Supplementary 1. The dominant focuses of adaptation and mitigation, including deviations

Issue	*Adaptation: dominant focus*	*Mitigation: dominant focus*
	italics indicate deviations from the dominant focus	
Spatial scale in general	• unfair: the 'victims' are not always responsible for causing climate change [9] • more a problem for developing countries, *but will also affect developed countries* [11] • attention to adaptation tends to increase as the scale of attention becomes more fine-grained [19] • more of a priority for vulnerable developing countries in the South, whose mitigation capacity is lower than in the North, yet whose vulnerability to climate change is acute [16] • adaptation has often been preferred by developing countries that are more vulnerable to climate change impacts and that have lower mitigation capacity given their low level of emissions compared with developed countries [21] • *increasingly relevant for both developed and developing countries* [21] • despite increasing adaptation challenges, developed countries continue to focus on mitigation, while adaptation is a key priority for more vulnerable developing countries [8]	• free-riding problem, especially motivated with countries less vulnerable to climate change [9] • *until recently, considered to be a problem of developed countries* [11] • has been treated as an issue for developed countries, which bear the greatest responsibility for climate change, and because the mitigation capacity in the South was lower [16] • prioritized by industrialized countries that have the greatest responsibility for climate change [16] • *priority for all countries* [31] • primarily an international issue, as mitigation provides global benefits [20] • *increasingly relevant for developed and developing countries* [21] • despite increasing adaptation challenges, developed countries continue to focus on mitigation, while adaptation is a key priority for more vulnerable developing countries [8]
Spatial scale: degree of cooperation required	• national, regional [9] • bottom-up decision-making [69] • *successful adaptation is a combination of efforts from the local to the regional, national and international scales* [71] • primarily a matter of local managers of natural resources, and individual households and companies, in the context of a regional economy and society [25] • aimed at local water managers, farmers, health officials, coastal zone managers, tourist suppliers, architects, or energy suppliers; decision-makers on the national level would only be involved tangentially [25] • decisions are often made at the sub-national and local levels [6] • relatively few public or corporate decision-makers have direct responsibility for both adaptation and mitigation. For example, adaptation might reside in a Ministry of Environment, while mitigation policy is led by a Trade, Energy or Economic Ministry [6] • most adaptation is motivated by the private interests of affected individuals, households and firms, and by public arrangements of impacted communities and sectors [6] • poor status at all scales of policy-making [28,35] • higher political urgency/legitimacy (*although there are exceptions to this, e.g. proactive adaptation with high costs and uncertain effect can have low urgency* [11] • actions necessarily involve decisions by individuals at the local level [11] • efforts focused mainly on local-scale efforts focused primarily on the relatively near-term (i.e., with immediate effectiveness). *However, reality is far more complex and demands … a perspective to appreciate that in most instances,*	• global [9] • top-down decision-making [69] • primarily a matter of national governments in the context of international negotiations [25] • addresses, first and foremost, the Ministries of Energy and Finance and, to a lesser extent, the Ministries of Transport, Agriculture, Forestry and, perhaps, Environment [25] • primarily justified by international agreements and the resulting national public policies [6] • relatively few public or corporate decision-makers have direct responsibility for both adaptation and mitigation. For example, adaptation might reside in a Ministry of Environment, while mitigation policy is led by a Trade, Energy or Economic Ministry [6] • lower political urgency/legitimacy (*although there are exceptions to this, e.g. short-term co-benefits, local air pollution, energy security and jobs enhance urgency* [11] • *concrete mitigation as well as adaptation actions necessarily involve decisions by individuals at the local level* [11] • administrative scales: predominantly (inter)nationally orientated [3] • decisions must be taken either by major emitters at the national and international levels [73] • involving primarily higher (national and international) scales of governance. *However, reality is far more complex and demands … a perspective to appreciate that in most instances, adaptation and mitigation will interact with each other … wherever they are implemented* [17]

	adaptation and mitigation will interact with each other … wherever they are implemented [17] • administrative scale: generally local [8]	
