

**Corporate Geography,  
Labour Conditions and  
Environmental Standards in  
the Mobile Phone  
Manufacturing Industry in  
India**

**CIVIDEP**

**Amsterdam, September 2009**

## Colophon

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Environmental Standards in the Mobile  
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Cividep

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# 1. Introduction

The purpose of the follow-up study on the mobile phone manufacturing industry in India is to update the India section of the SOMO study published in November 2006.<sup>1</sup> It aims to assess the changes and developments in the sector in India since the previous field research was carried out by Cividep during March-September 2006. The 2006 study provided a comprehensive view of the nascent industry while highlighting issues in relation to corporate social responsibility (CSR) that need to be monitored.

This report will map out the major trends in mobile manufacturing in India since 2006, including a snapshot of the structure, size and value of the industry and portraits in brief of the companies currently operating in India. This will be followed by an analysis of the general policy framework that governs the industry, and finally, the paper will highlight the critical issues of concern that are emerging as the industry matures within the Indian context.

## 1.1 Methodology

Data for this report have been collected through a variety of primary and secondary sources. Field research was initiated with the aim to identify the companies, including component suppliers, which have shifted their production to India within the last two years in order to determine which companies to interview. The priority was to conduct an interview with managers of all the companies interviewed during the previous field research. These interviews with corporate managers were complemented by interviews of manufacturing workers employed by these companies in order to gain insights into the different perspectives within the industry. Great effort was made at establishing contact with workers from the different manufacturing plants either directly or whenever possible, through local organisations with which the workers already had relationships of trust. An issue that became apparent early on in this part of the research is that there is virtually no organising base among the worker communities associated with this industry. As a result, contact with workers had to be established on an individual basis. Since the workers keep long hours and are on the company's property – either in the factory or in buses provided by the company for daily commute – they needed to be contacted and interviewed in their residential areas. Please refer to the last section of this report for details on the interviews with workers and other stakeholders for this study.

It is also important to note that although many of the multinational mobile manufacturing in India have some form of code of conduct, often at the corporate-wide level rather than India-specific, it has been extremely difficult to engage senior level managers on the progress and challenges involved in implementing them. Please refer to Table 1 below for a list of the companies contacted for this study.

In most cases, repeated attempts to contact the appropriate person by phone over a period of two months were thwarted in a number of ways by the receptionists or assistants who played the role of 'gate-keepers'. More often than not, email requests for an interview remained un-responded. When the appropriate person was reached by phone or email, the request was either referred on to a colleague or in one case, turned down on grounds that it would breach the manager's contractual commitment to maintain corporate confidentiality. This is in clear contrast to previous experience of conducting research in the electronics manufacturing industry.

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<sup>1</sup> De Haan, E. and Ramsing, J. W. (2006) *The High Cost of Calling: Critical issues in the mobile phone industry*, Amsterdam: SOMO.

**Table 1: List of the mobile manufacturers contacted**

COMPANY	CONTACT	RESPONSE
LG	Divesh Kumar	No response
Motorola	Narayan Venkatraman	Declined
Samsung	Gautam Khattar	No response
Nokia	Poonam Kaul	No response
Sony Ericsson	Dhiraj Soni	No response
Flextronics	Renee Brotherton	No response
Elcoteq	Kumar Sukhvinder	Interviewed
Foxconn	P.K. Gopalakrishnan	No response
Aspocomp	Quixote Tsang	No response
Perlos	Srinivas Reddy	No response
Salcomp	Arto Makela	Interviewed
Incap	Kolehmainen	Interviewed
Wintek Technology	John Chaung	No response
Laird	S.K. Murali	Declined

Also in the review process, in which companies were asked to comment on their company profile, the response was low. The different company profiles have been sent to Indian representatives from LG, Samsung, Nokia, Motorola, Perlos, Flextronics and Sony Ericsson for a review. Only Motorola and Flextronics have answered Cividep, while Sony Ericsson have let Cividep know that they will forward the mail to the concerned person in the company. There have not been any further mails from Sony Ericsson. Motorola mentioned that the company profile was fine and Flextronics responded in detail to several of the findings. The reaction of Flextronics has been included in this report.

The research findings from the personal interviews have been complemented with information gleaned from press reports, company brochures and industrial association websites.

## 1.2 Information about SOMO

Established in 1973, the Centre for Research on Multinational Corporations (SOMO) is a non-profit Dutch research and advisory bureau. SOMO investigates the consequences of Multinational Enterprises' (MNEs) policies and the internationalisation of business worldwide. SOMO's expertise lies in the field of international guidelines, treaties and codes of conduct for MNEs, and it conducts research on compliance with related norms. Focus is placed upon research on labour conditions in the global South and cooperation with local organisations and trade unions.

Website: [www.somo.nl](http://www.somo.nl).

## 1.3 Information about Cividep

Cividep is a civil society organisation based in Bangalore, India. Cividep-India has helped workers organise, studied the effects of corporate activities on communities and the environment and campaigned with many other organisations and individuals for workers' rights and corporate accountability. Cividep is part of collaborative networks of individuals and organisations concerned with workers' lives and the effect of economic globalisation and corporate behavior on our social, economic and physical environment.

Website: [www.cividep.org](http://www.cividep.org).

## 2. Why India? Placing the industry on the map

India has become an extremely attractive market for Original Equipment Manufacturers (OEMs) in most segments of electronics production, with an estimated 11% of the global market share by 2015.<sup>2</sup> The global telecom sector has shown keen interest in taking advantage of the huge economic opportunity that India represents. Latest figures from the Department of Telecommunications (DoT) indicate that revenue from the telecom manufacturing sector is set to cross the \$6.5 billion (Rs 23,656 crore) figure in the fiscal year 2007-08. At the current growth rate, the Indian telecom equipment-manufacturing sector is set to become one of the largest globally by 2010.<sup>3</sup>

In early 2007, the Indian Union Ministry of Communication disclosed that over \$ 3.5 billion in foreign direct investments have been committed in the telecommunications and IT sector over the past two years and an estimated additional investment of \$2 billion is expected in 2008.<sup>4</sup> Table 2 below lists the amounts which have flowed into the country since 1991.

**Table 2: Foreign Direct Investment in Telecommunications by year**

<b>YEAR (April - March)</b>	<b>AMOUNT (Rs. In Million)</b>
August 1991 to December 1999	50202
2000-01	7,841.59
2001-02	39,384.61
2002-03	9,077.31
2003-04	5,139.21
2004-05	5,695.38
2005-06	27,759.53
2006-07	21,550.77
2007-08	51,026.09
August 2008	14,568.22
<b>Total</b>	<b>182,042.72</b>

Source: Department of Telecommunications, Government of India,  
<http://www.dot.gov.in/osp/Investment%20Policy/FDI%20inflow-year-wise.htm>

The Table below lists the top 25 national sources of FDI with a grand total of Rs. 182,147.31 attracted from 43 different countries.

<sup>2</sup> Indian Semiconductor Association, Annual Report 2006-07

<sup>3</sup> [http://www.sicc.ch/documents/IndiaNews\\_April2008.pdf](http://www.sicc.ch/documents/IndiaNews_April2008.pdf)

<sup>4</sup> "India next hot EMS destination?"

**Table 3: FDI by country of origin from January 2000 to August 2008**

Name of the country	FDI in Rs.	FDI in US\$	%
Mauritius	150,103.74	3456.47	82.41
U.S.A.	5,217.49	119.08	2.86
Japan	3,548.41	80.62	1.97
Netherlands	3,033.79	68.94	1.67
Unindicated country	2,971.49	73.88	1.63
U.K.	2,959.04	64.96	1.62
Germany	2,233.20	55.3	1.24
Australia	1630.88	36.68	0.09
Spain	1,589.70	36.29	0.88
Non-Resident Indian (NRI)	1,485.65	37.21	0.82
U.A.E.	1,160.61	25.51	0.64
Hong kong	1,092.24	24.2	0.61
Singapore	1,088.34	24.67	0.6
Thailand	735.12	17.1	0.41
France	681.15	16.45	0.38
Cyprus	675.72	15.41	0.37
Sweden	650	15.12	0.36
Korea (South)	461.66	10.02	0.26
Switzerland	274.45	6.12	0.15
Bermuda	171.47	3.8	0.09
Maldives	108.95	2.45	0.06
Kuwait	56.92	1.23	0.03
Chile	45	1	0.02
Taiwan	35.2	0.8	0.02
Seychelles	34.88	0.87	0.02

Source: Department of Telecommunications, Government of India,  
<http://www.dot.gov.in/osp/Investment%20Policy/FDI%20Inflow%20-%20Country-wise.htm>

The majority of this investment has been in manufacturing which has leaped phenomenally since 2005 when global telecommunication equipment manufacturers established their operations in India. Production in telecom equipment has increased from Rs 17,833 crore (US \$ 4,458 million) in 2005-06 to Rs 23,656 crore (US \$ 5,914 million) in 2006-07 and the projected figure for the year 2007-08 is Rs 26,253 crore (US \$ 6,563 million).<sup>5</sup> According to a report by Gartner Inc, mobile phone manufacturing was the largest contributor to India's overall electronics production revenue in 2006, and to the total available market (TAM) for semiconductors. Gartner also reported that India produced nearly 31 million mobile phones in 2006 at a value of about US\$ 5 billion. Production volumes are expected to reach nearly 95 million, and to register a compound annual growth rate (CAGR) of 25 percent between 2006 and 2011.<sup>6</sup>

Why is there such a great surge in mobile manufacturing in India? A report by KPMG, *India Calling - 2008* pointed to 6 key drivers of the Indian telecommunications sector. They are:

<sup>5</sup> [http://www.sicc.ch/documents/IndiaNews\\_April2008.pdf](http://www.sicc.ch/documents/IndiaNews_April2008.pdf)

<sup>6</sup> Ribeiro, J. (2007) "Mobile phone production in India growing, says Gartner," PC World, 25 June.

