

Improved safety and monitoring in food & chemical industries and the environment	YES	YES	YES	YES	NO	NO	YES	NO
Crop engineering	YES	MAYBE	YES	NO	NO	YES	YES	NO
Integrated systems	YES	MAYBE	YES	YES	YES	NO	YES	YES
Modern design and building techniques	?	?	?	?	?	?	?	?
Clean coal technology, coal in power stations	?	?	?	?	?	?	?	?
Environmentally-friendly technologies	YES	YES	YES	YES	NO	NO	YES	NO
Sewage treatment with magnetic particles	?	YES	YES	?	?	?	NO	NO
Soil monitoring technologies	YES	YES	YES	?	NO	NO	YES	YES
Climate change technologies	YES	YES	YES	YES	?	NO	YES	YES
Control of intellectual property and knowledge	YES	YES	YES	YES	YES	YES	YES	YES

Environment

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Flood risks on flood plains	MAYBE	YES	YES	YES	?	NO	YES	YES	
Indicators and monitoring regimes for waterways	?	?	?	?	?	?	?	?	
Cost-effective replacement of aging pipes	YES	YES	YES	NO	NO	NO	NO	NO	
Treatment and re-use of waste water	YES	YES	YES	NO	NO	NO	NO	NO	

General

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Environmental sustainability	MAYBE	YES	YES	YES	MAYBE	NO	YES	YES	
Biological technologies	YES	YES	YES	YES	YES	YES	YES	YES	
Diagnostics and treatment of NDDs	YES	YES	MAYBE	NO	NO	NO	NO	NO	
Bio-materials and bio-sensors	YES	NO	YES	YES	NO	NO	NO	NO	
Real-time usage of broadband network	NO	NO	YES	NO	NO	NO	NO	NO	
Chip technology - photonic communication	YES	NO	YES	NO	NO	NO	NO	NO	
Home (health) diagnostic systems, daily check-up	YES	YES	YES	YES	YES	?	NO	Lower priority?	
Replacement of card-based identification by other methods	YES	MAYBE	YES	NO	NO	YES	NO	NO	
Home artificial intelligence-based elderly and handicapped support device	NO	YES	YES	MAYBE	NO	NO	NO	NO	
Solar cells for residential power with efficiency greater than 30%	MAYBE	YES	MAYBE	NO	NO	NO	YES	YES	
Optical inter-chip connection	NO	NO	NO	NO	NO	NO	NO	NO	
Natural language home information retrieval and interaction	NO	YES	YES	YES	NO	NO	YES	NO	
Optical devices	YES	YES	YES	NO	NO	NO	NO	NO	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Three-dimensional opto-electronic integrated circuits .	NO	NO	NO	NO	NO	NO	NO	NO	
Fire detection by odour or vibration	MAYBE	YES	YES	NO	NO	NO	NO	NO	
Superconductivity magnetic levitation railways at 500 km/s	YES	MAYBE	NO	NO	MO	NO	NO	NO	
No-contact identification of individuals	YES	MAYBE	YES	NO	NO	NO	NO	NO	
Portable translation device for simple conversation	MAYBE	NO	YES	YES	NO	NO	NO	NO	
Artificial senses, sensors directly stimulating nerves	YES	MAYBE	YES	YES	NO	YES	NO	NO	
Fire-fighting robots that find and rescue people	MAYBE	YES	YES	NO	NO	YES	NO	NO	
Conversion & biochemical storage of solar energy	NO	MAYBE	YES	NO	NO	NO	MAYBE	NO	
Optical neuro-computers	MAYBE	NO	MAYBE	MAYBE	NO	NO	NO	NO	
Systems to understand text and drawings	NO	NO	NO	NO	NO	NO	NO	NO	
Autonomous robots with environmental awareness sensors	MAYBE	MAYBE	MAYBE	NO	NO	MAYBE	NO	NO	
Intelligent robots for unmanned plants	NO	NO	YES	NO	NO	YES	NO	NO	
Parallel computer with > 1 million processors	YES	NO	YES	NO	NO	NO	NO	NO	
Nuclear propulsion systems	NO	?	?	YES	NO	YES	NO	NO	
SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other

Machine use of human memorising, recognising, learning	YES	YES	YES	YES	?	YES	NO	NO
Sensors connectable to sensory nerves	YES	YES	YES	YES	NO	YED	NO	NO
Intelligent materials with sensors, storage and effectors	NO	YES	YES	NO	NO	NO	NO	NO
Housework robots for cleaning, washing	MAYBE	NO	YES	NO	NO	NO	NO	NO
Laser interferometer detection of gravitational waves	?	NO	YES	NO	NO	NO	NO	NO
Neuro-computers with logical structures based on brain	MAYBE	?	YES	NO	NO	NO	NO	NO
Odour sensors comparable to dog for specific odours	?	?	?	YES	NO	NO	NO	NO
Office automation systems using functions similar to brain functions	MAYBE	NO	YES	YES	NO	NO	NO	NO
Artificial-intelligence technologies imitating thinking processes of brain	YES	?	YES	?	NO	NO	NO	NO
Superconductive materials at room temperature	MAYBE	NO	YES	NO	NO	NO	NO	NO

Austria

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Production & processing of organic food	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Medical & supportive technologies for elderly mobility & transport	YES	YES	YES	YES	MAYBE	SOME	SOME	YES	
Environmentally sound construction & new forms of housing	YES	YES	YES	YES	NO	NO	NO	YES	
Cleaner production and sustainable development	YES	YES	YES	YES	NO	NO	YES	YES	
Simulation models in construction processes	NO	NO	YES	YES	NO	NO	NO	YES	
High-tech steel and low weight materials	MAYBE	NO	YES	YES	NO	NO	NO	YES	
Recycling of composite & mixed materials	MAYBE	NO							
Low noise equipment for railways	NO	NO	YES	NO	NO	NO	NO	NO	
Cleaner production technologies (esp in metal and paper production)	YES	YES	YES	YES	YES	NO	YES	YES	
Wood as material in constructive applications	NO	NO	YES	NO	NO	NO	YES	YES	

Brazil

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Nuclear technologies	MAYBE	MAYBE	YES	YES	MAYBE	NO	MAYBE	MAYBE	
Low-cost renewable energy technologies	YES	YES	YES	YES	YES	NO	YES	YES	
Fuel cells	MAYBE	YES	POSSIBLY	YES	NO	NO	NO	YES	
New techniques to measure energy consumption	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
New technologies for energy distribution	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
New recycling techniques & products	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Technologies for energy network distribution	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Nuclear safety	MAYBE	MAYBE	YES	YES	NO	NO	NO	NO	
Radiological protection	NO	YES	YES	NO	NO	NO	NO	NO	
Superconductive materials	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Nanotechnology	YES	YES	YES	YES	MAYBE/YES	NO	NO	YES	
New nuclear techniques for sustainable devlpmnt	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
New technologies for natural gas	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Petroleum refining technologies	NO	NO	YES	YES	NO	NO	MAYBE	MAYBE	
Satellite platforms	NO	NO	YES	NO	NO	NO	YES	YES	
Bio-mapping	YES	YES	YES	YES	SOME	YES	YES	YES	
Bio-materials	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Biotechnologies	YES	YES	YES	YES	MAYBE/YES	MAYBE/NO	YES	YES	
New catalysis techniques	?	?	YES	YES	NO	NO	NO	YES	
Semiconductors	YES	NO	YES	YES	MAYBE/YES	NO	YES	YES	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Weather simulation & flood prevention	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Bacteriology	YES	YES	YES	YES	MAYBE/NO	NO	YES	YES	
New antipollution technologies	YES	YES	YES	YES	MAYBE	NO	YES	YES	
New antipollution materials	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Thermal flux	?	?	?	?	?	?	?	?	
Forest mapping	YES	YES	YES	YES	NO	NO	YES	YES	
New technologies to improve air quality	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Weather monitoring techniques	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
New biotechnology products	YES	YES	YES	YES	MAYBE/YES	MAYBE	YES	YES	
New techniques to prevent degradation of soil	YES	YES	YES	YES	MAYBE/NO	NO	YES	YES	
Modelling atmospheric change	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Water use efficiency technologies	YES	YES	YES	YES	NO	NO	YES	YES	
Bio-production	YES	YES	YES	YES	YES	NO	YES	YES	
Transgenic crops	YES	YES	YES	SOME	MAYBE	YES	YES	YES	
Multi-layer solar cells	NO	MAYBE	YES	YES	NO	NO	NO	NO	
Plastic recycling technologies	MAYBE	YES	YES	YES	MAYBE	NO	MAYBE	YES	
Pest control methods	MAYBE	YES	YES	YES	NO	YES	YES	YES	
Bio-informatics	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
Biomechanics	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
New cancer diagnosis techniques	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES	
DNA recombination	YES	YES	YES	YES	NO	NO	YES	YES	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Gene therapy	YES	YES	YES	YES	MAYBE/YES	YES	NO	Lower priority?	
Bio-safety	YES	YES	YES	YES	NO	NO	YES	YES	
Diabetes Diagnosis techniques	MAYBE	YES	YES	YES	NO	NO	YES	YES	
Genome	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Proteome	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Aging control techniques	MAYBE	NO	YES	YES	NO	NO	NO	YES	
Telecare	YES	YES	POSSIBLY	YES	NO	?	NO	Lower priority?	
Systems to recycle most used materials	MAYBE	YES	YES	YES	MAYBE	NO	MAYBE	YES	
Solar energy	YES	YES	YES	YES	NO	NO	YES	YES	
New agricultural technologies	YES	YES	YES	YES	NO	NO	YES	YES	
Technology for predicting landslides/rockslides caused by intense rainfall	YES	YES	YES	YES	NO	NO	YES	YES	
Developing environmental restoration technology	YES	YES	YES	YES	NO	NO	YES	YES	
Room temperature superconductors in industrial products	MAYBE	NO	YES	YES	YES	NO	YES	YES	
IT security systems	MAYBE	NO	YES	YES	NO	NO	NO	YES	
Bioplastics using micro-organisms & plants	YES	YES	YES	YES	NO	NO	YES	YES	

Canada Environment & Agriculture

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Comprehensive genome-based environmental monitoring of pathogens	YES	YES	YES	?	?	?	?	?	
Airport monitoring of travellers to combat the globalization of diseases	YES	YES	YES	YES	NO	YES	YES	YES	
Transgenic plants	YES	YES	YES	SOME	MAYBE	YES	YES	YES	
Regionally adapted crops	NO	NO	YES	NO	NO	YES	YES	YES	
Nutraceuticals (transgenic and non-transgenic)	MAYBE	NO	NO	NO	NO	NO	NO	NO	
In-home identification of transgenic vs. organic foods	YES	YES	YES	YES	NO	YES	YES	YES	
Bio-electronics & bio-sensors	YES	YES	YES	YES	NO	NO	NO	NO	
Artificial organs for therapeutic & industrial use	YES	YES	YES	YES	YES	YES	?	?	
Biological components to provide molecular devices (nano-motors, hybrid bio/semiconductor computers)	YES	?	YES	YES	?	NO	NO	NO	
Portable, advanced biochemical analysers for health monitoring & diagnostics	YES	YES	YES	YES	YES	NO	NO	YES	

Tools to combat illegal, high-tech use of biotechnology	YES	YES	YES	YES	NO	NO	YES	?
Technologies to slow down global warming	YES	YES	YES	YES	YES	NO	YES	YES
Biopesticides to combat tropical diseases such as malaria	MAYBE	YES	YES	YES	NO	YES	YES	YES
Advanced biological plastics, transgenic structural wood and wood composites for construction	YES	YES	YES	YES	NO	NO	NO	NO

General

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Nanotechnology identifying genes or proteins	YES	YES	YES	YES	?	NO	NO	YES	
Identify disease-related gene(s) or protein(s)	YES	YES	YES	YES	YES	YES	NO	YES	
Biological and medical analytical device technologies	YES	YES	YES	YES	NO	NO	YES	YES	
New pharmaceutical products & individualized health care	YES	YES	YES	YES	?	NO	YES	YES	
Biochips for micro-systems technologies	?	?	?	?	?	?	?	?	
Use of natural & engineered organisms to clean up pollution	MAYBE	YES	YES	YES	NO	NO	YES	YES	

Natural & engineered organisms to prevent pollution	MAYBE	YES	YES	MAYBE	NO	NO	YES	YES
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Genomics

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Gene therapy	YES	YES	YES	YES	YES	YES	NO	YES	
Genome-based therapeutics	YES	YES	YES	YES	YES	YES	NO	YES	
Multitransgenic animal models for human diseases	YES	YES	YES	YES	NO	YES	NO	YES	
Humanized animals for organ transplants	YES	YES	YES	MAYBE	NO	YES	NO	Lower priority?	

