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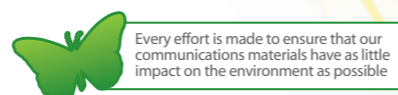
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# Nokia Siemens Networks Corporate Responsibility 2009



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# Message from the CEO

Many will remember 2009 as a challenging year marked by a global economic recession which made business life difficult everywhere, including the telecommunications industry. For Nokia Siemens Networks, which started 2009 coming out of a long and complex merger process, the timing of the financial and economic crisis was particularly tough, and we felt the full force of its impact.

We responded by focusing on three areas to strengthen our business for the future: driving for revenue growth; cost leadership; and reinvigorating our organization to give greater focus to customer relationships and needs. We approached these goals within the context of our commitment to corporate responsibility: protecting the environment, conducting business with high ethical standards, and seeking to integrate sustainability to our work. Despite the difficult economic environment, our commitment to doing business responsibly remains not just intact, but strengthened.

This is the first Corporate Responsibility report I have been involved in since being named Chief Executive Officer, and I am delighted to share our progress. The foundation of our company is that our products and solutions make a positive contribution to society by driving productivity and economic growth and opening up new possibilities for people through communication. We also strive to be an active participant in the communities we serve in order to make life better in other ways as well.

Let me highlight two areas where I see we have gone the extra mile:

- First, we are using our existing portfolio combined with new partnerships to address opportunities in the energy sector. This demonstrates how we are pursuing the goal of “maximizing our positive impact”: saving energy and reducing greenhouse gas emissions in all industries, not only ours. Smart grids can be used to speed up the deployment of renewable energy and managing those grids more efficiently, in order to reduce peak loads and energy losses. It also means using existing subscriber and customer management capabilities to assist utilities in offering new services to help people save energy. The scope is tremendous, as is the potential to make a significant contribution.

- Second, health and safety of employees and contractors is an important concern of Nokia Siemens Networks, especially as we provide more and more network operation, construction and maintenance services. I am pleased that we have been able to continue strengthening our policies and performance in this area for the benefit of people working on our projects.

I would also like to touch on an issue of growing importance: which products and services we provide to which countries. Over the past year we have seen allegations that telecommunications technology, including that provided by Nokia Siemens Networks, has been used to suppress human rights instead of enhancing them. This is not a simple issue as technology that is designed to benefit society can be used for other purposes and, of course, governments can change over time.

While we believe that those who abuse technology need to be accountable for their own actions, we also believe that we have a responsibility to do what we can to see that people around the world get the benefits of free and open communications. We follow all relevant laws and embargos but go beyond that with an internal review process for a number of our products to assess what we sell where.

I am confident that corporate responsibility and ethical business conduct will continue to make Nokia Siemens Networks a stronger and better company. Working against corruption, raising standards in all our relationships, and promoting diversity as a driving force for innovation – these are just some of the areas I believe will make a difference for us and the communities where we do business. As we move forward, I look forward to your input and engagement.



Rajeev Suri, CEO, Nokia Siemens Networks

# Our approach to corporate responsibility

Corporate responsibility (CR) is fundamental to our values and an integral part of our business strategy. The Nokia Siemens Networks mission is to grow our business by helping communication service providers build more valuable customer relationships. Doing business responsibly is central to that mission and we see environmentally and socially sustainable operations as a competitive differentiator.

We understand sustainability as it was first defined in the Brundtland Commission's Report “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The Information and Communications technology (ICT) industry, is so ubiquitous that it has a unique opportunity to contribute to sustainability not only within the sector, but also in the wider world.

Our Corporate Responsibility (CR) plan to 2012 targets three broad objectives:

- Mitigate CR risks
- Minimize adverse environmental impacts
- Maximize our positive influence.

CR means that our business decisions incorporate these objectives through good management practices – where social, environmental and business benefits converge.

## Mitigating CR risks

We need to manage CR risks effectively and be able to demonstrate that we have good management systems in place covering anti-corruption, human rights, labor conditions, occupational health and safety, and environmental protection standards.

Our aim is to protect the brand and reputation of Nokia Siemens Networks and our customers by minimizing CR-related risks in our own operations and in our supply chain. Our Code of Conduct is central to this, reinforced with an annual training for every employee and supported by detailed policies and guidelines. We continue to implement E-TASC, the electronic tool for the assessment of ethical supply chain management.

In 2009, we appointed a dedicated Chief Compliance Officer, taking over the responsibility from our General Counsel to oversee our extensive anti-corruption compliance program.

## Minimize adverse environmental impacts

We consider the impacts of our business throughout the lifecycle of our products, from design to end of life. We focus our innovation on areas that have the greatest potential to reduce impacts throughout the lifecycle: our products' energy consumption during use and the environmental impacts of our supply chain. We are targeting a 40 percent improvement in energy efficiency of key products by 2012, with industry-leading energy efficiency in our base stations. In 2009 we launched an Energy Solutions portfolio, to help our customers to optimize energy solutions and consumption in their networks.

Although by comparison, our own operations have a relatively small environmental impact, we have set ambitious goals to improve the environmental efficiency of our facilities, IT services, our travel and service fleets, and we work with our suppliers for improved energy efficiency in our supply chain.

## Maximize our positive influence

Telecommunications is in a unique position to reduce the environmental impacts of other industries and contribute to social and economic development. We aim to use our understanding of the industry and our competencies to:

- Make operations more efficient, using energy monitoring and optimization technologies
- Dematerialize physical products
- Enable environmentally friendly services, e.g. reduce the need to travel
- Introduce new solutions to different industry sectors, e.g. smart grids.

In 2009, we launched a business serving the energy sector, applying skills and technology developed in the telecom sector to help manage complex smart electricity grids. We also continued to work on bringing sustainable connectivity to remote, underserved areas.

We aim to make a positive contribution in the community, with the emphasis on extended engagement rather than one-off donations, using our communications expertise:

- We support objectives of the United Nations Millennium Development Goals (MDGs) in the areas of poverty-reduction, education and capacity building through the use of information and communication technology for development
- We work with experts preparing for and responding to natural disasters and catastrophes.

<sup>1</sup> Report of the World Commission on Environment and Development: Our Common Future [www.un-documents.net/wced-ocf.htm](http://www.un-documents.net/wced-ocf.htm) (The Commission was chaired by Gro Harlem Brundtland, a former Prime Minister of Norway)

## CR Governance and management

We introduced changes to CR governance and management early in 2010. These changes reflected structural changes in the company and brought together several CR responsibilities under common management. The structure operating in 2009 can be seen in the 2009 CR report.

### Governance

Our Corporate Responsibility Steering Committee is chaired by the Head of Marketing and Corporate Affairs and is responsible for consolidating functional activity and directing our approach to CR.

The committee reports to the Executive Board and includes the relevant executive board members (Human Resources, Legal & Compliance; Marketing & Corporate Affairs). Other members are the Ethics Officer, the Head of Sustainability Operations and other representatives of business functions, as well as an employee representative.

The mission of the CR Steering Committee is to:

- Assess overall company adherence to the Code of Conduct, and employee engagement
- Consider further revision and/or refinement of the Code, where and when needed
- Follow social issues that affect the industry and Nokia Siemens Networks and assign responsibilities to address them
- Review CR globally, including the success of community involvement initiatives
- Ensure CR activity is reported transparently both internally and externally
- Organize the response to CR related issues within Nokia Siemens Networks.

Items discussed by the committee in 2009 included updates to the Code of Conduct, how to respond to structural changes and developments in the company, and our position on confidentiality of communications.

### CR Management

Management of specific CR issues such as supply chain standards is handled within the related businesses and functions, while the Marketing and Corporate Affairs team, newly merged in April 2010, is responsible for overall strategy. Global teams within Marketing and Corporate Affairs manage key aspects:

- **Regulation** and Policies team manages relationships with public institutions and industry associations and, from the start of 2010, is responsible for maintaining an effective dialogue across environmental topics.

- **Sustainability** Operations team is responsible for integrating environmental and social responsibility into Nokia Siemens Networks strategy and execution. The team's priorities are effective stakeholder engagement and dialogue, including employee engagement around sustainability, the development of management systems, KPI measurement and CR reporting. This team is also responsible for industry collaboration on sustainability through our partnerships with organizations such as the Global e-Sustainability Initiative (GeSi) and WWF.
- **Health, Safety and Security** team is responsible for occupational health and safety and labor conditions, employee security, business continuity and risk management and information security.
- **Ethics and Compliance Office**: reporting to the General Counsel is responsible for implementing the Nokia Siemens Networks Code of Conduct and anti-corruption compliance program. The Ethics and Compliance offices merged in 2010.

## Stakeholder engagement

We engage with different stakeholders on CR issues to help us understand and prioritize related challenges.

We couple stakeholder concerns with an awareness of how important each issue is for the company to determine our CR priorities. We do not carry out a formal materiality assessment, but confirm that the topics covered in this report are the most material through a continuing informal review process.

In 2009 we commissioned a formal stakeholder study to improve our understanding of the concerns of different key groups on our approach to CR and CR reporting. The main feedback was that our commitment to CR is recognized and valued and stakeholders welcomed our focus on environmental products, although they wanted to see an even closer link to business goals.

The feedback challenged us to provide more transparency, especially on supply chain action, ethics and privacy, but also to provide greater clarity about our role in bridging the digital divide, distinct from that of the network operators. External stakeholders were impressed by our employee relations activity but there was scepticism from an employee representative about the reality on the ground – reflecting the impact of the restructuring activities in 2009. Stakeholders wanted to see more and clearer targets for our CR action.

This report shows how we have responded to these concerns as well as to other feedback from continuing engagement, described below.

### Customers

We engage directly with several of our customers on specific CR issues. For example, in 2009 worked closely with customers to share best practice and raise health and safety standards, especially on network implementation in emerging markets. We also work closely with customers on energy and other environmental issues.

We participate with customers in national, regional and international industry forums, such as the Global e-Sustainability Initiative, Digital Europe, the European Information & Communications Technology Industry Association, GSMA, the Global Mobile Suppliers Association, and the International Chamber of Commerce.

Customer requests for information on CR are also included formally in tender documents. In 2009, most questions focused on procurement and supply chain management policies, and more broadly in the area of labor conditions and human rights.

### Employees

We engage with employees through a range of internal communications channels. Our annual Global Employee Engagement Survey and regular Pulse Surveys help us identify weaker areas and implement improvements through a company-wide action plan.

We communicate with employees on topical CR issues throughout the year using both global and regional communications channels. A forum is available for employees to raise and comment on any topic anonymously. We engage employees specifically on environmental issues, for example through campaigns to reduce office waste and energy use.

We actively promote the use of the help lines and reporting channels we have in place for ethics and compliance.

### Suppliers

We collaborate with suppliers to improved standards of CR. To communicate our supplier requirements and to raise awareness of CR on all levels of the supply chain we hold workshops and conduct feedback surveys with key suppliers. We also launched a new internet portal for suppliers in December 2009 with information and resources on CR.

### NGOs

We engage with environmental NGOs – most significantly in a global partnership with WWF who help us to raise awareness of key sustainability issues among our employees. We are also part of WWF's Climate Savers program, which brings together major international companies committed to reducing their greenhouse gas emissions. We report our greenhouse gas emissions through the Carbon Disclosure Project (CDP).

We also work with the International Red Cross on disaster relief preparedness.



#### Industry

Nokia Siemens Networks is represented on the International Chamber of Commerce Commissions on e-Business, IT and Telecoms as well as on the Commission on Corporate Responsibility and Anti-Corruption.

We are members of the Mobile Manufacturers Forum and Digital Europe, and the Latin American Environmental Working Group of The Information Technology Industry Council. We are also a member of Global eSustainability Initiative (GeSI). GeSI brings together leading ICT companies – including telecommunications service providers and manufacturers as well as industry associations – and non-governmental organizations committed to achieving sustainability objectives through innovative technology.

We subscribe to E-TASC (Electronics – Tool for Accountable Supply Chains), an industry supply chain consortium. We use the E-TASC self-assessment and audit process to assess our performance on labor, health and safety, ethics and environmental issues in our factories, to help us to monitor performance of our suppliers and communicate unified data to our customers. In 2009, we joined the management group that steers development of the tool.

#### Investors

We took part in the Dow Jones Sustainability Index process, within the Nokia assessment and report our CR activities and key CR data as part of Nokia's Form 20-F Annual report.

#### Intergovernment agencies

We work closely with international and national funding institutions, such as the World Bank, the IFC (International Finance Corporation), and national aid organizations.

#### Academic institutions

We work with academic research institutions as part of our CR activities, particularly in emerging markets, to develop skills with a focus on supporting technical education of women.

#### Multi-stakeholder networks

We have worked closely with the International Telecommunication Union on the role of ICT in economic growth, and are actively involved in the follow-up to the World Summit on the Information Society (WSIS), the UN Global Alliance for ICT and Development (GAID), the Internet Governance Forum (IGF) and other multi-stakeholder forums fostering the information society globally.

#### Public policy

Engaging with policymakers is particularly important in our industry, where global, regional and local regulation has a major impact on access to communications and our ability to develop networks.

We had many discussions with government authorities and agencies in 2009, especially in Finland and Germany. The Connectivity Scorecard proved a useful basis for exploring the potential to improve access to and use of communications. This was particularly relevant in a year when ICT was an important element in the stimulus packages many governments introduced to counter recession.

The Connectivity Scorecard highlights the need to consider more than physical infrastructure when considering how to make connectivity a driving economic force. Regulation is one area to look at. Effective regulation is essential and can support private sector investment if well-designed, clarifying the respective roles of the public and private sectors. The right policy framework helps countries to spread communications and boost productivity.

Nokia Siemens Networks participated in several major events during the year, including an OECD/World Bank workshop: "Policy Coherence in the Application of Information and Communication Technologies for Development". We took part the UN Global Alliance for ICT and Development meeting in Monterrey and presented our energy efficiency solutions at the UN Commission on Science and Technology (CSTD) in Geneva. We also participated in several events related to Internet Governance.

In a significant contribution to the energy debate in the US we held a high-level meeting in Washington D.C. on the Environment as an Economic Engine. Responding to the Obama administration's new energy plan, the meeting brought together key stakeholders representing the ICT industry, government, investors and NGOs to discuss environmental sustainability, energy efficiency and the role of ICT solutions.

#### Reporting

This is Nokia Siemens Networks' second full Corporate Responsibility (CR) Report, covering the calendar year 2009. It details our performance, management approach and targets. A summary is available as a pdf.

The number of sites covered by our reporting system for environmental data covers facilities and offices bigger than 3,000 m<sup>2</sup>, which is 76 percent of our overall real estate portfolio. We extrapolate the remaining figures using country averages. In 2009, we increased the response rate of our reporting system to 98 percent, which is higher than 2008.

## Nokia Siemens Networks CO<sub>2</sub> footprint report

### Introduction

This report brings together all carbon dioxide (CO<sub>2</sub>) data included elsewhere in the CR report, summarizing our footprint.

Our calculated CO<sub>2</sub> footprint for 2009 is as follows:

Real Estate	0.243 Mt
Green electricity	-0.038 Mt
External data centers	0.003 Mt
Outbound logistic	0.169 Mt
Traveling	0.078 Mt
Purchased components	0.451 Mt
<b>Total NSN operations</b>	<b>0.907 Mt</b>

### Scope

The Nokia Siemens Networks related CO<sub>2</sub> footprint is based on Nokia Siemens Networks own operations according to the different emission scopes of the GHG protocol. However, the largest overall impact results from the use phase of Nokia Siemens Networks products and the energy source used for their operation, covered in the second part of this report.

**Direct emissions (scope 1 emissions)** include emissions from fuel (gas and oil) usage in Nokia Siemens Networks facilities. The effect of greenhouse gases CH<sub>4</sub> and N<sub>2</sub>O in burning gas for heating the facilities have also been converted to CO<sub>2</sub>e (CO<sub>2</sub> equivalent) emissions. However, emissions from vehicles owned by Nokia Siemens Networks (service car fleet and management's car benefit) are not yet tracked.

**Electricity indirect emissions (scope 2 emissions)** are based on reported emissions from Real Estate (electricity, district heating).

**Other indirect emissions (scope 3 emissions)** include energy from data centers located outside Nokia Siemens Networks premises, outbound logistics (transport of Nokia Siemens Networks products

to hub delivery), traveling (Nokia Siemens Networks business travel based on flown miles) and the embedded energy of purchased components. The regional transport to final destination is not measured and packaging is not yet included. Supplier to factory deliveries will be included in 2010.

### Footprint of own operations

We have improved the details and accuracy of our environmental reporting in recent years. Initially we covered real estate and traveling but since 2008 we have added logistics, Nokia Siemens Networks servers outside our own facilities and purchased components as an estimate of our supply chain. (We currently have no detailed footprint data from our supply chain). The 'Purchased components' supply chain footprint figure is based on a life cycle assessment analysis of our key products and derived from the estimated lifetime footprint of our annual production volume.

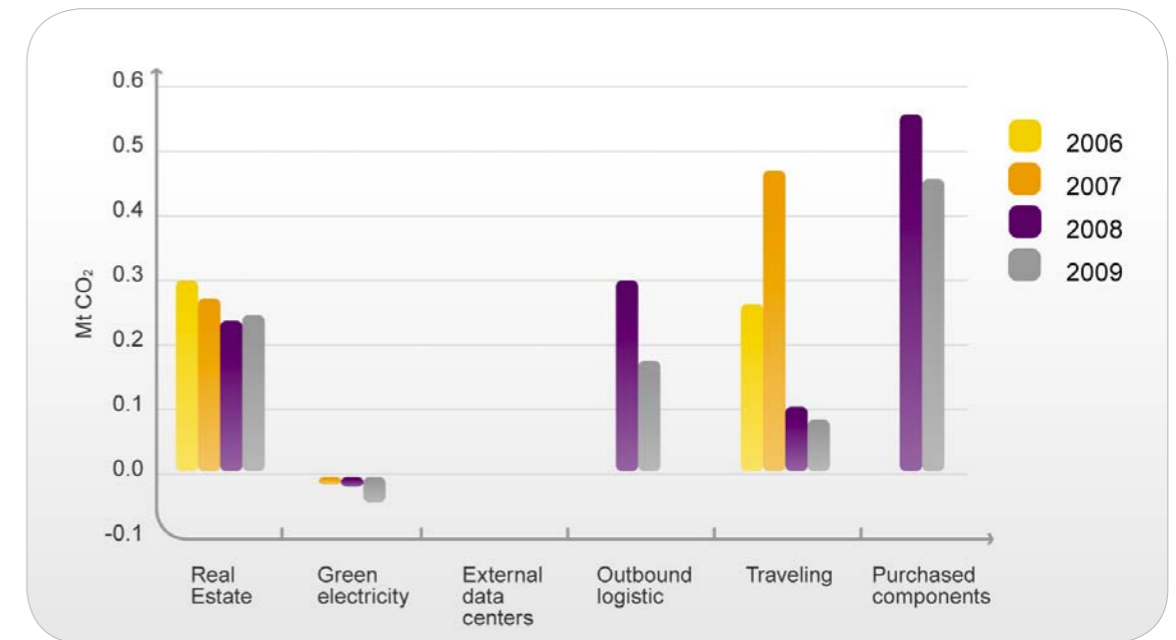
CO<sub>2</sub> emissions have been reduced in all areas except Real Estate, where emissions have increased slightly as a result of relocations to Asia. This has been more than compensated with the purchase of additional "Green Electricity" in Finland and Germany, resulting in lower total real estate related CO<sub>2</sub> emissions. Emissions from data centers and related IT activities from locations outside Nokia Siemens Networks' premises are reported separately under 'External data centers'. Emissions from portable equipment (laptops, mobile phones, home office connections, etc.) resulting from the use of that equipment during their operation outside Nokia Siemens Networks premises are not included. A rough estimate indicates that these emissions are small enough to be within the accuracy of the reporting.

Significant changes have been observed in particular in our travel footprint. The merger in the 2007 resulted in extremely high travel activities with an increase of about 80 percent compared to 2006. During 2008 we introduced travel restrictions, cutting travel related emissions. Further, during 2008 we introduced a more accurate method of travel emission calculation based on flown miles (previous years estimate based on travel cost<sup>2</sup>).

Traveling includes business trips booked via the Nokia Siemens Networks travel tool in Germany and Finland. Emissions resulting from travel originating in other countries are estimated based on those figures. It does not include emissions from other traveling like rail, boat or employee commuting.

We signed an agreement with Deutsche Bahn (DB) in Germany to provide us with carbon neutral train journeys. This means DB buys renewable electricity for the tickets Nokia Siemens Networks travelers purchase, saving 149 tones of CO<sub>2</sub> and 150kg of nitrous oxide in 2009.

Figure 1.2: Footprint of Nokia Siemens Networks' own operations during the recent years.  
NOTE: The reported figures in the diagram for 2007 are based on the 9 months of Nokia Siemens Networks operations plus estimates for the first 3 months of separate operations before the merger. The year 2006 is based on Nokia figures and estimates for the related Siemens operations. The years 2006 and 2007 are therefore relatively unreliable



We support employees who want to work from home or remotely as this can significantly reduce the need for commuting. At the end of 2009, Nokia Siemens Networks had globally 5,483 employees with a home office connection and worked part time from home. Under the assumption that these employees on an average spend about 10 percent of the annual work days for business travels and about 60 percent of the remaining work days avoid commuting of an average roundtrip distance of 40km this saves around 3,600 tons of CO<sub>2</sub> a year.

### Product footprint

The calculation of the product lifetime energy consumption is based on the number of products delivered annually, their average power consumption and typical life time.

In 2007 we also set a target for the annual product lifetime use footprint of all our products for the year 2011. This target was calculated based on our product power consumption roadmaps and an estimate of the telecom market development. Based on this energy figure a global CO<sub>2</sub> emission target was calculated with the global average of CO<sub>2</sub> emission from electricity generation of 0.51kg CO<sub>2</sub> / kWh (source: IEA statistics 2007).

However, as all products are operated with electricity the CO<sub>2</sub> footprint depends directly on the electricity generation method. We therefore consider it as more appropriate and accurate to change to reporting product lifetime energy consumption rather than emissions.

Table 1: Nokia Siemens Networks' CO<sub>2</sub>e footprint 2009

Figure 1.1: Footprint distribution from Nokia Siemens Networks' overall activities

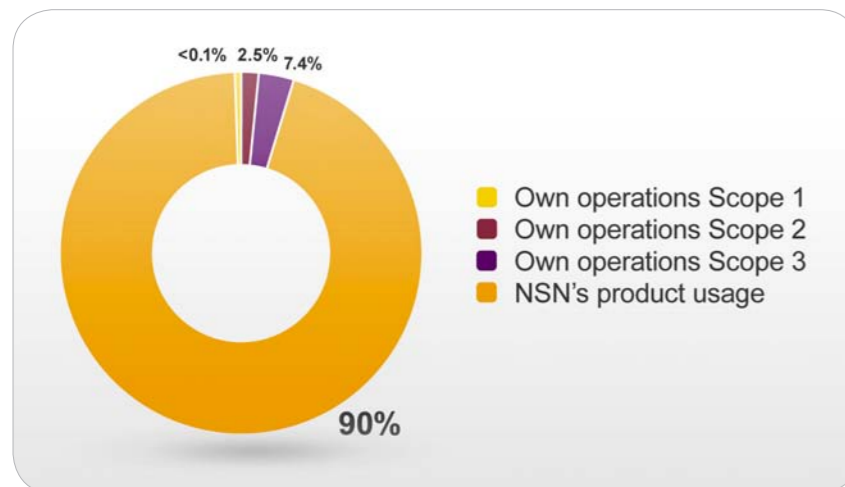
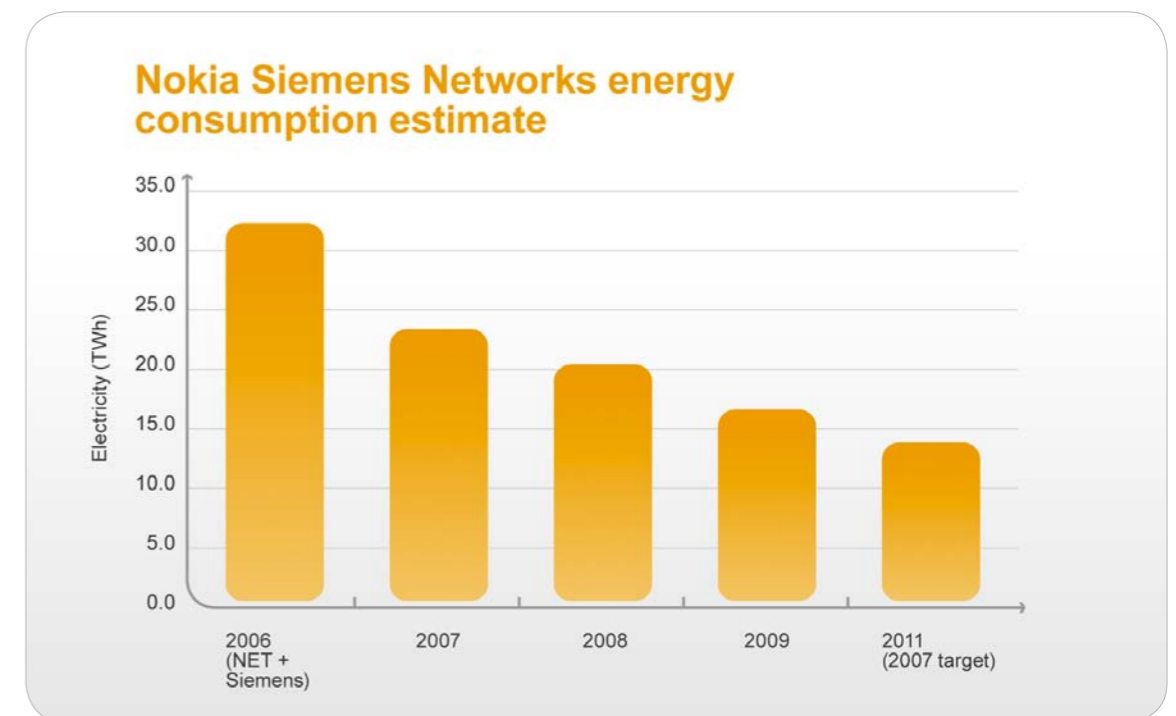


Figure 1.3: Total lifetime energy consumption estimate of Nokia Siemens Networks' products



<sup>2</sup> Air travel emission factors are according to the GHG Protocol Initiative, GHG emissions from transport or mobile sources, version 2.0 / June 2009. In 2008, km data was gathered only from FI+DE so the total km estimate is not reliable and old GHG protocol emission factors were used. Based on flown miles we estimated emission reduction from air travel of over 20% based on reductions in FI+DE in 2009 compared to 2008

# Useful connectivity

"I would like to know more about reaching the people at the bottom [of the pyramid]. Nokia Siemens Networks explain how they are extending the network to the poor, but it is not clear enough how they are going to get there. It is extremely important that the corporate sector thinks about the social impact of its business very consciously and strategically and not as an add on."