- Further cuts in regulatory costs (license fee, USO fund contribution, ADC, etc)
- Infrastructure sharing to result in speedy rollouts of networks and wider coverage
- Lower cost of equipment (with most of the global equipment manufacturers setting up operations in India)
- Low wireless penetration of about 22.5% compared to world average of 50%
- Favorable demographics – rising young population coupled with growing middle-class to drive consumption power
- Increasing affordability – low tariffs, easy payment plans and low priced handset

Below is a fuller discussion of some of the most prominent trends in the mobile manufacturing industry that have implications for ways in which social and environmental concerns can begin to be addressed.

## 2.1 Domestic market demand

The rise in handset production is due to tremendous market demand as evident in the soaring growth in the number of mobile subscribers in India. According to the figures provided by the Delhi-based Telecom Regulatory Authority of India (TRAI), over 6 million new mobile subscribers are added each month, with a total of 233.63 million subscribers in December, 2007<sup>7</sup> and crossing 250 million in early 2008,<sup>8</sup> with the addition of 8.53 million mobile subscribers in February alone.<sup>9</sup> Approximately 30% of the Indian population is expected to be covered by the mobile network by the end of 2008.<sup>10</sup>

Based on these figures, India is the fourth largest mobile market behind China, the United States, and Russia.<sup>11</sup> India currently has the world's lowest call rates (US\$0.02-0.03), the fastest sales of a million mobile phones (1 week), and the world's cheapest mobile handset (US\$ 17.2).<sup>12</sup> In comparison to China's mobile market which is reaching a plateau, India's has been galloping ahead at wildfire pace. Part of the reason for the phenomenal growth of consumer demand for mobiles is its affordability with companies passing on volume driven price reductions on to the consumers, which in turn is further fuelling manufacturing and cut-throat competition among the leading mobile manufacturers and telecom equipment vendors. Due to the global recession, demand for mobile phones in India fell from 30% to just 8% but this global decline is anticipated to be temporary with sales picking up in early 2010.<sup>13</sup>

## 2.2 Localization strategy

Global manufacturers are using localization as a strategic move to stake a lead within the hottest mobile market in the world. Their business expansion plan consists of proximity to top-notch design centers. Software design capabilities are available in abundance in India and manufacturers are tapping into these for the constantly-evolving mobile phones. For example, 40 percent of the software

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<sup>7</sup> DIT Annual Report 2007-08

<sup>8</sup> Struthers-Watson, K. (2008) "India's mobile market is on the move," 14 August, [www.telecommagazine.com](http://www.telecommagazine.com)

<sup>9</sup> [http://www.sicc.ch/documents/IndiaNews\\_April2008.pdf](http://www.sicc.ch/documents/IndiaNews_April2008.pdf)

<sup>10</sup> Keerthi Alva, September 27, 2007

<sup>11</sup> Giridhar, C. (2007) "India's appeal to electronics industry gets hotter," *Movers & Shakers*, 21 June.

<http://www.edn.com/article/CA6445790.html?industryid=47479&nid=2790&rid=>

<sup>12</sup> Department of Information Technology (DIT), Annual Report 2007-08

<sup>13</sup> PTI (2009) "Global mobile industry may lose \$20 billion this year"

<http://www.mydigitalfc.com/industry/global-mobile-industry-may-lose-20-b-933>

that operates Motorola's ultra-thin, slick RAZR handset is developed in its Indian research and development facility.<sup>14</sup> Manufacturing domestically for the Indian market also avoids transportation costs and duties on components that would otherwise have to be imported from other production sites around the world.

Furthermore, having a domestic manufacturing base in India makes the companies eligible for large public tenders floated by the government of India, which is actively cashing in on the surge in mobile manufacturing and retail in order to boost manufacturing of electronics components more generally in the country. For example, the terms of the tender opened by the state-owned Bharat Sanchar Nigam Limited (BSNL) for a GSM network contract requires that one third of the equipment be produced locally. Fulfilling this eligibility requirement and winning the bid has huge significance as BSNL is India's third largest mobile operator in India and the contract is among the largest telecoms upgrade deals awarded this year. BSNL awarded Motorola Inc. this \$90 million contract to provide a network services programme including both software and hardware support to BSNL in order to add 2.3 million subscribers to BSNL's existing GSM network in the south.<sup>15</sup>

## 2.3 India, a hub for exports

While the burgeoning domestic market and the abundance of technically skilled workforce are key reasons for the rush into India, there are also signs that India will become a global sourcing location. India is geographically central to growing markets in the Middle East and Africa, making the time span from design-to-market shorter than if the mobiles were to be transported from Europe or other production zones. An added advantage is that indirect labor costs in India are about the same as in China but direct labor costs are about 30% lower.<sup>16</sup> For these and other reasons, mobile manufacturers plan to make India a hub for exporting mobiles to the Middle East, neighboring countries and Europe, according to the Chief Executive of a consultancy firm that has helped many of the leading telecommunications companies to establish manufacturing units in India.<sup>17</sup>

Nokia is already exporting 30-40% of its annual production at the Sriperumbudur (Chennai) plant to countries in Southeast Asia, ie. Singapore, Thailand and Malaysia, and is planning to expand its exports to other continents.<sup>18</sup> LG's manufacturing unit in the outskirts of Pune, Maharashtra exports mobiles to countries in the Middle East, Africa and Asia. The company has earmarked 10 million handsets from its unit in India for export to Bangladesh, the Middle East, Nepal, Sri Lanka and Africa by 2010. It also plans to export handsets to countries in Europe and the Commonwealth of Independent States (KPMG 2008). Xenitis Telecommunications will be producing 1,60,000 handsets a month for leading mobile manufacturers and service providers in the country, of which 50,000 will be exported to Dubai and West Asia.<sup>19</sup>

From the level of foreign direct investment in mobile manufacturing to the soaring demand for mobiles in India and the country's potential of becoming a global hub in the transnational production networks, it is clear that the mobile industry is in India to stay for the foreseeable future. Indeed, it is on the rise

<sup>14</sup> Reuters (2006) " 'Made in India' phones for global markets" <http://www.supplychains.in/en/art/?61>

<sup>15</sup> KPMG, June, issue 20, 2008, p. 14

<sup>16</sup> Conde, R. (2006) "Technology Forecasters Quarterly Forum - China RoHS, India, Supply Chain Maturity, and more," *EMS Now*, December 13, <http://www.emsnow.com/newsarchives/archivedetails.cfm?ID=15544> (Accessed 17-Dec-06)

<sup>17</sup> Made in India phones for global markets

<sup>18</sup> "India next hot EMS destination?" <http://www.evertiq.com/news/read.do?news=6930&cat=1> accessed 29 May, 2008

<sup>19</sup> "Xenitis to launch mobile handset at Rs 499" <http://www.thehindubusinessline.com/2008/05/29/stories/2008052951990400.htm>

and according to some industry observers, is also a harbinger of vibrant electronics manufacturing in India. Hence understanding the driving forces within the industry is vital in order to protect workers' interests.

## 3. Major trends in the industry

Companies are vying aggressively with each other in an extremely competitive environment in order to build their market share and industry leadership position in India. In the words of one manager, they are trying to achieve this: "By being aggressive on the innovation and product front, pricing it right and ensuring consumer pull" (Lakshman, 2005). In India, the evident clusters of mobile manufacturing are in Sriperumbudur, near Chennai on the south-eastern border of India; around Bangalore, the capital of the southern state of Karnataka; and in Ranjangaon, about 65 Kms from Pune in the state of Maharashtra; with some manufacturing also located in other spots such as NOIDA, near Delhi in the North; Pondicherry, south of Chennai; and Sugandha in Hooghly, which is 45 km from Kolkata in the North-East. See Appendix 1 for geographical overview of FDI in the telecoms industry.

### 3.1 Shorter time to market spans

One of the most remarkable characteristics of the mobile industry, like the electronics industry more generally, is the break-neck speed at which innovations are integrated in the design of the structure and features of the handsets. In order to corner the market, companies are setting up research and development units in urban areas to keep up with the changing tastes of the target clients. They are trying to reduce the response time from the development phase of production to the time the handset hits the market. Earlier there was a 5-6 month lag, now there is pressure on companies to deliver newer models within 2 to 3 months. Not only do the companies have to diminish response time but they also have to customize their product in the highly segmented domestic market. In 2003, 80 per cent of the market was dominated by black and white mobile screen sets, in 2005 colour phones accounted for more than half the total market. And this trend will continue until the end of the decade when black and white sets will be no more than 10% of the market. Yet, given the sheer size of India's population, this is a significant portion of the market which still needs to be catered to.

It is not only the first-time user base that is growing, but also the replacement or upgrade market that is robust. The value-added services that telecom companies are offering to mobile users have in large part spurred a huge market for replacements of handsets. While replacements were barely 10% of the total mobile phone market a few years ago, they are now rising rapidly to 30-40% of the market. Frequent upgrades of existing models are also part of the reason in a status-conscious society where everyone wants to be seen with the latest model.

### 3.2 More than a communication tool

Mobiles are gradually overtaking computers in terms of sales as they become the preferred way that Indians access the internet. According to the Manufacturers Association of Information Technology (MAIT), the sale of computers were expected to hit 6 million in 2006, whereas the number of new subscribers to mobile phone services is about 6 million each month. Many Indian consumers are also bypassing the landline and going straight to the mobile phone for various reasons including costs and technological versatility. There are only about 45 million land-lines in India.<sup>20</sup> According to the

<sup>20</sup> Boudreau, J. (2006) "Cell Phones Blaze a trail to Internet," San Jose Mercury News, 4 December 2004, accessed at [http://www.mercurynews.com/mld/mercurynews/business/special\\_packages/india/16161494.htm](http://www.mercurynews.com/mld/mercurynews/business/special_packages/india/16161494.htm) (accessed 6 Dec 2006)

Department of Technology figures, the gross number of telephone subscribers reached 272.88 million while there were 233.63 million mobile telephone subscribers in December 2007.<sup>21</sup> With their ever-expanding features, cost-effective handsets combine the benefits of many electronic gadgets that the average consumer can use. For example, third generation (3G) mobile networks, comparable to broadband, allow for high-speed mobile Internet access and are being deployed enthusiastically by the youth and business-class across India. The recent pilot launch of free-of-cost 3G mobile services by the state-owned Bharat Sanchar Nigam (BSNL) to a segment of their customers is expected to boost the growing appetite of customers to use their mobiles as a multi-media device.