Finland

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Room temperature superconductivity	MAYBE	NO	YES	NO	NO	NO	NO	NO	
Management of information techniques	NO	NO	YES	YES	NO	NO	NO	NO	
Biosciences - prevention of cancer metastasis	YES	YES	YES	YES	NO	NO	NO	NO	
Climate & environment-dynamics of ozone layer, clean technologies	YES	YES	YES	YES	?	NO	YES	YES	
Robotics	YES	YES	YES	YES	NO	NO	NO	NO	
Genetically modified food	YES	YES	YES	SOME	MAYBE	YES	YES	YES	
Production of smart homes and offices	YES	NO	YES	YES	NO	NO	NO	NO	
Telephone capable of interpreting languages in real time, mobile and new communication devices (minisatellites)	MAYBE	MAYBE	YES	YES	MAYBE	NO	YES	YES	
Combination of inorganic and organic matter	NO	MAYBE	YES	YES	NO	NO	YES	YES	
Electronic identification	YES	NO	YES	YES	NO	YES	NO	NO	
Solar & others sources of clean energy	YES	YES	MAYBE	NO	NO	NO	YES	YES	
Artificial photosynthesis	?	?	?	?	?	?	?	?	
Smart houses with self sufficient energy	YES	YES	YES	YES	NO	NO	NO	NO	

FRANCE

Energy

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Generation, storage, distribution and transmission technologies	YES	YES	YES	YES?	NO	NO	?	NO?	
Renewable energy	YES	YES	YES	YES	NO	NO	YES	YES	
Advanced batteries	NO?	NO	YES	NO	NO	NO	NO	NO	
Fossil energy	?	?	?	?	NO	NO	?	?	
Nuclear safety	MAYBE	MAYBE	YES	YES	NO	NO	NO	NO	
Fuel cells	MAYBE	?	?	MAYBE	?	NO	?	NO	
Multi-layer solar cells	NO?	MAYBE	YES	YES	NO	NO	NO	NO	
Artificial photosynthesis	NO?	NO	YES	NO	NO	NO	NO	NO	

Environment

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Integrated environmental monitoring	YES	YES	YES	YES	NO	NO	YES	YES	
Soil remediation and restoration	YES	YES	YES	YES	NO	NO	YES	YES	
Pest control methods	MAYBE	YES	YES	YES	NO	YES	YES	YES	
Transgenic crops	YES	YES	YES	YES	MAYBE/YES	YES	YES	YES	
Global environmental risks	YES	MAYBE	YES	YES	NO	NO	MAYBE/YES	MAYBE/YES	
Clean technologies	YES	YES	YES	YES	MAYBE	NO	YES	YES	

Recycling of nuclear waste	YES	YES	YES	YES	NO	NO	YES	YES
New technologies for reduction of carbon emission	YES	MAYBE	YES	YES	NO	NO	MAYBE/YES	MAYBE/YES
Pollution control	YES	YES	YES	YES	NO	NO	YES	YES
Modelling atmospheric change	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES
Weather monitoring techniques	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES
Water use efficiency (management & recycling technologies)	YES	YES	YES	YES	MAYBE/YES	NO	YES	YES
Remote sensing of biosystems	?	NO	YES	NO	NO	NO	YES	YES

Life Sciences/Biotechnology

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Molecular design/modelling	MAYBE	MAYBE	YES	YES	NO	NO	NO	NO	
Bacteriology	YES	YES	YES	YES	MAYBE/NO	NO	YES	YES	
Tissue engineering	YES	YES	YES	YES	MAYBE/NO	NO	YES	YES	
Gene detection	MAYBE	YES	YES	YES	NO	NO	NO	NO	
Gene therapy	YES	YES	YES	YES	YES	NO	NO	NO	
Gene/enzyme replacement	?	?	?	?	?	YES?	NO	NO	
Gene transfer techniques	MAYBE	MAYBE	MAYBE	NO	NO	YES	NO	NO	
Protenome	YES	YES	YES	YES	MAYBE	NO	YES	YES	
DNA chips	YES	YES	YES	YES	YES	NO	NO	NO	
Biomaterials	MAYBE	MAYVE	YES	NO	NO	NO	NO	NO	
Biotechnology	YES	YES	YES	YES	YES	NO	NO	YES	

Bioprocessing	YES	YES	YES	YES	YES	NO	NO	YES
Biosensors	YES	YES	YES	YES	YES	NO	NO	YES
Biopharming	YES	YES	YES	YES	NO	NO	NO	NO
Nutraceuticals	MAYBE	?	?	MAYBE	NO	?	NO	NO
Biosafety	YES	YES	YES	YES	NO	NO	YES	YES
Biomapping	YES	YES	YES	YES	NO	NO	YES	YES
Biopesticides	YES	YES	YES	YES	YES	NO	YEA	YES

ICT'S

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
High-density information storage	NO	NO	YES	YES	NO	NO	NO	NO	
High-definition displays	NO	NO	YES	NO	NO	NO	NO	MAYBE	
High-resolution scanning	NO	NO	MAYBE	MAYBE	NO	NO	NO	NO	
Communications and data compression	NO	NO	MAYBE	NO	NO	NO	NO	NO	
Signal conditioning and validation	NO	NO	MAYBE	NO	NO	NO	NO	NO	
Telecom/data routing	NO	NO	NO	NO	NO	NO	NO	NO	
Interoperability	?	NO?	?	?	?	NO	NO	NO	
Parallel processing	?	NO?	?	?	?	NO	NO	NO	
Data fusion	?	?	?	MAYBE	MAYBE		?	NO	
Large-scale information systems	?	MAYBE	YES	YES	NO	NO	NO	NO	
Image technology for disease control	YES	YES	YES	NO	NO	NO	YES	YES	
Artificial intelligence	MAYBE	NO	MAYBE	MAYBE	YES	NO	NO	YES	
Integrated signal processing	NO	NO	MAYBE	NO	NO	NO	NO	YES	
Functional diagnostic imaging	?	YES	MAYBE	?	MAYBE	NO	?	NO	

Bacterial/viral detection/screening	NO	MAYBE	MAYBE	MAUBE	NO	NO	MAYBE	MAYBE
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Materials & Production

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Robotics	MAYBE	NO	MAYBE	NO	NO	NO	NO	NO	
Biocompatible materials	YES	YES	YES	YES	NO	NO	MAYBE	MAYBE	
Intelligent processing equipment	MAYBE	NO	MAYBE	NO	NO	NO	NO	NO	
Surface treatments	NO	NO	NO	NO	NO	NO	YES	YES	
Micro-/nano-fabrication and machining	YES	NO	YES	YES	NO	NO	MAYBE	MAYBE	
Ultrapure refining methods	?	?	NO	?	?	NO	?	NO	
High-energy density materials	MAYBE	NO	MAYBE	?	?	NO	NO	NO	
Highway/infrastructure materials	?	?	?	?	?	NO	?	?	
Processing catalysts	NO	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Biocompatible materials	MAYBE	MAYBE	YES	YES	MAYBE	NO	MAYBE	MAYBE	
Superconductors	MAYBE	NO	MAYBE	NO	NO	NO	NO	NO	
Polymers	NO	NO	MAYBE	NO	NO	NO	NO	NO	
Aircraft aerodynamics	YES	YES	YES	MAYBE	MAYBE	NO	MAYBE	MAYBE	
Construction – smart houses and self-sufficient energy	?	SOME	?	YES	NO	NO	NO	NO	

General

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Control of intellectual property	YES	YES	YES	YES	YES	YES	YES	YES	
Aging control techniques	MAYBE	NO	YES	YES	NO	NO	NO	YES	
Nanotechnology	YES	YES	YES	YES	YES	NO	NO	NO	
Bioremediation	YES?	YES	YES	YES	?	NO	?	?	
Monoclonal antibody production	YES?	SOME?	MAYBE	?	?	YES	?	NO	
Protein engineering	YES	YES	YES	YES	YES	NO	NO	NO	
Pharmaceutical research using molecular techniques	YES	YES	YES	YES	YES	NO	NO	NO	
Sustainable agricultural production	YES	YES	YES	YES	MAYBE	NO	YES	YES	

Germany

Cellular Biotechnology

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Molecular biotechnology	NO	NO	MAYBE	MAYBE	NO	YES	MAYBE	MAYBE	
Biological production systems	MAYBE	MAYBE	YES	YES	MAYBE	MAYBE	MAYBE	MAYBE	
Bionics	YES	YES	YES	MAYBE	NO	YES	MAYBE	MAYBE	
Biomimetic materials									
Renewable resources (biomass and agents)	?	?	?	?	?	?	?	?	
Environmental biotechnology	YES	YES	YES	YES	MAYBE	NO	YES	YES	

Critical Technology - Advanced Materials

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
High performance ceramics	NO	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Materials for energy conversion	MAYBE	MAYBE	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Meso-scale polymers									
Adaptronics	?	?	?	?	?	?	?	?	
Multi-functional materials	MAYBE	?	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Lightweight construction	MAYBE	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	

Micro-electronics

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Signal processing	NO	NO	MAYBE	MAYBE	NO	NO	YES	YES	
Microelectronic materials	NO	NO	MAYBE	MAYBE	NO	NO	YES	YES	
Plasma technology	NO	NO	MAYBE	MAYBE	NO	MAYBE	NO	YES	
Superconductivity	NO	NO	MAYBE	MAYBE	NO	NO	NO	YES	
High-temperature electronics	NO	NO	MAYBE	MAYBE	NO	NO	NO	YES	

Hungary

Agribusiness and Biotechnology

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Animal & plant breeding with molecular techniques	YES	MAYBE	YES	MAYBE	NO	YES	YES	YES	
Functional genomics	YES	MAYBE	YES	MAYBE	NO	NO	NO	NO	
Enhancing farm, forest & game management	NO	NO	NO	NO	NO	NO	YES	YES	
Animal hygiene	NO	NO	MAYBE	NO	NO	NO	YES	NO	
Food safety technologies	NO	NO	YES	NO	NO	NO	YES	YES	

Environment and Materials

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Detection & neutralization of environment polluting materials	YES	YES	YES	YES	NO	NO	YES	YES	
Decrease pollution techniques	YES	YES	YES	YES	NO	NO	YES	YES	
Energy saving technologies	YES	YES	YES	YES	NO	NO	YES	YES	
Environment friendly materials	MAYBE	YES	MAYBE	MAYBE	NO	NO	YES	YES	
Nanotechnology	YES	YES	YES	YES	MAYBE	NO	MAYBE	YES	