Nisha Agrawal, Oxfam India

"The products are good, but information on uptake is very vague. Is this just another product they are selling that is incidentally useful in reaching poor people? If it is, then this section is a little misleading."

Customer, head of supplier development

Increased connectivity can provide important benefits to society through the free flow and availability of information. This stimulates growth, productivity and prosperity in both developed and emerging economies.

We see mobile broadband as the infrastructure of the 21<sup>st</sup> century. It is the steam engine of our era, transforming social and economic activity – but in a sustainable way.

We work to create sustainable business models for connecting those who have been left out of the information revolution. We focus on solutions for rural and low-income communities and the socially disadvantaged, and on spreading understanding of how best to realize the potential of connectivity.

The World Bank estimates that every 10 percentage-point increase in high speed internet connections increases economic growth by 1.3 percentage points<sup>3</sup>. Our own research suggests that such benefits are not automatic, but require appropriate policies to ensure adequate skills and demand.

In 2009 we supported studies on affordability barriers as well as highlighting the role of connectivity as a productivity and efficiency driver. We also sponsored new research on the economic impact of broadband deployment and developed the latest edition of the Connectivity Scorecard, launched in 2010.

Information and communications technology (ICT) has been an important element in stimulus packages introduced by governments around the world to counter the effects of economic recession. Our research and understanding of the requirements for "useful connectivity"<sup>4</sup> has helped several governments develop appropriate policies, including Sweden and Germany.

Despite the tough economic environment we were able to maintain and even increased our investments in 2009. Our focus has been on education and connecting disadvantaged youth. We have encouraged employees to volunteer in their communities and have provided support to disaster relief efforts.

## Mobiles and development

Mobile internet access will be critical for expanding the use of information services in emerging markets. In fact the number of mobile broadband subscribers around the world is expected to overtake fixed broadband subscribers in 2011, and by 2013 mobile broadband will represent 65 percent of the total broadband market, driven partly by surging demand in emerging markets<sup>5</sup>. At the beginning of 2009 there were already 400 million users of mobile internet services worldwide and by 2013 the number is forecast to rise to 770 million – one fifth of all mobile phone users<sup>6</sup>.

Our Internet for the Next Billion project has moved on from the business development phase and the concepts are now being integrated into our mainstream business. We continue to develop innovative business models which help to address the connectivity needs of people in remote communities.

We also continue our activities to develop a deeper understanding and communicate the benefits of connectivity with a series of White Papers exploring the key challenges. In 2009, we cooperated with Nokia to improve knowledge of affordability barriers to mobile internet access, discovering worldwide variations due partly to taxes and regulation. In our White Paper analyzing competence and motivation we argued that to engage people, information services must be tailored to local needs and ease of use is essential. People need to see why the internet can be an important new element in their lives, as well as how they can get the most from it.

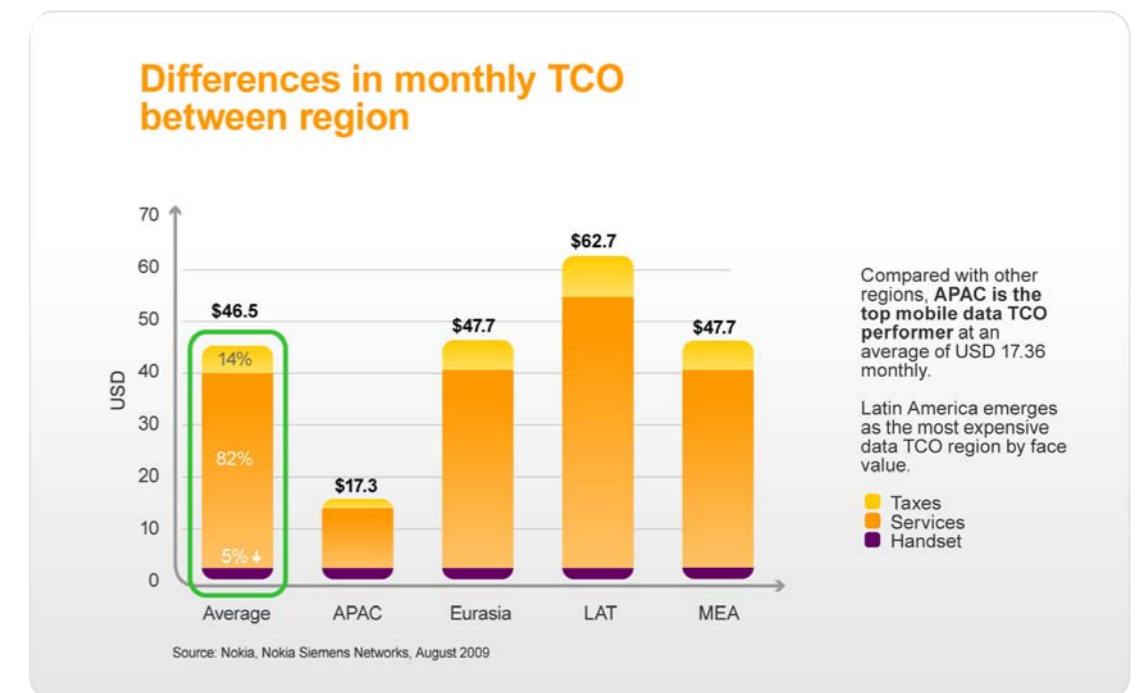
## Affordability

Affordability remains a significant barrier for people, preventing many from accessing data services. In 2009 we did a number of studies to better understand the barriers to affordability.

In cooperation with Nokia, we investigated the cost of using the personal mobile internet in 78 emerging markets. We call it "the total cost of ownership (TCO)" and it includes the cost of the device, voice and data services, and taxes on both the device and services. We found the average cost of using data services is US\$46.54 per month. This is 13 percent of the average GDP per person in the markets studied and is 50 percent more than the average voice/SMS services cost – unaffordable for many on low incomes. Handsets are the least important cost, accounting for just below 5 percent of the TCO. Services contribute 82 percent and taxes nearly 14 percent.

"Useful connectivity" is the bundle of infrastructure, complementary skills, software and informed use that makes ICT a key productivity driver.

Figure 2.1: Monthly TCO per region



<sup>3</sup> <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22231347~pagePK:34370~piPK:34424~theSitePK:4607,00.html>, July 3, 2009

<sup>4</sup> "Useful connectivity" is the bundle of infrastructure, complementary skills, software and informed use that makes ICT a key productivity driver

<sup>5</sup> Informa: Future Mobile Broadband: HSPA & EV-DO to LTE Networks, Devices & Services 3<sup>rd</sup> Edition, April 2009

<sup>6</sup> Source: National Regulators, ITU, Nokia Siemens Networks May 2009, Strategy Analytics

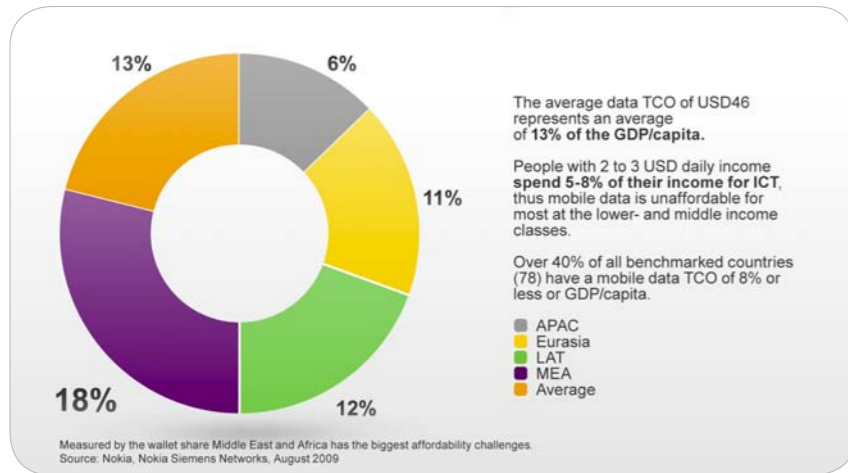


Figure 2.2: Relative monthly costs per region

There are significant differences between regions and individual countries within regions. Mobile data access is least affordable in the Middle East and Africa and most affordable in the Asia Pacific region (measured by share of average GDP per person). Bangladesh, India and Pakistan have the lowest absolute TCO, below US\$10 a month. The most expensive countries include Brazil (US\$225 /month), Zimbabwe and Peru.

One clear conclusion from closer inspection of the high TCO countries is that inappropriate regulation and taxation are hampering the spread of mobile data access - consequently limiting the productivity benefits that could be achieved. Our industry is often seen as a "golden goose" for tax revenues – for example, Kenya and Senegal introduced new taxes on the mobile industry in 2009. Such developments can seriously hamper the spread of connectivity.

The positive effect of lowering taxes for the spread of connectivity can be seen clearly in the Indian sub-continent. India is among the most competitive voice and data markets in the world and has

over 450 million mobile subscribers, with more than 14 million signing up every month. Its success is at least partly due to a regulatory environment that encourages competition, avoiding excessive license fees and giving operators flexibility on tariffs.

On the other hand, Pakistan introduced taxes in 2008 that have hampered mobile growth. Subscriber numbers actually fell in December 2008 and Pakistan's subscriber growth in 2009 was only 9.5 percent compared to the region average of 34 percent.

#### Affordable mobile infrastructure

Technology is helping to make mobile data access more affordable. Our latest low-power Flexi base station solutions are helping communications service providers (CSPs) to build mobile network coverage with significantly lower capital and operational costs than previously. Costs can be cut further with flexible regulation that allows the use of frequency bands that can provide highly cost effective coverage.

The main capital costs for a CSP are in constructing the base station towers, powering the network and backhaul – transmitting from remote sites to the main network. These three costs – tower, power, backhaul – are key to achieving more affordable access and we are helping to reduce costs with innovation at the network level, at the site level and at the equipment level, summarized in the table (see figure 2.3).

Network sharing offers further potential to make data access more affordable. Sharing between CSPs may cover only the site or base station or include backhaul equipment as well. The potential cost savings are enormous – in the Middle East & Africa operators could save US\$8 billion over the next five years, by sharing towers<sup>7</sup>.

Figure 2.3: Tower, power and backhaul costs

	Network impact	Site impact
Tower: Cost of construction	Fewer sites through intelligent network planning	<ul style="list-style-type: none"> <li>Backhaul technology can have a huge impact on the site construction cost. For example, using point to multipoint IP based backhauling allows sites to be built on a pole or a house in a village</li> <li>Outdoor and self-cooling cabinets help to avoid shelters and air conditioning</li> </ul>
Power: Cost of electrification	Fewer sites reduces overall energy costs	<ul style="list-style-type: none"> <li>Latest generation base stations equipment reduces power consumption substantially</li> <li>Reducing or eliminating of air conditioning reduces the power consumption per site</li> <li>Innovative business models such as Power as a Service reduce CAPEX and provide fixed monthly OPEX that is independent of fluctuating energy prices</li> </ul>
Backhaul: Cost of backhaul	Fewer sites reduces the number of hubs required, improving backhaul efficiency	<ul style="list-style-type: none"> <li>Research shows that most voice traffic is generated within villages. Most internet traffic is likely to be between the internet gateway and the village. Therefore, local voice routing frees up backhaul capacity for data traffic</li> <li>Proxy servers can improve the customer experience by catching functionality</li> <li>In general, IP backhauling provides the best efficiency for remote sites</li> </ul>

<sup>7</sup> Tower Sharing in the Middle East and Africa: Collaborating in competition, Delta Partners, April 2009

## Connectivity and productivity

We have sponsored two major studies to improve understanding of the impact of Information and Communications Technology (ICT) on economic growth. These studies emphasize the need to consider the economic impact of connectivity, not just the technology, and have been of great interest to a wide range of stakeholders including our customers, governments, policy makers, regulators and other key industry players.

We presented the results at several high-level meetings, including the European Union "Future of the Internet" conference in Prague, and Nokia Siemens Networks was the only private sector firm represented at a policy workshop organized by the OECD and the World Bank in Paris. We also presented results to a select group of US industry experts, academics and policy makers at Georgetown University in Washington DC.

### Connectivity Scorecard

The Connectivity Scorecard is a unique global study that ranks economies around the world in terms of "useful connectivity". We live in a connected world, but to what extent are governments, businesses and consumers making use of ICT to enhance a country's social and economic prosperity?

Connectivity Scorecard measures performance against approximately 30 indicators of ICT infrastructure and ICT usage and skills, with an emphasis on business, consumer and government sectors.

The results show that no country has any room for complacency in its deployment and use of ICT infrastructure and that even the most advanced countries still have room for improvement.

The scorecard was first published in 2008 and in the following year we expanded the number of countries from 25 to 50, consisting of 25 "innovation-driven economies" (advanced nations) and 25 "resource and efficiency-driven economies" (emerging markets).

Figure 2.4: Connectivity Scorecard 2010 Results: Innovation Driven Economies. [Note: 2009 rankings in parenthesis]

Rank	Country	Score	Rank	Country	Score
1	Sweden [2]	7.95	14	Hong Kong SAR [14]	6.10
2	United States [1]	7.77	15	Belgium [17]	6.08
3	Norway [5]	7.74	16	New Zealand [16]	6.07
4	Denmark [3]	7.54	17	Germany [13]	5.77
5	Netherlands [4]	7.52	18	France [15]	5.65
6	Finland [11]	7.26	19	Czech Republic [20]	5.03
7	Australia [8]	7.04	20	Spain [21]	4.79
8	United Kingdom [6]	7.03	21	Portugal [22]	4.45
9	Canada [7]	7.02	22	Italy [19]	4.35
10	Japan [10]	6.73	23	Hungary [23]	4.31
11	Singapore [9]	6.68	24	Poland [25]	4.06
12	Ireland [12]	6.37	25	Greece [24]	3.44
13	Korea [18]	6.33			

Figure 2.5: Connectivity Scorecard 2010 Results: Resource & Efficiency Driven Economies [Note: 2009 rankings in parenthesis]

Rank	Country	Score	Rank	Country	Score
1	Malaysia [1]	7.14	14	Iran [12]	3.59
2	South Africa [4]	6.18	15	Vietnam [19]	3.42
3	Chile [3]	6.06	16	Sri Lanka [18]	3.18
4	Argentina [7]	5.90	17	China [15]	3.14
5	Russia [6]	5.82	18	Egypt [17]	2.97
6	Brazil [8]	5.32	19	Philippines [16]	2.92
7	Turkey [2]	5.09	20	Indonesia [21]	2.13
8	Mexico [5]	5.00	21	India [20]	1.82
9	Colombia [9]	4.76	22	Kenya [22]	1.80
10	Ukraine [13]	4.67	23	Nigeria [25]	1.78
11	Botswana [10]	4.30	24	Bangladesh [23]	1.69
12	Thailand [11]	4.11	25	Pakistan [24]	1.53
13	Tunisia [14]	3.87			



In Connectivity Scorecard 2010 the US was toppled from #1 position among the advanced group of countries by Sweden, which scores consistently good performance in all sub-categories. The US lost its top place specifically because it lags behind in consumer broadband. Sweden also narrowed the connectivity gap with Asian countries such as Japan and South Korea who are leaders in mass-market, next-generation, high speed broadband infrastructure.

In the group of emerging economies, Malaysia continues to lead but South Africa has made up ground because of strong corporate spending on IT hardware, software and services. Latin American countries such as Chile, Argentina, Brazil and Mexico all showed strong performance. China and India finished 17<sup>th</sup> and 21<sup>st</sup> respectively, which although reflecting the progress made to date, also highlighted the tremendous ground that these nations still have to cover.

The Connectivity Scorecard was authored by Professor Leonard Waverman, Dean of the Haskayne School of Business at the University of Calgary and Fellow at the London Business School, in conjunction with the economic consulting group LECG of London.

The Scorecard won the International Development category at the SUPERCMM 2009 EOS Awards for pioneering achievements in the communications industry.

See more at [www.connectivityscorecard.org](http://www.connectivityscorecard.org)

#### Broadband Impact Study

In 2009, we provided further insights with a study concentrating specifically on the links between broadband deployment, productivity and economic growth, helping decision-makers understand the wider implications of ICT and broadband policies for social and economic development.

The study explored the economic benefits of broadband diffusion in Europe and the United States over the last 10 years. It found that in countries where ICT adoption and use were at medium or high levels the economic benefit from improved broadband penetration was significant. As an example, we estimated that adding 10 additional broadband lines per 100 individuals in the US could increase GDP by over US\$100 billion.

However, in countries where ICT adoption was relatively low broadband has generally been adopted more slowly and has not had a measurable impact in improving economic productivity.

The study concludes that there are significant economic benefits from broadband if overall ICT skills and use are high. So policy makers and the industry as a whole should not only enable affordable and universal broadband access but also emphasize access to computing devices

and services as well as ICT awareness, training and education to boost skills and usage.

See more at: [www.connectivity-scorecard.org/broadband/](http://www.connectivity-scorecard.org/broadband/)

#### Village connection – promoting rural connectivity

Nokia Siemens Networks Village Connection is an innovative approach to promoting access and extending coverage in remote and rural areas. This acts as a spur to entrepreneurship and helps build ICT competence in local communities. Users benefit in many ways, including access to information on healthcare, education and business. In 2009, after participating in the Ministerial Conference in Tonga, we entered into a partnership with the International Telecommunication Union (ITU) to bring coverage to the Pacific islands using Village Connection (see box). Implementation of this agreement is under way in 2010.

The system is designed to bring communication services to underserved markets as it extends mobile voice and data coverage to rural villages. It uses a low-cost, franchise-based entrepreneurial business model:

- Operators set up village-based mobile access points linked to regional centers
- Village “hosts”, in contract with the network operator, are trained to maintain the access point equipment and run the village network
- These local entrepreneurs sell prepaid mobile phone subscriptions to other villagers and are thus incentivized to increase the subscriber base
- The entrepreneurs also pass on basic ICT skills and knowledge to help people access and use the information services available

Successful trials and the connection of 50 villages in India by the end of 2008 demonstrated that the technology was sound and the program sustainable. However, operators asked for modifications to include the full portfolio of services so we accelerated development of version 2.0. This was launched in October 2009.

We also adapted the system to enable local switching of up to six base stations. In a traditional network connection, calls go through a switching centre which may be far from where the call originated. In the developing world this is problematic as calls are routed via satellite which is costly. Many of the calls originate and terminate in the same town. So local switching gives better voice quality and lowers cost. In 2010 this technology will be integrated into all mainstream projects.

#### International Telecommunication Union (ITU) partnership

In October 2009, we announced a ground-breaking partnership with the ITU to bring affordable connectivity to the world’s rural and remote areas. As a first step, we are connecting villages in island countries of the Pacific region.

We are providing our Village Connection platform and expertise at no charge. An initial shipment of thirty platforms will be deployed at trial sites. The partnership forms part of the ITU’s Connecting Villages initiative.

#### India’s first commercial rural broadband program

In July 2009 Indian operator Bharat Sanchar Nigam Limited (BSNL) set up India’s first commercial rural broadband program using access kiosks in co-operation with Nokia Siemens Networks.

The rural broadband kiosk solution is based on a portal, delivering web-based services through a platform which is integrated into the BSNL network. The first kiosks are connected via a fixed broadband connection, but in future mobile technologies can also be used.

Kiosks are run by villagers, thus creating rural employment. More importantly, the kiosk can be used to deploy services related to agriculture, healthcare, microfinance, education and entertainment, thereby creating rural economic activities through ICT.

The current agreement between Nokia Siemens Networks and BSNL covers implementation of a kiosk in Maharashtra, Uttar Pradesh, Tamil Nadu and Himachal Pradesh regions. If they are successful, BSNL will set up kiosks in remote villages across the entire sub-continent.



#### Connecting the disadvantaged

Our goal is to unite communities and people through communication. Access to information and communication with modern technologies helps people to fulfil their potential, develop their individual knowledge and skills and raises productivity levels throughout an economy.

We look for extended engagement where we can demonstrate the power of communication. Everyone in the community, whether old or young, with different abilities, and from any background, should have the chance to participate in modern communication.

In 2009, we continued to provide capacity building activities in a variety of projects, including educational activities for people with disabilities, the elderly and socially or economically disadvantaged members of society. Here we provide several snapshots of the work we did in 2009.

#### ‘Germany – be connected’

Our social initiative “connecting friends – be connected” brings new ways of virtual communication for disabled children and young adults to stay connected to their loved ones. This cross-company volunteering social project was recently awarded the accolade “Selected Landmark in Germany 2009” under the patronage of the President of Germany, Horst Köhler.

We developed innovative virtual communications solutions together with the disabled kids and young adults from the self-help parent organization “Helfende Hände” (Helping Hands). The particular strength of the project is its ability to enable different solutions for people with different abilities and ways of communicating.

For example, some of the disabled teenagers can communicate live via chat and Skype, using special input devices and software – with just a little help from their carers.

### Germany – ‘Help children’

Launched in 2009, Nokia Siemens Networks Germany’s ‘Help Children’ initiative aims to bring the internet within the reach of socially disadvantaged children, helping them explore the possibilities and opportunities that technology and communication offer.

Maintaining social connections and staying constantly in touch with family members is one of the pillars of therapy for children with cancer at Universitäts-Klinik Düsseldorf.

To help achieve this, we donated laptops for use in a special chat room, providing internet connectivity for the children. As well as providing the hardware, we also cover maintenance and repairs.

### India

We partnered with Sarthak, an NGO whose vision is to “serve the differently privileged”. They do so by empowering people from a poor socio-economic background or with disabilities such as visual impairment, physical handicap, mental challenges and hearing impairment.

The objective of the project is to help these people live independently and be able to care for themselves. This is done through various programmes including education, training and placements. Nokia Siemens Networks’ major project is to train people in technical and specialized courses which meet demands in the telecom services market. This will help them to get a job in the industry and to earn a decent living.

### France – connecting underprivileged youth

For the last three years we have participated in “Cercle Passeport Télécoms”, a program in France that aims to provide underprivileged youth with access to higher level studies like engineering and management.

The Cercle Passeport Télécoms initiative offers business style mentoring to students, in particular from under-privileged backgrounds and ethnic minorities. The aim of the project is to encourage them to enter the “Grandes Écoles” specializing in engineering and business, with the goal of leading them to high-level careers in companies or in government agencies.

As part of the program, employees in France tutor these students through their schooling, from the “preparatory” classes to the three-year studies for engineers.

During the “Cercle Passeport Télécoms” initiative over 1,300 young students have benefitted through common tutoring and 501 students through a personal tutor. This enabled 90percent of the students to join an engineering or management high school.

### China - RICE

In June 2009 our innovation team partnered with Corporate Affairs in Greater China Region to initiate project RICE (Rural-defined Information & Communication Engine). This will provide a means of information exchange and communication between farmers and the Chinese government’s Technical Task Force.

Through RICE, farmers will contribute and get access to relevant local information such as market data (price of goods, equipment cost, availability of transportation, etc.) helping them to reduce vulnerability to cost fluctuations.

### Disaster relief and preparedness

When natural disasters strike, communications can make a life or death difference. Good communications effectively support the coordination of an emergency response, providing vital help and support to people in distress.

As a company, we have defined three key areas of response to natural disasters:

- Protect our employees and their families from personal harm and injury and protect our corporate assets as part of our business continuity management program
- Work with our customers to help maintain or re-establish vital communications links; this is to enable emergency response agencies and the people in affected regions to coordinate their activities and communicate their needs
- Provide relief and support for affected communities and societies through donations to relief agencies, and through rebuilding efforts, often in cooperation with our customers

In February 2009 we demonstrated a new emergency communications package at the Mobile World Congress in Barcelona, which will be further developed in collaboration with the Finnish Red Cross during 2010. The system is designed to be used to provide emergency communications when disaster strikes and disrupts existing communications networks.

We encourage our employees to contribute to disaster relief and we match donations on a case-by-case basis. Here are some of the many examples of how we have helped people around the world.

### Australia: Bushfires

After the devastation caused by bushfires in Victoria, Nokia Siemens Networks gave employees the chance to make a salary contribution to the Red Cross Victorian Bushfire Appeal Fund. We also encouraged employees to volunteer to help out community organizations and matched their donations.

### India: floods

Floods in Andhra Pradesh caused severe devastation; hundreds lost their lives, and many were made homeless.

We collaborated with a charitable trust with our initiative “REACH the needy” to provide relief and rehabilitation to the flood affected victims. Within three days, we collected Rs.150,000. Employees working in proximity to the flood-hit villages provided us with updates on the current situation as well as the nature of contributions needed. There was demand for temporary shelter materials and safe drinking water. We procured 800 Tarpaulins (temporary shelter) and 2000 packets of drinking water with the contributions received from our employees. Employees personally visited the villages to distribute the items.

### Italy: Earthquake

In April an earthquake in Abruzzo, Italy claimed nearly 300 victims, injured many more, and nearly destroyed the city of L’Aquila and its surroundings leaving 20,000 people homeless.

Nokia Siemens Networks responded by inviting its employees in Italy asking them to donate the equivalent of one hour out of their monthly salary. We matched their contribution and the total was given to the ‘Special Fund for Regione Abruzzo’. The donation was entirely voluntary.

### South East Asia

Countries in Southeast Asia suffered a series of natural disasters in September 2009 leaving a trail of havoc in their wake. Within a few days of each other, Typhoon Ketsana hit both the Philippines and the Da Nang region in Central Vietnam; and a powerful earthquake shook Padang in Indonesia. A tsunami also washed over parts of the Samoa Islands.

