

KfW Development Bank

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## Transformational Change towards a Low-carbon Pathway

Authors: Barbara Lueg, Tim Stumhofer and Jochen Harnisch

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# Executive Summary

The heuristic concept of transformational change has risen to prominence as a guiding strategic framework informing investments in system change. In recent years the heuristic has been used to assess approaches to international development and environmental issues. Sitting at the intersection of environment and development, the question of how to address climate change is increasingly being framed as a problem requiring transformational solutions. This paper assesses the opportunity of financing transformational change for climate change mitigation as a practical question of development finance. Beginning with a review of the underlying transformational change theory, the paper proceeds by considering how and when specific financial instruments might facilitate transformative outcomes with specific reference to case studies from KfW's project portfolio.

## Conceptual framing

The paper begins by applying a definition of transformational change to frame the discussion. After acknowledging that there is no universal definition for transformational change, the paper justifies the use of a definition that allows for sufficient scope to engage in a broad discussion of the topic (i. e. it is neither too narrow and constrictive nor too broad and open-ended). For these purposes, transformational change is defined as: "rapid and comprehensive transition in a market, sector or region," a definition that to be fully understood must be qualified by noting that such change can be actively incited by technological or social innovation or passively triggered by economic or political crisis.

The paper then reviews the actors that are relevant to a system shift: government, scientific research, civil society, the private sector, and development finance. The centrality of working partnerships between these actors is underscored for their role in enabling transformative strategies (i. e. from agreement through to implementation and continuous improvement). The paper moves on to describe the conceptualised stages in the transformational change process: pre-development, take-off, acceleration and system change.

## Transformation in practice: Financial instruments

Moving from theory to practice, the paper reviews the instruments available in the development finance toolkit, assessing the facilitative role they can play in accelerating transformational change. Five basic financial instruments commonly used by development banks are presented and discussed:

- Investment grants
- Loans that comprise a mix of budget funds and KfW funds (concessional loans / development loans)
- Loans extended at the going market rate, comprised solely of KfW funds (promotional loans)
- Guarantees (risk sub-participation, payment guarantee, credit collateralisation guarantee) (implemented as a guarantee mechanism or as grants)
- Performance-based payments (typically financed via grants)

The paper maps these instruments to specific stages of transformational change to provide perspective on where given instruments may best be deployed to accelerate transformation.

Additional consideration is given to other important instruments, though these are not discussed in detail. Consideration is then given to the appropriateness of the five identified instruments, with specific attention being paid to the stage in the transformational change process, the situation of the donor, the partner country / region, and other factors. The discussion concludes by highlighting that most cases will require a combination of different instruments to leverage the substantial financial resources required to support programmes / projects that can achieve transformational outcomes.

The authors are Barbara Lueg, Tim Stumhofer and Jochen Harnisch. Barbara Lueg is a consultant to KfW on climate policy and climate finance. Tim Stumhofer was a Robert Bosch Foundation fellow based at KfW Development Bank. He now works for the ClimateWorks Foundation in San Francisco (USA). Jochen Harnisch is Head of Division of the Environment and Climate Policy Unit and Sustainability Officer of KfW Development Bank.

# 1. Introduction

The concept of “transformational change” has long been used to describe momentous transitions in business, society, and politics. “World in Transition: A Social Contract for Sustainability,” a 2011 flagship synthesis report drawn up by the German Advisory Council on Global Change (WBGU) closely examines the heuristic of “transformation” for its value as a tool capable of contextualising the scale of technological, economic, and societal shifts necessary to overcome contemporary global environmental issues.<sup>1</sup> Climate change, the report makes clear, is foremost among these challenges: an unpostponable problem that will require solutions of a transformational order in countries at all stages of development.<sup>2</sup>

To fit the conceptual frame of transformation to climate change, the WBGU authors turn to the academic contributions of theorists who have shaped this field of inquiry: from Polyani’s 1944 “Great Transformation,” which first popularised the heuristic, through to the visualisations conceived by Grin et al. (2010) that underpin contemporary understanding of the concept. This paper adapts the frameworks<sup>3</sup> articulated across these sources to consider the question of how to finance the transformational change necessary to address climate change.

This paper proceeds by considering how a development finance institution like KfW could prioritise transformational interventions. The discussion that follows reviews the theory of transformational change, introducing the overarching conceptual charting of transformation with reference to the enabling conditions. Moving from theory to practice, the paper considers the instruments available in the development finance toolkit, assessing the facilitative role they can play in accelerating transformational change. These reflections are made more concrete with a review of a series of project examples from the KfW portfolio.

