



Campus Development as part of the Novartis Sustainability Strategy

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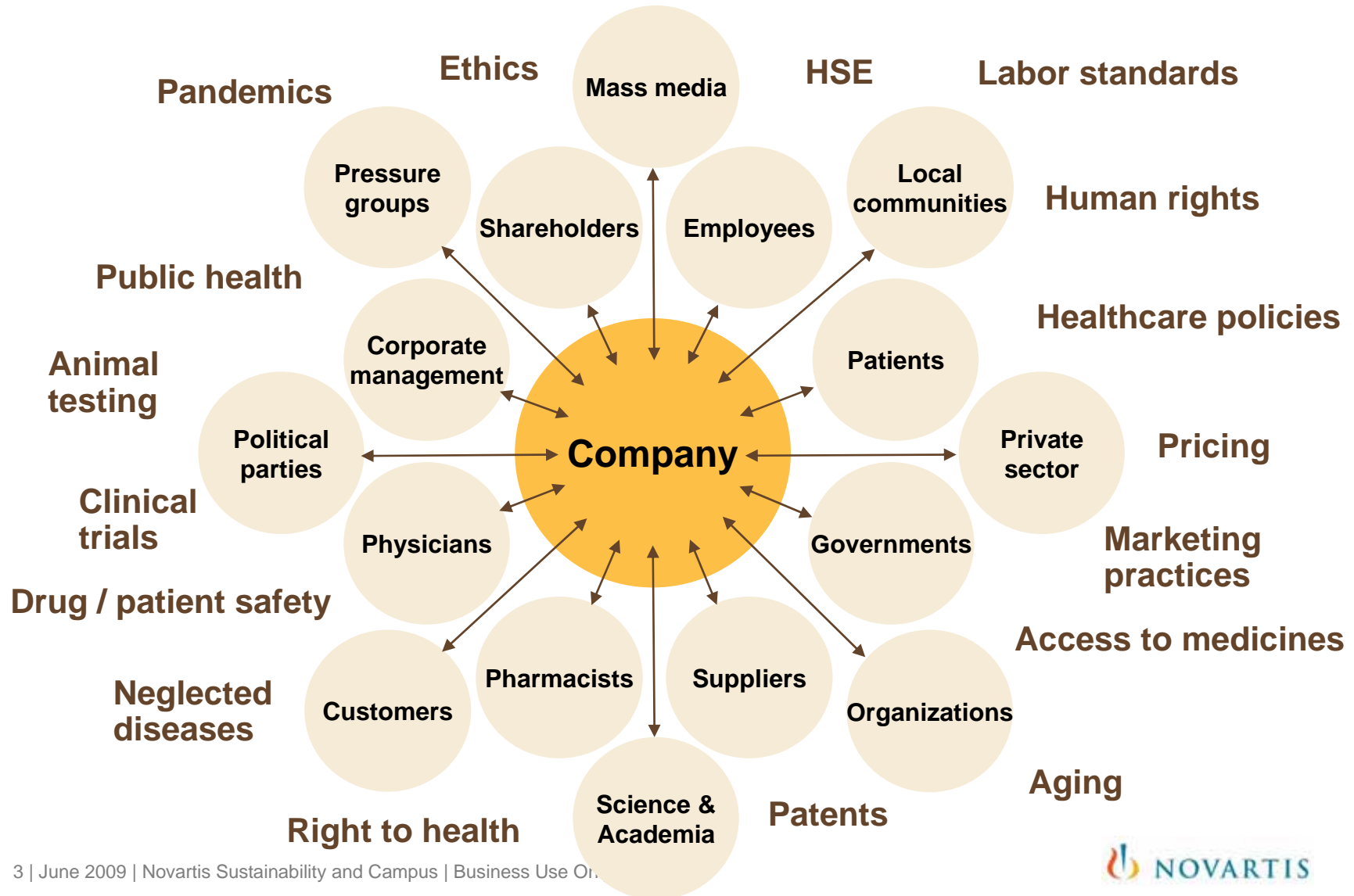