Thanks to the rapid implementation of our crisis management procedures we were able to ensure the safety of all our employees in these affected regions. We provided assistance to the populations affected by these disasters. For example, in the Philippines we provided mobile phones and logistical support for national recovery efforts. Our team organized relief teams to help provide supplies to those trapped in their homes by the floods. They also raised donations for food and money for affected employees. In Indonesia we acquired tents, fuel, food, medicine, water and medical supplies for staff. Our customer teams entered the affected area and helped with the reconnection of services.

### Access to education

We believe that education is a vital foundation for successful development. ICT is a vital tool in supporting education as we help connect schools and universities and provide long-term support for education projects around the world.

In 2009 we contributed to an international initiative headed by UNESCO, the World Economic Forum, and the International Institute for Educational Planning to provide content, case material and editorial support for the “Manual for Monitoring and Evaluating Education Partnerships”. The manual is designed for practitioners engaged in multi-stakeholder partnerships for education involving government, business and civil society actors. It provides guidance on the role and functioning of monitoring and evaluating such partnerships throughout different stages.

We also engaged with other partners in the Global Alliance for ICT and Development of the United Nations, including UNESCO, to develop a framework for an international education partnership for the use of ICT in development.

Here we showcase some of our education programs and activities in 2009.

### China

We offered a reconstruction fund of RMB3 million to two school buildings at the Mengjin Changhua Middle school in Henan province. Building work was completed in December 2009.

We then embarked on a new partnership with our customer China Unicom in Anhui Province to initiate an education program. The aim was to support four rural schools in Anhui province by setting up PC rooms and libraries for rural students. We provided RMB500,000 to procure the PCs and facilities for the schools and Anhui Unicom offered their labor force to set up and install the facilities, which will be completed in the first half of 2010.

### Indonesia

Nokia Siemens Networks Indonesia has contributed to capacity building by renovating a local school in Depok city.

With the idea that proper education can only take place in the right environment, enthusiastic employees contributed books, collected additional funds, painted and decorated the classrooms, and even helped with the gardening. This program has improved the school’s physical infrastructure and learning facilities, adding four new classrooms with furniture, toilets, and modern learning facilities such as a library equipped with 200 books and a computer, a prayer room, a revamped educational garden plus sports and music equipment.

# Environmentally sustainable business

The next step is to strengthen our involvement in providing technology education and capacity building through our volunteer program and by providing IT teachers to the school.

## Papua

We provide support for basic education in information technology to students from Jayapura, the capital of Papua, a rural area thousands of miles away from Jakarta. Students in the province are eager to learn and explore new ways of connecting with the world.

In November 2009 we held an eight-day training program for 40 students, some of whom were experiencing the world of IT for the first time in their lives. Selected students from junior schools and high schools near our base station sites received an intensive computer training program. They then took an exam held in the computer lab at the Wahana Cita Campus.

Learning to use the internet and various computer programs has given these students more confidence to apply for jobs.

## South Africa

We have partnered with Nokia and a South African social network platform MXit to provide a pilot for mobile mathematics learning. The partnership "ImfundoYami / ImfundoYethu" in collaboration with the South African president's office is built to enhance the traditional learning environment through mobile phones / SMS. Students in Gauteng, the North West and the Western Cape provinces can use their own handsets to access mathematics lessons on MXit. This project is a model of how personal mobile devices can be used free of charge for formal learning or other government services. Over 5,500 pupils have used the service so far and tutors help approximately 50 pupils per hour.

Nokia Siemens Networks South Africa has also pledged 1 million South African Rand (approximately 80,000 Euros) along with the support of our South African employees towards the Dinaledi Schools adoption program. The money will largely be used to educate the children and train their teachers. Part of the contribution will be used to refurbish the facilities. One hundred of our employees personally visited the schools to help paint the classrooms and fix the furniture.

Our long term goal is to achieve a 100 percent pass rate among the students. Once improvements have been made to the facilities we will focus on teaching mathematics, science and technology to the young students. To further this goal, a mentoring program was launched in April where staff members were encouraged to adopt a Grade 10 learner. The mentor is responsible for guiding the student towards academic excellence and will assist with social skills development, social responsibility and career guidance.

We believe it is essential to support environmentally sustainable development for the welfare of our planet and its inhabitants. Advanced communications technology can play an important part in sustainable development.

Environmental sustainability also makes "good green business sense" benefiting both us and our customers. It is essential for companies that want to retain their competitive advantage.

Our goal is to develop, run and enable environmentally sustainable business which combines environmental and business benefits:

- Maximizing the positive environmental impact of ICT by helping other industry sectors to reduce their environmental footprint with our technology
- Minimizing our own and our customers' environmental footprint

While we have most control over our own operations and the footprint of our products, the most significant contribution we can make is to demonstrate the potential for ICT to reduce the environmental footprint of other sectors. For example, the ICT sector as a whole is responsible for about two percent of greenhouse gas emissions but we can apply our technology to reduce the 98 percent of emissions in other sectors (see figure 3.1).

## Highlights in 2009

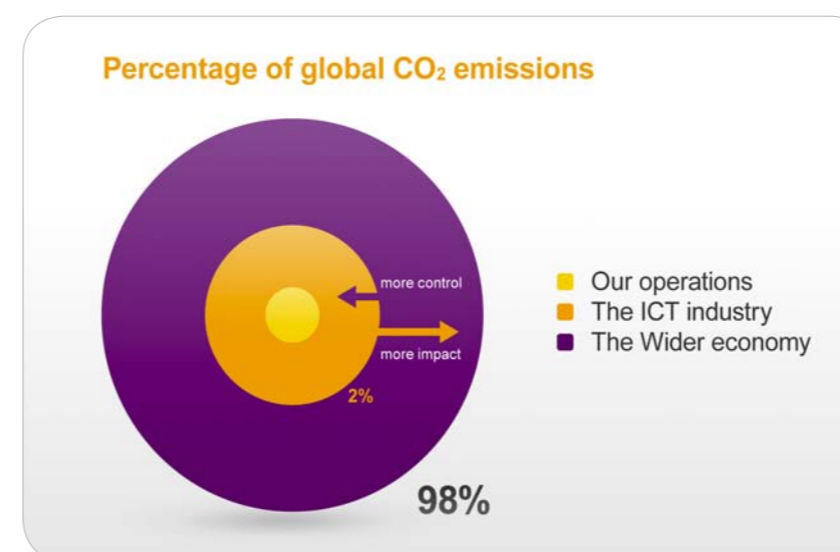
In 2009, we took a major step forward with the launch of a new business serving the energy sector. In the first public implementation outside the telecommunications industry, our Open Element Management System Suite is now being used to improve wind farm operations. Similarly, our charging, service management and network management experience and solutions can transform electricity distribution networks into intelligent smart grids. We continue to research several aspects of smart grids and smart cities.

We also introduced the second phase of our Energy Solutions portfolio for communications service providers. The products, consultancy, software and service elements of this portfolio provide an end-to-end solution, from specification to maintenance, to help operators save energy.

These business developments are underpinned by continuing attention to new business innovation, to product environmental impacts and to minimizing environmental impacts of our operations

In our own operations we are increasing our use of renewable energy and improving the energy efficiency of our buildings, aiming for a reduction in our carbon dioxide (CO<sub>2</sub>) emissions of 30 percent by 2012 (compared to 2007). In 2009, we introduced a new focus on logistics and information technology and improved the measurement of emissions to better understand and track our performance.

Figure 3.1



## Maximizing positive impacts

The potential for our products and services to cut emissions outside our industry is enormous. By improving energy efficiency in areas such as the electricity grid, electric motors, logistics and building energy use, ICT could save 15 percent of the total projected emissions for 2020 (based on "business as usual")<sup>8</sup>. For example, as mobile broadband internet use grows, more and more activities and services can be delivered electronically instead of physically.

In 2009, we launched a new business serving the energy sector and are involved in several further potential applications that will help to create smart grids and smart cities.

In the spirit of maximizing our impact it is essential that we engage others in the fight against climate change and work with other people and organizations in our industry and beyond. In November 2009, we organized a summit in Washington D.C. to bring together key stakeholders representing the ICT industry, government, investors and non-governmental organizations to move the energy debate forward. Throughout the year we worked with others through the WWF Climate Savers program, including a campaign for a powerful new agreement at the UN Climate Conference in Copenhagen.

Our measured carbon dioxide (CO<sub>2</sub>) footprint for 2009 is **0,907 million tonnes**, more than half of which is from purchased components (see the CO<sub>2</sub> footprint report for full details). We reduced CO<sub>2</sub> emissions in all areas except Real Estate, where emissions have increased slightly as a result of relocations to Asia. This has been more than compensated by the purchase of additional renewable electricity in Finland and Germany, resulting in lower total property-related CO<sub>2</sub> emissions.

## Low carbon economy

Our industry is in a unique position to reduce the environmental impacts of other industries by:

- Making their operations more efficient (through automation, monitoring and optimization)
- Replacing physical products with virtual versions (dematerialization)
- Enabling environmentally friendly services
- Reducing the need for travel and transport

We are applying the skills and expertise we have developed in the telecoms sector to these opportunities. Our software skills and experience of dynamic network changes in telecoms, dealing with large amounts of data in real time and managing customer experience, are directly transferable to other sectors.

In 2009 we launched solutions to manage electricity grids more effectively. The energy industry is

addressing two fundamental issues, both of which mean that the electricity grid will have to be managed dynamically:

- Managing power distribution in real-time, using "smart meters"
- Generating energy sustainably using new sources such as wind and solar.

Applying the technologies and expertise developed in the telecommunications sector will make power grids more intelligent and efficient, reducing total energy demand and CO<sub>2</sub> emissions.

### Managing energy consumption

"Smart meters" provide information for utility companies to measure energy consumption in real time and for customers to follow the amount and cost of their consumption. This makes it possible to offer more varied tariff structures to help balance peak loads and make better use of off-peak supplies. Trials have shown that the peak loads can be reduced by 20 percent by simply making consumption data available to consumers. Smart meters will also help to reduce CO<sub>2</sub> emissions because they support feeding power into the grid from local, renewable generation.

Our smart metering solution is based on the same billing software which is already used by our Communication Service Provider customers, serving more than 500 million telecoms subscribers around the world.

### Managing renewable energy generation

Reducing greenhouse gas emissions requires a massive expansion of renewable power such as wind and solar generation – the European Union aims for 20 percent of electricity to come from renewable sources by 2020. Wind power is variable and erratic, requiring sophisticated management to achieve maximum productivity and supply to the grid.

In 2009 we formed a partnership with ServusNet, a software provider, to create a management solution for wind farm operators. These power companies may have multiple wind farms across Europe, with hundreds of turbines from different manufacturers. They need to be able to extract data from different turbine vendors for a unified view of generation matched to their service level commitments.

Using our Open Element Management System Suite, ServusNet was able to develop software in a matter of months that will help operators to improve wind farm productivity and the predictability of electricity supply. ServusNet began trialing the solution with a customer in 2009.

The Open Element Management System Suite is a software platform that provides a robust development environment for building network management and control software. Originally developed for telecom customers, it can be used with various network technologies.

## Research and development

We have a global network of approximately 16,000 people working in research and development (R&D) and in 2009 we invested 18 percent of sales in R&D. We have development sites in Asia Pacific, China, Europe, Middle-East and Africa, and the US.

One of our aims is to use our technology to provide telecommunications, networking and software solutions for the energy sector. Our work on smart grids is an example.

### Smart grids

We are pursuing new business opportunities addressing four energy-themes:

- Electrification replacing other power sources
- Decarbonization of energy supplies to cut emissions
- Localization of supply
- Optimization, increasing energy efficiency

As well as carrying out our own innovation and research projects, we participate in partnerships with the energy industry and academia. Examples include the EU Thematic Network on ICT solutions for smart distributed power generation and the Special Interest Group smart metering and energy-aware devices.

In 2009, we began work on five projects under the umbrella of Smart Grids and Energy Markets (SGEM):

- Meter data management and charging infrastructure using telecom network assets – this project aims to find out how telecom network management and service charging principles can meet the challenges in smart metering where large volumes of data need to be transferred, stored and processed continuously
- Intelligent interface of plug-in vehicles – these electric vehicles require an easy-to-use charging infrastructure and simple payment methods. Mobile communication network principles could provide the communication and control infrastructure required and this project is analyzing how service control, billing and management of electricity charging can use principles common in the telecoms sector
- Total Site Manager – this project will study the use of renewable energy to power base stations, as a springboard for the general study of renewable energy, the management of micro grids and the financial analysis of distributed energy generation
- Machine to Machine (M2M) connectivity – examining the communication requirements of smart grid applications to map them against commonly used telecom architectures and select the most promising opportunities
- Field crew level IT solutions and functions – exploring the applicability of telecom expertise to the management of smart grids. The main aim is to understand the requirements for managing

efficiency in smart grid field operations, evaluate the roles of existing IT systems and integration with field force management systems

### Smart cities

Beyond the energy sector, our research is addressing the challenge of transforming urban resource use. The world's urban population exceeded those in the countryside for the first time in 2009 and the rush to the cities is expected to continue, especially in China and India.

Our technologies can help to achieve the necessary transformation, supporting smart, integrated approaches to managing and reducing resource use. As well as smart grid applications, this includes supporting alternatives to today's ways of living, working, traveling, and reward systems that motivate people to change their consumption behavior.

We believe low-carbon opportunities exist in several sectors, including:

- Public sector – environmental monitoring and management, intelligent traffic management, remote healthcare services and waste management.
- Business – optimized logistics, virtual offices and e-commerce
- Residential – intelligent home automation used for energy management and broadband communication capabilities

We are researching energy efficient optical and wireless networks, sensor networks, machine to machine services, intelligent business and operations process management systems.

## Engagement

To maximize our impact, we motivate employees to act on environmental issues and work with key stakeholders and other companies in our industry to raise environmental standards.

### Employees

Engaging employees makes them more conscious of energy and resource use in the workplace, helping us to improve our environmental performance.

In 2009 we launched a campaign among employees to promote the idea of the 'environmentally sustainable office', encouraging them to reduce waste and energy use. A pilot project in Tampere, Finland, was followed by similar campaigns in Germany and China. To mark the launch of the campaign in Tampere, we ran an Environment Day with presentations by internal and external experts. Regular emails were used to share top tips on cutting waste and energy use.

<sup>8</sup>Smart 2020, GeSI 2008

### WWF partnership

We are in the second year of a three-year partnership with conservation organization WWF. The environment group runs online trainings and web campaigns for employees, to raise awareness of key sustainability issues and the role we can play. We regularly consult WWF for external feedback on our environmental plans and prioritization.

Nokia Siemens Networks is also a member of the WWF Climate Savers program, which brings together major international companies committed to reducing their greenhouse gas emissions. WWF ensures our environmental targets and performance data are rigorous (see Energy in operations for more on our targets). In the run up to the UN Climate Conference in Copenhagen we participated in a campaign to show that business can not only contribute to tackling climate change but also use it as a business opportunity. A case study on how we have committed to fight climate change is featured on the Climate Savers website.

We supported the WWF Earth Hour campaign in March 2009 which aimed to get one billion people around the world to show their commitment to tackling climate change by turning off their lights for an hour at a specified time. We encouraged employees to take part by turning off office and desk lights and unplugging other non-essential electronic devices such as printers, copiers and faxes. All major Nokia Siemens Networks sites participated to the campaign.

### Industry collaboration

In 2009, we worked with the European Telecommunications Standards Institute (ETSI) to create a standard for measuring the energy efficiency of mobile base stations, to make it easier to compare product performance.

Nokia Siemens Networks is also a member of Digital Europe's ICT for Energy Efficiency Working Group, the Latin American Environmental Working Group of The Information Technology Industry Council, the Mobile Manufacturers Forum Environmental Working Group and the ETNO Sustainability Working Group.

We disclose our carbon dioxide (CO<sub>2</sub>) emissions through the Carbon Disclosure Project (CDP) and ranked in the top quartile of the 710 participating companies in 2009.

US summit on the role of ICT in tackling climate change  
In November 2009, we organized a summit on The Environment as an Economic Engine in Washington D.C. in response to the Obama administration's new energy plan. The summit brought together key stakeholders representing the ICT industry, government, investors and non-governmental organisations to discuss environmental sustainability, energy efficiency and the role of ICT solutions.

Jack Rowley of the GSM Association commented: "The Environment as an Economic Engine Summit stimulated high-quality dialogue between a wide variety of organizations and it was very positive to see Nokia Siemens Networks driving the discussion."

"The presence of the Chief Technical Officer from the White House demonstrated the recognition by the government about the opportunities presented by the ICT industry," he continued. "However, many people in the audience were already converted on this topic. The next stage would be to connect with those who are less engaged in the subject, including sceptical voices in US politics, as well as parallel industries."

See <http://www.nsn-energydays.com/> for more information.

### Minimizing product impacts

Although our products and services make a positive environmental contribution through the role they play in improving energy efficiency of other industry sectors (see Maximizing positive impacts), our products inevitably impose an environmental burden because energy and other resources are used in their manufacture, distribution and use. ICT currently generates about 2 percent of global carbon dioxide (CO<sub>2</sub>) emissions but this is likely to double by 2020, making it essential we work to improve energy efficiency and increase the use of renewable energy. Some of the substances used can also be harmful if not properly managed, as can the disposal of products at the end of their lives.

Product development processes integrate Design for Environment principles to minimize impacts across the lifecycle, including End of Life.

Products' energy consumption during use is a priority because the use phase is responsible for approximately 90 percent of total lifecycle energy use. We have met our initial product energy efficiency targets but aim to support customers' energy ambitions with a wide range of services.

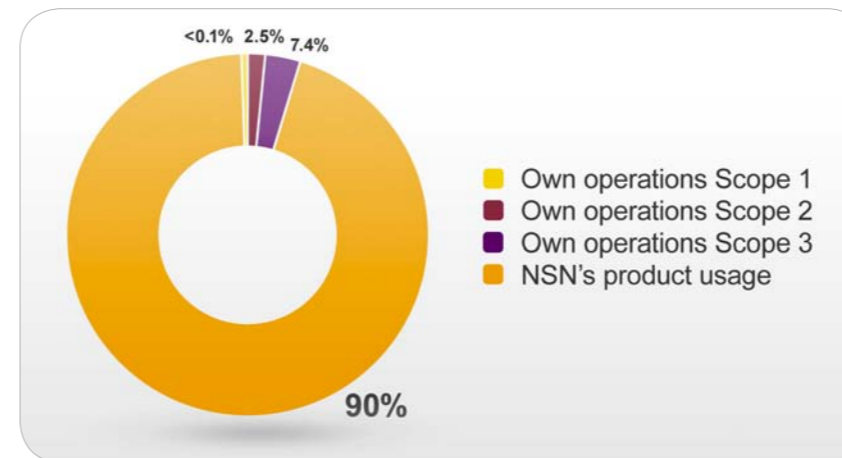


Figure 3.2: Footprint distribution from Nokia Siemens Networks' overall activities<sup>9</sup>

In 2009, we launched Energy Solutions to help customers save costs, energy and greenhouse gas emissions in their networks. We also added many new features, technology and services to our range of solutions for communications service providers.

### Low carbon products and services

Providing products and services that use less energy and have a lower carbon footprint is essential to meet our objective of minimizing our environmental impacts. The energy efficiency of our products is important to us because around 90 percent of the total lifecycle energy consumption arises during use. It is important to our customers because 86 percent of a mobile operator's total energy consumption typically occurs in the network infrastructure.

<sup>9</sup> Own Operations includes embedded CO<sub>2</sub> in purchased components, air travel and product transport to warehouse hubs, but excludes car emissions, supplier deliveries and final product delivery  
<sup>10</sup> GSMA Development Fund

Improved energy efficiency and renewable energy are competitive factors because they help Communication Service Providers (CSPs) meet three objectives: expanding into areas with no grid or an unreliable grid supply, reducing operating costs, and cutting greenhouse gas emissions to meet climate change targets.

Renewable energy is particularly important because an estimated 75,000 off-grid sites will be built each year in developing countries over the next few years. These sites have traditionally been powered by diesel generators but they are often in remote areas that are difficult to reach. This makes it hard to provide regular diesel supplies for the generators and diesel is also often lost due to theft. Renewable energy is an attractive alternative and, by 2012, up to half of new off-grid base stations in the developing world could be powered by renewable energy<sup>10</sup>.

Nokia Siemens Networks has already deployed more than 390 sites powered by renewable energy in roughly 25 countries in Africa, Asia, Europe and the Middle East, creating more than 1.7GWh of energy so far. We have announced that renewable energy will be the first choice for all our remote base station sites by 2011.

### Energy Solutions portfolio

In 2009 we launched an Energy Solutions portfolio bringing together products, services and software to create the industry's most comprehensive approach to efficient and sustainable telecoms growth. The portfolio covers five areas:

- Nokia Siemens Networks Energy Efficiency Consulting - helps CSPs to examine their networks' energy use and identify ways to reduce it.
- Nokia Siemens Networks Off-Grid and Bad-Grid Site Solutions - CSPs are able to expand to rural and remote areas, where grid connectivity is limited or non-existent. This can reduce or eliminate the need for diesel generators and lower site carbon dioxide (CO<sub>2</sub>) emissions by 80-100 percent, while also reducing the power-related network outages
- Nokia Siemens Networks Green Energy Control - enables efficient fuel consumption and makes the most of off-grid or bad-grid situations with renewable energy sources. Remote monitoring and controlling capabilities are also possible, allowing CSPs to save up to 70 percent of network operating expenditure (OPEX)
- Nokia Siemens Networks Energy Modernization - retrofitting existing network equipment to achieve significant savings by enabling automatic or remote shut-down of a base station during periods of low traffic. The solution also optimizes energy consumption in cooling and air-conditioning of the site equipment
- Nokia Siemens Networks OPEX Management Solution - can be tailored from basic field support to advanced services such as integrated remote monitoring and infrastructure management, all leading to energy and OPEX savings

We provide Energy Solutions in three steps, creating an end-to-end approach. First, in what we describe as the “understand and propose” phase, a team examines the energy use of a customer’s network and proposes ways to make it more efficient. Then we deliver a full set of services and products for energy efficient networks. In the third phase, maintenance services ensure that the improvements in energy efficiency across the network are sustained (see figure 3.3).

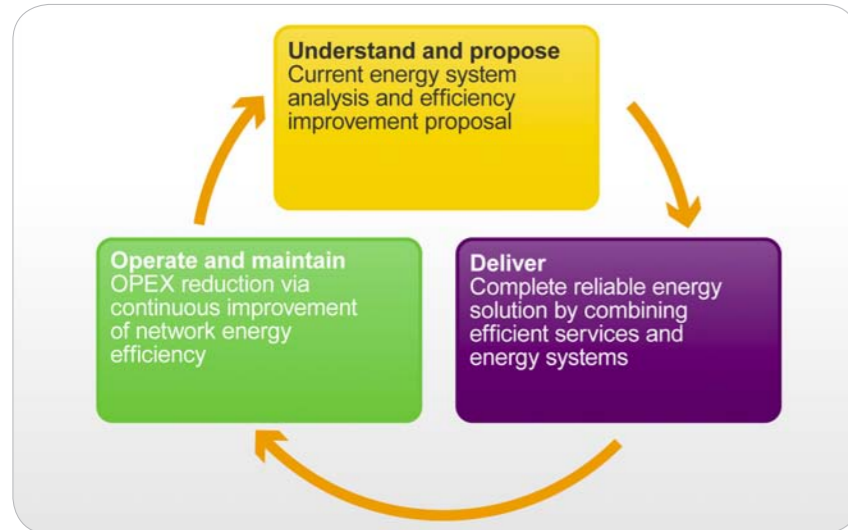


Figure 3.3

For more information, see [www.nokiasiemensnetworks.com/energysolutions](http://www.nokiasiemensnetworks.com/energysolutions)

**Energy efficient products**

We achieved our 2009 target to reduce energy consumption from our broadband network products by 29 percent for ADSL lines and 49 percent for VDSL lines, compared to 2007.

We are on target to improve the efficiency of GSM/EDGE and WCDMA/HSPA base station products by 40 percent by 2012 (compared to 2007).

The chart shows the development of our product energy footprint and our target for further improvement to 2011.

**Product energy improvements<sup>11</sup>**

The award-winning Flexi Base Station already has the lowest energy consumption on the market. Flexi has been developed to work without the need for external air conditioning, typically bringing a 30 percent reduction in site energy consumption. The Flexi’s radio capabilities and site flexibility also mean as many as 30 percent fewer base stations are needed in the network (compared to alternative technology). It can also reduce the carbon footprint by using renewable energy such as wind or solar power.

In 2009, we launched the Flexi Multiradio Base Station which is even more energy efficient because it supports three technologies in one unit. An average site running simultaneously second and third generation technology consumes as little as 790W, which is well below our target of 950W, compared to 1230W for the equivalent previous product.

New base station and radio network controllers (RNCs) introduce software that further improves energy efficiency. The latest Flexi BSC software release cuts power consumption by around 60 percent while the new RNC 2600 does even better with a 75 percent reduction compared to previous versions.

Cooling batteries requires significant power at many sites and in 2009 we launched SiteStar, a cooling cabinet that can triple battery life and reduce electricity for cooling batteries by up to 95 percent. SiteStar is ideal for countries with extreme climatic conditions because it can maintain a constant optimal temperature in very hot or cold climates without the need for air conditioning.

We have also achieved dramatic energy efficiency improvements with mobile core media gateway products. They control voice calls according to the network status and the signaling information from the mobile phone, and provide charging-related information to billing systems. These products have increased processing efficiency by almost 50 percent and floor space efficiency by over 60 percent. Further significant improvements will come in the near future. We will also soon achieve major energy efficiency advances in MSC server products.

**Bringing energy-savings to existing mobile networks**

Although new products can bring significant savings, CSPs need to make existing networks more energy efficient without necessarily changing the hardware. Our mobile networks have many features that achieve this. We call this smart way of operating the network “Green Radio”.

One example is software that allows more traffic transmitted on a given spectrum. We offer several software features that increase capacity in this way, including orthogonal sub-channel (OSC), demonstrated in 2009. OSC can double the capacity of time slots carrying voice calls in a second generation network, saving energy and CO<sub>2</sub> emissions because fewer base station sites are needed in network and capacity extensions.

