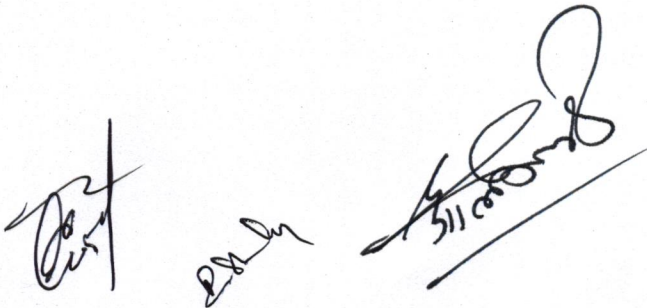

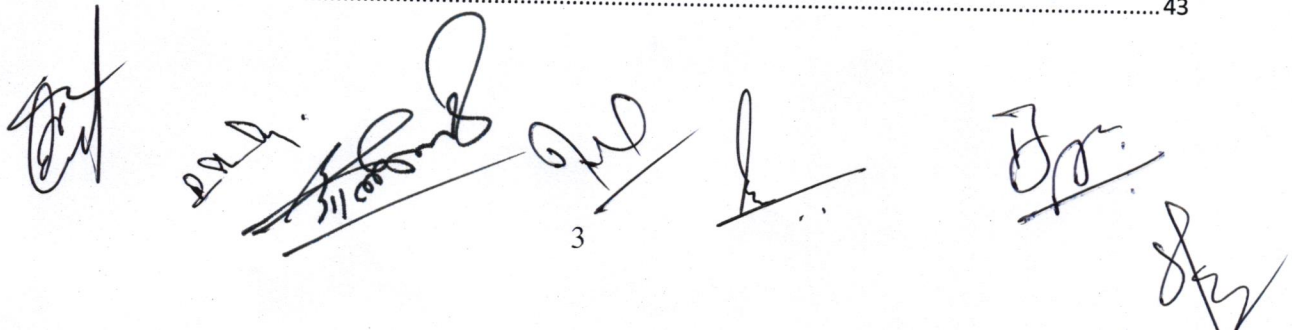



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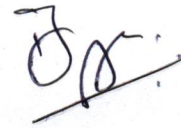
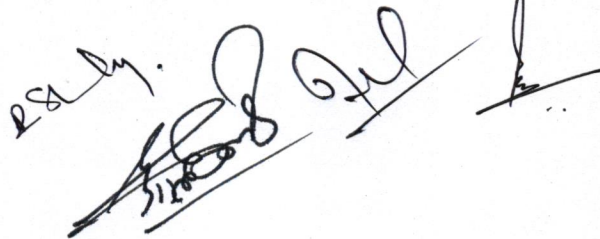
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List of Abbreviations

<u>Abbreviation</u>	<u>Description</u>
CIT	Corporate Income Tax
CTEVT	Council for Technical Education and Vocational Training
ESD	Electrostatic Discharge
EVFTA	EU-Vietnam Free Trade Agreement
FIE	Foreign Invested Enterprise
FTA	Free Trade Agreement
GSMA	GSM Association
HSC	Harmonic Systems Commodity
IMEI	International Mobile Equipment Identity
MDMS	Mobile Device Management System
MoCIT	Ministry of Communications and IT
MoF	Ministry of Finance
MoHA	Ministry of Home Affairs
MoIC	Ministry of Industry & Commerce
MPIA	Mobile Phone Importers Association
NMDA	Nepal Mobile Distributors Association
NTA	Nepal Telecommunications Authority
OEM	Original Equipment Manufacturer



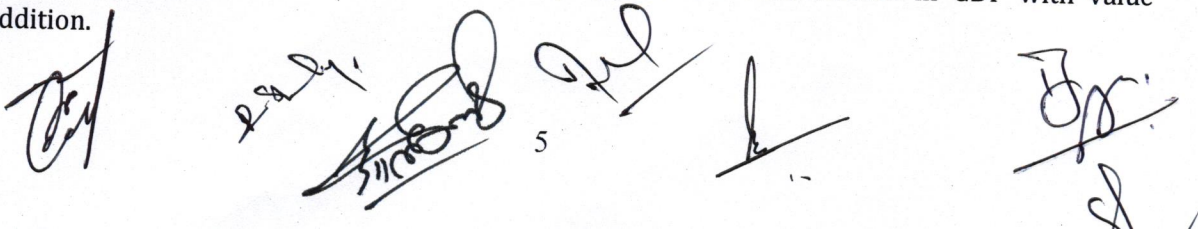
1 Background

Nepal has come a long way since the introduction of GSM Mobile service back in 2001. Now mobile coverage has extended to even remote parts of the country and reached a subscription of 130.8% of population (NTA MIS of 13th March 2021). Just like everywhere else in the world, this has brought phenomenal changes in society, lifestyle and economy. Mobile technology is also one of the fastest growing both in the network side and the hand held devices which has become an integral part of everyone from the young to the old. With the advancement in technology and usage, the demand of mobile handsets is also growing equally fast. The mobile phone market is one of the most fiercely competed and to maintain an edge in the market all the top brands bring out new models each year with advanced and attractive features. There are basically two categories of mobile phones, the costly and feature rich Smart Phones and Bar Phones or Feature Phones. In Nepal the ratio of Smart and Bar phone is about 65% to 45% in reference to NTA Report relating to Study for effective Management of Mobile Imports & their use (dated 2077/09/13) with Smart phone share increasing gradually with the increase in data network coverage. As per a GSMA report on Mobile Phone Recycles (GSMA, 2012) in developed countries, consumers change their smart phones as quickly as 18 months with this period longer in developing countries. There is no authentic data in connection with average period of usage of a smart phone in Nepal but roughly it is expected that it'd be around 2~3 years.

In Nepal, import data of last 4 years shows average of 5.2M mobile units worth NRs. 21Bn per annum were imported on average. (Customs Dept. GoN, Detailed figures in Annex -1). Mobile Phones accounted for 3.39% of total import in the first four months of 2077/78. For a country like Nepal this has significant impacts in,

- Widening gap in the Export and Import thus increasing imbalance
- Depletion of valuable foreign reserve
- Accumulation of electronic waste.

Without going into minor details, the 3 major issues mentioned above are crucial enough to **explore the possibility of establishing an Assembly plants and Refurbish centers in Nepal** which will bring other benefits such as employment and contribution in GDP with value addition.



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Mobile phone is the third most traded commodity in Nepal. As per customs data, Mobile phones valued at Rs 13.65 billion entered the country during the first four months of current fiscal year 2077-78. So far demand of Mobile phones is fulfilled 100% by imports. In such a condition, establishment of the manufacturing/assembly and/or refurbish company for mobile handset can reduce drain of Nepalese economy. Mobile industry can make Nepal economically strong. It also helps to reduce unemployment problem. As per NTA's decision of 2077/11/09 a Working committee was formed with representation from concerned ministries and private sectors as mentioned hereunder to study and explore possibility of establishing Assembly Plants and Refurbishing of Mobile handsets industry in Nepal:

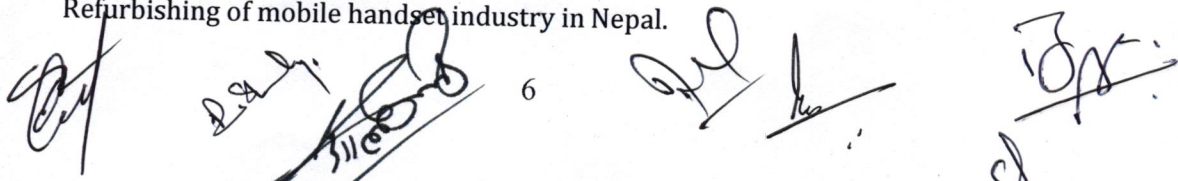
Structure of the Working Committee:

1.	Mr. Min Prasad Aryal,	Director, Standardization Division, NTA	Coordinator
2.	Mr. Subhas Bajracharya	Expert, NH Nepal Pvt. Ltd.	Member
3.	Mr. Dinesh Mainali	Deputy Director Equipment Standardization Section, NTA	Member
4.	Ms Renu Shakya	Representative Ministry of Communication & IT	Member
5.	Mr. Gopal Prasad Bhattarai	Representative, Ministry of Finance	Member
6.	Mr. Prabhakar Shamsher Thapa	Representative Mobile Phone Importers' Association	Member
7.	Ms. Pragya Dhungana	Assistant Director Equipment Standardization Section, NTA	Member- Secretary

2 Objective & Scope of Work:

The objective of this assignment is to study and explore possibility of establishing Assembly Plants and Refurbishing of Mobile handsets industry in Nepal. The scope of work as listed in the assignment is:

- a) Study and identify the stakeholders in relation to establishment of Assembly and Refurbishing of mobile handset industry in Nepal.



- b) Study and analyze current developments in Nepal and international trends in this regard.
- c) Study of employment opportunities and other income generation from the Mobile Assembly and Refurbish industry in Nepal.
- d) Identify the roles and responsibilities of GoN, NTA, Mobile Importers and other stakeholders for the mobile refurbishing and assembly in Nepal.
- e) Study for working procedure for facilitation of establishing the Assembly and Refurbishing of mobile handsets industry in Nepal.

3 Working Methodology

The methodology used to carry out this Assignment was as follows:

- Data Collection either from primary or secondary source
- Study current status and trends of mobile handset refurbishing in Nepal and in International market through web searching.
- Discussion within the Committee and other Stakeholders to receive feedback and data.

4 Statistical data on Mobile phones

In order to get an idea on the size of market, the growth rate and work done so far by NTA in managing Mobile phones, statistical data available from few years are compiled as below:

4.1 Import of Mobile handsets

As per the data of the Department of Custom, the number of Mobile phone imports and the associated value since 2073/74 till Baisakh of this year (2077/78) is given in the table below:

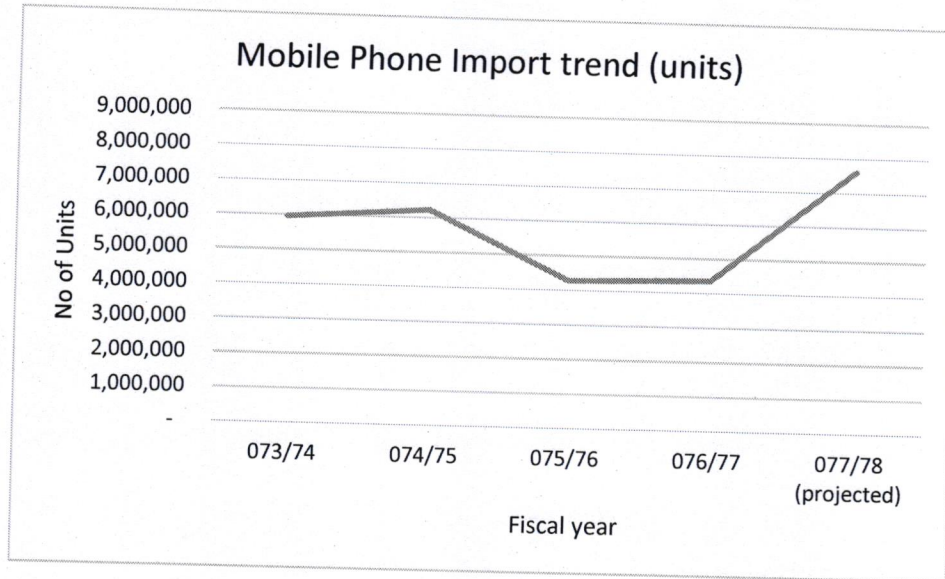
(Figures of value in NRs. Lakh)

Fiscal Year	HS Code	Particulars	Units	Qty(Pcs)	Total Value Rs(CIF)	Total Gov Revenue
2077/78 (till Baishakh)	8517.12.00	Mobile Phone Set	Pcs	6355234	321,000	50,794
2076/77	8517.12.00	Mobile Phone Set	Pcs	4365990	182,000	28,791
2075/76	8517.12.00	Mobile Phone Set	Pcs	4275518	192,770	35,250
2074/75	8517.12.00	Mobile Phone Set	Pcs	6223665	248,784	33,876
2073/74	8517.12.00	Mobile Phone Set	Pcs	5954538	226,617	29,455

Source: Custom Department

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Assembly and Refurbish of Mobile Handsets in Nepal



The Mobile phone imports trend shows, there's a dip in the fiscal year 2075/76 and 2076/77 most probably attributed to the Covid 19 Pandemic, but the projected data for 2077/78 (based on data till (Baisakh), there is significant growth despite the impact in economy, which otherwise would be much higher.

