6. Customer Service and Supplier Management

6.1 Customer Service and Satisfaction

6.1.1 Customer Trust
Customer trust is one of TSMC’s core values. At TSMC, customers come first. Their success is our success, and we value their ability to compete as we value our own. Through many years, TSMC has been advancing our technology and expanding our capacity in order to fulfill customers’ needs. Based on the trust of our customers, TSMC has also helped to refocus many customers’ priorities from maintaining their own fabs to concentrating on design. We strive to build deep and enduring relationship with our customers, who trust and rely on us to be part of their success over the long term.

<table>
<thead>
<tr>
<th>Fabless Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
</tr>
<tr>
<td>72%</td>
</tr>
</tbody>
</table>

- Fabless Customers
6.1.2 Customer Service

TSMC is committed to providing the best service to our customers and believes that customer service is critical to enhancing customer loyalty. In turn, customer loyalty leads to higher levels of customer retention and to expansion of business relationships. TSMC’s goal is to maintain its position as the most advanced and largest provider of semiconductor manufacturing technologies and foundry services. TSMC believes that achieving this goal will help retain existing customers, attract new customers, and further strengthen customer trust.

TSMC has a dedicated team, interface or champion throughout the management chain for serving our customers. To facilitate customer interaction and information access on a real-time basis, TSMC has established a wide range of web-based services covering applications in design, engineering, and logistics collaboration. They are collectively branded as eFoundry™.

6.1.3 Customer Satisfaction

TSMC regularly conducts surveys and reviews to ensure that customers’ needs and wants are adequately understood and addressed. Continual improvement plans supplemented by customer feedback are an integral part of our business processes. The channels we use include an annual customer satisfaction survey, quarterly business reviews, and customer audits.

TSMC’s Annual Customer Satisfaction Survey is carried out by an independent third party consulting firm. Our goals are to understand customers’ specific needs and expectations from TSMC, and to obtain formal and direct feedback from our customers to measure TSMC’s performance and identify TSMC’s weaknesses for development of improvement strategies.

The findings and analysis of customer feedback are presented to TSMC’s executive team, and appropriate details are shared throughout TSMC organizations. Based on survey input, all the related functional and regional teams work together on action plans, and progress is monitored closely.

6.2 Supplier Management

TSMC has always treated suppliers as partners, and works together with them over the long term to build a stable and sustainable semiconductor supply chain. In addition to taking into account supply chain product quality, delivery, and cost, TSMC also works with our suppliers to protect the environment. We also pay attention to the human rights, safety and health issues of suppliers’ plants as well as business continuity and risk management, so that we may fulfill our corporate social responsibility together.
TSMC has driven for localization of raw material and spare parts of equipment in recent years. In addition to reducing transportation cost, mitigating supply risk and reducing carbon generation, TSMC also hopes to support local industry and create more job opportunities. Following the March 11, 2011 earthquake in Japan, some Japanese suppliers have transferred production sites to Taiwan to better ensure their service to customers. TSMC’s sourcing percentage from Japan has been reduced to 41% in 2011 from 44% in the previous year, while the sourcing percentage from Taiwan increased 4 percentage points. To create a win-win situation for TSMC and suppliers, TSMC will continue supporting local companies, encourage localization from foreign suppliers and drive for lower production cost, supply risk and even better competitive advantage.

### TSMC Material Source Profile

<table>
<thead>
<tr>
<th>Category</th>
<th>2010 Procurement</th>
<th>2011 Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>44%</td>
<td>41%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>USA</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>EUR</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Others</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

#### 6.2.1 Ensuring Supplier Compliance

**Quarterly Business Review**

TSMC conducts quarterly meetings with our suppliers’ senior managers to review performance, including quality, delivery and sustainability performance. We ensure suppliers comply with TSMC requirements through semi-annual or quarterly monitoring of key indicators through a scorecard and checklist.

**Certification for Management System**

TSMC encourages its suppliers to be certificated for ISO 14001, OHSAS 18001 or other environmental and ESH management systems.