We have adapted software applications to run on off-the-shelf computer hardware (The Advanced Telecommunications Computing Architecture or ATCA). This means operators can support more subscribers with smaller equipment, making significant energy savings. Compared to current standard solutions based on proprietary hardware, our multimedia gateway cuts power consumption by more than 50 percent. The ATCA-based mobile softswitch saves more than 70 percent.

Automating networks can save energy as well as cutting operators’ costs because automated repairs reduce the need for base station site visits. Event Analyzer (EvA) for Automation includes Smart Energy Controltm, introduced in December 2008, which manages radio network capacity and traffic consumption and safely deactivates cells that are not needed, saving clients up to 2GWhrs of energy a year.

Our consulting services identify how to create more efficient networks. Multi-Layer Optimization (MLO) is a combination of consulting services to identify the most efficient network architecture and Nokia Siemens Networks’ technology. It can reduce power consumption in the network by up to 55 percent (based on our joint study with a European operator).

**Previous commitment**

Reduce energy consumption from our broadband network products by 29 percent for ADSL lines and 49 percent for VDSL lines, compared to 2007. *Achieved*

Improve the efficiency of GSM/EDGE and WCDMA/HSPA base station products by up to 40 percent by 2012, compared to 2007 performance. Progress: we are on track to meet this target.

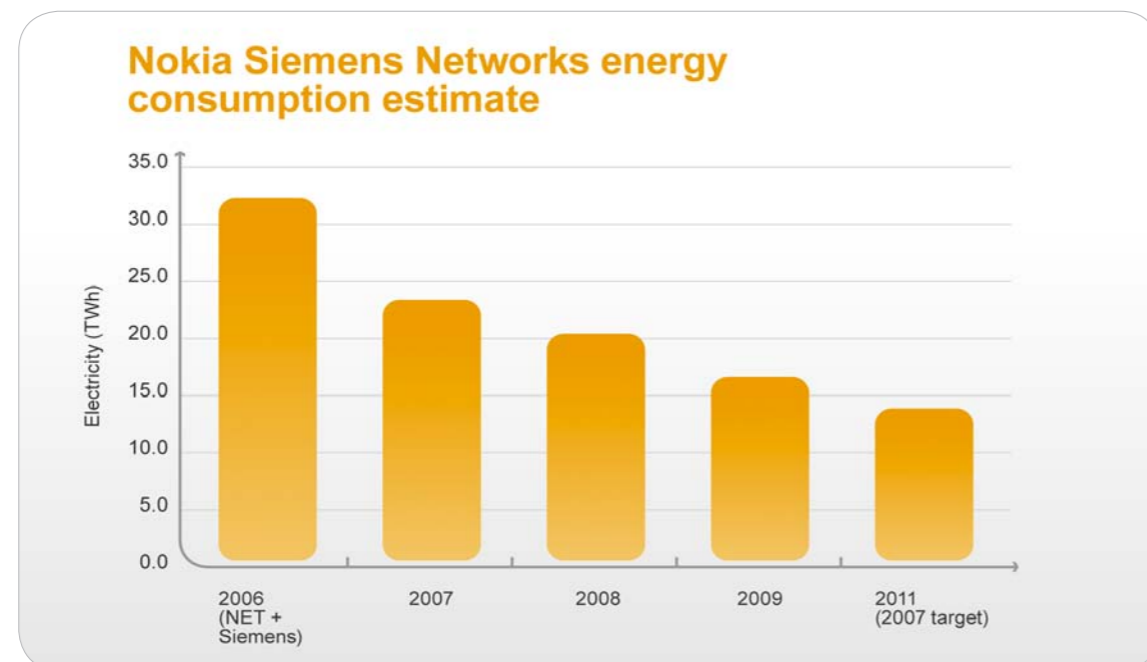
**Awards for the Flexi Multiradio Base Station**

- Greenest Network Innovation - CTIA E-Tech Awards 2009
- Best Technology Advance Winner - Global Mobile Awards 2009
- Green Infrastructure category - Juniper Research’s 2010 Future Mobile Green Awards

**Also:**

- Telecom Asia Reader’s Choice Awards 2009 - Green Infrastructure vendor of the year

Figure 3.4: Total lifetime energy consumption estimate of Nokia Siemens Networks’ products



<sup>11</sup>Lifetime energy consumption is based on the number of products delivered, their average power consumption and typical life time

**Solar power in Pakistan**

Pakistan's rural areas can benefit enormously from mobile communications but there is often no grid electricity to supply power to base stations. In the past, this obstacle might have been overcome by using diesel generators but we are supplying the network operator, Telenor Pakistan, with base stations using solar energy.

Khalid Shahzad, chief technology officer of Telenor Pakistan, says solar power would cut costs as well as avoid damaging diesel emissions. "Expanding into rural areas is a challenge, as there is no access to the electricity grid. Traditional alternatives such as diesel generators are neither environmentally-friendly nor cost-efficient. Nokia Siemens Networks not only offers a clean substitute, but will also reduce the cost of running these sites."

We are designing the sites, taking into account local solar mapping, site landscape and other factors to maximize the use of this abundant, clean energy source. Our Green Energy Control software will help operate the base stations efficiently.

Saad Waraich, our Pakistan country director, says this is a growing trend: "Providing communications to rural areas will become increasingly important and we believe renewable energy will be the first choice for such installations. In fact, the majority of base station sites installed by us by 2011 will use this form of energy."

**Low-energy operations in east Africa**

We have taken over the East Africa network operations of Zain, the rapidly-growing telecoms operator across the Middle East and Africa, in a five-year deal which will improve the quality of service and increase efficiency, reducing costs and power consumption.

Key components of the deal are our Energy Solutions portfolio, including off-grid site solutions combined with Energy OPEX management.

We will deploy our Flexi Multiradio Base Station which has the lowest energy consumption in the market and underpins our commitment to environmentally sustainable solutions for radio access networks. Our energy solutions and energy OPEX management will drive sustainable savings and reduce the carbon footprint of the network.

**Less power in Japan**

Softbank Mobile in Japan has achieved 60 percent reduction in power consumption with Flexi Base Stations, helping the mobile operator towards its target of reducing its carbon emissions to zero.

Since its launch in October 2006, Softbank Mobile has expanded rapidly. It needed to increase its network capacity but also considered it critical to reduce carbon emissions.

Yasushi Ozu, our Head of our Japan sub region, said the performance was very encouraging in one of the world's most demanding mobile markets. "Japan is the most innovative and technologically advanced market in the world. We are happy to be able to partner with Softbank Mobile to help them achieve their goals of being a green company and at the same time, offer the best mobile services competitively to their subscribers."

**Design for Environment**

Products have environmental impacts over their entire life cycle, from raw material extraction to end-of-life. We therefore work on improving impacts over the whole life cycle and consider the interdependence of environmental impacts at different phases.

To understand life cycle impacts more thoroughly, we began a detailed life cycle analysis (LCA) of our Flexi base station in 2009. The first stage was to analyze Flexi Radio and System modules and eventually we will cover all major network elements to create a LCA for a network. The first studies confirm that the major environmental impact of base stations comes from electricity consumption in the use phase. In the production phase the major impact comes from integrated circuits and printed circuit boards. Logistics is quite a small factor, with air freight the most significant part.

**Requirements**

Design for Environment (DfE) principles are integrated in our product development processes. The objectives are to:

- Minimize material and energy use
- Minimize the use of materials detrimental to the environment
- Design equipment to be easily or remotely maintainable or maintenance free
- Maximize reuse and recycling.

Designers have access to environmental requirements, documents and templates, ensuring that environmental considerations are part of the design process and product development programs.

Environmental requirements provide guidelines for all designs, products, parts, modules, components, batteries and packaging materials. They include a list of substances and materials that are banned or restricted in our products for environmental reasons. The requirements were updated twice in 2009, adding clarifications and minor changes.

**Communication and training**

Our aim is for each design program or project team to include a member with specific responsibility for DfE. These DfE experts are responsible for communicating the issues, training design teams, and reviewing progress.

In 2009, we maintained the training and communications drive begun the previous year. More than 100 participants took part in two training sessions, including interested colleagues from Operations.

**Assessing performance**

To understand how well the DfE principles are applied in practice, we review specific programs in depth. In 2009, we did seven assessments, covering each business unit to identify how environmental considerations are incorporated.

On the whole, we found that DfE requirements were well known, skills and processes were largely in place. We found 16 deviations from the environmental requirements and environmental management system, including:

- DfE plan for the program was missing or unclear
- Lack of clear evidence that all environmental requirements for products were checked
- Inadequate document control.

Proposals for improvement included wider environmental awareness and training, and adding environmental topics to existing technical meetings to ensure that all new requirements have been noted.

**Next steps**

In 2010 we will consider how DfE requirements are affected by the company's evolution towards services and software, and how DfE can be applied to a complete product/service/software solution.

**Managing substances**

We maintain substance information for our products to respond to the expectations of customers as well as to meet regulatory requirements.

Managing substances of concern in our products and our own operations is a key part of our aim to market products that meet or exceed applicable regulations and minimize adverse impacts, in accordance with our environment policy and ethical sourcing principles. But we also want to have full knowledge of all substances and are working through the laborious process of collecting the extensive material content information.

We maintain a list of substances (Nokia Siemens Networks Substance List) that are banned or restricted in our products and packaging, such as lead, mercury and cadmium, or that we plan to reduce or phase out in future. The substance list is integrated in our Design for Environment (DfE) requirements and product development processes. It is included in supplier requirements and is available to them online. We started studies to replace PVC where alternatives are technically and economically viable.

Our substance team follows the development of legislation to ensure we are well prepared for new restrictions on substance use. We participate in industry associations and engage with policymakers to ensure that new requirements are practicable.

The European Chemical Agency (ECHA) manages the REACH regulation, publishing a list of substances of very high concern (SVHC) twice a year. Every time a new list is published we check in our component data management system if any of them are used in parts and components. Based on this study we contact suppliers to clarify the potential to phase out or substitute the SVHC item.

In 2009, we began examining the feasibility of phasing out phthalates – plasticizers used in plastics, which have raised some concerns for human health. In the first phase we concentrated on phthalates listed as SVHC under REACH. These chemicals can be substituted in some applications but it is difficult to find suitable replacements for use in cabling and insulation. The feasibility study will be completed in 2010.

#### Targets

- Achieve full material content data collection for 90 percent of components in use at Nokia Siemens Networks by the end of 2012
- Complete feasibility study in 2010 into replacing phthalates.

#### Packaging

We use a wide range of packaging for materials and equipment that we purchase and for delivering products to customers. This ranges from small plastic reels for surface mounted components to corrugated board and wooden frames for base station cabinets and antennae.

All packaging uses energy and resources in its manufacture. We aim to reduce this environmental footprint through the choice of materials and packaging design. Package sizes are also important for reducing the transport emissions per product because they determine how efficiently we use space in transport.

A dedicated team is responsible for all packaging design, including designs commissioned from subcontractors. They are responsible for implementing the Design for the Environment (DfE) principles, environmental data collection, and ensuring compliance with relevant legislation, such as the EU packaging waste directive. The team is supported by dedicated packaging specialists in each of our factories.

Packaging requirements are considered early in the product design process, using DfE principles that aim to:

- Eliminate hazardous substances
- Minimize the use of material
- Reduce the number of different materials used
- Use recyclable materials
- Minimize the size of packaging.

We have banned use of PVC, polyurethane, silica gel and composite materials in packaging. We are replacing wood with heavy duty corrugated board wherever possible. This is lighter and more easily recyclable, cutting transport emissions and reducing costs for both materials and recycling charges.

All our delivery packaging is designed to be reused wherever possible and we reuse packaging from suppliers where practical. In 2009 we recycled €2.6 million of packaging materials in our distribution hubs, compared with €3 million in 2008. The reduction in 2009 was due to lower sales.

Different packages developed under former Nokia and Siemens operations are still in use across the business under the Nokia Siemens Networks logo and we continue to harmonize designs and streamline requirements. Corporate level IT systems on packaging are not yet complete as legacy systems are still in use. We have weight data for 2,680 packaging modules in legacy systems and we estimate this covers 25-30 percent of the business.

**100 percent**  
coverage for corporate level IT system & Environmental reporting system in 2013

#### End of life services

Equipment must be dealt with carefully at the end of its useful life to avoid waste and hazards to people or the environment. We offer an equipment take-back service, which can cover other vendor's telecom equipment as well as Nokia Siemens Networks products. Customers may purchase a complete service covering decommissioning, collection, warehousing, contract recycling and reporting, depending on their needs.

Our aim is to recover the material and energy content of obsolete products and ensure safe treatment of substances they contain. More than 90 percent of the material used in our base stations can be reused or recycled. In 2009, we created a take-back management team to strengthen our service and handling of equipment. We recycled 1,800 tonnes of used network equipment, compared to 375 tonnes in 2008. Of this, 84 percent was reused and 13 percent incinerated for energy recovery. Less than 1 percent went to landfill (see Figure 3.5).

Before recycling we inspect the material for

possible reuse. Returned equipment can be used to refurbish and extend the lifetime of customer networks, helping to conserve virgin resources. We have set up a Refurbishment Centre to support take back activities and ensure that all reused material is of the highest quality.

Customer teams need to be fully aware of take-back requirements and in 2009 we raised awareness with internal communications.

We also began building a recycling category strategy which defines the basic principles of our end-of-life management. This will strengthen our management process for compliance with the European Union's electrical and electronic waste regulations (WEEE) as well as other electronic waste regulations outside the EU.

#### Recycling contractors

We subcontract treatment of equipment that is not reused to authorized recycling companies which dismantle it, separating materials. Some parts require special handling, such as batteries. Batteries are sent to recyclers specializing in such hazardous materials. Nokia Siemens Networks is complying with the EU Battery Directive and in 2009 we began registering with local authorities or other schemes.

Parts containing hazardous substances are sent to toxic waste disposal plants or treatment facilities. Other material is pre-processed, for example by shredding, and recyclable materials are sold to smelters or others for remanufacturing. **Only a very small proportion of materials are sent to landfill – one percent in 2009.** Contractors provide a report on waste treatment, including the amount and type of waste treated and the proportion recycled.

Good co-operation with contractors is essential to meet our desire for transparency and responsible disposal. Contractors also need to meet high standards. Approved contractors comply with ISO 14001 or similar international certification standards as well as national and international laws and requirements, international conventions and EU directives. We expect the highest standards and will terminate contracts if significant non-compliance is discovered. In 2009 we stopped using one subcontractor that was reselling used equipment without our permission

In some cases it is not practicable to use an authorized contractor because they have no local sites. We select a local recycler to avoid long distance transport. However we are building up the recycling network so that all regions will have globally approved recycling vendors.

#### Targets for 2010

- 100 percent of take-back handled by globally authorized contractors
- Develop an understanding of the carbon footprint of the take-back process.

#### Minimizing impacts of operations

Minimizing our environmental impact – of both our operations and our products – is one of the three pillars of our corporate responsibility approach. We must use resources efficiently, reduce waste and cut greenhouse gas emissions.

In 2009, we stepped up efforts to cut energy use and related CO<sub>2</sub> emissions throughout the business. Our priority in improving the environmental performance of our operations is to reduce our carbon footprint. The footprint of our operations includes CO<sub>2</sub> emissions from energy use in our offices, manufacturing and research facilities, and external data centers, from the transport of products to customers and from our own business travel.

We have most control over the energy use in our offices and facilities and we have set a target to reduce these emissions by 30 percent by 2012 (from the 2007 baseline). To achieve this, we are increasing our use of renewable energy and improving the energy efficiency of our buildings.

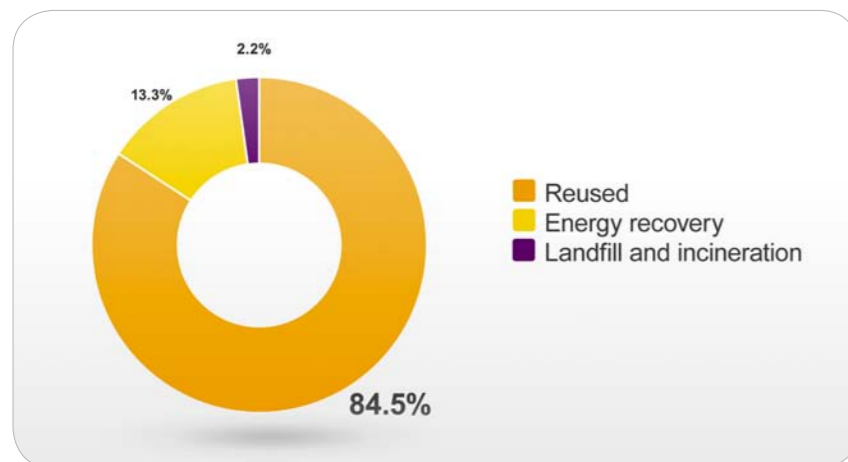
In 2009, we added a focus on logistics and information technology (IT) to our existing work on reducing CO<sub>2</sub> emissions from energy use in buildings. Emissions from IT, including computers, other office equipment and data centers, make up almost 10 percent of the total from our offices and facilities. We have quantified our IT footprint (which also includes some data centers housed externally) and set a target to reduce it by 10 percent by the end of 2010 (from the 2008 baseline).

We also cut down on business travel in 2009, reducing emissions from flights by approximately 20 percent. The installation of a further 11 video conferencing facilities, bringing the total to 31, is enabling more face-to-face meetings without the need for travel.

Our employees can make a real difference by being conscious of energy and resource use in the workplace and in 2009 we launched an internal campaign to promote the idea of the 'environmentally sustainable office'. We are in the second year of a three-year partnership with conservation organization WWF to engage employees on environmental issues. Nokia Siemens Networks is the only telecoms infrastructure provider to be part of WWF's Climate Savers program, which helps to ensure our environmental targets and performance data are robust.

Action to improve environmental performance is supported by our environmental management system, and in 2009 we began to extend ISO 14001 certification to all facilities.

Figure 3.5: What happened to our equipment at end of life in 2009





**Targets**

- Reduce CO<sub>2</sub> emissions from our offices and facilities by 30 percent by 2012, from the 2007 baseline
- Reduce CO<sub>2</sub> emissions from our IT operations and use of IT products at Nokia Siemens Networks by 10 percent by the end of 2010, from the 2008 baseline.

**Energy in operations**

Carbon dioxide (CO<sub>2</sub>) emissions resulting from energy use represent the most significant environmental impact of our operations. It is essential for us to reduce the energy and emissions that are under our control, and to work with others to achieve the wide-ranging reductions that are necessary to combat the global challenge of climate change.

In this section we describe our efforts to minimize emissions from our operations. Improving product energy efficiency is also a key focus (see Products - energy efficiency).

**Offices and facilities**

**Energy targets**

We aim to reduce CO<sub>2</sub> emissions from our offices and facilities by 30 percent by 2012, from the 2007 baseline. We will do this by:

- Increasing our use of renewable energy to 50 percent of our total electricity use by 2010 (from 10 percent in 2007)
- Improving the energy efficiency of our buildings to reduce associated energy use by six percent by 2012 (from the 2007 baseline).

These targets have been agreed with WWF as part of our participation in the Climate Savers program.

Total energy use in our buildings was 551 GWh in 2009, nine percent lower than the previous year and a 21 percent reduction from the 2007 baseline. This resulted in 206,000 tonnes of CO<sub>2</sub>-equivalent emissions. The majority (80 percent) of our energy use is electricity but these figures also include indirect emissions from district heating, and direct emissions from gas and oil (used in diesel generators). Our methodology and resulting data have been audited and verified by PricewaterhouseCoopers.

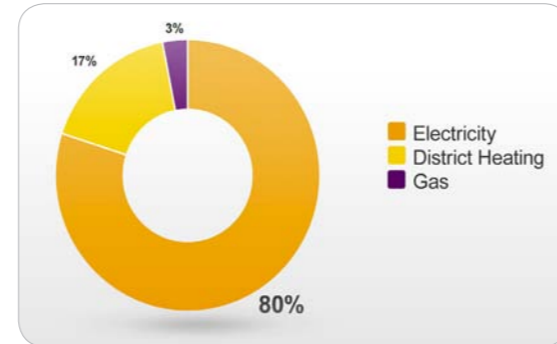


Figure 3.6: <sup>1</sup> Energy consumption by type 2009. Covers all Nokia Siemens Networks buildings larger than 3,000 m<sup>2</sup>, including offices, research and development buildings and factories.

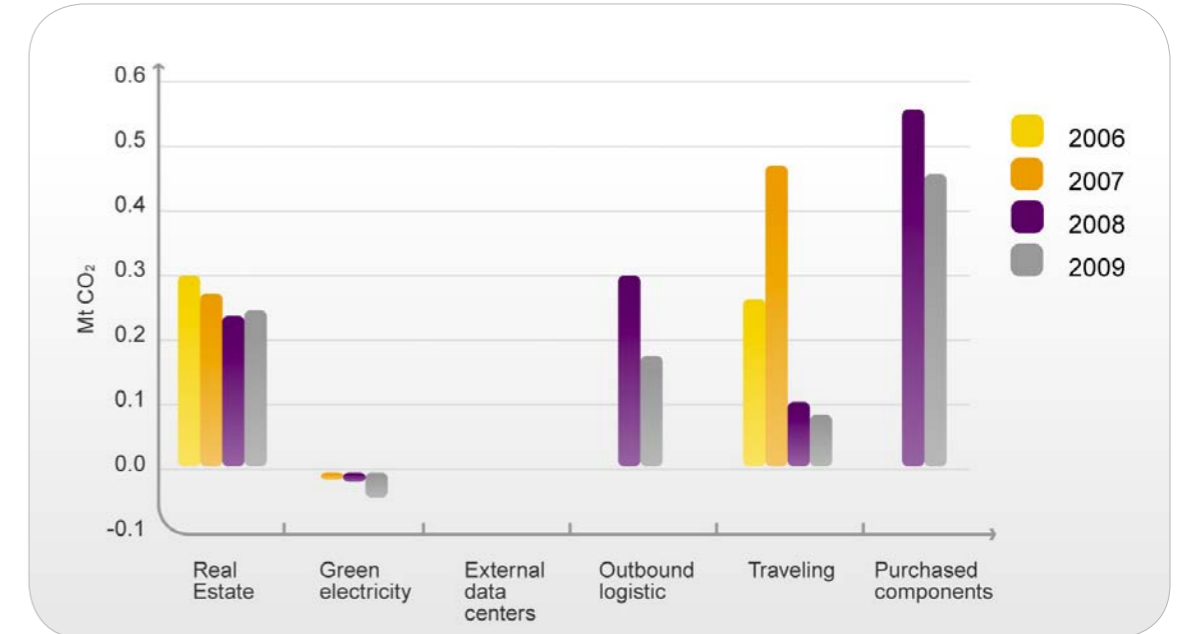
In 2009, we increased the electricity we use from renewable sources to 31 percent (compared with 17 percent in 2008), beating our target of 25 percent. Most of this comes from hydropower in Finland and in Germany. The majority (85 percent) of the renewable energy we use is assured by the Guarantee of Origin Standard, which verifies that it is produced from renewable sources as defined by the European Directive. The rest is assured by the Renewable Energy Certificates. We aim to increase our use of renewable energy to 50 percent of our electricity use in 2010.

The number of sites covered by our reporting system for environmental data covers facilities and offices bigger than 3,000 m<sup>2</sup>, which is 76 percent of our overall real estate portfolio. The number of reporting sites increased to 98 percent, which is higher than 2008. We also began to use a new tool to improve our global reporting and monitoring of monthly energy use and CO<sub>2</sub> emissions.

Total greenhouse gas emissions	2009	2008	2007 (April to December)
Total emissions (tonnes CO <sub>2</sub> equivalent)	206,000	217,000	188,000
Indirect emissions (tonnes CO <sub>2</sub> equivalent)	203,000	209,000	182,000
Direct emissions (tonnes CO <sub>2</sub> equivalent)*	3,000	7,600	6,000
Ozone depletion substances (kg) – Finland and China only (34 percent of our building portfolio)	20	0.12	
Hydro fluorocarbon (HFC) from refrigerants (tonnes) – Finland and China only (36 percent of our building portfolio)	997	283**	

Figure 3.7: Total greenhouse gas emissions  
\*Direct emissions (scope 1) include CO<sub>2</sub> from gas and oil use in our facilities, methane and nitrous oxide emissions from heating our facilities. CO<sub>2</sub> emissions are calculated based on the conversion factors in the Greenhouse Gas Protocol.  
\*\*2008 figures only included data from Finland

Figure 3.8: Nokia Siemens Networks CO<sub>2</sub> footprint



Each operating region has an energy saving plan and in 2009 we carried out 23 energy audits at facilities in Belgium, Brazil, China, Finland, Germany, Hungary, India and Portugal to identify potential energy savings. Taking action in the areas identified by the audits can reduce energy use by an average of 10 to 15 percent at each site. Some of these savings do not require initial investments, for example reducing the operating hours of ventilation and lighting systems.

**Transport**

Different modes of transport have very different environmental impacts. Our global logistics organization continually evaluates possibilities to optimize transportation in order to minimize environmental impacts.

We assessed the carbon footprint of our logistics operations and looked for ways to reduce emissions. The initial focus was on reducing our use of air freight, which is significantly more carbon-intensive than other transport modes. A large portion of the freight that was transported by air is now transported by sea and road. Less than a third of the total volume of products transported go by air.

In 2009, we completed our first ever customer deliveries by rail – from our Netherland Distribution Hub to Uzbekistan. Approximately 110,000kg (400m<sup>3</sup>) was delivered in two shipments, using a total of 12 containers. This resulted in 11 tonnes of CO<sub>2</sub> emissions compared with 353 tonnes if the products had been transported by air.

In addition to investigating alternative modes of transport, we are continually working to improve the efficiency of our deliveries by increasing the amount of products transported in each container. Reducing the amount of packaging used helps to achieve this (See Minimizing Product impacts – packaging).

**Cutting energy use at our facility in Tampere, Finland**

In 2009, we introduced measures to reduce emissions at our research, development and office site in Tampere, Finland. This will save approximately 640 MWh and 120 tonnes of CO<sub>2</sub> each year.