### 3.3 Rural Chalo

According to a study done by LIRNEasia and AC Nielson, rural customers contribute about 5% of the national GSM handset sales. This is expected to rise to 25-30 % by 2009.<sup>22</sup> In other words, close to 100 million new cellular subscribers are expected to come from the rural areas of India over the next one or two years. On April 21, 2008, all the private mobile service providers came together under the aegis of the Cellular Operators Association of India (COAI) and the Association of Unified Telecom Service Providers of India (AUSPI), the industry associations for GSM and CDMA mobile service providers respectively, to launch the *Rural Chalo* [Let's go Rural] campaign by offering financial incentives to first-time rural customers.<sup>23</sup> Moreover, the central government's Eleventh Plan has set a target of achieving rural tele-density of 25% by means of 200 million wireless phone connections.<sup>24</sup>

Nokia recently commissioned a study called Mobility Development Report through the Centre for Knowledge Societies (CKS) to understand the nuances of this golden market opportunity. Based on extensive research, companies like Nokia have realized that the basic form of a cell phone and its features need to be re-configured with the rural customer's needs and environment in mind. For instance, radios rather than cameras are a popular part of mobile phones among farmers. The phones need to come with longer battery life as they don't get charged on a daily basis due to an acute shortage of power supply in rural areas. Moreover, since language diversity and limited literacy are integral to the social and cultural fabric of India, companies have had to introduce voice-activated interface systems. Nokia has integrated 9 regional languages in its interface system while Motorola has introduced the MOTOFOONE, which responds to verbal prompts in local languages.

### 3.4 Mobiles to semiconductor manufacturing?

Manufacturing companies are actively planning to ride the wave of domestic mobile phone manufacturing in order to create a semiconductor industry in India (Boudreau, 2006). At present, there is no chip fabrication unit in the country and all chips are imported. Companies have been lobbying the government for better infrastructure such as good roads, reliable water and power supplies, and for tax incentives to mitigate the burden of initial capital expenditure upfront to construct \$3 billion chip factories. They aim to create an environment in which the entire electronic industry ecosystem comprising of ASIC designers, semiconductor fab facilities, embedded system design houses, testing facilities, OEMs, and others can co-exist.

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<sup>21</sup> Communication and Broadcasting sector, Dept of Information Technology <http://www.mit.gov.in/default.aspx?id=86>

<sup>22</sup> "Mobile manufacturers trying to capitalise on Rural India," 4 September, 2007

<sup>23</sup> COAI and AUSPI press release

<sup>24</sup> DoT, Annual Report 2007-08, p. 10

## 4. Company profiles

There was virtually no mobile phone manufacturing in India before 2005 but today, many industry analysts are forecasting that India may overtake China in the production of low-cost mobile handsets. Finnish company, Elcoteq was the first to set up a mobile manufacturing unit in Bangalore in April 2005. Following on its heels were Korean giants LG and Samsung and market leader Nokia in 2006. Today, the top five global mobile phone manufacturers worldwide – Nokia, Samsung, Motorola, Sony Ericsson, and LG Electronics – are all vying for the mobile market in India. India is also fast attracting EMSs which are investing heavily in manufacturing within the country. Besides these, the Indian mobile manufacturing market also has a presence of a handful of smaller players such as Spice, Bleu, and Haier.<sup>25</sup> Competition for the market is also driven by a few locally branded phone vendors and manufacturers such as Spice, Usha Lexus, and BPL that are either manufacturing locally or import the handsets.<sup>26</sup> Please refer to Appendix 1 for a list of the major foreign direct investments in mobile manufacturing over just two years.

What is indeed most significant is the huge level of investments the companies are making in India with state-of-art facilities which will have long term implications for workers, communities and for manufacturing in India generally, but most particularly for the electronics industry. According to the Gartner report, local manufacturers are expected to increase their market share to a fifth of the production volume by the end of 2011 but the top five global handset producers will continue to dominate. Domestic brands will continue to grow in the Indian market supported by the increasing demand for low-cost mobile phones. For example, Reliance Communications Ltd., a large Indian telecoms operator, already offers its own brand mobile phones called the Classic range which is customized and made by contract manufacturers outside India. The company sold one million units in the first week that a low-cost model was launched in May 2008 at the cost of about US\$19. But it is still not clear whether Reliance has plans to move manufacturing to India.<sup>27</sup>

Below is a brief commentary on key players in India highlighting their ownership structures, latest available revenue figures, market share analysis and their projections.

### 4.1 Original Equipment Manufacturers (OEMs)

#### LG

Established in 1997, LG Electronics India (LGEI) is a wholly-owned subsidiary of LG Electronics, South Korea. It is one of the leading companies in consumer electronics, home appliances and computer peripherals in India. LG also manufactures mobile phones in India for the domestic market. It plans to expand its handset manufacturing facility which used to export mobiles from India to European countries, countries in the Middle East, Africa, Asia and the Commonwealth of Independent States.

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<sup>25</sup> <http://www.redherring.com/Home/23518>

<sup>26</sup> News of Mobile industry by BWCS

<sup>27</sup> Ribeiro, J. (2007) "Mobile phone production in India growing, says Gartner," PC World, 25 June.

### Samsung

Samsung India Electronics Ltd., a subsidiary of the US\$56 billion Samsung Electronics Co. Ltd., has been operating in India since 1995. It is a leading provider of high tech consumer electronics, home appliance, IT and telecom products in the country. Samsung India has set up manufacturing facilities for color televisions, microwave ovens, washing machines, air-conditioners, color monitors and more recently, refrigerators in the country. It has a plant in Noida. The revenue for 2005 was US\$ 1086 million.

### Nokia

Nokia has so far invested \$210 million in its Indian operations and will invest \$75 million during 2008 in its facility in Sriperumbudur, 40 kms from Chennai to enhance its capacity. Nokia is by far the leader of the mobile industry controlling nearly half of the \$2.5 billion Indian mobile handset market. According to most sources, the plant now employs around 4,700 people of which 70% are women. At least seven component manufacturers, including Salcomp, Aspocomp, Foxconn, Perlos, Jabil, Laird, and Wintek, have set up operations in the Nokia SEZ Telecom Park, in the outskirts of Chennai. The Park is estimated to have generated around 30,000 jobs.

### Sony Ericsson

Sony Ericsson announced in January 2007 that it would begin manufacturing GSM mobile phones in India through manufacturing agreements with Flextronics and Foxconn. According to Sony Ericsson, the annual production of its phones in India is to reach 10 million by 2009.

## 4.2 Electronics Manufacturing Services (EMSs)

### Flextronics

A Singaporean company, Flextronics acquired three design-centric companies: Hughes Software Systems, DeccaNet and FutureSoft and consolidated the software companies into a new subsidiary based in India. It provides higher-value, higher-margin design services for cell phone and telecom/networking software. Nokia and Alcatel and Sony Ericsson are among its existing customers. The company also maintains an ongoing investment in Celetronix, one of the largest electronics equipment manufacturers in India.

### Jabil

Jabil is an American firm with substantial Japanese presence. It has a 175,000-square-foot facility located in Ranjangaon, near Pune, in the state of Maharashtra where it produces printed circuit boards (PCBs), enclosure integration and distribution and repair services with in-region design services support. It serves the consumer, instrumentation, networking, peripherals and telecommunications industries.

### Elcoteq<sup>28</sup>

Elcoteq started operations in India on April 11, 2005 and manufactures 4 to 6 million handsets per year, fast measuring up to its client Nokia's plant in China. Elcoteq had a turnover of Rs 4.3 billion Euros in 2006. The company employs about 1200 people in Bangalore, of which 710 workers are on the shop floor (operators) with only 12% who are women. The main reason for this low percentage of

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<sup>28</sup> Based on an interview with the General Manager

women workers is the governmental prohibition of women from carrying out the night shift. The average age of the operators is 22 years. Work goes on in three shifts. Operators receive Rs 55,000 per annum the first year and a bonus once a year. Salaries are growing in this area (12%-15% increase per annum). They are charged nominally for food and transport. According to the General Manager, Operators work 8 hours a day during 6 days a week and over-time is only 2 hours on an average per month.

Although the company will add another floor to its production unit in order to increase its capacity, this will not result in an expansion of the workforce. A majority of workers are from Tamil Nadu. The company hires directly from ITI colleges whose students are keen to join MNCs. In 2007, the turnover of workers ranged from 2% to 8% with an average of 2.5% attrition rate per month. Operators can be promoted to Line Leaders and shift leaders based on their performance. Multi-skilling and knowledge about policies, and so on are required for upward mobility in the company. Only the housekeeping and security workers are on contract.

Elcoteq's office in Bangalore comes under the Electronic Hardware Technology Park (EHTP) scheme of the government (see Appendix 2). It enjoys all the benefits given under this scheme such as exemptions in tax, customs duty, duty free imports, and capital goods are exempted from import duty. However, there was no concession on the purchase of land by Elcoteq.

Under the EHTP scheme, Elcoteq has to export 50% of its production over a time period. It exports to Europe, Americas, Russia and Asia. Most of its products go to the Middle East countries which serve as a market hub. A majority of the goods are then exported from there to Europe. Its manufacturing strategy comprises high-volume and a low-mix plant for terminal products, and Communication Network Equipment (CNE).