Spatial scale: implementation and motivation	• local and regional priorities and interests, as well as global concerns [6] • *the common assumption that marginal adaptation is a local issue gone wrong* [28,35] • adaptation measures can occur at population, community, personal or productive-system (food, forestry and fisheries) level [15] • often incentives are not needed, as the action is strictly required (*although there are exceptions to this, e.g. anticipatory actions without immediate benefits may need incentives* [11] • adaptation is predominantly the responsibility of interest groups or local or regional governments [3] • often falls to practitioners where local responsibility is clearer, *although it often depends on support from national and global levels* [72]	• local and regional priorities and interests, as well as global concerns [6] • *the common assumption that mitigation is a global issue, requiring global coordination, does not hold any more. With the ongoing failure of many rich nations to reduce emissions, action on mitigation has become increasingly diffuse, as communities, cities, states and companies pursue emissions reductions* [28,35] • usually incentives are needed (*although there are exceptions to this, such as 'no-regrets' options (e.g., energy efficiency)* [11] • the effectiveness of mitigation policy is dependent on the participation of all countries at the international level. *However, to stay below globally agreed targets, in practice GHGs have to be reduced at the local level where the activities take place* [3] • *mitigation measures can take place varying from the individual to the international level* [3] • *at the level of individual households, communities, and firms or of entire sectors and countries* [46]
Spatial scale: costs and benefits	• primarily local benefits [9] • *some options are beneficial in the absence of climate change ('win-win' and 'no-regret' options)* [9] • should benefit the victims [69] • local costs, often relatively local benefits [10] • adaptive measures are short-term investments with short-term solutions to the impact of climate change and natural variability [27] • works on the scale of an impacted system, which is regional at best, but mostly local (*although some adaptation might result in spill-overs across national boundaries, for example, by changing international commodity prices in agricultural or forest-product markets*) [6] • mainly benefits those who implement it (egoistic) (*although there are exceptions to this, e.g. adaptation of temperate farmers may have global consequences*) [11] • from an economic perspective, the benefits of adaptation leads to greater local benefits [11] • benefits are often more localized [33] • adaptation necessitates locally appropriate actions that have context-specific benefits for the countries and regions that implement them [16] • benefits: local [3] • primarily a local issue, as adaptation mostly provides benefits at the local level [20] • generally benefits only those that implement it (*although there are exceptions to this, e.g., urban design projects with low energy requirements and low vulnerability can constitute both a mitigation and an adaptation measure* [4]	• global benefits, but varying across regions [9] • *some options have high local secondary benefits (e.g. reduce local air-pollutants). Some options may even be directly financially viable* [9] • should be done by the perpetrators [69] • local costs, global benefits [10] • global (*benefits might be realized at the local/regional level*) [6] • global impact [15] • mainly benefits others (altruistic) (*although there are exceptions to this, such as co-benefits for short-term local air pollution, energy security, jobs* [11] • from an economic perspective, the benefits of mitigation are greater at the global scale and external to a local area [11] • benefits are more global [33] • benefits of mitigation are perceived to be greater at the global scale and external to a local area [16] • benefits: mainly external to the region [3] • has the capacity to benefit most (*although there are exceptions to this, such as where urban design projects with low energy requirements and low vulnerability can constitute both a mitigation and an adaptation measure* [4] • benefits are generally considered to be global in nature, meaning that a reduction of emissions in one part of the world will benefit all continents [21]

Temporal scale: costs, implementation and effect	• reactive adaptation can wait until more concrete evidence of climate impacts is available. Successful proactive adaptation has difficulties justifying itself, as the "baseline" impacts are unknown [9] • benefits can more or less be appropriated by those bearing costs [9] • costs whenever, benefits may come later or relatively soon after [10] • may act later after reducing uncertainty, although anticipatory adaptation may require earlier action [10] • adaptation measures would be effective immediately and yield benefits by reducing vulnerability to climate variability. As climate change continues, the benefits of adaptation (i.e., avoided damage) will increase over time [6] • the time span between the expenditures of and returns on adaptation is usually much shorter compared to mitigation [6] • policies generally have a positive and direct immediate effect on the countries and regions that implement them [15] • often the main driver is a short-term benefit due to reducing vulnerability to current climate (*although there are exceptions to this, such as preparing for long-term impacts*) [11] • adaptation reduces vulnerability to immediate and near-term climate risks [16] • *also long-term non-climate benefits of adaptation* [3] • short-term effect on the reduction of vulnerability [20] • efforts focused mainly on the relatively near-term (i.e., with immediate effectiveness). *However, reality is far more complex and demands a long-term, life-cycle and systems perspective to appreciate that, in most instances, adaptation and mitigation will interact