4.2 Type Approval of Different Mobile Models (Source: NTA, June 2021)

S.No	Particulars/Equipment	Type Approval (No of Models)	
		Provisional	Periodic Permanent
1.	GSM Mobile Handset	6827	1677
2.	Short Range Device	1350	1213
3.	CDMA Device	4	1
4.	GSM Device	158	67
5.	CDMA Mobile Handset	19	7
6.	CDMA Fixed Set	3	1
7.	Tablet	186	82

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8.	Satellite Mobile Handset	15	10
9.	Satellite Terminal	3	3
10.	WIMax	7	5
Total		8572	3066

4.3 IMEI Registration:

Statistics of IMEI registration mobile handsets in Nepal (Source: NTA):

S.N	FY	Date&Period	Importers IMEI registration	Individual IMEI registration
1	074/75	2017/07/16-2018/07/15	16,93,181	1060
2	075/76	2018/07/16-2019/07/15	69,64,497	1860
3	076/77	2019/07/16-2020/07/15	76,14,195	3318
4	077/78	2020/07/16-till(2021/06/21)	1,08,93,323	8270

Table: IMEI Registration in 4 years period in NTA

Looking at the 4 years data, it can be seen that the IMEI registration is steadily increasing.

5 Mobile Phone Assembly/Manufacture in Nepal

5.1 What is Mobile Phones Assembly?

Assembly of Mobile Phones is basically importing of devices in knocked down condition as parts and assembling them together to produce brand new Mobile phones to sell in the domestic and possibly export to international market too with value addition. Unless there is very strong supporting industry to manufacture parts, most of manufacturers such as in Vietnam and India import parts and assemble to produce mobile handset with certain value addition.

Establishing an Assembly plant would require establishment of infrastructure, equip it with tools and complete facilities as per standards defined by OEM such as Samsung, Apple, Oppo etc. The company would also require complete support with supply of required parts, tools and technology for the production of Phones of original quality. Such phones would be

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identical to OEM manufactured phones complete with warranty and support. The phones produced will be sold in the domestic and international market with **Made in Nepal** labeling.

5.2 Challenges in establishment of Assembly Plant and Feasibility

Establishing Assembly plants are not without challenges. Nepal's market size is relatively very small and since assembly plants would require large investment, it may not be economically feasible for domestic market alone. However, considering the huge economic benefits of having an assembly plant in the country, with the right policy assembly industry may be made export oriented. Developments of assembly hubs – such as Vietnam and more recently India, have been on the basis of Govt lead initiatives.

Due to the nature of the product – most final products are transited by Air, so the disadvantage of not having a port does not feature prominently in viability or business consideration. Therefore, Nepal would stand to have as much scope as any other nations which are currently vying to develop a manufacturing/ Assembly base, but Govt lead initiatives and suitable strategic policies are required. This would also help attract investment from the foreign investors.

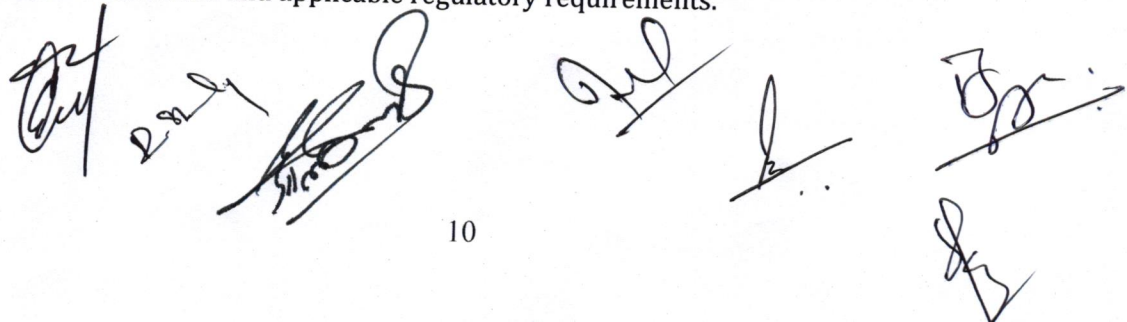
6 Establishment of Mobile Phones Refurbish Centers

Unlike Assembly, refurbishing of handsets is almost essential. Without government initiatives also, refurbished handset market will flourish but scale will be very limited and unregulated. Such a market will face challenges in getting customer trust and growth will be very limited. Unregulated and informal market means, government will also loose revenue.

6.1 What is refurbishment and how is it different from repairing?

Refurbishment is the process of enhancing the existing condition of a product to add value to the otherwise unused product and resell in the market. Whereas, repair is the process of only replacement of any defective parts of a product mainly with the objective of getting it back in operational mode.

When repairs or replacement are made irrespective of its condition with the sole purpose of increasing its value – it's called refurbishment. Ideally, the refurbishment should be carried out in a manner that is protective of the environment and worker health and safety and to ensure refurbished products entering in the market comply with applicable technical performance standards and applicable regulatory requirements.



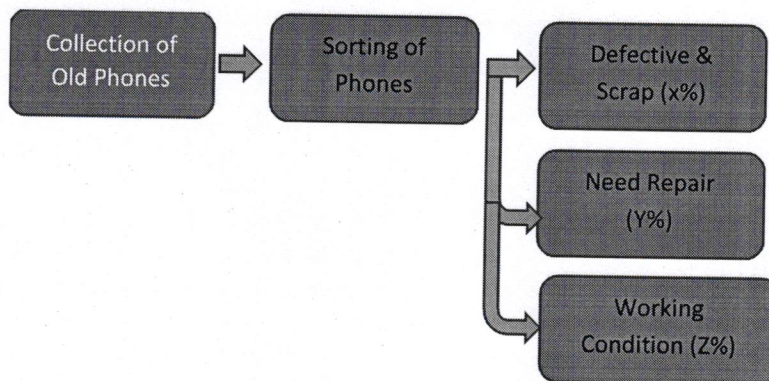
6.2 Why refurbish?

The general concept is that there is always a market at the lower price point and instead of importing new products (using precious Forex reserves) refurbishing existing products can help meet this demand to certain extent.

There are several reasons why a country like Nepal must refurbish is because it's forex reserve is very precious and not large enough to accommodate all types of volatility of market dynamics. Refurbishing will increase average lifespan of a mobile device which in general will have positive economic effect by reducing import and also helps in e-waste management. Therefore, having invested in resources (in this case, new mobile devices), it makes sense to try to extract as much as possible from the invested resources. Regulated and formal refurbish market means customers will have more trust in the refurbished products which in turn will help to grow the market which will have positive impacts in economy and environment.

6.3 Typical Process of Refurbishment of Mobile Phones

The necessity and purpose of refurbishment are already mentioned above. The mobile phone refurbishment process flow chart would be as explained below,



6.3.1 Collection:

Collection of old Phones would be one of the most important and critical step in the Refurbishing process. It will be the job of the business owner and the government as well to encourage public not to keep old phones at home in whatever condition they may be. This will be typically done with attractive offers as well as awareness building.

6.3.2 Sorting:

The collected phones will then be sorted into different categories. The sorting process would include visual inspection and putting the unit through standard test procedures. Without going into minute details, the sorted phones shall be classified into 3 categories as below.

6.3.2.1 Defective & Scrap Units

These are generally beyond repair or the cost of repair is higher than the salvageable value after refurbishment. It is estimated that approximately 30% of volume will be such sets. These will also comprise of old and obsolete sets that may not have any market demand.

Such units will be used as source of replacement parts for other repairable sets.

6.3.2.2 Need Repair Units

Such units will require some form of repair to arrive at a beneficial value. To bring these units to such a value, parts from defective & Scrap sets may be used or procured spare parts may be used. It is generally estimated that 40% by volume will be such sets.

6.3.2.3 Working Condition Sets

These types of sets are fully functional and are in working condition and small refurbishment can restore it to a beneficial value. It is estimated that 30% by volumes will be such sets.

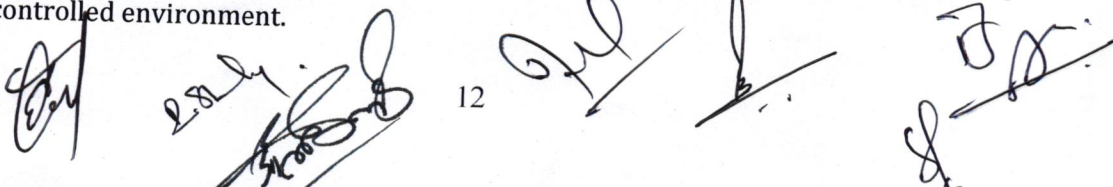
Irrespective of the estimated volumes specified above, these will be highly dependent on the policies and offers made by the exchange vendor or authorities encouraging such exchange.

6.4 Infrastructure for refurbishing Mobile Units

Basic level sorting can be conducted with semi-skilled manpower, who will check the operating conditions of the units received. The number can be increased as per the volume of the units received at the Sorting center.

Defective and Scrap units should be disassembled in a controlled environment so as not to create further damage to the circuitry due to ESD or other external sources. The disassembly process has to be conducted by skilled manpower.

Need Repair & Working Condition Units will be repaired or refurbished by skilled manpower in a controlled environment.

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By controlled environment it is implied a working environment that is free of dust and electrostatic shocks. Normally recommended is Class 10K~100K clean environment.

6.5 OEM Support

For the refurbishing company, either direct or indirect support of the mobile phone company will be required for spare parts sourcing, proprietary tools and test equipment, and perhaps training of technicians. Apart from this, whether mobile phone Company's endorsement with certification is probably not required but needs to be verified.