Elcoteq-India's CSR policies related to the environment, health and safety issues are based on the global Elcoteq's policy. They include a number of activities including an Environment, Health and Safety (EHS) week in December when trainings on First Aid, safety measures, X-Rays, efficient use of water, CO2 emission, use of PPE (Personal Protective Equipments) etc. are held. 'Green Elcoteq' includes energy conservation, waste and chemical management, CO2 emission, and tree plantation. The company has an internal employee grievance system, that is workers can raise their issues at the Operations meeting which takes place every month or to the Women's Committee as may the case be and there, the management either resolves the problem or takes necessary measures. It also has a Supplier Approval System where all the processes of the supplier are checked and policy and regulations closely scrutinized. Once the company is satisfied with the suppliers' compliance, measured on a rating score card, they become an approved supplier. Elcoteq is an ISO 9001 & DNV 14001 certified company, plus it complies by ROHS/ WEEE/ REACH (chemical use, process) / EUP (energy up – use of energy).

Customers of Elcoteq conduct social audits, which happen regularly every quarter. Additionally, a surveillance audit is regularly done by DNV and audit teams from Finland and Asia Pacific also come to check. Elcoteq has to do an internal audit, which is verified under SA 8000, at the end of 2008.

## 4.3 Component Suppliers

### Aspocomp

Aspocomp Group has built a new printed circuit board plant in the Nokia Telecom Industry Park at an investment of over \$70 million. In 2008, Nokia confirmed that Aspocomp would begin operation in August the same year,<sup>29</sup> 80% of their Indian subsidiary has been taken over by Meadville Holdings Limited.

### Perlos<sup>30</sup>

Perlos Telecommunication and Electronic Components, a subsidiary of Finnish mobile phone casings manufacturer Perlos Corporation started operations in India on the 4<sup>th</sup> of October, 2007. Built at an investment of \$30 million inside the Nokia Telecom Industry Park, a special economic zone, Perlos' plant has a capacity to make six million instruments every month. The Indian plant is the company's eighth in the world. After China, the Indian plant is of strategic importance for Perlos Corp as the mobile handset market is seeing exponential growth in Asia. Around 12 percent of the company's production was expected to come from India in 2007. The Chinese plants will cater to 58 percent of the company's production needs, followed by Hungary at 13 percent, Brazil 6 percent and Mexico 10 percent. In 2000, Perlos Corporation started manufacturing in Asia at its Chinese plant with a floor space of 8,000 sq ft. In seven years time the company has increased its floor space in Asia to 115,000 sq ft, nearly 70 percent of its total manufacturing space worldwide. The company employs 5,700 people in Asia out of its total 8,900 worldwide workforce. The Indian plant employs 770 people out of which nearly 40 percent are women.

### Salcomp<sup>31</sup>

The manufacturer of mobile phone chargers, Salcomp inaugurated its manufacturing plant in September 2007 in the Nokia Telecom Park in Sriperumbudur. Salcomp is one of 7 Nokia suppliers with an undisclosed capacity commitment to Nokia. The company has 25% of the worldwide market and all major mobile companies are its clients. It has 3 production units – in China, Brazil and India (Chennai). The mobile chargers from the Chennai plant are produced wholly in-house. Some components are purchased from suppliers, 50% of which are from within India (nearly around Bangalore or Coimbatore) and 50% from outside (some in China). The management aims to localize the supply network. Currently, 100% production is to EOUs (export-oriented units) through OEM customers.

The company employs about 1,800 people in the Chennai plant (and 10,000 worldwide), a majority of whom (85%) at the factory level are women. All employees are on direct payroll and are fixed employment. There are no contract workers or Apprentice program in place. New hires go through a Trainee phase which usually lasts 14 months and the employee turnover is low, attrition good. Peripheral work is contracted out, eg. security, kitchen, housekeeping, etc. The starting salary of workers is more than the minimum wage (Rs. 3,700) and on average, about Rs. 5,500, plus transport, PF, ESI, Retirement, etc. The lowest take-home salary is Rs. 4,500. The company subsidizes food at about 85% so employees pay about Rs. 3-4 and the transportation is free. The company runs 3 shifts on 6 days with 8-hr shifts each. There is no over-time. Workers in Salcomp do not have a union.

<sup>29</sup> Simhan, T.E. Raja (2008) "Nokia's key suppliers to start operations near Chennai soon," The Hindu Business line, 15 May, <http://www.thehindubusinessline.com/2008/05/16/stories/2008051651480400.htm> accessed 25 June, 2009.

<sup>30</sup> "Perlos India plant starts operation" <http://www.siliconindia.com/shownews/37156>

<sup>31</sup> based on interviews with the Managing Director, 3<sup>rd</sup> and 9<sup>th</sup> June, 2008

There is a great deal of cooperation among the companies on issues of common concern because they see themselves as part of an “eco-system” not as competitors. Salcomp has “Co-Developer” status with Nokia which means that it shares some ‘works streams’ with the other units in the Nokia Telecommunications SEZ. There is a common committee on issues such as transportation, canteen facilities, infrastructure, health and safety, environment and finance. Some facilities provided in the SEZ are not 100% common. For example, in addition to the buses provided by the SEZ generally, Salcomp has about 15 buses of its own. Foxconn is another company that has its own buses. There are about 250 buses in total in the Park and about 15,000 people moving everyday. In addition, there are also Salcomp-based committees on H&S, canteen, transport, works. There is a grievance process, regular meetings and “continuous improvement”.

PARK Society is a registered society of “Co-Developers,” of which the Exec. Committee meets once every month and the general body meets twice a year.

Salcomp has a number of policies in place on subjects such as corporate governance, conduct, environmental risk management, security, and standard operating procedures, which are available online, either in the policy section or in Annual Reports. The company has not participated in any social audits in India.

In sum, while most of the mobile phone companies, which have already set up manufacturing plants in India, are increasing their investments and the production capacity of their plants, many new suppliers are shifting some of their production to India. As discussed in an earlier section, the main attraction for the companies is the fast growing Indian mobile phone market and the prospect of an emerging market in the rural areas. However, the increasing incentives offered by the Indian government also play a major role. These are discussed more fully below.

## 5. Government policies and regulatory framework

This section provides an analysis of telecoms regulatory systems at the national and regional scales, discussing the merits and downfalls of the country's business environment, in order to set the scene for a thorough examination of the implications for workers and union organization in the following section.

The growth of the mobile phone industry in India is due not only to the business plans of the private sector alone, but also due to government policies which are creating an environment in which the industry can flourish. The Government of India has identified electronics and IT hardware manufacturing as "the thrust area for development" and has announced a Special Incentive Package Scheme (SIPS) in March, 2007 in order to attract private investment in semiconductor fabrication and other technology-based manufacturing industries in India.<sup>32</sup> Please refer to Appendix 2 for a full list of the incentives offered by the central government to promote telecoms equipment manufacturing in India.

In the Indian government's annual report 2006-07 on information technology, it is stated that "the growth of the Indian Electronics/IT hardware has not been consistent with the market potential" and the sector therefore "needs special sectoral treatment rather than being governed by general policy framework".<sup>33</sup> A package of incentives has been proposed for the Electronics/IT Hardware Manufacturing Industry involving different customs and excise duty exemptions particularly to attract foreign investment and bring down the prices of the end products. The government has moreover approved a "Special Incentive Package Scheme for Semiconductor Fabrication and Micro and Nanotechnology Manufacture Industry" to attract investments in these manufacturing industries. The incentive would be 20% of the capital expenditure if the units are set up in the SEZs, and 25% of the capital expenditure for units outside the SEZs.

Indeed, the state is throwing its weight behind the wireless market to ensure its rapid growth. Indicative of the state's tremendous influence in the telecommunications industry is the re-direction of its Universal Service Obligation Fund (USOF) away from the fixed-line sector toward the fast-growing wireless industry and embryonic broadband market (BMI 2008). It is predicted that there will be a significant reduction in the number of fixed-line users in relation to the rise of mobile phone subscribers. In line with the Government of India's liberalization and economic reforms agenda which aims to achieve rapid economic growth and integration with the global economy, the IT-related policies of the central and state governments have created an "investor friendly environment" which comprise the elimination of pre-entry approvals, a drastic reduction in licensing requirements, and facilitated easy access to foreign technology and foreign direct investment.

Over the years, Foreign Trade Policy for electronics and IT products has been liberalized, customs and excise procedures simplified, EDI implemented by customs & under implementation by central excise and customs duty on specified capital goods and raw materials for electronics/IT hardware has been brought down to zero%. Electronics Hardware Technology Park (EHTP) and Special Economic

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<sup>32</sup> Ministry of IT Annual Report 2007-08, p. 7 <http://www.mit.gov.in/download/annualreport2007-08.pdf>

<sup>33</sup> Information Technology Annual Report 2006-07, Government of India, Ministry of Communications and Information Technology, Department of Information Technology, p. 6.

Zones (SEZ) schemes have been tailored to boost manufacturing in the country.<sup>34</sup> Moreover, India is a signatory to the Information Technology Agreement of the World Trade Organization and from the 1<sup>st</sup> March, 2005 the customs duty on all the specified 217 items has been eliminated. Parts, components and accessories of mobile handsets including cellular phones are exempted from excise duty and Central Sales Tax (CST) has been reduced from 3% to 2% (DIT Annual Report 2007-08). At present, 100 % foreign equity participation is permissible in electronics generally and in telecom equipment manufacturing through the automatic route. In its efforts to create an investor-friendly market, the government had raised its foreign ownership cap in telecommunications services to 74%, but it is re-considering this FDI policy and could reduce it to the former level of 49% in light of a potential security risk in relation to the telecoms industry (BMI, 2008).

