»» 14th Evaluation Report 2015–2016

Living in a threatened world – Effectively responding to hazards

KFW

We finance development

KfW Development Bank's commitment

Activities, partners and projects

KfW has been supporting the German Federal Government in implementing its development-policy goals since 1960 within the scope of Financial Cooperation (FC). We combine financing know-how with development-policy expertise. On behalf of the German Federal Government, and primarily the German Federal Ministry for Economic Cooperation and Development (BMZ), we promote and support programmes and projects that mainly involve public-sector players in developing and emerging economies. We support our partner countries from the conception of the development project to its financing and implementation. Our goal is to create better living conditions, while protecting the climate and the environment at the same time. The range of funded investments is considerable and includes, for example, the construction of schools in Palestine, sewage systems in Albania, reintegration of ex-combatants in Liberia, the building of solar andwind power plants in Morocco as well as the refinancing of agricultural loans in the Caucasus.

Financing

KfW Development Bank committed EUR 7.29 billion for new projects in 2016. Of this, EUR 1.94 billion came from the German federal budget, EUR 0.24 billion from other sponsors and EUR 5.11 billion from KfW's own funds, which KfW raises on the capital market.

The Evaluation Unit: internal yet still independent

This report was written by the KfW Development Bank's Evaluation Unit (German acronym: FZ E) and provides an overview of its work in 2015/2016. As an administrative unit, the Evaluation Unit reports directly to the Executive Board of KfW Group. It is headed by an externally recruited academic and works independently of the operational country departments of KfW Development Bank, which are responsible for planning and implementing the projects in the partner countries. For its evaluations, the Evaluation Unit draws on its own staff and commissions independent experts. These experts may be employees from KfW Development Bank's operational teams or independent specialists, but never individuals who themselves were involved with the evaluated project. Since 1990, the findings of the evaluations have been published in biennial reports that include an overall success rate.

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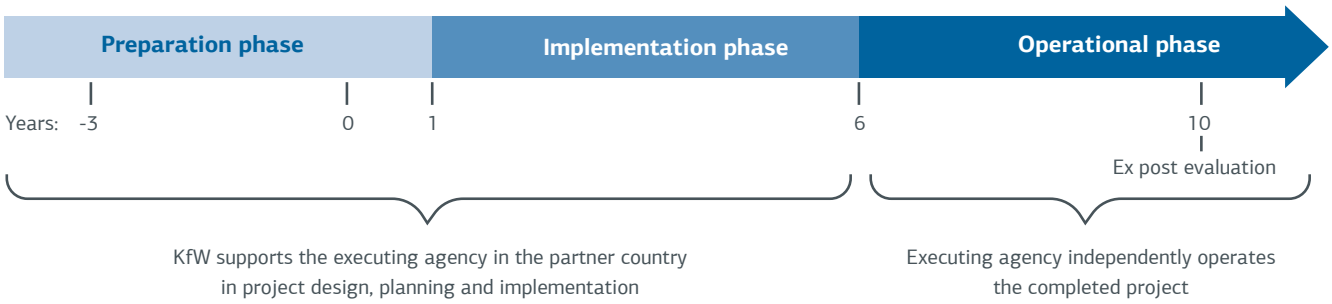
Transparency is our priority.
In the KfW transparency portal for development financing, we provide up-to-date information on the origin, use and impact of our promotional funds by country, sector and project: **http://transparenz.kfw-entwicklungsbank.de**.

Summaries of all evaluation reports issued since 2002, categorised by country, can be found online at: **https://www.kfw-entwicklungsbank.de/Internationale-Finanzierung/KfW-Entwicklungsbank/Evaluierungen/Ergebnisse/**.

KfW Stories – KfW's digital storytelling platform: **https://www.kfw.de/stories/**.

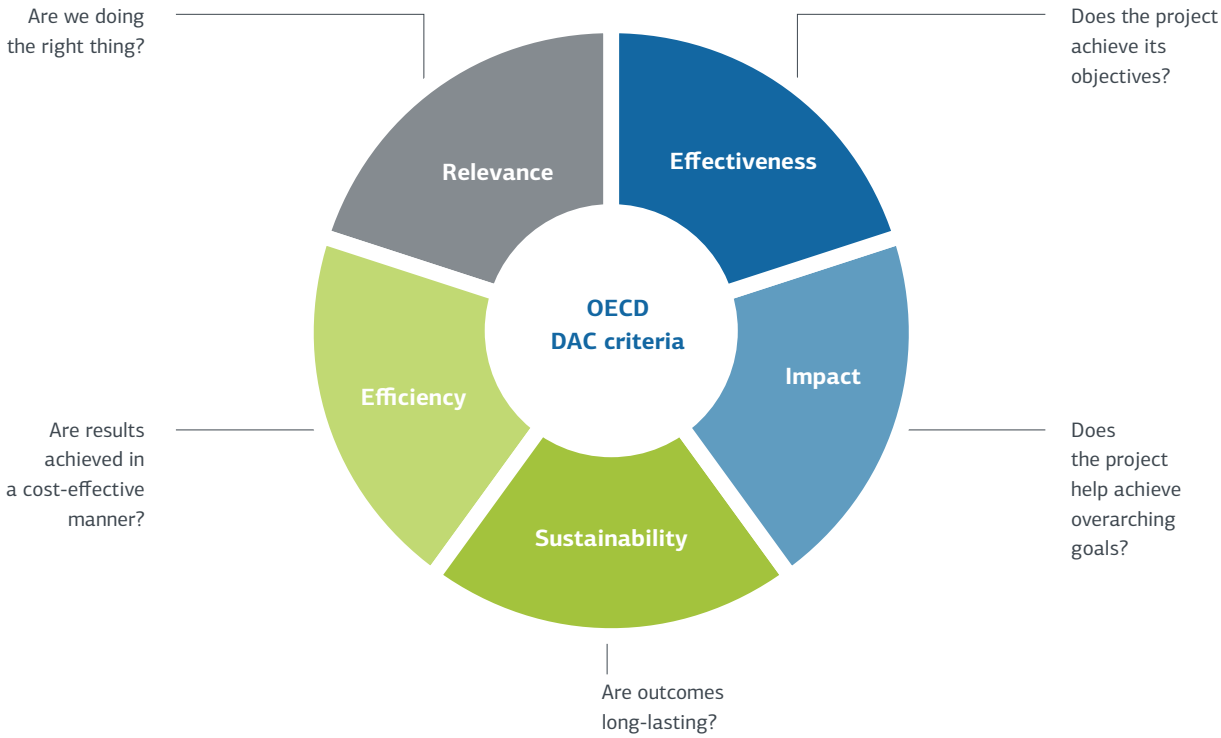
Evaluation: impact assessment and lessons learned

Whether a project is successful or not is determined chiefly by asking the following questions: What has the project achieved for the people in the partner country? Has their situation improved in the long run? Three to five years after a project has been completed, the independent Evaluation Unit of KfW Development Bank conducts an independent evaluation for roughly half of the projects completed to draw lessons learned for future projects and programmes.

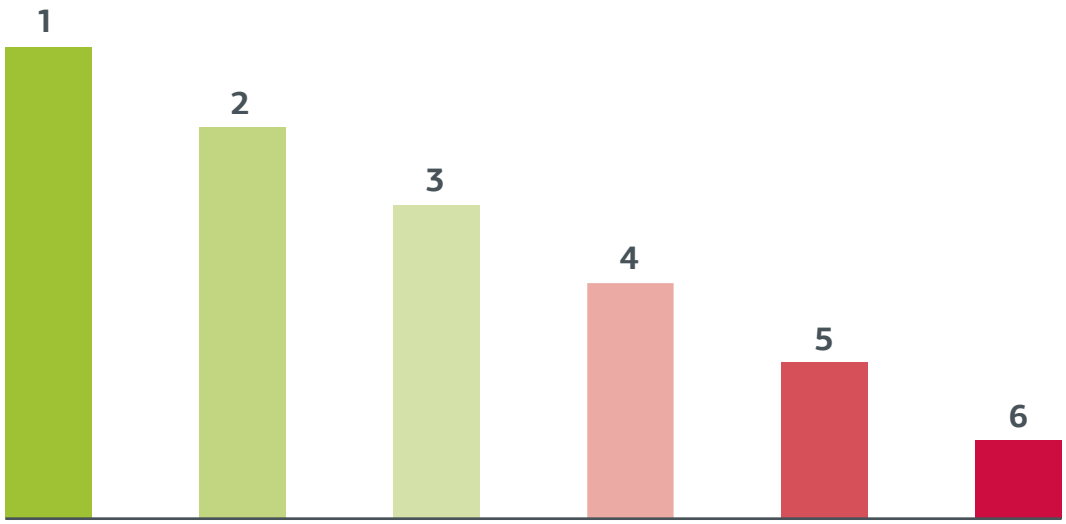


Evaluation criteria

On the basis of data, facts and personal impressions on the ground, independent experts evaluate a project's development results with regard to the five key criteria agreed upon by the international donor community through the OECD Development Assistance Committee (DAC): relevance, effectiveness, efficiency, impact and sustainability.



Rating scale



Successful

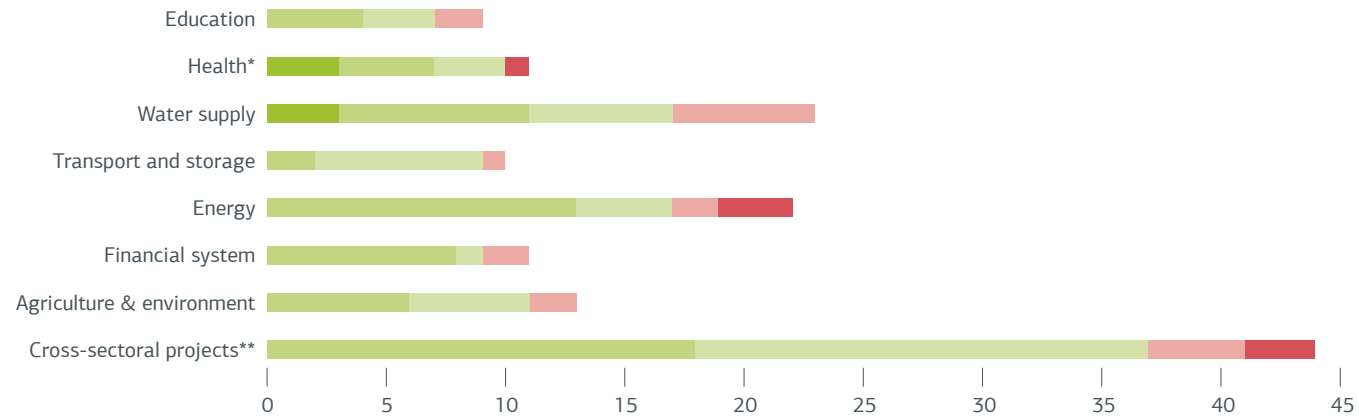
(1) Very good
(2) Good
(3) Satisfactory

Unsuccessful

(4) Unsatisfactory
(5) Clearly inadequate
(6) Highly unsatisfactory

Ex post evaluations 2015/2016: sector results

A total of 157 projects with a funding volume of EUR 1.88 billion were ex post evaluated.



Overall grades: 1 2 3 4 5 6

*Including reproductive health, **Including food aid and budget support

Foreword

Dr Norbert Kloppenburg
Member of KfW Group's Executive Board

Dear Readers

We all know the saying: there is no such thing as bad weather, just the wrong clothes. What does this have to do with the theme of the 14th Evaluation Report entitled "Living in a threatened world – effectively responding to hazards"?

Risks are a part of our lives. Hardly a day goes by that we aren't shocked by news of floods, tornadoes, droughts or earthquakes. And no one is immune to the risk of a serious illness. Illness can trigger a crisis not only for the individual affected but also for family members or, in the case of an epidemic, for an entire region.

In contrast to developing countries, we, as residents of Europe, are far better equipped to cope with these kinds of risks – and are even less exposed to them in some cases. To return to the weather analogy: the weather in Europe is friendlier on average and our clothes are more resistant to bad weather. Development cooperation can and must play a role in ensuring that our partner countries can better protect themselves against crises and disasters. When a disaster occurs, our help in providing relief and assisting in reconstruction efforts is important. But it would be far better if a crisis or disaster could be averted in the first place by taking the right precautions and adapting to the "weather conditions". To this end, there are strategies ranging from vaccination campaigns to flood and cyclone shelters all the way to drought and health insurance. Financial Cooperation is providing support for these kinds of strategies on an increasingly greater scale. The current evaluation report shows how far we have come with these strategies to date.

Following the tradition of former evaluation reports, this report does not gloss over where we in Financial Cooperation can and must perform better: for example, known potential risks should be considered in advance of every FC project; not tomorrow but already today future climate change has to be taken into account, both conceptually and across sectors.

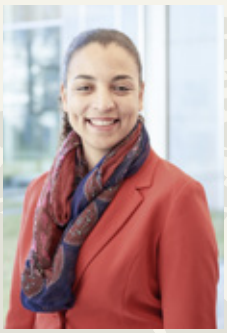
The report, however, also clearly identifies impediments to the elimination of crises and disasters which cannot be overcome by Development Cooperation, especially not on its own. Not only climate change, but also fragility and violent conflicts threaten the lives and livelihoods of millions of people in our partner countries. There are projects that provide refugees with basic services and those that strive to make a contribution to conflict mitigation and stabilisation by improving local living conditions. Even though these measures can send clear signals that changes for the better are possible even in the most difficult conditions – they do not, however, offer a solution for the underlying problems. More than ever before, we depend on the interaction of all forces, whether in the area of international foreign, security and development policy or in the areas of science, economics and civil society involvement. We all live in this threatened world – and only together can we work to counteract these threats.

Norbert Kloppenburg

Contents

Evaluations around the world

From the vocational training centre in Bulgaria to the loan programme in El Salvador: Financial Cooperation (FC) is working with its partners to implement projects on four continents. But how are these initiatives perceived? And how do they change local living conditions? To answer these questions, our independent experts personally take stock of the projects. Six of them report on their impressions on the ground here.



Alero Agboghoroma
Morocco – water supply

The evaluation took us to northern Morocco, a fascinating region with severe water scarcity. The people living in the Midar region that profited from the improved drinking water supply financed by FC highly appreciate the new service. The hard-working executing agency demonstrated its professionalism by continuously monitoring water quality and clearly showed interest in the findings of the evaluation to draw on the lessons learned.

Julia Mohs
El Salvador – loan programme

El Salvador's economy is comprised of many small family-owned businesses. Leather tanneries, bus companies, packaging manufacturers and a chocolate factory have all been able to take advantage of the credit line and finance their investments in environmentally friendly production processes. The project has made it possible, for example, for dairy farms to install mini-treatment plants so that the surface water is no longer contaminated.

Georg Grüner
Mozambique – Port of Quelimane

My visit to Quelimane, a dilapidated colonial town in a remote region, was like travelling back in time. The port was rehabilitated, not on schedule, but in the end was fully functional. It now operates at a profit and is busier than ever. Unfortunately evidence on the ground is mounting that the port is also making it easier to illegally export timber – a fatal side effect. The FC project therefore had to be classified as unsuccessful.

Sebastian Jacobi
Bulgaria – equipment for vocational training centres

What impressed me on site was the high level of commitment exhibited by the directors of the vocational schools. The evaluation also showed me what can go wrong in a vocational training project: it is important to carefully analyse labour market needs in the run-up to a project – otherwise the capacity of the schools is not fully utilised or the graduates do not find suitable work. The evaluation experiences were valuable for my future project planning.

Dr Sven Hartmann
Afghanistan – city grid rehabilitation

A bomb exploded right after I landed in Kabul. Driving through the city in an armoured car – I would have liked to form my impressions not only through a pane of glass. I was impressed at how much impact the power project had under these kinds of conditions. The electricity supply company is an attractive employer and invests in the future of its employees. The people were remarkably positive despite the unstable situation.

Evaluations 2015/2016

- Social Infrastructure - Education
- Social Infrastructure - Health
- Social Infrastructure - Population Policy and Reproductive Health
- Social Infrastructure - Water Supply and Waste Water/Waste Management
- Social Infrastructure - State and Civil Society
- Social Infrastructure - Other Social Infrastructure and Services
- Economic Infrastructure - Transportation
- Economic Infrastructure - Energy Generation and Supply
- Economic Infrastructure Private Sector and Other Services
- Financial Sector
- Production Sector - Industry/ Mining/Construction
- Production Sector - Agriculture/ Forestry/Fisheries
- Cross-Sectoral/Structural Assistance

Charlotte Berkenfeld
Egypt – wind farm in the desert

A wind farm in the middle of the desert – it was astounding that environmentally friendly energy can be generated in such harsh surroundings. However, maintenance of the wind turbines was not ideal because the executing agency's budget was too small to cover financing of the necessary maintenance. This was one of the reasons the generation capacity unfortunately fell well short of original expectations.

»» On evaluation mission

Direct contact
One standard component of each ex post evaluation is dialogue with the target groups, in this case, users of the improved drinking water supply in Benin.

Evaluation in the West Bank and Gaza

A journey along the walls of Palestine

Three donors on a mission in the Palestinian territories: experts from the World Bank, the French development bank Agence Française de Développment (AfD) and KfW Development Bank collaborate to evaluate their contributions to a joint programme to promote decentralisation. The programme handled through the Municipal Development and Lending Fund (MDLF) was designed to strengthen municipal administrations in the West Bank and the Gaza Strip and improve the citizens' satisfaction with the public infrastructure – a complex endeavour in a conflict-ridden environment. Impressions from an evaluation mission.

An insurmountable obstacle, the omnipresent Israeli separation barriers wind across the barren hills of central Palestine. Colourful graffiti and artistic paintings adorn the otherwise grey concrete walls in spots close to Ramallah, the economic and political centre of the West Bank. This is where the ten-day trip of our evaluators begins. Their mission: to evaluate decentralisation projects in the Palestinian territories.

The MDLF Director General in Ramallah warmly welcomes his guests with tea and fine pastries. As an autonomous public Palestinian institution, the MDLF has a special role to play: it strengthens the local Palestinian administrations –

Life in the shadow of the enormous border wall: the British graffiti artist Banksy has created works of art here that send a message of hope.

Development of infrastructure in a difficult environment: a wall around 750 km long separates Israel from the Palestinian territories. This section of the wall divides East and West Jerusalem. The city of Gaza, which is under the control of the Palestinian organization Hamas, is marked by poverty and war. Donkey and horse carts are part of the city's landscape.

regardless of whether they are in the Gaza Strip or the West Bank. Under the scope of the evaluated programme, municipal administrations selected municipal infrastructure projects independently that were then financed through the MDLF.

Driving through the West Bank in an armoured car, past heavily armed soldiers and barred checkpoints. The enormous border wall towers above on either side – it is an oppressive feeling. Israel decides who and what is allowed to pass. The evaluation team is amazed that here, in this fragmented setting, decentralisation projects can be implemented. The international evaluation delegation splits up into different groups to ensure that the insight gained into the reality of the Palestinian municipalities is as multifaceted as possible.

One of our KfW experts first tries to accompany the World Bank mission and obtain the documents necessary for access to the Gaza Strip. But there is no such thing as an exception when it comes to bureaucracy. For the evaluation delegation of the World Bank, the situation is different: thanks to the World Bank's presence in Gaza, its evaluators are allowed to visit the conflict-ridden coastal area. Dirt roads take them to the community of Beni Suheila. Operations are already in high gear here in the one-stop shop financed with MDLF funds. This municipal facility processes around 150 enquiries every day. In two simple steps, citizens can apply for anything from a building permit to a mains connection. The World Bank evaluators are impressed by the efficiency of the local administration. Its service offers a hint of normalcy in a municipality that is visibly marked by war. But unfortunately damage to individual municipal facilities financed with the programme's assistance is observed by the evaluation mission as well. The Hamas-controlled city of Gaza is also plagued by destruction. But the MDLF-funded waste disposal in the municipality works – with the help of donkey carts. Many of these carts can be seen passing through the busy streets and are now a fixed element of the cityscape of the densely populated metropolis.

At the same time, the AfD delegation is en route in the city of Jericho on the western banks of the Jordan River. Here a project is underway for new sidewalks and cycle paths to make non-motorised transport more attractive and safer. A new access road to the city was also built. One thing the evaluators notice is that many communities decide to use MDLF funds to construct roads.