**Site Audit and Assistance**

TSMC visits our suppliers and performs audits according to an annual plan. When special concerns arise from these audits, we work with suppliers to develop appropriate solutions for fulfilling our expectations. These solutions are executed by specified sponsors with a clear goal and time frame. In addition, to confirm that chemical and other raw material suppliers meet environmental health and safety regulations, TSMC held a chemicals management and regulatory compliance seminar to require that all suppliers sign a “regulatory compliance questionnaire” to confirm the compliance of all chemical suppliers in 2010.

**Intelligent Information**

TSMC works closely with raw material suppliers to exchange inventory information, so that in-bound supply chain inventories are transparent and demand fluctuations can be detected early. Faced with the challenge of the global financial crisis and the March 11 earthquake and tsunami in Japan, we collaborated with our suppliers to build a strong and lean supply chain to mitigate the risk of supply interruption and avoid making surplus materials.

**Joint Emergency Response Drills**

TSMC follow the cycle of Plan-Do-Check-Act to select critical suppliers for emergency response drills, perform a simulated emergency scenario and review any shortcomings.

#### 6.2.2 Establishing A Sustainable Supply Chain

In recent years, global consumers increasingly feel that corporations have a responsibility to supervise their suppliers. As a global leader in the semiconductor industry, TSMC has an ongoing commitment to improve the sustainability performance of suppliers and work together to create sustained value. We supervise and collaborate with our suppliers in a number of sustainability fields, including the Restriction of Hazardous Substances, climate risk management, earthquake risk response, fire prevention, occupational safety and health management, and business continuity plans. These efforts can reduce the risk of interruption to our supply chain, and are also part of our corporate social responsibility.

##### 6.2.2.1 Supply Chain Risk Management Committee

TSMC has brought together fab operations, materials management, risk management, and quality system management in an internal committee dedicated to managing our supply chain. This committee is focused on risk mitigation and enhancing supply chain agility. The steering team directs annual goals and reviews progress each quarter. The committee’s working team tracks the effectiveness of continuous improvement projects and assists suppliers to improve green procurement, environmental protection, regulatory compliance, certification acquisition, and industrial safety assurance.
At the same time, we monitor changes in demand and supply through regular communication with suppliers or public information, monitor supply chain inventory, and draft backup plans. The working team holds monthly meetings to monitor progress. Furthermore, we actively address supply chain issues and manage potential supply chain risks.

### 6.2.2.2 Developing Supply Chain Standards in Fire Protection, Earthquake Response, Safety, Health, and Risk Management

TSMC views supply chain risk management as part of the company’s competitive advantage. In a globalized world, any major natural disaster or accident can have an impact on TSMC. Therefore we pay close attention to any risk to our supply chain partners, and take the initiative to provide assistance when necessary.

Our concerns include:

- **Business continuity plan:** TSMC requires our suppliers to establish their own business continuity plans for a variety of potential natural or man-made threats. Appropriate plans, procedures, actions and periodic drills are required to ensure continuous operations and reduce the impact of accidents on TSMC.
- **Geographical risk:** TSMC analyses the geographic location of manufacturers in our global supply chain by using mapping tools. When a major accident or natural disaster occurs around the world, we can immediately begin business continuity plans and take the initiative to provide our supply business partners with the resources needed to resume production.
- **Earthquake Risk Management:** TSMC proactively helps companies that need assistance by teaching them how to strengthen their anti-earthquake engineering.
- **Climate change risk management:** Due to the increased risk of water shortage and flooding in recent years resulting from global climate change, we require our suppliers to prepare contingency plans, such as support from overseas production, to reduce the impact of such an event.
- **Fire risk management:** We believe that fires can be prevented, and share our own loss prevention and fire protection management experience with our suppliers.
- **General environmental, safety and health:** TSMC requires major suppliers to obtain OHSAS 18001 certification or other health and safety management system certification.
- **New influenza pandemic response and prevention:** TSMC shares its experience in corporate pandemic response and prevention with our major suppliers.
- **Transportation risk:** Suppliers must manage the quality of their transportation or logistic service and vehicles, in particular, appropriate training and contingency plans are required in the transport of dangerous or hazardous chemicals.
- **Suppliers’ Supply Chain Risk Management:** In addition to requiring suppliers to manage their supply chain risk, we also require suppliers to have the ability to review their suppliers’ risk management and to enhance the reliability of the supply chain.
- ** Interruption of information systems risk management:** Some suppliers are highly dependent on IT systems in their production. TSMC asks that they have mechanisms for remote backup of information systems. Computer server rooms are also required to have fire and earthquake protection to reduce the impact of accidents.