6.6 Challenges in refurbishing Mobile Units in Nepal

6.6.1 Authenticity of Purchase

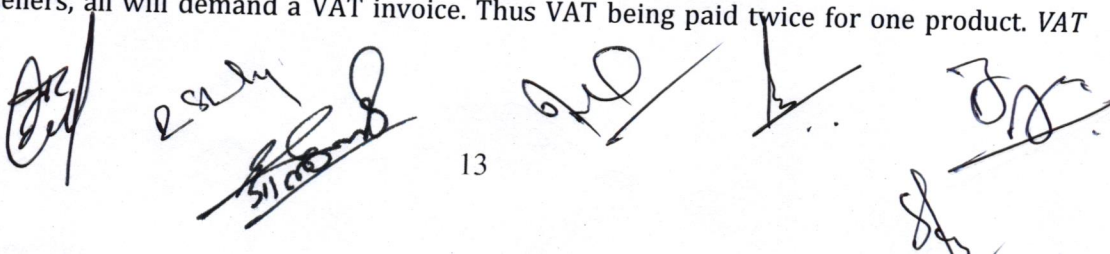
Under the existing law, any one in possession of a stolen product is punishable by law. While conducting refurbishment, to what extent should one go to verify the authenticity of purchase will remain critical factor. Too stringent process will discourage citizens to return/exchange old phones and too lax will be risky for the Vendor. Record Keeping of the refurbished sets shall be managed by the concerned stakeholders i.e. by the collector, refurbisher and the GoN in order to allow the genuine business for such sets.

6.6.2 Search of Market

Refurbished phone markets are mainly overseas. As per existing data, it can be derived that almost 65% of Nepalese own one or more mobile sets, that would imply ~100% of eligible citizens (minus 25% below the poverty line population and ~10% under 14 yrs). Thus, the refurbished set market would be only for those sets that are of higher value and have higher aspiration. Such sets would normally be lower in volume. Therefore majority of the units being *refurbished needs to find markets overseas which accept such refurbished units. The current laws need to accommodate for such domestic and overseas exports.*

6.6.3 Double VAT

If the reseller/exporter has to add VAT on reselling/exporting the refurbished phones or pay export taxes, it will make the sets unattractive. If resold locally, it is also unfair because VAT would be charged on the same product twice, reason being when the collection center receives the phones from the Customers, the collection center cannot claim VAT that was paid when sold to the Customer. However, when it sells the refurbished product to the resellers, all will demand a VAT invoice. Thus VAT being paid twice for one product. VAT



shall be exempted by the GoN for such domestic refurbished sets which will encourage to minimize the e-waste resulting the protection of human health and environment.

6.6.4 Duties on Parts

The existing Customs Tariff is discrepant in the sense it charges higher duties/taxes for basic components required for refurbishment/industrial growth whereas the finished products are charged lower duties/taxes.

Example

To conduct repair/refurbishment, parts such as resistors/capacitors, PCBs & ICs (HSC No 8532, 8533, 8534 & 8542) etc are required. When imported, except for ICs, these attract 10% excise duty whereas the complete unit of mobile phone (HSC No 8517) attracts only 2.5% excise duty. It is general convention that for any country to support its industrial growth the duties/taxes on basic raw material should be the lowest.

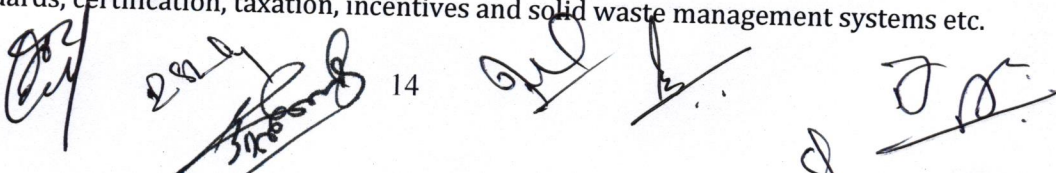
6.6.5 Management of Scraps (Electronic Waste) after Refurbish

Electronic Waste or E-waste is any electrical or electronic equipment that's been discarded due to any reason. E-waste is particularly dangerous due to toxic chemicals mercury, lead and phosphor that naturally leach from the metals inside when buried. Improper disposal of mobile handset can result to a range of impacts on environment and human health.

Nepal custom and IMEI registration data shows that annual Internal consumption of mobile handsets of all varieties (features + Smart) are around 5M. With the growth in imported handsets, there is no doubt that e-waste is also piling up in the country. There are small efforts being made but are certainly not enough. *Government should also adopt measures to seek RoHs certification for various electronic goods.* This can help minimize the impact of harmful chemicals in the absence of proper disposal regulations.

7 Stakeholders with regard to Assembly or Refurbish of Mobile sets

- a) Consumers would come on top of the list as potential buyers of assembled or refurbished handsets.
- b) GoN (MoCIT, MoF, MoICS, MoHA), Metropolitan & Local Governments- As discussed above, for starting Assembly or Refurbishing of Mobile handsets in Nepal at an industrial scale, it would require a lot of Legal/policy level changes to set technical standards, certification, taxation, incentives and solid waste management systems etc.

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- c) NTA – would be the authority for regulating the industry, formulating guidelines and certifications etc. based on government policies.
- d) Mobile Operators – Operators would be obvious stakeholders as the handsets will latch and operate in their networks.
- e) Mobile Importers/Distributors – The assembled or refurbished handsets will need to be brought to the market or exported through proper channels, therefore those in mobile business are important stakeholders.
- f) CTEVT and similar institution conducting vocational and skill trainings.

8 National Status & International Trends

8.1 Initiatives by NTA

With regard to Mobile devices management, NTA has been making some efforts as follows,

- a) Type Approval working Procedure – 2016

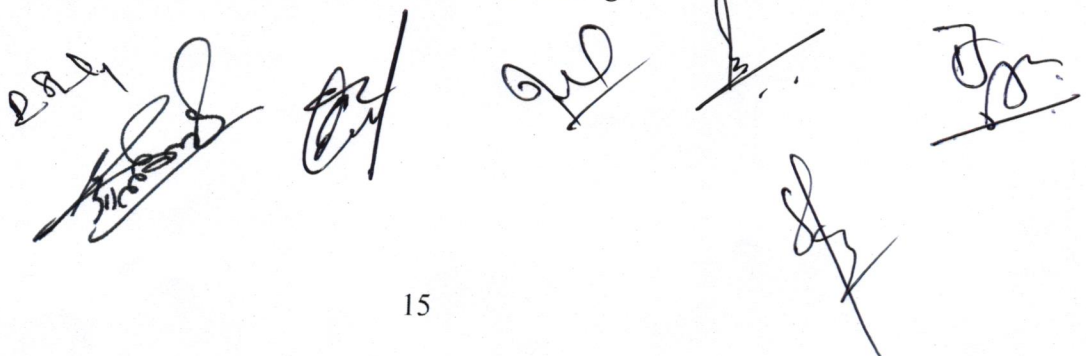
Before introducing a new device in the market it is required to be 'type approved'. The type approval working procedure has developed forms to be filled out with test data before a device is approved. As per this procedure so far number of type approved handsets are as follows,

Type approved GSM handsets by 077/78 Q1	Provisional	6653
	Permanent	1603

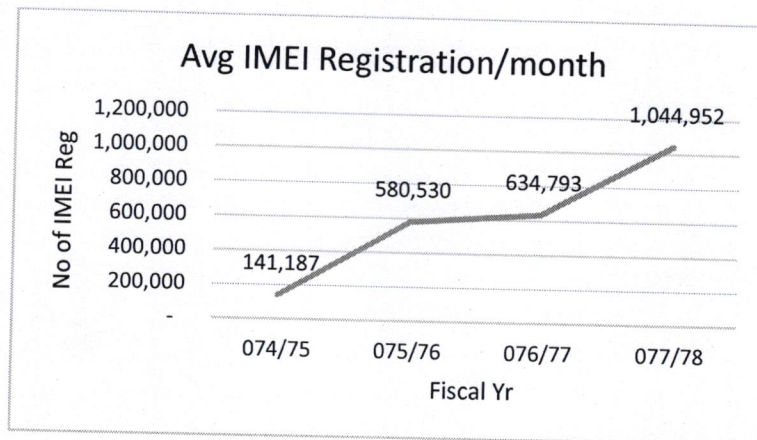
- b) Interim directives for National Equipment Identity Registry (NEIR)–2072 (2016)

As per this directive, mobile importers are required to submit the list of IMEI of devices to be imported for registration. There is also provision for registration of IMEI by individuals through the NTA website. So far since the directive, about 20.5M IMEI has been registered. A detail of registered IMEI is as stated in 4.3 above.

It is encouraging to see that the trend is increasing.



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c) MDMS (Mobile Devices Management System) –

NTA registers IMEI of all devices imported through legitimate channels and also offers individuals to register IMEI of devices acquired through private means. However, it is significant portion of the mobile handsets sold in the market are being imported through grey channel, which are unaccounted for in the statistics and is also causing loss of revenue to the government.

It is estimated as much as 35-40% of mobile phones in the market could have been imported through improper channel. In order to manage this problem and minimize the loss of revenue to government, an initiative by the GoN with MDMS project implemented by NTA will play a role in discouraging grey market. Once the project is completed and is in operation the non-registered phones will be traced and made non-functional in the network. The project is currently being implemented.

8.2 Efforts by Private Sectors

There is no formal market for refurbished phones in Nepal. The popular e-commerce portals such as Daraz or Mobile outlets sell only brand new phones. However, there are small initiatives from the private sector as mentioned hereunder:

8.2.1 Repair Shops:

As per data of Mobile Phones Importer Association of Nepal (MPIA), there are about 3500 repair shops throughout the country. Along with standard repair, those shops usually also sell secondhand phones and refurbished phones (after repair). It is estimated that 25-30K

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such handsets are sold in the market each year. As per information, this market is totally informal without any kind of accounting.

8.2.2 Refurbish / Exchange system:

There are also more formal channels for exchanging and selling old phones. There is portal www.arkophone.com. This portal is specifically for trading in old Samsung phones for new Samsung phones.

Likewise, www.sabkophone.com is even with a wider scope of service who buys old phones, repairing and sale of refurbished phones. This company has gone a step further with offer of one-year warranty on refurbished phones sold by them.

These are good initiatives worth appreciating but nowhere near industrial scale to make an impact significantly.

8.2.3 E-waste Management:

As mentioned above, with current rate of growth in mobile device imports, E-waste is going to be an issue which needs serious attention. Nepal has a solid waste management act 2075, but it has no specific provision of e-waste management.

There is an initiative by www.dokorecyclers.com who collects some of the E-waste from throughout the country and manage it to some extent.

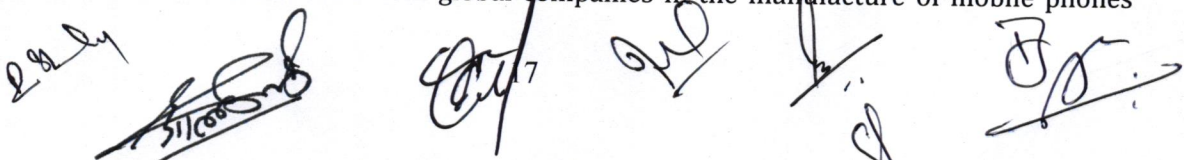
9 International practices on mobile phone refurbish and Assembly

In order to get an idea on Mobile phone manufacture and refurbishing in the international market, it is always very important to refer to international trends and practices. Although some information presented below are a little old but still it gives a picture of Refurbished phone market. Some references are presented from few countries as below.