The AfD team then travels to Al Dahrieh, a key trading centre for the region with the largest livestock market in the West Bank. The Israeli border wall frames the limits of the south and west of the city. In this case as well, the municipality decided to use the funds provided through the MDLF to rehabilitate roads: on the one hand, to reduce the chronic

Stations along the evaluation mission in the Palestinian territories

traffic congestion and, on the other hand, to better connect remote districts to the city's main traffic arteries. Meanwhile, a concrete landscape with swings, picnic tables and a small theatre stage is one of the accomplishments presented to the KfW delegation in the mountains of the West Bank. This newly built public park in the municipality of Beita with its 10,000 residents is an almost symbolic reflection of the situation in the Palestinian territories. Water is scarce, Israel controls the regional water resources. Parks in the Palestinian territories are therefore grey, not green. But it becomes obvious: it is not about colour and form here, but about creating a space – as rudimentary as it may be – to make artistic or sport activities possible for the residents of the municipality. The road built with MDLF funds that is visited some time later, however, raises some questions. It is virtually empty and leads directly to an affluent new residential area. It is not clear how the greater good benefits.

Sparsely populated desert landscapes roll past on the way to the next station. Not far from the Dead Sea is the historical city of Al Ubeidiya, which is home to many archaeological sites. Thanks to the MDLF, it was also possible to improve the local road network here and build a security wall for a primary school.

The route to Bethlehem passes Jerusalem, zig-zagging over the Israeli-Palestinian border. The experts wait in the city hall for the mayor who is running late. The reason: she is engaged in discussions to prevent the concrete wall around the city from being closed further. The priorities that shape everyday life in this sensitive context once again become clear.

The one-stop shop financed with MDLF funds handles around 150 enquiries per day – from building permits to mains connections.

The MDLF creates new scope for action for local authorities which is actively used to further develop municipalities.

Not far from Jerusalem's city walls, the day's programme comes to an end. The smell of kebabs, humus and falafel wafts through the air. The experts all feel a great need to talk. They sit together – as they do every evening – and share their impressions about what they have seen. Despite the fact that each group had its own unique experience, the picture they draw is similar: even though they were not convinced by all of the projects they visited, the overriding impression is that the MDLF has given the local administrations new scope for action that is being actively used to further develop the municipalities.

Change of scene: on the way home, all of the evaluators come together for a final meeting in Frankfurt. The findings of the joint mission are once again intensively discussed in synopsis form and preliminary conclusions are drawn. Everyone agrees: the goal of the programme to strengthen all municipalities in the Palestinian territories independently of the respective balance of political power has been accomplished. But the projects implemented by the municipalities lag behind expectations, not only in the 18 municipalities visited (see info box for the evaluation result). All of the participating experts return to their desks with the collectively identified mission findings which they will use as a basis to create the evaluation report in line with the specifications of their respective institutions. Everyone is accompanied by the worry that the accomplishments to date could be at risk if the violent conflict flares up again. The conflict, the wall, the weapons – they are part of the environment for a project that promotes decentralisation in a crisis region.

Children play in Gaza City at the edge of the road.

Many municipalities give priority to road construction.

West Bank and Gaza:
Decentralisation in the Palestinian territories

Barriers of all kind define life in the West Bank and the Gaza Strip. The Israeli government controls access to the Gaza Strip and most of the West Bank. In 2006, Hamas' election victory in the Gaza Strip also led to a political split within the Palestinian territorities. Many international donors took their leave of Gaza, many municipalities faced bankruptcy due to the lack of funding. A way needed to be found to strengthen municipalities in both Palestinian territories – in spite of geographic and political fragmentation.

The conflict-ridden environment created challenges for the evaluators.

The solution came from the MDLF, which was founded in 2005. Working independently of the ministries and thus also of inner-Palestinian quarrels, this fund can administer monies from international donors and channel them to the municipalities. The municipal development programme evaluated here, which was financed by seven donors, provided support through the MDLF for 136 municipalities in the Palestinian territories between 2010 and 2012. The funds were distributed, similar to a fiscal transfer system, in two budgetary cycles based on a key that factored in both the size of the population of a municipality as well as its performance in the administration. Performance was measured using a standardised set of indicators developed in collaboration with the German Technical Cooperation. In addition to financial allocations, the municipalities also received advice.

That it was possible to establish this transfer mechanism based on objective criteria was seen by the evaluators as a success. The programme could potentially support all municipalities in the Palestinian territories while still remaining politically neutral; incentives are also created for improving "governance". Thanks to the programme, another step has been taken in the decentralisation process; but unfortunately, decentralisation does not receive much support from Palestinian policies – a risk for the sustainability of the programme's achievements and their further development.

The assessment of the municipal infrastructure financed through the programme was less positive. As is common in decentralisation projects, each municipality is free to decide which measures to implement. In this case, the selection was not always convincing: for example, around 72 per cent of funds were used for road construction, although the municipalities are also responsible for many other public services. However, it is likely that the preference for roads also had to do with time restrictions and financial limits per budgetary cycle: road construction can happen one section at a time. The mixed impressions of the evaluation mission are reflected in the analysis of data on citizen satisfaction that was carried out by experts of the University of Göttingen on behalf of KfW: it found that citizen satisfaction with public services did not visibly increase, and in some cases, even decreased for individual services. Still, the citizens who benefited directly from the financed infrastructure because of where they live, particularly in relation to the road network, were significantly more satisfied than those citizens who, if they benefited at all, only did so indirectly.

As the programme focused on strengthening institutions and it clearly scored points in governance aspects, the FC project was given an overall grade of "satisfactory".

Result:
"satisfactory" – grade 3

Albania:
Waste water system paving the way to the future

A functioning waste water system eliminates health risks and protects the environment. This was to be achieved by the FC project for waste water disposal and treatment in the Albanian city of Korça. The evaluation attested to exceptionally high rates of success.

View of the FC-financed treatment plant with exemplary operations in Korça.

Korça, a flourishing trading centre during the Ottoman Empire, is situated on a high plateau nestled in the mountain ranges of southeastern Albania. Magnificent boulevards and parks line the city, mosques and churches dot the historical centre – the city's rich cultural heritage from the era of its heyday can still be felt today. But four decades of a Communist dictator and isolation have left their mark. Since the fall of the Albanian regime in 1991, nearly half of the population has emigrated abroad. It is only now that Korça and other cities in Albania are gradually seeing people return. One of the country's biggest challenges was and still is the rehabilitation of the infrastructure, some of which is still dilapidated.

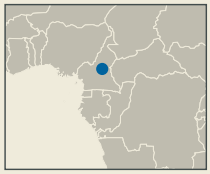
FC started with Korça in 1996, initially in the drinking water sector; in 2003, the waste water problem was tackled: the city's sewage system was more than a hundred years old and leaking. At the outskirts of the city, open channels fed untreated sewage to the surrounding areas – a danger to health, the environment and Korça's drinking water sources. FC financed a new urban network and a closed circular collection system around the city to route the sewage to the new pond treatment plant. The problems are solved: open sewage – a cesspit around the city and also often in the cellars of the city's residents – are things of the past. Some of the treated sewage can now be used for irrigation. The treatment plant does not yet meet all EU standards – Albania has been a candidate country since 2014. But the pond treatment plant is easy to operate, inexpensive and can be upgraded in the future to completely satisfy the EU requirements.

The waste water system is operated and maintained by the Korça municipal utility in an exemplary fashion. Hard facts provide evidence: e.g. proper discharge values of the treatment plant or a connection rate of 95 per cent of households as well as other impressions on the ground. The evaluators discovered, for example, a small solar power system. Representatives of the public utility proudly explained that it was financed with their own funds and it supplies the power needed by the treatment plant – one of the many signs of the executing agency's high level of commitment.

Korça's high water and waste water fees, the highest in the entire country, were cause for concern. But in view of the costs for operation, maintenance and financing, the public utility can only remain efficient if it generates adequate earnings. Despite the high prices, the population is willing to pay for the service in the water sector. The remarkable result: the public utility completely covers its costs; external financial support is only needed for new investments. The long-term impact of the investment in the sewage system is guaranteed.

And that's not all: as the mayor of Korça explained excitedly, the new sewage system created unexpected impetus for urban development. When cellars stopped flooding and the bad odour was eliminated, a sense of optimism spread. Houses were rehabilitated, markets were renovated and hotels, restaurants and businesses began to flourish thanks to growing numbers of tourists. Korça is rediscovering its old grandeur.

Result:
"very good" – grade 1



Cameroon:
Ailing health-care system

Cameroon, an economic ray of hope on the central African horizon, turns in a disappointing performance in the health-care sector. The FC project for the construction of a regional hospital and the rehabilitation of three district hospitals and six medical centres did not produce any noticeable effects: the assessment is "clearly inadequate".

Inadequate waste disposal was one reason for the "unsatisfactory" evaluation.

It is the strongest country economically in a fragile region: Cameroon, in contrast to its neighbours in Central Africa, has experienced quite high economic growth in recent years, not least of all due to its abundant natural resources. But the road to becoming an emerging economy is bumpy. In 2014, more than 35 per cent of Cameroon's population still lived below the national poverty line, with growing poverty and instability in the north of the country. Corruption is widespread. In 2015 Cameroon was ranked 130 of 168 countries in Transparency International's Corruption Perceptions Index.

Despite economic superiority, the health-care system in Cameroon is just as rudimentary as those of its much poorer neighbours. To improve the health-care situation of the population, particularly of mothers and children, health-care facilities were either replaced by new facilities or rehabilitated in three of Cameroon's provinces as part of the FC project.

However, the infrastructure and equipment funded by FC are being underutilised: in several cases, medical equipment has never even been used due to a lack of qualified personnel. The unreliable power supply with significant fluctuations in voltage has damaged or destroyed individual devices. Individual health stations completely lack functioning water supplies because the drilled wells either had no water or the quality of the drinking water was inadequate. There is no foreseeable solution to these problems.

The central question during the evaluation mission was, however: why did even fewer patients than before seek help at the medical facilities after rehabilitation? Observations on the ground provided insight. Often, there were no doctors in sight, the staff in attendance appeared unmotivated and not sufficiently qualified. Tight budgets meant medicine was short at all locations – truly not good conditions for offering patients a trustworthy environment. Hygiene also left much to be desired: in all of the centres visited our expert saw used needles lying around openly on the premises.

But poor service is not the only reason patients have stayed away. The charges for the public health services, which can be very high, and the widespread "unofficial" additional payments discourage particularly poorer patients from going to consult a physician. Richer Cameroonians, on the other hand, are increasingly taking advantage of private, higher quality services. The figures related to the health-care situation speak for themselves: the rate of maternal and infant mortality are only decreasing slowly and are unusually high in view of the economic development. According to data from 2011, there are significant differences between the richest and poorest 20 per cent of the population, both in terms of access to health-care services as well as mortality rates.

Conclusion of the evaluation: the improved infrastructure has not produced any sustained effects due to qualitative, financial and institutional weaknesses in the national health-care system. State support is limited to the assumption of personnel costs. Patient fees alone cannot guarantee that the facilities are operated at a professional level, and the poor will still not be able to afford a trip to the doctor.

Result:
"clearly inadequate" – grade 5

»» Crises, catastrophes and conflicts

Vulnerability and resilience
In 2004, a tsunami devastated vast stretches of coastline in the Philippines. FC projects aim to enhance the resilience of developing countries to withstand these kinds of natural disasters.

Financial Cooperation in a threatened world

Floods are a regular occurrence in Bangladesh. The people still try to cope with their everyday lives and help themselves with the things they have at their disposal.

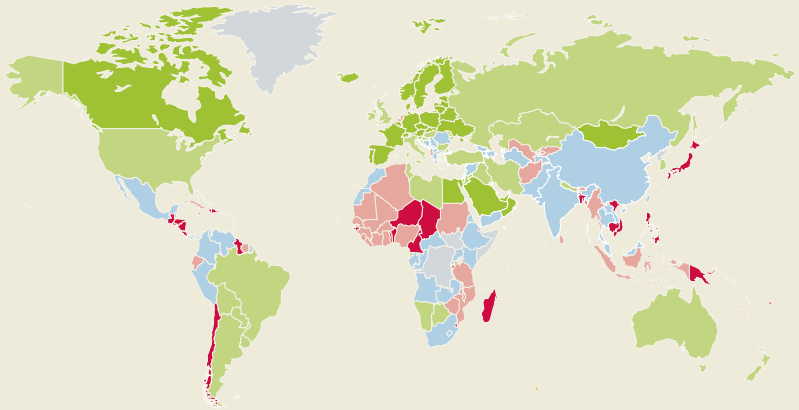
Natural disasters, violent conflicts and epidemics plunge entire regions of the world into crisis – in many FC partner countries, development prospects are being undermined in the long term. The international community is looking for ways to alleviate the negative impacts and prevent crises in the future. Issues such as vulnerability and resilience are shaping the current development policy discourse. But what do these multifaceted terms and ideas mean and to what extent do they affect the work of Financial Cooperation?

From one day to the next, natural disasters completely undo what has been accomplished in the fight against poverty. And climate change gradually, but at the same time drastically exacerbates the problems of hunger and water scarcity in the regions of the world that already suffer most from extreme poverty. The largest Ebola outbreak in history recently wreaked havoc in all of West Africa. Violent conflicts like the one in Syria and Iraq lead to regional instability and trigger massive flows of refugees. The consequences of these events are global and omnipresent. They affect every single one of us. According to the UNHCR, the number of people fleeing war, catastrophes and poverty reached 65 million in 2015, the highest figure since the end of World War II.

A cartography of risks

Development Cooperation (DC) cannot wait until the worst impacts of a crisis have been eliminated with support from humanitarian aid and a DC project can be resumed with the partner countries under more stable conditions. This is because, crisis-like situations occur too often, they are too widespread regionally and often last for a long time. The risk maps below are intended to illustrate this.

We are aware that the informative value of these maps is limited. Socioeconomic factors are incorporated in all risk indices illustrated in the maps, which is why the possibility that individual country characteristics have a double weighting cannot be ruled out. Inadequate institutional capacity or poverty negatively affect the fragility index, but also increase the risk that a cyclone will turn into a humanitarian

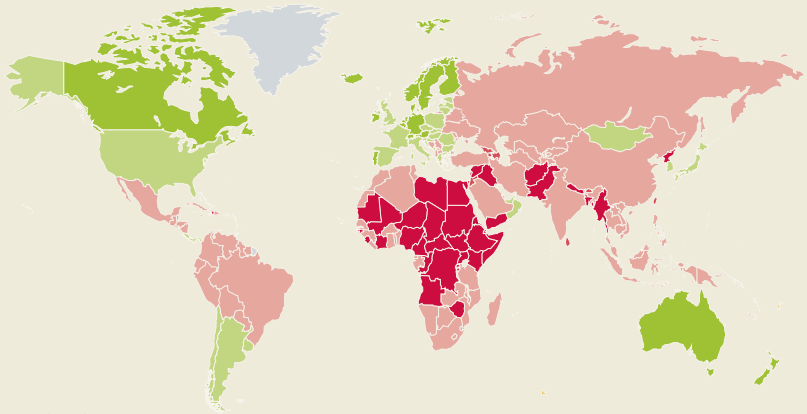


Risk level

very high | high | medium | low | very low | not specified

3.1. World Risk Index

Map 1 depicts the World Risk Index (WRI) 2016 which has been published by the Alliance “Development Works” and the United Nations University every year since 2011. In addition to a country's risk due to earthquakes, cyclones, floods, droughts and the potential rise in sea levels, the WRI also accounts for a society's general socioeconomic conditions when determining the disaster risk.[1]

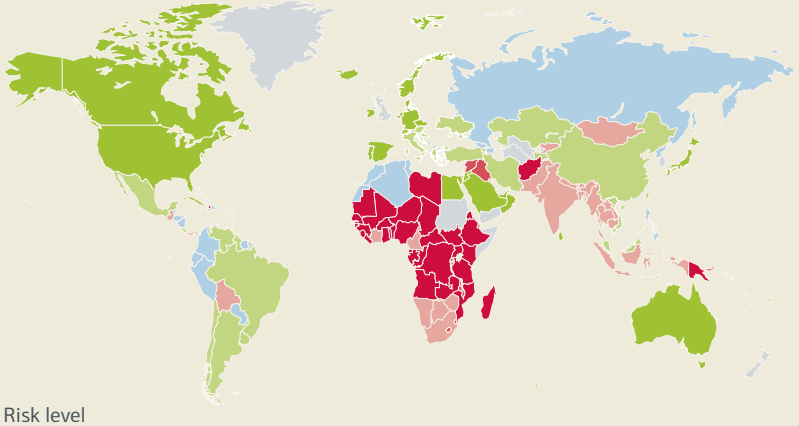


Risk level

alarming | warning level | stable | stable in the long term | not specified

3.2. Fragile States Index

Map 2 illustrates the "Fragile States Index" which is calculated annually by the US think-tank "Fund for Peace". It combines social, economic, political and military indicators to form an aggregated index. Here it is intended to illustrate the risk of violent conflicts.



Risk level

very high | high | medium | low | very low | not specified

3.3. Health risk index

As no well-known index exists, we have compiled our own index for map 3 from World Health Organization (WHO) data intending to illustrate the risk of epidemics. It is based on country-specific WHO data for immunisation rates, the prevalence of access to clean drinking water and modern sanitary facilities and capacities in the healthcare sector.

[1] The first four natural hazards mentioned were responsible for the most victims and damage caused by natural disasters worldwide. Because volcanic eruptions are not included in these four most dangerous categories, they have not been taken into account even though they can pose a high risk regionally.

catastrophe. The earthquake in Nepal in 2015 powerfully demonstrates that the concept of "average" risks has its limits. Despite its above-average earthquake risk, according to the World Risk Index Nepal does not face extreme threats because it is either not exposed to the other natural hazards included in the index or is only exposed to a lesser extent. The earthquake in the spring of 2015 which killed around 9,000 people, wounded 17,000 and displaced roughly 2.8 million was without a doubt a devastating catastrophe – in statistical terms, the worst catastrophe in Nepal in more than 80 years, but therefore a "rare event" at the same time. Despite these limitations, from our perspective, these maps are suitable for illustrating the relevance of crises for FC.