### 6.2.2.3 Developing A Supply Chain Sustainability Risk Map

TSMC’s efforts in sustainable supply chain management in the past several years have answered our customers increased concerns in this area. Despite the difficult and forward-looking nature of some of our measures, we are dedicated to continuing our efforts.

In 2009, TSMC developed a Sustainability Evaluation Score to assess suppliers’ supply chain risk and sustainability. We use this score, combined with delivery, quality, financial, operational, and other risks, to form a supply chain risk map. TSMC refers to these maps as an important basis for procurement strategy. In 2011, TSMC surveyed a total of 56 critical suppliers, including silicon wafer, gas, chemicals, quartz parts, masks, parts cleaning and other raw materials suppliers, transport companies and logistics services, which covered more than 90% of our total purchase amount.
Response to the March 11 Earthquake and Tsunami in Japan, and Flooding in Thailand

Japan experienced its worst earthquake in a century on March 11, 2011. Following the earthquake, TSMC immediately set up a business continuity team, integrating operations, procurement, risk management, customer service and quality assurance units to appropriately respond to possible impacts. This major earthquake had no impact on our operations due to these efforts. Following up, TSMC developed a risk reduction plan for raw materials from high-risk areas, and established a database of supply locations to grasp the impact of the regional natural disasters on the supply of raw materials.

At the end of July, 2011, the southern region of Thailand experienced heavy flooding lasting nearly three months due to continuous torrential rain. Production of many downstream components for the world electronics industry, such as computer hard disks, was affected. TSMC analysed raw material supply risk following the Thai floods and confirmed that the disaster would have no impact on the company’s operations.

Supplier Audit and Assistance on ESH

Over the past year, TSMC continued to audit 56 major suppliers encompassing 90% of our total purchasing through questionnaires or on-site audits. If major shortfalls in environmental protection, safety or health are discovered, we require that senior management commit to improvement. For suppliers lacking resources for self-improvement, we organize experience-sharing seminars or perform on-site counseling to improve performance.

The establishment of a sustainable supply chain is a win-win strategy, which enhances the safety of our suppliers, their employees, and their, and indirectly enhances the competitiveness of TSMC. The company will continue its efforts to reduce supply chain risk and contribute to customers, investors, and society.

Enhancing TSMC Chemical Suppliers’ Environmental, Safety, and Health (ESH) Knowledge

A number of Taiwan government agencies, including the Environmental Protection Administration, Council of Labor Affairs, Ministry of Economic Affairs, Atomic Energy Council, and National Fire Agency have recently announced a number of new or amended regulations managing chemical environmental, safety, and health risks. On July 15, 2011, TSMC offered a free but compulsory forum for chemical suppliers to gain a better understanding of these regulations, attended by 170 participants from 100 companies. Topics in the Forum included “Taiwan regulations: Suppliers’ responsibility regarding chemical ESH information”, “How to prepare a Material Safety Data Sheet (MSDS)” and “What is the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)”. Through this forum, TSMC aimed to enhance its suppliers’ knowledge and ensure that suppliers are fully responsible for the substances contained in their products subject to laws and regulations in Taiwan.

6.2.2.4 Green Procurement

Developing Suppliers’ Green Standards

TSMC is committed to building a “green supply chain”, attending to global environmental issues, and exerting its influence to encourage supply chain partners to follow. Our assessment of suppliers’ green performance includes:

- Energy saving and carbon reduction management: suppliers are required to collect carbon inventory data in their manufacturing plants, develop a product-based carbon footprint, and provide carbon reduction performance data.
- Water resources and water management: suppliers are required to collect water inventory data in their manufacturing plants to establish a water footprint, and to provide a specific water resource management plan.
- Green Products and Hazardous Substances Control Specification: In response to global hazardous substance controls and eco-friendly product specifications, we ask suppliers to comply with PFOS/PFOA/Conflict Minerals/RoHS/REACH and other global chemical control standards.
- Waste management: supplier should continuously improve waste reduction performance and raise recycling and reuse ratios in their manufacturing facilities.
- Tire-2 suppliers’ green supply chain: Suppliers must work with their upstream suppliers on environmental protection, reduction of carbon emissions, and water conservation-related measures.
- Environmental Management System and the establishment of environmental objectives: suppliers must have ISO 14001, RC 14001, or other relevant environmental management system certification.
- Other environmental protection standards: This includes the use of green procurement, adoption of green building designs, promotion of environmental education and others.
Requiring Raw Materials Suppliers to Eliminate Hazardous Substances