Lighting and ventilation systems were reset to reflect demand, eliminating unnecessary operation at times when the facility is not in use (on national holidays, for example). We adjusted thermostats to ensure heating and cooling systems are only used when needed, installed energy efficient lighting and a more efficient cooling system in our laboratories.

We supported these measures with an internal communications campaign to engage employees in taking energy saving seriously (see Maximizing positive impacts – engagement).

## Green IT

Information technology (IT) contributes to the environmental sustainability of our operations. For example, the use of video conferencing helps us reduce the need for business travel (see travel). However, we also need to manage emissions from the IT we use – including data centers, personal computers, printers, faxes, videoconferencing solutions and telephony – which contribute to the overall emissions from our offices and facilities.

We launched a Green IT initiative in 2009 to quantify and analyze emissions from our IT energy use, and have set a target to reduce CO<sub>2</sub> emissions from our IT unit's operations and use of IT products at Nokia Siemens Networks by 10 percent by the end of 2010 (from the 2008 baseline). We calculated the 2008 baseline of 25,510 tonnes of CO<sub>2</sub> from our IT operations and now measure this twice a year to monitor progress. In 2009, we have already achieved a nine percent reduction to 23,219 tonnes of CO<sub>2</sub>.

Improvements in the energy efficiency of data centers – making up around 64 percent of IT emissions – account for much of this reduction. This includes energy use from data centers hosted by service providers as well as those at our own facilities.

We measure data center energy efficiency using a key performance indicator called Data Center Infrastructure Efficiency (DCiE), which is recommended by regulators such as the European Union and US Environmental Protection Agency.

DCiE helps us to focus on maximizing the power devoted to the actual IT operations and minimizing the power consumed by overheads like cooling, power conversion and power distribution. For example, a DCiE of 0.5 tells us that for each watt of IT power consumed, an additional watt is consumed by the overhead. Nokia Siemens Networks DCiE global average from both our own data centers and outsourced data centers is 0.42. Typical industry average value for DCiE is between 0,3 and 0,5<sup>12</sup>.

We are introducing more efficient temperature control systems to decrease the need for cooling in our data centers. We are also consolidating data centers and installing software to increase the capacity of existing servers through virtualization. Through these measures, we aim to improve our DCiE.

Personal computers contribute a further nine percent of emissions from the IT we use. We are working to reduce the time employees leave computers on unnecessarily (for example, when leaving the office at the end of the day). In 2009, we piloted a program to collect usage data to understand the pattern of computer use and promote more energy efficient power options. We encourage employees to switch off computers when not in use and utilize power saving modes (hibernate and standby) when idle for more than 15 minutes.

The energy efficiency of personal computers is also one of the criteria we use when selecting particular models for procurement. We work together with suppliers to improve the environmental performance of the IT products we use at Nokia Siemens Networks.

We also aim to reduce waste associated with IT by setting printing defaults to black-and-white only and on double-sided pages. See waste.

### Target for 2010

- Reduce CO<sub>2</sub> emissions from our IT unit's operations and use of IT products in Nokia Siemens Networks by 10 percent by the end of 2010 from 2008 baseline
- Improve Data Center Infrastructure Efficiency (DCiE) through data center consolidation, virtualization and optimization
- Reduce PC energy usage through employee behavior.

## Travel

We are committed to reducing environmental impacts from business travel. With over 60,000 employees and more than 600 customers in 150 countries around the world, keeping in touch is essential to our business. We encourage people to make use of our communications technologies and consider whether a business trip is really necessary before arranging a meeting in person. Our global travel policy also promotes the use of trains rather than flights and recommends combining trips wherever possible.

Communications technologies, such as videoconferencing and systems that facilitate remote working, are making it increasingly possible to work effectively with much less need for travel. We installed Halo (\*Halo is a telepresence solution from HP) video-conferencing facilities at a further 11 locations in 2009, bringing the total to 31. Halo rooms provide an alternative way to communicate face-to-face, which eliminates the need to travel in many cases. Web-based training also reduces travel for our development programs, with around 1,400 courses and tests available online.

We support employees who want to work from home or remotely as this can significantly reduce the need for commuting. At the end of 2009, approximately 5,480 employees worked remotely in Finland and Germany. We estimate that this saves around 3,600 tonnes of carbon dioxide (CO<sub>2</sub>) a year if they spent two days in the office and three days at home, if half would otherwise be commuting by train and half by car.

## Business travel

A company-wide travel restriction continued in 2009, helping us reduce emissions from flights by approximately 20 percent from 2008. This cuts costs and encourages people to develop alternative ways of working. We are introducing a reporting tool in 2010 which compares the CO<sub>2</sub> emissions on different flights, depending on the carriers' aircraft, flight distance, booking class (e.g. economy vs. business) and passenger load factors. In the future this can help us to select the option with the lowest emissions for essential business flights.

In 2009, we trialed an SMS text message service at two sites in Finland (Espoo near Helsinki and Oulu), which informs travelers about shuttle buses from the airport and hotels to our offices, reducing the need to use taxis. We plan to extend this service to selected international destinations (Munich, Delhi and Beijing) during 2010.

We also signed an agreement with Deutsche Bahn in Germany to provide us with carbon neutral train journeys. This means they buy renewable electricity for the tickets we purchase, saving 149 tonnes of CO<sub>2</sub> and 150kg of nitrous oxide in 2009.

## Car policies

At the end of 2009 we introduced a new company car policy harmonization in Europe. All new car orders in 2010 have a maximum emissions target of 139g CO<sub>2</sub>/km. on average. This is based on our experiences of existing policy in Finland, which was revised to include financial incentives to choose vehicles with lower emissions. We have also set a maximum limit for new cars in fleet to 199g CO<sub>2</sub>/km by 2010 globally.

### Targets 2009

- We aim to reduce miles flown by a further 10 percent by the end of 2009 *Achieved*
- We intend to reduce emissions from new cars in our service fleet in Europe to 120g/km by 2010 *Ongoing*

## Waste and water

Our aim is to reduce the overall amount of waste we create and increase recycling. We also aim to minimize water use by tracking and reporting water consumption at site level.

### Targets for 2009

- Recycle 70 percent of all waste *Achieved*

## Waste

Reducing the amount of waste we produce is an important target for us. Our waste management efforts are focused on:

- Reducing the amount of waste as a whole, by engaging employees, raising awareness and establishing controls to minimize waste
- Minimizing the amount of waste going to landfill by recycling more as well as capturing energy from waste
- Reusing products and materials and avoiding the use of disposables as much as possible.

We encourage employees to minimize unnecessary printing and copying in our offices to reduce the amount of paper waste we create, and we have a recycling system in place. In 2009, printers at many of our sites are set to print double-sided by default, significantly reducing waste paper.

In 2009, we created 5,729 tonnes of waste, 750 tonnes less than 2008. Of this we reused, recycled or used as energy 84 percent. The amount of waste sent to landfill increased from nine to 14 percent in 2009 as a result of more sites reporting from regions where infrastructure for recycling is not yet available.

We recycled 73 percent of all waste, beating our target to recycle 70 percent by the end of 2009. In 2009, we began installing airflow hand dryers in restrooms at many of our sites, reducing waste from paper towels. Total paper waste was reduced by three percent in 2009.

As our operations expand into more emerging markets, such as China and India where availability of recycling services is limited, it is becoming more difficult to increase the total amount of waste we recycle. For this reason, we have not set a new recycling target going forward. However, we are researching ways to increase recycling possibilities to enable us to determine appropriate targets in future.

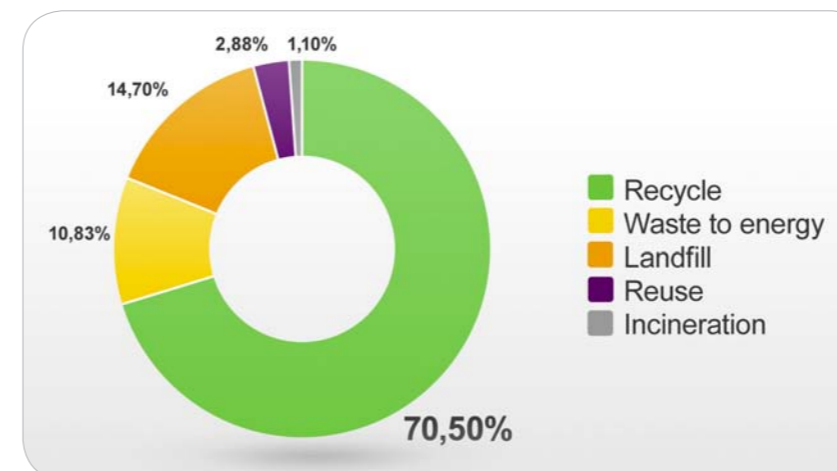


Figure 3.9.1: Waste disposal in 2009

<sup>12</sup> Green Grid data center power efficiency metrics: PUE AND DCiE, The Green Grid (2008) and Report to Congress on Server and Data Center Energy Efficiency Public Law 109-431 U.S. Environmental Protection Agency ENERGY STAR Program (2007)

# Radio waves and health

## Total waste (tonnes)

	2009	2008
Recycle	4039.18	4471.75
Waste to energy	620.40	1036.93
Landfill	842.14	583.27
Reuse	165.07	194.42
Incineration	62.81	194.42
<b>Total</b>	<b>5729.60</b>	<b>6480.79</b>

Figure 3.9.2: Total waste (tonnes)

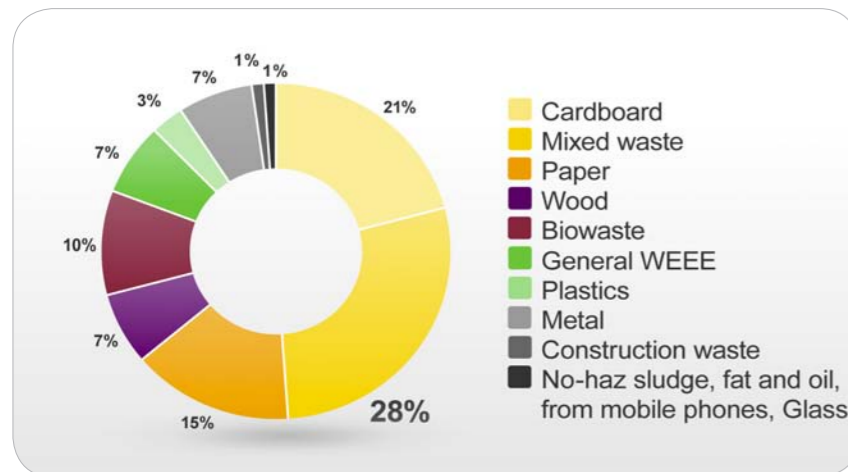


Figure 3.9.3: Non-hazardous waste %

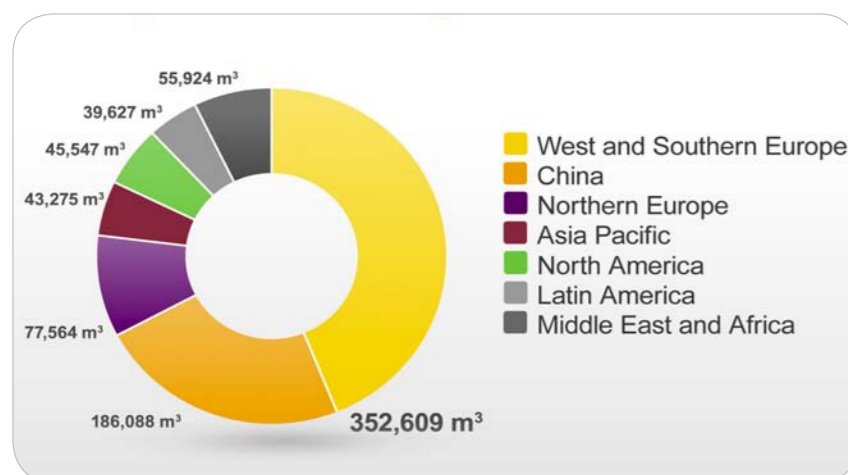


Figure 3.9.4: Regional water consumption 2009

## Water

Water is an increasingly scarce resource in many of the countries where we operate, so it is important to minimize consumption.

In 2009, we launched a new process and tool, called GREEN, to gather water consumption data from all sites greater than 3,000 m² that are able to provide this information.

We now collect monthly data to help us monitor our water use and identify opportunities to reduce it. In 2009 we used 800,000m³ water. The majority of this was in office buildings and factories for sanitary and catering purposes. A major part of the water we used was derived from municipal water sources. In some locations in India, we use water from our own bore wells.

## Environmental management systems

Environmental protection is the responsibility of every employee in the company. Employees receive regular training on environmental issues relevant to their roles, which covers our environmental policy and strategy, as well as applicable laws and regulations.

Our environmental policy is approved by the Executive Board, and is the responsibility of the Head of Sustainability Operations. The Head of Sustainability Operations reports to a member of the Executive Board and is responsible for environmental strategy and its implementation across the company. High-level strategic targets are cascaded into plans for each relevant business unit or function.

Our global environmental management system (EMS) is designed to help us monitor and identify ways to reduce the environmental impacts of our products and operations.

The EMS is aligned with the ISO 14001 standard for environmental management systems. We have a global ISO14001 certificate covering our operations activities throughout the world and have now taken the decision to extend the certification to cover all of our activities (this work has been ongoing since late 2009 and will reach an advanced stage during 2010).

In 2009 we developed an online training course specifically on implementing our environmental management system and meeting ISO14001 requirements for environmental managers.

We also require all our direct suppliers to have documented Environmental Management Systems. See Suppliers for more information.

Mobile communications use electromagnetic fields (EMF) at radio frequencies – radio waves. Some people worry that radio waves might be harmful and the issue has been researched and discussed for decades. Nokia Siemens Networks is engaged in this discussion together with governments, mobile network operators and other stakeholders.

Based on overwhelming scientific evidence, we are convinced that exposure to radio waves from wireless technologies is harmless within the limits recommended by the World Health Organization (WHO). However, we recognize that some people remain concerned about the safety of radio waves and it is essential that we maintain a dialogue and respond to concerns.

We monitor the latest scientific studies on radio waves and health, and are involved in relevant scientific events and organizations, including the Bioelectromagnetics Society and the European Bioelectromagnetics Association.

We believe any health information must be based on scientific evidence and we are happy to publicize sources of objective scientific information. See research on radio waves and health.

The most widely recognized global standard on radio waves and health is set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Nokia Siemens Networks supports the move by the World Health Organization to harmonize global regulations on EMF based on current ICNIRP guidelines.

We engage with mobile network operators – our customers – to raise their awareness of EMF concerns. We also provide detailed instructions to ensure they operate equipment appropriately to keep local exposure within recommended limits. Nokia Siemens Networks offers support and training for customers and we help them in responding to concerns.

We welcome questions and feedback on this subject. Our EMF department can be contacted directly at [emf@nsn.com](mailto:emf@nsn.com).

## Research on radio waves and health

Scientists have been researching radio waves for more than 50 years. Indeed, the WHO has stated that scientific knowledge on electromagnetic fields (EMF), including radio waves, is now more extensive than for most chemicals.

Based on this catalogue of research, the WHO advises that: “Considering the very low exposure levels and research results collected to date, there is no convincing scientific evidence that the weak RF signals from base stations and wireless networks cause adverse health effects.” WHO Fact sheet N°304, May 2006

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) used the available research to develop recommended limits on human exposure to radio waves in 1998. These international guidelines form the basis of standards recommended by the WHO, the European Council and many individual countries. In 2009, ICNIRP published a review of subsequent literature: “literature published since the 1998 guidelines has provided no evidence of any adverse effects below the basic restrictions.”

Recent independent expert reviews  
Independent reviews of available research have consistently concluded that there is no convincing evidence that exposure to radio waves causes adverse effects on human health within the limits recommended by ICNIRP. Recent leading reviews include:

Food and Drug Administration, US (2008)

Exposure of the general public to radiofrequency electromagnetic fields – A joint statement from the Nordic Radiation Safety Authorities (2009)  
(Danish National Board of Health (Sundhedsstyrelsen), Finnish Radiation and Nuclear Safety Authority (Säteilyturvakeskus, STUK), Icelandic Radiation Safety Authority (Geislavarnir Ríkisins), Norwegian Radiation Protection Authority (Statens strålevern), Swedish Radiation Safety Authority (Strålsäkerhetsmyndigheten))

Federal Office for Radiation Protection, Germany

Independent Expert Group on Electromagnetic Fields, Swedish Radiation Safety Authority (2009)

Standing Committee on Epidemiology, International Commission on Non-Ionizing Radiation Protection (2009)

Council of Ministers Report on EMF, Isle of Man

Health Canada Safety of Cell Phones and Cell Phone Towers (2009)

Health Protection Agency, UK (2010)

# Ethics and compliance

We are committed to the highest standards of ethical conduct and integrity in all our business activities. Unethical corporate behavior can disrupt markets and damage competition. It could put our reputation and the financial stability at risk and impact employee morale. We firmly believe that demonstrating high standards of business integrity is the right thing to do and provides competitive advantage.

Every employee must follow our robust Code of Conduct and we provide regular training to ensure employees understand the issues it covers. (See training and awareness.) We put special emphasis on anti-corruption measures.

Employees are well-placed to judge our behaviors and we are encouraged that 79 percent participating in our 2009 global employee engagement survey believe Nokia Siemens Networks operates with integrity in its external dealings (with customers and the general public, for example).

We encourage employees and stakeholders to report concerns about unethical conduct, corruption or any other suspected violations of our Code of Conduct through one of our global reporting channels (see reporting concerns). The Ethics and Compliance Offices – merged in 2010 to form a single Ethics and Compliance Office – are responsible for investigating any reported cases of unethical behavior and ensuring appropriate follow-up action is taken.

We also set clear ethical requirements for our business partners and suppliers.

In 2009, questions were raised about the use of our products in certain countries. See privacy and security.

## Code of Conduct

In January 2009, we published a revised version of our Code of Conduct, which now aligns with our parent company, Nokia's Code and further clarifies how to report concerns.

The Ethics Office is responsible for ensuring that the Code of Conduct is integrated in all our business activities and that employees understand how to apply it in their everyday working life. Our CR Steering Committee regularly assesses adherence to the Code and whether employees around the world are integrating our Code of Conduct into their daily business activities.

The Code covers:

### Human rights

We will respect the rights laid down by the United Nations' Universal Declaration of Human Rights, including:

- Freedom from discrimination on any grounds
- Freedom from arbitrary detention, execution or torture
- Freedom of peaceful assembly and association
- Freedom of thought, conscience and religion
- Freedom of opinion and expression.

### Ethical conduct

We are committed to the highest standards of ethical conduct and full compliance with all applicable national and international laws, including issues such as:

- Labor conditions
- Antitrust and promoting fair competition
- Prevention of bribery and corruption
- Good corporate governance
- Protection and recognition of copyright, company assets and other forms of intellectual property
- Privacy and data protection.

### Environment

We are determined to be environmentally aware in all we do, going beyond compliance by improving the environmental performance of our operations and throughout the lifecycle of our products.

### People

We are committed to provide a safe and healthy workplace where all employees are treated with respect and provided with equal opportunities for development.

### Anti-corruption

We have strict zero tolerance on corruption. Employees must avoid any activity that can lead to a conflict of interest, including:

- Gifts and hospitality
- Bribes and facilitation payments
- Political donations.

### Partners

We require our business partners and suppliers to comply with all applicable laws and regulations, and encourage them to go beyond compliance to improve their management of ethical, environmental and social issues.

## Ethics training and awareness

All employees must be familiar with our Code of Conduct and are expected to complete training on ethical business conduct annually. The Code is available in 22 languages on our intranet and external website, and an introduction to the Code is included in our induction program for new employees.

In February 2009, we introduced a new online training program on ethical business conduct, designed to help employees identify and solve ethical dilemmas they may face in real-life work situations, know who they should ask for support, and where to report concerns. Our Ethics Officer kicked off the training by personally conducting a session for members of the Executive Board prior to the rollout across the business.

Available in nine languages, the training takes around 20 minutes to complete and employees receive a certificate on completion. We also offer classroom sessions for employees who do not have access to computers. By the end of 2009, 82 percent of employees across the business had completed the training up from 50 percent in 2008. Over 90 percent of employees in key target groups, such as sales and procurement, have completed the course.

Our Ethics Officer visits every region where we operate, meets with leadership teams, groups of employees and external stakeholders, and promotes the Code of Conduct. Where possible, these visits are timed to coincide with those of the Chief Compliance Officer for a combined approach.

We encourage our employees to contact their line manager, local Human Resources department or use one of our global reporting channels if they are unsure of how to act in any situation or wish to report a concern.

## Ethical dilemmas

Our employees may be confronted with a wide range of ethical dilemmas in their work, from being offered a small gift from a supplier to being asked for bribes to further business opportunities. These are some examples of dilemmas encountered by our employees in 2009 (see figure 4.1). For an overview of our internal investigations in 2009, see reporting concerns.

## Reporting concerns

Employees and other stakeholders are encouraged to report any concerns about unethical behavior or suspected violations of our Code of Conduct – openly or, if needed, anonymously (see figure 4.2).

Employees should raise concerns with their line manager or local HR department in the first instance (unless the concern relates to them), who can address the concern or advise who to contact if escalation is required.

Employees and other stakeholders can also enquire about issues relating to the Code of Conduct or the anti-corruption program directly to our Ethics and Compliance Office. Concerns can also be reported to the Office of the General Counsel. All reported concerns are logged using case management tools, which also helps us monitor developments in investigations.

We operate a whistle-blowing system on our website which allows people within and outside the company to report concerns anonymously.

Figure 4.1

Dilemma	Our guidance	Outcome
The sales unit in one region urged the company to give a substantial donation to a local charity. One of the charity's trustees was the spouse of the CEO of a prospective customer.	Employees should avoid even the appearance of a conflict of interest.	The gift was not permitted and the sales unit was provided with a review of what comprises a conflict of interest.
A youth organization which in all other respects aligns with the company's corporate responsibility objectives has a clause in its by-laws that bans participation by a certain minority. An employee would like to give a donation to this organization but is mindful of the clause.	Our Code of Conduct clearly outlines our commitment to human rights and non-discrimination.	The donation was not permitted as it was not in line with our policy on non-discrimination.

## Reporting channels

Reporting channel	Type of enquiry
<b>Ethics hotline</b> ethics@nsn.com	Questions about our Code of Conduct and guidance on ethical dilemmas (directed to the Ethics Office)
<b>Compliance hotline</b> compliance@nsn.com	Concerns and enquiries related to our anti-corruption program, accompanying employee handbook or anti-corruption laws (directed to the Compliance Office)
<b>Anonymous online feedback form</b> www.nokiasiemensnetworks.com/about-us/corporate-responsibility/anonymous-feedback	Suspected violations of our anti-corruption compliance program or any anti-corruption laws (directed to the General Counsel)
<b>Online CR feedback form</b> www.nokiasiemensnetworks.com/about-us/corporate-responsibility/feedback	General questions or feedback on our CR activities (ethical enquiries or concerns reported will be forwarded to the Ethics and Compliance Office)

Figure 4.2: Reporting channels

### Reported cases and investigations in 2009

In 2009, our Ethics Office received 127 enquiries (compared with 46 in 2008). A third of these related to general guidance about where to find materials on ethics or how to sign up for our online training. Of the remaining enquiries about specific issues, the majority related to the acceptance of invitations for hospitality events, dealing with customers and potential conflicts of interest.

Category	Number of enquiries
General guidance	52
Code of Conduct training	28
Legal and compliance	14
Human resources (fairness)	12
Conflict of interest	10
Customer policy	7
Gifts and hospitality	4
<b>Total</b>	<b>127</b>

Figure 4.3 Ethics Office inquiries

In addition, approximately 200 enquiries were made through our online corporate responsibility feedback form, the majority of them relating to our activities in Iran. Our communications team monitors and responds to this feedback, and passes on any reported ethical concerns for investigation by the Ethics and Compliance Office.

In 2009, the Compliance Office initiated 137 investigations concerning alleged violations of our Code of Conduct, reported through our anonymous whistle-blowing channel or directly to the Compliance Office. The majority of these related to conflicts of interest, embezzlement and small-scale frauds. These investigations resulted in the termination of employment of 19 employees on the grounds of violations of our Code of Conduct, including theft, fraud, conflict of interest and misuse of company assets. Criminal investigation was initiated against three of these employees and other legal action has been taken against two more.

In addition, a further 18 employees received a written warning, one employee was demoted, one was denied a promotion and several others received verbal warnings or voluntarily left the company. All disciplined employees remaining at the company received further training on the Code of Conduct.

### Target for 2010

Review and simplify reporting channels for ethical concerns and the process for handling reports.

## Anti-corruption

Corruption not only distorts competition and fair trade, but it can have an extremely negative impact on economic development in emerging markets. Recent enforcement actions by regulatory and judicial authorities have increased the perception that the telecommunications industry may be exposed to improper business practices. Nokia Siemens Networks is committed to fight against any corrupt practices in our industry.

In March 2009, we appointed a dedicated Chief Compliance Officer, reporting to the General Counsel. He heads up our anti-corruption program and works closely with the Ethics Officer to support our employees in making business decisions that are legal, ethical and in line with our values.

Anti-corruption is covered in our Code of Conduct and we also have an Anti-Corruption Compliance Employee Handbook available on our intranet. The handbook is designed to ensure that employees understand what is expected of them in relation to our Anti-Corruption Compliance Program. It includes guidelines to ensure our policies on gifts, entertainment, sponsorships and hospitality are implemented, and helps our employees and partners to prevent and detect bribery, corruption, conflicts of interest, and any other unethical or illegal conduct. Any questions or concerns about anti-corruption laws are directed to the Compliance Office at [compliance@nsn.com](mailto:compliance@nsn.com).

During 2009, our Compliance team ran 100 training sessions specifically on anti-corruption, reaching around 2,900 employees globally. The Chief Compliance Officer also held more than 20 town-hall and a number of management meetings to raise awareness in six regions. In 2009, we began work to simplify anti-corruption training materials to make it easier for employees to find and take in relevant information.

As a multinational company, we can play an important role in fighting corruption. Our efforts to tackle corruption can give us a competitive advantage with customers who demand high ethical standards in their supply chain. We also want to encourage others in our industry to adopt equally high standards.