Novartis best positioned to meet changing healthcare needs



- Our medicine-based portfolio provides
 - Innovative **pharmaceuticals**
 - High-quality, low-cost **generics**
 - Preventive **vaccines**
 - Self-medication (OTC) brands
- The only company with leadership positions in both patented and generic pharmaceuticals
- Serving patients, physicians and payers

Companies operate in a challenging environment



The four pillars of corporate citizenship at Novartis



Patients

- Access
- Research
- Clinical trials
- Dialogue



Business conduct

- Integrity & Compliance
- Marketing practices
- Third-party management
- Integrity Line



People and communities

- Diversity & inclusion
- Living wage
- Health & safety
- Community involvement
- Emergency aid



Environment

- Risk prevention & management
- Resource management

We want to discover, develop and successfully market innovative products to cure and prevent diseases, to ease suffering and to enhance the quality of life. We also want to provide a shareholder return that reflects outstanding performance and to adequately reward those who invest ideas and work in our company.

A leader in **drug access** programs

- Leprosy (free to WHO):
Over four million patients treated since 2000
- Malaria / Coartem:
66 million treatments delivered in 2007
- Tuberculosis (with WHO):
500 000 free treatments provided over five years
- Glivec Patient Assistance Program:
Free therapy to 27 000 people in 80 countries
- Novartis Institute for Tropical Diseases:
Singapore-based research initiative

**Access programs
worth USD 937
million reached
66 million
patients in 2007**

Discovering new vaccines and drugs against neglected diseases

- **Novartis Institute for Tropical Diseases** (NITD) established in 2003 in Singapore
- Partnership between Novartis and the Singapore Economic Development Board
- Research into dengue fever, malaria and tuberculosis
- Treatments to be made available without profit to patients in developing countries
- **Novartis Vaccines Institute for Global Health** (NVGH) launched in 2008 in Siena



Overview

- Novartis: Corporate Citizenship = Sustainability

- **Novartis Energy and Climate Strategy**

- Novartis Campus
- Global Outlook

Novartis energy and climate targets: Leadership position

- Protecting the environment is an integral part of business strategy in all divisions and business units
- When joining the UN-Global Compact in 2001 the CEO Daniel Vasella initiated that Novartis voluntarily fulfils the requirements of the Kyoto Protocol
- We set a “Kyoto” target on our global direct CO₂ emissions and additional targets:

Area	Target	Year	Basis	Status 2008
Scope1 GHG (on-site)	-5%	2008-12	308kt in 1990	404kt
Scope1 CO ₂ (vehicles)	-10%	2010	181kt in 2005	171kt
Energy Efficiency	10%	2010	2006	8%

Implementation strategy

To achieve the targets we work with a **dual strategy**:

1. We improve **energy efficiency** and make use of **renewable resources** in order to keep our energy use and GHG emissions at a minimum
2. We engage or participate in „**carbon offset**“ **project** (e.g. sequestration) in order to compensate for part of the GHG emissions

Group energy guidelines approved in 2008

Energy Management

Defines the basic **principles** and management **processes** for energy management, including **roles and responsibilities**, **energy reviews** and **energy audits**, **energy challenge in capital projects**, performance targets and reporting, as well as awareness creation and promotion.

Energy Standards for Buildings and Equipment

Specifies the Novartis **requirements** on energy efficiency and related greenhouse gas performance of **buildings and equipment**, based on a set of principles and standards on **building design and structure, building envelope, utilities, HVAC systems, lighting systems, machinery and appliances and motor vehicles**.