The Indian and state governments have invested tremendous resources in developing an open field for the telecommunications sector, and the close ties between state leaders and the corporate sector are evident from the press reports. Leading multinational corporations have succeeded in attracting the personal attention of high-ranking politicians. For example, the Flextronics industrial park was inaugurated in 2007 by the Prime Minister, Manmohan Singh. This 'park' has been modelled on the company's Doumen Park in China, which has more than 3.1 mn sq ft of manufacturing space in about 150 acres (Prasad, 2007). Furthermore, senior management of both Flextronics and Nokia have gone on record to acknowledge the assistance the state government of Tamil Nadu and the national government of India that have provided the companies in setting up the units.<sup>35</sup>

In fact, the electronics companies, and the mobile manufacturers in particular are able to set their own conditions and succeed in securing extremely favorable terms prior to investment in India. For instance, after a fairly long and intensive lobbying process during which different states of India were pitted against each other, Nokia managed to nab a sweetheart deal with the Tamil Nadu government, which welcomed the company to set up its 10<sup>th</sup> global manufacturing plant close to Chennai. Under the terms of the Memorandum of Understanding (MoU) between Nokia and the State of Tamil Nadu, Nokia is exempted from sales tax, purchase tax, surcharge, resale tax and additional sales tax payable under the Tamil Nadu General Sales Tax Act, 1959 on the sale of any goods for use in the execution of turn-key projects by Nokia or its subcontractors.

Moreover, the central government of India plans to facilitate telecom special economic zones (SEZs) and telecom hardware parks in order to fulfill its aspiration of making the country a global manufacturing hub at par with its main rival China. It proposed financial support of 5% of an investment of at least Rs. 100 crore over a minimum of 10 hectares of land, up to Rs. 50 crore of assistance, made by a private entity in an SEZ. Besides initial capital investment aid, the draft proposal also outlined sops of zero duty and income tax benefits, fiscal incentives to Indian manufacturers for products designed in India and manufactured in India as well as products not designed in India but manufactured in India. These would include a reduction of excise duty on telecom equipment. The Department of Telecoms also suggested exemptions from entry tax, local sales tax and other taxes levied by state governments at least till 2015.<sup>36</sup>

According to news sources, the general opinion in the industry is that the Indian government needs to continue to liberalise its manufacturing policies, labour laws should be even more relaxed, and the infrastructure in particular should be drastically improved. Clearly, the government is backing the private sector to the hilt at the risk of compromising workers' rights and environmental protection in the

<sup>34</sup> <http://www.mit.gov.in/default.ASPX?id=243>

<sup>35</sup> Prasad, S. (2007) "Flextronics Inaugurates Illrd Telecom Park," <http://voicendata.ciol.com/content/Events/107010601.asp> (January 6)

<sup>36</sup> Aid likely for telecom SEZs, 30-Oct-06 <http://www.supplychains.in/en/art/?254> accessed 28 May 2008

process. The comparison made between India with China in public discourse and the resultant fervor in ratcheting down labour and environmental standards to compete with China creates a situation in which issues of concern are downplayed. This, combined with our great difficulties in establishing contact with the large mobile phone companies in particular, seems to indicate that there is not much interest in the industry regarding the implementation of CSR policies.

## 6. Company Codes of Conduct and CSR policies

On employment, the companies had various policies publicized on their websites. However, it was clear that the policies, where they existed, were framed at the transnational level and were not specific to India. Most had not yet participated in a Social Audit and did not provide much information about the implementation and monitoring process of their codes.

### 6.1 Nokia

Nokia India's main website has a link to their 'community' section which further links to 'Nokia as an Employer' (See <http://www.nokia-asia.com/A4418026>) which covers areas such as performance-based rewards, professional and personal growth at Nokia, employee volunteering and support for work-life balance. Nokia's code of conduct is available on its website (see [http://www.nokia.com/link?cid=EDITORIAL\\_64678](http://www.nokia.com/link?cid=EDITORIAL_64678)) in 32 languages besides English. It includes six areas, namely ethics and the law, human rights, conflicts of interest, gifts and bribes, workplace practices, environment, suppliers, and implementation.

Nokia's code of conduct on workplace practices throughout its operations was expressed as follows:

Nokia employees must respect and encourage Nokia Values at work, promoting teamwork, individual responsibility, and the strength that comes from diversity. Nokia will strive to pay fair compensation, and provide a safe and healthy workplace for employees. Nokia is committed to equality of opportunity in all its employment practices, policies and procedures. Job requirements fulfilled, no employee or potential employee will, therefore, receive less favorable treatment due to their race, creed, colour, nationality, ethnic origin, age, religion, gender, gender reassignment, sexual orientation, marital status, connections with a national minority, opinion, disability, membership or non-membership of a trade union. Nokia will continue to invest in the personal and professional learning and growth of Nokia's employees. Nokia will encourage its employees to lead balanced personal and professional lives.

Its section on human rights is more closely related to international conventions and core labour standards specified by the International Labour Organization (ILO), consisting of a comprehensive anti-discrimination clause, the freedom of association, a ban on forced labour and child labour, as acknowledged in the excerpt below:

### Human Rights

Nokia will respect and promote human rights. Nokia recognizes, with the international community, that certain human rights should be considered fundamental and universal, based on accepted international laws and practices, such as those of the United Nations' Universal Declaration of Human Rights, International Labour Organization and Global Compact principles. Among those rights that Nokia views as fundamental and universal are: freedom from any discrimination based on race, creed, color, nationality, ethnic origin, age, religion, gender, gender reassignment, sexual orientation, marital status, connections with a national minority, disability, or other status; freedom from arbitrary detention, execution or torture; freedom of peaceful assembly and association; freedom of thought, conscience and religion; and freedom of opinion and expression. Nokia will not use child or forced labor. Nokia will not tolerate working conditions or treatment that are in conflict with international laws and practices.

## 6.2 Motorola

Motorola's Supplier Code of Conduct reflects the ILO's core labour standards and other international conventions (see <http://www.motorola.com/staticfiles/Business/Corporate/US-EN/corporate-responsibility/suppliers/supplier-code-of-conduct.html>). The company website (see <http://www.motorola.com/content.jsp?globalObjectId=8204-10392>) contains a link to its latest report on social responsibility. However, the section on human rights in the report merely re-states the company's policy and includes a web link:

### Human Rights

Motorola's human rights policy confirms the right of its employees to join or refrain from joining associations and the right to collective bargaining unless prohibited by law. It also covers anti-discrimination, freely chosen employment, working hours and wages, safe and healthy working conditions and the prohibition of child labor and harsh or inhumane treatment.

Its Human Rights policy is available at [www.motorola.com/humanrightspolicy](http://www.motorola.com/humanrightspolicy).

## 6.3 Sony Ericsson

The company's website lists references to codes or workers in their section on sustainability (see <http://www.sonyericsson.com/cws/companyandpress/aboutus/sustainability?cc=in&lc=en>). Under "Corporate Responsibility" <http://www.sonyericsson.com/cws/companyandpress/aboutus/sustainability/corporateresponsibility?cc=in&lc=en> the site outlines the following:

### Respect and Responsibility

Sony Ericsson believes in respect for human rights and in the ethical treatment of all employees. (...) The importance of social responsibility is not limited to activities within the Sony Ericsson organisation, but extends through the supply chain to all manufacturers of Sony Ericsson products. The newly adopted Supplier Social Responsibility Code imposes requirements on suppliers to provide a safe workplace for employees, respect basic human rights, and apply proper ethical standards in all business dealings. Sony Ericsson inspects all first-level suppliers to ensure the requirements are realised on a practical level.

From a cursory look at just three of the codes mentioned earlier belonging to Nokia, Motorola and Sony Ericsson, available on their websites at the urls provided above, it is clear that they vary in their content and emphases. While it is indeed a positive step that the companies have outlined their codes at all, there is a great deal of confusion for suppliers about the overlapping areas of international law and conventions on the one hand, and national and state laws on the other, and how any discrepancy is resolved. Moreover, even though in theory, the codes are extended down the supply chain, in practice, they are rarely implemented beyond the first tier of suppliers. The extent to which these codes are implemented and monitored is an area that merits further research. The following section, which outlines issues that emerge from the workers' and communities' perspectives in the Sriperumbudur Special Economic Zone, is an initial contribution to that effort.

## 7. Interviews with workers and other stakeholders

This section is an analysis of the impact of mobile manufacturers' operations on the community and on labour standards in Chennai and Sriperumbudur. This analysis is based on interviews conducted by Gopinath, Antony Raj, Sreeraj and Geeta Menon from December 2008 until March 2009 in villages near Sriperumbudur, and also nearby towns Chengalpattu and Kancheepuram.

Moreover, interviews with representatives were conducted in offices of CARE-T, Toxics Link, AITUC, CITU Technical Training Institute of SEED and Nalanda Trust – two NGOs which are working in the communities affected by the Nokia SEZ and are based in Saidapet and Royapetta respectively.

A major challenge in interviewing workers in the mobile phone manufacturing sector in Sriperumbudur is the complete lack of organisations that mobilize and represent them. Directly talking to workers outside the factory proved to be risky and useless. Workers refused to talk to strangers and security guards of the factory demanded to know the identity of interviewers. Even when village communities were visited where some workers live, people were suspicious when we went directly without anyone known to the residents accompanying us and acting as intermediaries. Therefore, we had to take the circuitous route of contacting NGOs, unions and technical training institutions which might know workers or people related to the workers.

### 7.1 Introduction

The Sriperumbudur Special Economic Zone is 'promoted' by Nokia India Private Ltd., and is located 40 km off Chennai, Tamil Nadu. The SEZ is meant for telecom equipment and services in telecom. Some of the companies operating here are Nokia, Samsung, Dell, Flextronics, Foxconn, Jabil, Perlos, Salcomp and Aspocomp. The main products are mobile phones, chargers, set-top boxes, personal computers and telecom base stations.