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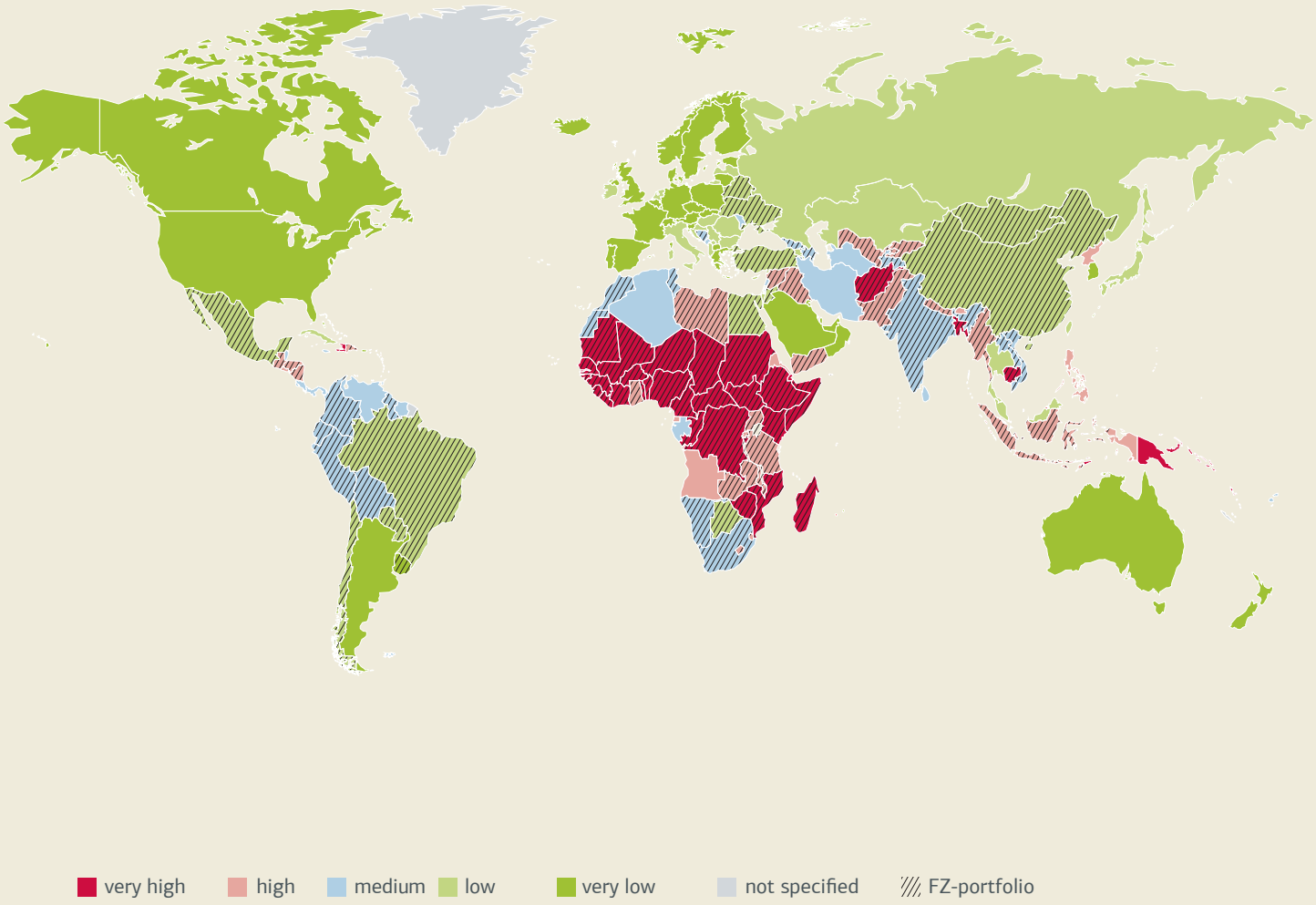
Our conclusion Crises triggered by natural disasters, epidemics, violent conflicts or even a combination of events of this kind are highly relevant to the work of FC. FC must help partner countries identify threats of crises at an early stage, manage crises, safeguard development progress and equip these countries to handle the threats of the future.

3.4. Combined risk (WRI, FSI and health risk index)

The large map below superimposes the three smaller maps on top of one another. What is striking: even more prominently than in the three smaller maps, the world is divided into large red (high risk), blue (medium risk) and green zones (low risk). The country borders fade behind the cartography of the global risks. The risks overlap in many regions. They are concentrated geographically, particularly in Africa and South and Southeast Asia.

Those countries in which KfW Development Bank is active under the scope of Financial Cooperation (FC) are shaded. A great number of FC partner countries appear in red.



[2] All three indices were weighted equally when blended. Individual values were combined by adding the equally weighted characteristics (ranking in the index) and then dividing by the number of existing characteristics (without zero values). Ranking 1 is assigned to the highest risk for all indices. To assign the colours (=risk category), the ranking list is then broken down into five quantiles so that one risk category or colour is assigned to one fifth of the countries.

Focus of FC: human suffering in disasters

The tsunami triggered by the mega-earthquake in the Indian Ocean in December 2004 brought immense human suffering to the countries affected. Around 220,000 people lost their lives; far more lost their livelihoods. Despite the enormous destructive power of the huge wave, the damage claims reported by reinsurers specialising in insurance for natural disasters hardly increased noticeably at all. Most of the coastal residents affected were poor and what little they had was not insured.

Disasters from the insurance perspective: material damage prioritised

There is no direct correlation between material damage and the magnitude of humanitarian disasters[3] – as is shown by figure below based on data concerning the impact of natural disasters collected by the Swiss reinsurer Swiss Re.
The earthquake and the resulting tsunami in Japan in 2011 is considered the most expensive natural disaster in history with USD 210 billion in economic losses[4]; USD 40 billion of this total was insured. The number of dead and missing in Japan is reported to be 19,000. 2010, the year of the devastating earthquake in Haiti, claimed the most lives, with fatalities of the Haitian earthquake alone estimated at more than 220,000 while economic losses were no more than USD 7.8 billion.[5]
What applies for natural disasters also applies to the impacts of health risks or violent conflicts. Material damage and human suffering are two dimensions that are only related to one another to a limited extent. Although material damage in developing countries is relatively low, the human suffering is at least as great, if not greater, than in richer countries. As formal social insurance systems are often lacking and the poor are also generally not insured, the death of the primary earner - and sometimes even the mere loss of some material basics as a hut or tools - can threaten the existence of an entire family. Most families in developing countries, whether the main breadwinner is a coconut farmer, fisherman or kiosk owner, do not have social networks or enough savings to create a new basis for subsistence on their own – and especially not if their neighbours, friends and relatives have also been equally affected. A strong typhoon, a prolonged drought or war can be so destructive that it eliminates all prospects for the entire local community and the only viable option appears to be for people to leave their homes.

How can human suffering be eased?

This human suffering, which is impossible to measure, but can perhaps be alleviated, is the main focus of DC work in times of crises. This is why the maps shown on pages 20 and 21, despite their limitations, are a much better introduction to the issue of a crisis-ridden world than an insurance company's map showing material damage could ever be. The knowledge of how human and social impacts of crises and disasters can be appropriately estimated, mitigated or – in the best case – prevented in the first place, is still limited in many areas. This makes it even more important to fill in these knowledge gaps.

[3] Data from Swiss Re at http://www.sigma-explorer.com. The fatalities recorded in the graph do not include deaths that occur months or even years after a catastrophe even if these are a direct or indirect result of a natural disaster, such as a famine or leaking radioactive substances.
[4] Information from the reinsurer Munich Re. The consequential damages from the nuclear accident in Fukushima are not included in the total losses. See: https://www.munichre.com/de/media-relations/publications/press-releases/2011/2011-07-12-press-release/index.html
[5] See Cavallo, E., Powell, A., Beccera, O. (2010): Estimating the Direct Economic Damage of the Earthquake in Haiti, IDB Working Paper Series, Number 163.

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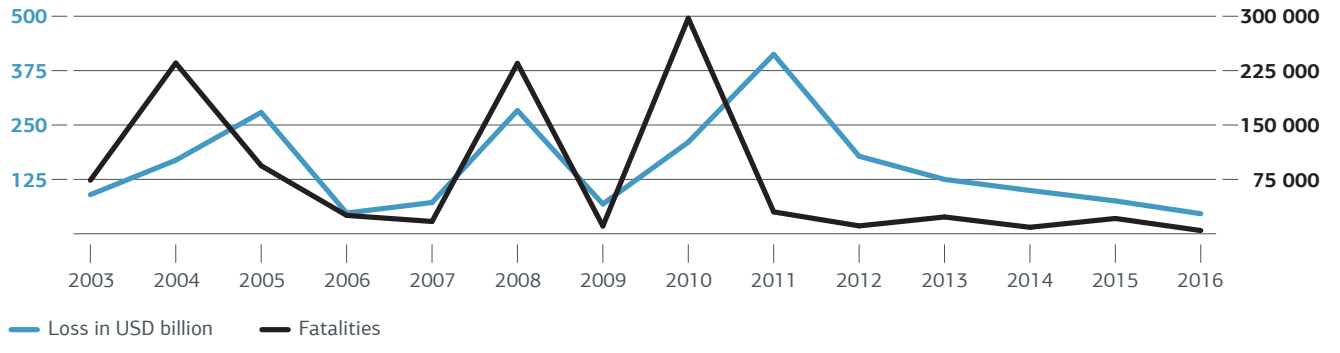
Our conclusion The core challenges for FC work are the humanitarian and social impacts of crises and disasters and the question of how these adverse effects can be prevented in the first place.

3.5. Disaster-related deaths and material damage



Be it droughts or floods in Bangladesh – one impact of climate change is the increasing number of extreme weather phenomena. People in developing countries in particular are often at the mercy of the consequences.

Exposure and vulnerability: two components of risk

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Vulnerability in this context can be defined as the diminished capacity of an individual or group (added: or region or country) to anticipate, cope with, resist and recover from the impact of a natural or man-made hazard. Vulnerability is most often associated with poverty, but it can also arise when people are isolated, insecure and defenceless in the face of risk, shock or stress. (Source: International Federation of Red Cross and Red Crescent Societies – IFRC; http://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster/what-is-vulnerability/).

Resilience is the ability of people and institutions – be they individuals, households, communities or nations – to deal with acute shocks or chronic burdens (stress) caused by fragility, crises, violent conflicts and extreme natural events, adapting and recovering quickly without jeopardising their medium- and long-term future. (Source: Federal Ministry for Economic Cooperation and Development; http://www.bmz.de/en/issues/transitional-development-assistance/index.html?follow=adword).

The classifications on world maps 3.1.-3.4. on pages 20 and 21 provide an introduction to the issue of a world threatened by crises. But beyond the geographic information, are there perhaps also reference points that help to focus the FC portfolio's content? Some initial answers are provided by considering two pairs of countries that are exposed to similar natural hazards.

Country comparison: Japan versus the Philippines and the Netherlands versus Bangladesh

Every year, the Philippines experiences as many as 20 severe typhoons. Its location in the Pacific Ring of Fire – a 40,000 km-long volcanic arc fringing the Pacific Ocean – means that it is also at risk of earthquakes. Earthquakes are also a major risk in Japan, accompanied by an increased risk of tsunamis and flooding. According to the World Risk Index, Japan and the Philippines have a similarly high level of exposure to natural hazards (Japan ranked 4, Philippines ranked 3 of 171 countries).

Rising sea levels are also one of the many impacts of global climate change. This threatens huge areas of land and habitats along the coasts. Particularly hard hit are countries that have long and low-lying coasts such as the highly industrialised country of the Netherlands and the developing country of Bangladesh. Both countries potentially face a similarly severe threat of rising sea levels (Netherlands ranked 12, Bangladesh ranked 10 in exposure to natural hazards).

But the two country comparisons of Japan versus the Philippines and the Netherlands versus Bangladesh show: geographical characteristics are not the only decisive factor. The social and economic conditions also play an important role in the World Risk Index country classifications because they determine a country's ability to deal with natural hazards and the shocks they trigger. The maps below show to what extent the vulnerability of a country and its society depends on factors such as existing infrastructure, food and living conditions, governance and institutional capacity when an extreme event occurs.

Japan and the Netherlands are shown in green because they are much more resilient to shocks caused by natural hazards or – in other words – they are less vulnerable than the Philippines or Bangladesh. With respect to socioeconomic conditions, the Philippines lags far behind Japan: around one quarter of the population lives below the national poverty line, one third of children under the age of five are malnourished, parts of the infrastructure in the country are dilapidated and corruption and nepotism scare off foreign investors. Bangladesh is even more vulnerable: around one third of the population lives below the national

3.6. Japan and the Philippines – exposure

3.7. Japan and the Philippines – vulnerability

very high | high | medium | low | very low

poverty line in the densely populated Asian coastal country, the percentage of malnourished people is one of the highest in the world and its institutions are weak. This is clearly reflected in the respective country rankings for vulnerability: in the World Risk Index, which takes into account two risk components, exposure and vulnerability, Japan and the Netherlands are ranked more favourably than the Philippines and Bangladesh.

High vulnerability exacerbates different threat scenarios

High vulnerability or a lack of resilience not only intensifies the humanitarian threat as a result of natural hazards, at the same time it also exacerbates the risks of communicable disease or the outbreak of violent conflicts. But there is cause for hope because resilience can be strengthened. The Netherlands has shown the world how the risk of a location below sea level can largely be averted, at least for the next few years. If there is a vaccine, vaccinating the entire population drastically reduces the risk of infections. There is general consensus in conflict research that social inequality – i.e. the unequal distribution of material or immaterial resources – destabilises societies and can trigger and intensify conflicts. This is why, the "Fragile States Index" for measuring fragility relies not only on social and political factors, but also on economic factors like poverty and inequality – and these factors can be specifically combated.

Accordingly, Development Cooperation is not helpless when faced with the vulnerability of its partner countries. Evaluation results can provide insights into which measures for increasing resilience are most effective.

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Our conclusion The capacity for dealing with threats and extreme events is crucial to reduce susceptibility to crises, i.e. vulnerability. Vulnerability largely depends on the institutional and socioeconomic environment. FC can provide targeted support for strengthening institutions and improving socioeconomic conditions and thus make a contribution to lowering vulnerability and increasing the resilience of partner countries. FC support can therefore help to safeguard development achievements and reduce the need for emergency aid as well as any other costs associated with the crises.

3.8. Netherlands und Bangladesh – exposure

3.9. Netherlands und Bangladesh – vulnerability

very high | high | medium | low | very low

4.0. Country comparison: Japan versus the Philippines and the Netherlands versus Bangladesh

	Exposition	Vulnerabilität	Weltrisikoindex
Japan	4	157	17
Philippinen	3	45	3
Niederlande	12	161	49
Bangladesch	10	39	5

Source: own compilation using the data from the World Risk Report 2016

Impact in times of crisis

What approaches can FC use to tackle the challenges in times of crisis? What concrete measures can be taken to strengthen resilience in the partner countries? One FC focus area is still crisis management; evaluations attest to many success stories in this area. For a world in transition, however, what is needed are approaches that take effect at an earlier stage, in the area of prevention or adaptation, or even support deeper, transformative change processes. FC is increasingly active and, in part, increasingly innovative in promoting prevention and adaptation, but farther reaching, cross-sectoral approaches are required.

FC was originally an instrument of Development Cooperation designed to support structural reforms under largely stable conditions; in the meantime, more and more FC projects aim to alleviate and eliminate the impacts of crises. The new instrument of transitional development assistance created by the Federal Ministry for Economic Cooperation and Development (BMZ) in 2013 officially incorporates this factor: "The development process in highly complex crisis situations is not generally linear. Depending on the initial context, transitional development assistance - as a specific area of German development cooperation with its own sources of funding - can be provided parallel to or after humanitarian aid interventions, or during the transition to longer-term development cooperation. Transitional development assistance creates a dynamic link between humanitarian aid and long-term development cooperation (...). As such, it lays the first viable foundations for the transition to a sustainable form of development" (BMZ Strategy Paper 6/2013, p. 5).

Yemen is severely affected by crises. For more than 50 years it has been a FC partner country.

In the rural regions of Africa, wells and spring intakes supply people with clean drinking water.

Crisis management: merely treating symptoms?

Even before the BMZ strategy paper on transitional development assistance was approved, FC was deployed in many crises, meaning that initial evaluation results are available. Projects of this kind generally aim to make a contribution to stabilisation by restoring destroyed infrastructure – as was the case after the earthquake in El Salvador in 2001. Here, FC supported reconstruction and helped strengthen the executing agency, a social investment fund, and the communities with the involvement of the local population.

Four years later in 2005, the country was once again devastated by a hurricane and a volcanic eruption. The communities affected gradually returned to normal, mainly due to the effective executing agency. Rural road construction and rehabilitation, schools, water supply systems and rural electrification were successfully implemented (overall grade assigned by ex post evaluation: 2). A very effective social investment fund in Yemen had a similarly positive impact on a FC project in the crisis affected country. According to the 2016 evaluation the FC project was successful because the fund's institutional structure allowed work to continue in all Yemeni regions despite the violent conflict.

Conflict-sensitive process essential

Not only these evaluation results show: FC has proven largely adept at fulfilling its new function in crisis management, there have hardly been any serious failures in projects that focus on reconstruction and emergency aid. On the contrary, evaluations confirm that FC follows conflict-sensitive procedures. They not only take into account the victims directly affected by a disaster, but also those indirectly affected, in the case of refugees, for example, the host communities. As the following evaluation example shows, this was the standard procedure adopted many years before the current FC refugees projects. The Jaffna district in northern Sri Lanka was seriously affected by a decades-long civil war (1983 – 2009). The project to support reconstruction carried out between 2002 and 2005 and evaluated in 2013 included both displaced individuals as well as local residents. On the one hand, refugees living in camps or with relatives received material to reconstruct their houses. On the other hand, the reconstruction of schools and a hospital was financed at the same time which benefits all of the families living there. In addition, the families that received individual funding were selected with the involvement of the local population to identify the neediest families by consensus. Projects to reintegrate ex-combatants in Burundi and Rwanda also progressed in a similarly exemplary fashion and thus made a contribution to stabilising peace in a region previously marked by civil war and genocide.

In some cases, FC support could take effect more quickly. Delays are criticised, for example, in the evaluation report of a drought emergency aid programme in Bolivia (2010): "The implementation of the measures was, however, delayed by more than a year. Presumably then, the programme did not contribute to the rapid repair of damage due to the emergency and/or the speedy implementation of reconstruction measures". Also a recently evaluated project to restore the water supply in Iraq shows that the reconstruction assistance can come too late, not least as a result of the renewed outbreak of violent conflicts. Events of this kind can be the reason for the withdrawal of FC, as was the case for a project evaluated in Afghanistan in 2016. Support had to be shifted from the particularly unstable province of Badghis to the less troubled province of Herat.

But this criticism, which in part only demonstrates the limitations of FC in violent conflicts, does not dispute that FC projects can make a valuable contribution in the context of crises and catastrophes. How this might look in an ideal case

Heavy damage to buildings in Nepal after earthquakes in April and May 2015.

Provisional water supply in Yemen

FC-financed hospital in Indonesia

Labour-intensive reconstruction as a traditional and visible FC response can make a valuable contribution to crisis management.

is concisely summarised by a 2005 evaluation of the emergency earthquake assistance in Bolivia: "With the project the Bolivian government succeeded in a relatively fast manner to rehabilitate the irrigation infrastructure in the region affected by the earthquake and, thus, to send a clear signal that it is actively trying to reestablish the economic basis of livelihood of the population affected by the earthquake. In this way, it made an important contribution to reducing the economic and psychological pressure for permanent migration in the programme area." The project was rated “very good”.

In this respect, the many new, not yet evaluated projects, such as the earthquake assistance for Nepal or projects to support Syrian refugees, have good odds of alleviating the impacts of crises – also because it is possible to rely on proven concepts such as labour-intensive reconstruction, cooperation with local institutions and non-governmental organisations and a conflict-sensitive procedure and design.

Assess risks – prevent disasters

Despite all of the success that FC projects may have achieved in reconstruction – these kinds of approaches are not really satisfactory. The following quote illustrates why: "...one of the most significant lessons of the last few decades has been that simply rebuilding communities to pre-disaster standards will recreate the vulnerabilities that existed earlier and expose them to continuing devastation from future disasters (...) reconstruction is an opportunity to build back better. (...) including efforts to reduce disaster risk factors." (UN World Conference on Disaster Risk Reduction 2015, Issue Brief). Pure crisis management can only eliminate destruction as a symptom of the crisis, but not the causes of the crisis. The concept of "building back better" goes one step further in the right direction to reduce the susceptibility to crises. This concept was developed at an international level as part of reconstruction projects in the aftermath of the 2004 tsunami and has also been followed by FC ever since. It incorporates elements of risk provisioning into crisis management.

Reconstruction, but better than before, means, for example, that the new houses are earthquake-proof or built in locations where they cannot be reached by the surge of a huge wave. But this concept cannot always be successfully put into practice. One example: the population affected did not think the new tsunami-proof houses in an FC project in Indonesia were better. The residence might be protected from the next enormous wave far from the beach, but for a fishing family, proximity to the ocean is essential to survival – despite the danger of a tsunami. The finding, however, that mere reconstruction does nothing to prevent future disasters is so elementary that it is a reason for much farther-reaching consequences than just better reconstruction. Concepts need to be rethought: crises don't just need to be managed, they also need to be avoided through prevention and adaptation. Of course there will always be crises that occur unexpectedly and threats that cannot be averted ahead of time. In these cases, pure crisis management will continue to be the priority. But the world maps on pages 20 and 21 show that we know about many threats the FC partner countries are exposed to. Nevertheless this knowledge – as is demonstrated by the famine on the Horn of Africa (see box) – is still not always put into practice appropriately in concepts. In this respect, "Strengthening Resilience – Shaping Transition", a concept in line with the subhead of the BMZ's strategy on transitional development assistance, must be fostered. Wherever possible – FC should mitigate risks in advance instead of cushioning impacts of the disaster after it occured.