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<sup>1</sup> WBGU (2011), pp. 81-106.

<sup>2</sup> The international scientific community has been unequivocal in its assessment that the climate is changing and humans are causing this. Writing in its 2014 Synthesis Report, the Intergovernmental Panel on Climate Change (IPCC) states the problem clearly: “Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems”, IPCC (2014a), p.40.

<sup>3</sup> This paper uses “transformational change” interchangeably with synonymous terms, including “transformative change,” “paradigm shift,” or “structural change.”

## 2. Defining Transformational Change

Today, the transformation heuristic is frequently employed to frame the scope of change necessary to effectively address climate change – rhetorical shorthand used to deliver an *ex-ante* assessment of challenges and solutions. Increasingly the concept is being applied not just rhetorically but as a guiding principle embedded in the operations of climate policies and funding programmes.

Yet barriers remain to operationalising transformational change. Given the heuristic's use in rhetoric tailored to inspire through a description of disruptive possibility, it can be difficult to define transformation programmatically in operational language. Designing processes that align stakeholder expectations with outcomes adds an additional layer of complexity. Key to overcoming these challenges are developing systems that manage the subjectivity of “transformational potential.”

It is important to acknowledge that there exists no universally agreed-upon definition of transformational change. In light of this ambiguity, this paper defines transformational change in general terms: “**rapid and comprehensive transition in a market, sector or region.**” This formulation, while non-specific, should be read as assuming that transformation can be both actively incited by technological or social innovation or passively triggered by economic or political crisis. The conceptual framework that underpins this definition is elaborated below.

### 2.1 Participants in the transformational change process

Transformational change relies on the interaction of a range of participants and actors. Initiating or advancing a transformational process depends on the motivation, impulses, and circumstances of different people and institutions. Three possible mechanisms that could be triggered (direct and indirectly) to arrange and initialise such a transformational change are: markets, plans, and institutions.<sup>4</sup> To understand how these mechanisms function, it is critical to understand the behaviour of the actors that influence them (e. g. governments, businesses, individuals), and the dynamic relationships between them.<sup>5</sup> In the end, for positive sustainable change to occur, all relevant actors must work in collaborative harmony. This web of interaction is visualised in Figure 1.

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<sup>4</sup> Cf. Loorbach, Derk; Rotmans, Jan (2006), p. 196.

<sup>5</sup> Cf. Göpel, Maja (2014), p. 9.

**Figure 1: A pentagon of actors for transformation**



**Source:** adapted, based on Mersmann, Florian, (n.d.), p. 3.

### **National governments:**

Country ownership is a necessary precondition for transformational change.<sup>6</sup> In the context of sustainable development, governments have both the agency and responsibility to target low-carbon pathways. A sustainable low-carbon transformation depends on the political will (backed by legal status) to set targets and develop enabling frameworks.

### **Scientific research:**

Researchers from all disciplines are needed to create new knowledge in order to: (a) identify current and future risks and / or future developments trends; and (b) find solutions that address these risks / trends and avoid crisis.

### **Civil society:**

Transformational change demands a radical reconceptualisation of old approaches. Civil society plays an essential role: enshrining transparency and accountability, providing ideas, and pressuring private sector and government actors to ensure an ambitious agenda is set and achieved.

### **The private sector:**

Private sector participation is essential to both delivering tangible action and raising the finance necessary to enable action. Business and industry are often the bodies responsible for emitting activities in a given country. Consequently, their collaboration is essential in achieving a low-carbon pathway by addressing barriers to technological development, transferring technology to developing countries, and avoiding the lock-in effects of dependency on fossil fuels and other high-emitting resources and processes.

### **Development finance:**

Development finance can be channelled through multilateral bodies (e. g. the UN, the World Bank, and the IMF) and bilateral institutions (e. g. national and regional development banks). These financial institutions play a critical role in ensuring that financial support finds appropriate channels / programmes / projects to support the realisation of country-driven transformational change. As intermediaries of public money, development finance institutions should structure financing intelligently to best incentivise the mobilisation of the private capital necessary to achieve transformational outcomes.

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<sup>6</sup> e. g. “[...] transformation is considered most effective when it reflects a country’s own visions [...]” IPCC (2014b), p. 20.

