EXECUTIVE SUMMARY

BACKGROUND

SMEs in Hong Kong's electrical and electronic sector are collectively a major part of the economy ranking high in terms of number of establishments, contribution to gross domestic product, and size of employment. Electrical and electronic sector SMEs however also account for substantial environmental concerns (such as air, water and noise pollution, energy consumption, waste generation and chemical waste) and face increasing supply chain pressures for improved environmental management.

This *Review Report* has been compiled through internet research, literature reviews and consultations with stakeholder organizations to identify:

- the number and composition by industry type of SMEs in the electrical and electronic sector with operations in Hong Kong and Shenzhen (broken down to three-digit Hong Kong Standard Industrial Classification, HSIC, codes);
- the Major Industry Groups (MIGs) appropriate for the basis of *Practical Examples* illustrating the step-by-step process of EMS development for an SME;
- current trends in supply chain pressure for environmental management and EMS, focusing on the requirements of large multinational client corporations in the electrical and electronic sector;
- the latest and upcoming international requirements to be imposed on the sector, focusing on developments in Europe, Japan and the United States of America; and
- professional and academic institutions in Hong Kong and the Pearl River Delta (PRD) region that can provide tailored support to local electrical and electronic sector SMEs.

Findings are summarised as follows.

THE SIZE AND COMPOSITION OF THE ELECTRICAL AND ELECTRONIC SECTOR

According to the figures (January 2004) from the Census and Statistics Department (C&SD) and Hong Kong Electrical Industry Association (HKEIA) the total number of establishments of SMEs in the electrical and electronic sector with operations in Hong Kong and Shenzhen was 2,772 and 2,942 respectively. As shown below the majority (66%) of establishments in Hong Kong were associated with just one MIG (Machinery, Equipment, Apparatus, Parts & Components, n.e.c., MIG 386-387), whilst SMEs located in Shenzhen were more evenly distributed.

	HK (Total 2772)		**SZ (Total 2942)**	
Activity (I/D and MIG code)	**Number**	**Percentage**	**Number**	**Percentage**
Electroplating I/D 381802	38	1.4%	3	0.1%
OAC Machinery MIG 382	301	10.9%	275	9.4%
Radio/Communication MIG 383	65	2.3%	528	18.0%
Electronic Components MIG 384	100	3.6%	820	27.9%
Electrical Appliances MIG 385	58	2.1%	274	9.3%
Machinery & Parts MIG 386 - 387	1830	66.0%	580	19.5%
PSMC & PO Goods MIG 389	380	13.7%	462	15.7%

MIGS APPROPRIATE FOR USE AS PRACTICAL EXAMPLES OF ISO14001 IMPLEMENTATION

The major industry groups chosen to provide the basis for the *Practical Examples* included in the support package, reflecting "real-life" activities and processes undertaken by real SMEs in the electrical and electronic sector, have been selected by consideration of:

- The number of electrical and electronic sector SMEs in each MIG with operations in Hong Kong and Shenzhen;
- The significance of the environmental impacts arising from the manufacturing activities of SMEs in the different MIGs; and
- The degree of supply chain pressures (for example, local or international legislation, client requirements, etc) experienced by SMEs in the different MIGs.

As shown below, the top three MIGs were the same for SMEs with operations both in Hong Kong and Shenzhen: Electronic Parts and Components (MIG 384); Office, Accounting & Computing Machinery (MIG 382); and Electroplating (I/D 381802). *Practical Examples* have been provided as part of the support programme based on these three groups.

Activity (I/D and MIG code)	Hong Kong Ranking	Shenzhen Ranking
Electronic Components MIG 384	1	1
OAC Machinery MIG 382	2	3
Electroplating I/D 381802	3	2
Machinery & Parts MIG 386 - 387	4	5
Radio/Communication MIG 383	5	4
PSMC & PO Goods MIG 389	6	7
Electrical Appliances MIG 385	7	6

CURRENT TRENDS IN SUPPLY CHAIN PRESSURE FOR ENVIRONMENTAL PROTECTION

Multinational corporations reviewed during the research have included Sony Corporation, Matsushita Electric Group (Panasonic), Toshiba Corporation, LG Electronics, Samsung Electronics, General Motors, HP (Hewlett Packard), Intel Corporation, Whirlpool, Electrolux Group, Nokia and others. Requirements stipulated by these leading clients have been varied and far-reaching, but can be categorized into six key areas:

1. Compliance with local and international legislation (with compliance with legislation in advance of its promulgation in some areas)
2. EMS and ISO 14001 certification (preference often given to ISO certified suppliers, certification mandated in some cases and even extending to second tier suppliers)
3. Eco-Design or "Design for Environment" to reduce the impacts of a product throughout its whole life cycle
4. Cleaner Production to minimise the impacts of the product during its production
5. Other client-specific requirements (e.g. environmental audit, questionnaires, education program and benchmarking exercises)
6. Wider-reaching requirements (going beyond the environment, e.g. labour, safety and health, sustainability compliance, workers rights, etc)

Those corporations reviewed are considered to be at the forefront of such initiatives, further reinforcing the need for Hong Kong SMEs to be prepared for future requirements for improved environmental performance.

LATEST AND UPCOMING INTERNATIONAL REQUIREMENTS

The review of latest and upcoming international requirements to be imposed on the electrical and electronic sector focused on developments in Europe, Japan and the United States of America. In each case the key environmental legislation and labeling schemes have been highlighted. Of particular concern are two recent European Union (EU) Directives on the Restriction of Hazardous Substances (ROHS) and Waste Electrical and Electronic Equipment (WEEE). Both have been introduced to restrict the types of hazardous substances in electrical and electronic equipment and require manufacturers to be responsible for the collection, recovery and recycling of used products, respectively.

The ROHS will ban the sale in the EU of certain categories of electrical and electronic equipment containing or manufactured using six banned substances (lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers) from the 1st July 2006. The ban on lead in solders will have the greatest impact on electrical equipment manufacturers in terms of the work and investment in new equipment.

The WEEE is designed to tackle the fast increasing waste stream of electrical and electronic equipment and complements EU measures on landfill and incineration of waste. Producers will be responsible for taking back and recycling electrical and electronic equipment, with consumers able to return their equipment free of charge. This will provide incentives to design electrical and electronic equipment in an environmentally more efficient way, which takes waste management aspects fully into account.

SOURCES OF ENVIRONMENTAL SUPPORT

The study identified more than twenty support centres in Hong Kong and the Pearl River Delta for the electrical and electronic sector. The services and supports offered by these organizations are diverse and include the provision of general information, ISO 14001 mentorship, Eco-design, “Design for Environment” to environmental technologies support and others. Given the trends of supply chain environmental pressures and requirements affecting local electrical and electronic manufacturers being driven by overseas national environmental legislations, directives and initiatives, contact details of some overseas sector-specific environmental information centres have also been provided. In addition, over 80 local consultancies provide construction related services in areas including environmental auditing, pollution control, impact assessments, analytical and laboratory services, training and strategy, and ISO14001 EMS development.