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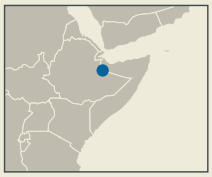
Our conclusion Prevention and adaptation are required to strengthen the resilience of the partner countries.



Famine on the Horn of Africa:
The costs of a preventable catastrophe

Extreme and prolonged droughts destroy the harvests on the Horn of Africa.

Unusually prolonged dry periods made worse by the climate phenomenon "El Niño", insufficient productivity in the agricultural sector combined with a rapid increase in food prices, fragility and land rights conflicts – the drought on the Horn of Africa and the famine that followed already loomed before the crisis year 2011. But despite many warning signs, the international community initially did not respond at all – and ultimately responded much too late. The commitments for humanitarian aid came only after the United Nations had declared the famine. According to estimates, 80 per cent of humanitarian aid is channeled to ongoing crises like the food crisis on the Horn of Africa which has already become chronic. Less than 4 per cent of humanitarian emergency assistance and less than 1 per cent of development assistance is spent ex ante for disaster protection and risk mitigation.[1]

Instead of merely "managing" disasters, FC must also identify risks early on and strengthen prevention.[2] Anticipation is fundamental to achieving this. Timely interventions create big advantages in efficiency. If first signs appear that a serious event like a famine is very likely to occur, the per capita costs of intervention to counteract this event are still relatively low. The reason is that the impacts of the crisis have not yet become too drastic and the local costs for food at this early point in time have not yet been jacked up by demand that far exceeds supply. Estimates assume that for every euro invested ex ante in prevention, four to seven times as much is saved in costs later on. FC food emergency aid in Ethiopia and Djibouti, financed from the "Special Drought Initiative" of the German Federal Government and used for ongoing operations of the World Food Programme, were rated "satisfactory" and "good" respectively in the evaluation[3]. However, these positive ratings should not lead to wrong conclusions: It would have been even better if early, preventative assistance, had cushioned human suffering, and this would have been much more cost effective as well.[4]

The conclusion: droughts are a natural phenomenon, but whether a major famine of catastrophic proportions occurs is a political problem. According to the World Development Report 2014, risk management in particular can be a strong instrument for development. Which is why anticipatory decisions are needed – that have to be made when it is still uncertain whether the damage event will occur instead of waiting until disaster is certain.

[1] See Global Facility for Disaster Reduction and Recovery (GFDRR) (2016): Disasters, Conflict and Fragility: A Joint Agenda, GFDRR Consultative Group Discussion Paper, 2016

[2] See Clarke, D. J.; Dercon, p. (2016): Dull Disasters? How planning ahead will make a difference. Oxford University Press.

[3] The grade "good" was awarded because individual, resilience-strengthening elements were integrated in addition to food aid.

[4] See Dempsey, B., Hillier, D. (2012): "A dangerous delay: the cost of late response to early warnings in the 2011 drought in the Horn of Africa", Oxfam / Save the Children Policy Paper, 2012.

Polio vaccination campaigns, like the one here in Nigeria, are co-financed with FC funds. The polio virus is close to being eradicated worldwide. Only in Afghanistan, Pakistan and Nigeria do people still fall ill with the naturally occurring virus. At the end of the 1980s, the disease was still widespread in more than 100 countries around the world.

Support for resilience through prevention and adaptation

The idea of prevention is not new in FC. For many decades, approaches have existed that primarily aim to prevent risks.

Prevention is an established approach in health care – both in industrialised countries and in development cooperation. FC support for vaccination campaigns falls into this category, e.g. the contributions in India and Nigeria to eradicate the polio virus or the contributions evaluated in 2016 to the international GAVI Alliance that aims to support national vaccination and immunisation programmes. Furthermore, there are dozens of FC projects that use a social marketing approach to support private sales of subsidised condoms and make a contribution to preventing HIV/AIDS. The vast majority of these projects was classified as satisfactory or better when being ex post evaluated. The main shortcomings in "vertical approaches" that systematically target preventing the outbreak of specific diseases were reported in their integration in national healthcare systems. As early as 2010, the evaluation report on the Indian polio vaccination programme highlights: "Despite the need to provide services efficiently, early integration of the vertical programme structure into the healthcare system makes sense." Strengthening national healthcare systems not only facilitates the integration of targeted efforts to combat individual diseases, it also serves as a precautionary measure against previously unknown or underestimated risks and thus prevention of health risks like the Ebola crisis. This was also the reason that the decision was taken to step up efforts to strengthen national healthcare systems at the G7 Summit in 2015 under the German presidency.

Promising approaches for targeted crisis prevention

In recent years, FC has focused increasingly on approaches intended to protect nature, the environment and the climate with the aim of preventing the risks arising from the destruction of the natural world, environmental degradation and climate change. This category includes measures to control erosion or protect forests for carbon storage as well as approaches to encourage the spread of renewable energy sources or investment in energy efficiency. According to evidence compiled in numerous evaluations, many projects in these areas have achieved satisfactory results or even better. They include true flagship projects, including a wind farm in Morocco evaluated in 2016, which was one of the first projects for renewable energy production in the country. But also forest protection measures, e.g. in Brazil or to support nature parks in Africa, were able to plausibly make a positive contribution in their limited sphere of influence. Of course there is considerable potential for improvement in many areas. To name just a few examples: projects to foster the spread of the sustainable use of forests rarely made it past the pilot stage – very seldomly were the newly introduced practices of forest use continued or emulated to date. To embed this kind of fundamental behaviour change in the population's way of life, longer term support is necessary. Furthermore, it is difficult to maintain

Wind farm in Egypt: the country offers ideal natural conditions for the production of wind energy.

competitiveness with alternative, less sustainable forms of use without appropriate sanctions for (illegal) deforestation. Protection against soil erosion must be adapted to climate conditions: reforestation is not efficient in some regions; encouraging natural growth offers comparable impacts at significantly lower costs. Investments in energy efficiency and renewable energy production are slow to catch on in the partner countries if the respective structures, e.g. for engineering support, are lacking and subsidised prices for conventional energy sources set the wrong incentives. In this kind of environment, particularly those approaches that rely on the financial sector as an engine for effective broad-based changes in households and companies show only moderate success.

Finally, there are also some projects in the area of good governance that help strengthen democracy and government administrative structures and thus aim to counteract fragility. In fact, there is a very heterogeneous pool of already evaluated projects and programmes covered by this category. It spans projects to support decentralisation through to promotional funding for low-cost housing construction, also as part of reconstruction after earthquakes, all the way to slum upgrading. Approaches that specifically target fragility prevention have been rare to date.

Finally, in terms of prevention, the large number of FC projects that make an indirect contribution here may not be forgotten. The vast majority of all FC projects in recent decades aimed to fight poverty and improve living conditions for the poor, be it in the water and waste water sector, or in the healthcare, education or financial sectors. Poverty, unequal resource distribution and income, inadequate access to clean water or weak institutions, including in public services – all these factors increase the risk in the calculation of the World Risk Index, the Fragility Index and the index of health risks.

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Our conclusion Promising approaches for targeted crisis prevention are prevalent in FC even though potential for improvement exists in many areas. In addition, most FC measures have an indirect preventative impact because fighting poverty and improving living conditions enhances the resilience of the partner countries to crises, regardless of which area the crises could potentially originate from.

Natural hazards cannot be averted, but their impact on people can be reduced.

Adaptation to and mitigation of unavoidable risks

In contrast to prevention, adaptation is a relatively new theme in FC. It gained prominence in the context of climate change, but adaptation measures can be found in principle in other areas of risk. In the past, it has been subsumed under the concept of prevention because a distinction between prevention and adaptation only became common in relation to climate change. While prevention aims to avoid or mitigate risks, adaptation measures strive to ease the impact of unavoidable risks by changing behaviour, habits or surroundings.

Natural hazards are risks that cannot be avoided unless people change where they live. But the impacts of floods, earthquakes or droughts can likely be reduced. Nowadays the evaluations found almost no FC project involving the construction of schools, hospitals or residences to have shortcomings in earthquake-proof design. It has now become standard procedure to adapt to the risk of earthquakes. The construction of schools that simultaneously function as cyclone or flood shelters was an adaptation concept promoted by FC already at the beginning of the 1990s in Bangladesh and later on in India that was considered innovative and successful at the time. As prosperity increases – according to the result of the last evaluation of this kind of project – the dual use of these buildings decreases because the atmosphere is less child-friendly and conducive to learning than in conventional schools. Early warning systems, such as the tsunami warning buoys financed under a reconstruction programme in Indonesia, can also be interpreted as measures to adapt to living with natural hazards just as the risk maps which were also financed this way.

What is remarkable is that experience was gained in the area of flood protection already in the early 1990s in test programmes in Bangladesh with support from FC. On the one hand, large polders based on the Dutch model were created and, on the other hand, flood protection embankments were built on the Jamuna River. The results of the evaluations were not entirely positive (evaluation of the polder test programme 2004, grade 2; evaluation of the erosion control / embankment test programme on the Jamuna River 2008, grade 4) because, among other things, the flood protection embankments were extremely expensive and can therefore not be built on a large scale. These projects are still noteworthy because very similar types of measures are experiencing a revival under the umbrella of "climate change adaptation". The pilot studies - accompanied and monitored by the Financial Cooperation Evaluation Unit - in Barisal, Bangladesh and San Salvador, El Salvador, show how committed and innovative the FC's search for viable approaches is: investment programmes for climate change adaptation were developed for these two cities based on the "Economics of Climate Adaptation" method in 2015 (see on page 35). Implementation got under way in 2016. The economic perspective that the ECA methodology introduces gives reason to expect that - in contrast to the embankment programmes in the 1990s - a focus on economically inefficient measures shall be prevented.

New ideas in the insurance sector

In the insurance sector, FC is also pursuing new ways to help partner countries adapt to unavoidable risks and make it easier to live with them. Drought insurance in Africa is not only supported for individual small-scale farmers, but even across countries. The African Risk Capacity Insurance Company Ltd. (ARC Ltd.), funded by FC and the British Department for International Development (DFID), is this kind of innovative initiative. Governments can conclude insurance policies to improve their capacity to provide direct assistance to the affected population through insurance payments if the insured extreme weather event occurs. As a result of a drought in 2014/2015, ARC Ltd. paid USD 26.3 million to the insured countries of Senegal, Mauritania and Niger in January 2015. Unfortunately the next impending claim in Malawi initially entailed discrepancies between the ARC risk assessment model and the observations on the ground. The model identified far fewer people affected by the drought than indicated by international estimates. The cause has been found in the meantime: the type of maize defined in the model is different than the one farmed extensively there the previous season. Payout to Malawi is now ensured; customer trust, which is particularly valuable for insurance, was not lost.[6] Even though these developments are promising: the pool of countries that can afford and want this type of insurance is still small. Further support, e.g. in the form of subsidies for premiums or additional risk capital, are presumably necessary for quite some time until these kinds of systems become self-sustaining.

Despite the continued existence of challenges: InsuResilience, a G7 initiative mainly set in motion by the German government in 2015, shows which potential is seen in insurance as a mechanism for strengthening resilience – to cushion the effects of climate change, the core area of InsuResilience,

[6] See The Economist: "ARC's covenant", 27 August 2016: http://www.economist.com/news/finance-and-economics/21705856-worthy-insurance-scheme-goes-awry-arcs-covenant and press release ARC, 14 November 2016, "Malawi to receive USD 8M insurance payout to support drought-affected families": http://www.africanriskcapacity.org/2016/11/14/press-release-malawi-to-receive-usd-8m-insurance-payout-to-support-drought-affected-families/

FC-financed cyclone shelter in Bangladesh which also functions as a school.

but also in the area of healthcare. ARC Ltd. is working to develop a range of insurance services in the event of an epidemic outbreak. At the end of 2016, around 20 projects involving FC support for insurance initiatives were being implemented and other measures were in the planning stages.

These projects are far from being ready for an ex post evaluation so that it is much too early to say whether they have been successful or not. But it can be said today that the problem awareness, know-how and commitment of FC in the area of strengthening resilience through adaptation increased significantly. Weaknesses in adaptation which are already emerging in current evaluations appear to stem primarily from a lack of anticipating future climate change in "standard projects". One example here is the evaluation of an irrigation project in northern Mali in 2016: the limited and diminishing availability of water was foreseeable, the expectations for increases in agricultural productivity were exaggerated in view of this situation. The problems in agricultural irrigation projects in Pakistan, which were evaluated in 2010 and 2012, were similar. Climate change, which results in increased flooding, is also not always adequately factored into road construction as a recently evaluated project in central Kenya shows. If the impacts of climate change had been accounted for in these projects from the outset, the projects would not have had to end with unsatisfactory or clearly inadequate results.

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Our conclusion Individual FC measures in the area of adaptation already existed in the 1990s. New projects set themselves apart with innovative approaches. Weaknesses appear to exist primarily in the cross-sectoral incorporation of the impacts of climate change and appropriately adapted concepts for "standard projects".

››› **Pilot studies in Bangladesh and El Salvador**

Which strategies are suitable for climate change adaptation?

The "Economics of Climate Adaptation"[1] method, which was developed by a group of renowned researchers with the participation of private companies like McKinsey & Company and the reinsurer Swiss RE, aims to provide help in the development of climate change adaptation strategies. The costs and benefits of different adaptation alternatives are identified and compared based on various scenarios of climate change and the resulting natural hazards as well as the economic development in a region. FC tested this method in two innovative pilot studies in the city of Barisal in Bangladesh, which is threatened by flooding and rising sea levels and in the capital of El Salvador, which is at risk of storms and mudslides, but also earthquakes.

Even though this method is not satisfying in every aspect because, for example, it focuses heavily on material damage and less on the risk of human catastrophes relevant for FC: all participants agreed that the studies developed with participation of the FC partners raised awareness of the need for adaptation, highlighted the advantages and disadvantages of alternatives for action in a structured fashion and laid the foundation for the systematic and informed selection of investments in climate change adaptation.

The first steps have also been taken to align the ECA method more closely with FC. The impacts of natural hazards on poor districts were examined in particular detail. One research project supported by the Financial Cooperation Evaluation Unit was dedicated to the functions of urban ponds in Barisal, not just for the retention of water in the event of flooding, but also for the local community as reservoirs for water for fire-fighting, fish farming or ponds for bathing and laundry. This makes it possible to measure which "ecosystem services" disappear when more and more ponds are filled with earth and concrete due to rising land prices.

The result of the pilot studies is an investment programme supported by the city administrations of Barisal and San Salvador, respectively, to adapt to climate change. Initial measures are now being implemented with FC support.

[1] A report of the Economics of Climate Adaptation Working Group (2009): Shaping Climate-Resilient Development – a framework for decision-making.

A refugee camp in eastern Sudan that mainly takes in refugees from Eritrea.

Transformation: looking to the future

DC is more urgently needed than ever before. The target of limiting global warming to two degrees Celsius above pre-industrial levels cannot be achieved with current climate mitigation efforts. At the UN World Climate Conference in Marrakech in 2016, development policy reaffirmed its commitment to supporting its partner countries in the fight against climate change. In 2015, the UN Refugee Agency reported that an unprecedented 65.3 million people around the world had been forced to flee their homes, more than ever before. The new mission of DC is commonly seen to be tackling the root causes of migration. But are the approaches currently being practiced to support prevention and adaptation enough to adequately meet these global challenges of tomorrow?

A fundamental change to overcome the causes of crises

Successful climate change mitigation requires a fundamental change in people's way of life. The German Advisory Council on Global Change (Wissenschaftliche Beirat der Bundesregierung Globale Umweltveränderungen - WBGU) expresses this succinctly in the title of its main 2011 report: "World in Transition – A Social Contract for Sustainability".
A fundamental change, a transformation, also appears necessary to sustainably tackle the causes of migration in the long run: people leave their homes because they no longer see any prospects for themselves in the place they live. They begin a dangerous journey into uncertainty that, from their perspective, still seems to be a better alternative than continuing to live under the conditions in their home. As the alarming news about thousands of deaths on the journey across the Mediterranean, but also the desolate situation in individual refugee camps such as on Nauru, 3000 km from Australia show – the attempt of desperate people to change their lives does not always end in a better future. The Dadaab refugee camp in northern Kenya, which has been in existence for more than 20 years, offers safety to more than 300,000 refugees, mainly from Somalia, from the violent conflicts in their homeland as well as care

For some of the refugees, the camp is a stopover on the way to Europe.

for basic needs. However, new prospects for a better life in a new home have not yet been found for most of the camp's inhabitants. A transformation in the sense of a fundamental change to overcome the crisis is not in sight.

The situation on the Horn of Africa, shown in dark red on our world maps, plainly shows the dangerous interplay of various crisis-triggering factors and is thus a salient example of why transformation is so difficult. The countries on the Horn of Africa are affected by recurring droughts that are intensified by climate change. Violent conflicts in the failed state of Somalia, in the Sudan and between Ethiopia and Eritrea have shaped the environment for decades and repeatedly result in waves of refugees that increase the stress level in the comparatively stable neighbouring countries of Ethiopia, Djibouti, Kenya and Uganda. In its report from 2011, the WHO states the following about the health risks on the Horn of Africa: "Malnutrition not only increases the risk of contracting infectious diseases, it also increases disease severity and therefore the risk of death. This, added to being weak and stressed from displacement and fleeing from insecurity, along with poor prior health and immunization status, decreased access to basic needs such as food, water, shelter, and sanitation, will put these populations at high risk of contracting infectious disease and subsequent death." [7]

Food aid like the assistance provided by FC in Ethiopia, Djibouti and Kenya can – even if it were to take effect earlier – only fight the symptoms, not the causes of crises. The food crisis on the Horn of Africa is chronic, as is the threat to people from violent conflicts. Profound changes are necessary.

[7] World Health Organization (WHO) (2011): Public health risk assessment and interventions - The Horn of Africa: Drought and famine crisis, available at: http://www.who.int/diseasecontrol_emergencies/publications/who_hse_gar_dce_2011_3.pdf?ua=1

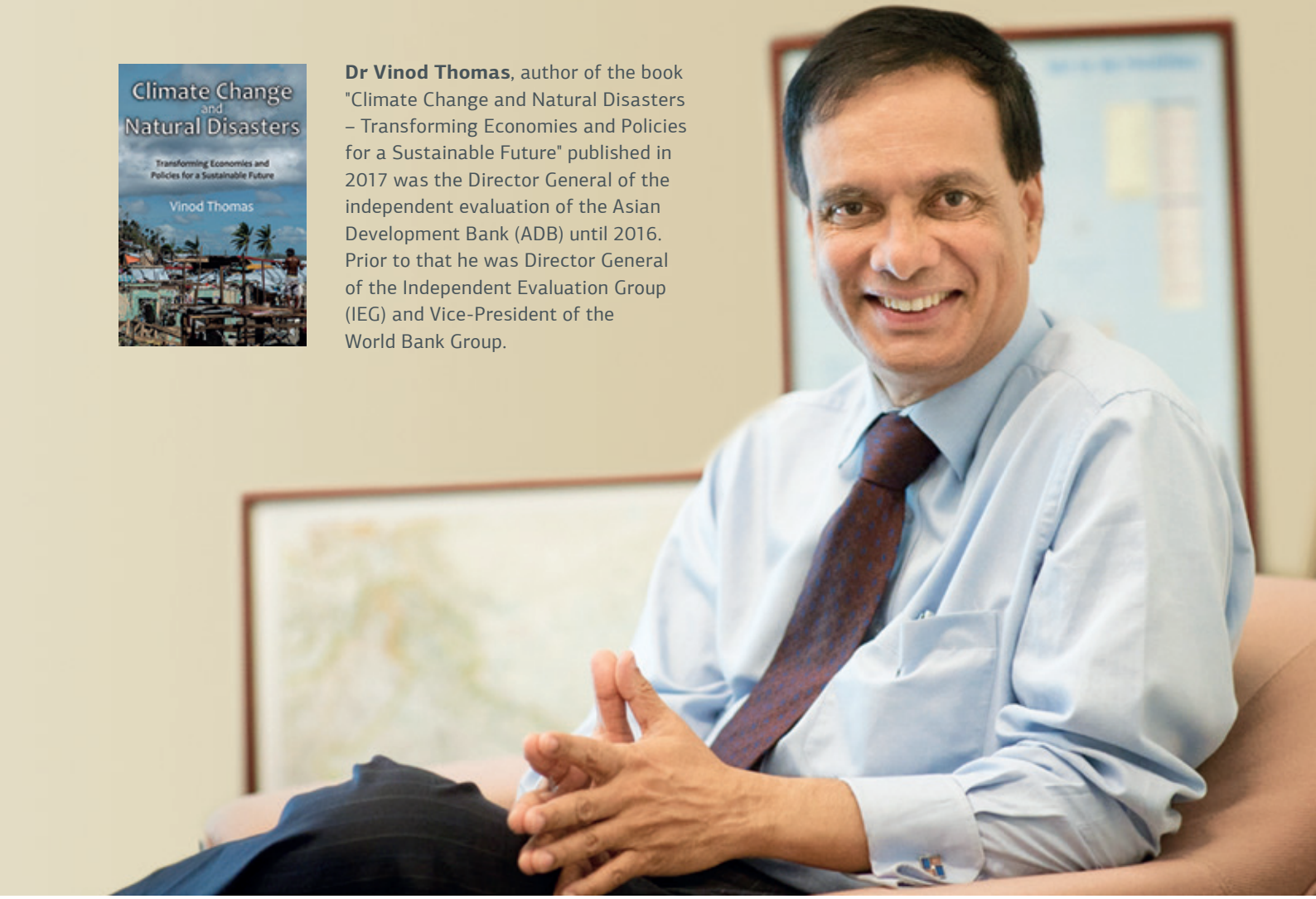
» At the end of the day, needed are a shift in the mindset and a transformation in the approach to development. Traditional patterns of development relying on economic growth steered by investments in physical and financial capital, but sometimes neglecting human and social capital, and often damaging natural and environmental capital, will be self-defeating. This realization about the value of investing in all three forms of capital – physical, human and natural – is being driven home today perhaps more than any other calamitous impacts by the stark reality of runaway climate change. Economists and evaluators, among others, can facilitate this understanding by building into our calculus of growth and development the emerging impacts of hazards, crises and catastrophes, and the need for transformational change in policies and actions shaping better lives and livelihoods.