9.1 India's as Manufacturing Hub for Mobile Phones

India already has a general policy of *Make in India* to generate employment for its huge working population. Apart from this India is trying to emerge as a global leader in Phone and electronic manufacturing.

India is offering financial incentives and plug-and-play facilities with an outlay of about \$6.6 billion to attract investments from global companies in the manufacture of mobile phones



and related components. The move has the potential to make India as global hub for mobile phone manufacturing and make it the largest exported item out of India while generate half a million jobs. While the clusters will prompt large companies to bring along their ancillary units, the local value addition in electronics manufacturing will rise to 40% by 2025.

India is seeking to woo global companies looking to diversify their manufacturing beyond China after a trade war and a pandemic has put the focus on the risks to supply chains. The schemes are expected to help India become totally self-reliant and penetrate global markets, and enable India to become a leader in electronics manufacturing.” (Bloomberg, 2020)

Refurbished Phone Market in India: Although this information is not very new but gives very good idea on the potential of refurbished phone market. India is also a huge market for Refurbished phones. In 2019 when global market for refurbished phones dropped by 1%, India saw a growth of 9%. According to Yaantra who is a supplier of refurbished phones supplier with about half of total refurbished market share, Indian refurbished market is \$6-7 billion when the global market is around \$25 billion. By 2025 this market estimated to reach \$45 billion and a large part of this is expected to be lead by India. Although big, about 95% of this market in India is still unorganized. But there is tremendous potential for growth as smart phone penetration is still only 45% . (Khan, 2019)

In India apparently there are no government incentives nor regulation for refurbished phone market thus large portion of this market remains unorganized.

9.2 Refurbished Phone Market in Europe

Globally, the mobile phone market has boomed in the past few years, also due to rising demand in emerging markets. From 2012 to 2015, global smartphone ownership doubled, nearing two billion by the end of 2015 (Coats & Benton, 2016). According to a study by Pew Research Center (2019), mobile phone ownership is high in the different EU member states surveyed, with above 90% of adults owning a mobile phone. Smartphone ownership is dominant, but varies from country to country.

While there are signs that the market for new mobile phones has reached its peak, the market for refurbished smartphones, on the other hand, is seeing growth. This market, which has existed in developing countries since the 2000s, is becoming increasingly popular in developed countries with the advent of high-end smartphones. According to the global

market research company GfK, in 2017, refurbished smartphones already accounted for 10% of the overall sales volume in France (Dekonink, 2018). This is confirmed by Cailleaud (2019) who reports that out of 20.2 million smartphones sold in France in 2018; more than 2.14 million were sold through the refurbished market. Fonebak is Europe's leading provider of mobile phone reuse and recycling solutions, with over 1000 clients from every UK network operator and many major mobile networks, retailers, manufacturers and charities across the continent. It currently has collection sites in over 10,000 retail outlets, and also accepts phones sent in Freepost envelopes. About 70% of phones currently come from UK collections, but that proportion is reducing.

9.3 Refurbished Phone Market in North America

More than 60% of the collected phones are suitable for reuse; others are used for parts or recycled at facilities in the USA and Canada. Refurbishment is undertaken at plants in the USA, China, Argentina, Brazil, Chile, Colombia, and Mexico. In 2003, the top two markets for ReCellular refurbished phones were the USA and South America. Today, the main markets are the USA, Dominican Republic and Hong Kong, with about 55-60% of the refurbished phones being sold outside the USA. ReCellular has provisions for return of end-of-life phones with all its customers.

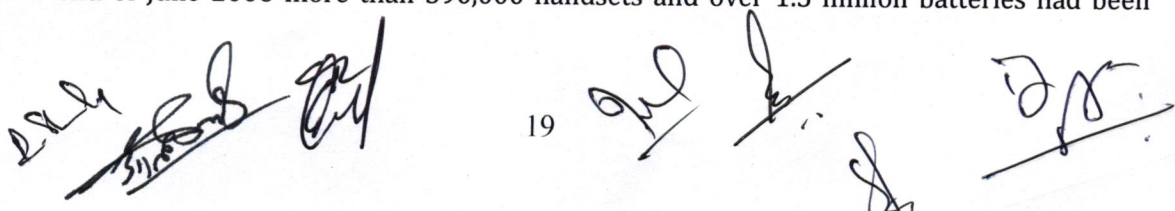
9.4 Recycling of Used Phones in Australia

The Australian Mobile Telecommunications Association (AMTA) is the national trade association of the mobile telecommunications industry and MobileMuster is its official national recycling programme. The programme originated from a successful trial in one state in 1998 and now collects mobile phone handsets, batteries and accessories from a network of over 1,400 retailers, local councils, government agencies and businesses drop off points.

The MobileMuster campaign was launched in 2005 following results from market research, carried out that same year, which showed that 46% of the populations were aware they could recycle their mobile phones, batteries and accessories. 9% had thrown out their mobile phones and only 4% had ever returned phones to vendors. More importantly perhaps, the research also found that raising public awareness of a recycling scheme could actually drive behavior.

By March 2006 awareness had increased to 54% and phone disposal had dropped to 5%. By the end of June 2006 more than 590,000 handsets and over 1.5 million batteries had been

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collected, amounting to over 367 tonnes of material – the equivalent of a 16% increase in take-back over the previous 12 months.

9.5 China's position as the largest Phones Manufacturing Country

China has been the biggest manufacturing country for the past many years but now the market dynamics are changing in China. In last few years, labor cost in China is increasing, eroding the advantage of Chinese manufacturers to some extent. Besides, the country is moving up the value chain, there are not enough people in China willing to do manual low-paying jobs. Since the standard of living has improved, feature phone manufacturing will soon be pushed out of Chinese market as locals are moving towards expensive phones. In the coming years, it may be a challenge for China to remain as the top manufacturing company in the world.

9.6 Vietnam's Success Story:

Vietnam's electronics industry (EI) plays a crucial role in Vietnam's fast-growing economy contributing to Vietnam's successes in its manufacturing industry.

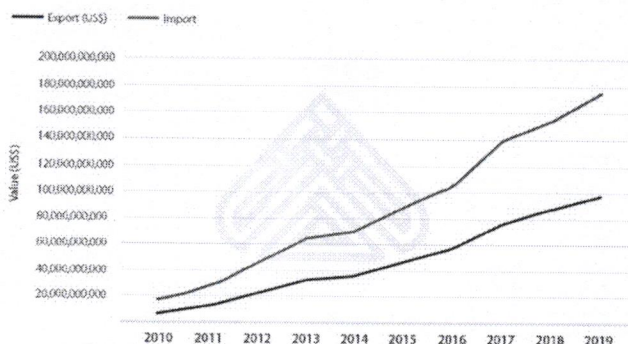
In addition, Vietnam's implementation of key trade agreements, strong demographic tailwinds, and supportive government policies are likely to continue this trend and present a variety of opportunities for investors.

9.6.1 The state of Vietnamese electronics production

Amid the ongoing US-China trade war and rising manufacturing costs in China, Vietnam has reaped the benefits to further participate in regional and global value chains.

Vietnam has climbed the ranks as a key electronics exporter, from a modest 47th place in 2001 to 12th place in 2019. Especially, mobile phone exports were ranked second

Vietnam Electronics Import and Export



Source: TrendEconomy

Graphic: Asia Briefing Ltd.

worldwide, with a value of over US\$50 billion in 2019.

Vietnam's EI imports have nearly doubled from 2015 to 2019, while exports have constantly increased by an average of US\$12 billion per year — rising from US\$47.3 billion to US\$96.9 billion in 2019.

In 2019, EI exports amounted to 36 percent of total exports from Vietnam, increasing by 1.15 percent compared to 2018. Imports accounted for 30 percent of total import flow, increasing by 2.01 percent from 2018. Of this, sales of electronics from Vietnam also went up by 12.1 percent, compared to 2018.

9.6.2 Foreign investment in Vietnamese electronics production

EI in Vietnam is mainly dominated by foreign companies, particularly multinational companies. Although the number of foreign-invested enterprises (FIEs) is only one-third of the total EI enterprises, from 2016 to 2019, their export share accounted for over 90 percent of total exports and covered 80 percent of the domestic market demand.

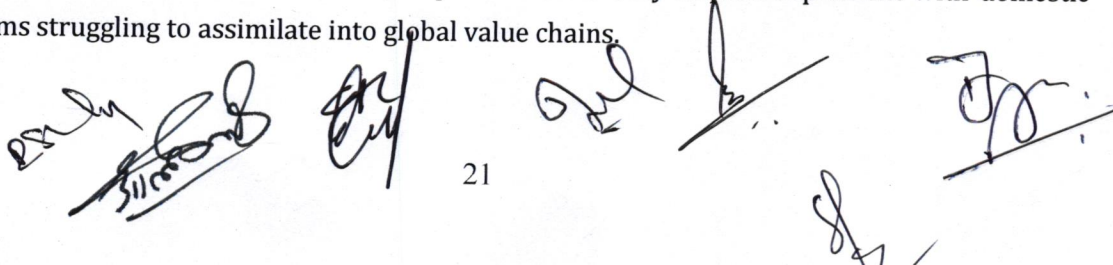
As of June 2020, some large FIEs have completed their production plant relocation to Vietnam. Notably, LG's smartphone production has moved entirely from South Korea to Hai Phong. Apple has moved part of the production of its AirPods, while Nintendo has also transferred a part of its Switch Lite game console to Vietnam.

9.6.3 Trade liberalization

Companies looking to invest in Vietnam can take advantage of several Free Trade Agreements (FTAs), with many agreements signed through its membership in the Association of Southeast Asian Nations (ASEAN).

In 2018, the average import tariff for consumer goods in the EU was 8.9 percent for non-EU countries without any trade agreements. Under the recently ratified EU-Vietnam Free Trade Agreement (EVFTA), the vast majority of these tariffs will be eliminated.

While these lower tariffs offer a tempting way to reduce export costs, it is crucial to be aware of the rules of origin guidelines in each FTA. Due to the underdevelopment of supporting industries in Vietnam, EI production is very import-dependent with domestic firms struggling to assimilate into global value chains.



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understand the government policies which support the business and also their business models and technology used for entrepreneurs who might be interested in starting this business.

10 Employment Status and Opportunities:

As per the information provided by the Nepal Mobile Distributor's Association (NMDA), the current employment figure of personnel involved in marketing and sales (non-technical) are about 10700 (details in Annex-2).

Also based on data provided by Mobile Phone Importer's Association (MPIA) of Nepal, there are around 2000 Mobile Repair Centers, with average employment of 2 per repair center and about 500 employed by the national and regional dealers, total technical employment is about 4500.

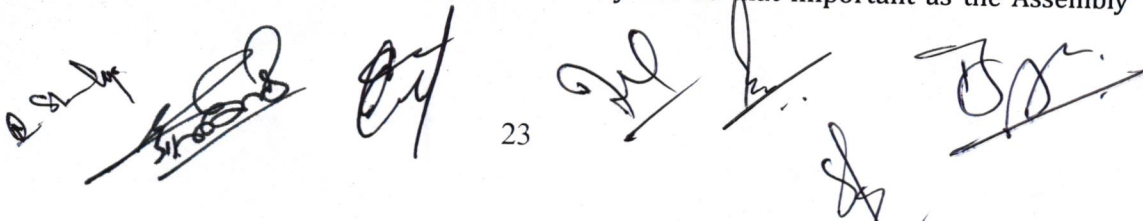
Considering 3700 owners of business also as employed in the sector, the total current employment in the sector is 18900.