ICT's

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Integrated intelligent sensors	NO	NO	YES	YES	NO	NO	NO	YES	
Mobile & integrated communication networks	NO	NO	NO	NO	NO	NO	NO	NO	
Human language devices and technologies	MAYBE	NO	YES	NO	NO	NO	NO	NO	
Telepresence and analogue computation	NO	NO	NO	NO	NO	NO	NO	NO	
Molecular level information technologies	NO	NO	MAYBE	MAYBE	NO	NO	NO	YES	
Telematics for intelligent transportation systems	NO	NO	MAYBE	MAYBE	NO	NO	NO	MAYBE	
Telemedicine	YES	YES	YES	YES	SOME	?	NO	Lower priority	

Quality of Life

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Biomedical research – molecular biology	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	YES	
New methods of health preservation & prophylactics	NO	MAYBE	YES	YES	NO	NO	MAYBE	YES	
Pharmaceutical research with molecular techniques	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Functional genomics	MAYBE	MAYBE	YES	YES	NO	NO	NO	MAYBE	
Research in social hygiene	NO	NO	NO	NO	NO	NO	YES	NO	

Social, Economic and Cultural

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Intellectual property rights	YES	YES	YES	YES	MAYBE	YES	YES	YES	

India

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Integrated optical chips	MAYBE	NO	YES	YES	NO	NO	NO	Low priority	
Micro-accelerometer	MAYBE	NO	YES	YES	?	NO	NO	NO	
Ultranoise-free and stable lasers	NO	NO	YES	YES	?	NO	NO	Low priority	
Sensors for submarine detection	NO	NO	YES	YES	NO	NO	NO	NO	
Sensors for detecting explosives	NO	NO	YES	YES	NO	NO	NO	Low priority	
Sensors for ultra-weak electro-magnetic fields	MAYBE	NO	YES	YES	NO	NO	NO	NO	
Monolithic silicon transducers	NO	NO	YES	YES	NO	NO	NO	NO	
Humidity sensors	YES	MAYBE	YES	YES	NO	NO	NO	YES	
Heat-treated polymer dielectric	NO	NO	YES	YES	NO	NO	NO	NO	
Multi-component molecular recognition systems	NO	NO	YES	YES	NO	NO	NO	NO	
Light-emitting diode or semiconductor laser based sensors	NO	NO	YES	YES	NO	NO	NO	NO	
Sensors for determining concentration of polysaccharides	MAYBE	NO	YES	YES	NO	NO	NO	NO	
Sensor for diabetes detection	MAYBE	YES	YES	YES	NO	NO	NO	YES	
Biosensors for AIDS	MAYBE	YES	YES	YES	NO	NO	NO	YES	
Sensors for monitoring water pollution	MAYBE	YES	YES	YES	NO	NO	SOME	YES	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Agriculture soil-moisture sensors	MAYBE	YES	YES	YES	NO	NO	YES	YES	
Improved raw material & energy efficiencies	YES	YES	YES	YES	NO	NO	YES	YES	
Catalytic hydrogenation	NO	NO	YES	YES	NO	NO	NO	NO	
Technologies for pheromones & antifeedents	?	?	YES	YES	NO	NO	NO	NO	
Biopesticides	YES	YES	YES	YES	NO	NO	NO	YES	
High-speed networks	MAYBE	NO	YES	YES	NO	NO	NO	NO	
Superconductive magnetic & insulating materials	MAYBE	?	YES	YES	NO	NO	NO	NO	
Alternative energy sources e.g. solar, wind	YES	YES	YES	YES	NO	NO	NO	NO	
Electrical transmission without wires	YES	YES	YES	YES	NO	NO	NO	?	
Solar power use in vehicles	NO	NO	YES	YES	NO	NO	NO	NO	
Cryogenics	NO	NO	YES	YES	NO	NO	NO	NO	
Genetic engineering	YES	YES	YES	YES	?	MAYBE	MAYBE	MAYBE	
Animal hormones	?	?	?	?	?	?	?	?	
Disease/pest resistant plant varieties	YES	YES	YES	YES	YES	MAYBE	YES	YES	
Monoclonal antibodies for diagnostics	?	YES?	YES?	YES	YES	?	NO	NO	
Water recycling	YES	YES	YES	YES	YES	NO?	YES	YES	
Photonic materials	?	NO	?	YES	?	NO	NO	NO	
Develop Indium phosphide for integrated wave guides	?	NO	?	?	?	NO	NO	NO	
Biomedical materials	YES	YES	YES	YES	YES	NO	SOME	YES	

Ireland

Health & Life Science

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Biotechnologies	YES	YES	YES	YES	YES	MAYBE	YES	YES	
Genomics	YES	?	YES	NO	YES	YES	NO	NO	
New diagnostics	YES	YES	?	YES	SOME	SOME	NO	?	
Gene chip technology	?	?	NO	YES	SOME	NO	NO	NO	
Drug delivery	YES	YES	?	NO	NO	NO	NO	YES	
Bioinformatics	YES	YES	YES	YES	YES	YES	NO	YES	
Biosensors	YES	?	NO	YES	YES	NO	NO	NO	
Transgenics	YES	?	YES	NO	?	YES	NO	NO	
Biomaterials	YES	?	?	YES	NO	NO	NO	NO	
Combinatorial chemistry	YES	SOME	?	NO	?	NO	NO	NO	
Bioremediation	MAYBE	YES	YES	YES	NO	NO	YES	YES	
Robotics	?	SOME	NO	YES	SOME	NO	NO	?	
Proteomics	?	?	YES	NO	YES	YES	NO	NO	
Novel instrumentation technology	?	YES	NO	YES	SOME	NO	NO	?	

Chemicals & Pharmaceuticals

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Advanced/biological synthesis including biocatalysis	MAYBE	MAYBE	YES	YES	MAYBE	NO	NO	YES	

Advanced formulation, delivery & packaging systems including smart drug delivery technologies	NO	NO	NO	NO	NO	YES	NO	YES
Flexible, clean & efficient processes to exploit renewable feedstocks and minimise energy & waste	NO	NO	MAYBE	NO	NO	NO	NO	NO
Process automation & monitoring including use of process control sensors	NO	NO	MAYBE	MAYBE	NO	NO	YES	YES
ICTs to manage regulatory and customer interfaces	NO	NO	NO	NO	NO	NO	NO	NO

Construction & Infrastructure

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Use of ICT throughout construction process	NO	NO	MAYBE	NO	NO	NO	NO	NO	NO
New materials technology (e.g. smart multi-functional materials, biotech components)	YES	MAYBE	YES	YES	MAYBE	NO	NO	YES	
Developments in manufacturing technology (e.g. prefabrication, robotics, mechanisation)	NO	NO	MAYBE	MAYBE	NO	NO	NO	YES	
Sustainable construction (e.g. low energy consumption, waste management, recycling)	NO	NO	MAYBE	MAYBE	NO	NO	NO	YES	

Energy

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
New/renewable energy sources (e.g. wave, hybrid energy systems, energy storage, fuel cells)	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Intelligent consumer energy products (e.g. photosensitive lighting, motion and heat detectors, technologies for intelligent homes)	MAYBE	MAYBE	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Energy efficiency & renewable energy technologies in buildings (solar heating, natural cooling, building management systems)	MAYBE	NO	YES	YES	NO	NO	NO	MAYBE	
Technologies to optimise energy sourcing, distribution and utilisation (co-generation technology, condenser boilers, energy efficient lighting, heat pumps, combined heat & power)	NO	NO	MAYBE	MAYBE	NO	NO	NO	MAYBE	

Forestry

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Production of competitive wood and non-wood products (wood/material science, applied engineering, IT, genetic technologies)	NO	NO	MAYBE	NO	NO	NO	MAYBE	MAYBE	
Sustainable forestry development (environmental management systems, planning and appraisal models, IT)	NO	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	

ICT's

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Networks: high-speed, broadband, wireless, mobile; voice-data convergence; digital signal processing; network management; switching (e.g. photonic); Internet 2	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	YES	
Systems: distributed, parallel; engineering for reliability, predictability & security	NO	NO	NO	NO	NO	NO	NO	NO	

User interfaces: multi-sensory, wearable; virtual reality; AI	MAYBE	NO	YES	YES	NO	NO	MAYBE	YES
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Marine Industry

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Food processing (food safety & quality technologies, biotech)	NO	NO	MAYBE	MAYBE	NO	NO	YES	YES	
Information technology (remote sensing & modelling/forecasting, data management)	YES	YES	LARGE	YES	SOME	NO	NO	Lower priority?	
Biotechnology (disease detection, bio-screening marine organism, food processing)	YES	YES	YES	YES	MAYBE	NO	MAYBE	YES	
Sustainable harvesting & production systems (fish finding technologies, net design and manufacture, cage and tank design, clean production technologies)	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	YES	
Sensor development (materials technology, instrumentation development, anti-fouling techniques)	MAYBE	NO	YES	YES	NO	NO	MAYBE	YES	

Materials & Manufacturing

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Design with new & advanced materials (bio-materials, smart materials and reusable/renewable materials)	YES	YES	YES	YES	NO	NO	YES	YES	
Processing/fabrication of new/advanced materials (exotic metals to prevent corrosion, new polymers to prevent contamination in food/healthcare, repair of turbines for aircraft)	YES	YES	YES	YES	YES	NO	YES	YES	
Integration and miniaturisation technologies (digital cameras - electronics & materials for manufacture of screen-integrated circuits, medical devices, sensors)	YES	YES	YES	YES	YES	NO	YES	YES	
Exploitation of ICT and logistics + associated social and behavioural sciences, to facilitate development of virtual enterprises	NO	NO	NO	NO	NO	NO	MAYBE	MAYBE	

Natural Resources

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Food safety, quality production & processing (ingredient technology; food micro-structure, flavour and quality; minimal processing technologies; pathogen control systems; high pressure technology; food irradiation; robotics, IT)	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	YES	
Sustainable, competitive production & processing systems (reduced input farming, waste reduction & management, environmental modelling, risk analysis, IT)	NO	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Application of biotechnology in crops, animal production & food processing (diagnostics, genetic & breeding technologies, environmental impact assessment, risk analysis methodologies)	YES	YES	YES	SOME	MAYBE	YES	YES	YES	
Market intelligence (development of consumer behavioural models to project future food demands)	NO	NO	YES	MAYBE	NO	NO	MAYBE	MAYBE	

Transport & Logistics

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Intermodality of transport systems (development of models for sharing space in all modes of transportation)	NO	MAYBE	MAYBE	MAYBE	NO	NO	NO	MAYBE	
Road maintenance technology (e.g. materials and design for improved performance)	NO	NO	MAYBE	MAYBE	NO	NO	NO	NO	
Demand management of all modes of transport (e.g. real-time optimisation systems)	NO	NO	MAYBE	MAYBE	NO	NO	NO	NO	
Telematics technology for advanced traveller information and transport systems (e.g. route guidance, vehicle tracking, intelligent transport systems)	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	YES	
Land use development (e.g. social and environmental dimensions to service and transport demands)	NO	NO	MAYBE	MAYBE	NO	NO	NO	NO	

Japan

Agriculture, Forestry and Fisheries

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Management of resources based on forecasting	?	YES	YES	YES	SOME	?	?	?	
Quantitative assessment techniques for conservation in forest ecosystems	YES	YES	YES	NO	NO	NO	YES	YES	
Estimation of optimum fishing levels based on simulation	MAYBE	YES	YES	NO	NO	NO	YES	YES	
Rapid disease-diagnostic systems based on PCR etc.	NO	YES	YES	YES	YES	NO	YES	YES	
Prediction of pest outbreaks & integrated pest control	NO	NO	NO	NO	NO	NO	YES	YES	
Forest management methods for sustainable use of forests	YES	NO	YES	NO	NO	NO	YES	YES	
Global monitoring using next-generation remote sensing	YES?	YES	YES	YES	?	NO	NO	?	
Techniques to facilitate crop uptake of phosphorus	?	?	?	?	?	?	NO	NO	
Selective fishing methods to catch desired size & species	MAYBE	YES	NO	NO	NO	NO	YES	YES	
Resource management using AI & simulation	NO	YES	YES	NO	NO	NO	NO	YES	
Extended service life of wood & improvement of recycling	YES	YES	YES	NO	NO	NO	YES	YES	
Bio-micromachining for drug delivery to cancer etc.	?	?	?	?	?	?	?	?	
Management of migratory fisheries based on prediction	YES	YES	NO	NO	NO	NO	YES	YES	
Technology to maximize fishery productivity	?	YES	?	?	NO	?	?	?	

