E-Waste Management in Kashmir

1.1: Introduction: Electronic waste (e-waste) or Waste Electrical and Electronic Equipment (WEEE) comprisesofa wide range of electronic appliances such as refrigerators, air-conditioners, stereo systems, computers, cell phones discarded by their users. However, e-waste has been defined as "any electronic and electrical equipment that has lost value to its owner" and has become obsolete for any functioning (Ongondo , et al, 2011). Innovations in the technological sector take place at a very high rate and it also translates into fast technological obsolesce. This leads to an alarming rate of the production of e-waste. This gives rise to both waste management issues and also throws up business opportunity for general public (Bhattacharya, 2018). In fact, e-waste include metals to the tune of approximately 60 percent like iron, copper, aluminum, gold; and plastic material accounts for about 30 percent and the hazardous pollutants about 10 percent of the total e-waste (Agarwal, 1998). The global level estimates report that 50 million tons of e-wastes are produced annually leading to a growing tsunami of e-waste pollution (Kiddee et al., 2013). Further, electronic industry is the world's largest innovative industry and tons of electronic items are produced annually, however, after their usage, they soon become a complex waste matter. The e-waste consists of 1000 different substances that can be categorized into hazardous and non-hazardous categories (Widmer, et al, 2005). This includes many hazardous heavy metals, acids, toxic chemicals and non-degradable plastics consequently creating serious environmental problems. Much of it is dumped, burnt or exported to recycler which produces smoke and dust particle containing carcinogens and other hazardous chemicals leading to severe inflammations and lesions including many respiratory and skin diseases. Moreover, these electronic circuits are burnt to extract the valuable metals such as gold, platinum, cadmium (Sreedhar, 2019). In addition, the wire coat of the electronic product consists of PVC (polyvinyl chloride) and PCB (Polychlorinated biphenyls), producessmoke, and carbon particles which are highly carcinogenic and may lead to severe lung, skin and other health diseases (Wikstrom, &Marklund, 2001; Wong et al, 2007).

In 2016, the e-waste generation at the global level was around 44.7 million metric tons (Mt), or 6.1 kg per inhabitant, and it was projected that the amount of e-waste is growing to touch 52.2 Mt in 2021, with an annual growth rate of 3 to 4 percent (Anonymous, 2016). Moreover, as per

the recent reports, 66 percent (67 countries) of the world population are covered under national legislation (Blade et al, 2017). Many countries in Asia are frontline contributors to the world as Hong Kong (21.5 kg/Inh), Singapore (19.6 Kg/Inh), Brunei (18.1 kg/Inh) respectively are on top of the list of countries with the highest e-waste contribution per inhabitant and are also emerging as "e-waste hotspot"; In addition, Bangladesh, Vietnam, Thailand are generating e-waste at faster rate even though they are laggards in technological adoption, moreover, Philippines is now emerging as the world capital of e-waste (Alam, 2016) and China, Japan and India are going to surpassin coming years. The irony is that only 7 percent of e-waste comes from mobile phones, personal computers and printers (Herat, &Agamuthu, 2015), however, a small fraction of e-waste enters into the recycling channel for value creation (Lundergren, 2012; Hotta& Kojima, 2012;Sreedhar, 2019). Even though there is growing international interest on e-waste but very little official statistics is available and only 41 countries in the world collect statistics on e-waste