Based on informal data of 35-40 thousand second hand mobile phone market, we can assume that current Refurbished phone market of Nepal is less than 1% unlike 10-20+ % in other countries. There is no certain way to calculate numbers, but with right policies if the Refurbished phone market can be brought to national/International level, it certainly has potential to increase current level of employment several folds.

11 Roles and Responsibilities of GoN and NTA

The government's role would be to bring appropriate and sustainable policies and also regulate the industry. NTA's role would be to advise government on policies and regulate the industry.

In the case of Assembly plants, it'd be vital to bring *industry supportive financial policies* to make the industry commercially viable and attract foreign investors. This would be mainly done through favorable trade agreements with other countries, sustainable tax systems and government incentives. In the case of Assembly industry, apart from waste management other *detailed technical policies and guidelines* may not be that important as the Assembly



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plant would be in direct or indirect partnership with the original phone manufacturer and they would have very strict standards for infrastructure, production and testing etc.

In the case of Refurbish industry, the government may have a bigger role. After investing in a refurbished phone, the consumer would expect certain quality in looks, performance and battery etc. This can only be achieved through standardization of refurbish industry with minimum requirements in the facility, testing and certification. This can come in the legal form such as guideline/ Working Procedure/bylaw from NTA.

It might be good to *create a Telecom Manufacturing Fund (TMF)* for providing venture capital to indigenous manufacturing in the form equity and soft loans for supporting pre and post commercialisation product development and brand creation. The TMF would be managed by a corporate body and headed by a person of eminence in the field of Banking/ venture capital finance.

In connection with *Standardization, Specifications and Testing* since Major IT/telecom products being used across markets are primarily based on global standards, harmonization of these standards to work across networks is critical. Nepal being a small market for such products, it may not therefore be necessary that Nepal specific requirements / specifications are incorporated considering our local needs. However, it's the duty of GoN/NTA to make suitable mechanism for the assurance of quality products to protect the consumer interest.

It seems necessary to bring *policy with the Local Telecom Equipment Manufacturing* as an integral and a significant part of the New Telecom Policy. Preferential market access should be provided to the domestic manufactured products in procurement by the Government and Government Licensees (service providers both public and private), subject to the value additions proposed for the corresponding years.

There shall be other different strategies to promote for local industry: For eg. *Income Tax holiday* may be given for 10 years, on the lines of that given to the local Assembly/manufacture industry, for producers of domestic manufactured products, whose total annual turnover is less than Rs x.

Taxes and duties on the components should be lower than that on the finished products. For the mobile handset industry comparative tax disadvantages should be removed for domestically manufactured handsets by reducing VAT and by placing a tax on imported products. *All custom*

The bottom of the page features several handwritten signatures and initials in black ink. From left to right, there is a signature that appears to be 'S. N. Singh', followed by a signature that looks like 'S. N. Singh' with '5/1/08' written below it. Next is a signature that looks like 'S. N. Singh' with '24' written below it. Then there is a signature that looks like 'S. N. Singh' with '24' written below it. Finally, there is a signature that looks like 'S. N. Singh' with '24' written below it.

clearances for the import of raw materials and components for domestic manufacture of equipment in Nepal should be completed expeditiously and preferably within 7 days of application.

It seems necessary to explore by the NTA/GoN in detail to attract FDI for domestic Mobile handset Assembly/manufacture/Refurbishment taking into account the international success cases/practices.

12 Recommendations:

During the study, apart from data of Type Approval/IMEI Registration from NTA, Import data from Department of Custom, some data from by MPIA through NMDA, there is no research based data to support for the refurbishment and local assembly/manufacturing of handset. Since the market is also flooded with handsets imported through grey channel, even the customs department data, type approvals and IMEI registration data may not provide true picture of present market. Therefore a indepth specialized research relating to the mobile handset industry shall be conducted in the different parts of the country, different communities and demography which may give a better picture of the market in general and especially for Refurbished handsets and local assembly with value addition.

It is necessary to do the policy/legal changes, with detailed provision. It is therefore recommended to carry out the following activities:

- a) **Policy for domestic industry:** It seems necessary to *bring policy with the Local Telecom Equipment manufacturing as an integral and a significant part of the New Telecom Policy.* Preferential market access should be provided to the domestic manufactured products in procurement by the Government and Government Licensees (service providers both public and private), subject to the value additions proposed for the corresponding years. Refurbished phone industry to succeed, domestic market is insufficient to establish this industry of scale, therefore export oriented policy is alos essential. Likewise, for this industry of scale, used phones from the domestic market alone are not sufficient, so import of used phones should be allowed for refurbishing. Value will be added to the imported phone and sold either in the domestic market or exported.
- b) **Buy-back Policy:** Buyback of used phones for the Refurbish industry is going to be a tricky part as the source of the phone may not always be clear. Policy for buy-back of

old used phones should be devised to make the buy-back scope as wide as possible at the same time protect the seller and buyer from hassels.

- c) **Regulatory Framework:** The draft regulatory framework with Generic requirement for the refurbished mobile set and assembly plant prepared based upon the international trends and a practice is included in Annex-1.
- d) **Taxation Incentive:** The GoN shall determine the necessary policy provision along with Taxation Incentive (VAT, Custom duty in Mobile parts), E-waste management, domestic Assembly industry. *To encourage the domestic industry, the taxes and duties on the components should be lower than that on the finished products.* For the mobile handset industry comparative tax disadvantages should be removed for domestically manufactured handsets by reducing VAT and by placing a tax on imported products. In case of sale of Refurbished handset, taxation method should be developed to apply only in the portion of value addition in the set and avoid double taxation. **In order to encourage the refurbished handset market, it is recommended to give total exemption of VAT in refurbished handsets as incentive.**
- e) **Certification and Warranty:** For Assembly plants, there'd be certification from the OEM but on top of this, both assembly plants and refurbish centers should be certified by authority such as NTA to confirm the establishment and operation aligns with government laws and technical standards.
- The local assembled and refurbished handsets should be sold with minimum warranty of 12 months and 6 months respectively.*
- f) **Establishment of an R&D system:** Nepal should focus on the **establishment of an R&D system**, but not only on hardware, but also on software, i.e. the two should be converged. The supporting R&D policy could be implemented through corporate joint research development and research development cooperation between large enterprises and SMEs. In addition, SMEs specializing in these programmes can create an innovative network ecosystem through software education, network activation, the expansion of professional forums, etc. This can be initiated by various government bodies either independently or in collaboration with other entities. Thereby, a sustainable venture ecosystem activated by spontaneous innovations can be created. The government/NTA can play an important role in stimulating idea generation and

offering technology or management consulting with assistance from academics and more experienced industry experts.

g) Creating a start-up ecosystem in the electronics industry with Start-up Policy:

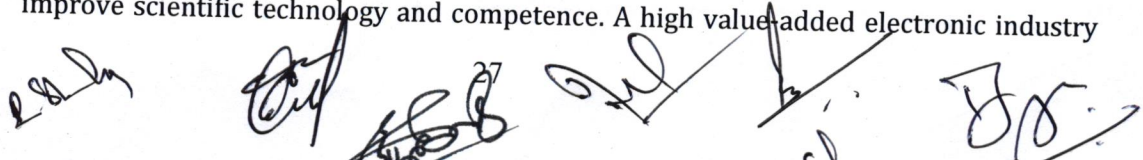
The government needs to prepare a detailed strategy to build a start-up ecosystem, including comprehensive objectives. Firstly, a physical space for start-ups needs to be created and support for IT start-ups expanded. The GoN/NTA should establish a start-up centre to cultivate hardware start-ups in manufacturing-based cities. The start-up policy shall be prepared and announced with training for entrepreneurs and establishing start-up support centres across the country. Accordingly, the GoN/NTA needs to implement policies for the systematic promotion of start-ups through start-up centres. Secondly, the Government/NTA must expand its manufacturing-based start-up support. GoN must develop a start-up policy to make the most of its manufacturing base and transform the cities into hubs for hardware start-ups.

h) Phase wise Strategy for Domestic Assembly/manufacture for value added-electronics Industry:

The NTA/GoN shall have Planning for the establishment of a value-added electronics industry at the initial stage and then high value-added electronics industry as the market matures for relatively less value-added mobile industry.

At the initial stage only specializes in the simple assembly of parts and processing shall be focused. Then only at the second stage, specialized parts and equipment industry have to be achieved through significant progress with research institutes or expertise in the parts and equipment industries or in critical technology are available.

The country needs a strategy to transform the existing IT industry into a value-added industry. In other words, the IT industry must transform from simple processing and assembly to high value-added manufacturing with a focus on key parts and equipment and on brands and marketing, and invest efforts into the technical development of critical parts and materials in phasewise manner. The development of such a strategy requires a number of actions. First, the promotion of value-added industries such as displays, semiconductors and electronic parts must be bolstered. The capital equipment necessary to produce such high value added goods has a long life cycle, requires huge investments and **takes ten to 20 years to take off**, but contributes to the creation of high value-added jobs and economic growth. Continuous investment is necessary to improve scientific technology and competence. A high value-added electronic industry

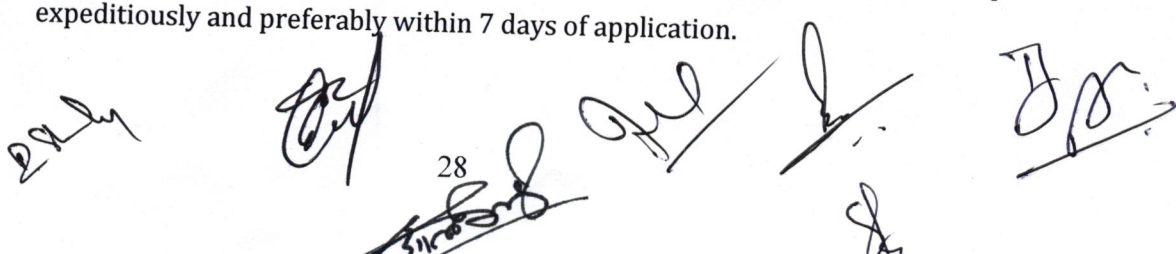


must be promoted in the long run. Second, productivity must be improved through technical innovation. Certain conditions must be met for venture businesses and small and medium-sized enterprises to be able to engage in technical innovation, and they must build ties with large corporations that possess an advantageous foundation for technical innovation and further growth. Policies to strengthen cooperation between conglomerates and small and medium-sized enterprises must therefore be strengthened.