The Compliance Office is tackling corruption using a four-step strategy:

- 1. Prevention** – raise awareness through clear policies and training to prevent employees making mistakes
- 2. Detection** – encourage people to report any concerns or suspected cases of corruption by providing clear reporting channels and an anonymous whistle-blowing mechanism, and develop tools to identify potential issues (for example, by detecting anomalies in expense claims)
- 3. Correction** – investigate all reported concerns and take appropriate action when violations are confirmed (for example, through disciplinary action, dismissals, training or clarification of policies)
- 4. Interaction** – collaborate with others in our industry (customers, suppliers and competitors) to promote wider adoption of anti-corruption measures.

We are also developing tools that improve awareness of our compliance programs and enable us to detect deviations from our policies more effectively. For example, in 2009 we ran a pilot program in China to help detect excessive gifts and hospitality that may lead to a conflict of interest. We developed a tool to monitor who offers invitations, gifts and hospitality, how often and how much they are worth. We plan to launch the tool globally in 2010.

### Use of third parties in sales and promotion

The use of third parties for sales and promotion of our products and services can be critical to obtain and maintain business opportunities in some markets. However, these third parties must be properly monitored to prevent concerns about unethical practices.

Since inception in 2007, Nokia Siemens Networks has been extremely cautious when appointing third parties for sales and promotion. Our relationships with third parties working in these roles are subject to strict due diligence requirements.

The appointment of new third parties in sales and promotion roles and the extension of existing contracts with them is subject to approval by our Chief Compliance Officer.

Our Standard Operating Procedure (SOP) on Third Parties in Sales and Promotion sets out detailed guidelines on the terms of any third-party sales and promotions agreement. The SOP emphasises requirements to ensure the third party does not make any improper payments to secure business or have any conflicts of interest. For example, the third party must not have any family relationships or common financial interests with the end customer, which could open up the possibility of impropriety or the appearance of impropriety.

In 2009, our Internal Audit team conducted a review of our agreements with third parties, focusing on our internal controls related to appointing sales and promotion consultants, monitoring their performance and making payments to them. We aim to ensure their contracts include anti-corruption terms which give us the right to audit their dealings and terminate their services if they are found in breach. They will also be required to complete training on our Code of Conduct and anti-corruption policies.

In 2010 we are aiming at improving the due diligence procedures on third parties by introducing new tools to expedite the selection and approval process. These tools would also increase our visibility to third parties and hence our ability to monitor our contractual relations with them.

### Working with sales partners through our Indirect Channels business

Our Indirect Channels business works with local third party sales partners to sell Nokia Siemens Networks products on to customers. An anti-corruption compliance check is a key part of our qualification process for new partners, together with ensuring they have the right technical skills and local knowledge to meet our business needs.

Through our rigorous due diligence processes, we aim to prevent the possibility for corrupt practices by eliminating high-risk partners at qualification stage. We emphasise to all Nokia Siemens Networks people involved in selecting and working with sales partners that they have a duty of care to carry out due diligence.

We conduct compliance training with partners and every sales training program includes ethical conduct. Our policy of zero tolerance on bribery is made clear to potential partners right at the start of our relationship with them. In high risk countries, we also offer additional country-specific training and compliance checks are conducted by our regional compliance officers.

# Privacy

The desire to keep communications private is challenged by the demand for widespread access to communications technology, tailored content and services, and the right of governments to intercept certain communications.

As access to wireless communications and the internet have become more widespread, there has also been a worldwide increase in demand for technology that can provide more control over what individuals send or receive. Communications service providers may require this control for a number of reasons, including optimizing network traffic, complying with anti-pornography laws, protecting individual privacy, addressing copyright abuse or limiting phone and email spam and the spread of computer viruses.

A level of content inspection by organizations that provide communications services is necessary to meet security needs and to run and charge for those services effectively. For example, communication networks are targeted and exploited for illegal activities including malicious hacking, serious organized crime, terrorism or child abuse. It is also necessary for operators to have some traffic information to tailor services to user needs – including providing parental controls – and to charge differently for different services. Such solutions also allow operators to prioritize mission critical or emergency content, especially in the event of a crisis or disaster.

In addition, the constitution of the International Telecommunications Union (ITU), the leading United Nations agency for information and communication technology issues, decrees that UN Member States reserve the right to intercept communication in order to ensure the application of their national laws (Lawful Interception). Because of this, technical standards have been defined to ensure that standard telecoms equipment allows this interception of communications. In common with all telecoms equipment vendors, we incorporate the standards for lawful interception in our network equipment to help fight abuses.

As with any tool, administrations may abuse the access they have to communications networks in ways that could compromise the human right to privacy and confidentiality of communications. We condemn such abuse and endeavor to minimize the potential, but the risk remains.

We believe it is possible to meet user requirements for privacy as well as the requirements of society for public safety and protection against crime. This can only be achieved when authorities are transparent about the security mechanisms that are in place, the rule of law is respected,

individual human rights are recognised and when clearly understood protocols, responsibilities, and processes are followed.

We recognize the seriousness and complexity of issues surrounding the privacy of communications, especially as the technology evolves ahead of the legal framework that surrounds it. We encourage awareness of how communications networks can potentially be misused by hackers, criminals or non-democratic forces. We are eager to work with governments, NGOs, industry groups, and other parties to address these issues and to maximize the benefits of communications technology while minimizing the potential for their abuse.

## Understanding privacy concerns

Privacy is a key issue in developing personalized services that respond to customers' wishes and behavior. In 2009, Nokia Siemens Networks commissioned a study to improve understanding of people's willingness to share information and their concerns about the use of such information.

The research, among 9,200 people in 14 markets, demonstrated that most people are concerned about privacy, but are still prepared to share information if they think the benefits are worth it. Almost half (45 percent) felt they lack control over their personal data and more than three quarters were concerned about privacy violations, with identity theft the biggest concern.

Two thirds of mobile phone users like the idea of placing their data in the hands of a personal data management portal and over half of users would be happy for their Communication Service Providers (CSP) to fulfil the role of portal provider.

We believe CSPs have an opportunity to become the trusted partners, protecting people's privacy as they access new services.

## Privacy and human rights

We regard free speech and confidentiality of communications as basic human rights and condemn all violations of them. We are confident that our products and technologies make a significant contribution to open communication, which helps to advance many aspects of human rights. But we also recognise the potential for abuse.

Confidentiality of communication may need to be compromised in some cases, where acts by some individuals threaten the security of others. Most countries have legislated for lawful interception capability in public telecoms networks. This is a sensitive area and we believe it should be governed by laws transparently enacted through a democratic process. It is essential that users are aware of lawful interception capabilities and the possibility of abuse of those capabilities.

In all our business, we follow the trade guidelines of the EU and UN, and legislation such as export control rules. During 2009 we strengthened our approach to sensitive orders. We consider them to be business decisions requiring top management involvement, instead of relying on administrative processes managed solely by the Exports Control and Customs Compliance staff or a single sales team. Where necessary, regional business leaders can consult experts drawn from legal, ethics and other areas. A decision may be escalated to the Executive Board if necessary.

## Products and services

We believe transparency is one of the best defences against misuse of technology and we can be clear about the capabilities included in the equipment we supply.

The constitution of the International Telecommunications Union (ITU), the leading United Nations agency for information and communication technology issues, decrees that UN Member States reserve the right to intercept communication in order to ensure the application of their national laws (Lawful Interception). Because of this, technical standards have been defined to ensure that standard telecoms equipment allows this interception of communications.

One of the consequences of this standards-based approach to Lawful Interception is that it cannot be used for the general surveillance of a national network in order to single out users based on the content of their communications – either speech or digital information. Only pre-identified targets on a watch-list can be monitored.

## What is Lawful Interception?

Lawful Interception works like this: when a call, message or data connection is made or received, the network checks whether that user's number or other identifier appears on a watch list of targeted users that the relevant authorities have permission to monitor. If that is the case, a third line to the law enforcement agency is silently added to the call (in the same way as a conference call would be organized) or a copy of the data or message is forwarded to the law enforcement agency.

Standards-based Lawful Interception capability is built into the networks we provide as a mandatory requirement based on telecoms legislation. We have voluntarily and globally restricted ourselves to only providing the minimum elements of Lawful Interception necessary to fulfill international legal obligations.

## Customers

In addition to commercial customers, we supply communications products to governments and public sector clients, including some military organisations.

While our technologies contribute significantly to open and free communication, we are aware of the potential for abuse and carefully evaluate business in countries which do not have a track record of respecting human rights. While we believe that governments rather than individual companies are in the best position to determine and enforce appropriate trade restrictions, we have established a mechanism to review sales to countries with difficult records on human rights and/or corruption.

We comply with international trade embargos of the UN and EU and respect US export control regulation of ICT technology to certain countries. Currently, we do not sell anything to customers in Myanmar or North Korea. In addition, we do not sell to government-linked customers in Sudan. In view of the unsettled internal and external circumstances regarding Iran, the company has committed not to expand the scope of its existing work in Iran. It will not accept new customers but in cases where the company has previously provided networks, products and/or services in Iran, the company would be willing to accept contract extensions related to that installed base.

## Our business in Iran

In the last three years mobile networks have spread rapidly across Iran as 40 million people have bought their first mobile phone. We believe the resulting explosion of information exchange and discussion via mobile phones plays an important, positive role for the people of Iran.

In 2009, media reports drew attention to the delivery of what was described as "surveillance technology" by Nokia Siemens Networks to Iran.

We have delivered mobile networks for MCI and Irancell, the two leading mobile network operators in Iran, for a number of years, contributing roughly one third of their capacity. They incorporate the same capability for Lawful Interception as those of virtually every nation and this capability is provided by all major network suppliers.

In 2008 Nokia Siemens Networks provided a monitoring center to allow Iranian law enforcement authorities to implement the Lawful Interception capability in MCI's mobile network. We have since divested the monitoring center business and, with the exception of some technical contractual links, no longer have any involvement with it.

This delivery, made as part of a larger contract, fully complied with European Union export restrictions and other applicable regulations, but caused controversy because of concerns about potential misuse.

We are aware of credible reports that the Iranian authorities might have used technology we and other companies supplied to suppress political activity. Nokia Siemens Networks condemns such abuse, whether it takes place in Iran or elsewhere, and regrets having provided the monitoring center to Iran.

Contrary to media reports, at no time has Nokia Siemens Networks provided "deep packet inspection" or any other capability designed to conduct content-based surveillance of internet or other communications traffic to Iran.

# Employee relations

Our people make Nokia Siemens Networks the company it is. They determine how successful we will be and how well we live our values.

We aim to offer a stimulating, inclusive working environment where everyone can reach their full potential and is fairly rewarded.

We believe that personal development is achieved through learning on the job. Our personalized Performance Development Plan provides a framework for employees to agree personal and career development aspirations for the coming year with their line manager. Our internal Academy also offers 5,400 different training courses with facilities in more than 40 countries.

To ensure we benefit from the diversity in our teams, we have developed a framework to help us reinforce diversity. It sets out key aspirations and metrics to create diversity action plans within individual business units.

Nokia Siemens Networks is still a young company and an important focus in 2009 was to further embed our values by ensuring employees understand and live them in their daily work. We received a high response rate to our second annual Employee Engagement Survey in May 2009 and the results showed significant improvements in employee engagement across the board from the previous year.

However, we were disappointed to see declining scores in our follow-up employee "Pulse Survey" in October. These were likely to be a reflection of concerns about ongoing major organizational changes in the company and the need for further personnel reductions to secure the company's competitiveness in difficult market conditions. Our aim from the beginning has been to always communicate openly with employees about these measures and we have implemented a company-wide plan to improve weak areas identified in the Pulse Survey.

### Previous commitments for 2009

- Every employee will have a Personal Development Plan *Achieved*
- Every line manager with a team of 50 or more will have engagement targets *Achieved*
- Values will be on the agenda of every leadership team and business unit  
*Values have been embedded into our core people processes such as Performance Management.*

### Targets for 2010

- Ensure over 50 percent of line managers participate in 'Consistency in Leadership' workshops
- Launch Nokia Siemens Networks Leadership Code eLearning

### Culture and values

Creating a company culture is an ongoing process in which all Nokia Siemens Networks employees have participated since the first day of our operations. It requires a clear understanding throughout the organization of our aspiration to be a company with a high-performance culture. As a cornerstone of our culture we created five core company values and defined related behaviors which we want to adopt in everything we do.

### Our company values

- Focus on customer
- Win together
- Innovate
- Communicate openly
- Inspire

Values have been embedded into our core people processes such as Performance Management where managers are guided through a series of questions based on each of the values to assess employees' performance.

We ran a wide range of local programs in 2009 to embed our values and build our company culture together with employees around the world. In China, for example, we raised awareness through a series of three-hour workshops, involving interactive games and sessions on our values, culture and responsibility. Each workshop is run by a coach who acts as a role model to promote our values in their daily work.

The "People's Choice Award" in the APAC region recognizes employees who demonstrate our values in action. Winners, nominated by their colleagues, receive a cash prize and are invited to present our values to new employees during their induction.

In Iran, Lebanon and Saudi Arabia, our program to engage employees with our values includes sports competitions, team-building sessions and an award for Employee of the Month.

#### Employer brand

In our offer to prospective and existing employees, we emphasize three key themes:

- Network – connect with our global network
- Care – improve the wellbeing of ourselves and others
- Discover – make a difference in our transformation.

These themes and the opportunity to 'be part of something' are an important part of our offer in external recruitment activities.

#### Previous commitments for 2009

- Values will be on the agenda of every leadership team and business unit.
- Launch Nokia Siemens Networks Leadership Code eLearning

#### Employee volunteering

Volunteering offers employees an opportunity to live our values and engage with charity appeals. Employees are offered the chance to use at least one work-day a year to volunteer on a community project during working hours.

We ask people to focus on activities which align with our CSR priorities: education, disaster relief, connecting the unconnected and environment. In many cases employees have chosen to give their time to locally important causes.

Some employees also initiate their own volunteering projects around the world. Examples from 2009 include:

- **Greece:** 21 employees raised €600 by running in the 5km and 10km races as part of the 2009 Athens Classic Marathon. The money will go to the 'Make a Wish' charity foundation to support children with life-threatening illnesses.
- **Norway:** Our management team in Oslo organized a "Red nose day" charity event on 26 November 2009 as part of a national fundraising campaign called 'Do something funny for money'. Donations of €450 went to 'Save the Children', a charity which supports children's right to education, health and nutrition.
- **Hungary:** Over 150 employees from Budapest helped assemble children's furniture and toys for three local hospitals to give children recovering from illness the chance to play and help them forget, even for a short while, that they are in a hospital.

- **Russia:** Volunteers visited the Kardymovo orphanage for the 10th time, building on our long-standing relationship with the children there. Donations were used to install new windows in the children's dormitory. One of the children from the orphanage is now a student at MEI specializing in mobile technology, supported by Nokia Siemens Networks.

In 2009, our employees recorded a total of 2,100 hours volunteered. Our experience shows that this record is only a fraction of the actual time spent by our employees on volunteer activities.

#### Diversity

We respect employees' individual differences and recognize that their diverse backgrounds, skills and perspectives benefit our business. A diverse workforce helps us to innovate and improve our understanding of the markets where we operate, and provides a more inspiring workplace.

Nokia Siemens Networks is committed to equal opportunities for all employees and have started several initiatives to promote diversity at global, regional and business unit level. In 2009 we:

- Developed a diversity framework which sets out key messages, aspirations and metrics to guide and support leadership teams and business units in target setting and action planning
- Started embedding our diversity approach into global recruitment, talent management and leadership development processes
- Included diversity in induction training for all new employees, as well as in leadership and culture related trainings.

The extensive reorganization and challenging financial situation in 2009 meant that we were not able to raise the profile of diversity in our leadership teams as actively as we would have liked. However, we did set up a voluntary global network to encourage leaders to exchange ideas and experiences, and implement diversity initiatives. We also continued to provide global resources for leadership teams, such as models for mentoring programs, diversity workshop facilitation materials and latest research results.

Local initiatives to promote diversity include a mentoring program in Germany, where a group of female employees are paired with a more senior mentor to share experiences and discuss career development goals and opportunities. In Indonesia, we collaborate with three major universities to offer a scholarship each year to a woman working in science and technology, and provide the opportunity to visit our global research and development center in Europe.

In North America, we have established a program to promote better representation of women and minorities in our recruitment processes for new employees and for leadership assignments.

Figure 5.1: Employee Engagement Survey, Diversity results 2009

Employee Engagement Survey (April 2009) Pulse survey (October 2009)	% favorable responses	% change from 2008 survey
My team has a climate in which diverse perspectives are valued	77 (n/a*)	+5
I feel that management supports equal opportunity for all employees	59 (50)	+9 (-9)
In my opinion, Nokia Siemens Networks does a good job of promoting the most competent people	45 (35)	+9 (-10)

\* this question was not included in the pulse survey

In addition, the Momentum program offers mentoring and career development for women and employees from minority groups.

Responses to our Employee Engagement Survey in April 2009 show positive development in diversity related areas (see table). Despite significant improvements in every question related to diversity, we recognize the need for continued improvement in these areas.

In addition to the diversity index in our Employee Engagement Survey we monitor gender and nationality balance. Figures from 2009 show that:

- Gender balance among all employees is 80 percent men and 20 percent women
- Gender balance in our senior leadership is 90 percent men and 10 percent women
- Of 1,050 employees nominated to the company's future talent pool, the gender balance is 80 percent men and 20 percent women
- Approximately 150 nationalities are represented in our workforce
- 12 percent of employees are Finnish and 13 percent German
- 32 percent of senior leaders are Finnish and 25 percent are German.

In 2010, we aim to improve our diversity and gender balance in senior leadership positions – and benefit more from the diversity we have in our teams, giving everyone a chance to contribute to their full potential. In practice this will mean continuing the work to reinforce diversity in recruitment, leadership development and talent management and encouraging our business units to create and execute more diversity related action plans.

Figure 5.2: Gender balance in NSN – Total and senior leadership Grade 13+

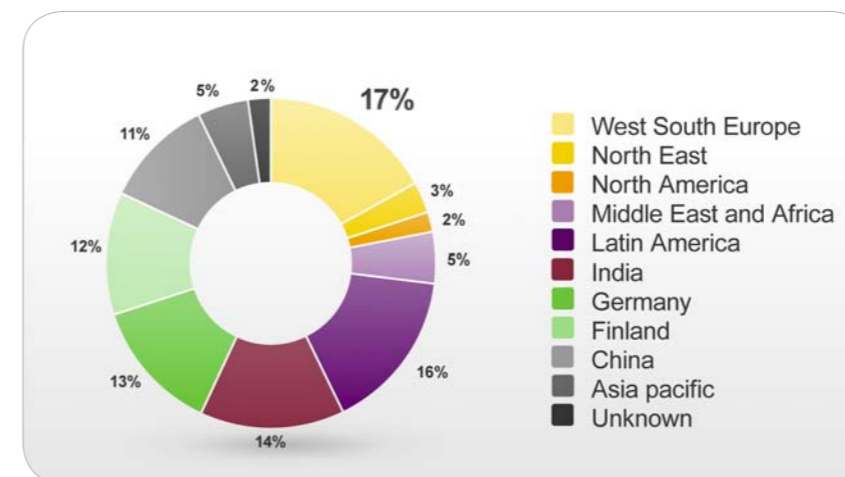
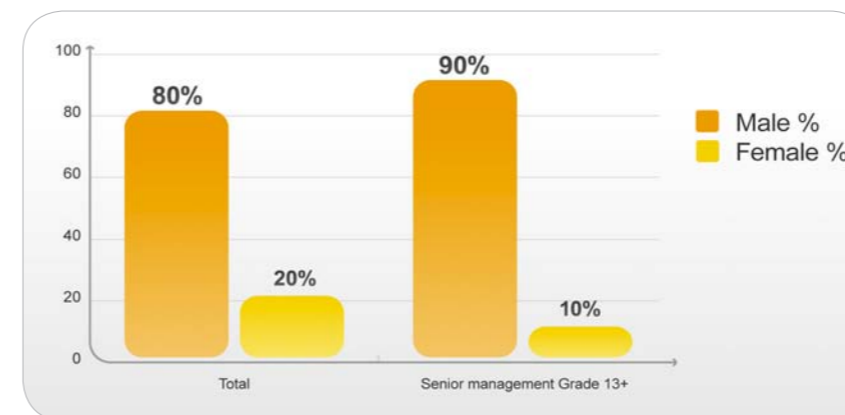


Figure 5.3: Nationalities % as reported by employees themselves



## Engagement

Clear and open communication is essential to engage employees in our business objectives and values. Feedback from our annual employee survey helps us measure engagement levels and identify areas where we can improve.

Communication channels with employees include regular newsletters and online blogs and forums, where employees are invited to engage with senior managers and take part in discussions on specific topics. For example, Nokia Siemens Networks Community Chat offers a real-time moderated discussion forum for up to 19,000 employees to come together online, and engage with leaders and experts within the business. After we announced our revised global strategy in May, more than 1,200 employees took the opportunity to pose questions to the Executive Board about the strategy and the company's future.

In March 2009, we invited all permanent employees in Nokia Siemens Networks to participate in our second Employee Engagement Survey (EES). The response rate was very high and largely positive, with 89 percent completing the survey (up from 74 percent in 2008). We followed up with a more targeted Pulse survey in October, where less positive responses reflected the changes in the company required to respond to the difficult market conditions.

The main survey has 83 questions in 14 categories, covering areas such as leadership, relationship with line managers, innovation, personal development and ethics. The key outcome

is the Employee Engagement Index, which consists of three key components:

- Rational understanding of the organization's strategic goals and values and how employees fit in (Think)
- Emotional attachment to the organization (Feel)
- Motivation and willingness to invest discretionary effort to go above and beyond (Act).

### Employee survey results

Responses to the EES in March 2009 showed significant improvements in every category, with an average improvement of seven percent across the board. This is a significant achievement compared with other companies which experience average annual improvements of one or two percent and four or five percent in the top quartile of improvement in external benchmarks.<sup>13</sup>The biggest improvements since 2008 were in the areas of job satisfaction, leadership, organizational ethics, and reward and recognition.

Encouragingly, 88 percent of employees fully support our values, have a clear picture how they can help the organization be successful and feel motivated to do so. Although scores improved significantly, we are still lagging behind in emotional connection to Nokia Siemens Networks, with the level of pride in the company (69 percent) still significantly below external benchmarks (seven percent below the expected score for companies in transition).

Employees continue to see Nokia Siemens Networks as both environmentally and socially responsible, with a 78 percent and 73 percent favorable response respectively.

### Employee Engagement 2009

The three key drivers of engagement in 2009 (the key areas contributing to the level of engagement of Nokia Siemens Networks employees) are:

- Innovation: People collaborate on a local level, but feel that they can't contribute enough to pioneering change or take calculated risks to drive innovation
- Leadership: The gap between leadership and employees has diminished significantly, but there is still work to be done to create a trusting culture in Nokia Siemens Networks
- Organizational ethics: People feel that employees are treated with respect regardless of job and Nokia Siemens Networks is perceived as being environmentally responsible, but there are demands for more attention to be paid to integrity in internal dealings

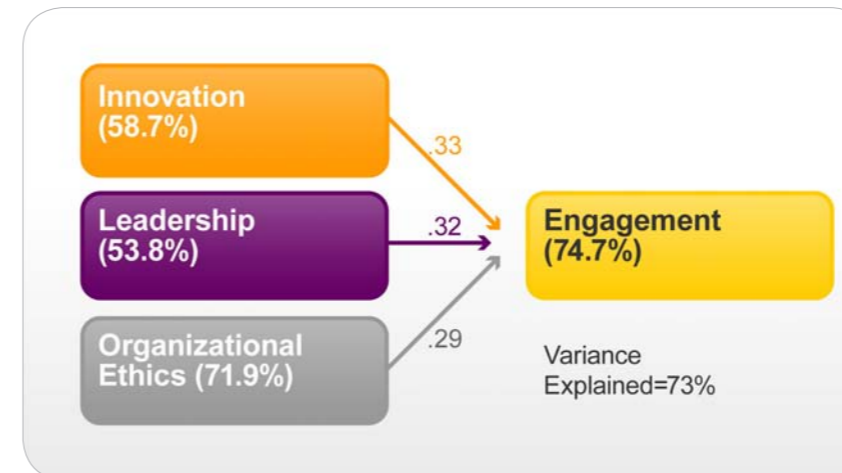
The Pulse survey showed that employees continue to support our values but have less confidence in our goals. They were less likely to advocate Nokia Siemens Networks as a good employer.

We use the results of the surveys each year to help us identify the key areas contributing to employee engagement and implement improvements through company-wide, business, country and team-level plans. Based on the results of the Pulse survey, we plan to involve employees more in the development of these plans and communicate progress more often.

Thirty-nine percent of employees participating in the 2009 EES agreed they had seen appropriate action taken based on the feedback from the previous EES in 2008, a three percent increase since 2008. Business units where actions had been taken to address feedback from the 2008 EES also experienced a higher increase in employee engagement levels than others, demonstrating the value of action planning and survey follow-up.

In September, we conducted a high level action plan review, where we collected over 100 plans from business and regions. The review demonstrated a high degree of commitment to change based on employee feedback, confirming the process was sound. Based on the 2009 EES, innovation most consistently rose as a key driver of engagement across the business and encouragingly the review confirmed that most units chose this as an area to focus on. The annual EES has been established as an important tool to create change in the organization.

Figure 5.5: Key drivers for engagement



Although 75 percent felt that employees are treated with respect regardless of their job, only 62 percent agreed that the company operates with integrity in its dealings with employees. Seventy-eight percent felt that Nokia Siemens Networks cares about the health and safety of employees.

Overall, our employee engagement index – based on the survey results in three key areas (see box) – shows that 75 percent of our employees felt engaged to work for Nokia Siemens Networks.

In October 2009 we conducted a Pulse survey, sent to approximately 40 percent of our employees and generating a 50 percent response rate. The results showed a significant decline in almost all areas since the EES in April. Employee opinion is likely to have been influenced by the market situation, changes in leadership, personnel reduction announcements and outsourcing decisions that coincided with the survey. Employees were clearly concerned about the company's prospects.