Sriperumbudur is a Taluk (administrative division) in the Kancheepuram district of Tamil Nadu State. The area where the EPZ has come up originally included the several agricultural villages. Apart from the large bulk of workers who come from Chennai, some workers come from neighbouring towns of Chengalpattu, Kancheepuram, Thiruvallur, Poonamallee and Avadi. What is left of the villages now is only the living areas bereft of the original rural ecology which is now occupied by the SEZ. As a consequence, livelihoods of the rural population like agriculture, cattle-rearing, weaving, handicrafts have all disappeared. Most original inhabitants of the villages now go to old industrial areas of Chennai city for daily wage labour in the light engineering and other industries of the 'old' economy. Many also have turned street vendors of vegetables and cheap consumer articles.

Many of the rural workers are now employed in the Central Government's employment project called National Rural Employment Generation programme where they are temporarily employed in rural infrastructure projects to improve civic amenities.

The Electronics and other industries like automobiles in the Sriperumbudur area employ nearly 100,000 workers altogether, out of whom about 50,000 are in electronics according to workers and local people.

### Socio-economic background of the workers

Despite the constraints, we managed to interview five workers in December 2008 and another 18 workers in the period of January to March 2009. Workers interviewed are employed at Nokia, Samsung, Flextronics, Salcomp, Foxconn and Perlos. Eight of the respondents are male and 15 are female, all between 19 and 24 years old. The minimum educational qualification found among the respondents are 10 years of schooling. Although the majority of workers passed 12 years of schooling and some had technical training hereafter. Four of the respondents even hold Bachelor degrees from universities and colleges. Three of them are female. Working experience with the present company ranges from one to two and a half years. Thus all workers have taken up the employment fairly recently.

Job profiles include engine operators (7), assembly workers (3), casings (4), technicians (3), helpers (6).<sup>37</sup>

Additionally, representatives from trade unions, farmers associations, social and environmental NGOs as well as a political worker of the ruling party in the district were interviewed.<sup>38</sup>

## 7.2 Labour standards

This section will summarize workers' responses on the labour standards in their factories.

### Forced labour - Is employment freely chosen?

Workers interviewed are all comparatively new to the factories (and the factories themselves being new) and none of the workers had more than two and half years' experience in the factories. Workers can leave their job if they wished so. Workers are not held in debt by the company as no wage advances are paid. Deposit of money or identity papers with the employer is not required. Security guards are positioned at the entrance of the factories and at certain places within the factories. Workers are frisked when they enter and leave the factories. Workers may enter freely inside the factory before the commencement of work hours.

### Freedom of association and the right to collective bargaining

Workers interviewed insisted that workers' unions are necessary to address their problems. Yet they have only a vague idea about the role of trade unions at the factories. Some of them have relatives in their families who are members of a trade union. Being new to the factories and due to the absence of trade unions in these factories, workers have no direct experience in participating in union activities. They said that managers often said that there was no need for unions as the company would take care of them well and they are working in a 'high-tech' industry.

There are no trade unions in any of the factories of the workers we met. Workers have heard about the benefits of unionization only from other workers in their family or from people in their neighborhood who are working in unionized industries. Trade union representative have not visited the factories as far as the interviewed workers knew. There are canteen committees and safety and health committees in most of the factories. None of the workers we met reported existence of committees to prevent sexual harassment. Members of the committees are appointed by the management and not elected.

<sup>37</sup> See Appendix 3: Details of Workers Interviewed

<sup>38</sup> See Appendix 4: People other than workers Interviewed

Managements do not seem to follow the practice of consulting workers on any issues pertaining to them. When workers have problems they approach the supervisors or the production manager. There are often meetings of the workers in production batches on targets and techniques. Workers have no information about any conflicts between workers and management in the factories. The production targets are often very high and supervisors and managers behave rudely when there is a deadline to meet targets.

There are no collective bargaining agreements in the factories and the workers have no awareness or information about collective bargaining, its process or its benefits.

### **Payment of a living wage**

All workers are paid wages mentioned in their pay slips. Wages are paid regularly in the first week of every month. However, workers are not aware of various components of the wage such as basic wages, dearness allowance, provident fund etc.

Workers who are sole wage earners in their family say that the wages do not cover the basic needs of their family. However, most workers we met have other family members who are employed. At the level of operators on the assembly lines most workers get an average salary of Indian Rupees 3000 per month. This converts to approximately US \$ 62.75 per month. The daily wage is just above US \$ 2 a day.

According to different studies by Civil Society Organisations a living wage that would cover all expenditures of urban factory workers and their families and allow them to save should be between Rs 6000 and Rs 9000 per month.

Trainees are paid below minimum wage which is 3335 for unskilled labour in the electronic sector per month in Tamil Nadu at the time of writing. Many young workers, said to be apprentices, are paid nearly half of the below wages in some of the companies, but there is not much difference between the work of the apprentices and regular employees. All of them receive only one or more week's training upon recruitment.

### **Working hours and overtime work**

Working hours are eight hours in a working week of six days with Sunday as a holiday. In some of the factories, batches of workers are given off days by rotation. This is mostly for workers in maintenance department. Working hours are displayed on the notice board legibly within the factory.

There is overtime work nearly 15 days in a month. Except for Nokia, workers of all other companies said over time work is not always compensated at double the hourly wage according to the labour law. Often workers are either paid only hourly wage or not paid at all for overtime work. There are often bickering between management and workers on this issue.

Workers are not free to refuse to work overtime. They are not allowed to go out of the factory after normal shift timings if overtime work goes on in the factory. Those who protest are told that they may lose their employment if they cannot work overtime or are directly asked not to report for work the next day.

### **Discrimination in employment**

Women workers are preferred to men. Urban youth are preferred to rural youth. Nearly 80 to 90 percent of the workforce on the shop floor is female. Men are in a majority among white collar

managerial staff. Young men interviewed said that management ensured that men constituted only about 10 per cent of the workforce. Young men in the surrounding villages strongly feel that the companies recruit only women as they are perceived as meek and unable to protest injustices at the workplace.

### **Health and safety**

There are meetings on the shop floor about safety and health. Supervisors and technical personnel demonstrate safety measures and proper techniques of operation. They are also informed how to use safety equipment.

Workers said they felt tired and uncomfortable when there was excessive overtime work. They said since they were young they were enthusiastic about work, but repetitive operations brought about aches and pains.

The long term impact on the health of the young workers is of grave concern. Medical records of workers are often not maintained with diligence and any possibility of serious long term effects on their health due to the work processes cannot be ruled out.

Workers feel that since theirs were air-conditioned factories where materials and machineries are tidily arranged, risks to health are minimal. They are not aware of any toxic substances that could damage their health eventually.

Almost all workers commute to work either from Chennai, or in the case of very few workers from nearby villages. There are no dormitories maintained by the factories and most workers live in their homes or in some cases in hired accommodation.

Women workers are required to work in night shifts which is prohibited by Indian labour law due to safety reasons. Women workers feel unsafe to work in night shifts especially during the commute to and from the factory. Women workers feel night shifts affect their health adversely and disturb their family life. In Indian cultural context employed women face a double workload as they are primarily responsible for most household tasks beside their employment.

### **Minimum age - Child labour**

There are no child workers in the factories. The age range among blue collar workers is from 18 years to 28 years. Workers have to produce school and college certificate before employment to verify their age.

### **Legally binding employment relation**

Workers are directly recruited by the companies and not through labour contractors.

In some of the factories, workers are told that they would be temporary workers for a period of 18 months and then they would be confirmed. In many cases the same terms of employment is continued after the 18 month period and they do not receive any communication about confirmation of employment.

All workers are given written contracts but terms are sometimes vague. Some of the contracts only state an employment period of 18 months without mentioning what happens after that period.

### 7.3 Working conditions at manufacturing factories

#### Nokia

Nokia in general had better working conditions than the contract manufactures Flextronics and Salcomp. There are about 8,000 workers in total with male and female workers in almost equal numbers. Work hours are 8 hours and there are three shifts. Overtime time work is very rare. In the night shift work hours are 7.5 hours. The confirmed employees are entitled to Provident Fund Scheme and Employees State Insurance Scheme. Wages range between Rs. 4,500 to Rs. 5,500 per month depending on skills and experience. There is a wedding allowance of Rs. 5,000 and a birthday allowance of Rs. 500. Curiously, when workers join the company, they are required to produce a letter from their parents stating that they do not have any objection to the daughter/son taking up employment with the company.

Trainees in Nokia are taken on a one year contract. A training allowance – Stipend – of Rs. 2500 to Rs 3000 is paid to each trainee. Workers applied for the job in response to advertisements and they had to attend an interview.

Workers are entitled to medical and casual leave as per law.

Workers did not think their work pressure was excessive. They said supervisors were sympathetic to complaints. They do experience back pain, aches in the legs and some degree of exhaustion. Once or twice a year a medical check up camp is held. Workers did not know whether records of medical examinations are maintained.

Many in-house skill enhancement programmes take place in the factory. Computer skills, spoken English classes, sports activities and cultural programmes are held from time to time.

A Committee against Sexual Harassment (CASH) functions in the factory. The women workers said that they were content about the treatment of workers and that their grievances were attended to with patience and understanding.

#### Salcomp

According to the management, this company manufactures mobile phone chargers and is located in the Nokia Telecom Park in Sriperumbudur. Salcomp is one of seven Nokia suppliers in its mobile phone manufacturing park. Salcomp is reported to have 25% of the worldwide market and all major mobile companies are its clients. Salcomp employs about 1,800 people in the Chennai plant (and 10,000 worldwide), a majority of whom (85%) at the factory level are women. All employees are on direct payroll and are in permanent employment. There are no contract workers or apprentice programmes in place. Workers who are recruited anew go through a trainee phase which usually lasts 14 months. Employee turnover is low. Peripheral work is contracted in work areas such as security, kitchen, housekeeping, etc. The starting salary of workers is more than the minimum wage (Rs. 3,700) and on average, about Rs. 5,500, plus transport, provident fund, employees' state insurance (ESI), retirement, etc. The lowest take-home salary is Rs. 4,500. The company subsidizes food at about 85% and the transportation is free. The company runs 3 shifts on 6 days with 8-hour shifts each. There is no over-time work. Workers in Salcomp do not have a union.