The government of Ethiopia, which is the most populous country on the Horn of Africa with nearly 100 million people, has recognised this. In 2010, it adopted the "Growth and Transformation" plan which aims to foster growth and initiate structural change to reduce dependency on the agricultural sector. In 2011, it announced the "Climate Resilient Green Economy Strategy". Supported by international donors, the government has been able to make progress in the fight against poverty and for economic development. Economic growth was consistently very high in the last few years. And still: according to current estimates, every fifth Ethiopian still suffers from hunger.[8] The 2016 Fragile States Index ranked Ethiopia 20 of 177 countries. All in all, there is little Ethiopia can do on its own to fight climate change or establish peace in the region, not least of all because the government itself is involved in conflicts. Only coordinated action on the part of the international community can help in these efforts.

Cross-sectoral thinking necessary

These facts are not intended to create a mood of pessimism, but to spur action. They are intended to highlight the urgency that much more must be demanded of the international community than before. A fundamental change can be necessary to protect threatened lives and livelihoods and create new long-term prospects. In doing so, we can build on existing knowledge: in the case of fighting climate change, for example, the technologies to replace fossil fuels already exist. We also know how to produce enough food to feed the global population. It also goes without saying that transformation is not brought about by isolated changes, but through systematic and cross-sectoral thought and action. And a transformation process is not possible if the security policy problems are not resolved. But this knowledge is not enough to take successful action. The German Advisory Council on Global Change 2011 rightly proposes a new research field in the form of "transformation research" (TR). This "specifically addresses the imminent challenge of transformation realisation." Here, "transitory processes are explored in order to come to conclusions on the factors and causal relations of transformation processes." (WBGU Flagship Report 2011, p. 23) The knowledge gaps lie in the lack of findings about how the transformation of an entire society can be successful and supported appropriately.

Dr Vinod Thomas, author of the book "Climate Change and Natural Disasters – Transforming Economies and Policies for a Sustainable Future" published in 2017 was the Director General of the independent evaluation of the Asian Development Bank (ADB) until 2016. Prior to that he was Director General of the Independent Evaluation Group (IEG) and Vice-President of the World Bank Group.



Hope that transformation is possible is provided by a self-help project on the South Pacific Carteret Islands. Situated only 1.5 m above sea level, this island group is threatened to completely disappear. Spearheaded by local leaders, residents have launched a resettlement project to a higher island where the church has provided land for the initial phase. Admittedly it is a small and straightforward example of a potentially successful transformation – just under 3,000 people live on the Carteret Islands. Nevertheless, there are lessons to be learned about the preconditions for a successful transformation: all or at least most members of society sharing a feeling of an urgent need for a fundamental change and a vision that is implemented under local leadership methodically, step-by-step and with the involvement of all stakeholders.[9] It remains to be seen whether DC and therefore also FC can provide support for this kind of well-organised, fundamental change – a transformation.

In view of the multifaceted threat situations in the world, we hope that FC will not only address the issue of strengthening resilience, but also confront questions related to transformation. Various scientific studies estimate that by the year 2050, as many as 500 million people will be forced to leave their homes due to climate change and environmental degradation. In the next 15 years alone, floods, droughts, rising sea levels, threats to the security of the food and water supply and the prevalence of natural disasters will push 100 million people into poverty according to World Bank estimates. Perhaps FC can be more courageous and also play a role in fundamental challenges that demand transformation.

[8] See Handelsblatt, "Hungerkrise in Äthiopien – Die vergebliche Hoffnung auf zwei Mahlzeiten pro Tag", 02.07.2016: http://www.handelsblatt.com/politik/international/hungerkrise-in-aethiopien-die-vergebliche-hoffnung-auf-zwei-mahlzeiten-pro-tag/13763724.html

[9] See Kotter, J.P. (1995): "Leading Change: Why Transformation Efforts Fail", Harvard Business Review, March-April 1995.

Sentinel satellite of the European Copernicus programme

Interview

Possibilities and limitations of remote sensing in crisis and disaster management

Remote sensing and geoinformation systems (GIS) offer many new possibilities to support crisis management and prevention. But what are the limitations of this methodology? Insight is provided in an interview with two disaster experts who have completely different scientific expertise: the natural scientist Dr Michael Judex, Division Head at the Federal Office of Civil Protection and Disaster Assistance (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe - BBK) and the social scientist Prof. Dr Martin Voss, Head of the Disaster Research Unit at the Freie Universität (FU) Berlin.

Financial Cooperation Evaluation Unit: Crises, catastrophes and conflicts – everyone is talking about these issues nowadays. They also make development cooperation increasingly challenging. You are both experts in this area even though you work in different disciplines. Is your advice more sought after than ever before?

Michael Judex: Even though the BBK is a government agency with a purely national mandate, foreign countries still play a very important role for us. German aid organisations have to be supported and coordinated around the world. We do this in cooperation with the European Emergency Response Coordination Centre. We are also getting more and more enquiries from foreign organisations, particularly having to do with skill transfer and capacity building. We are currently working in this area, for example, with Jordan and Ukraine, on civil protection and CBRN risks – this stands for chemical (C), biological (B) radiological (R) and nuclear (N) risk. We have clearly seen a significant increase in the demand for the application of remote sensing, e.g. by Welthungerhilfe or the Gesellschaft für Internationale Zusammenarbeit (GIZ). A wide range of issues can be addressed with the help of remote sensing. For example, satellite images can be used to analyse the impacts of droughts on agricultural production so if food insecurity is imminent, it can be detected at an early stage. We also receive enquiries about forest or savannah fires, land degradation or deforestation, in other

words, areas that are also of interest for Financial Cooperation (FC).
In view of this situation, the BBK is building capacity in remote sensing to be able to provide more effective support in acute emergencies. We increasingly find that the fields where remote sensing can be used as well as its added value are far bigger than originally thought – to prevent and avoid crises, but also in the follow-up and reconstruction phase.

Martin Voss: Demand has also increased considerably in sociological disaster research. We have a lot to do! This also benefits from the security research programme of the Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung - BMBF). As a result, Germany's research landscape is virtually unparalleled. First and foremost, with the new civil protection concept of the German Federal Government and the White Paper on Civil Defence, we suddenly have a platform: there is demand for what we have developed over nearly the last two decades. In this area, our strategy of developing new services before there is acute demand for them has proved successful.
Despite the currently high level of demand, there is one aspect that I don't quite like: the type of questions we are being asked. In our research, we use a very broad definition of crises and disasters. But most stakeholders are still looking at completely changing scenarios through the same narrowly focused glasses. Which is why we still get requests for partial solutions. I think we need a completely different approach that can take an integrated view of linked processes. We see that our environment is changing. We are slowly incorporating societal factors that we didn't use to consider truly relevant to disasters into our thought process: social inequality, voluntary and involuntary migration, fluctuations in financial markets, drastic political changes in states classified as stable or wars and conflicts in regions of the world that used to seem far away. These issues are intertwined and thus require a different approach. But we are still too stuck in old ways of thinking and looking for partial solutions – our society is not yet ready to acknowledge that today's crises and disasters require different approaches.

Which approaches do you support to manage today's crises and catastrophes more effectively?

Martin Voss: First, institutions have to be created that can become acquainted with the entire complexity of the issue. We need a sustainable promotion structure that enables integrated thinking – instead of the development of fast partial solutions that quickly become outdated – that facilitates appropriate knowledge management and fosters capacity for further development. You have to keep in mind that the World Bank estimates that disaster prevention pays off seven times over! It pays to establish institutions that are bigger and able to work in a structured fashion commensurate with the problems.
I am deeply convinced of this.

Michael Judex: But we can't just look at Germany, we also have to keep an eye on our partner countries. The respective institutions must be established and integrated there in such a way that they are capable of acting.

Martin Voss: On the contrary!
If we ourselves do not have these kinds of structures, we cannot recognise them elsewhere and develop them as counterpart structures.

What can you contribute to the issue of crises and catastrophes in your particular field? What new or special aspects can you contribute with your profile?

Michael Judex: First, I would like to point out the enormous technical progress that has been made in recent years. There are more radar sensors that are no longer affected by cloud cover and more and more sensors with very high resolutions. Second, I would like to mention the changed institutional conditions.
The European Commission has invested a lot of money in research and the area of

Dr Michael Judex
Division Head at the Federal Office of Civil Protection and Disaster Assistance (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe - BBK), responsible for coordinating the Emergency Management Service (EMS) in the Copernicus European earth observation programme.

Prof. Dr Martin Voss
University professor for social disaster research at the Freie Universität Berlin, head of the Disaster Research Unit there (Katastrophenforschungsstelle - KFS).

operations. With the “Copernicus” earth observation programme, the Commission has established a mechanism and created a framework to acquire satellite data from commercial missions, but also to build and operate its own satellites, the Sentinels. The data of the Sentinel satellites can be accessed for free. The most unique feature of “Copernicus”, however, is what is known as data services. The end users – which include us, the BBK – can simply fill out an order form and request specific products.
The “Copernicus” disaster and crisis management service provides, on the one hand, analyses of natural hazards such as landslides, earthquakes or volcanic eruptions. On the other hand, there is an emergency service that works around the clock and can create maps of damage in the event of crises and disasters.
For this emergency service, every member country has designated an office to bundle the enquiries for the “Copernicus” services. For users in Germany, the nationally authorised office is the German Joint Information and Situation Centre in the BBK; we also of course provide advice and clarifications with respect to the limitations of remote sensing.

Martin Voss: We offer a very integrative approach and are developing various framework concepts such as the concept of the "disaster culture". This is a kind of tableau for the whole of a society in which we analyse everything that is or could become relevant to a disaster – from environmental aspects to social factors all the way to norms and values. Whether disaster prevention, climate change adaptation or emergency assistance – it makes a fundamental difference whether we are talking about Italy, Haiti or North Korea. However, this is hardly reflected in any depth in the relevant discourses. If these kinds of general conditions and indicators are roughly mapped, in my opinion, this leads to more sustainable solutions – both for emergency assistance as well as for long-term development cooperation. It makes complete sense to combine findings of this kind with remote sensing data. It is then perhaps possible to see other processes that are already emerging and to ask: what do we actually need now in terms of societal know-how to prevent crises and disasters? Which stakeholders, structures and resources on the ground can we rely on?

People in Nepal living with disaster.

You advocate expanding the methodology for mapping. What does this mean in practice and what factors need to be considered?

Martin Voss: I define mapping very broadly. An ideal map for me is one that includes various infrastructures and risk types. The political and societal conditions are integrated in superimposed layers but, for example, so are religious and spiritual relationships. These factors should be understood as a resource. For example, I am familiar with the special case of the Merapi volcano in Indonesia that perhaps illustrates the range of resources relevant to disasters. The mythology there is oriented around coping with the loss of family members as a result of an eruption. The victims are seen as martyrs that were summoned by the volcano. This increases the standing of the family that is mourning a victim.
This is only one example of many similar mechanisms that are highly complex but, at the same time, elementary. If a geophysicist who only thinks in terms of technology is sent there, it is perceived by the local people as an offence against their own "institutions". I think factoring in these kinds of cultural aspects is not a trivial matter, but extremely important. Nuances of this kind exist everywhere in the world. Even the most enlightened, rational societies have their everyday practices for dealing with tragedies. A region which, from the natural sciences perspective, appears in dark red on a map – due to high risk – can look totally different up close because the people have developed the capability to adapt over hundreds and thousands of years and have learned to live with their supposedly dangerous environment. If the region is indiscriminately mapped as "red and at risk" and this map is published, investors will pull out in some cases and a vulnerability is potentially created that didn't exist before.

Michael Judex: This is actually an exciting approach. It addresses a problem that I also see. All of this technology – remote sensing but also GIS – originated in the natural sciences, in the environmental sciences. As a result, the map shows what can be seen through the glasses of natural science. But the world is much more complex. There are mechanisms that cannot be quantified, but that can still help stabilise society in countries with high vulnerability. We must not forget this.

Are there risks associated with remote sensing – for example, misuse of information?

Michael Judex: Yes, there are risks. However, the European Commission has developed validation mechanisms for every request received. It is first scrutinised who the enquiry is from. A check is then performed to determine whether the region over which the image is taken has politically sensitive

features – and I formulate this abstractly. In this case, a request can definitely be rejected. There was recently a case of this kind in Libya where photos were initially taken for humanitarian assistance. However, it turned out that military operations were taking place there at the same time. Authorisation for the photos was withdrawn as a result and since then the validation criteria have been tightened up accordingly.

> ››› There is one perspective on the ground that is completely different from the aerial perspective. Blending the two is ideal.
>
> Prof. Dr Martin Voss

Can you give us an example of where you have been able to make a particularly useful contribution to the analysis of crises and disasters or to the practical implementation of promising approaches with your expertise?

Martin Voss: The "Global Initiative on Disaster Risk Management" pursues a helpful approach that we support. It asks the question, among others: what structures do we have for disaster management in Germany and in what cultural conditions in other parts of the world do they fit? This process takes into account that we do not have the capability to do things better everywhere. We first have to analyse the local conditions and capacities and determine whether our systems actually help the people there. We consider a national system in detail and prepare it conceptually in such a way that it can be transferred and translated to another culture – if it is sufficiently compatible. It is not applied 1:1, but adapted to the respective context.

Michael Judex: The entire methodology of remote sensing is still relatively young. But we have gradually reached the point where the technology can be applied to everyday problems. We were commissioned by the German Federal Agency for Technical Relief (Technisches Hilfswerk, THW) to create a map of the Zaatari refugee camp in Jordan on the Syrian border. The German Federal Agency for Technical Relief is providing humanitarian assistance there.
The maps show how the refugee camp has grown from a relatively informal, unorganised structure into a city with nearly 100,000 residents in just one and a half years. The reason the map was created was a crisis; the camp was at risk of flooding. Using satellite and radar images, it was possible to see which areas were affected and where drainage needed to be built to allow the water to drain off as quickly as possible. The final map is a complex product: a satellite image in the background with the relevant risk analysis, in this case flooding, superimposed over it.

Does this mean you were called ex post?

Michael Judex: Yes. This is the difficulty in emergencies: it takes at least two to three days for the maps created from the satellite images to actually reach the user. The satellite images first have to be taken and then analysed before the result can be sent to the end user. Unfortunately, we still can't do this any faster. We haven't yet reached the point where we have the data a few hours after receiving the request due to system limitations.

In your opinion, what is the biggest weakness of your discipline?

Michael Judex: “Copernicus” remote sensing and geodata are always only one component of many. The interdisciplinary, the sociological aspects are just as important. And quite simply, they cannot be recorded with a satellite image.
You can only quantify events with remote sensing of satellite images, you can capture events on the earth's surface, certain natural phenomena, but aspects related to vulnerability are much more complex. We always have to keep this in mind. We also regularly find that remote sensing products may contain errors. Inaccuracies can emerge in the maps during processing and analysis that can lead to misinterpretations. Even if satellites have high resolution, they only observe from above and not from the side. Nevertheless: when these kinds of maps are on the table, they serve as a good basis for a discussion to present the various perspectives of the participants. This certainly seems to me to be added value even if this was not necessarily the intention of the inventors of the satellites.

Martin Voss: To market our approaches better, we social scientists have to learn to communicate across the boundaries of various disciplines and to give more recognition to the benefits of things that we usually tend to criticise too generally. For example, I view both approaches – disaster sociological research and remote sensing – as entirely complementary. There is one perspective on the ground that is completely different from the aerial perspective. Blending the two is ideal. When the two cooperate with one another, a picture emerges that is more true to life.

Thank you for the interesting discussion.

The interview was conducted by Martin Dorschel and Roxana Duerr, KfW.

» Thematic workshop

Big data and on-site investigation
Aerial photos and satellite images open up new possibilities for evaluation, but they can't replace experience on the ground.

Thematic workshop

A clearer view from near and far

On-site investigation in Madagascar

Technological progress is giving new momentum to the demand for hard evidence of the impacts of development cooperation: satellite data, online surveys or IT systems of the partners make it possible to collect data remotely – at reasonable costs and in places that are either difficult or impossible to access for security reasons. Our initial trials with new technology show that the possibilities of collecting evidence from afar are valuable, but they do not replace experience on the ground. Discussions and observations on site might "only" provide anecdotes and impressions; but first-hand experience is one key to understanding.

The "thematic workshop" in this 14th Evaluation Report once again showcases our work on complex issues and with newer methods – evaluation projects that usually exceed the FC standard for ex post evaluations in terms of time and effort. This time we would like to share our most recent experiences with the collection and analysis of data records. Data, whether it is hand collected for a specific purpose or secondary data from other sources that is increasingly available, is considered the foundation for sound impact assessments. But it is often extremely difficult to collect extensive data first-hand in direct contact with the target group, particularly in unstable, conflict-ridden environments. Remote data collection creates considerable new opportunities in these kinds of conditions, but also elsewhere. While highlighting the new perspectives opening up with new data sources we do not want to save our overall conclusion on this topic until the end of this section: hard data – even if it can be collected reliably from afar – is only "one" component of meaningful evaluations; first-hand experience is often indispensable for understanding.

Satellite images taken at night can estimate the economic activity in the most remote corners of the world by means of lighting intensity.

Close and remote sensing in the Brazilian rainforest

Indigenous territories from two perspectives that mutually enhance one another.

The evaluation mission to the Brazilian Amazon region was an adventure: the canoe trip on the river, the long hike through the rainforest, the reception in the Indian village, spending the night in a hammock. But the effort helped the evaluators understand the way of life of the indigenous people a bit better. The inhabitants of the village were positive about the FC support to legally formalise the traditional rights to their land. The evaluation experts even collected hard evidence for successful forest protection, the overarching FC goal of the demarcation measures. Satellite images clearly show: the forest in the Indian territory is intact – in contrast to the adjacent areas cleared by farmers. The overall assessment of the experts in the ex post evaluation report which was made on the basis of the collected data, facts and experiences appeared convincing: FC support for demarcation of Indian territories was a successful measure for the protection of the forest and the indigenous people's way of life.