TSMC promotes “green procurement”, and requires raw materials suppliers to provide a statement to ensure that their products do not contain internationally banned hazardous substances harmful to the environment to ensure that products meet customer requirements such as the EU RoHS Directive. If significant deficiencies are found in supplier environmental audits, the supplier will be reviewed and asked to improve at a quarterly meeting chaired by a purchasing group manager.

Green Requirement for Process Tool Vendors

TSMC requires equipment vendors to consider water, power, and material conservation when designing new generations of equipment, and also requires a long-term blueprint for carbon reduction and future environmental strategy. TSMC also verifies that energy performance of each tool meets or exceeds conditions set in the procurement contract after tool installation is completed.

Promoting Green Label Office Supplies

TSMC encourages the use of office equipment and supplies with green labels, including computers and peripherals, recycled printer paper, recycled paper towels, and environmentally friendly cleaning supplies. Purchasing of office supplies and equipment with eco-labels increased 22.5% in 2011, amounting to more than NT$250 million.

6.2.2.5 Concern for Supply Chain Labor Standards

Over the past several years, the Electronics Industry Citizenship Coalition (EICC) has continuously shown concern for labor rights and working conditions. As a member of the electronics industry supply chain, TSMC has adopted EICC standards for protection of labor rights and taking care of the working conditions of employees, requiring its own supply chain manufacturers to comply with environmental, health and safety, labor rights and working conditions standards.

Conflict Mineral Management

TSMC requests our suppliers to comply with restrictions on using mineral resources from conflict areas. In addition, suppliers are requested to disclose their smelter-related information before they are qualified and adopted as a supplier for new materials. TSMC requires suppliers with incomplete information or unqualified smelters to improve, and may also seek an alternative source.

6.2.2.3 Managing Contractors’ ESH

TSMC endeavors to be a good corporate citizen and meet its social responsibilities. We believe in going beyond providing a safe workspace for employees to establish a higher ESH standard with our partners in all industries. TSMC is committed to communicating with suppliers and contractors on environmental, safety, and health issues and encouraging them to improve their ESH performance. TSMC treats contractors like our employees and works together with them to adopt good safety protection, and leads members of our supply chain to reduce their environmental impact.

6.2.3 Identifying High-risk Work for Priority Management

TSMC has established standards for high-risk work to strengthen contractor safety management. TSMC began adopting high-risk work management and self-management to govern work performed by contractors in 2005. TSMC’s high-risk work management classifies work that may cause injuries, casualties or major property damage as level-1 high-risk operations. These include work in confined spaces, work with electrical shock risk, hot work, or disconnection of gas or chemical piping. Work that may result in system shutdows or production interruptions are classified as level-2 high-risk operations. TSMC explicitly defines safety precautions and control procedures to be taken by personnel according to different operations.

6.2.3.2 Contractor OHSAS 18001 Requirement and Worker Skill Certification

In terms of self-management, TSMC requires that contractors performing level-1 high-risk work must complete worker certification and establish their own OHSAS 18001 safety and health management system before they are eligible to bid on contracts. This self-management is aimed at increasing contractors’ sense of ownership and responsibility with the goal of promoting safety awareness and technical improvement for all contractors in the industry. Workplace accidents have decreased by half since these requirements were implemented in 2005.

In addition to routine audits by third party certification agencies, TSMC also conducted audits of OHSAS 18001-certified contractors. If an audit finds that a contractor is not qualified, the contractor’s level-1 high-risk work qualification may be revoked.