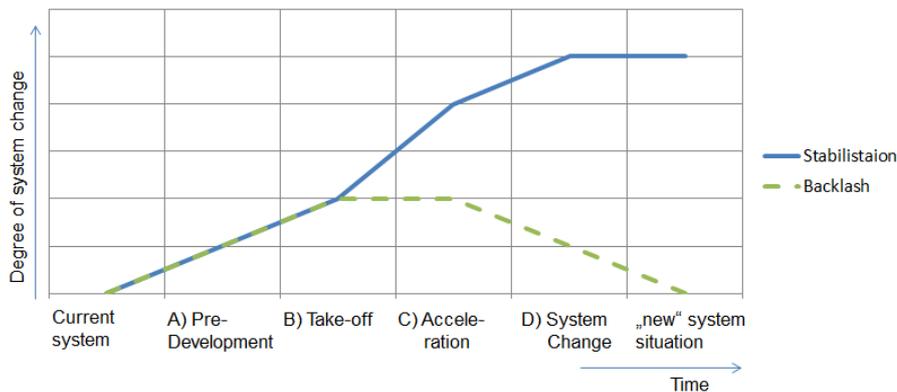
As a development finance institution, KfW is working with governments to provide financial support to transformational processes in developing countries. KfW Development Bank has a long track record of financing low-carbon interventions and is a global leader in renewable energy and energy efficiency finance.<sup>7</sup>

Working partnerships between financial institutions, governments, civil society, research institutions, and the private sector are essential if transformational strategies are to be agreed upon, implemented, and continuously improved. The paradox at the centre of this important collaboration (i. e. both the challenge and opportunity it presents) is that no single partner has the perspective to understand the whole system, instead all must work together to both comprehend the full scope of the challenge and craft prospective solutions.<sup>8</sup>

## 2.2 Transformational change process

While it is not possible to precisely forecast a process as dynamic and complex as transformational change, generalised visualisations of the process's different stages may aid in better understanding the underlying theory. Figure 2 below is intended to be generally applicable and can be used to plot transformational changes on any scale, from a country, city, or sector of the economy down to an individual project or programme.

**Figure 2: Stages of transformational process**



**Source:** adapted, based on Mersmann, Florian, et al. (2014), p. 34.

The particular idealised stages are:

### A) Pre-development:

Description: The system functions and it is not questioned by the majority of the actors, as they may not be aware of a problem / new solutions or think that a system change is too cost-intensive / complicated.<sup>9</sup>

Characteristic: It is important that actors (e. g. civil society and the research community) start asking the right questions, discuss new opportunities (i. e. visions of the future), and begin to develop new solutions.

Project basis: This could be the start of new project ideas, whereas the underlying concepts have not reached mainstream attention.

<sup>7</sup> In total, more than 60 % of KfW's development lending portfolio supports environment- and climate-related projects.

<sup>8</sup> Cf. Wesely, Julia, et al. (2013), p. 47.

<sup>9</sup> Cf. Mersmann, Florian, et al. (2014), p. 35.

## **B) Take-off:**

Description: More actors come together to consider possible ideas for change, discussing new solutions and approaches. No common understanding of the way forward is agreed, but the number of people showing interest and imagination for change grows.

Characteristic: A first distinguishing characteristic of the possible “end” of the system change might be observable. Governments, business, and financial institutions may start to become more active.

Project basis: This could be the first implementation phase of a project. It is not evident in the long-term whether the project will produce outstanding results, but a growing number of actors start supporting these kinds of projects.

## **C) Acceleration:**

Description: Emerging trends become more visible. In a positive situation, the process and concepts of the system change become ubiquitous and confront the *status quo*. Different actors begin to work in loose collaboration towards shared objectives; supportive regulatory frameworks become subjects of political discussion and perhaps even legislation.

Characteristic: Actors increasingly see greater coherence between different issues as their evolution continues to accelerate. Critically, this important phase is not immune from negative influence, while powerful actors and opponents of the system change can still impede development. Support from financial institutions (e. g., development banks) is particularly important at this stage to nurture development with technical and financial support.

Project basis: This could be a tipping point that determines whether a project will be successful. If it seems success is in reach, this is the right time at which to scale and replicate these ideas.

## **D) System Change:**

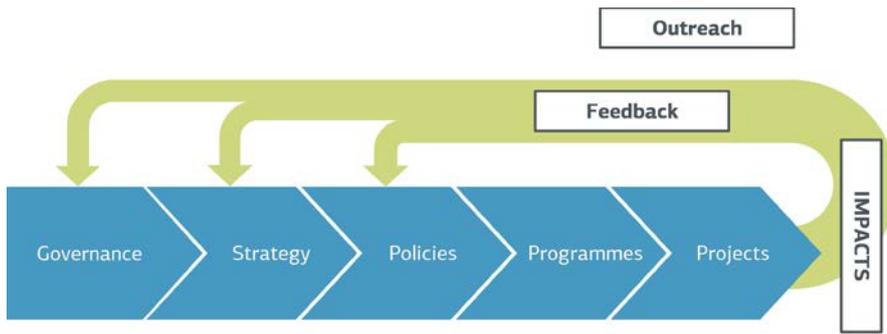
Description: At least two different endgames are possible: The *stabilisation* of the new system (transformational change has happened and stabilises at this point) and *backlash* (the transformational change process fails and the old system resumes).