Back in Germany, the images from space were the inspiration for a new and forward-looking evaluation idea: these kinds of satellite images could be used to corroborate the expert assessment of the demarcation measures – through a rigorous measurement of the impacts that substantiates the causal links. To this end, the supported areas have to be compared with what are known as control areas that are similar in terms of socioeconomic characteristics, topography, etc. but did not receive any demarcation support. If a measurement of this kind can be successfully accomplished in this particular case, perhaps even such laborious on-site visits could be eliminated in the future for similar measures - so much for our idea at the start of the measurement process. Geocoded data for all demarcated indigenous areas could be obtained as well as the data for suitable control areas that, even though they are inhabited by indigenous communities, are not yet secured by demarcation. Satellite images provide information about changes in forest cover over time for both types of areas. A cooperation with AidData, a research institute in the USA specialised in impact assessments using geocoded data, guaranteed the analysis of the data using advanced econometric techniques. The result was perplexing: the demarcation had no statistically significant impact on forest protection.[1]

After the initial disappointment, reflection began. Were the on site impressions deceptive? Or was something overlooked in the remote diagnosis – despite the use of rigorous, quasi-experimental methods of impact assessment? By comparing the evaluations from up close and far away, we got the idea: the driving force behind forest protection is the way of life of its indigenous inhabitants, it is not the stones that mark the borders of the Indian area. But this does not necessarily mean that formalising the rights to the territory is futile. Registered rights take on their importance when someone wants to dispute them. This does not just apply today, at the time of the impact assessment, but also over the – decades and centuries long – validity of the legal system in which the legal title was registered. The results chain of FC support

for securing the indigenous territories is complex and long-term. At best, fewer land conflicts can be expected in the short term; better forest protection sets in, if at all, only in the long run – but not now at the time of the measurement.

A second assessment was intended to show whether we are on the right track with this impact hypothesis. Another rigorous measurement was carried out, but this time to determine whether demarcation results in fewer territorial infringements than non-demarcated indigenous areas. We found a suitable data source in the annual reports of the Indigenous Missionary Council (CIMI) which documents these kinds of incidents in detail.

The result: it can actually be shown that when indigenous land rights are registered, land conflicts decline. For us, this was a success even if there is still no proof that deforestation has declined. Without our experience on the ground, we probably would have accepted the disappointing result of the first econometric analysis and asked no further questions. It were exactly these questions, however, that in the end have helped us understand the impacts better.

[1] A. Ben Yishay, S. Heuser, D. Runfola, and R. Trichler (2015): "Improvements in Indigenous Land Rights and Deforestation: Evidence from the Brazilian Amazon", AidData Working Paper, Revise and Resubmit at the Journal of Environmental Economics & Management.

First-hand experience: the visit to the Amazon region helped the evaluators understand the way of life of the indigenous people a bit better.

How remote sensing and the experience on the ground enhance one another

Satellite images combined with geocoding[1] of development cooperation measures create a completely new perspective: impacts on the earth's surface can be observed from far away, from space, and documented over time. Lighting intensity at night, which can be measured using high resolution satellite images, makes it possible to estimate economic activity and changes to it in the most remote corners of the earth; researchers at the Stanford University recently developed a globally applicable and automated method for mapping poverty[2] by combining daytime and nighttime images; it has virtually become standard practice in nature protection and forestry to document land use and measure soil cover by means of satellite images. Scientists and practitioners are just starting to explore the opportunities these techniques offer for monitoring and evaluating development cooperation measures.

In the United States, a specialised research institute was even founded with AidData[3]. It is specifically dedicated to the analysis of "aid" using satellite images and geocoding. The Financial Cooperation Evaluation Unit had the opportunity to work with AidData. Assessing the impact of FC measures to demarcate indigenous territories in the Brazilian rainforest became a key experience for us: the results stood in stark contrast to the experience on the ground – a reason to reflect on the advantages and weaknesses of the different evidence from up close and far away (see box).

[1] Unique identification of a location with longitude and latitude.
[2] Horton, M.: "Stanford scientists combine satellite data, machine learning to map poverty" Stanford News, 18.08.2016, available at http://news.stanford.edu/2016/08/18/combining-satellite-data-machine-learning-to-map-poverty/.
[3] See http://aiddata.org/.

The pride with which small-scale farmers report their larger harvests made a compelling case for the evaluating experts.

Satellite images for standard ex post evaluations – possibilities and limitations

Satellite photos were also used in other evaluation projects, even though – as was the case with the cooperation with AidData – not always in combination with rigorous methods of impact assessment based on comparison with control groups. Satellite images played a dual role in the evaluation of FC-supported nature conservation measures in Madagascar: they were used, on the one hand, to estimate effectiveness remotely by comparing growth before and after the support as well as with other non-supported areas – important indicators even though these comparisons do not allow one to draw causal conclusions about the impact of the FC measure due to a variety of influencing factors. On the other hand, the images were used to identify the geocoordinates of the sites that were to be assessed at close range during the on-site mission because the images cannot always be interpreted unambiguously: for example, cutting down individual high-value trees degrades the forest; these kinds of actions cannot, however, be clearly identified from space. This experience in Madagascar also shows how near and remote sensing can complement one another, even though, unfortunately, the sites marked on the satellite images were so difficult to access that only a small number could actually be inspected.

Another very large project to protect the Brazilian rainforest, on the other hand, never would have come about without satellite technology: the Amazon Fund, which is primarily supported by Norway, but also by German DC. It is based on the REDD (Reduction of Emissions from Deforestation and Forest Degradation) idea born at the United Nations Climate Change Conference in 2005: developing countries and emerging economies that curb deforestation for the good of the climate are to be rewarded with payments from industrialised countries. Satellite technology enabled Brazil to document its successes in the reduction of deforestation for third parties. To reward these measurable achievements in diminishing deforestation, Brazil received grants from Norway and Germany that, by direction of the Brazilian government, are being dedicated to additional forest protection measures via the Amazon Fund. During the evaluation of the first German FC support tranche, the question was raised as to whether the only criterion to be used to measure whether funds had been used successfully were remote images regularly documenting deforestation. However, in our view this on its own was not entirely appropriate to evaluate the impact. Why?

Large-scale deforestation in the Brazilian rainforest is now a thing of the past thanks to the containment of illegal clearance and rigorous enforcement of forest laws. In the meantime, the forest is threatened by illegal logging and clearance of small areas by small-scale and often poor farmers. This type of deforestation is discovered too late "from the air" to be able to intervene in time. In this respect, it makes sense that the Amazon Fund – in addition to its support for land use planning, monitoring and sanctioning of illegal deforestation by the Brazilian authorities – also relies on advocacy work to win over the people. Training farmers in methods of sustainable production and forest management or providing support for indigenous people in the management of their territories aims to convince broad sections of the population of the merits of forest protection and tip the scales politically. This was necessary - among other reasons - because it would have been extremely difficult to justify and communicate to the indigenous peoples that they were going to lose out on the ressources of the Amazon Fund, given that they have always protected the forest and can therefore also not provide evidence that deforestation in their territories has been reduced. It will only be possible in the more distant future to verify with hard evidence whether this strategy of the Amazon Fund pays off. Public sentiment, however, is already perceptible in local encounters. The pride with which small-scale farmers sold their products at a market on the Trans-Amazonian Highway and reported larger harvests thanks to their new knowledge of sustainable production methods made a compelling case for this approach from the evaluating experts' perspective.

Remote sensing in a fragile context – the future scenario for evaluations

Collecting primary data on site is a laborious undertaking. This is already true in stable developing countries because the information for careful planning of surveys is sparse, the distances long and arduous and interview partners cannot always be found again

Innovative health insurance project in Pakistan

Illness can especially plunge poor families in developing countries into crises that threaten their survival if the primary breadwinner is incapacitated, treatment is far too expensive or the costs exhaust the few reserves of the household. In extreme cases, the households have to borrow funds or take the children out of school so that they can also earn extra money – coping strategies that hurt the family in the long term. One FC project that supports the introduction of health insurance in two provinces of Pakistan aims to counteract these risks. The insurance premiums for the poorest 21 per cent of households are financed by German grants. The insurance covers the costs of hospital stays for seven family members as well as professional prenatal care and obstetrics up to a maximum limit of 25,000 Pakistani rupees per person and year.

The project is innovative because it is one of the cornerstones of social insurance for the poorest of the poor. The Federal Ministry for Economic Cooperation and Development (BMZ) rightly attaches value to detailed documentation of the results, not least of all to draw lessons learned for future projects. If possible, a rigorous assessment of impacts is to be conducted. Additional resources were provided to collect the data required for this assessment. The baseline, i.e. the snapshot of the current situation, had to be completed before the insurance was rolled out at the beginning of 2016 because otherwise it would not have been possible to measure the effected changes.

However, it is not easy to collect data in a fragile country like Pakistan. Foreign evaluation experts cannot move freely; travelling to remote areas is even a challenge for local staff and is not without security risks. This is where researchers from the University of Mannheim came to the rescue: they already had suitable contacts and local networks due to similar studies in other Pakistani provinces. Experienced local staff were trained for the baseline survey of the FC project in the capital. The Pakistani government provided population data and corresponding GPS coordinates of the households. Over 6,000 households – including those whose premiums would be financed in the future as well as suitable comparison households – were surveyed just in time about their social and health-related circumstances, about healthcare expenses and their knowledge and attitudes about the issue of health insurance.

It will still take some time before the impacts of the health insurance, which has since been rolled out, can be assessed with the help of a second wave of data collection. But even the analysis of the initial data allows important conclusions to be drawn. First, the results show how relevant the problem addressed by FC support is. Almost none of the households surveyed already had health insurance and 18 per cent indicated that they did not go to a hospital the previous year despite the fact that a family member was very ill – the main fear by far was costs. 13 per cent of all mothers interviewed for the survey had no professional care during childbirth because the next health station was too far away or they balked at the expense. Second, the data shows that even though insurance can provide sufficient protection for a household with average health care cost, it is not adequate for households with exceptionally high needs and corresponding costs for medical care. Third, new questions were raised by conspicuous discrepancies between the costs of illness indicated by households and the flat-rate payments the hospitals use for their calculations. Can these differences be attributed to high unofficial payments or to costs not included in the calculation, e.g. the costs of a relative accompanying the sick person? Does insurance still have a solid financial basis if the costs per case end up being much higher than expected and, at the same time, demand significantly increases as a result of the insurance? And finally: will hospital services be able to keep pace with the new influx of patients?

Answers are expected from the second round of data collection, the focus of which was sharpened by the questions that were raised. The hope is that local fragility does not increase further and thus does also not negatively impact the learning process of how to structure health insurance more effectively.

Thanks to insurance, hospital treatment is possible even for poor families.

More recent FC projects in Afghanistan or Togo use mobile phones equipped with special apps to transmit information for monitoring purposes.

when a follow-up survey wave is due. The evaluation work conducted by the Financial Cooperation Evaluation Unit and the University of Mannheim on the introduction of health insurance in Pakistan supported by German Financial Cooperation shows how much more problematic it can be to collect data in fragile conditions. It is customary to rely on local institutions and interviewers to collect the kind of comprehensive data record required for a robust assessment of impacts; in the case of Pakistan, however, this largely had to be directed remotely. Even though foreign experts are still allowed to travel to Pakistan, they have to comply with strict security requirements that drastically limit freedom of movement. This severely restricts the opportunities for on-site interactions.

Despite the difficult conditions on the ground, however, a statistical foundation was successfully created with the baseline study which will make it possible to measure the actual impact of the health insurance on the population ex post. It is not unrealistic to think that remote operation, remote sensing or, in other words, "remote evaluation" will replace on-site experience in countries or regions that are difficult to access, even if this is less than desirable. FC operates increasingly in fragile countries. In several countries and regions of the world today – as is the case in the supported Pakistani provinces – evaluation missions are only permitted in compliance with very strict stipulations. In others, it is not even possible for foreign FC evaluation experts to visit at all. Examples include Afghanistan, Yemen, Syria or the occupied areas of eastern Ukraine. What can be done if we want to base our assessment of success or failure on current information?

Getting around these obstacles by meeting in safe havens and using technology including telephone interviews, e-mail contact and online surveys, can help fill in some of the information gaps. Satellite images in conjunction with geocoding have only helped with evaluation to a limited extent so far because the "old" FC projects pending evaluation were generally not charted with geocodes. But this is likely to change in the foreseeable future and as more work is done in fragile contexts. To illustrate this point: an evaluation mission in Afghanistan in 2015, when travel was less restricted, showed that even the microfinance institution it visited had already experimented with geocoding to record customers and their premises because unique addresses are not always available, even in the capital of Kabul. In view of this situation, it won't take long for geocoding to become a standard in FC.

But satellite images will not be able to provide information about every kind of impact in the future either. Something that can't be captured, for example, is the extent to which infrastructure built with FC support is utilised by the population. These people can also often not be reached remotely by phone. The deployment of local experts who can move freely around the country is usually the only way to have at least indirect contact with the target group. Daily email reports and the transmission of photos make it possible for evaluators to have at least second-hand on-site experiences from afar. Technological advances should give rise to possibilities for more direct contact with the target group in the future, perhaps even extensive monitoring data from the target group perspective will be available: more recent FC projects use mobile phones equipped with special apps to send information, for example, in Afghanistan or Togo. So far this has been used only to document construction progress by local engineers. Networking with users of the new infrastructure by phone, however, is under consideration for the future. But anyone on an evaluation mission who has ever experienced, for example, how an overcrowded hospital feels "on paper" compared to how it feels first-hand knows: information supplied by mobile phone does not completely replace experience on the ground.

Secondary data as a rich source for evaluation and further development of DC

Modern technology, which goes hand in hand with the rapidly increasing availability of more secondary data, can unlock its full potential to enhance evaluations if – completely consistent with the evaluation standard of triangulation – the analysis of hard data can be combined with on-site experience. To conclude our thematic workshop on an optimistic note, we end with an example from Uganda: in this case, the impacts of a FC project were further developed using secondary data that had already been collected. The idea stemmed from observations on the ground during several standard ex post evaluations.

"Credit scoring" in Uganda

Micro businesses and households in developing countries often do not keep track of their income and expenses. To still be able to grant credit to this customer group responsibly, financial institutions must carry out a complex appraisal of the financial situation before lending any money. In rural regions, the costs of this appraisal are much higher due to long distances and the cash flows in agriculture that fluctuate sharply depending on the season, thus making them difficult to predict – an important reason why access to financial services in rural regions still lags far behind access in the city in most developing countries.

One financial institution in Uganda that is specialised in serving poorer sections of the population decided to address this problem with a new kind of lending process. The project was supported by the "Rural Challenge Fund" which was financed by FC funds; it was accompanied by the Financial Cooperation Evaluation Unit through a study to monitor the impact.

The unique identification of customers is the basis for a functioning credit bureau.

What was changed in the lending process?

For many years, Ugandan banks, before lending money, have had to request the applicant's credit history from the local credit bureau, which had previously been set up with support from German DC. The new possibilities that this source of information offers, however, were not fully exploited by Ugandan banks. The credit bureau reports were only used as another document for each individual loan appraisal. This was intended to change for the microfinance institution supported by the "Rural Challenge Fund". Based on past data, a customised, computer-based traffic light model was developed in cooperation with the credit bureau, commonly called credit scoring: customers who easily pass the traffic light with a green score based on their attributes and credit history are granted credit without another more in-depth appraisal; customers with documented serious financial problems are designated red and rejected, and only new customers and the yellow cases where uncertainty exists are subject to an extensive appraisal process.

Half of the bank's branches were selected at random as test branches for the new traffic light model. Over a four-month period, developments in lending and repayment by customers were observed and compared after this test phase with the figures from the branches that followed the conventional process. The Financial Cooperation Evaluation Unit supported the bank in the design of the experiment and the data analysis. The result: the computer-based model makes decisions that are roughly just as good as the conventional process of in-depth appraisal, only much faster. The fear that late payments by customers could significantly increase in the test branches was not confirmed. The traffic light model makes slightly more cautious decisions compared to the conventional process. In view of these positive experiences with the new process, which drew on modern statistical methods and big data, the financial institution introduced the traffic light model in all branches and concentrated the released capacity of its employees on servicing new customers in rural regions. Another positive effect: Uganda was also ranked better in the World Bank's Doing Business Index thanks to the roll-out of the credit scoring model.

»» Results 2015/16

Paving the way
FC projects aim to pave the way for improving living conditions in developing countries. Evaluations assess projects' achievements and shortcomings to ensure that FC support is even more effective in the future.

Success in the improvement of living conditions – this is a direct or indirect goal of FC projects in every sector and region.

Results 2015/2016

Estimation of success rates based on random samples

Since 2007, 50 per cent of all FC projects completed in a year have been selected at random for evaluation. The random sample makes it possible to estimate the success rates of all FC projects. In this section, we publish our current estimates and analyse their significance.

In 1990 KfW Development Bank published for the first time the percentage of FC projects that were assessed to be successful by the ex post evaluations of the preceding two years. In 2007 the evaluation of all completed projects (full survey) was replaced by the evaluation of a random sample. A process of random sampling stratified by sector was chosen: a random mechanism selects half of all projects for evaluation separately for each sector, from education to energy. As the decision is random, there are no systematic distortions compared to when 100 per cent of all completed projects are evaluated. As a result, the percentage of projects rated as successful, i.e. those awarded a grade of

three or better (two or one), can serve as an estimate for the success of the entirety of all completed projects.

To what extent is an estimate reliable?

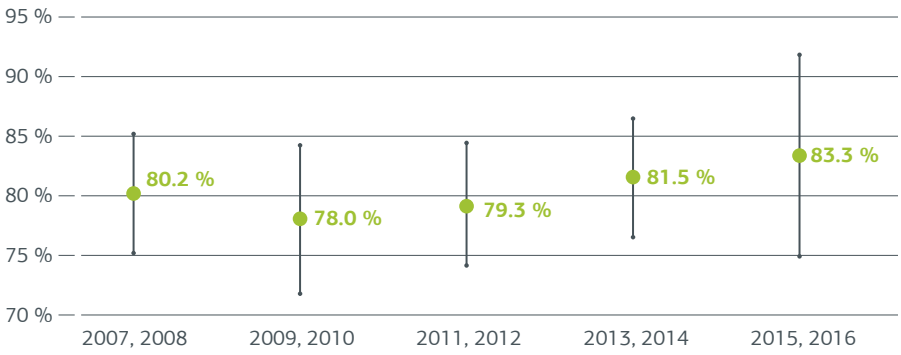
Every estimate, however, comes with uncertainty about whether the estimated value corresponds to the real value in the baseline data set of all projects. For this reason, the chart (graph 4.1.) that shows the estimated success rate for the two-year periods since switching to random sampling, additionally depicts the confidence intervals. They represent the range in which the estimated value – in our case, the success rate – would lie with 95 per cent certainty if new and therefore other random samples from the same baseline data set were taken using the same sampling method. This 95 per cent confidence interval is particularly large – and the estimate is therefore very imprecise – if the total baseline data set from which a sample of 50 per cent is taken is small or if it was not yet possible to evaluate all projects in the sample. The latter is clearly the case for the samples from the last two years 2015/2016. In these years, 325 projects were reported to have been completed, which is an unusually high number. As a result, by the time this report was sent for printing, nowhere near all of the projects in the random sample had been evaluated. The success rates of 83.3 per cent by number and 85.2 per cent by volume of budget funds deployed must be interpreted cautiously as the broad range of the confidence interval has to be taken into account.

The example of the success rates for the years 2013/14 shows how the estimate becomes more precise as the number of projects evaluated increases. While the percentage of successful projects (by number) was estimated to be 83.3 per cent as of 31.12.2014, the estimate as of 31.12.2016, which includes an additional 34 evaluations from the samples in 2013/2014, was 81.5 per cent. At the same time, the confidence interval became much smaller (see graph 4.2.). Because the confidence intervals for the various two-year periods overlap considerably in the last ten years in graph 4.1., a significant change in the "real" success rate in recent years is unlikely.