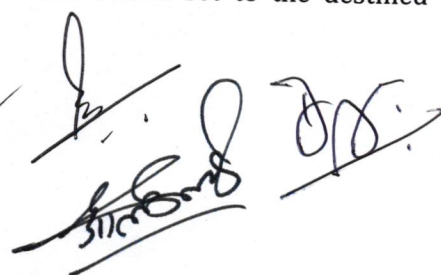
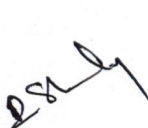
i) **Other Key Issues:** There shall be other different strategies to promote for local industry including the followings:

- **Fund Creation:** It might be good to create a Telecom Manufacturing Fund (TMF) for providing venture capital to indigenous manufacturing in the form equity and soft loans for supporting pre and post commercialisation product development and brand creation. The TMF would be managed by a corporate body and headed by a person of eminence in the field of Banking/ venture capital finance.
- **Investment friendly Environment:** Government should explore for international markets and get into trade agreements to bring sufficient FDI in connection with support for phone Assembly and/or Refurbish industry.
- **Harmonization with Global Standards:** In connection with Standardization, Specifications and Testing since Major IT/telecom products being used across markets are primarily based on global standards, harmonization of these standards to work across networks is critical. Nepal being a small market for such products, it may not therefore be necessary that Nepal specific requirements / specifications are incorporated considering our local needs. However, it's the duty of GoN/NTA to make suitable mechanism for the assurance of quality products to protect the consumer interest.
- **Income Tax holiday :** Income Tax holiday may be given for 10 years, on the lines of that given to the local Assembly/manufacture industry, for producers of domestic manufactured products, whose total annual turnover is less than Rs x.
- **Custom Clearance:** All custom clearances for the import of raw materials and components for domestic manufacture of equipment in Nepal should be completed expeditiously and preferably within 7 days of application.

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- **FDI: Attract FDI for domestic Mobile handset Assembly/manufacture/Refurbishment** taking into account the international success cases/practices of Vietnam, India and other countries.
- j) **Indepth Specialized Research:** It seems necessary to carry out in-depth specialized research relating to the mobile handset industry in order to address the aforementioned different issues to explore serious attempts in line with the Make-in Nepal Policy of GoN through the Annual Program of Fiscal Year 2078/79 in connection with Refurbished handsets and Local Assembly with value addition as applicable. The followings are necessary steps for further action:
 - **Steering Committee:** It is also recommended to form Steering committee comprising of experts and stakeholders for advising government on policy formation for the promotion of Local Assembly plant to attract investment from within and outside also with focus on the consumer protection.
 - **Greater level consultation:** Greater level consultation among the stakeholders in relation to regulatory provision on refurbished handset and assembly plant through Interaction program.
 - **Research Study:** It'll be a good idea for policy makers and regulators to analyze the identified aforementioned facts and issues and proceed further through specialized Research on promotion, facilitation and including the study visit on use case of the countries like India, Vietnam and Malaysia to get first hand information on how they have been able to achieve success as mobile phones manufacturing hubs and refurbish centers.
- k) **Allow for only Domestic Refurbish:** It is recommended to restrict for the import of the refurbished handset from abroad, and encourage only for Domestic Refurbished facility and services with permit for export of the refurbished set to the destined country as agreed.



13 Conclusion

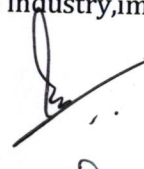
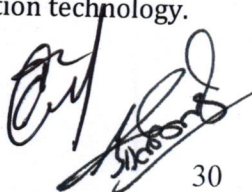

When formulating policies and guidelines for either Assembly plant or Refurbish of phones, optimum focus should be on the commercial outcome. Unless there is commercial sense, nothing else will matter to an investor whether domestic or international.

Out of two issues Assembly and Refurbish of mobile handsets, establishing Assembly plants is more complex requiring large investment and market. However, refurbish can be done in small as well as large scale. Considering current minimal/less market share of secondhand/refurbish handsets, there is lot of room for growth.

For growth of refurbished handset market, it should be supported by right policies/regulation and awareness must be created among consumers to encourage them to sell their old phones to collectors as soon as they change.

In the context of Nepal, it was found that no actual survey has been done for current accurate statistics of refurbished phone service centers/stores and also there is no actual survey done for current accurate number of employment status created by refurbished mobile phone stores/distributors/shops. From the knowledge of personnel involved in the industry, around 35-38K people are involved in refurbished mobile service centers/stores as marketing staffs, salesman, operators, etc. With use of Refurbished/Secondhand devices at only about 0.5%, there is huge potential for growth and corresponding Employment opportunities. It is recommended that the Government shall announce incentives and develop strategy/plans so that local assemblies are leveraged as the greater accelerator of economic growth by devising aggressive long term goals to further increase mobile phone penetration and improve Nepal's standing in the global landscape. The Local technical manpower i.e. outcomes/productions of the Engineering College shall be motivated, trained and engaged in the Local Manufacture/Assembly and Refurbishing Plant through the creation of favorable environment.

Also, it seems appropriate to use the concept of Special Economic Zone for Local Manufacture/Assembly for mobile set giving it special tax subsidies, fully facilitated buildings and physical infrastructures with all necessary services, providing necessary procedural service systems through a one door system, establishing an export oriented industry, importing FDI and modern appropriate production technology.



Although there is relatively small market size for Assembly plants in Nepal, which may result unfeasible business, it might be appropriate to formulate appropriate policies/provision potential to attract FDI to establish assembly plants to cater to domestic market as well as export. GoN must develop a **start-up policy** to make the most of its manufacturing base and transform the cities into hubs for hardware start-ups. Nepal should focus on the **establishment of an R&D system**, but not only on hardware, but also on software, i.e. the two should be converged. Phase wise **Strategy for Domestic Assembly/manufacture for value added-electronics Industry** shall be prepared by the GoN/NTA with low to high value added.

In summary, it seems appropriate to analyze the identified facts and figure in this Report and necessary to carry out in-depth specialized research relating to the mobile handset industry in order to address the aforementioned different issues to explore through the attempts in line with the Make-in Nepal Policy of GoN through the Annual Program of Fiscal Year 2078/79 in connection with Refurbished handsets and Local Assembly with value addition as applicable.

Annex - 1

Regulatory Framework on Assembly of Mobile Phones

1 Background:

Assembly of Mobile Phones is basically importing of devices in knocked down condition as parts and assembling them together to produce brand new Mobile phones to sell in the domestic and possibly export to international market too with value addition. This Regulatory Framework is introduced in order to promote, facilitate and regulate the Domestic Assembly/manufacture of mobile handset in Nepal including the involvement of private sectors attracting the FDI as well for establishment of Assembly Plant/manufacturing. This framework encourages for domestic production of mobile handset assuring the quality products with distinct effort for *Make in Nepal slogan of GoN*.

2 Objective:

The objective of Local Mobile Phone Manufacturing/Assembly includes the followings:

- Saving of foreign exchange, lesser reliance on foreign countries to fulfill local needs.
- Increase in Foreign Direct Investment.

- Local manufacturing will decrease the grey channel import of mobile phones as lots of smuggled devices are entering in the country and damaging the national economy.
- Respectability of products "Make in Nepal" due to government support hence improving national image.
- Revival of industry and association of quality with local products.
- Domestic Employment Generation and also to reduce the brain drain

3 Generic Requirement for Assembling of Terminal Equipment in Nepal

(1) All entities interested in the assembling of mobile devices in Nepal shall fulfill the following requirements prior to the assembly of Mobile Handset:

(a) Type approval of mobile device intended for assembling in Nepal;

(b) Request to NTA on company letter head containing following details:

i. Company Profile, Firm Registration etc;

ii. Address of location along with pictures where assembly line is proposed to be setup;

iii. Details for terminal equipment including models planned to be assembled;

iv. Certification/ Undertaking from manufacturer that:

(i) local mobile phone shall be in line with best international practices/standards;

(ii) Shall Conform to the standards of Type Approval granted by NTA;

(iii) Shall obtain CERTIFICATE OF COMPLIANCE TO TECHNICAL STANDARDS/Permissions for each consignment of parts imported for assembly of type approved product/mobile phone model

(c) A detailed technical presentation containing following

i Parts being imported to be used to assemble assembly line, packing line & details of materials to be used

ii. Technical Literature explaining use for each assembly line part.

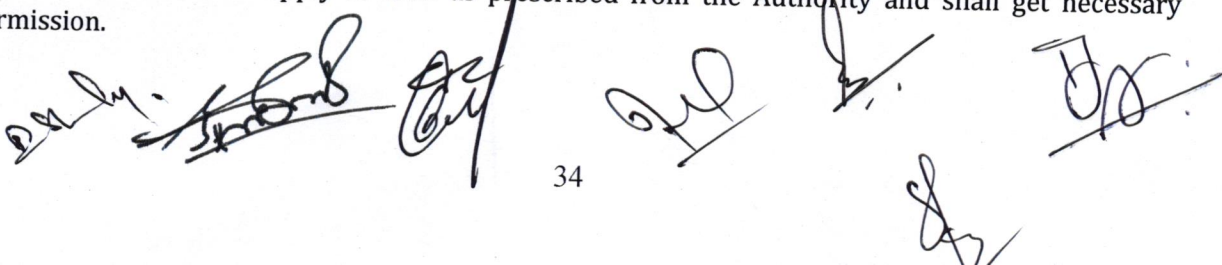
- (d) All terminal equipment shall be assembled in Nepal will have clear marking stating **"Assembled in Nepal"**
- (e) Applicant/Company will register all assembled mobile phone along with IMEI and obtain CERTIFICATE OF COMPLIANCE TO TECHNICAL STANDARDS/Permissions by submitting all documentation along with IMEI details or any other authority prescribed mechanism prior to commercial sale/marketing.
- (2) Pursuant to the above, A "Provisional CERTIFICATE OF COMPLIANCE TO TECHNICAL STANDARDS" shall be issued to the applicant for period of 6 months: Provided that the applicant will intimate NTA about setup of assembly plant for inspection.
- (3) Within thirty days of the initiation of the local assembly plant, the applicant will invite NTA to inspect the assembly line premises.
- (4) At the time of the inspection, the Authority shall verify the following:
- a) Quality and Control Testing at assembly line including Device Function Test
 - b) Controlled Drop test of device
 - c) Electrostatic Discharge (ESD) setup/tools (e.g.ESD Coat, Cap, Wrist band etc.)
 - d) Product Stress Testing (e.g. Temperature, Mechanical & Electrical, Durability etc.)
 - e) Wi-Fi, Bluetooth, Antenna & Signal Test
 - f) Evaluation and verification of IMEI writing
 - g) All local assembled devices should abide by type approval regulation standards related to Health, Safety, RF, EMC and SAR as prescribed by the NTA
 - (h) All other relevant requirement as per the existing legal provision shall be complied by the Person/Institution who intends to local assemble/manufacture of mobile sets in Nepal.
- (5) The necessary Test Lab to assure the aforementioned set standard shall be managed by Authorized entity of the Assembly Plant.
- (6) If there is no Lab set up for the Testing of the Assembled product, then it is mandatory to make Test of the Assembled Product through international standard as prescribed from the NTA. All cost required for the necessary Testing shall be borne by the entity authorized for the Assembly plant.