Characteristic: It is too late for strategic planning to influence the pathway. The foundation has already been laid in the previous stages. Nevertheless continuous work is necessary to stabilise the “new” system.

Project basis: This could be that: a) the project idea reaches mainstream uptake; or b) the project idea fails, or fails to scale.

In Figure 3 a top-down transformational process is conceptualised in a different way: as a chain and reinforcing feedback loop. By visually outlining the flow and interactions of impacts, the figure attempts to make clear a possible transformational chain that concludes in programmes and projects capable of initiating transformational change processes at national / regional/sectoral / municipal levels.

**Figure 3: The chain and reinforcing feedback loop of a top-down transformation process**



**Source:** adapted, based on Materials on Development Financing No. 10, September 2015 – p.6.

The figure is rendered as a loop since the success and impacts of these projects are responsible for the outreach and feedback necessary for project replication and improvement. At the end of the chain, after programmes / projects have been implemented, it is critical to measure the impact in order to determine whether the chain was successful. Together with the above described stages of the transformational process, the chain with its loops might be helpful in clarifying how and in what form system changes are possible.

### **2.3 KfW financial instruments that can help to achieve transformational change**

There are different dimensions of transformational change. Key considerations include: business (including partner / contracting entities), political, and practical dimensions across KfW's portfolio.

A substantial resource transfer is needed to facilitate transformational responses to climate change in developing countries. These transfers must:

- Mobilise, catalyse, and leverage public and private capital at both international and domestic levels.
- Promote and facilitate access to resources.
- Generate synergies with overall growth and development priorities to maximise transformational effects.

Countries should be supported with tailor-made finance packages capturing national development strategies that have fully integrated climate actions as well as country-specific priorities and realities.

#### **KfW's financial instruments**

KfW receives a portion of its funds from the German federal budget. KfW augments these funds by raising additional money on the capital markets. In this paper, five basic financial instruments are presented:

- Investment grants
- Loans that comprise a mix of budget funds and KfW funds (concessional loans / development loans)
- Loans extended at the going market rate, comprised solely of KfW funds (promotional loans)
- Guarantees (risk sub-participation, payment guarantee, credit collateralisation guarantee) (implemented as a guarantee mechanism or as grants)
- Performance-based payments (typically financed via grants)

## Grants

Under German Financial Cooperation, grants funded from the German federal government's budget are mainly allocated to least developed and low income countries. The funds are not repaid. However, eligibility to receive this funding requires development policy criteria to be met including the partner country's ownership and commitment. KfW mainly deploys grants and very low-interest standard loans in least developed and low-income countries. More developing countries are also eligible for grants for projects that contribute directly to reducing poverty or to protecting global public goods.

## Development loans

In the case of development loans, KfW combines budget funds of the German federal government with own funds that it raises on favourable terms on the capital markets. When KfW's own funds are used, partner countries benefit from the excellent funding options available to KfW thanks to its AAA rating and a partial risk assumption by the German government. The terms of the development loans are significantly below the market rate. Development loans are generally structured as reduced-interest loans: only KfW's own funds, which are partially secured by a guarantee line from the German government, are deployed for the loans.

## Promotional loans

Promotional loans are loans to partners in developing countries and emerging economies deployed for projects with clear development outcomes and viable in economic terms, but for which commercial financing is not available (e. g. due to the long financing terms required). Promotional loans aim to fill the gap between development loans and commercial bank loans and give German Financial Cooperation more flexible options for action.

## Liquidity enhancements / guarantees

Guarantees refer to legally binding agreements under which the guarantor agrees to pay part of or the entire amount due on a loan, equity, or other instrument in the event of non-payment by the obligor or loss of value in case of investment. To catalyse capital flows into and within its partner developing countries, KfW can extend guarantees for eligible projects which enable financing partners to transfer to KfW certain risks that they cannot easily absorb or manage on their own. Guarantees may provide either comprehensive (financial risk) or limited coverage, including political risk. Because they directly address the risk borne by lenders undertaking development finance, simple guarantee structures may free up additional capital.