Success rates and the composition of financing

Even though there are no indications of significant changes in the success rate over time, we followed up on the potential impact of a factor which we know to have changed in the last few years: the type of financing for FC projects. While just a few years ago, almost all evaluated measures were either financed with grants or highly subsidised loans (FC standard loans), the projects that are now ready for evaluation were increasingly financed in part or in full by loans more in line with market conditions, called the blending of grants or subsidized funds with market resources. Consistent with

4.1. Estimated success rates by number for two-year periods and with a 95 % confidence interval

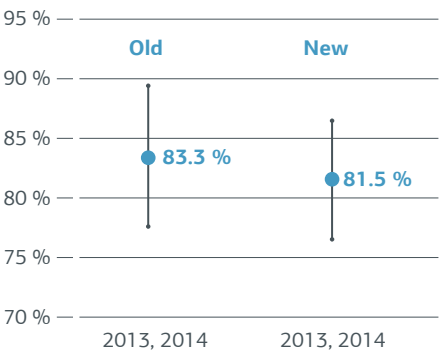


		All projects	Random sample (RS)	Pending/cannot be evaluated	Success rate
2007, 2008	Project number	224	117	0/1	80%
	Budget funds	€2,130,728,790	€1,063,525,100	€0/€5,061,790	79%
2009, 2010	Project number	212	111	1/1	78%
	Budget funds	€2,214,822,809	€1,292,224,549	€1,278,230/€1,281,382	79%
2011, 2012	Project number	206	112	0/1	79%
	Budget funds	€1,643,967,156	€952,994,842	€0/€5,000,000	84%
2013, 2014	Project number	259	137	13/0	82%
	Budget funds	€2,246,249,035	€1,211,401,765	€96,545,128/€0	83%
2015, 2016	Project number	325	158	80/0	83%
	Budget funds	€3,556,709,262	€1,998,669,612	€1,252,274,606/€0	85%

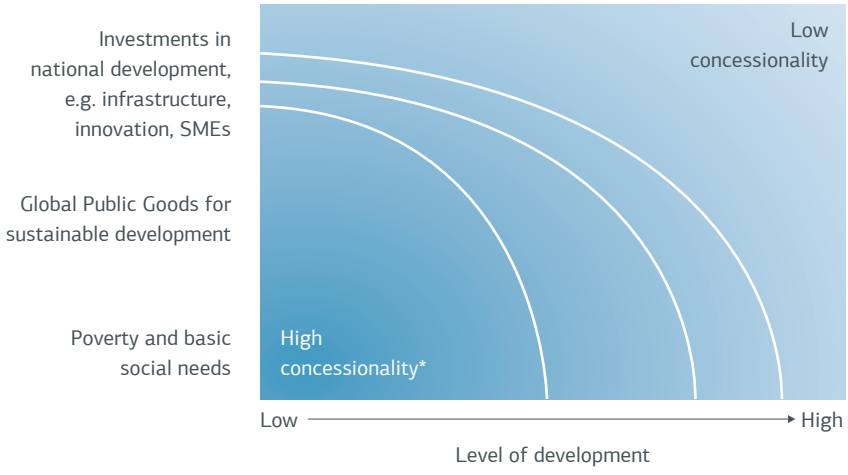
the recommendations of the UN's Intergovernmental Committee of Experts on Sustainable Development Financing (2015), financing more in line with market conditions is a mechanism used primarily in relatively highly developed countries and in sectors which generate income (see graph 4.3.). A typical example would be the construction of a wind farm in Brazil. Aligning financing with the type and context of the project supported is intended to ensure that the budget funds available for FC are used where they are needed most so that support achieves the greatest possible impact overall.

Against this background, it would be conceivable that those projects in which market funds are deployed tend to produce better results in the evaluation. It is plausible that the higher level of development of the country and the potential created to generate income positively affect e.g. the sustainability of the project's impacts and thus the success. To follow up on how the type of financing affects the probability of a "successful" or "unsuccessful" evaluation result, the Financial Cooperation Evaluation Unit conducted an analysis based on the entire database of evaluated projects in autumn 2015. This analysis shows that there is a correlation between success and the type of financing, which is, however, more complex than expected and cannot be solely attributed to the different development levels of the countries in which different types of financing are used. After the effects of region and the level of development of the country were statistically filtered out, the success rates, both for the blending of (more expensive) market funds as well as pure grant financing, are significantly higher than the success rates of projects financed by FC standard loans.
This is an indication that one type of financing is not better than another per se, but success depends much more on aligning financing and project type with one another (see info box on page 59). This therefore confirms the recommendations made by the UN's Committee of Experts that are reflected in graph 4.3.

4.2. Old and new estimated success rates by number with 95% confidence interval



4.3. Concessionality of international public financing depending on the level of development of the countries and their requirements for sustainable development



* Including grants
Source: United Nations 2015: Report of the Intergovernmental Committee of Experts on Sustainable Development Financing, German version, Figure V, p. 36

Success rates and the type of financing

The success rates of projects where market funds (closer to market conditions) are deployed are – in purely descriptive terms – on average higher than the success rates of projects that were financed by grants only or highly concessionary FC standard loans. No evidence was found, however, that this has to do with the deployment of market funds. Instead the difference between the success rates becomes statistically insignificant when the region and the level of development of the countries in which the projects are carried out are controlled for (analysis not shown). Higher success rates can therefore be attributed more to the impact of the environment than the deployment of market funds.

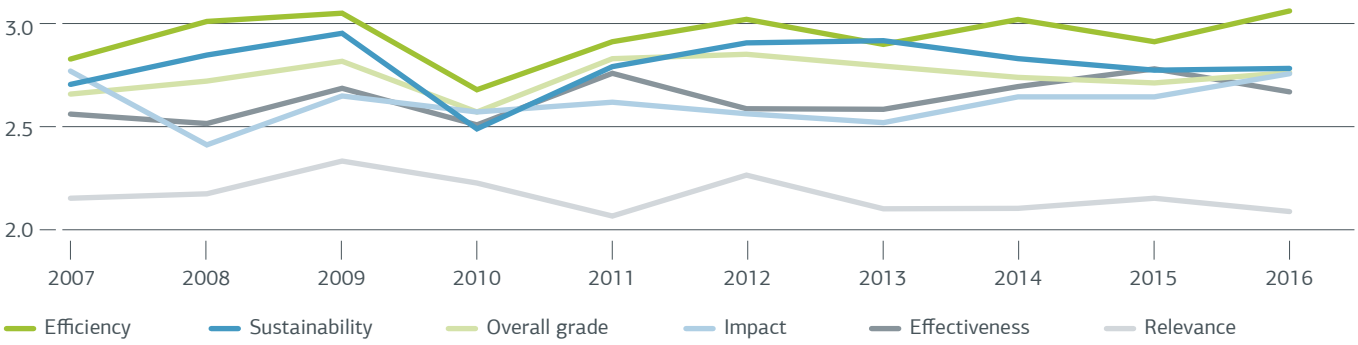
Type of financing	With the use of market funds	Grants or FC standard loans
Total number (until 10/2015) **(of which energy/transport)**	203 (82/69)	1,983 (188/376)
Total success rate **(energy/transport)**	81.3% (89.0%/82.6%)	74.9% (75.0%/74.2%)

The picture changes, however, if the type of financing is looked at in more detail. The table below makes a distinction between three types of financing: blended market funds (closer to market conditions), FC standard loans (highly subsidised) and grants only. The type of financing now proves to be significant, both for the entire portfolio as well as in the energy and transport sectors in which market funds are used with particular frequency. Compared to financing with standard loans, financing with market funds and grant financing are associated with significantly higher success rates. A plausible explanation for this result: An alignment of the type of financing with the type of project has a positive effect on the success of the projects. Projects involving basic education or basic healthcare are only suitable for grant financing while market funds, for example, are suited to energy projects that generate income. Pure grants – as the table shows – are even associated with a significant negative impact here. The transport sector, on the other hand, spans very heterogeneous projects. They include urban tramway systems and toll roads which are suitable for partial financing from market funds, but also rural roads in remote regions that aim to create access to markets, secondary schools and chances for political participation, mainly for the poor. Grants are appropriate for financing these kinds of projects – more appropriate than FC standard loans. In summary, the correlation between the success of projects and the type of financing indicates that identifying the right suggestion: type of financing plays a role in success.

	All projects	Energy sector	Transport sector
Variables	**Success (yes/no)**	**Success (yes/no)**	**Success (yes/no)**
Blended market funds	0.0812**	-0.0208	0.1486**
Grants	0.0929***	-0.2243**	0.1337**
Basic category (omitted): FC standard loans (highly subsidised)			
Sub-Saharan Africa	-0.0289	0.0835	-0.0349
Europe/Caucasus	-0.0271	0.105	-0.2776
Latin America/Caribbean	-0.0185	0.0558	-0.0490
North Africa/Middle East	-0.1274***	0.142	-0.5054***
Basic category (omitted): Asia/Pacific			
Total costs (in 10 millions)	0.0014	0.0003	-0.0022
Per capita GDP (in thousands)	0.0115*	0.0069	0.0680**
Total population (in 10 millions)	-0.0003	0.0019	0.0040*
Life expectancy at birth	0.0053***	0.0041	0.0016
Number of observations	2,054	255	400

* p<0.1, ** p<0.05, *** p<0.01

4.4. Average grade by DAC* criteria and overall by sample 2007–2016



* Development Assistance Committee

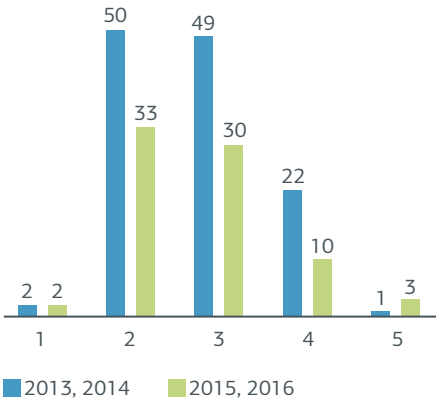
Average overall grades and average grades for the individual DAC criteria

Projects that receive overall grades one, two and three fall into the "successful" category while projects with grades four and five (and grade six, which was not awarded in this reporting period) are subsumed under the "unsuccessful" category. The estimate of success rates is therefore more precise than an estimate broken down to single grades could be for the selected sample size; at the same time, however, the information captured in rewarding different grades is lost.
The following graphs at least show this information. Graph 4.4. depicts the average grades of the evaluated sample projects over time both for the overall grade as well as for the individual average grades that were assigned to each of the OECD-DAC evaluation criteria (relevance, effectiveness, efficiency, impact and sustainability). Graph 4.5. shows the distribution of the overall grade in the periods 2013/2014 and 2015/2016.
It can be seen that two and three are the two most commonly awarded grades. A two means good impacts that correspond to those expected ex ante, a three indicates satisfactory impacts that are, however, lower than those set during planning. The average grade of all projects is considerably lower than two in all years. Therefore, actual achievements are lower than ex ante planning on average.
With respect to the individual DAC criteria, the average grade for relevance across the entire period clearly ranks first. This can be explained by the fact that the projects rarely exhibit major weaknesses in the conceptual phase, i.e. during planning. Problems typically emerge during implementation. Delays and cost increases unfortunately occur quite often – negatively impacting the average grade for the individual DAC criteria of efficiency; likewise sustainability of the impacts is rarely attested without any restrictions. Accordingly, efficiency and sustainability rank lowest in terms of the average grades for the individual DAC criteria virtually throughout.

Are high success rates and good grades always desirable?

Of course it is gratifying when many projects are rated as successful by the evaluation team, or even better evaluated as good or very good. In view of the tasks of FC, however, it is unlikely that very high success rates are achieved across the board and a high number of projects is rated good and very good, nor is this desirable. Why? FC funds are invested by our partners in risky and increasingly even fragile environments. It is FC's mission to offer financing in places where private investments or national budgets are not available. In light of these risks, the possibility that adverse conditions cause a project to fail cannot be ruled out even with the best possible project preparation and support.

4.5. Distribution of the overall grades in the samples 2013/2014 and 2015/2016



In India, rural communities are supplied with electricity with the help of solar energy systems.

Highs and lows from regions and sectors

Every individual evaluation report holds a wealth of information that is unique in its own way. It is difficult to highlight particularly relevant projects from the 157 that were evaluated in 2015 and 2016. As a result, the following pages are to be seen less a summary and more as motivation to take a closer look at the individual reports published online[1].

Table 4.1. shows the sectoral range of all FC evaluations carried out in 2015 and 2016 (including non-sample projects) – broken down by the achieved ratings.

Economic infrastructure: results in the energy sector negatively impacted by failures in China

In the 2015/16 reporting period, 22 projects were evaluated in the energy sector of which five were classified as unsuccessful. The high number of failures is quite exceptional and can be attributed to special circumstances in this reporting period as it includes four closely related projects in four locations in China. The idea at the beginning of the projects was certainly convincing. The goal was to supply electricity to rural communities – using decentralised and climate-friendly solar energy systems. But the evaluation mission found that some of the systems were never used. The reason: the Chinese government expanded the connection to the central electricity grid much faster than expected. The solar energy systems were simply no longer needed. These failures stand in contrast to many successful projects in the energy sector, including several projects rated good to promote renewable energy in Latin America or a wind farm in Morocco also classified as good that is considered a ground-breaking project to produce renewable energy in the country. Unfortunately a wind farm in Egypt could not capitalise on the success of its predecessor project because electricity production lagged far behind the planned quantities. This was the result of assumptions that were too optimistic during planning and technical problems.

In the transport sector, only one project from a total of ten was rated unsuccessful. This project involved the expansion of a port in Mozambique for which, even though it is fully operational and flourishing according

[1] https://www.kfw-entwicklungsbank.de/International-financing/KfW-Entwicklungsbank/

to the evaluators, there are very strong indications that this port is being used for illegal timber exports. As a result, the overarching impacts and thus the entire project were assessed to be unsatisfactory.

In the financial sector, a project geared toward promoting agricultural financing, which is generally considered as a particularly challenging area due to its risks, was awarded a grade of good. Also worth mentioning is the Microfinance Enhancement Facility (MEF) founded together with other donors during the global financial crisis 2008/2009 which was evaluated at the request of the operational departments. The MEF was intended to help microfinance institutions that are faced with short-term liquidity bottlenecks due to crises. Even though the MEF only became operational when the global crisis was almost over, the Facility has proven successful since then in regional crises. As a result – and because MEF is a true complement to other microfinance funds owing to its innovative allocation mechanisms and terms and conditions – FC support for the MEF was rated good.

Social infrastructure – mixed results

The water sector, just ahead of the energy sector, is the sector with the highest number of projects evaluated in this year's reporting period. Many of these projects concentrate on the waste water sector which is generally

4.6. Evaluation of all FC projects evaluated in 2015/2016 by sector*

Sector	Number	Budget funds*	Total funds*	Rating							
				1	2	3	1–3	4	5	6	4–6
Social infrastructure	**59**	**402.34**	**427.64**	**6**	**27**	**15**	**48**	**10**	**1**	**0**	**11**
Education	9	45.51	45.51	0	4	3	7	2	0	0	2
Healthcare	9	43.45	45.95	3	4	1	8	0	1	0	1
Population policy and reproductive health	2	23.49	23.49	0	0	2	2	0	0	0	0
Water supply and sanitation/waste management	23	206.46	229.27	3	8	6	17	6	0	0	6
State and civil society	12	49.27	49.27	0	9	2	11	1	0	0	1
Other social infrastructure and services	4	34.15	34.15	0	2	1	3	1	0	0	1
Economy and infrastructure	**35**	**375.62**	**724.28**	**0**	**15**	**14**	**29**	**3**	**3**	**0**	**6**
Transport	10	64.04	64.04	0	2	7	9	1	0	0	1
Energy generation and supply	22	287.11	635.67	0	13	4	17	2	3	0	5
Private sector and other services	3	24.47	24.47	0	0	3	3	0	0	0	0
Financial sector	**11**	**161.62**	**161.62**	**0**	**8**	**1**	**9**	**2**	**0**	**0**	**2**
Financial system	11	161.62	161.62	0	8	1	9	2	0	0	2
Production sector	**9**	**52.01**	**95.51**	**0**	**5**	**3**	**8**	**1**	**0**	**0**	**1**
Agriculture/forestry/fisheries	6	45.08	45.08	0	2	3	5	1	0	0	1
Industry/natural resources and mining/construction	3	6.93	50.43	0	3	0	3	0	0	0	0
Cross-sectoral/structural assistance	**43**	**396.39**	**475.75**	**0**	**16**	**20**	**36**	**4**	**3**	**0**	**7**
General environmental protection	7	39.79	97.79	0	4	2	6	1	0	0	1
Other multi-sectoral programmes	11	99.25	120.61	0	1	5	6	2	3	0	5
Emergency aid	3	28.63	28.63	0	1	2	3	0	0	0	0
General budget support	14	131.70	131.70	0	8	5	13	1	0	0	1
Other (including 7 food aid projects)	8	97.02	97.02	0	2	8	8	0	0	0	0
Total	**157**	**1,387.98**	**1,884.70**	**6**	**71**	**53**	**130**	**20**	**7**	**0**	**27**

* Figures in EUR million

* The projects captured here include all FC projects evaluated in the reporting period 2015/2016. This includes those from the 2015/2016 samples, but also those from older samples or non-sample projects that were also evaluated due to spatial or content proximity to the sample projects (e.g. predecessor phases of support) or at the request of the operational departments. As a result, distortions cannot be ruled out in this table compared to analyses that are strictly limited to the samples, e.g. because several phases of support might be implemented by the same executing agency and accordingly receive similar grades.

considered much more challenging than the drinking water sector. The measures in Vietnam rated unsatisfactory bear witness to just how challenging this sector can be. Even though the waste water treatment plants function properly, only a fraction of the pollution load actually ends up there. The sanitary facilities – usually inaccessible for central waste water collection behind the building – are equipped with cesspits. There is no drainage and disposal system that feeds the pollution load to the treatment plants. These and other failures stand in contrast to many good and very good projects including the exemplary waste water project in Albania described at the beginning of this report.

Education and healthcare are, in addition to the water sector, the most important sectors of social infrastructure. The poor outcomes in Cameroon's healthcare sector presented at the beginning of this report are actually the only failure in the area of healthcare in the last two years. Three projects to combat tuberculosis in Tajikistan are among the few projects evaluated as very good in the reporting period. The country introduced the standard of the Directly Observed Treatment Strategy (DOTS), supported by FC and other donors, sustainably and with clear success in treatment. In the education sector, it is gratifying that of the six vocational education projects evaluated, only one was classified as unsuccessful because there were often unsatisfactory outcomes in the past, particularly because not enough graduates were absorbed into the labour market.

The "green" sector – shaped by climate problems

Problems related to climate change are reflected in the results both negatively and positively during this reporting period. On the one hand, there are many good and satisfactory results in projects to protect the environment, mitigate climate change and preserve biodiversity, including DC support for the Amazon Fund to preserve the Brazilian rainforest that is described in more detail in the "Thematic workshop" section of this report. Successes were also reported in erosion control in northern China. On the other hand, climate change negatively impacted an irrigation project in northern Mali. The water sources that supply the irrigation systems were so low seasonally that the number of the growing periods and thus the harvest yields remained considerably short of plan.

The food aid projects and their relation to problems of climate change were already discussed in the chapter on crises and catastrophies. The drought periods on the Horn of Africa are becoming increasingly frequent; this kind of aid, while it can alleviate hunger, does not create any prospects for sustainable solutions.

Budget support and decentralisation projects

Evaluated projects to support government structures exist, on the one hand, in the form of general budget support. These are FC funds that are channeled directly to the state budget of the partner country and are subject to the respective national budget processes. Evaluations conducted by the international donor community attest positive results of many budget support programmes which are also reflected in our evaluations because they are primarily based on these evaluation reports.[2] Still many donors, particularly bilateral ones, have largely withdrawn from general budget support. Germany is only still active here in selected cases subject to special parliamentary approval processes. The evaluated measures to support local administrative structures, known as decentralisation projects, offer a broad range of results this time. They span a clear failure in Mali, caused by the outbreak of violent conflicts, to successful support for decentralisation in Palestine – presented at the beginning of this report as an evaluation example – all the way to a decentralisation programme in Yemen. This latter FC programme was

[2] We usually do not conduct on site evaluation missions for this instrument – or only in cooperation with others.

Lemurs in a project to preserve biodiversity in Madagascar

Work in an irrigation project in Mali

able to support all regions in Yemen – thanks to an extremely effective social investment fund embedded in the government – despite violent conflicts. The outbreak of a crisis does not necessarily lead to failure, as this programme shows.