4 Capacity Development and Institutional Set up in NTA

- (1) NTA shall set **separate Department with required HR** in order to facilitate, promote, and regulate the Mobile Assembly Plant in Nepal.
- (2) NTA also shall set up necessary Test Lab to verify the Assembled product meet the technical requirement set out from the Authority.
- (3) In connection with Standardization, Specifications and Testing since the products being used across markets are primarily based on global standards, harmonization of these standards to work across networks is essential.
- (4) The Assembly Plant/Factory shall be standard with compliance of applicable provision of ISO 17025.
- (5) NTA shall manage for appropriate mechanism for the assurance of quality products to protect the consumer interest.
- (6) NTA shall determine the detailed working procedure for Assembling of the Mobile phone through Assembly Plant.

5 Miscellaneous

- 13. Custom Clearance:** (1) All custom clearances for the import of raw materials and components for domestic manufacture of equipment in Nepal should be completed expeditiously and preferably within 7 days of application.
- (2)) The necessary recommendation for the custom clearance shall be expeditiously managed based upon the request from the concerned entity to the NTA.
- 14. Monitoring & Enforcement:** The Authority can inspect and monitor the market of Assembled Mobile Handset from time to time.
- 15. Decision Making:** The NTA has the power to take decision to issue the permission relating to Standardization/Type Approval Certificate as applicable
- 16. Monitoring & Enforcement:** The Authority can inspect and monitor the compliance of the requirement as prescribed in this Regulatory Framework for Domestic Assembly/Manufacture of Mobile Handset from time to time.
- 17. Permission for Assembly Plant Centre:** The entity who intends to establish refurbish centre for Mobile Phone shall apply to NTA as prescribed from the Authority and shall get necessary permission.



18. Decision Making: The NTA has the power to take decision to issue the necessary permission relating to Establishment of Assembly Plant and associated required Standardization decision.

19. Power to Remove Difficulties: If any difficulty arises in the implementation of this Regulatory Framework, the NTA may take necessary decision to remove such difficulties without any inconsistency with the provisions of this Regulatory Framework.

20. Maintenance of Up-to-date Records: The Refurbished Centre shall prepare and maintain records of all transactions on the Assembly Plant/service in an up to date manner and shall present the said records to the Authority as and when required in the course of inspection or inquiry.

21. Directions of the Authority: All directives, notifications, standard operating procedures and orders issued by the Authority from time to time shall be binding and applicable to the Domestic Assembly/Manufacture of Mobile phone.

Regulatory Framework in relation to Refurbish Mobile Sets

1. Background

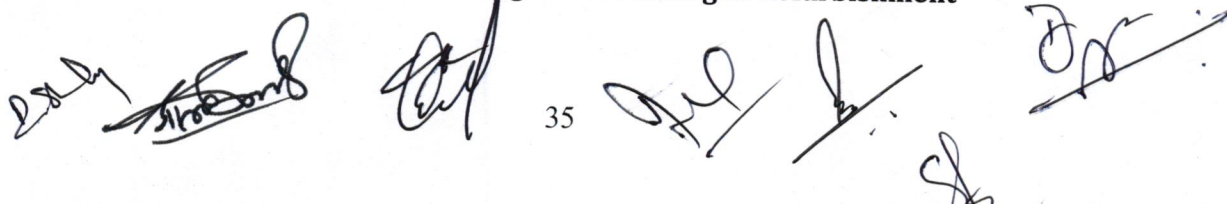
The refurbishment includes the reconditioning or repair of a used device undertaken with the intent of returning the device to service by a subsequent user. The refurbishment is intended to encourage companies that refurbish used mobile devices to implement refurbishment activities in a manner that is protective of the environment and worker health and safety and to facilitate a process whereby refurbished products entering in the market comply with applicable technical performance standards and applicable regulatory requirements. This Regulatory Framework is brought for the facilitation, promotion and regulation of refurbished mobile handset

2. Objective

The objectives for bringing this Regulatory Framework on Refurbish Mobile sets include the followings

- Increase the useful life of devices significantly
- To avail the expensive models with affordable range for the seeker/buyer.
- Addresses E-waste problem
- Reduces Imports
- Generate Employment

3. Flow for Environmentally sound Management relating to Refurbishment

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The refurbishment Facilities should undertake an initial sorting of device and components in order to identify and separate that which has potential for reuse as a whole or for re-use of parts, from equipment that should be recycled. Refurbishment facilities should accept only equipment that they are prepared to reuse/refurbish or send to an eco-environmentally sound material recovery operation. Personnel must be trained to handle equipment that can be fully processed. The following functionality tests are required for used device to confirm that the equipment is fully functional and is suitable for re-use:

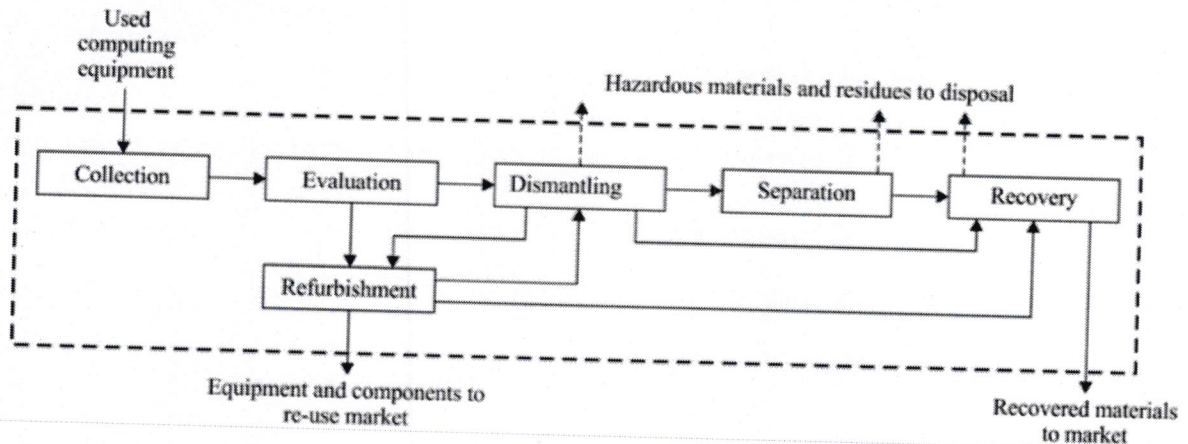


Fig. Flow diagram of environmentally sound management of used Mobile Set

(a) Batteries

It is important to note that there are a wide variety of battery sizes, capacities and technologies currently in use in mobile sets, although almost all new device batteries are of lithium-ion type with some older device based on nickel metal hydride or occasionally nickel cadmium (Ni Cd). A used device battery's current charge capacity relative to its original capacity can provide important information for the user or refurbisher because over time, the capacity of a battery to hold charge deteriorates. A battery's current capacity can be measured as a percentage of the amount of charge the battery was able to hold when new.

(b) Final testing

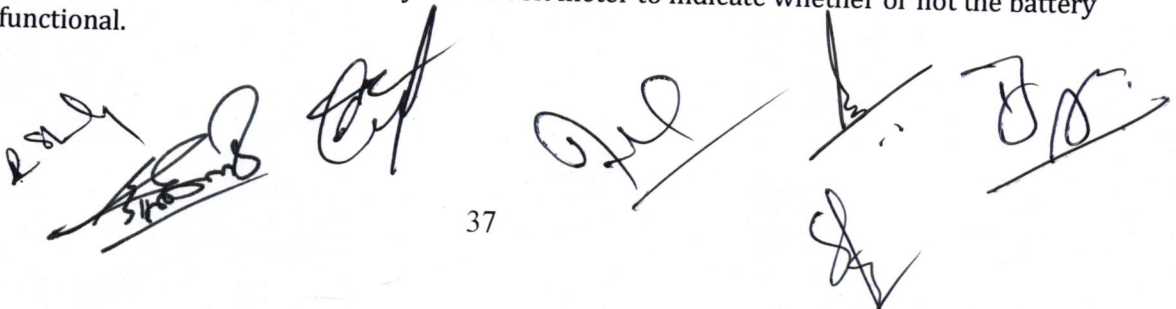
Final testing should be conducted by the refurbisher after the device has been refurbished or repaired to full functionality and is ready for reuse, and prior to sale, donation or export for reuse. Final testing of device and newly installed software should ensure the device and software conforms to user needs and will help to ensure compliance with controls of the country. This generally includes a Power on Self Test. System boot with all drivers resolved and some applications tests to ensure software functionality.

(c) Labeling/documentation for refurbished and repaired devices

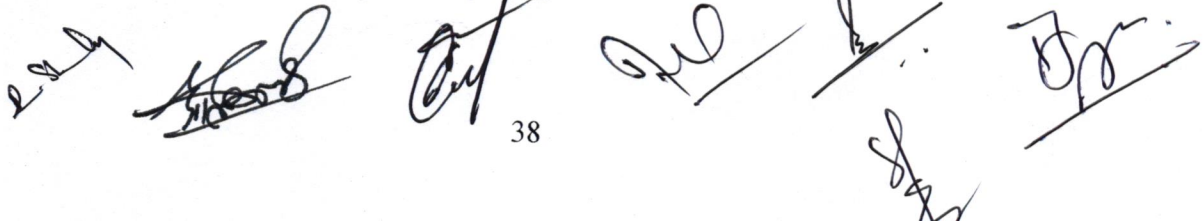
In addition to keeping on-site records of the diagnostic testing results, repairs and upgrades completed and final test results, there are additional types of documentation that refurbishers should provide. Information should clearly inform the subsequent purchaser/recipient of used equipment device that the products goods are used and/or refurbished/repaired. Refurbishers should provide detailed documentation of each device or components going for reuse (directly or indirectly from the refurbisher). It is intended that these labeling and/or documentation provisions will provide the subsequent purchaser/recipient with the contact and product information necessary in the case of a faulty product.

4. Generic Requirements for product handling and refurbishment of mobile phones

1. Facilities that refurbish used mobile phones should take steps to identify and sort used mobile phones which are to be refurbished from those that should be recycled for material recovery due to damage, wear, age or performance.
2. Refurbishment facilities should take care not to release data stored on the used mobile phones that they receive and should seek to remove and destroy such data.
3. Care should be taken to ensure that prolonging the life of a mobile phone does not result in the product exceeding the expected life of some of the components in the product. This problem is not unique to mobile phones.
4. Used mobile phones should be evaluated and assessed to determine the extent to which they are suitable for re-use with or without repair or refurbishment. As a minimum, this assessment will include:
 - (a) An "air" or "ping" test: calling a test number (which will vary from network to network), to generate a service response, and indication of whether or not the handset is functional;
 - (b) a "loop back" test: blowing or speaking into the handset while on a call, to determine whether or not the microphone and speaker are functional;
 - (c) a screen and keypad test: switching the handset on and pressing each of the keys, to indicate whether or not the LCD and keys are functional;
 - (d) a battery test: testing the battery with a volt meter to indicate whether or not the battery is functional.