### Previous commitments for 2009

- Every line manager with a team of more than 50 employees will have engagement targets. *Achieved*

"I was struck by the fact that they published the results of their employee engagement survey. There are a lot of challenges when you merge companies and the fact that they are doing this survey and making it publicly available inspires confidence that the change management process is being handled professionally, openly and transparently."

Nisha Agrawal, Oxfam India (commenting on the results of the 2008 Employee Engagement Survey)

Figure 5.4: Employee Engagement Survey results

Employee Engagement Survey (April 2009)	% favorable	% unfavorable	% Fav change from 2008 % Fav change from April 2009 EES
<b>Think</b>			
I strongly believe in the goals and objectives of NSN	74 68	10 13	+8 -6
I fully support NSN's values	88 86	3 5	+6 -2
I understand how I can help NSN achieve its goals	85 83	5 8	+6 -3
<b>Feel</b>			
I would recommend NSN to a friend as a good place to work	61 49	22 27	+12 -12
I am proud to tell others I work for NSN	69 60	14 18	+9 -9
NSN inspires me to do my best work	65 58	19 23	+10 -8
I am passionate about what we do at NSN	62 59	12 13	+5 -3
<b>Act</b>			
I am personally motivated to help NSN be successful	85 82	7 1	+6 -4
I fully apply my skills and abilities in my work	83 76	11 16	+3 -8

\* Neutral replies not shown in the table

<sup>13</sup> TW Global High Performance Companies Norm  
Tower Watson Global High Performance Companies Norm is a weighted average of employee survey results from companies across a range of industries whose return on invested capital or net profit margin are above relevant industry averages. The second criteria is a progressive HR practices as assessed by employee opinion scores. The Norm currently includes data from over 37 organisations, representing nearly 560,000 employees. Company sample: BDO Stoy Hayward, Chevron, Diageo, McKesson, Nike, Shangri-La Hotels, Walgreens, Westpac, Wrigley and Yellow Pages.

## Training and development

We believe that the greatest contribution to personal development is achieved through learning on the job and this is intended to make up around 70 percent of development activity. Self-study, coaching and mentoring are also important and should provide an additional 20 percent, with structured learning making a 10 percent contribution. The “Nokia Siemens Networks Career and Development Journey” helps employees chart the course of their career and development.

Every employee has an opportunity for a development review twice a year through our performance management process, Achieving Together. This enables employees to understand how they can contribute to the company’s success and align their own achievements and career aspirations to the company strategy. This also facilitates dialog between managers and team members.

Our personalized Performance Development Plan (PDP) provides a framework for employees to agree with their line manager their personal and career development aspirations for the coming year. The PDP can be updated at any time throughout the year to document agreed development objectives. Development trends and programs are analyzed by region and business unit in order to meet company and individual needs.

Due to market conditions, towards the end of 2008 we introduced restrictions on using external training by our employees as a cost-cutting measure. In addition to external training, we have an internal training house, the Nokia Siemens Networks Academy. In 2009 the Academy was reorganized in 2009 to better respond to formal training requirements with courses that meet the needs we have identified. The Academy has training facilities in more than 40 countries and provides wide-ranging opportunities, with over 5,400 courses in nine languages. We provided 25,470 days of training through the Academy in 2009.

### Leadership development

In 2009, we introduced a Team Development model for all our leaders giving them the tools to develop high performing teams. This includes Team Charter, a document created and developed together by the team members to establish a shared understanding about the team’s common purpose, objectives, roles and ways of working. We introduced peer coaching and mentoring guidelines, where employees are encouraged to take on the role of coaches and mentors to other team members.

We also rolled out a structured 360 feedback process as a way for leaders to receive confidential feedback on their leadership competencies from managers and colleagues.

Our Academy provides open enrolment leadership training for all leaders. A total of 3,751 employees participated in 4,369 days of leadership training in 2009.

We also introduced the Consistency in Leadership program to create a clear framework of how we expect our leaders to behave. These definitions create consistency and drive both good business results and strategy implementation. The program will be implemented in 2010 through our people processes to ensure all our employees understand what is expected from a leader.

#### Previous commitments for 2009

- Every employee will have a Personal Development Plan

#### Targets for 2010

- Ensure over 50 percent of line managers participate in ‘Consistency in Leadership’ workshops
- Launch Nokia Siemens Networks Leadership Code eLearning

## Compensation and benefits

Our pay and benefit programs are aligned to the local market where we operate. We have a common global model for job levels, salary administration processes, incentive management, benefits packages and expatriation policies.

We want to ensure that the reward packages we offer are understood and valued by our employees. In 2009, we rolled out an education program for HR professionals to improve their understanding of our reward programs. This included practical workshops and self study. We will extend this program to line managers in 2010 with emphasis on their role in employee engagement. This will be delivered through local workshops in preparation for our salary review in 2010 and incorporated into a new manager education program ‘License to Lead’.

Our people-related costs are significant, and we want to ensure this investment provides value to our employees and is aligned with our strategic business interests. In 2009, like many other companies, we did not carry out salary reviews as a result of the challenging economic conditions in the marketplace.

## Change and restructuring

Nokia Siemens Networks was formed to strengthen our market position partly by streamlining the network businesses of the two parent companies, Nokia and Siemens. As a result of the merger, synergy-related restructuring was expected to result in a reduction of 9,000 jobs in the first two years of the company’s existence. This synergy-related restructuring was completed by the end of 2009.

These adjustments have been essential to build a truly competitive company, but it has been a sensitive process during which we have aimed to be fair and transparent. Throughout the process of restructuring, we have aimed to communicate openly with employees.

We recognize the need to respect both those who are impacted and those who stay, and aim to commit management time to explain the reasons for and the implications of planned reductions. We have consulted with Works Councils, employee representatives and other stakeholders as required by local laws, to find appropriate solutions for reduction plans and impacted employees.

Nokia Siemens Networks provides professional outplacement support to help impacted employees find new jobs quickly either within or outside the company. This includes support in searching for and applying for positions, and coping with change. The services vary from country to country according to local practices.

## Leadership and change communications

We believe that the regular sharing of strategy updates, relevant business plans and financial results is essential for successful change management. To ensure every employee has a good understanding of the big picture, we make clear links to our strategy and business performance when planning and communicating change.

When announcing a change which has potential implications on employees’ roles and contracts, we aim to apply the following principles and processes worldwide:

- Communicate openly and transparently to all impacted employees simultaneously, primarily face-to-face
- Share plans with local works councils or employee representatives as appropriate
- Explain reasons for the planned changes and link them to the overall targets and strategy
- Encourage line managers to support their team members through continual dialogue and provide them with tools to do this appropriately
- Pay special attention to virtual teams that have members in different countries
- Identify other key stakeholders and inform them in a transparent manner
- Whenever possible, provide assistance to affected employees.

### Our employee figures for 2009

Total number of employees at 31 Dec	63,927
Total number of new employees	12,226
Total number of leavers	7,137
Voluntary leavers	4,992
Yearly attrition rate of voluntary leavers	8%
Involuntary leavers	2,145
Leavers through common agreement or voluntary severance package	1,880
Leavers through outsourcing and divestments	221

Figure 5.6: Employee figures

In 2009, a considerable number of new employees joined us from our customers through managed services deals, some through acquisitions, and some through new opportunities. The number of new employees reflects our efforts to balance our global footprint to better address our growing customer base in emerging markets.

# Health, safety and labor conditions

Protecting the people who work for us and with us is a fundamental objective that we have worked hard to achieve since the formation of this company. We do business in some difficult and challenging environments and the nature of our business means that employees and contractors are involved in risky activities.

“We are told every year that after the current restructuring and staff reduction, the company will be more customer-oriented, fit for the future, more competitive, and the jobs of the remaining staff will be secure. Maybe they should learn from the past, change their strategy, begin to drive innovations and show every employee how they can contribute to the success of the company. The success of the company and trust in management would come back.”

Employee representative

## Restructuring in Finland in 2009

During restructuring in Finland\* in 2009, we communicated openly with employees and worked to make the transition period as smooth as possible.

To minimize uncertainty we organized face-to-face information sessions in the factories and a webcast event for all employees in Finland on the day we announced the need for a headcount reduction. We encouraged line managers to discuss the issue with their teams and distributed communication materials to help them do this.

Employees received an email summarizing the discussion after each meeting during the three-month negotiation period. As the process continued and more information became available, units and functions organized local information sessions for their employees. At the same time a social responsibility group made up of nominated employee and employer representatives prepared various support mechanisms for impacted employees.

After concluding the negotiations, line managers were prepared to conduct the difficult discussions. The company offered a severance package for those under threat of redundancy. We also organized focused training sessions to help impacted employees find new jobs quickly either within or outside the company. This included support in searching for and applying for positions, and coping with change.

\*The second and last synergy-related restructuring affected 750 employees in Finland including the Espoo factory.

It is our responsibility to ensure that we assess and manage risks effectively but ultimately safety depends on a culture in which accidents are unacceptable. We are working to build such a culture so that everyone accepts a responsibility for safe working. This is a long-term process which we are determined to sustain regardless of financial conditions.

In addressing health and safety risks, we have concentrated first on the activities that represent the highest risk, such as Network Implementation (NI) – tower building and equipment installation - projects. In 2009 we introduced the NI Health & Safety (H&S) program which will be implemented in all our operating countries. The main focus has been on subcontractors' safety and collaboration with customers to introduce similar H&S requirements for their contractors.

In 2009 we developed a global accident reporting tool to gather accurate and comparable information about accident rates in different businesses and locations. This database will help us to analyze accidents, plan corrective actions and target resources at “hot spots” where we have the highest risks and can achieve the biggest impact. This has been operational since January 2010 and we will report accident statistics in next year's corporate responsibility report.

Our ambition goes beyond avoidance of harm. We want to promote wellbeing so that employees can make the most of their lives at work and at home. This begins with providing decent labor conditions, respecting employees' rights and ensuring we have effective policies to provide fair employment practices.

## Health and safety

We have a fundamental responsibility to protect our people from harm. We want to account for a wide range of threats, from criminal activities to work-related health and safety hazards, including global risks such as pandemics and international terrorism.

## Our Health and Safety Policy clearly defines our responsibilities and sets out our commitment to:

- Comply with, and where feasible, exceed legal requirements in each country
- Integrate health and safety management into our business and processes so that individual employees and managers at all levels have responsibility for safety
- Strive for continuous improvement in health and safety performance
- Promote a healthy lifestyle and support voluntary activities that enhance employees' health, well-being and work-life balance
- Promote awareness through communication and training
- Take immediate action to remedy any situation where incidents, audits or other feedback identify areas for improvement
- Expect suppliers, contractors and other business partners to place equally high priority on health and safety.

The first step to managing health, safety and security is to conduct risk assessments. During 2009 the Corporate Security and Health and Safety teams worked to develop a common platform for risk assessments covering a variety of topics from business continuity and information security to occupational health and safety. This common approach led to the merger of the Corporate Security and Health and Safety functions.

We collect health and safety data at country level and in 2009 worked on developing a global accident reporting tool which will harmonize different local reporting practices. This will help us to get visibility of the accident rates in different businesses and locations, plan corrective actions and target the highest risks where we can make the biggest impact. We aim to report global data using the new reporting system from 2010.

We have assigned health and safety managers in the regions where we operate. They use our health and safety workbook to ensure the same fundamental standards are applied in every country where we operate, but allowing adaptation to meet local regulations where necessary.

#### Network implementation

Network Implementation (NI) projects, which include construction of base station sites, carry some of the highest risks in our business. The bulk of current NI projects are located in emerging markets, where mobile operators are rapidly expanding their networks but where health and safety standards are not yet far developed. Typical health and safety risks include working at height, driving safety and working with electricity.

We subcontract much of the work involved in installing network equipment so we have focussed on subcontractors' safety and collaborated with customers to align our health and safety requirements. Training on contractors' health and safety management is mandatory for Services Procurement employees who have a crucial role in promoting safety awareness and performance. This helps us to meet customers' expectations for comprehensive policies and procedures to manage health and safety risks.

In 2009, we launched a Global Health and Safety program for Network Implementation and are rolling it out region by region. We communicate the guidelines to employees and subcontractors working on NI projects and provide appropriate training. We have also created a toolkit to ensure the guidelines are implemented.

**The NI Health & safety program** covers safety assessments and management at four key project stages:

- **Retain** – our procurement teams carry out preliminary health and safety risk assessments, and documentation reviews of the subcontractors self assessments before they can qualify to work on our NI projects.
- **Plan** – our project managers / Health and Safety Advisors conduct health and safety induction training sessions with the workers involved in the project (our own employees or subcontractors). This ensures everyone is aware of the health and safety standards required by Nokia Siemens Networks and the local legislation.
- **Execute** – subcontractors develop and submit a site-specific health and safety program, which must be approved by Nokia Siemens Networks before work begins. Project managers or health and safety specialists carry out random inspections throughout the duration of the project to ensure requirements are met.
- **Control** – our project managers regularly monitor and report accident rates, inspections

results and any breaches of our requirements identified to the health and safety team.

In 2009, we piloted the NI safety program on projects for example in Germany, Italy, Indonesia and Bangladesh. We provided training to 60 percent of Services procurement staff to ensure awareness of the guidelines. Regional health and safety heads communicated the guidelines to project managers and site engineers. We plan to roll out the toolkit across the business in 2010.

We also developed an online training program for the Middle East and Africa region to raise awareness on health and safety in general, with a special focus on network implementation. Using online conferencing facilities, this enabled health and safety teams to effectively reach many more employees across the region than they could in person. Around 104 employees participated in the training in 2009, including many field engineers who often work remotely and are unable to attend classroom training sessions.

#### Focus on safety for network implementation in Indonesia (1/2)

Emerging markets can lack effective safety regulations, making it even more important for us to closely follow our safety requirements. To ensure our health and safety requirements are taken seriously, we have cut work with subcontractors who fail to implement the required procedures until their safety performance improved.

In Indonesia, we may have up to 6000 people working on projects at any one time so we set out to inform, support, and train the 300 subcontractors involved. Working closely with them from providing harnesses, fences and other safety equipment to hands-on training has dramatically improved safety performance on NI projects – from six fatalities in 2007 to 10,317,650 person-working hours without work-accident in 2009 for which we received National Zero Accident award in 2010. Regular training includes teaching workers how to climb towers and use equipment safely, and how to provide First Aid. More than 500 employees completed the 10 day course by the end of 2009.

Regular spot checks are made at project sites and if any problems are identified, the site will be closed until they are rectified. We aim to help subcontractors improve their performance so we always fully brief the project team on the reason for the closure and explain how to address the problem and participate in implementing corrective actions if necessary. If a second breach occurs they will receive a warning letter and a third results in termination of their contract.

#### Focus on safety for network implementation in Indonesia (2/2)

Working in this way creates a domino effect amongst contractors, who realize the consequences if they fail to adhere to our policies and guidelines. Similarly, contractors who see other sites using personal protective equipment often follow suit. We also encourage and reward those who are performing well with official letters of recognition and appreciation. To spread the safety message, we created an industry health and safety forum that includes customers. Nokia Siemens Networks has also been instrumental in creating national safety committees in Indonesia, bringing together employers and employees to discuss health and safety.

#### India

In India, our health and safety programme is about raising awareness and changing attitudes, making sure that people are competent to carry out their jobs to our standards.

The foundation of health and safety training is the mandatory induction session for all employees. Building on this, 4517 people in India (including some contractors) received training in health and safety by the end of 2009. Those who pass get a certificate and we evaluate those who need further training.

The third level is onsite training by engineers for people carrying out hazardous jobs, including how to use personal protective equipment effectively. We have provided 363 personal protective equipment kits. Every site has first aid equipment and 1306 employees have been trained in emergency management and medical first aid.

#### Previous commitments for 2009

- Complete the baseline review and roll out the global incident and accident reporting process  
*Achieved*
- Occupational safety: focus on the health and safety practices in the Services/Network Implementation projects  
*Network Implementation health and safety program developed and roll out in progress*
- Health: focus on promoting wellbeing at work and especially work-life-balance  
*Piloted wellbeing at work programs in some regions.*

We have also trained representatives from more than 91 of our 105 contractors in India.

Importantly, we work with customers, who share our targets for zero accidents and zero tolerance of bad practice. John Daly, Head of Global Health, Safety and Wellbeing, Vodafone explains: *"As our main supplier in India, we work very closely with Nokia Siemens Networks.*

*Working collaboratively is beneficial for both of us as it will help standardize our health and safety expectations for subcontractors, many of whom we share. Nokia Siemens Networks have good experiences on the ground that we would like to replicate and vice versa.*

*We hope that the work we do together will also improve the standard of the industry as a whole and will encourage our competitors to raise their game."*

#### Targets for 2010

- Aim to report global health and safety data using the new reporting system from 2010
- Achieve zero fatal accidents by collaborating closely with our customers and contractors
- Introduce the International Safety Rating System (ISRS) framework to improve Health and Safety management
- Develop and maintain a Health and Safety management system that is aligned with OHSAS 18001 Health and Safety Management System Standard in all operating countries.
- Achieve OHSAS 18001 certification in selected countries with a focus on Global Services

## Emergency preparedness

Earthquakes, storms, floods, terrorist attacks and pandemics can endanger our employees, assets and business operations around the world. They could bring business to a halt if not managed effectively and the knock-on effects could be disastrous because communications networks are central to most countries' response to crises.

Our global business continuity management (BCM) program is designed to prevent such emergencies escalating into serious threats to the safety of employees and customers, and to the continuity of critical business operations. Corporate Security staff are responsible for implementing this program and employees are encouraged to report any vulnerability via their line manager. With global operations becoming more diverse, the complexity of the supply chain increases its vulnerability to unexpected disruptions. To counter this we have measures including continuous supply chain vulnerability analysis, testing key suppliers' resilience and integrating BCM into supply planning.

In 2009 the Health and Safety and Corporate Security teams monitored the threat of an H1N1 Influenza pandemic and put in place preparations to respond in case of an outbreak. We set up a "situation room" to monitor the spread of the pandemic and work with regional teams in the event of a crisis.

Business continuity plans were up-dated and the country specific crisis management teams activated. In addition, we regularly updated employees on the situation in each country via our intranet and provide advice on travelling to affected areas, how to avoid the virus and what to do if they become ill.

In Mexico where the outbreak started a number of measures were enforced to try and prevent the virus spreading, for example facemasks were made mandatory in the office; alcohol-based hand rub dispensers were placed at the entrance and in restrooms and coffee break stations; and cleaning routines were re-enforced.

Due to the systematic preparedness planning and eventually milder pandemic than first expected the impact of the AH1N1 to employees and business was not significant.

## Security

As a global company, we operate in a wide variety of operational environments that carry potential risks for our employees, assets, business operations and reputation. Risks include political instability and violence, natural disasters, sabotage, power outages, fire and crime.

We recognize the importance of security and safety and have a high-level

Security Council to govern Corporate Security activities. The Council sets the security strategy and approves key policies. Our policies, standards and guidelines provide a harmonized approach for all the countries we work in.

In 2009 the Security Council approved the Personnel Security Policy to protect personnel from any harm from criminal activities. It ensures that risk assessment, security planning and security measures are carried out for people in different situations at different locations while working or traveling on behalf of the company.

### Travel security

Building the first telecommunication connections in a country takes our people to less developed areas, which represent different security risks than usual business travel. Security risks, in particular for project personnel, may be higher especially in areas close to conflict zones. Enabling business in those areas and regions by providing an appropriate security and protection level to our personnel is one of the most important tasks for Corporate Security. We may have up to 20,000 employees travelling during the year.

During 2009 we established a comprehensive security program for business travelers. This covers:

- Pre-trip information for travellers
- Guidance through the travel approval process according to the risk rating for a destination
- 24/7 Emergency Support via global help line
- Traveler Locator and Communication service helping corporate security contact employees in a crisis situation

This final measure is particularly important in an emergency. In December 2009, an American Airlines plane overshot the runway on landing at an airport in the Jamaican capital Kingston, in heavy rain. Around 40 of the 150 passengers were injured. Our traveller locator immediately allowed us to see that there were no Nokia Siemens Networks employees on this flight.

In 2009, 286 calls were placed to the 24/7 emergency hotline, most concerning medical care or emergencies.

## Wellbeing

We see wellbeing as a key element of employee engagement. In 2009 we introduced a 'wellbeing@work' program and developed practices and tools for line managers to evaluate and promote wellbeing and a healthy work-life balance for their teams.

Questions on wellbeing are included in our employee engagement survey and line managers receive a report on the results for their team. The 2009 Employee Engagement Survey showed that 71

percent agreed their work schedule allows sufficient flexibility to meet personal/family needs.

The wellbeing@work team has developed instructions and manuals for line managers on how to promote wellbeing and our HR team will facilitate a wellbeing workshop for individual teams on request. In the four hour workshop, HR works closely with line managers and their teams to show how to address the sometimes sensitive issues of wellbeing and how to solve potential issues. It provides an overview of the topic together with tools to enable individual employees to assess and improve their own level of wellbeing.

### Previous commitments for 2009

- Health: focus on promoting wellbeing at work and especially work-life-balance. *Piloted wellbeing at work programs in some regions*

Many of our sites run local wellbeing initiatives. For example, in Portugal we ran two week-long events in May 2009 to promote healthy lifestyles among employees. This included nutrition consultations, blood pressure and cholesterol testing, exercise classes, massages and workshops on stress management.

### Vocational rehabilitation program in Finland

In Finland we have started a 'vocational rehabilitation' program working with employees on long term sick leave to get them back into work after a long absence. The purpose of this program is to contact the employee at early stage of sick leave ensuring that they get the support they need to facilitate flexible return to work and thus reduce the need for them to go on a disability pension. The causes of long term absence typically include musculo-skeletal problems, mental ill-health, and cardiovascular disease.

Participating employees have an individual plan, which is developed and followed up in close cooperation between the employee, occupational health and safety, human resources and line manager. The supporting measures vary from part time work to competence development allowing flexible transfer to other types of work if needed. The program has been successful: in 2009 none of the 25 participating employees went onto disability pensions or returned to sick-leave.

## Labor conditions

Our Code of Conduct sets out clear standards on labor conditions. We follow the International Labor Organization (ILO) Fundamental Rights at Work wherever we operate.

In 2009 we created a detailed Global Labor Standard based on the ILO conventions and common industry code of conduct, and benchmarked against international labor laws and standards. It covers:

- Child labor avoidance
- Voluntary employment
- Freedom of association

- Non-discrimination
- Humane treatment
- Working time
- Compensation
- Occupational health
- Occupational safety

To guide the implementation of the standard, we established a Labor Conditions Management Framework. We have integrated the standard into our global employment policies and guidelines, and will begin to roll it out across the business. High risk countries are being prioritized (based on the ranking of the country in external labor rights risk indices and the number of people we employ there).

In 2009 we published information on the Global Labor Standard on our intranet and provided training for our HR staff to gain common understanding and share best practices and challenges from factories around the world. This training will be extended gradually to local HR teams at our operations around the world, prioritizing those countries with the highest risks. This will help them ensure the standard aligns with local legislation.

### Previous commitments for 2009

- Awareness raising of labor conditions and related issues will be carried out within the HR organization.

### Targets for 2010

- Continue awareness raising of labor conditions with a focus on high risk countries.

We are developing a management system to monitor and assess labor conditions, beginning with our manufacturing operations. In 2009, each of our manufacturing facilities completed a self-assessment on labor conditions using E-TASC, the web-based supply chain risk management tool created by the Global e-Sustainability Initiative and the Electronics Industry Citizenship Coalition. E-TASC provides a platform to collect, manage and analyze CR information that is shared with participating customers to monitor standards in the ICT supply chain (see Supply chain.) Based on these self-assessments, we will define an improvement plan for each of our factories.

We also defined a Child Labor Remediation Plan in 2009, to be implemented if child labor is ever found at one of our facilities.

In line with SA8000 recommendations, we would first launch an investigation to identify what failed and to ensure that no children were recruited in the future. Secondly, Nokia Siemens Networks would commit to educating the child working together with the child's family and local schools and possibly other entities, such as NGOs or governmental agencies, to ensure a basic education. We would also monitor the process by developing a long-term plan for the child including financial and mental support when needed. No such case has occurred thus far and our ethical and human resources policies and related processes should ensure no children are hired.

# Suppliers

Our responsibility and our influence extend well beyond our own operations. Working with suppliers is one way we are addressing the wider impacts our business on people and the environment. We expect suppliers to meet the same high standards we set for ourselves, being fair and responsible employers and doing business ethically.

The Nokia Siemens Networks Supplier Requirements set out our expectations. Procurement personnel implement these requirements through our processes for selecting and maintaining suppliers.

We have thousands of suppliers around the world – direct suppliers who provide goods and services that we sell to our customers; and indirect suppliers who support our operations and facilities, from catering and office supplies to production equipment for our factories.

While all suppliers must meet our Supplier Requirements, our site audits and other engagement to build corporate responsibility (CR) capability concentrates on direct suppliers. They represent the majority of our purchase expenditure and the higher overall risk to our business. Working with direct suppliers is an important part of our commitment to pursue high standards throughout the lifecycle of our products and services. We monitor direct suppliers through regular audits to identify risks, assess compliance and raise awareness of our requirements, as well as sharing best practice on CR management. See supplier monitoring.

Some of our suppliers operate in emerging markets including Brazil, China, India and Malaysia. We recognize that the implementation of ethical, labor and environmental standards vary and consider companies operating in these markets as higher risk. In 2009, we continued mapping CR risks – such as poor working conditions, forced or child labor, and corruption – by country, based on external indices and our own audit findings, to help us identify higher risk countries more systematically.

Our approach aims to ensure that suppliers not only comply with Nokia Siemens Networks' requirements themselves, but that they also put in place similar requirements for their own suppliers. In this way, each tier of the supply chain is responsible for monitoring compliance in the tier below, effectively promoting sustainable improvements throughout the supply chain.

We also work in collaboration with others in our industry to improve standards in the ICT supply chain through groups such as the Global e-Sustainability Initiative. See industry collaboration.

In the US, we have a supplier diversity program in place and we spent nine percent of US procurement expenditure with minority businesses (ethnic minority, women, veteran and small business enterprises) in 2009, beating our target of 5 percent.