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- **Novartis Campus of knowledge**
- Global Outlook

Campus of knowledge

- More than 80% of values are generated through the **exchange of knowledge and experience**
- Optimal conditions for **communication, exchange and cooperation**
- Modern work environment is enabling to **attracting the best talents**



Novartis Campus Basel

Novartis site St. Johann in Basel (formerly Sandoz head offices)

Production, warehouses, research and administration for ca. 4800 people

Year 2000



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Administration and research
Corporate Headquarters
up to 10,000 people

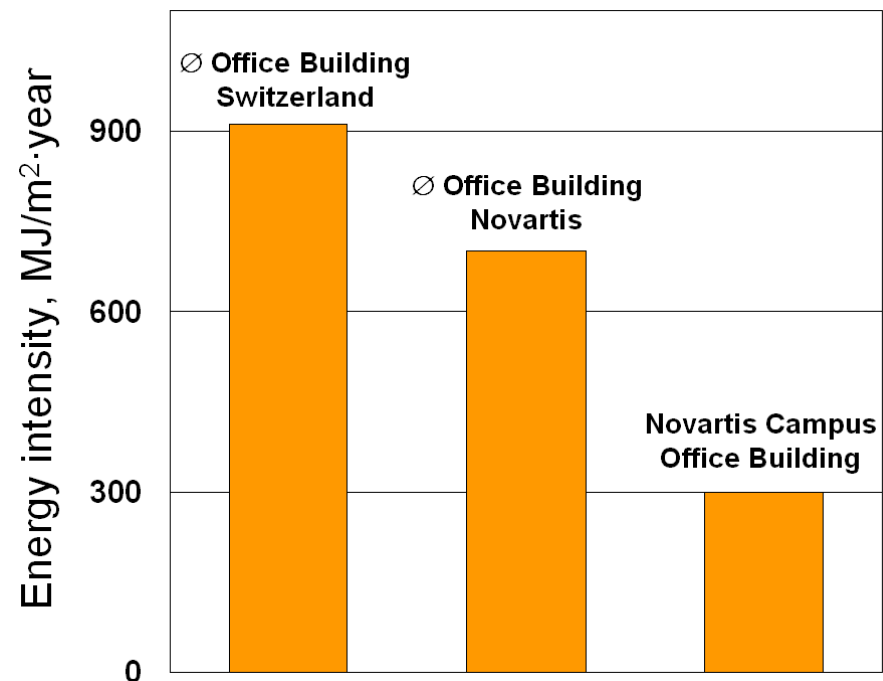
Master plan 2030



2000 Watt society: Campus Basel

Three times less energy than before

- Vision: not use more resources than the planet can sustain in average (ecological foot print), i.e. for energy: 2000 Watt per capita
- For Switzerland this means:
 - Reduction of overall energy consumption to 1/3
 - Reduction of fossil fuels to 1/8
 - Reduction of CO₂-emissions to 1 ton per person and year
- Basel Campus: The energy and climate strategy of Novartis is compliant with the targets of the 2000 Watt Society:
 - Structural measures
 - Use of energy efficient equipment
 - Use renewable energies



Sustainability for the Basel Campus

- Target agreement with Basel city authority
 - Office buildings: 300 MJ/m² a
 - Laboratory buildings: specific energy target
- CO₂-free energy supply
 - Cooling with river water
 - Heat from waste (IWB Ecomix)
 - Electricity: IWB Ecomix
 - 95% *naturemade* basic (hydro)
 - 2.5% *naturemade* star (hydro)
 - 1.0% *naturemade* star (solar)
 - 1.5% *naturemade* star (wind)