Communications

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Secure next-generation Internet with real-time info	YES	MAYBE	MAYBE	NO	NO	NO	MAYBE	YES	
High performance batteries	NO	NO	MAYBE	NO	NO	NO	?	?	
Building management systems linked to earthquake detection	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Super high-speed computer communication protocol	YES	NO	YES	NO	NO	NO	NO	YES	
Biochip devices	NO	NO	YES	NO	NO	YES	NO	NO	
Technology to monitor illicit network activities	YES	YES	YES	NO	NO	NO	MAYBE	MAYBE	
Automatic translation telephone system	NO	NO	NO	NO	NO	NO	NO	NO	
On-line security for official documents	MAYBE	NO	NO	NO	NO	NO	MAYBE	MAYBE	
Personal mobile communication system	MAYBE	NO	YES	NO	NO	NO	MAYBE	MAYBE	
Autonomous distributed management of WANs	YES	NO	YES	NO	NO	NO	MAYBE	MAYBE	
Integrated digital broadcasts	YES	YES	YES	NO	NO	NO	NO	NO	
Character recognition of Chinese handwriting	YES	YES	NO	NO	NO	NO	NO	NO	
Automatic protocol conversion for inter-connection of networks	YES	NO	YES	YES	NO	NO	NO	NO	
Ambulance-hospital data communication systems	YES	YES	YES	YES	YES	MAYBE	NO	YES	
Biometric security systems	YES	YES	YES	YES	NO	YES	NO	YES	

Electronics

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
VLSI with 256 Gbits/chip	?	?	?	?	?	NO	NO	NO	
Solar cells with low power-generation costs	YES	YES	YES	NO	NO	NO	NO	YES	
Solar cells with long life and high efficiency	MAYBE	YES	YES	NO	NO	NO	NO	YES	
Tera Instruction Per Second (TIPS) microprocessors	?	?	?	?	?	NO	NO	NO	
Non-volatile, erasable, semiconductor RAMs >100 Gbits	?	?	?	?	?	NO	NO	NO	
Low-cost optical fibre signal transceiver units	YES	NO	YES	NO	NO	NO	NO	YES	
Fast semiconductor LSIs	?	?	?	?	?	NO	NO	NO	
Processor LSIs of 10 GIPS performance and low power	?	?	?	?	?	NO	NO	NO	
Portable multimedia wireless terminal	YES	NO	YES	YES	NO	NO	NO	YES	
Ultraviolet, blue and green semiconductor lasers	YES	NO	YES	YES	YES	NO	NO	NO	
Magnetic memory hard disk of >1,000 Gbits/square inch	?	?	?	?	?	NO	NO	NO	
Optical multiplexed communication equipment	?	?	?	?	?	NO	NO	NO	
Optical memories with high recording density.	?	?	?	?	?	NO	NO	NO	
Automated production system for LSI chips	?	?	?	?	?	NO	NO	NO	
Fast optical subscriber-type systems	?	?	?	?	?	NO	NO	NO	
LSIs using single-electron transistors	?	?	?	?	?	NO	NO	NO	

Small read/write optical filing systems of >1 terabyte	?	?	?	?	?	NO	NO	NO
Portable automatic translation system	?	?	?	?	?	NO	NO	NO
Monitoring excited cerebro-neural states	?	?	?	YES	YES	NO	NO	NO

Resources and Energy

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Separating/recycling valuable substances in garbage	YES	YES	NO	NO	NO	NO	YES	YES	
Technologies for separating useful metals	YES	NO	NO	NO	NO	NO	NO	YES	
Low-energy steelmaking	MAYBE	MAYBE	MAYBE	YES	NO	NO	NO	YES	
Recovery of deep ocean metal resources	NO	NO	YES	YES	YES	NO	NO	NO	
Discovery & development of new mineral deposits through new geological knowledge	MAYBE	NO	MAYBE	YES	YES	NO	YES	YES	
Prospecting for mineral resources using satellites	NO	NO	NO	YES	YES	NO	NO	NO	
Estimating economic feasibility of mineral deposits without drilling	MAYBE	NO	MAYBE	YES	YES	NO	NO	YES	
New reduction method for aluminum smelting	?	SOME	?	YES	NO	NO	NO	NO	
Interaction between climatic change and (abnormal) rain	MAYBE	YES	YES	YES	YES	NO	YES	YES	
Water pipes of new materials resistant to earthquakes etc.	YES	YES	MAYBE	YES	NO	NO	YES	YES	
Sewage and wastewater treatment technologies	MAYBE	YES	MAYBE	SOME	NO	NO	YES	YES	
Nationwide water network ensuring stable supply	MAYBE	YES	NO	YES	YES	NO	NO	YES	

Conservation/rationalized use of groundwater	?	YES	YES	YES	NO	NO	SOME	YES
Water treatment technologies producing safe, tasty water	YES	YES	MAYBE	MAYBE	MAYBE	NO	YES	YES

Environment

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
LCA product design encouraging recycling	YES	YES	YES	YES	NO	NO	NO	YES	
Control technologies for automobiles	YES	YES	YES	YES	NO	NO	NO	YES	
Assessment of socio-economic damage from e.g. soil contamination	MAYBE	YES	YES	NO	NO	NO	YES	YES	
Low/zero-emission cars	NO	YES	NO	NO	NO	NO	NO	YES	
Environmental tax aimed at global conservation	NO	YES	NO	NO	NO	NO	NO	YES	
Understanding impact of global warming on world agricultural production	NO	YES	YES	NO	NO	NO	YES	YES	
Power generation using refuse-derived fuel	MAYBE	YES	YES	YES	NO	NO	YES	YES	
Materials to replace fluoro-carbons that do not damage ozone layer	YES	YES	YES	YES	NO	NO	YES	YES	
Compact waste-water treatment systems	NO	YES	YES	NO	NO	NO	YES	YES	
20% reduction of carbon dioxide emissions cf. 1990	MAYBE	YES	YES	NO	NO	NO	YES	YES	
Exposure effects of harmful chemicals on humans	?	YES	YES	YES	YES	NO	NO	NO	
Migration mechanisms of acid-rain-causing substances	NO	YES	YES	NO	NO	NO	YES	YES	

Technique to predict fate of new chemical substances	MAYBE	NO	YES	YES	NO	NO	NO	NO
Biodegradable plastics decomposed by anaerobic micro-organisms	YES	YES	YES	NO	NO	NO	NO	YES
Noise-reduction in cars	YES	YES	NO	YES	NO	NO	YES	YES
Monitoring of factors causing pollution + databses	YES	YES	YES	YES	NO	NO	YES	YES

Health, Medical Care and Welfare

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Elucidation of carcinogenic mutation mechanisms	?	YES	YES	YES	YES	?	NO	NO	
Improvement in survival rate for cancer	YES	YES	YES	NO	YES	NO	YES	YES	
Elucidation of cancer metastasis mechanisms	?	YES	YES	YES	YES	?	NO	NO	
Scientific guidelines for adult-disease-preventing lifestyles	YES	YES	NO	NO	NO	NO	YES	YES	
Chemotherapy for digestive organ cancer with low drug-responsiveness	MAYBE	YES	YES	YES	NO	NO	NO	YES	
Elucidation of arteriosclerosis contraction mechanisms	?	YES	YES	?	?	?	NO	NO	
Overcoming drug resistance of malignant tumours	MAYBE	YES	YES	NO	NO	NO	NO	YES	
Effective methods against cancer metastasis	MAYBE	YES	YES	NO	NO	NO	NO	YES	
Drugs to cure viral liver disease	NO	YES	YES	NO	NO	NO	NO	NO	
Origins of Alzheimer-type senile dementia	MAYBE	YES	YES	YES	YES	NO	NO	YES	
Biological & immunological therapy effective for cancer	MAYBE	YES	YES	YES	NO	NO	NO	YES	

Effective methods of preventing Alzheimer's	YES	YES	YES	YES	NO	NO	NO	YES
Cure for allergic diseases	NO	YES	YES	YES	NO	NO	NO	YES
Development of HIV vaccine	NO	YES	YES	YES	YES	YES	NO	YES
Gene therapy against malignant tumors	MAYBE	YES	YES	YES	YES	YES	NO	YES
Prevention of diabetic complications	YES	YES	YES	YES	YES	NO	NO	YES
Elucidation of individual ageing mechanisms	NO	YES	NO	NO	NO	NO	NO	NO
Anti-AIDS therapy	YES	YES	YES	YES	NO	NO	YES	YES
Early cancer diagnosis based on biochemical examination	YES	YES	YES	YES	NI	NO	NO	YES
Technique to eliminate viruses from blood.	NO	YES	YES	NO	NO	NO	NO	NO

Information

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Highly reliable networks secure from hackers	YES	NO	NO	NO	NO	NO	NO	YES	
Security systems to provide info to public in a disaster	YES	YES	NO	NO	NO	NO	NO	NO	
Multimedia communication using pocket-size computers	YES	NO	YES	YES	NO	NO	NO	YES	
Quick development of error-free, large-scale software	YES	NO	NO	NO	NO	NO	NO	YES	
Information management systems for companies	YES	NO	YES	YES	NO	NO	NO	YES	
Electronic money	YES	NO	YES	YES	NO	NO	NO	YES	
Robots providing medical care	NO	YES	NO	YES	YES	YES	NO	NO	
Networks enabling interconnection from anywhere via pocketbook-size telephones	YES	NO	NO	NO	NO	NO	NO	NO	

Global network disseminating environmental info on-line	YES	YES	YES	YES	YES	NO	NO	YES
PCs capable of running for one year on single battery	MAYBE	YES	YES	NO	NO	NO	NO	NO
Hand-held, motor-less multimedia devices capable of operating for 3 hours	MAYBE	MAYBE	MAYBE	MAYBE	NO	NO	NO	NO
Network systems operating automatically without a network administrator	YES	NO	NO	YES	NO	NO	NO	NO
Automatic detection of viruses and 'vaccination'	YES	YES	YES	YES	NO	NO	NO	YES
Elucidation of human creativity so can apply to computer science	DOUBTFUL	NO	NO	MAYBE	NO	NO	NO	NO

Life Science

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Effective means to prevent metastasis of cancer	MAYBE	YES	YES	NO	NO	NO	NO	YES	
Identification of genes related to diabetes, hypertension etc.	YES	YES	YES	YES	YES	YES	NO	NO	
Drugs to prevent certain types of cancer	MAYBE	YES	YES	YES	YES	NO	NO	YES	
Anti-cancer agents targeting manifestation functions of cancer genes	MAYBE	YES	YES	YES	YES	NO	NO	YES	
Bioplastics using micro-organisms and plants	MAYBE	YES	YES	YES	NO	NO	NO	YES	
Identification of multiple genes related to cancer	YES	YES	YES	YES	YES	YES	NO	NO	
Cure for senile dementia of Alzheimer type	MAYBE	YES	YES	YES	YES	NO	NO	YES	