## Supplier requirements

Nokia Siemens Networks has a comprehensive set of Supplier Requirements applicable to all suppliers which include clear standards on the management of ethical, environmental and social issues.

These are based on the following international standards:

- United Nations Declaration of Human Rights
- International Labor Organization Core Conventions
- Social accountability standard SA 8000
- Occupational health and safety management standard OHSAS18001
- Environmental management standard ISO 14001.

See an overview of our requirements on:

- Ethics and human resources management
- Environmental management
- Management responsibility
- Supplier Management & Purchasing.

## Code of conduct

Nokia Siemens Networks places great importance on our own Code of Conduct and we expect our suppliers to have a code in place which upholds the same high standards. The requirement to have a code of conduct that demonstrates a commitment to respecting human rights and ethical business conduct is included in our Supplier Requirements, which form part of our contractual agreements with suppliers.

Since the start of our operations in April 2007, we have been renewing our contracts to implement this requirement and by the end of 2009, 73 percent of our key suppliers (by purchase expenditure) were contractually obliged to adhere to the Nokia Siemens Networks Supplier Requirements.

## Working with suppliers to improve competency

Engaging with suppliers on corporate responsibility (CR) issues is vital to ensure they are aware of and meet our requirements. It helps them to make improvements to their CR management and work with their own suppliers. Working with suppliers on specific issues such as health and safety (see below) and energy efficiency builds competency and raises standards in the supply chain. We also get useful feedback from suppliers on how well we are communicating on CR issues.

## Communicating our requirements

With the launch of our new internet portal for suppliers in December 2009 we introduced a new channel to share and promote information on CR. Our procurement teams also communicate the Nokia Siemens Networks Supplier Requirements through:

- Face-to-face meetings with suppliers
- Supplier assessments
- Contractual agreements
- Training programs
- CR workshops and other supplier events.

We ensure that suppliers are informed promptly about any changes that may affect them, including changes to the supplier requirements. In July 2009, we communicated the revised list of restricted substances (the Nokia Siemens Networks Substance List) to relevant suppliers.

## Supplier CR workshops

We held two workshops for suppliers in India in 2009 to communicate our Supplier Requirements, raise awareness of CR and drive improved standards further down the supply chain.

Thirty-three people representing 15 suppliers took part in the workshops, held in Gurgaon and Bengaluru. Suppliers were able to raise challenges they face in implementing our CR requirements and share solutions.

These workshops follow our pilot CR workshop in China in 2008. We plan to conduct two more workshops for suppliers in countries identified as high-risk in 2010.

"The workshops have been very beneficial to understand the best practices in the area of employee care, and the benefits that accrue to an organization. The new learnings enhance our understanding in the areas of social accountability, health, safety and environment. We intend to use these new learnings to optimize our processes and practices in these areas."

Workshop participant from GTL Limited

## Raising health and safety standards in the supply chain

Health and safety was an important focus in our work with suppliers in 2009. We published a brochure on health and safety in October 2009, available in eight languages. It sets out our requirements for suppliers to have procedures for identifying, minimizing and preventing hazards. It also provides guidance on the precautions needed to mitigate specific health and safety risks.

In addition to our Supplier Requirements, we included more explicit questions on health and safety in qualification questionnaires sent out to new suppliers for service contracts in 2009, particularly for network implementation projects. These questionnaires cover a wide variety of criteria for suppliers and their responses are evaluated as part of our supplier selection process.

To support this focus on health and safety awareness among suppliers, we provided training for 54 percent of global services procurement staff on this issue in the last quarter of 2009. Training continues in 2010 (see building CR capability in our procurement teams).

See more on our approach to improving health and safety among sub-contractors in health and safety.

## Supplier satisfaction survey

Every year, we commission an independent third party to ask key suppliers to rate Nokia Siemens Networks on several aspects of our business relationship, including requirements on business ethics and environment. In 2009, 313 suppliers responded. We again scored highest in the area of satisfaction on business ethics and environment, with an average score of 8.3 out of 10.

Figure 6.1: Supplier Survey scores (out of 10)

Statement/Question	2009	2008	2007
Labor condition issues are important to Nokia Siemens Networks when dealing with suppliers	8.5	8.6	8.0
Nokia Siemens Networks communicates its ethical and labor condition requirements clearly	8.4	8.3	-
Environmental issues are important to Nokia Siemens Networks when dealing with suppliers	8.5	8.5	8.2
Nokia Siemens Networks communicates its environmental requirements clearly	8.2	8.1	-
Nokia Siemens Networks' other business expectations do not force them to compromise basic ethical and environmental level of compliance	8.0	7.3	7.8
Overall, how would you generally rate Nokia Siemens Networks' requirements on business ethics when dealing with suppliers (1 – not strict at all, 10 – very strict)	8.3	8.3	8.2

Score scale: 1=strongly disagree, 10=fully agree.  
Note: Original 2007 figure is recalculated from a rating scale 1-5 to new rating scale 1-10

#### Targets for 2010

- Implement a pilot assessment program on supplier occupational health and safety
- Conduct at least two supplier workshops in higher risk countries
- Roll out industry-wide CR training among our key suppliers through our participation in the Global e-Sustainability Initiative (see working with industry).

The survey found that suppliers view Nokia Siemens Networks as an organization that does not compromise on corporate responsibility, even during the economic pressures experienced during 2009. Respondents believe that Nokia Siemens Networks is ahead of its competitors in most categories of requirements on business ethics.

However, while Nokia Siemens Networks does not make its suppliers to compromise on ethical and environmental compliance, some respondents felt that the company is not always willing to pay for the compliance to these standards in higher product costs. Our response is that this compliance is a prerequisite for business and we require the same level of commitment from our suppliers. In many countries these requirements are integrated into the labor laws, and therefore no significant additional investment is needed to reach the compliance level we demand.

“Has Nokia Siemens Networks done any concrete things to help its suppliers implement their supply chain standards? You demand your suppliers to enhance their energy efficiency and reduce emissions, but do you provide any support?”

Ping Zheng, WWF China

We work together with suppliers to develop their competency by helping them raise performance in any areas identified for improvement through our self-assessments and audits. In addition, we run training programs for suppliers on corporate responsibility as well as sharing best practice on issues such as energy efficiency.

## Suppliers and the environment

Nokia Siemens Networks is committed to reducing the impacts of our products throughout their lifecycle. Promoting high environmental standards among our suppliers is an important part of this commitment. Environmental management systems We require suppliers to have a documented environmental management system (EMS), except in categories where impacts are very low such as research and development, software providers and consultancies. In the case of contract manufacturers, other key suppliers and those identified as having higher environmental risks, this EMS must be certified to environmental management standard ISO 14001.

At the end of 2009, we asked our 150 key suppliers (by purchase expenditure) to confirm whether they have an EMS in place at corporate level and at each individual site which supplies Nokia Siemens Networks. Focusing on direct suppliers of materials only, over 400 sites were included in the survey. Based on supplier confirmations and a review of public data sources, 76 percent of these sites meet Nokia Siemens Networks requirements and work continues with those suppliers who did not yet comply.

It typically takes 12 to 18 months to develop an EMS for each site. As new suppliers are continually selected or existing suppliers supply Nokia Siemens Networks from new sites, this means EMS coverage is unlikely to reach 100 percent at any given time. In 2010, we will also further improve our data collection process in this area.

Working with suppliers to improve energy efficiency Cutting emissions related to energy use is a key part of our corporate responsibility strategy. This includes our commitment to improve energy efficiency in the supply chain.

In 2009, we invited 22 key suppliers to participate in a pilot energy efficiency program. Of these, 19 suppliers provided examples of how they are improving energy efficiency, which we shared together with best practices from our own operations. Suggestions ranged from improving the efficiency of buildings and equipment to streamlining specific manufacturing processes and encouraging employees to turn off equipment when not in use. We shared these examples of best practice with all participating suppliers.

We have asked suppliers to set targets to improve the energy efficiency of their operations and, where applicable, their products, beginning in 2010.

#### Targets for 2010

- Invite a further 30 suppliers (based on high energy intensity and business significance) to participate in our energy efficiency program
- Drive implementation of good practices through meetings and target-setting on energy efficiency.

#### Supplier monitoring

We monitor compliance with our Supplier Requirements and promote improved corporate responsibility (CR) standards through self-assessment questionnaires and regular on-site audits.

Before qualifying to work with Nokia Siemens Networks, new suppliers are evaluated based on their responses to a self-assessment questionnaire which includes CR management issues, or through on-site assessments.

Our on-site audits focus on direct suppliers and major indirect suppliers, which have the greatest impact on our business. These audits usually involve a two-day site visit including a tour of the facility and interviews with managers, as well as checks of relevant certifications and documents. The audits assess compliance with our Supplier Requirements and also help us to identify higher risk suppliers for in-depth audits, which focus specifically on labor conditions and environmental management.

All audits are conducted by trained Nokia Siemens Networks auditors according to our supplier audit framework. Conducting the audits ourselves helps us gain a better understanding of the issues and enables us to work directly with suppliers to build competency.

Our auditing process requires suppliers to present corrective action plans within 30 days of any instances of non-compliance identified by our audits. We then follow up to ensure these plans are implemented. We have found that suppliers generally react positively and take action to improve. However, if a supplier refuses to address the issues raised, we would reconsider our relationship with that company.

In addition to carrying out our own audits in 2009, we also invited 22 key suppliers to join E-TASC, a common industry supplier assessment and auditing tool run by the Global e-Sustainability Initiative (see working with industry).

Although audits are a useful tool, they do not necessarily improve performance if used alone. They can only ever provide a snapshot of the situation at a supplier's site at the time of inspection. To drive sustainable improvements in the supply chain, we combine audits with other engagement to improve suppliers' CR capabilities (see engaging with suppliers).

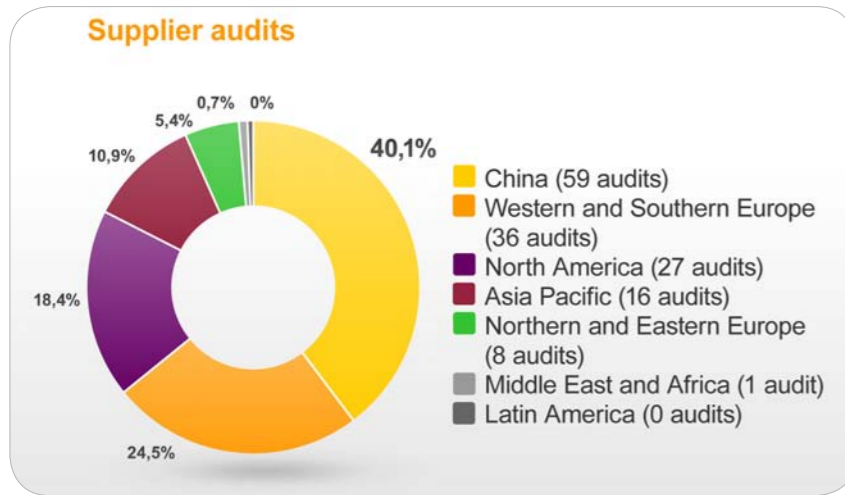


Figure 6.2: Supplier audits per region



Figure 6.3: Nokia Siemens Networks audits against supplier requirements



Figure 6.4: Total in-depth audits undertaken

### Supplier audits

New direct suppliers must undergo a comprehensive audit as part of the qualification process and we also monitor existing suppliers regularly. In 2009, we conducted 147 supplier audits against our Supplier Requirements (see figures 6.2 and 6.3).

### In-depth audits

The criteria for in-depth audits are based on local regulations and our supplier requirements. Our criteria align with the social accountability SA8000 standard for labor conditions and with ISO 14001 for environmental management. In-depth audits include:

- A tour of the factory site (covering all facilities e.g. dormitories, canteen, chemical storage, etc.)
- Interviews with relevant management representatives
- Interviews with workers (conducted in complete confidence and in the worker's native language by local interviewers)
- A review of relevant documentation (e.g. payroll records, working hours, samples of contracts, environmental policy, records of internal audits and management review, etc.)

In 2009, we conducted six in-depth process audits of suppliers in China, India and Italy (see figure 6.4). The main areas identified for improvement were health and safety, working hours, remuneration and related management systems (see figure 6.6). We have followed up with suppliers on all these findings to ensure non-conformities have been resolved. We also used the findings to prioritize areas to develop supplier competency.

Category	Number of non-conformities identified	Number of potential risk areas identified	Total number of recommendations for improvement
Child labor (proof of age documents missing)	2	0	2
Forced labor	0	0	0
Health and safety	20	4	24
Freedom of association and right to collective bargaining	1	6	7
Discrimination	0	1	1
Disciplinary practices	0	0	0
Working hours	6	1	7
Remuneration	6	2	8
Management systems	8	7	15
Environmental Management System	1	0	1
<b>Total</b>	<b>44</b>	<b>21</b>	<b>65</b>

Figure 6.5: In-depth audit findings 2009

Figure 6.6 Examples of significant audit findings and recommendations for improvement

Category	Non-conformities identified	Recommendation for improvement	Improvements implemented
Child labor	Proof of age documents missing in three out of the 20 personnel files reviewed.	Supplier shall ensure that valid proof of age records are maintained for all workers.	The missing proof of age documents were located at another site. No non-compliances were found when a random sample of age proof documents were checked in the re-audit.
Health and safety	Eye wash station not provided near the chemical storage area.	Supplier shall provide an eye wash station near all areas used for handling and storage of chemicals.	Eye wash station installed in chemical store.
	Adequate ventilation not provided in the chemical storage area.	Adequate ventilation must be provided in the chemical storage area.	Ventilation equipment installed.
Freedom of association/workers rights	No written procedure or communication channel to handle complaints and feedback from workers.	Supplier shall establish a written policy and procedure on how to handle feedback and complaints from workers anonymously and confidentially.	Communication channel set up and process to handle complaints and feedback from employees established. Employees received training, and complaints and feedback from employees is reviewed and responded to monthly.
Working hours	Excessive working hours not complying with national legislation or international standards.  Employees were found to be working for 13 consecutive days.	Supplier shall ensure that overtime carried out by workers is within the legal limits – at least one day off in seven must be provided to all employees.	Process set up that requires pre-approval for all overtime work through HR management system. Details of overtime and continuous working days are collected and sent automatically (weekly and monthly) to supervisor for approval. Supplier was able to demonstrate a reduction in excessive overtime hours during follow up visit.
Remuneration	Employees performing extra work (stated as training) after normal working hours without compensation.	Supplier shall ensure that job-related training provided to regular employees is during normal working hours.	Regulation introduced that requires training to be conducted during regular working hours or to be compensated for.
Management systems	Supplier does not have a system or procedure to ensure their suppliers are complying with ethical and environmental requirements.	Supplier shall put in place a system or procedure to ensure that their suppliers are also complying with ethical and the environmental requirements.	Corrective measures on-going.
Environmental Management System	Supplier does not have a contractual agreement with the third party that handles its waste.	Supplier shall ensure that there is a contract agreement with the third party handling its waste specifying in the terms that the contractor will abide by the local regulations and Nokia Siemens Networks' Supplier Requirements on the environment.	Supplier has entered into a contract with the waste handling company.



### Ethical sourcing of tantalum (coltan)

Some of our stakeholders are concerned about ethical sourcing of tantalum (a derivative of coltan used in components of our products such as capacitors) because some of the global supply of this metal comes from mines in conflict areas of the Democratic Republic of Congo (DRC).

Nokia Siemens Networks does not purchase tantalum directly. Our Supplier Requirements require suppliers to provide declarations detailing materials and substances used in all products supplied to us (see managing substances).

In response to stakeholder concern about mining in the DRC, we have mapped the use of tantalum in our products. We have also taken the additional step of requiring all suppliers of capacitors to provide written confirmation that the tantalum they use does not come from the DRC.

Nokia Siemens Networks is also working with industry partners through the Global e-Sustainability Initiative to make sourcing more transparent, fair and ethical to improve conditions in the long-term. In 2010, we plan to continue working with stakeholders on this issue and will also begin to map the usage of other raw materials, such as tin and tungsten, that are sometimes mined in the same conflict areas.

#### Targets for 2010

- Conduct at least 100 system audits
- Conduct in-depth process audits of eight suppliers
- Develop our internal reporting process on supplier audit findings.

### Training our procurement teams

Our Global Procurement organization continually engages with suppliers. It is critical that they are able to communicate the CR elements of our supplier requirements effectively.

By the end of 2009, more than half (57 percent) of global procurement staff had participated in training sessions on CR, both online and face-to-face. The training aims to ensure global procurement staff have a general understanding of ethical issues and environmental management, how we manage these issues in the supply chain, and what actions they need to take. By the end of 2009, 96 percent of global procurement employees had also completed our online ethical business training.

In addition, 54 percent of staff involved in procurement of services (such as network installation and construction services) received specific training on occupational health and safety in the supply chain. This was part of our wider focus on raising awareness of this issue among suppliers (see Health and safety – Network implementation).

Online training on CR issues related to suppliers is also available to all our employees and is a mandatory part of our procurement induction training.

#### Training for auditors

All our supplier audits are conducted by internal experts. We have a pool of lead auditors who are qualified to conduct system audits focusing on the social and environmental aspects of our supplier requirements.

Two of our auditors are qualified to conduct in-depth process audits, requiring additional expertise on labor conditions and environmental management. In 2009, we selected six more experienced auditors to complete additional external training to conduct in-depth process audits in 2010.

#### Targets for 2010

- Ensure that 70 percent of employees in our Global Procurement organization have received training on CR
- Increase the number of auditors qualified to conduct in-depth audits to eight.

### Industry collaboration

We work with other information and communications technology (ICT) companies and industry associations to help raise CR standards and performance throughout the sector's supply chain.

Nokia Siemens Networks has been a member of the Global e-Sustainability Initiative (GeSI) since the company's inception. GeSI is a global partnership of ICT companies that promotes technologies for sustainable development.

We participate in the joint GeSI and Electronic Industry Citizenship Coalition (EICC) Supply Chain Working Group, which aims to develop tools and management practices to help companies improve standards in the ICT supply chain. In 2009, we joined the task force to improve learning and capability among suppliers. Through this task force, we are helping to develop online training on CR issues which we plan to begin rolling out to suppliers during 2010.

In 2009, we continued our implementation of E-TASC among suppliers. E-TASC is a web-based supply chain risk management tool created by GeSI and the EICC. It compiles information gathered from suppliers through online self-assessments and a common auditing process to be shared between participating companies. The tool is designed to reduce the burden on both suppliers and ICT companies by requiring only one set of assessments and auditing, rather than any one supplier having to undergo separate audits by each of its customers.

We had invited 22 suppliers to join E-TASC by the end of 2009. Of these, nine have already submitted information using the tool and three more have committed to do so. A further nine suppliers are responding to the questionnaire directly to us, but have decided not to join E-TASC. So far, we have held meetings with five of these suppliers to discuss improvements based on the findings of the E-TASC self-assessment.

Nokia Siemens Networks is also using this tool to assess CR performance in our own factories, as a supplier to mobile network operators who participate in E-TASC (see Managing CR).

#### Targets for 2010

- Invite a further 25 suppliers to join E-TASC
- Continue to review supplier responses submitted via E-TASC and work with these suppliers to help them implement recommendations for improvement.

# Nokia Siemens Networks

## Data and targets summary

Report section	Performance		Targets		
	2009	2008	2009	Progress	2010
<b>Environmentally sustainable business</b>					
Low carbon products and services			Reduce energy consumption from our broadband network products by 29 percent for ADSL lines and 49 percent for VDSL lines, compared to 2007	Achieved	
			Improve the efficiency of GSM/EDGE and WCDMA/HSPA base station products by up to 40 percent by 2012, compared to 2007 performance	On track	Continuing
Managing substances					Achieve full material content data collection for 90 percent of components in use at Nokia Siemens Networks by the end of 2012 Complete feasibility study in 2010 into replacing phthalates
Packaging	Value recycled €2.6m    €3m				100 percent data coverage for corporate level IT system & environmental reporting system in 2013
End of life services	Equipment recycled (tonnes) 1800    375				100 percent of take-back handled by globally authorized contractors Develop an understanding of the carbon footprint of the take-back process
Operations	Net CO <sub>2</sub> emissions from real estate (thousand tonnes) 205    217		Reduce CO <sub>2</sub> emissions from our offices and facilities by 30 percent by 2012, from the 2007 baseline	Ongoing	Reduce CO <sub>2</sub> emissions from our offices and facilities by 30 percent by 2012, from the 2007 baseline
			Increasing our use of renewable energy to 50 percent of our total electricity use by 2010 (from 10 percent in 2007) Improving the energy efficiency of our buildings to reduce associated energy use by six percent by 2012 (from the 2007 baseline).		
IT	CO <sub>2</sub> emissions (thousand tonnes) 23.2    25.5				Reduce CO <sub>2</sub> emissions from our IT unit's operations and use of IT products in Nokia Siemens Networks by 10 percent by the end of 2010 from 2008 baseline Improve Data Center Infrastructure Efficiency (DCIE) through data center consolidation, virtualization and optimization Reduce PC energy usage through employee behavior
Travel			Reduce miles flown by a further 10 percent by the end of 2009	Achieved	
			Reduce emissions from new cars in our service fleet in Europe to 120g/km by 2010	Ongoing	
Waste	Total waste (tonnes) 5729    4979 Waste recycled 4039    4471		Recycle 70 percent of all waste	Achieved	
Water	Consumption (m <sup>3</sup> ) 800,000				
Ethics and compliance	% who believe we operate with integrity in external dealings 79				Review and simplify reporting channels for ethical concerns and the process for handling reports

Report section	Performance		Targets		
	2009	2008	2009	Progress	2010
Employee relations	Number of employees at end of year 63,927    60,295		Every employee will have a Personal Development Plan	Achieved	
			Every line manager with a team of 50 or more will have engagement targets	Achieved	
	% participating in engagement survey 89    74		Values will be on the agenda of every leadership team and business unit	Values have been embedded into our core people processes such as Performance Management	
Training and development	Academy training days 25,47    n/a				Launch Nokia Siemens Networks Leadership Code eLearning
Health, safety and labour conditions			Awareness raising of labor conditions and related issues will be carried out within the HR organization	Achieved	Continue awareness raising of labor conditions with a focusing on high risk countries
			Complete the baseline review and roll out the global incident and accident reporting process	Achieved	
			Occupational safety: focus on the health and safety practices in the Services/Network Implementation projects	Network Implementation health and safety program developed and roll out in progress	Aim to report global health and safety data using the new reporting system from 2010
					Achieve zero fatal accidents by collaborating closely with our customers and contractors Introduce the International Safety Rating System (ISRS) framework to improve the maturity of Health and Safety management
					Develop and maintain a Health and Safety management system that is aligned with OHSAS 18001 Health and Safety Management System Standard in all operating countries
					Achieve OHSAS 18001 certification in selected countries with special focus on Global Services
			Health: focus on promoting wellbeing at work and especially work-life balance	Piloted wellbeing at work programs in some regions	
Suppliers	Supplier audits 147    103				Implement a pilot assessment program on supplier occupational health and safety Conduct at least two supplier workshops in high-risk countries in 2010 Roll out industry-wide CR training among our key suppliers through our participation in the Global e-Sustainability Initiative Invite a further 30 suppliers (based on high energy intensity and business significance) to participate in our energy efficiency program Drive implementation of good practices through meetings and target-setting on energy efficiency Conduct at least 100 system audits Conduct in-depth process audits of eight suppliers Develop our internal reporting process on supplier audit findings Ensure that 70 percent of employees in our Global Procurement organization have received training on CR Increase the number of auditors qualified to conduct in-depth audits to eight. Invite a further 25 suppliers to join E-TASC Continue to review supplier responses submitted via E-TASC and work with these suppliers to help them implement recommendations for improvement.

# Assurance statements

## Assurance statements

### Assurance

Our CO<sub>2</sub> reduction targets and performance are externally audited by Gaia Consulting as part of our involvement with the WWF Climate Savers program. In 2009 we commissioned a review of our carbon footprint calculation methodology, covering IT, logistics and travel.

Selected key indicators for year 2009 have been assured by PricewaterhouseCoopers Oy as part of their assurance engagement on selected Nokia Corporation's Corporate Responsibility performance indicators for 2009. (See Nokia Sustainability Report 2009).

### Statement from Gaia consulting

Gaia Consulting Oy (the Verifier) has been engaged by Nokia Siemens Networks (the Client) to review their greenhouse gas (GHG) emissions of 0,907 million tonnes of carbon dioxide (CO<sub>2</sub>) presented in the 'Nokia Siemens Networks CO<sub>2</sub> footprint report' (the Report) for the period January 1, 2009 to December 31, 2009. The verified Report was dated April 23, 2010, and included emission calculations from following sources:

- **Direct emissions (scope 1 emissions)** include emissions from fuel (gas and oil) usage in Nokia Siemens Networks facilities
- **Electricity indirect emissions (scope 2 emissions)** include purchased energy (electricity and district heat) usage in Nokia Siemens Networks facilities
- **Other indirect emissions (scope 3 emissions)** include energy from data centers located outside of Nokia Siemens Networks facilities, outbound logistics, air travel of Nokia Siemens Networks employees and the embedded energy of purchased components

Scope 1 and 2 emissions were verified separately by another verifier, and Gaia's responsibility here was only to guarantee that these emissions were included in the total carbon footprint. Gaia verified all scope 3 emissions listed above to the extent the data were available.

The Client is responsible for the preparation and presentation of the information within the Report. The Verifier's responsibility is to state whether anything has come to its attention to suggest that the greenhouse gas emissions are not presented fairly in accordance with the approved quantification methodology 'The Greenhouse Gas Protocol Initiative' (GHG Protocol).

The scope of the verification has focused on the materials handed over to the verifier. Additionally interviews with people participating in the calculation were conducted. The scope of verified data and information covers the scope of the Nokia Siemens Networks' carbon footprint assertion (organizational boundaries, activities, GHG sources, types of GHGs and time period).

The Verifier planned and performed our work in order to provide limited, rather than absolute, assurance with respect to the greenhouse gas emissions. The Verifier believes its work provides a reasonable basis for the following conclusion. Based on the review, nothing has come to the Verifier's attention that causes it to believe that the carbon footprint presented in the Report is not presented fairly in accordance with the relevant criteria.