Workers said that they were not sure at all whether their employment would be continued, as they have seen some workers being retrenched without any valid reason. The preference for women employees has caused considerable resentment among young men in the communities around

Sriperumbudur. They argue that Salcomp does not want workers to stay for too long in the factory as many women workers stop working after their marriage. People in the community also feel that the company prefers women to men workers as they perceive men to be more prone to unionization and to question unfair policies.

### Flextronics

Flextronics also is an EMS company supplying to Nokia. There are in all about 1,200 workers. Here the ration of male to female is at 60:40 wherein men workers are more in number than women. Workers said that double hourly wages according to law for overtime work are not often paid. (Flextronics counter response - The site rarely engages employees to work overtime. In exceptional cases where employees are required to work beyond the 48-hour work week for maintenance-related exigencies, it is ensured that they are compensated with a proportionate time-off in accordance with Indian Labour Law).

The production targets are very high especially at the time of interviewing, during the period from December 2008 to March 2009 and supervisors and managers exert considerable pressure on workers to meet targets. (Flextronics counter response - There were frequent shutdowns and hence no increase in production targets or volume during December 2008 to March 2009).

Women workers also often work in night shifts. Workers we interviewed said that they did not feel safe and secure to work in night shifts. They felt that they were vulnerable during their commute to and from the factory to attend night shift. Waiting for buses in unlit neighborhoods was felt to be unsafe. Women workers also feel that working on night shifts can affect their health adversely. Many of them feel that once married their relatives may not permit them to work, especially in night shifts. (Flextronics counter response – Flextronics provide company transportation to pick up all employees (including women) from their residential area / village. Women are provided separate seats from the men, and are seated in front. At the end of their shift, they are dropped back to their place of residence/village. Some relatives of women living in more remote areas (with no accessible road) wait for them at the drop-off point and escort them back to their homes. Our campus security personnel also frequently patrol our industrial park, its surrounding areas, and go the extra mile to randomly patrol the bus routes and drop-off / pick-up points. There are instances where the security personnel personally escorted the female staff back home to medical facilities when requested. Traditionally, rural women often give up their jobs after marriage, as they are expected to look after their family and attend to household chores. However, they do have married women working in the factory during night shifts, and have not received any complaints from them regarding safety issues despite the numerous town hall and employee conclave sessions they have had with them).

Workers said that many of them are categorized as apprentices, and are paid only half of the minimum wages. They said that they work as much as the regular workers after a few weeks of training and they felt discriminated against. (Flextronics counter response – Flextronics have engaged 27 trainees for a period of one year from August 2008 to July 2009. They were hired from the government industrial training institutes across the state and are paid stipends as per Company Trainee Scheme. These trainees undergo training / evaluation and are awarded with a Training Completion Certificate at the end of their tenure).

## 7.4 Impacts on the community

### Loss of livelihoods

Most of the livelihoods supported by the rural environment and ecology have been lost, making thousands unemployed and without assets like land, cattle, hand-looms etc. Many of the marginal farmers and farm workers have shifted to daily wage labour in industries and small trading within Chennai city. There is thus a two way opposite flow of workers every day to and from Sriperumbudur and Chennai – more educated young workers from Chennai bused in to Sriperumbudur to work in the so called ‘high-tech’ electronics units and illiterate and semi-literate rural workers from Sriperumbudur and surrounding villages traveling on their own by public transport to the inner areas of Chennai city for low-paid employment and engaging in self-employment like street-vending.

### Inadequate compensation

Farmers who have lost their lands have been given cash compensation which they say is inadequate. Only about 40% of those who have lost land have actually received compensation, the local councilor said. The government agency responsible for developing land for industry SIPCOT is said to have gone to higher courts to challenge greater compensation awarded by the lower courts. Villagers say that the government agencies have become real estate agents, acquiring land from poor farmers at cheap rates and transferring it to big industries.

### Unemployment among village youth

Large number of village youth, children of marginal farmers and landless workers in the area remain jobless. The electronic companies consider them unemployable as most of the youth have studied in Tamil-medium village schools run by the government. Yet most of them have some English ability as they have to study some bit of English also in their schools. Young people interviewed said, that the electronic companies avoid employing rural youth and prefer to bring in people from the city. They further said that most of the workers in the electronics companies have eight, ten or twelve years of schooling, and rural youth also have similar educational attainments. The so called training that is given to new workers in the factories is just for a week and rural youth argue that if they are given the same training, they are as employable as the urban youth.

### Dumping industrial waste in public places

Villagers said that some of the industries dumped their solid waste on open spaces and roadside for long periods before they are carted off. Similarly, some of the industries let effluents into streams and lakes. However, the local councilor contradicted this and said all the industries had effluent treatment plants and land and water pollution was not a problem. Further intensive field work is required to confirm these allegations and justifications.

### Welfare initiatives mere public relations exercise

One NGO head who runs a Industrial Training Institute for children of convicted prisoners and local youth, said that he had tried hard to get the electronics industries to support his and other social development efforts, but all he got was pencils and stationary for the children and an occasional meal on account of the company during some celebrations. Villagers said that companies were more anxious to take pictures of their ‘generosity’ while distributing some articles to children, than doing anything substantial for the villages.

## 8. Conclusion

The ruling political parties in Tamil Nadu and elsewhere have a compulsion to project themselves as pro-development. In this enthusiasm, they turn a blind eye to the effect of poor working conditions on workers and on a whole generation of the workforce. The government actively colludes with the companies to make the SEZ free of any trade union activism

Although wages in the electronic sector seem to be comparatively better than in other manufacturing sectors such as the garment sectors, they are still below the living wage calculations. Labor rights violations were reported by the interviewed workers. Especially the lack of collective bargaining agreements and the absence of any other mechanism through which workers can assert their rights in any of the factories should be of concern.

A comparison of the results of this study and the research conducted in 2006 shows that the industry still does not engage with any external bodies on human resources issues or their CSR practices. Furthermore, the industry has become much more wary of inquiries into their conduct and to some degree is perhaps also not convinced that engaging with stakeholders is an important component of CSR. Although the companies are better established in India now than they were in 2006, it is still not clear whether their CSR policies, where they exist, are formulated in specific reference to the Indian context, or just reiterate the companies' global policies. In 2006, it was evident that most of the companies were heavily reliant on external certifications such as ISO 9000 and 14000 in order to be approved by clients. Yet, the effectiveness of these certification bodies and their process of monitoring of environmental and labour standards is not made transparent through reports, press statements, or in interviews when specifically requested, as in this study, and therefore remains to be proven. The government has also not formulated any protective measures for workers or the environment in the intervening years since 2006 although there were signs of the need for such already in our previous study.

In order to improve working conditions and companies' compliance with Corporate Social Responsibility policies, it is necessary to have some form of mobilization among workers to be able to access reliable information on the actual working conditions within factories. Many of the workers are first generation industrial workers and they do not have a benchmark to measure the working conditions against. They are anxious of losing their jobs if they become part of any organising efforts or if they raise their voice against poor workplace standards.

The working conditions in Nokia seem considerably better than in their suppliers. Workers were overall content with the treatment and the way grievances are addressed and attended. Food and transport are largely subsidized by the companies or offered for free. While most workers interviewed are on direct payrolls of their companies and not hired by contractors, one loophole in corporate regulation that is yet to be plugged is the precarious nature of employment as workers are engaged on temporary contracts and as Trainees without a sense of whether or not they will be retained as part of the workforce, and under what conditions. Such employment instability has not improved since the study in 2006. On the contrary, it has become more entrenched as most companies which have established their operations in the Nokia SEZ since 2006 have followed Nokia's lead on this front.

The other prominent issues concerning working conditions in the different companies that were raised during the interviews include *high production targets, low wages, discrimination, forced and unpaid overtime work and safety concerns.*

A consequence of high production targets is excessive work pressure. Supervisors and managers exercise pressure on workers to meet these targets as was reported from Flextronics employees. Nokia and Salcomp employees did not complain about excessive work pressure. Increasing production targets lead to overtime work which many workers are not free to refuse. Supervisors and managers have also objected to workers taking leave. In Flextronix overtime work is not always paid with double wages. Nokia pays double wages and in Salcomp there was no overtime work reported by the respondents.

Most companies do not pay a living wage that is able to cover all expenses of the workers. Wages range between Rs. 3485 in Flextronic and Rs. 5,500 in Nokia and Salcomp.

Nokia provides Provident Fund, retirement as well as Employees State Insurance Schemes. In Flextronics, however some workers are categorized as apprentices and are paid only half of the minimum wages.

Flextronic and Salcomp prefer female over male employees. In Salcomp the majority of factory level workers (85%) are women. Young rural men feel discriminated against and claim the companies prefer female staff because they are less likely to raise their voice or question unfair work practices and form unions. Only Nokia has a balanced ratio of male and female workers.

Furthermore, safety concerns came up in the interviews. In Flextronics women employees have to work during night shifts which is forbidden by Indian Labour Law. These women feel especially vulnerable during their commute to and from the factory after dark.

The long term impact on the health of the young workers in this sector is of grave concern. It is appalling that the medical records of the young workers are not maintained with diligence and any possibility of serious long term effects on their health due to the work processes cannot be ruled out.