Improves photosynthesis to increase food production	NO	YES	YES	YES	YES	YES	YES	YES
Factors (e.g. food, air quality) influencing carcinogenesis	MAYBE	YES	MAYBE	YES	YES	NO	YES	YES
Development of implantable artificial kidney	NO	YES	MAYBE	MAYBE	YES	YES	NO	YES
Control of signal transduction in carcinogenetic cells + treatment	MAYBE	YES	YES	YES	YES	NO	NO	YES
Production of alcohol/fuel oils using micro-organisms etc.	MAYBE	YES	YES	YES	YES	NO	YES	YES
Use of stem cells for treatment	YES	YES	YES	NO	YES	YES	YES	YES
Organ regeneration through multiplication of own cells	YES	YES	MAYBE	MAYBE	YES	YES	NO	YES
Artificial organs incorporating human cells & tissues	MAYBE	YES	YES	YES	YES	YES	YES	YES
GM plants with high CO2 fixing ability	YES	YES	YES	YES	YES	YES	YES	YES

Materials and Processing

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Multi-layer solar cells.	?	YES	YES	NO	NO	NO	NO	NO	
Large, efficient amorphous silicon solar cells	?	YES	YES	NO	NO	NO	NO	NO	
Plastic recycling technology	YES	YES	MAYBE	NO	NO	NO	YES	YES	
Memory capacity of 1 Tb/chip	?	?	NO	?	NO	NO	NO	NO	
Process for water decomposition by sunlight	?	?	NO	?	NO	NO	NO	NO	
Carbon dioxide fixation to protect global environment	?	YES	YES	YES	NO	SOME	NO	Low priority	
Room-temperature superconducting materials	?	SOME	?	SOME	YES	NO	NO	NO	

Rechargeable polymer batteries	?	SOME	NO	SOME	NO	NO	NO	NO
Drugs to reach targeted parts such as tumours	MAYBE	YES	YES	YES	YES	YES	NO	YES
Biodegradable plastics	YES	YES	MAYBE	YES	NO	NO	YES	YES
Garbage disposal based on methane fermentation	?	YES	YES	YES	NO	NO	YES	YES
Single crystal silicon manufacturing technology	?	?	NO	?	NO	NO	NO	NO
Large-scale buildings using concrete whose strength deterioration is predictable	YES	YES	NO	NO	NO	NO	YES	YES
Industrial machines using superconducting materials	?	?	NO	?	NO	NO	NO	NO
Cars powered by hydrogen	NO	NO	NO	YES	YES	NO	NO	NO
Selective catalytic cracking technology for naphtha	?	NO	NO	?	NO	NO	NO	NO
Semiconductor UV lasers	?	?	NO	NO	?	NO	NO	NO
Non-destructive estimation of remaining life of metallic structures/components	MAYBE	NO	NO	YES	NO	NO	NO	YES
Information transmission structure of sensory nerves	?	?	?	YES	YES	NO	NO	NO
Protein engineering	?	Possibly	YES	SOME	YES	YES	NO	NO

Marine Science and Earth Science

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Forecasting of earthquakes	MAYBE	YES	YES	YES	YES	NO	?	YES	
Long-range weather forecasting (1-6 months)	?	YES	YES	YES	YES	NO	NO	YES	
Predicting landslides etc. caused by rainfall	YES	YES	MAYBE	NO	NO	NO	NO	YES	

Predicting changes in ocean currents	NO	NO	NO	YES	NO	NO	NO	NO
Monitoring water pollution on global scale	MAYBE	YES	YES	YES	NO	NO	NO	YES
Technology to alleviate dangerously heavy rainfall	NO	YES	YES	MAYBE	MAYBE	NO	NO	YES
Models for forecasting changes in global oceans	YES	NO	YES	NO	YES	NO	NO	NO
Model for predicting occurrence of 'Red Tides'	MAYBE	NO	YES	NO	NO	NO	NO	NO
Monitoring of atmospheric components in stratosphere	MAYBE	YES	YES	YES	NO	NO	YES	NO
Remote sensing of (deep) water temperature, currents and chlorophyll concentration	YES	?	MAYBE	MAYBE	MAYBE	NO	NO	NO
Mechanisms of formation & extinction of ozone layer	NO	YES	YES	YES	YES	NO	YES	NO

Production and Machinery

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Non-fossil energy sources	MAYBE	YES	YES	YES	YES	NO	NO	YES	
Recycling by manufacturers of disused products	YES	YES	MAYBE	YES	NO	NO	YES	YES	
Technologies for direct storage of electricity	?	YES	YES	YES	NO	NO	NO	NO	
Room temp superconductors in industrial products	?	SOME	NO	YES	?	NO	NO	NO	
Earthquake damage alleviation systems	YES	YES	YES	YES	YES	NO	NO	YES	
CO ₂ recovery & detoxification of harmful waste	MAYBE	YES	YES	YES	?	NO	NO	YES	

Low entropy-generating eco-factories	?	?	?	YES	NO	NO	NO	NO
Superprecision processing technologies	?	SOME?	?	?	NO	NO	NO	NO
Atomic and molecular structure control techniques	MAYBE	NO	YES	YES	YES	NO	NO	NO
Radical changes to production using multimedia	YES	NO	MAYBE	YES	NO	NO	NO	YES
Control of silicon microscopic structures in production	?	?	NO	?	NO	NO	NOI	NO
Hydrogen from decomposing organic substances + solar energy & biological systems	?	YES	YES	YES	NO	NO	SOME?	YES
Bioreactor systems in solid waste-treatment plants	?	YES	YES	YES	NO	NO	SOME	YES
Advanced networking between stores and factories	YES	YES	NO	YES	NO	NO	YES	YES
Ultrapure refining techniques	?	SOME	NO	?	NO	NO	NO	NO
Radical change in theories for designing artificial objects	NO	NO	YES	YES	YES	NO	NO	NO
Safety measures for aircraft, industrial complexes etc.	YES	NO	NO	NO	NO	NO	YES	YES
Support systems for elderly and disabled	YES	YES	YES	YES	YES	NO	SOME?	YES
Quick assembly techniques not using nut and bolt joints	MAYBE	MAYBE	MAYBE	YES	NO	NO	MAYBE	YES
Liquid crystals with memory, archival & switching functions	?	SOME?	NO	SOME?	NO	NO	NO	NO

Space

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Global environmental monitoring & real time analysis	YES	YES	YES	YES	YES	NO	?	?	
High-accuracy GPS operated by international organization	MAYBE	NO	YES	YES	NO	NO	NO	YES	
Space monitoring of air pollution	MAYBE	YES	YES	YES	YES	NO	NO	YES	
Two-stage, re-usable, space transport system	MAYBE	NO	MAYBE	YES	NO	NO	NO	NO	
Space station with facilities to produce semiconductors, pharmaceuticals, etc	YES	YES	YES	YES	YES	NO	NO	NO	
Space plane flying between earth and space stations	MAYBE	NO	YES	YES	YES	NO	NO	NO	
Removal of large space debris e.g. pieces of rockets	YES	NO	YES	YES	YES	NO	NO	NO	
Identifying space debris so space stations can avoid	YES	NO	YES	YES	YES	NO	NO	NO	
Solar power generation plants in space	NO	YES	YES	YES	YES	NO	NO	NO	
Global mapping using satellite radar	?	SOME	YES	YES	SOME	NO	NO	NO	
Self-diagnostic/self-restoring space robot	NO	NO	YES	YES	YES	NO	NO	NO	
Remote sensing from cluster of geostationary satellites	MAYBE	?	YES	YES	YES	NO	NO	NO	
Life support technology in closed ecosystem	YES	YES	MAYBE	YES	YES	NO	YES	YES	
Satellite microwave sensors to measure biomass	?	YES	YES	YES	SOME	NO	NO	NO	
Construction of artificial satellites from space stations	MAYBE	NO	MAYBE	YES	YES	NO	NO	NO	

Use of substances (Si, O2 etc.) which exist on Moon	NO	NO	YES	YES	YES	NO	NO	NO
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Transportation

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
90% recyclability for cars	MAYBE	YES	NO	NO	NO	NO	YES	YES	
System to detect initial mild tremors of earthquake	YES	YES	MAYBE	?	NO	NO	NO	YES	
Motor vehicles with 30% greater fuel efficiency	NO	NO	NO	YES	YES	NO	NO	NO	
Truck exhaust clean-up technologies	MAYBE	MAYBE	NO	MAYBE	NO	NO	NO	YES	
Traffic control systems for optimal flow of traffic in cities	YES	YES	MAYBE	YES	NO	NO	NO	YES	
Floating off-shore airports	MAYBE	YES	YES	YES	YES	NO	NO	NO	
Electric vehicles with long range & rapid charging	YES	YES	MAYBE	YES	YES	NO	NO	YES	
Reduction of noise from heavy trucks to car levels	MAYBE	YES	NO	YES	NO	NO	NO	YES	
Computer-integrated manufacturing of ships	MAYBE	MAYBE	MAYBE	YES	NO	NO	NO	YES	
Marine traffic control systems	YES	NO	MAYBE	YES	NO	NO	NO	YES	
Electric vehicles powered by efficient fuel cells	NO	YES	YES	YES	YES	NO	NO	YES	
Active noise control devices to absorb traffic noise	MAYBE	YES	MAYBE	MAYBE	NO	NO	NO	YES	
New materials in road paving to reduce traffic noise	MAYBE	MAYBE	NO	NO	NO	NO	NO	YES	
All-weather automatic aircraft takeoff & landing system	MAYBE	NO	YES	YES	NO	NO	NO	YES	
Automated air traffic control	MAYBE	NO	YES	YES	NO	NO	NO	NO	

Urbanization and Construction

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Safe demolition of nuclear power plants	YES	NO	YES	YES	YES	NO	NO	NO	
Network for detecting earthquakes	MAYBE	YES	MAYBE	YES	NO	NO	NO	YES	
Disaster forecasting and information transfer systems	YES	YES	MAYBE	MAYBE	NO	NO	YES	YES	
Remote monitoring & control of essential services/utilities	YES	YES	MAYBE	YES	NO	NO	NO	YES	
Automatic separation of metal, glass etc. in garbage	YES	YES	NO	NO	NO	NO	YES	YES	
Community utilization of unused energy & recycling	YES	YES	NO	NO	NO	NO	YES	YES	
Recycling of almost all construction by-products	YES	YES	NO	YES	NO	NO	YES	YES	
Assess building foundations & seismically strengthen	YES	NO	NO	YES	NO	NO	NO	YES	
Database on natural disasters for risk management	YES	YES	NO	NO	NO	NO	YES	YES	
Compact biotech wastewater treatment systems	MAYBE	YES	MAYBE	YES	YES	NO	MAYBE	YES	
Locating active faults using vibration generator	MAYBE	YES	YES	NO	NO	NO	NO	YES	

New Zealand General

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Sustainable production systems	NO	NO	YES	YES	NO	NO	YES	YES	
Management of environmental impacts of economic activity	YES	YES	YES	YES	NO	NO	YES	YES	
Management of biological risk	YES	YES	YES	YES	NO	NO	YES	YES	
Maintaining biodiversity	MAYBE	YES	YES	YES	SOME	YES	YES	YES	
Sustainable management of natural & physical resources	YES	YES	YES	YES	?	?	YES	YES	
Management of physical risks in construction	YES	NO	NO	YES	NO	NO	YES	YES	
Achievment of social equity	YES	YES	NO	YES	NO	YES	YES	NO	
Advancement of social inclusiveness	YES	YES	NO	YES	NO	YES	YES	NO	