Breakdown by region – Sub-Saharan Africa back at the bottom

The evaluation report traditionally provides the statistics by region. Every time there is a certain amount of suspense to see if Sub-Saharan Africa can surrender the spot it has held for many years at the bottom of the regional statistics to another region. This was the case in the 13th evaluation report, but this time the highest percentage of unsuccessful projects can be once again found in Sub-Saharan Africa – even though it is right behind Asia and the ranking only applies by number, not by volume. But, as many times before, it must be emphasised: this does not say much about the quality of project preparation and execution. The conditions in the countries south of the Sahara are often more problematic. The average project volumes and sectoral composition are also not identical in every region. Analyses carried out by the Financial Cooperation Evaluation Unit show: if the level of development and the sectoral composition are controlled for, there is no longer evidence of a "Sub-Saharan Africa effect".[3]

[3] See the analysis in the 10th Evaluation Report 2009 and the analysis of the type of financing at the beginning of this section.

4.7. Evaluation results by region

			Of which successful				Of which successful budget funds		
Region	**Evaluated projects**	**Share in total**	**Absolute**	**Relative**	**Evaluated budget funds**	**Share in total**	**Absolute**	**Relative**	**Ø grade**
Sub-Saharan Africa	64	41 %	50	78 %	€492.4 million	37 %	€410.3 million	83 %	2.92
Asia/Oceania	34	22 %	27	79 %	€283.3 million	21 %	€220.1 million	78 %	2.62
Europe and Caucasus	24	15 %	21	88 %	€201.5 million	15 %	€186.8 million	93 %	2.54
Latin America and the Caribbean	11	7 %	11	100 %	€87.6 million	7 %	€87.6 million	100 %	2.36
North Africa and Middle East	22	14 %	19	86 %	€278.3 million	21 %	€230.6 million	8 3%	2.50
Total	**155**[4]	**100**[5] **%**	**128**	**83 %**	**€1,343.0 million**	**100**[5] **%**	**€1,135.4 million**	**85 %**	**2.59**

[4] Two cross-regional projects were also evaluated.
[5] Totals do not add up due to rounding

Annex

Unpredictable forces of nature
The Pico de Fogo volcano on the Cape Verde Islands destroyed villages and parts of the FC-financed infrastructure when it erupted in 2014.

Evaluation: impact assessment and lessons learned

The evaluations give KfW Development Bank the opportunity to learn from its experience to continuously improve its work. They also give account of success or failure of the funded projects.

Representative random sample

Every year the projects that are ready for evaluation (around 3-5 years after the start of operations) are consolidated to form a total data set from which a representative random sample is taken stratified by sector. In 2007, the random sample replaced full surveys across all completed FC projects because the significantly higher number of completed projects and programmes and a sample size of 50 per cent make it possible to draw reliable conclusions about the success rate of all completed projects. Moving from a full survey to a sample also allows for an in-depth analysis of particular projects and issues.

What works – and why?

Beyond individual projects, the Independent Evaluation Unit – often in cooperation with universities – undertakes evaluations on selected thematic areas in order to explore more about the context of particular results, specific sectoral questions or the suitability of certain development approaches. Rigorous statistical methods can be applied here. A database with results from currently some 3,000 ex post evaluations starting in 1988 also permits cross-cutting analysis on various subjects.

Assessments, benchmarks, standards

Key criteria for ex post evaluations and rating scales

The ex post evaluation of an individual project is the final step in the project cycle of an FC project. All ex post evaluations have a standard methodological approach: actual project outcomes at the time of evaluation are systematically compared to the intended outcomes envisaged at the time of appraisal.

However, it may be the case that by the time a project is evaluated, both the methodology and the development debate have further advanced compared to the time of appraisal. Therefore, we apply additional benchmarks derived from the current sectoral and cross-sectoral concepts of BMZ or the partner country as well as from current general development policy standards. In this sense, "state of the art" is the decisive factor in evaluation.

In order to evaluate a project's development results, it is analysed based on five key criteria agreed upon by the international donor community through the OECD Development Assistance Committee (DAC): relevance, effectiveness, efficiency, impact and sustainability.

KfW evaluates the first four key criteria individually using a six-point rating scale. Grades of 1 to 3 indicate that the project is considered "successful", while grades of 4 to 6 indicate that it was "unsuccessful". Sustainability is rated on a four-point scale. The grades for the five key criteria are then combined using a project-specific weighting system to produce an overall grade (1-6). This overall grade indicates at a glance whether a project was successful or not, and how highly the success of the project is rated.

The five key criteria of the OECD for evaluations in Development Cooperation

Relevance – are we doing the right thing?

The criterion of relevance is used to measure the extent to which "the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, global priorities, and partners' and donors' policies"[1]. We therefore need to assess the extent to which the project focuses on an important development problem (development priority), and whether there is a plausible causal link between the project and its development objectives (validity of the results chain). We also need to assess the extent to which the intervention is aligned with (sector) policies and strategies of the partner country (national plans, poverty reduction strategy) and partner institutions, as well as with the goals and guidelines of BMZ and international standards (international agreements, Paris Declaration, etc.).

Effectiveness – are we achieving the objectives of the development intervention?

The criterion of effectiveness is used to measure "the extent to which the development intervention's objectives were achieved [...] taking into account their relative importance".[2] We therefore need to record and assess the actual impacts of a project. The intended results are reflected in the project or programme objectives. To be able to evaluate effectiveness, the project objectives, already in the appraisal phase, have to be supported by concrete indicators in order to measure performance. For example: year-round supply of 50 litres per day of drinking water to each of 50,000 inhabitants; 98 per cent of water samples meet WHO standards. Acceptable standards have to be defined for predictable negative side effects. Unexpected effects are also included in the ex post evaluation.

Efficiency – are results achieved in a cost-effective manner?

Efficiency is "a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results".[3] First of all, we ask whether the goods and services (outputs) generated by the project were produced at an appropriate cost (production efficiency). Even more important, however, is the question of allocation efficiency, i.e. the relation between the funds spent and the outcomes/impact achieved. Evaluating allocation efficiency requires a comparison of alternative options that achieve similar results. Here, cost–benefit analyses provide important indicators.

Impact – does the development intervention help achieve overarching goals?

Positioned above project objectives are overarching development goals, i.e. the goals that ultimately justified supporting the activities on development policy grounds. In the case of a water supply project, for example, the main issue is not how much water the target group consumes (direct benefit), but rather improvements to the group's living conditions resulting from the modernised water supply, for instance through reduced health risks from water-borne diseases. Impact cannot always be measured precisely, but has to be estimated and made plausible based on circumstantial evidence.

Sustainability – are outcomes long-lasting?

Sustainability is one of the more ambiguous terms in the international development debate. The sustainability criterion is met when the project implementer or target groups are able – once external financial, organisational or technical support has ended – to continue the project activities independently and generate positive results for an appropriate period. Risks that might affect the sustainability of the development project are evaluated based on the likelihood that they will materialise.

While the first four criteria pertain to the actual state of affairs at the time of an evaluation, assessing sustainability rests on expectations regarding the future course of a project, and thus depends particularly on estimating the prospects and risks that will influence its future impact.

[1] DAC Criteria for Evaluating Development Assistance, http://www.oecd.org/dac/evaluation/dcdndep/39119068.pdf
[2] ibid
[3] ibid

Ex post evaluations 2015 and 2016

Country	Project title	Rating	Budget funds (EUR million)	KfW's own funds (EUR million)
Social Infrastructure – Education				
Bulgaria	Equipment for two Vocational Training Centers	4	1.5	-
Central Eastern/ South East Europe	Roma Education Fund	3	2.0	-
El Salvador	Vocational training (credit guarantee fund to hedge education loans)	2	5.5	-
Jordan	Basic Education I (BSCP I)	3	9.5	-
Malawi	Primary School Education III (incl. Primary School Teacher Training)	4	7.0	-
Namibia	Support for the Education Training Sector Improvement Program (ETSIP)	3	3.0	-
Palestinian Territories	Employment Generation Programme VII	2	5.0	-
	Technical College Nablus	2	6.9	-
Yemen	Social Fund for Development (SFD) IV	2	5.0	-
Social Infrastructure - Health				
Afghanistan	Health and Education Programme Badghis	3	2.0	-
Cameroon	Sector Programme Health II	5	6.6	-
Indonesia	Dr. Wahidin S. Husodo-Hospital, Makassar	2	8.8	-
	Sector Programme Health	2	8.9	-
Pakistan	Tuberculosis Control Programme	2	6.1	-
Tajikistan	Tuberculosis Control Programme II	1	2.0	-
	Tuberculosis Control	1	2.6	-
	Tuberculosis Control Programme III	1	4.0	-
Vietnam	Viet-Duc Hospital Hanoi	2	2.5	2.5
Social Infrastructure - Population Policy and Reproductive Health				
Uganda	HIV/AIDS Prevention/Sexually Transmitted Diseases III	3	5.6	-
Zimbabwe	UNICEF Programme of Support (Fund for HIV/AIDS orphans and vulnerable children)	3	17.9	-
Social Infrastructure - Water Supply and Waste Water/Waste Management				
Albania	Sewage Disposal Korca III	1	5.0	-
	Sewerage Korca IV	1	6.0	9.0
Bolivia	Water Supply Potosí	3	7.4	-
Burkina Faso	Sewage Disposal Bobo-Dioulasso I	3	3.1	-
	Sewage Disposal Bobo-Dioulasso II	3	2.5	-
	Water Supply Ouagadougou-Ziga	2	19.4	-
Chad	Rural Water Supply Mayo Dallah and Kabbia (Mayo Kebbi West)	2	5.0	-
Ethiopia	Urban Water Supply & Sanitation	3	10.2	-
Iraq	Water Supply and Sewerage	4	3.0	-
Morocco	Sewage Disposal Khenifra/M'Rirt	2	10.7	-
	Sewerage Rural Centres II	3	23.5	-
	Water Supply North Morocco (regional cities)	2	13.8	13.8

Random sample in blue

Country	Project title	Rating	Budget funds (EUR million)	KfW's own funds (EUR million)
Senegal	Water Supply Dakar IV, long-term solution	2	10.2	-
Serbia	Water Supply and Sewage Disposal in Nis and Belgrad, Phase II	4	5.1	-
	Water Supply and Sewage Disposal, Phase III	4	8.0	-
Sri Lanka	Water Supply Galle I (Tsunami Assistance Programme)	2	7.0	-
	Water Supply Nawalapitiya	1	4.1	-
	Water Supply/Sanitation Ampara	2	2.4	-
	Water Supply Galle II	2	18.2	-
Tunisia	Rural Water Supply IV	4	7.3	-
Vietnam	Waste Water & Solid Waste, Programme Center (Vinh)	4	12	-
	Waste Water Disposal, North I (Bac Ninh, Hai Duong)	4	17	-
Zambia	Rural Water Supply North West Province	3	5.3	-
Social Infrastructure – State and Civil Society				
Benin	General Budget Support	3	2.0	-
Mauritania	Municipal Development and Decentralisation	4	1.6	-
Rwanda	Decentralisation Support Programme - Common Development Fund	2	3.0	-
	Decentralisation Support Programme - Common Development Fund I, 2nd Tranche	2	1.8	-
	Decentralisation Support Programme - Common Development Fund II, 1st Tranche	2	2.0	-
	Decentralisation Support Programme - Common Development Fund II, 2nd Tranche	2	3.5	-
	Support to the Rwanda Common Development Fund (CDF) II, 3rd Tranche	2	5.3	-
Ukraine	Support of Social Infrastructure	2	7.0	-
	Ukrainian Social Investment Fund II (USIF)	3	8.1	-
Yemen	Social Fund for Development (SFD)/Public Works	2	4.0	-
	Social Fund for Development II	2	5.0	-
	Social Fund for Development III	2	6.0	-
Social Infrastructure – Other				
Burkina Faso	Labour-intensive rural road construction HIMO III	4	3.7	-
India	Housing Development Finance Corporation III (Low Cost Housing)	3	15.3	-
Palestinian Territories	Poverty-oriented Infrastructure, EGP IV	2	10.0	-
	Employment Generation Programme, EGP VI	2	5.1	-
Economic Infrastructure - Transportation				
Cameroon	Bridge Rehabilitation II	2	2.5	-
	Bridge Rehabilitation III	2	4.0	-
	Rehabilitation National Road No. 5	3	7.2	-
	Rehabilitation National Road No. 5, Phase II	3	6.7	-

Random sample in blue

Country	Project title	Rating	Budget funds (EUR million)	KfW's own funds (EUR million)
Guatemala	Rehabilitation of the Road between San Pedro Carchá and Fray Bartolomé de las Casas	3	10.2	-
Kenya	Rural Infrastructure in Mt. Kenya-Region	3	8.1	-
	Rural Infrastructure in Mt. Kenya-Region, Phase II	3	4.0	-
Laos	Rural Infrastructure Programme Laos III	3	5.0	-
	Rural Infrastructure Programme Laos IV	3	6.0	-
Mozambique	Quelimane Port Rehabilitation	4	10.4	-
Economic Infrastructure - Energy Generation and Supply				
Afghanistan	City Network Kabul	2	6.0	-
Albania	400 kV Transmission Line Albania - Montenegro	2	8.8	35.0
	Electricity Supply Southern Albania	3	20.4	-
	Electricity Supply Southern Albania - Bistrica II	3	3.3	10.0
Armenia	Rehabilitation of the electricity transmission Armenia-Georgia	3	4.7	-
Brazil	Wind Park Programme BNDES	2	16.8	100.0
Chile	Programme RE/EE III: Credit Line	2	5.0	10.0
	Programme RE/EE IV: Credit Line	2	8.4	65.0
China, PR	Energy Efficiency Programme - District Heating Qingdao	2	7.2	7.2
	Solar Energy Gansu (photovoltaics/village electricity supply)	5	1.7	-
	Solar Energy II - Qinghai	5	7.9	-
	Solar Energy Program Xinjiang	4	4.7	-
	Solar Energy Program Yunnan Province	5	4.7	-
Egypt	Aswan High Dam - Rehabilitation of Generators	2	43.5	43.5
	Wind Park Zafarana IV	4	37.5	37.5
Georgia	Regional Power Exchange I	3	10.0	-
	Power Distribution Rehabilitation I	2	9.0	-
	Sector Program Power Supply	2	8.3	-
Montenegro	Rehabilitation Hydro Power Plant Perucica	2	4.5	3.4
Morocco	Wind Park Tanger II	2	25.0	25.0
Pakistan	Transformer Station Ghakkar	2	41.8	-
Serbia	Rehabilitation of District Heating Systems, Phase III	2	8.0	12.0
Economic Infrastructure - Private Sector and Other Services				
Africa	Investment Climate Facility (ICF) II	3	14.0	-
	Investment Climate Facility for Africa (ICF)	3	10.0	-
South East Europe	PPP Facility South East Europe	3	0.5	-
Financial Sector				
Afghanistan	First Microfinance Bank (FMFB) II	2	4.0	-
Africa	Microfinance Initiative for Sub-Sahara Africa (MIFSSA II), Tranche I	2	11.0	-
	Microfinance Initiative for Sub-Sahara Africa (MIFSSA II), Tranche II	2	25.0	-
All developing countries	Refinancing Facility to Bridge Liquidity Shortages, Phase I	2	25.0	-
	Refinancing Facility to Bridge Liquidity Shortages, Phase II	2	20.0	-

Random sample in blue

Country	Project title	Rating	Budget funds (EUR million)	KfW's own funds (EUR million)
Georgia	Programme Agricultural Financing (fiduciary holding)	2	9.0	-
Ghana	Microfinance Program II	4	4.4	-
India	Small Industries Development Bank of India III (SIDBI)	4	15.2	-
Nigeria	AB Microfinance Bank Nigeria	2	0.7	-
Ukraine	Fiduciary holding 'Support programme for Ukrainian Banks'	2	30.0	-
Uzbekistan	Financial Sector Programme (SME, Micro and Mortgage Finance Facility)	3	17.3	-
Production Sector - Manufacturing, Mining, Construction				
India	Financing and Development of Small and Medium Sized Enterprises (SIDBI IV)	2	4.9	43.5
Moldova	Support for SME through participation in ProCredit Bank, Phase I	2	1.0	-
	Support for SME through participation in ProCredit Bank, Phase II	2	1.0	-
Production Sector - Agriculture, Forestry, Fishery				
China, PR	Afforestation Inner Mongolia	2	8.2	-
	Afforestation Liaoning	3	6.1	-
	Smallholder Afforestation Hebei II	3	5.1	-
Mali	Irrigation N'Débougou III	4	12.0	-
Mauritania	Fishery Monitoring and Surveillance III	3	4.8	-
Morocco	Small and Medium-sized Perimeters for Irrigation Dades-Valley	2	8.9	-
Cross-Sectoral/Structural Assistance				
Brazil	Amazon Fund	2	18.0	-
	Amazon Basin (Fast Start)	2	3.0	-
Central African Republic	Rural Development Ouham-Pende, Phase III	5	3.3	-
	Rural Development Ouham, Phase IV	5	2.6	-
	Sectoral Programme	4	7.7	-
China, PR	Programme Urban Development	2	13.6	21.4
Djibouti	Food Assistance to vulnerable groups including refugees	2	3.8	-
El Salvador	Credit Programme for Environment and Renewable Energies	2	3.9	19.5
Ethiopia	Food Security Programme I	3	7.0	-
	Food Security Programme II	3	8.0	-
Ethiopia	Refugee operation and support in humanitarian crisis situations and strengthening resilience to food insecurity	3	14.8	-
	Responding to Humanitarian Crisis and Enhancing Resilience to Food Insecurity (WEP) I	3	24.0	-
	Responding to Humanitarian Crisis and Enhancing Resilience to Food Insecurity (WEP) II	3	19.5	-
Ghana	Funding to Support the Poverty Reduction Strategy	3	12.5	-
	Programme for Macroeconomic Support II	3	10.0	-

Random sample in blue

Country	Project title	Rating	Budget funds (EUR million)	KfW's own funds (EUR million)
Ghana	Programme for Macroeconomic Support IV	3	10.0	-
Guyana	Tropical Forest Conservation	3	2.6	-
India	Multipurpose Cyclone Shelters Orissa II	2	5.1	-
	SME Environmental Credit Line SIDBI	3	5.7	38.5
Kenya	Food Security via Healthcare Services	3	6.0	-
	Food Security Programme Kenya	2	6.0	-
Liberia	Commercial Debt Reduction Programme (participation in the Liberia Debt Reduction Facility)	3	5.0	-
Madagascar	Environment Action Plan IV a	4	1.5	-
Mali	Urban Development and Decentralisation (AGETIPE II)	5	5.1	-
Mauritania	Municipal Development and Decentralisation III	4	3.1	-
Mozambique	Programme for Macroeconomic Support	2	15.0	-
	Programme for Macroeconomic Support V	2	13.0	-
	Programme for Macroeconomic Support VI	2	9.0	-
	Programme for Macroeconomic Support VII	3	5.0	-
	Programme for Macroeconomic Support VIII	3	11.0	-
Palestinian Territories	Municipal Development Programme (MDLF II)	3	7.5	-
	Municipal Development Programme (MDLF III)	3	9.5	-
Paraguay	Sustainable Management of Natural Resources II	3	6.7	-
Turkey	Waste Management Samsun	3	9.2	-
	Municipal Infrastructure Programme I - Sivas, Siirt	3	31.0	-
Uganda	Co-Financing of Poverty Reduction Support Credit (PRSC) II	2	4.0	-
	Co-Financing of Poverty Reduction Support Credit (PRSC) III	2	4.0	-
	Poverty Reduction Support Credit (PRSC) IV	2	4.0	-
	Poverty Reduction Support Credit (PRSC) V-VI	2	7.2	-
	Co-Financing of Poverty Reduction Support Credit (PRSC) VII - IX	2	14.0	-
	Support for the National Development Plan (Budget Support)	4	13.0	-
	Food Crisis Mitigation	3	10.1	-
Yemen	Food Assistance to the Vulnerable Population in Yemen	2	21.5	-

Ex post evaluated projects of the random sample

Pooled projects: projects evaluated in 2015/2016 in addition to the projects of the random sample due to a close linkage to the impacts of a project of the random sample or a specific thematic interest.

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