TSMC plans to continuously promote its contractor safety certification program in the future, perform regular audits, and recognize outstanding contractors. In addition, TSMC holds an annual “Contractor ESH Forum” to announce ESH requirements and share safety management experience. TSMC believes that we can help the community and the environment by leading our contractors to reach higher standards of environmental, safety, and health protection and create a better workplace.
6.2.4 TSMC Supply Chain Management Forum and Excellent Supplier Award

In keynote address of the 2010 Supply Chain Management forum, Chairman and Chief Executive Officer Dr. Morris Chang emphasized that doing business in an environmentally sustainable way is part of our corporate social responsibility to society, and noted the public’s expectations that business will continue to reduce their environmental impact. Chairman Chang also pointed out that with suppliers’ support, TSMC has not only reached its goal of reducing PFC emissions to 10% below the 1997 and 1999 average in 2010, the company was also recognized by the Dow Jones Sustainability Index with the highest overall score out of all semiconductor companies in the index.

TSMC held its 11th Supply Chain Management Forum on Dec. 2nd of year 2011 with the theme of “Collaborate on Technology Advancement”. In addition to recognizing the support and contributions from its suppliers, TSMC also awarded outstanding suppliers of equipment, materials and facilities. In addition, a special award on “Achievement in Local Presence for Supply Chain Resilience” was established to affirm the contributions of suppliers establishing production sites in Taiwan, expressing TSMC’s will to support local industry and its pursuit of supply chain sustainability.

TSMC “Green Supplier Award”

At its 2011 Supply Chain Management Forum, TSMC presented its first “Achievement in Environmental Excellence” award to a supplier demonstrating outstanding performance in overall environmental protection. Assessment criteria included efficiency (including water saving, power saving, and reduced consumption), code compliance, carbon inventory, hazard restriction, environmental management system (ISO 14001, QC 080000), and environmental protection management (ISO 14001, QC 080000), and green project/commitment or green joint development program with TSMC.

During the forum, TSMC risk management executives stated the company’s green procurement policy and 10 CSR principles, and emphasized that TSMC has been striving for environmental protection as a corporate social responsibility and has entered the businesses of solar energy and solid state lighting. In addition, TSMC has placed energy saving into its criteria for supplier and subcontractor selection, and also requires suppliers and contractors to meet a number of environmental and energy conservation requirements. TSMC supports our suppliers and assists them with overall improvement.

6.2.5 Summary the Achievement of Supply Chain Management in 2011

<table>
<thead>
<tr>
<th>Item</th>
<th>Goal</th>
<th>Result Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green supply chain – product carbon footprint</td>
<td>Collaborate with 15 major suppliers to develop a product carbon footprint for 300mm (Fab 12) and 200mm (Fab 5) wafers and gain PAS2050 certification</td>
<td>Achieved</td>
</tr>
<tr>
<td>Green supply chain – product carbon footprint</td>
<td>Complete carbon inventory and carbon resource management survey for 56 major suppliers in Japan, the United States, and Taiwan to encourage energy saving and carbon reduction</td>
<td>Achieved</td>
</tr>
<tr>
<td>Green supply chain – water resource and water saving</td>
<td>Complete water management survey for 56 major suppliers in Japan, the United States, and Taiwan to encourage water saving</td>
<td>Achieved</td>
</tr>
<tr>
<td>Green supply chain – PFOS hazardous substance management</td>
<td>Complete verification of replacements for products containing PFOS photoresist before the end of 2011</td>
<td>PFOS completely phased out</td>
</tr>
<tr>
<td>Green supply chain – PFOA hazardous substance management</td>
<td>Complete verification of replacements for products containing PFOA photoresist before the end of 2012</td>
<td>Ongoing</td>
</tr>
<tr>
<td>EICC compliance on labor, environment protection, safety and health, human right and social standard</td>
<td>Verify that major suppliers are compliant with EICC standards</td>
<td>Confirmed through questionnaires, on-site audits, and quarterly business reviews that 56 major suppliers are in line with EICC requirements in labor, environmental protection, health and safety, human rights and social standards</td>
</tr>
<tr>
<td>Supply chain risk – business continuity plan</td>
<td>Confirm that 56 major suppliers maintain basic business continuity plans (as per the BS 25999 standard and customer requests)</td>
<td>Achieved</td>
</tr>
</tbody>
</table>