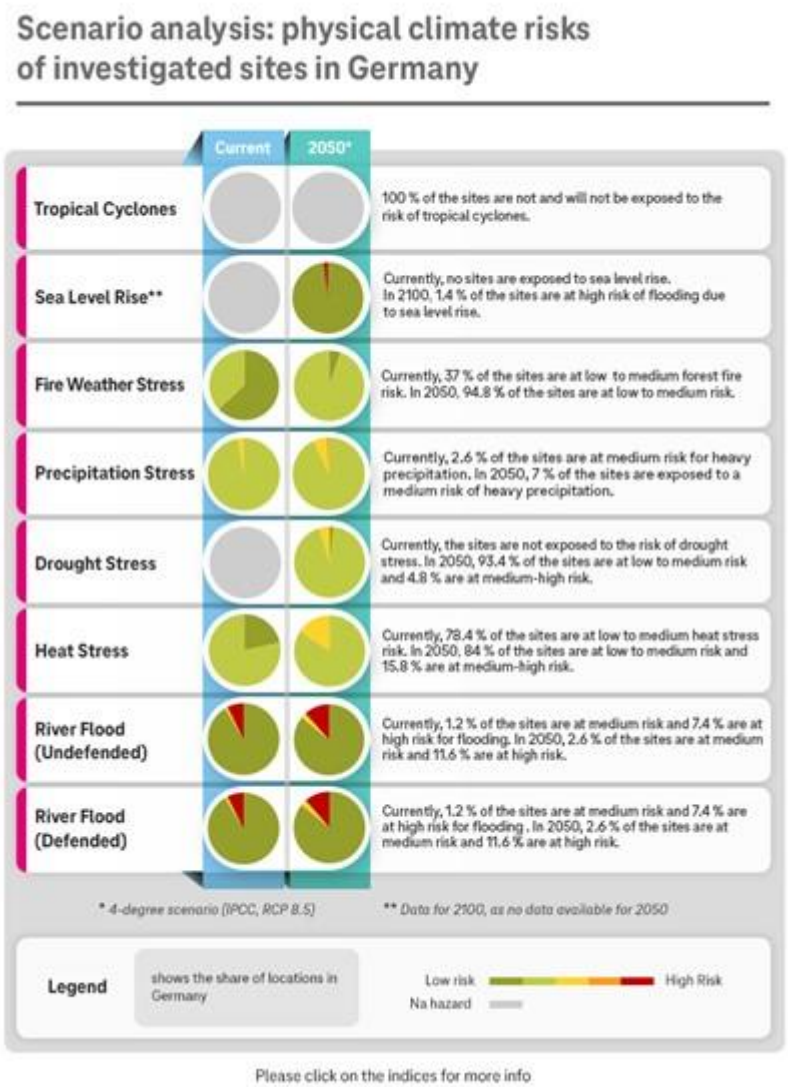
Telekom CR-facts

Physical Climate Risk Assessment and Adaption



Physical risks

Extreme weather conditions as a consequence of climate change will have a negative impact on our business processes and networks, leading to incidents or even network outages. Potential failure of network infrastructure may arise due to damaged secondary infrastructure (power outages, e.g.) or failed cooling

equipment. Another risk is the possible damage to or failure of the network due to damage to the network infrastructure itself, which may occur as a result of extreme heat, heavy rain and inland flood.
Among the effects of breakdowns is their massive impact on the management of rescue operations, for example, sometimes even rendering such emergency efforts entirely impossible.

In contrast to the physical risks due to climate change, we identified the increasing use of energy-efficient technologies (in grid operation, e.g.) and the growing demand for climate-friendly products and services as significant climate-related opportunities. For instance, we are offering our customers more and more sustainable products and services. The basis for these is Deutsche Telekom's "green network", which is powered 100 percent by renewable energies. More Details [1]

Physical risk assessment

In various workshops with experts from technology, purchasing, strategy and risk management, we defined the material climate-related risks and opportunities and carried out an initial weighting. We considered the consequences for our business activities that could result from the physical impacts of progressing climate change.
We analyzed - on an initial exemplary basis - 500 Deutsche Telekom AG sites in Germany with regard to their physical climate risks. Such an analysis shall be extended similarly also to other countries. The climate risk analysis was prepared using the "Climate Change Edition" of the "Location Risk Intelligence" software from reinsurer Munich Re. The analysis comprises eight indices (see graph). We consider the risk exposure for the respective locations of fixed line and mobile technical sites (network operation, data center and office buildings) in two climate scenarios of the Intergovernmental Panel on Climate Change (IPCC): a business-as-usual scenario (RCP 4.5), in which the global temperature increase will be more than two degrees, and a four-degree scenario (RCP 8.5). In addition to the climate scenarios, we also examine the risk exposure in different time frames: current, for the year 2050, and for 2100.

###IMAGE###

The results from this assessment are used to develop a climate change adaptation plan with mitigation measures that consider context-specific factors and different assets (network operation, data center and office buildings).

Adaptation measures for physical risks

We understand physical risk adaption as anticipating the adverse effects of climate change and taking appropriate action to prevent or minimize the damage they can cause. Our action plans consider all material risks that have been identified through our climate risk assessment. By considering context factors such as characteristics of your sites (region, proximity to rivers, …), we ensure tailored made action plans instead of “one size fits all” approach.

More specifically, we have implemented the following actions:

Measure	Description
Business continuity management [2]	To ensure business continuity, we have defined necessary responsibilities, processes, and measures in our internal “Group Policy on Continuity and Situation Management”.The policy also outlines how to handle emergency and crisis situations like for instance floods.
New network infrastructure	We take possible consequences of climate change into account when planning new networks infrastructure. Our network infrastructure is set up to be better protected from storm conditions, changes in temperature, and high winds.
Network modernization	We conduct modernization measures such as • network facility back-up batteries • data centers with in-house emergency generators • switching to high-efficiency electrical and air-conditioning systems • improving the operation of air-conditioning, lighting
Infrastructure facility inspections	We conduct regular assessments to ensure sophistication and resilience of infrastructure facilities. We conduct approximately 80 location inquiries per year. Approximately 35 queries for risk buildings in Germany (plannable, current threat situation), 25 queries for international risk buildings (plannable, current threat situation), 20 queries for national and international locations in the context of projects or customer orders (short-term, current threat situation) Furthermore, in the near future we will check the approx. 20 T-Systems data centers for their "future security" (focus 2050).

Physical climate risk analysis	In the future, we enhance our physical risk assessment. We plan to extend the physical climate risk analysis to further countries and context-specific assessment of the physical impacts of climate change for each asset (network operation, data center and office buildings) Further measures relevant e.g.: • Stakeholder Capacity building • Awareness buiding measures for employees