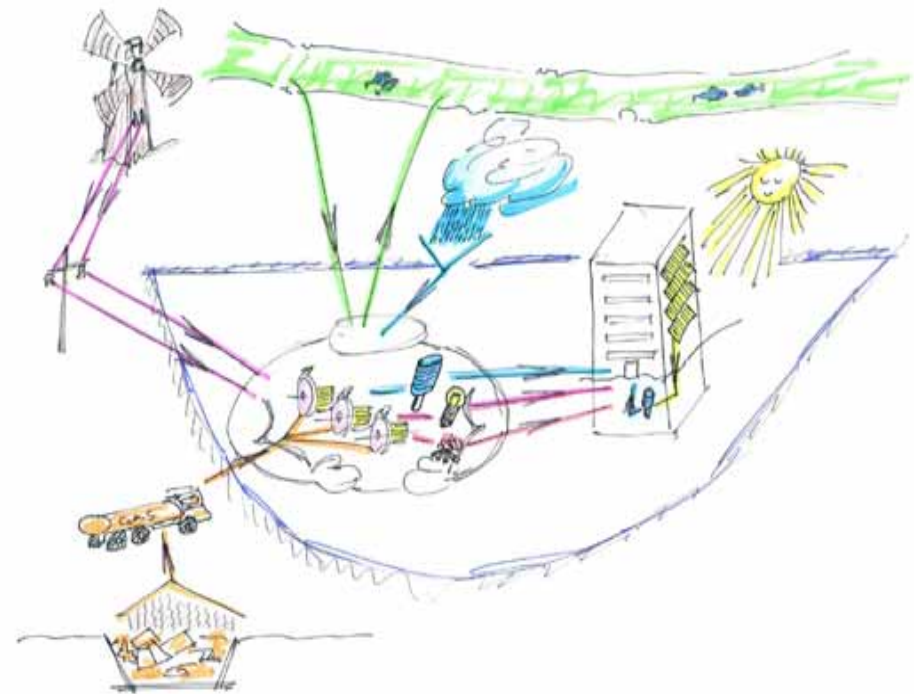


Zero Carbon: NIBR Campus Shanghai, China

A big challenge for Novartis

It is Novartis' ambition to make Zhangjiang High-Tech Park the world's top R&D center with "zero carbon emission"

- Energy center with high efficiency by Tri-Generation
- Gas to be supplied for nearby municipal waste landfill (landfill gas)
- Electricity to be supplied from wind farm (certified green/renewable electricity)
- Free cooling with nearby surface water and groundwater
- Solar energy at the site



Future buildings on the way to “Zero Energy”

- Today buildings consume between 30 and 35% of energy primarily for heating, cooling and air conditioning
- Future buildings should not consume more energy as they are able to generate
 - Optimize energy efficiency of design, envelope and equipment
 - Use all options for free cooling, heat recovery etc.
 - Gain energy from the underground (intermediary storage)
 - Much lower energy intensity (much below 100 MJ/m²*a)
 - Provide the remaining needs from renewable sources
- Campus Basel: feasibility study made for geo-thermal heat
 - 450 meter deep for a 120 meter high building
 - Energy supply needs for an office block reduced to 1/4

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WBCSD: “Pathways to 2050”

Driving forces for CO₂ emissions (Kaya equation):

$$\text{CO}_2 \text{ emissions} = \text{people} \times \frac{\text{GDP}}{\text{person}} \times \frac{\text{energy}}{\text{unit GDP}} \times \frac{\text{CO}_2}{\text{unit energy}}$$

The equation shows four factors multiplied together. The first two factors, 'people' and 'GDP/person', are crossed out with red dotted lines. The last two factors, 'energy/unit GDP' and 'CO₂/unit energy', are circled in red.

Only four factors govern the outcome, being:

- Population Number of people
- Standard of Living GDP per person
- Energy Intensity Energy per unit of GDP (efficiency of the economy)
- Carbon Intensity CO₂ per unit of energy (reflects the energy source)

Long-term: We work on two strands

■ Increase **energy efficiency**

- Towards Zero Energy Buildings
- Low exergy (free cooling, heat recovery, CHP/TriGen, heat pumps)
- Energy efficient HVAC systems
- Energy awareness (vehicles, transports, equipment)

■ Reduce **carbon intensity**

- Renewable energy (geo-thermal, hydro, wind, solar)
- Bio-fuels, where feasible (waste, wood, by-products)
- Carbon offset with afforestation/reforestation and bio-fuels



Thank you very much for your attention!