with each other for the duration of their implementation* [17] • the effects of adaptation are commonly observed immediately, reducing the vulnerability of those that are able to adapt [21]	• setting emissions targets has to be adjusted regularly to take into account new projections [9] • benefits to later generations [9] • costs now, benefits delayed. Lag in time: benefits to later generations [10] • must act earlier despite greater uncertainty [10] • mitigation strategies are short-term investments for long-term climate results [27] • benefits of mitigation carried out today will be evidenced in several decades because of the long time greenhouse gases remain in the atmosphere (*ancillary benefits such as reduced air pollution are possible in the near term*) [6] • delay between incurring the costs of mitigation and realizing its benefits [6] • long-term impact on GHG damage [15] • long-term benefit from avoided climate change (*although there are exceptions to this, such as co-benefits in the short term, e.g. in the form of reduced air pollution or, in some 'no-regrets' cases, in the form of economic benefits and jobs* [11] • the effects of mitigation are only apparent over longer time scales [16] • *also short-term, non-climate benefits of mitigation, such as energy savings* [3] • long-term effect on climate change because of the inertia of the climatic system [20] • tend to be viewed as long-term solutions. *However, reality is far more complex and demands a long-term, life-cycle, and systems perspective to appreciate that, in most instances, adaptation and mitigation will interact with each other for the duration of their implementation* [17] • the climate benefits of mitigation activities often take time to observe due to the long time greenhouse gases remain in the atmosphere. *Obviously some major co-benefits may accrue in the short-term, such as health benefits from reduced air pollutants* [21]
Sectors	• very heterogeneous, but with some stress on agriculture [9] • adaptation within government will primarily be dealt with by spatial planners and different (non-energy) sectors of the economy [69] • very heterogeneous, but more feasible for certain sectors and regions than others [10] • adaptation is, by nature, sectoral. While this is true in many respects, several adaptation strategies cut across sectors and include efforts to broadly enhance adaptability, e.g., building up wealth or the ability to develop and use new technologies by, for instance, strengthening systems for education, research and development. Similarly, reductions in vulnerability to malaria would improve the nutritional status of the affected populations and increase their capacity to participate more fully in education or the labor force. This strategy, therefore, would also provide benefits across several sectors. Other strategies and measures that would have significant climate change-related spillover effects in	• focus on emissions from fossil fuels [9] • energy planning and the carbon intensity of economic growth, for example, are usually high in the priorities of industry sectors, government and of consumers who are interested in emergy security [69] • focus on emissions from energy consumption [10] • mainly energy, transport, building and industry (*although there are exceptions to this, such as the mitigation options also available in water and land management*) [11] • energy, transport, industry, and the domestic sectors + renewable energy sources such as biofuels, hydropower, wind energy, and solar energy [11] • may involve powerful industrial stakeholders from the energy sector concentrated at higher levels of decision-making [33] • a priority in the energy, transportation, industry and waste management sectors, but the agricultural and forestry sectors are also relevant [20]

other sectors include reducing hunger while providing co-benefits in terms of public health and reduced pressures on biodiversity [27] • mainly urban planning, water, agriculture, forestry, health, coastal zones (although there are exceptions to this, such as renewable energy sources that are vulnerable) [11] • may involve more dispersed stakeholders at the local level across sectors [33] • a priority in the water and health sectors and in coastal or low-lying areas, and but also relevant in the agricultural and forestry sectors [20] • often focusing on engineering, land-use planning and broader developmental approaches to reducing future risks of flooding, water scarcity, or other weather-related risks [74] • relevant to a wide spectrum of sectors such as agriculture, tourism and recreation, human health, water management, coastal management, urban planning and nature conservation, to name just a few [21]	• usually emphasizes carbon efficiency in industrial processes, transport, housing, energy generation, etc., as well as, more recently, reforestation and forest conservation [74] • has often been a popular strategy in sectors where energy consumption is dominant and/or where impacts on carbon sinks are considerable when looking at environmental impacts. These include, for example, energy, transportation, construction and manufacturing, forestry, waste management and increasingly agriculture. These sectors generally consist of well-organized actors that are used to taking longer term decisions on planning and investments. However, during the 21st century all GHG emitting activities have to be addressed in one way or another in all sectors, taking note that on the global level negative emissions may be a necessity in the long-term to stay within the 2°C limit [21]