Peru

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
New agrarian technologies	YES	YES	YES	YES	NO/MAYBE	NO	YES	YES	
Genetically modified plants & food	YES	YES	YES	YES	SOME	YES	YES	YES	
Bio-mapping	YES	YES	YES	YES	NO/MAYBE	NO	YES	YES	
Biotechnology products	YES	YES	YES	YES	MAYBE	MAYBE	YES	YES	
New irrigation systems	YES	YES	MAYBE	NO	NO	NO	YES	YES	
Bio-pharmacos	YES	YES	YES	YES	YES	NO	YES	YES	
Health diagnosis techniques	YES	YES	YES	YES	YES	NO	NO	YES	
New agro-industry process techniques	YES	YES	MAYBE	YES	MAYBE	NO	YES	YES	
New systems for soil erosion control	MAYBE	YES	YES	YES	MAYBE	NO	YES	YES	
Biotechnology production of antibiotics & enzymes using micro-organisms	YES	YES	YES	YES	YES	MAYBE	NO	YES	
Molecular biology applied to bioprospecting	YES	YES	YES	YES	NO	NO	NO	YES	
Forest mapping	YES	MAYBE	MAYBE	YES	YES	NO	YES	YES	
Rural telecommunication technologies	YES	YES	YES	MAYBE	NO	NO	YES	YES	
New transplant techniques and technologies	YES	YES	YES	YES	YES	YES	NO	YES	
New energy sources	MAYBE	YES	YES	YES	MAYBE	NO	YES	YES	
Sensitive environment maps									
New agroforest models									
New forest materials & products	MAYBE	NO	NO	YES	YES	NO	YES	YES	

New techniques to prevent degradation of soil	YES	YES	YES	YES	MAYBE	NO	YES	YES
Critical technologies for sustainable development	YES	YES	MAYBE	YES	NO	NO	YES	YES
Water use efficiency organisms and technologies	YES	YES	YES	YES	NO	NO	YES	YES
Low cost renewable energy technologies	MAYBE	YES	YES	YES	YES	NO	YES	YES
Detection & neutralization of environment polluting materials (especially river pollution)	YES	YES	MAYBE	YES	NO	NO	YES	YES
Energy-saving (renewable) technologies	MAYBE	YES	YES	YES	YES	NO	YES	YES
IT systems for health diagnosis	YES	YES	YES	YES	YES	NO	NO	YES
Wind energy	YES	YES	MAYBE	YES	NO	NO	YES	YES

Saudi Arabia

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Extent of pollution of surface water wells	NO	MAYBE	YES	NO	NO	NO	MAYBE	YES	
Optimal cropping patterns	YES	MAYBE	YES	NO	NO	MAYBE	MAYBE	YES	
Biotechnology in production of antibiotics & enzymes using micro-organisms	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Recycling and industrial waste	NO	MAYBE	YES	NO	NO	NO	YES	YES	
Remote sensing	YES	YES	LARGE	YES	SOME	NO	NO	SOME	
Geographical information systems	NO	NO	MAYBE	NO	NO	NO	NO	YES	
Land deterioration and desertification	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Water determination technology	MAYBE	NO	NO	NO	NO	NO	NO	NO	
Coastal pollution									
Atmospheric ozone concentration	MAYBE	YES	YES	YES	MAYBE	NO	NO	YES	
Industrial activities impact	NO	MAYBE	NO	NO	NO	NO	MAYBE	NO	
Dioxin pollution	NO	MAYBE	MAYBE	NO	NO	NO	NO	NO	
Environmental deterioration from buried fuel tanks	NO	MAYBE	NO	NO	NO	NO	NO	NO	
New methods of combating environmental pollution caused by petroleum and derivatives	NO	NO	NO	NO	NO	NO	NO	NO	
Monitoring atmospheric corrosion	MAYBE	YES	YES	MAYBE	NO	NO	NO	YES	

South Africa Research and Technology Base

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Biotechnology/food improvements	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Water saving technologies	MAYBE	YES	YES	YES	NO	NO	YES	YES	
Bio-solutions monitoring technologies	MAYBE	MAYBE	YES	NO	NO	NO	MAYBE	MAYBE	
Product preservation	YES	YES	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	

Biodiversity

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Managing biodiversity	YES	YES	YES	YES	MAYBE	YES	YES	YES	
Conservation & sustainable resource use	MAYBE	MAYBE	YES	YES	NO	NO	YES	YES	
Inventory of biodiversity resources	YES	YES	YES	YES	YES	YES	YES	YES	
Identify and conserve biodiversity areas	NO	MAYBE	YES	YES	NO	NO	YES	YES	
Monitor global change & impacts	YES	YES	YES	YES	NO	NO	YES	MAYBE	
Information system on biodiversity	YES	YES	YES	YES	NO	NO	YES	YES	
Biotechnology products	YES	YES	YES	YES	MAYBE	MAYBE	YES	YES	

Energy

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Methods to reduce energy loss	MAYBE	YES	YES	YES	NO	NO	MAYBE	YES	
Passive solar devices	MAYBE	MAYBE	YES	MAYBE	NO	NO	MAYBE	MAYBE	
Combustible waste for clean power	NO	MAYBE	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Full-scale renewable energy	YES	YES	YES	YES	NO	NO	MAYBE	MAYBE	
Clean technologies	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Bio-mass energy sources	?	?	?	?	?	?	?	?	
Power generation & transmission technologies	MAYBE	MAYBE	YES	YES	NO	NO	NO	MAYBE	

Sustainable Natural Resources and Environment

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
New techniques to prevent degradation of soil	MAYBE	YES	YES	YES	MAYBE	NO	YES	YES	
Wind energy	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	MAYBE	
Modelling atmospheric circulation	NO	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Bio-mapping	YES	YES	YES	YES	MAYBE	YES	YES	YES	
Waste reduction removal and stabilization	MAYBE	MAYBE	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Water use efficiency organisms and technologies	MAYBE	YES	YES	YES	NO	NO	YES	YES	

Artificial photosynthesis to restore air quality	?	SOME	POSSIBLY	NO	NO	NO	NO	NO
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Genetic Manipulation and Bio-informatics

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Genetic tagging	MAYBE	MAYBE	YES	YES	NO	YES	NO	MAYBE	
Natural fibre optimisation via genetic modification	MAYBE								
Biomaterials	YES	MAYBE	YES	YES	MAYBE	MAYBE	MAYBE	YES	
Photonic, biological and molecular switching	MAYBE	NO	YES	YES	NO	MAYBE	NO	NO	
DNA analysis and databanks	YES	MAYBE	YES	YES	MAYBE	YES	NO	MAYBE	
Bio-leaching/bio-production	MAYBE	MAYBE	YES	YES	NO	NO	NO	YES	

Health

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
E-health	YES	YES	YES	YES	Some	YES	NO	YES	
Development for HIV/AIDS and malaria vaccines	YES	YES	YES	YES	NO	YES	MAYBE	MAYBE	
Prophylactics for TB/hypertension	?	?	?	?	?	?	?	?	
Microdosing	?	?	?	?	?	?	?	?	
Telemedicine	YES	YES	YES	YES	NO	YES	NO	YES	
Gene therapy	YES	YES	YES	YES	MAYBE	YES	YES	YES	

Bio-pharming	YES	YES	YES	YES	MAYBE	YES	YES	YES
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Information and Communication Technologies

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Low cost satellites	NO	NO	YES	YES	NO	NO	NO	NO	
Intelligent manufacturing processes	NO	NO	YES	YES	NO	NO	MAYBE	MAYBE	
Robotics	MAYBE	NO	YES	YES	NO	MAYBE	NO	MAYBE	
Embedded systems	NO	NO	NO	NO	NO	NO	NO	NO	
Systems security, encryption, compression and storage	YES	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Mobile communication systems	YES	NO	MAYBE	NO	NO	NO	NO	MAYBE	
Sensing, monitoring	NO	NO	YES	YES	NO	NO	NO	YES	
Image capture & identification system	YES	NO	YES	YES	NO	YES	NO	MAYBE	
Smart environment	NO	NO	YES	YES	NO	NO	NO	NO	

New Materials, Production and Process Control

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Polymer development, coal resources	?	?	?	?	?	?	?	?	?
Biomaterials, natural fibres, structural composites	MAYBE	MAYBE	YES	YES	MAYBE	NO	MAYBE	MAYBE	
Recycle energy	YES	YES	YES	YES	MAYBE	NO	MAYBE	MAYBE	
Nanotechnology	MAYBE	YES	YES	NO	NO	NO	NO	NO	
Robotics	MAYBE	MAYBE	YES	YES	NO	MAYBE	NO	MAYBE	
Human machine interfaces (bio-metrics, voice recognition)	YES	MAYBE	YES	YES	NO	MAYBE	NO	MAYBE	

Spain

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Genomics	YES	YES	YES	YES	MAYBE	YES	NO	YES	
Proteomics	MAYBE	?	YES	YES	?	?	NO	YES	
Experimental technologies & services for cable networks	MAYBE	NO	YES	YES	NO	NO	NO	YES	
Microsystems	MAYBE	NO	MAYBE	NO	NO	NO	NO	MAYBE	
Robotics (high speed mechanism)	MAYBE	NO	YES	YES	NO	NO	NO	MAYBE	
Conservation of genetic resources	MAYBE	YES	YES	YES	YES	YES	YES	YES	
Agrarian resources and technologies	YES	YES	YES	YES	YES	NO	YES	YES	
Advanced aeronautics systems	MAYBE	NO	YES	YES	NO	NO	NO	NO	
Air traffic control & airport management technologies	MAYBE	NO	YES	YES	NO	NO	NO	MAYBE	
Aerodynamics & propulsion	MAYBE	NO	YES	YES	NO	NO	NO	NO	
New species & technologies in aquaculture	MAYBE	NO	YES	YES	YES	NO	NO	NO	
Quality control & food safety	YES	YES	YES	YES	YES	NO	YES	YES	
Recycle components	MAYBE	MAYBE	YES	YES	YES	NO	NO	NO	
Comand control units & communications systems	NO	NO	YES	YES	NO	NO	MAYBE	MAYBE	
Sensor systems	YES	MAYBE	YES	YES	YES	NO	MAYBE	MAYBE	
Less polluting energy systems	YES	YES	YES	YES	YES	NO	YES	YES	
Alternative propulsion system	MAYBE	YES	YES	YES	YES	NO	MAYBE	YES	

Mini-satellites	MAYBE	NO	YES	YES	YES	NO	MAYBE	MAYBE
Micro-satellites	MAYBE	NO	YES	YES	YES	NO	MAYBE	MAYBE
Onboard instruments and experiments for Earth observation	YES	MAYBE	YES	YES	YES	NO	MAYBE	MAYBE
Navigation and teledetection by satellite	?	?	?	?	?	?	?	?
Treatment of refuse	?	?	?	?	?	?	?	?
Instruments & techniques to monitor environmental variables	YES	YES	YES	YES	MAYBE	NO	YES	YES
Water treatment and purification	MAYBE	YES	YES	YES	NO	NO	YES	YES
Health technologies	YES	YES	YES	YES	YES	NO	YES	YES
Telemedicine	YES	YES	YES	YES	SOME	?	NO	Lower priority?