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5. In general, only benign cleaning solutions should be used to clean used mobile phones. If they are not, refurbishers should use cleaning solutions in an eco-environmentally sound, efficient and safe manner. Where applicable, local laws and regulations should always be adhered to.
6. Care should also be taken to preserve the value of the component or material where practicable and to protect workers and the environment.
7. Refurbishment facilities should ensure that any solder used during the refurbishment process is compatible with the original solder used within the mobile phone and is compatible with any substance restrictions in the destination market. All soldering activities should be undertaken in conformity with occupational health and safety requirements to minimize worker exposure to fumes and dust.
8. Only manufacturer-specified genuine or refurbished genuine parts should be used. Corrective action processes should be in place to ensure the effective management of quality issues.
9. Refurbishment facilities should ensure that parts used in the refurbishment of mobile phones, including electrical devices, cases and covers, are of a type and design that will allow the mobile phones to comply with the rated operational characteristics specified by the original equipment manufacturer.
10. Replacement antennas should have the same part number as the original equipment, and should not alter the mobile phone's operational characteristics (including SAR) as specified by the original equipment manufacturer.
11. In accordance with appropriate waste shipping regulations, any battery that fails the inspection process and is rejected should be placed in a specifically designated container for proper transport to a recycling facility.
12. Replacement battery chargers should include the same safety circuitry, insulation and filtering found with the original equipment.
13. The maximum power level for a particular model must not be exceeded as a result of refurbishment. Technical standards for mobile phones usually specify a maximum power level and an allowable tolerance above and below this nominal value.
14. Facilities should not add or update software for refurbished mobile phones that would change the rated operational characteristics specified by the original equipment manufacturer as this may affect compliance of the mobile phone with standards for interference or for human exposure to radio frequency (RF) transmissions.



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15. Used mobile phones resold into markets should be packaged and handled in a manner that is consistent with their planned reuse.

7. Management of components and materials removed from used mobile phones.

16. Used mobile phone components and materials, not suitable for reuse, should be managed on site in a manner that preserves their value for materials and energy recovery.

17. In the case of materials that can be used only for purposes of materials recovery and recycling, the facilities should handle the materials on site so as to protect workers and the environment.

18. Refurbishment facilities should be encouraged to minimize the landfilling of used mobile phone components and materials and arrange for appropriate material recovery and recycling where practicable.

19. Items removed from used mobile phones, which may include batteries, electronic components, circuit boards and other items removed during reassembly, should be managed in an eco-environmentally sound manner and in accordance with any applicable requirements of the Basel Convention when destined for transboundary movement.

20. Facilities should first characterize their process residuals using testing or by having knowledge of the materials and processes used at the facility.

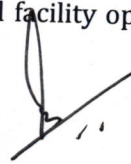
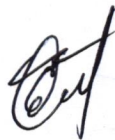
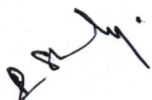
21. If residuals are to be disposed of, the refurbishment facilities should ensure that the residuals are delivered to a landfill or incineration facility that is suitable for the specific residual, is properly authorized by relevant regulator/s, is well maintained and is well operated.

8. Administrative measures and personnel training

22. Refurbishment facilities should maintain records of all mobile phones received and their disposition.

23. Refurbishment facilities should have systems in place for defining specific environmentally sound management objectives, develop plans to meet the objectives, implement such plans and monitor progress towards achievement of those objectives.

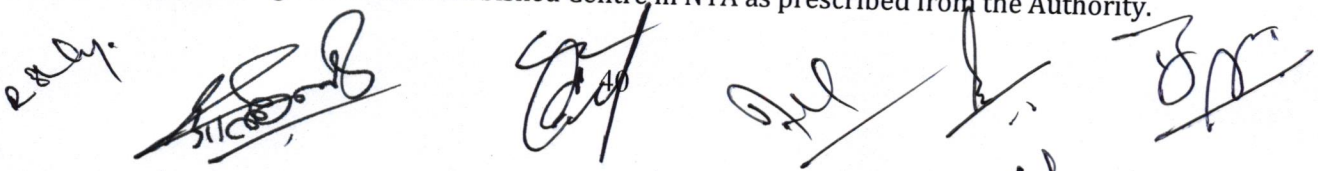
24. Refurbishment facilities should ensure that all their employees are thoroughly familiar with proper procedures for carrying out their responsibilities during normal facility operations and during emergencies.



25. Refurbishment facilities dealing with products that are potentially hazardous to the health and safety of their workers or the environment are required to have processes, documented or otherwise, in place to ensure that those products are regularly inspected and monitored as required by our country's regulatory authority.
26. Refurbishment facilities dealing with products and materials that are defined by as "waste" are required to hold all relevant waste management permits, licenses or other authorizations required by relevant regulatory authority if such e-waste management requirement comes into effect.
27. Where refurbishers or other parties are exporting refurbished mobile phones, care should be taken to ensure compliance with all applicable laws governing product trade.
28. Refurbishers, and other parties which recondition and repair mobile phones, should ensure that their practices are consistent with applicable telecommunications and other legislation along with this Regulatory Framework.
29. Labeling is a requirement and such labeling may be on the mobile phone itself or in the product packaging as determined by the NTA (e.g Refurbished Phone in Nepal) for such refurbished devices.
30. Any party refurbishing or remarketing a mobile device should inform the subsequent purchaser that the product is used and/or refurbished and provide contact information necessary in the case of faulty product.

9. Miscellaneous

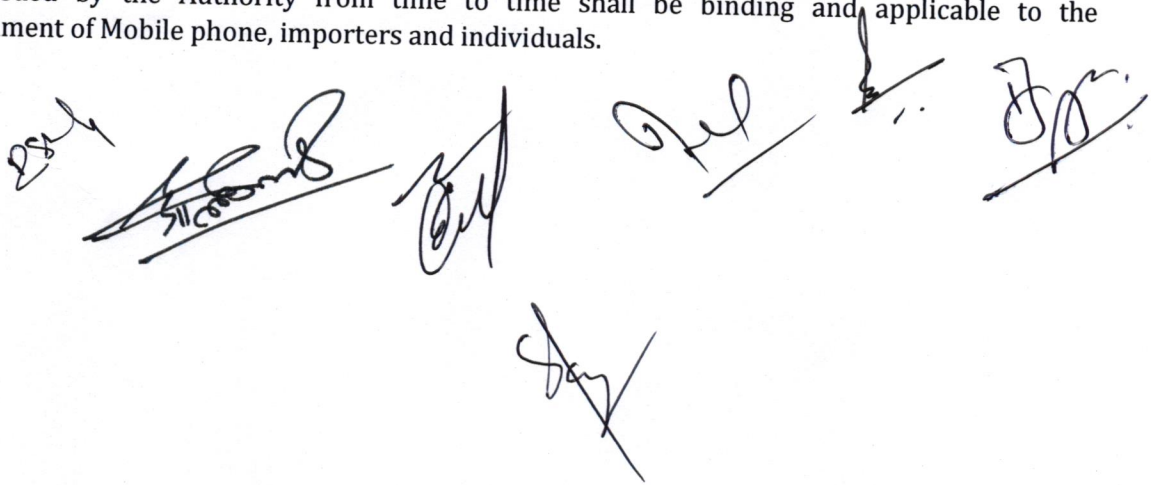
- 31. Custom Clearance:** (1) All custom clearances for the import of spare components for domestic refurbished device/s in Nepal should be completed expeditiously and preferably within 15 days of application.
- (2)) The necessary recommendation for the custom clearance shall be expeditiously managed in NTA based upon the request from the concerned entity to the NTA.
- 32. Monitoring & Enforcement:** The Authority can inspect and monitor the compliance of the requirement as prescribed in this Regulatory Framework for market of Refurbishment of Mobile Handset from time to time.
- 33. Decision Making:** The NTA has the power to take decision to issue the necessary permission relating to Establishment of Refurbishment Centre.
- 34. Registration for Refurbished Centre:** The entity who intends to establish refurbish centre for Mobile Phone shall register such Refurbished Centre in NTA as prescribed from the Authority.

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35. Power to Remove Difficulties: If any difficulty arises in the implementation of this Regulatory Framework, the NTA may take necessary decision to remove such difficulties without any inconsistency with the provisions of this Regulatory Framework.

36. Maintenance of Up-to-date Records: The Refurbished Centre shall prepare and maintain records of all transactions on the Refurbished service in an up to date manner and shall present the said records to the Authority as and when required in the course of inspection or inquiry.

37. Directions of the Authority: All directives, notifications, standard operating procedures and orders issued by the Authority from time to time shall be binding and applicable to the Refurbishment of Mobile phone, importers and individuals.

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Annex - 2

Current Employment Status (source MPIA& NMDA)

Establishment	Members	No of Employees	Total
Mobile Phone Dealers (RD) - members	160	4.9	785
Mobile Phone Dealers (RD) - Non-members	50	2.8	140
Retailers	3500	2.5	6500
National Dealers	20	25	500
Indirect Employees			400

Total no. of non-technical employees 10700

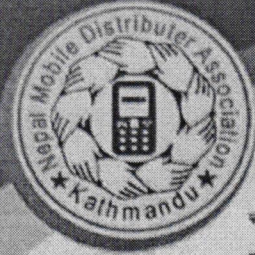
Technical Staff employed by National & Regional dealers			500
Independent mobile Repair shops	2000	2	4000

Total Technical employees 4500

Owners			3700
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Total Employment			18900
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दस्तावेज नं.: १६३/०७२/०७३

नेपाल मोबाइल वितरक संघ Nepal Mobile Distributer Association

च.नं.: ३७

प.सं.: १४

मिति: २०७४-०३-१६

श्रीमान् अध्यक्षज्यू,
मोबाइल फोन आयातकर्ता संघ
काठमाडौं, नेपाल ।

विषय: जानकारी उपलब्ध गराउने विषयमा ।

महोदय,

उपरोक्त सम्बन्धमा मोबाइल फोन इम्पोर्टर्स संघले नेपाल दूरसंचार प्राधिकरणसँग विभिन्न तहमा मोबाइल प्रविधिको विकास र व्यवस्थापनका विषयमा पहल गर्नु भएकोमा शुभकामना दिन चाहन्छु र यस शुभकार्यमा नेपाल मोबाइल वितरक संघको पूर्ण साथ र सहयोग रहनेछ ।

पत्रमा अनुरोध गरिए अनुसार हाम्रो संघ र हामीसँग जोडिएका संस्था तथा जनशक्तिको जानकारीको ढाँचा निम्नानुसार रहेको छ ।

क्र.सं.	विवरण	संख्या	जनशक्ति
१)	NMDA मा आवद्ध भएका	१६०	७८५
२)	NMDA मा आवद्ध नभएका	५०	१४०
३)	Retailer हरूको संख्या	३५००	६५००

अध्यक्ष

नेपाल मोबाइल वितरक संघ

References

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- f) www.circulareconomy.europa.eu
- g) www.jagranjosh.com
- h) 2077/78 Q1 NTA Report on study on better management of imports and usage of Mobile devices.
- i) Arkophone.com
- j) Sabkophone.com
- k) Dokorecyclers.com
- l) Cashforphone.in
- m) Statista.com
- n) Compasia.com
- o) Financialexpress.com
- p) [https://www.unido.org/sites/default/files/files/2020-03/Final%20Vietnam White Paper 2019.pdf](https://www.unido.org/sites/default/files/files/2020-03/Final%20Vietnam%20White%20Paper%202019.pdf)
- q) <https://dipp.gov.in/programmes-and-schemes/industrial-promotion/investment-promotion>
- r) <https://www.vietnam-briefing.com/news/vietnams-electronics-industry-guide-emerging-opportunities.html/>
- s) <https://dot.gov.in/telecom-equipment-manufacturing>