A Committee against Sexual Harassment was only found in Nokia where working conditions in general seem to be better than in the other companies. However, these committees are not a substitute for unions; as they only work on particular issues (such as health and safety, canteen food etc.) and are not representing workers' overall welfare. Second, these committees are often formed in an undemocratic way with members being appointed by the management.

To conclude, efforts need to be made at networking among organisations concerned with labour rights, environmental issues and corporate accountability in order to turn the public eye to the working conditions of these young workers in the mobile phone manufacturing sector. Moreover, there has to be a concerted attempt to change policy and practices of both the government and companies. The government should join hands with Civil Society Organisations and labour support groups to convince companies to improve their working conditions. Only then can workplace standards in the mobile phone manufacturing sector in India be improved.

## Appendix 1: Major FDI in mobile manufacturing from February 2005 to December 2007 (as of 31 December 2007)<sup>39</sup>

Name	Location	Nature of investment	Amount (proposed to be) invested – in million US \$	Present status
Aspocom	Chennai	High density interconnections PCB manufacturing plant	US \$100 million in the first phase and US\$100 million in the second phase	Foundation stone laid on 04.10.2006. Factory to be operational in the second half of 2007
Elcoteq	Bangalore	Telecom manufacturing	US \$ 100 million out of which US \$18 million already invested.	Factory inaugurated on 11.04.05. Unit in operation
Ericsson	Jaipur	GSM base stations and mobile switching equipment (with 2 R&D facilities and Global Service Delivery Centres in Chennai and Gurgaon)	US \$ 150 million already invested up to 2006 & additionally in all the 3 centres US \$ 200 million by 2008	Factory inaugurated on 11.3.05. Unit in operation: Investment completed
Flextronics	Chennai	Cell phones, Set Top Boxes, Optical Networking systems etc. Mechanical & System integration of Base Stations.	US \$ 100 Million in 1st Phase US \$ 200 Million in 2nd Phase	Announced on 14.09.05. Inaugurated on 4.11.06.  Unit in operation.
HonHai (FoxConn) Precision Industry Co.	Chennai	mobile handsets and components and Electronic Hardware and related services	US \$ 10 million	MoU signed in March 2006. Land acquired. Under implementation
Laird Technologies	Chennai	Mobile phone accessories	US \$ 25 million	Ground breaking in early 2007 and to be operational by mid 2007
LG	Pune and Noida	Mobile handsets etc.	US \$ 12 million and additionally US \$ 23 million.	Unit in operation Additional investment announced on 16.3.07.

<sup>39</sup> Source: Department of Telecommunications, Government of India  
<http://www.dot.gov.in/osp/Investment%20Policy/Status%20Telecom%20Manufacturing.pdf> (accessed: 26 August, 2008)

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Motorola (1)	Chennai	Motorola's first 'Made in India' low cost GSM phones	US \$ 70 million	GSM Phone launched in Delhi on 22.12.05 Unit in operation
Motorola (2)	Chennai	handsets	US \$ 100 million (within one year)	MoU signed on 07.06.2006 Announced on 07.06.2006
Nokia	Chennai	Mobile handsets (with a Global Network Operation Centre for Customers in Asia Pacific Region, Europe, Middle East and Africa)	US \$ 300 million (with 10,000 employees)	Announced on 06-04-05. Factory & Centre inaugurated on 11-03-06. Units in operation.
Nokia Siemens Network	Chennai	Wireless network equipment	US \$ 100 million	Announced in July 2007
Perlos	Chennai	Handset mechanics	US \$ 12 million	Started in June 2007
Salcomp	Chennai	Mobile phone chargers	US \$ 8 million	Unit in operation in 1st quarter of 2007
Samsung	Manesar, Gurgaon, Haryana	Handsets	US \$ 15 million. Additionally expansion plan of US \$ 200 million during 3 years	Factory inaugurated on 07-03-06  Unit in operation
Siemens	Chennai/Hyderabad/Kolkata	Telecom equipment manufacturing	US \$100 million	Announced on 09-08-05

## Appendix 2: Incentives to promote telecom equipments manufacturing<sup>40</sup>

- Custom duty on ITA-I product reduced to zero with effect from 01.03.2005.
- 4% additional duty on import of ITA products to countervail the state level taxes.
- No industrial licence for manufacturing of telecom equipment. Simple Industrial Entrepreneur Memorandum (IEM) has to be filed with SIA.
- 100% Foreign Direct Investment (FDI) through automatic route.
- Fully repatriable dividend income and capital invested
- Payment of technical know-how fee of upto US\$ 2 million and royalty upto 5% on domestic sales and 8% on export sales, net of taxes, through automatic route.
- Imposition of additional import duty, at the rate not exceeding 4% ad-valorem, to countervail sales tax, value added tax, local taxes and other charges leviable on like goods on their sale or purchase or transportation in India
- Promotion of telecom product specific SEZs.
- Modification of Electronic Hardware Technology Park (EHTP)/Special Economic Zones (SEZs) scheme to allow 100% sales in the Domestic Tariff Area (DTA) for the purpose of meeting export obligations.

### Incentives for Promotion of Service Sectors

- Any undertaking which has started or starts providing telecommunication services whether basic or cellular, including radio paging domestic satellite service, network of trunking, broadband network and internet services on or after the 1st day of April, 1995, but on or before the 31st day of March 2005, will be allowed in computing the total income, a deduction of, an amount equal to hundred percent of profits and gains derived from such business for ten consecutive assessment years.
- Import of specified telecom equipment (ITA1 Products) is permitted at zero customs duty rates.
- Import of all capital goods for manufacturing telecom equipment does not require any license.

### Incentives for Exporters

- 10 year income tax holiday for EOU/EPZ/STP/EHTP units.
- Export income is exempt from income tax for all exporters.
- Under the Export Promotion Capital Goods Scheme (EPCG) capital goods for pre production and post production (including CKD/SKD thereof as well as computer software systems) at 5% Custom duty is permitted subject to an export obligation equivalent to 8 times of duty saved on capital goods imported to be fulfilled over a period of 8 years. However, for SSI units, import of capital goods at 5% Customs duty shall be allowed subject to a fulfilment of an export obligation equivalent to 6 times the duty saved (on capital goods imported under the Scheme) over a period of 8 years from the date of issue of licence provided the landed CIF value of such imported Capital goods under the Scheme does not exceed Rs. Twenty Five Lakhs and the total investment in plant and machinery after such imports does not exceed the SSI limit.
- However, in respect of EPCG licences with a duty saved of Rs.100 crore or more, the same export obligation, as the case may be shall be required to be fulfilled over a period of 12 years.
- Tax holiday 100% for five years and 30% for next five years in a block of 15 years.
- Infrastructure Telecom equipment exempted from customs duty.
- Reduction of customs Duty on Mobile Phones to 5%.
- Exemption from Excise duty on Cellular Phones and it components, Pagers, Radio Trunking Terminals and Parts.
- Telecom services sector allowed the benefit of carry forward of losses on mergers.

<sup>40</sup> Source: The Department of Telecommunications, Government of India  
<http://www.dot.gov.in/osp/Investment%20Policy/Incentives%20Telecom%20Sector.htm>

## Appendix 3: Details of workers interviewed

Worker	Company	Type of job	Age	Sex	Education	Experience
A	Nokia	Handset Assembly	22	Female	Bachelor of Business Administration	2.5 years
B	Nokia	Engine Operator	19	Female	12 years schooling	15 months
C	Nokia	Engine Operator	22	Female	Bachelor of Arts	2.5 years
D	Nokia	Operator	22	Female	12 years schooling	14 months
E	Samsung	Casings	24	Female	10 years schooling	14 months
F	Samsung	Assembly	24	Male	12 years schooling	1 year
G	Samsung	Technician	23	Male	ITI (Industrial Training Certificate)	1 year
H	Samsung	Helper	23	Male	10 years schooling	14 months
I	Samsung	Helper	20	Female	10 years schooling	18 months
J	Flextronics	Assembly	22	Male	12 year schooling	2 years
K	Flextronics	Engine operator	24	Male	Bachelor of Science	2 years
L	Flextronics	Helper	22	Male	12 year schooling	2 years
M	Flextronics	Casings	23	Female	Technical training	16 months
N	Flextronics	Engine Operator	24	Female	Bachelor of Science	2 years
O	Flextronics	Helper	21	Female	10 year schooling	2 years
P	Flextronics	Technician	23	Female	12 years schooling	2 years
Q	Flextronics	Technician	24	Female	12 years schooling	18 months
R	Salcomp	Engine Operator	24	Male	Technical Training	2 years
S	Salcomp	Helper	22	Female	12 year schooling	15 months
T	Salcomp	Casings Assembly	23	Female	12 year schooling	2 years
U	Salcomp	Charger operator	20	Female	12 years schooling + Computer Basics	15 Months
V	Foxconn	Helper, Handset Assembly	21	Male	10 years schooling	12 months
W	Perlos	Casings	24	Female	10 years schooling	12 months

## Appendix 4: People other than workers interviewed

Name	Organisation	Activity	Position	Address
Mr. Gajendran	All India Trade Union Congress	Central Trade Union (Federation)	Activist	Thiruvallur Village, Sriperumbudur
Mr.A. R. Palanisamy	Society for Educational Development (SEED)	Industrial training centre and other activities	Founder Secretary	Opposite Inspection Bungalow, Sriperumbudur
Ms.Dorothy Lawrence	Nalanda Trust	Social Development	Managing Trustee	Royapetta, Chennai
Ms. Geeta	Nalanda Trust			
Mr. Thangaswamy	Farmers' Association	Farmers' Issues	Activist	Thirumangalam
Mr. Prithviraj	CARE-T	Community Development	Director	Chennai & Coimbatore
Mr. Arun Senthil Ram	Toxics Link	Environmental	Coordinator	
Mr. B. Mohan	Town Panchayat	Political worker of ruling party DMK	Politician and elected to local government	Thirumangalam and Vadamangalam