United Kingdom

Ageing Population

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Biomedical research on prevention of dependency in later life	?	V large	Possibly	Large	Some?	?	Little	Large	
Longitudinal databases on health status & dependency	Possibly	V large	V large	Some	V large	Some	Yes	Large	
Assistive technologies for aged	Possibly	V large	Some	Large	Some?	?	Some	Large	More techn'y than science
Smart homes/telecare	Possibly	V large	Possibly	Large	Some?	?	No	Some	More techn'y than science

Built Environment & Transport

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Development of e-commerce	?	Some	Doubtful	Large	?		No	Not a priority	More techn'y than science
New materials for construction	?	Some	Doubtful	Yes	?		No	Not a priority	More techn'y than science

Crime Prevention

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Reduction/prevention of e-crime e.g. encryption	?	Large	Essential	Large	Some	Some re privacy etc.	A little	Yes	
Proof of identity - genetic, biometric etc.	Probably	Some	?	Some	?	Some re privacy	No	Lower priority	More techn'y than science

Defence, Aerospace and Systems

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Synthetic fuel - e.g. from biomass	?	Large	Large	Large	?	NO	Some	Yes	
Behaviour of coupled complex systems	?	Some	Some	Large	Large	?	No	Not a priority?	
[FOLLOWING ITEM NOT IN BUT SHOULD BE!]									
Countering threats from terrorism e.g. CBW	?	Large	V large	Large	?	?	Little or none	Low priority	More techn'y than science

Energy & Natural Environment

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Cleaner technologies	Possibly	Yes	Some	Yes	?	No	?	Yes	More techn'y than science
Clean coal	?	Yes	Some	Yes	?		?	Yes	More techn'y than science
Carbon sequestration	?	Large	Yes	Yes		Yes	NO	Not a priority	
Renewable energy	Biomass? Photo-voltaics?	Large	Some	Yes	?	No	Some	Yes	
Hydrogen powered systems	Possibly	Yes	Possibly	Yes	No	No	No	Not a priority	
Sustainable transport									More techn'y
New crops using less water or saline tolerant	Possibly	Large	Large	Some	?	Some (e.g. IPR)	Some	Large	
Water use & management	Possibly	Yes	Yes	Yes	No	No	Yes	Yes	More techn'y
Environmental clean up etc.	? Bio-remediation?	Large	Yes	Large	No	No	Yes	Yes	
Ecosystem response to human impact e.g. improved modelling	?	Some	Large	Large	Yes		Some	Yes	
Social, institutional etc. changes in production/ consumption/behaviour	?	Large	Yes	Large	?	?	Some	Possibly	
Global governance of environment e.g. new financial mechanisms, N-S seasonal energy trading	?	Large	Essential	Yes		Large	Essential	Yes	
Global indicators of ecological systems	?	Some	Essential	Large			Large		
Soil science e.g. degradation	Possibly	Large	Large	Large	Yes		Probably	Yes	

Financial Services

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Financial risk management	Probably	Some	?	A few		Yes	No	Not a priority	
Electronic security based on cryptography	?	Some	?	Some	Some	Yes	No	Not a priority	

Food

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Life cycle analysis	Yes	Yes	Yes	Yes	No	No	No	Yes	
Environmental risk assessment	Yes	Yes	Yes	Yes	Some	Some	Some	Yes	
Interaction of food/diet, genes & health	Yes	Yes	Yes	Yes	Some		Some	Yes	

Health

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Brain development, brain function, learning & memory	Yes	Yes	Yes	Some	Some	Possibly	No	No	
Socio-economic determinants of mental ill-health	Possibly	Yes	Yes	Yes	No	Yes	Some	Some	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Cyber health system	Yes	Yes	Yes	Yes	Some?	Some	No	Low priority	Less science?
Home-based medical care	?	Yes	Yes	Yes	No	No	No	No	Less science?
Genetics & health risks	Yes	Yes	Yes	Some	Some	Yes	No	No	
Stem cell research	Yes	Yes	Yes	No	Yes	Yes	No	No	
Gene therapy	Yes	Yes	Yes	No	Some	Yes	No	No	
Interaction of genotype, lifestyle & environmental risk	Yes	Yes	Yes	Yes	Yes	Yes	No	No	
Medical image/signal analysis, synthesis & interpretation	?	Yes	Yes	Some	No	No	No	No	
Health/bio-informatics	Yes	Yes	Yes	Yes	Some	Some	No	No	
Alternatives to animal testing	?	Some	Yes	?	No	?	No	No	Less science?
New/cheaper vaccines esp for devlpg countries	?	Yes	Yes	No	No	No	Yes	Yes	Less science?
Biology of Alzheimer's disease	?	Yes	Yes	Yes	?	No	No	Possibly	
Xenotransplantation	Yes	Yes	Yes	Yes	No	Yes	No	No	
Tissue engineering	?	Yes	?	Yes	No	Some	No	No	
Advanced (e.g. functional, neuro-) imaging	Yes	Yes	Yes	Yes	Yes	Possibly	No	No	
Lifestyle medicines (e.g for anxiety, phobias)	Possibly	Some	?	Yes	No	Yes	No	No	

Materials

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Nanotechnology (esp'y nanofabrication, molecular & 'extreme' nanotech'y)	Yes	Yes	No	Yes	Some	No	No	No	Too competitive?
Energy storage materials	?	Yes	?	Some	No	No	No	Low priority?	
Sensors	Yes	Some	?	Some	Yes	No	No	No	
Functional materials	Probably	Yes	?	Some	No	No	No	No	
Advanced ceramics	Probably	Some	?	Some	Some	No	No	No	
Biomaterials	Probably	Yes	?	Yes	Some	No	No	No	
Semiconductor & opto-electronic materials	Yes	Yes	No	Yes	Yes	No	No	No	Too competitive?
Materials modelling/prediction	Probably	Some	No	Yes	Some	No	No	No	

Retail

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Logistics for e-commerce home delivery	No	Some	No	Yes	No	No	No	No	Little science
Factors structuring transport choice	Possibly	Yes	?	Yes	No	No	Some	No	Social science
Avoiding the 'digital divide'	?	Yes	?	Yes	No	Yes	Yes	?	Little science

US

Life Science - Biotechnology

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Bioprocessing	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	YES	
Drug design	MAYBE	MAYBE	MAYBE	MAYBE	NO	NO	NO	NO	
Genetic engineering	YES	MAYBE	YES	YES	NO	YES	NO	NO	
Bioelectronics	MAYBE	MAYBE	YES	YES	NO	NO	NO	NO	

Energy

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Increased economic efficiency (output per unit of energy input)	?	YES	?	?	?	NO	?	?	
Non-IC propulsion	?	?	?	YES	?	NO	?	?	
Generation, storage, distribution & transmission technologies	?	MAYBE	YES	YES?	NO	NO	NO	?	
Power electronics capacitors	MAYBE	NO	MAYBE	NO	NO	NO	NO	NO	
Gas turbines	YES	YES	YES	NO	NO	NO	MAYBE	MAYBE	
Fuel cells	NO	NO	YES	NO	NO	NO	NO	NO	
Next-generation nuclear reactors	NO	NO	YES	YES	NO	NO	NO	NO	
Renewable energy	YES	YES	YES	YES	NO	NO	YES	YES	
Advanced batteries	NO	NO	YES	NO	NO	NO	NO	NO	

Environmental Quality

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
New monitoring & assessment techniques	YES	YES	YES	YES	NO	NO	NO	NO	
Integrated environmental monitoring	YES	YES	YES	YES	NO	NO	YES	YES	
Remote sensing of biosystems	?	NO	YES	NO	NO	NO	YES	YES	
Pollution control	YES	YES	YES	YES	NO	NO	YES	YES	
Soil remediation and restoration	YES	YES	YES	YES	NO	NO	YES	YES	
Bioremediation	YES?	YES	YES	YES	MAYBE	NO	SOME	MAYBE	
Nuclear waste storage/disposal	NO	NO	YES	YES	NO	NO	NO	NO	

General

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Forecast severe weather	YES	YES	YES	YES	NO	NO	NO	NO	
Robotics	YES	YES	YES	YES	YES	NO	MAYBE	MAYBE	
Quantum switch based computing	?	NO	?	?	?	NO	NO	NO	
Nanotechnology	YES	YES	YES	YES	YES	NO	MAYBE	MAYBE	

Information and Communication

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
High-density storage	NO	NO	YES	YES	NO	NO	NO	NO	
High-definition displays	NO	NO	YES	NO	NO	NO	NO	MAYBE	
High-resolution scanning	NO	NO	MAYBE	MAYBE	NO	NO	NO	NO	
Communications and data compression	NO	NO	MAYBE	NO	NO	NO	NO	NO	
Signal conditioning & validation	NO	NO	MAYBE	NO	NO	NO	NO	NO	
Telecom/data routing	NO	NO	NO	NO	NO	NO	NO	NO	
Interoperability	?	?	?	?	NO	NO	NO	NO	
Parallel processing	?	?	?	?	?	NO	NO	NO	
Data fusion	YES	?	?	?	?	?	NO?	NO?	
Large-scale information systems	YES	SOME?	YES	YES	NO	NO	NO	NO	
Image technology for disease control	YES	YES	YES	NO	NO	NO	YES	YES	
GPS atomic/molecular physics satellites	NO	NO	YES	MAYBE	NO	NO	NO	NO	
Integrated navigation systems	MAYBE	MAYBE	NO	MAYBE	NO	NO	NO	NO	
Intelligent CAS	?	?	?	MAYBE	?	NO	NO	NO	
Autonomous robot devices	NO	NO	NO	MAYBE	NO	NO	NO	NO	
Artificial intelligence	MAYBE	NO	MAYBE	MAYBE	YES	NO	NO	YES	

Living Systems

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Biotechnology	YES	YES	YES	YES	MAYBE	MAYBE	?	YES	
Bioprocessing	YES	YES	YES	YES	YES	NO	NO	YES	
Monoclonal antibody production	YES?	YES?	MAYBE	?	?	?	NO	NO	
Protein engineering	YES	YES	YES	YES	YES	NO	?	?	
Recombinant DNA technology	YES	YES	YES	YES	YES	YES	NO	NO	
Biopharming	YES	YES	YES	YES	NO	NO	NO	NO	
Nutraceuticals	?	?	?	YES	?	?	?	?	
Gene transfer techniques	MAYBE	MAYBE	NO	MAYBE	NO	YES	NO	NO	
Gene therapy	YES	YES	YES	YES	NO	YES	NO	NO	
Tissue and organ engineering	MAYBE	YES	YES	NO	NO	YES	NO	NO	
Bio-molecular	YES?	?	?	?	?	?	?	NO?	
Biomedical engineering	?	YES	?	YES	?	?	?	?	
Combinatorial chemistry	YES?	?	?	YES?	?	?	?	NO?	
E-health	YES	YES	YES	YES	?	YES	?	MAYBE	
Biocompatible materials	MAYBE	MAYBE	YES	YES	NO	NO	MAYBE	MAYBE	
Functional diagnostic imaging	YES?	YES	?	?	?	?	?	?	
Bacterial/viral detection/screening	NO	MAYBE	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE	
Sustainable agricultural production	YES	YES	YES	YES	MAYBE	NO	YES	YES	
Aquaculture/fisheries	NO	NO	MAYBE	NO	NO	NO	MAYBE	MAYBE	

Human systems	?	?	?	?	?	?	?	?
Advanced human-machine interfaces	MAYBE	MAYBE	YES	MAYBE	MAYBE	NO	NO	NO

Life Science - Medical Devices & Diagnostics

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Cellular-level sensors	MAYBE	?	YES	YES	NO	NO	NO	NO	NO
Fibre optic probes	YES	YES	YES	?	YES	NO	NO	NO	NO

Manufacturing

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Equipment interoperability	?	?	?	?	?	?	?	?	?
Discrete product	?	?	?	?	?	?	?	?	?
CIM support software	?	?	?	?	?	?	?	?	?
Intelligent processing equipment	MAYBE	NO	MAYBE	?	NO	NO	NO	NO	NO
Robotics	YES	MAYBE	YES	?	NO	NO	NO	NO	NO
Automated systems for facilities operations	?	?	?	?	?	?	?	?	?
Net shape processing	?	?	?	?	?	?	?	?	?
Rapid solidification processing	?	?	?	?	?	?	?	?	?
Continuous materials	NO	NO	MAYBE	MAYBE	NO	NO	NO	NO	NO

Processing catalysts	NO	NO	MAYBE	MAYBE	NO	NO	MAYBE	MAYBE
Surface treatments	NO	NO	NO	NO	NO	NO	YES	YES
Micro-/nano-fabrication and machining	YES	NO	NO	YES	NO	NO	MAYBE	MAYBE
Microdevice manufacturing technologies	?	?	NO	MAYBE	NO	NO	MAYBE	NO
Semiconductor integration technology	MAYBE	NO	NO	MAYBE	NO	NO	MAYBE	NO
Artificial structuring methods	?	?	?	?	?	?	?	?
Predictive process control	?	?	?	?	?	?	?	?
Ultrapure refining methods	?	?	?	?	?	?	?	?

Materials

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Photonic materials	MAYBE	NO	YES	NO	NO	NO	NO	NO	NO
Ceramic materials, composites	NO	NO	MAYBE	MAYBE	?	NO	MAYBE	MAYBE	
High-energy density materials	MAYBE	NO	MAYBE	?	?	NO	NO	NO	
Highway/infrastructure materials	?	?	?	?	?	?	?	?	
Bio-materials	YES	YES	YES	YES	MAYBE	NO	MAYBE	MAYBE	
Functionally graded materials	?	?	?	?	?	?	?	?	
Smart materials	YES	YES	YES	YES	MAYBE	NO	MAYBE	MAYBE	
Non-linear optical materials	?	?	?	?	?	?	?	?	
Biocompatible materials	MAYBE	MAYBE	YES	YES	MAYBE	NO	MAYBE	MAYBE	
Stealth materials	?	?	?	?	?	?	?	?	

Superconductors	MAYBE	NO	MAYBE	NO	NO	NO	NO	NO
Polymers	NO	NO	MAYBE	NO	NO	NO	NO	NO

Sensors

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Integrated signal processing	NO	NO	MAYBE	NO	NO	NO	NO	YES	
Software, toolkits – education/training software	YES	YES	MAYBE	MAYBE	NO	NO	NO	YES	
Modeling and simulation software	MAYBE	NO	NO	MAYBE	NO	NO	NO	YES	
Software engineering tools	MAYBE	NO	NO	MAYBE	NO	NO	NO	YES	
Pattern recognition	MAYBE	?	NO	MAYBE	NO	NO	NO	YES	
Software production	MAYBE	?	NO		?	NO	SOME?	NO?	
Neural nets	MAYBE	?	?	?	YES?	NO	NO	NO	

Transportation

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Aircraft aerodynamics	YES	YES	YES	MAYBE	MAYBE	NO	MAYBE	MAYBE	
Surface vehicle aerodynamics	MAYBE	NO	MAYBE	NO	NO	NO	MAYBE	MAYBE	
Propulsion & power aircraft turbines	YES	NO	YES	YES	NO	NO	NO	YES	
Spacecraft power systems	YES	NO	YES	YES	NO	NO	NO	YES	
Electrical-powered vehicles	YES	YES	YES	YES	NO	NO	YES	YES	
Systems integration	YES	NO	YES	YES	NO	NO	YES	YES	
Intelligent transportation system	YES	YES	YES	YES	NO	NO	NO	NO	
Human factors engineering	?	?	?	?	?	?	?	?	
Spacecraft life support	YES	NO	YES	YES	NO	NO	NO	NO	

Uruguay

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
New molecular mechanisms	NO	NO	YES	NO	NO	NO	NO	NO	
Cellular cycle & intra-cellular structure/regulation	NO	NO	YES	NO	NO	NO	NO	NO	
Combinatorial chemistry	NO	NO	YES	NO	NO	NO	YES	YES	
Synthesis of olipeptides & oligonucleotides	?	?	?	?	?	?	?	?	
New techniques of molecular architecture	NO	NO	YES	MAYBE	NO	NO	NO	MAYBE	
Cellular engineering									
Transgenic animals	YES	YES	YES	YES	NO	YES	YES	YES	
Characterization of modified phenotype from genetic manipulation	MAYBE	MAYBE	YES	NO	NO	YES	NO	YES	
New pharmaceutical products	YES	YES	YES	YES	NO	NO	YES	YES	
Biotechnology	YES	YES	YES	YES	YES	YES	YES	YES	
New modulation techniques	NO	NO	YES	NO	NO	NO	YES	YES	
Clean energy technologies	YES	YES	YES	YES	NO	NO	YES	YES	
New agriculture technologies	MAYBE	YES	YES	YES	NO	NO	YES	YES	
New GM techniques	YES	YES	YES	YES	NO	YES	NO	YES	
Universal system of mobile communication	NO	NO	YES	YES	NO	NO	NO	NO	
Smart terminals for communication satellites	NO	NO	YES	NO	NO	NO	NO	NO	

APEC

SCIENTIFIC DEVELOPMENT	CRITERIA								
	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Identification/classification of genes by molecular etiology	MAYBE?	?	MAYBE	?	?	MAYBE?	NO	NO	
Methods for surmising functions of proteins from DNA sequence data	YES	MAYBE	YES	NO	NO	NO	NO	NO	
Determination of crop DNA sequence	YES	YES	YES	NO	NO	NO	NO	NO	
Solar cells	MAYBE	SOME	NO	MAYBE	NO	NO	MAYBE	MAYBE	
Supermolecular structure of organic polymers	?	?	?	?	?	NO	NO	NO	
DNA technology	YES	YES	YES	YES	MAYBE	NO	NO	NO	
Complete genome maps of economically important organisms	YES	?	YES	YES	NO	NO	NO	NO	
Gene detection	MAYBE	YES	YES	YES	NO	NO	NO	NO	
Gene/enzyme replacement	?	SOME	?	?	?	YES	NO	NO	
Gene therapy	YES	YES	YES	YES	YES	NO	NO	NO	
Genetic engineering	MAYBE	SOME	MAYBE	?	?	YES	NO	NO	
Improved waste-water management	MAYBE	YES	YES	YES	NO	NO	NO	NO	
Bio-sensors	YES	YES	YES	YES	YES	NO	NO	NO	
Biomaterials/biosensors applications	YES	NO	YES	YES	NO	NO	NO	NO	
Modem design & building techniques	?	SOME	?	SOME	?	NO	?	?	
Intelligent robots	NO	NO	YES	NO	NO	YES	NO	NO	
Cleaner production & sustainable development	YES	YES	YES	YES	NO	NO	YES	YES	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Recycling of composite & mixed materials	MAYBE	SOME?	?	MAYBE	NO	NO	?	?	
Global monitoring systems of resources & environment	NO	SOME	YES	NO	NO	NO	YES	YES	
Plastic recycling technology	YES	YES	MAYBE	NO	NO	NO	YES	YES	
Management of physical risks in construction	YES	NO	NO	YES	NO	NO	YES	YES	
Knowledge/technology-based products, processes & services	NO	SOME	YES	NO	NO	NO	YES	YES	
Sustainable management of natural & physical resources	NO	YES	YES	NO	NO	NO	YES	YES	
Energy storage, distribution & transmission	NO	MAYBE	YES	YES	NO	NO	NO	NO	
Control of intellectual property and knowledge	YES	YES	YES	YES	YES	YES	YES	YES	
Water quality management	YES	YES	MAYBE	NO	NO	NO	YES	YES	
Carbohydrate fragment technologies	?	?	?	?	?	?	?	?	
Nanoelectronics	YES	YES	YES	YES	YES	NO	NO	NO	
Optoelectronics devices	NO	NO	YES	YES	NO	NO	NO	NO	
Water purification technologies	YES	YES	YES	YES	YES	NO	NO	NO	
Conducting polymers and composites	MAYBE	?	?	YES	?	NO	NO	NO	
Solid structure determination	MAYBE	?	?	?	?	NO	NO	NO	
Surface analysis	MAYBE	?	?	?	?	NO	NO	NO	
Physico-chemical analysis	?	?	?	?	?	NO	NO	NO	
Spatial resolution	NO	NO	YES	YES	NO	NO	NO	NO	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Chemical sensitivity	NO	NO	YES	YES	NO	NO	NO	NO	
Solar cells	NO	NO	YES	YES	NO	NO	NO	NO	
Nanostructured materials	NO	NO	YES	YES	NO	NO	NO	NO	
Biological bar magnets	?	?	?	?	?	NO	NO	NO	
Molecular motors	?	?	?	?	?	NO	NO	NO	
Quantum dots in lasers	?	?	?	?	?	NO	NO	NO	
Supramolecular chemistry	?	?	?	?	?	NO	NO	NO	
Nanoprobes	?	?	?	?	?	NO	NO	NO	
Electron microscopy	?	?	?	?	?	NO	NO	NO	
Nanolithography	?	?	?	?	?	NO	NO	NO	
Micromachining	NO	NO	YES	YES	NO	NO	NO	NO	
Molecular design/modelling	MAYBE	MAYBE	YES	YES	NO	NO	NO	NO	
Long range weather forecasting	YES	YES	YES	YES	YES	NO	NO	NO	
High energy density (rechargeable) batteries	YES	YES	YES	YES	YES	NO	NO	NO	
Insulation materials	?	?	?	?	?	NO	NO	NO	
Repairable heat exchangers in nuclear power plants	?	?	?	?	?	NO	NO	NO	
Magnetic refrigerators	?	?	?	?	?	NO	NO	NO	
Supermagnetic materials	?	?	?	?	?	NO	NO	NO	
Elimination of pollutants in power generation equipment	YES	YES	YES	NO	NO	NO	MAYBE	MAYBE	
Elimination of pollutants in catalysts	?	SOME	?	?	?	NO	NO	NO	
Hybrid cars	?	SOME	?	SOME	NO	NO	NO	NO	
Optical filters	?	NO	NO	NO	?	NO	NO	NO	
Capacitive materials	?	NO	NO	?	?	NO	NO	NO	

SCIENTIFIC DEVELOPMENT	Major scientific advance in 5-10 years	Major societal benefit	International collaboration opportunities	Multi/inter-disciplinary opportunities	Impact on other sciences	Ethical issues	Developing countries can contribute	Capacity-building opportunities	Other
Magnetostrictive materials	?	NO	NO	NO	?	NO	NO	NO	
Resistors & varistors	?	NO	NO	NO	?	NO	NO	NO	
High-temperature superconductors	MAYBE	NO	YES	YES	NO	NO	NO	NO	
High sensitivity sensors	MAYBE	NO	YES	NO	NO	NO	NO	NO	
Electroluminescent nanocrystalline silicon	?	NO	NO	NO	?	NO	NO	NO	
Efficient light-emitting (quantum dot) diodes	?	NO	NO	NO	?	NO	NO	NO	
Transparent conducting layers	?	NO	NO	NO	?	NO	NO	NO	
Plastic lasers	?	NO	NO	NO	?	NO	NO	NO	
Three-dimensional optical memories	?	NO	NO	NO	?	NO	NO	NO	
Gas sensors	YES	YES	YES	MAYBE	NO	NO	NO	NO	
Gas-tight & dense metals	NO	NO	YES	NO	NO	NO	NO	NO	
Ceramic membranes for energy efficiency	?	?	?	?	?	NO	NO	NO	
Separation methods (materials, minerals etc.)	YES	MAYBE	MAYBE	NO	NO	NO	MAYBE	MAYBE	
Ferrofluids for mechanical vibration	?	NO	NO	?	?	NO	NO	NO	
Molecular filters	?	NO	NO	?	?	NO	NO	NO	
Fast burning metal powders	?	NO	NO	?	?	NO	NO	NO	