## Performance-based payments

Performance-based payments originally arose in OECD countries under the "Public Administration Reform" heading. This concerns the contractual relationship between a client (e. g. a ministry) and a service provider (e. g. health centre) for the provision of certain services.<sup>10</sup> The idea is "a shift in budget management from just controlling inputs and ensuring financial compliance to an emphasis on the outputs and outcomes."<sup>11</sup>

When employing these instruments, KfW applies the principles of responsible finance. The economic situation of the partner country concerned, its level of indebtedness, its development status, and the conditions in the sector being promoted are all taken into account when setting the lending terms.<sup>12</sup> In the following figure, you can see a range of different types of financial instruments KfW deploys. In the figure, the instruments are, on the one hand, distributed by the

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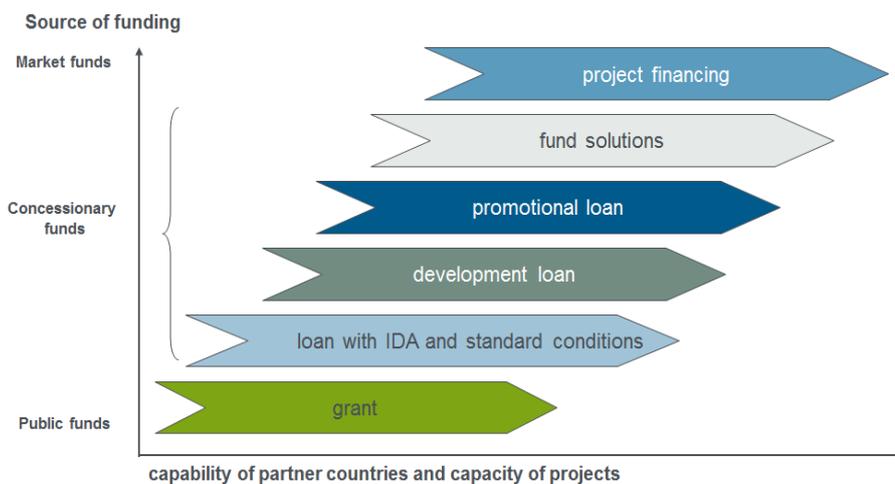
<sup>10</sup> Cf. DIE (2012), German Development Institute Ergebnisbasierte EZ-Ansätze: Definitionen, Kriterien und Konzepte - Ein Diskussionspapier, Klingebiel, Stephan, September 2012, p. 2.

<sup>11</sup> Andrews, Matt et. al. (2014), p. 8.

<sup>12</sup> KfW (2013).

source of finance (y axis) and, on the other, by the capability of the partners and the capacity of the project (x axis).

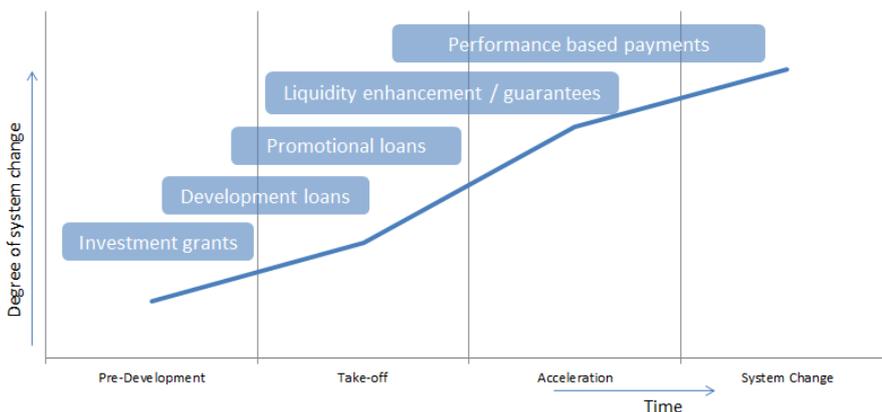
**Figure 4: An example of different financial instruments of KfW Development Bank**



**Source:** Cf. Birkenbach, Felicitas (2010), p. 2.

Guarantees, as one of the four above-mentioned instruments, are not shown in the figure since they can be used with partners at all levels of capability and in conjunction with the range of instruments considered here. The appropriateness of an instrument depends on the situation of the donor, the partner country / region, and other factors. In most cases, a combination of different instruments is likely necessary to leverage the substantial financial resources required to support programmes / projects that can achieve transformational outcomes. Nevertheless, some financial instruments might be better suited than others to specific stages of the transformational change process. Figure 5 presents the five KfW instruments described above in the context of the stages of transformational change. Each instrument is positioned in the stage where it may be of greatest utility in accelerating the transformational process.

**Figure 5: KfW’s financial instruments in the different stages of transformational change**



**Source:** adapted, based on Mersmann, Florian, et al. (2014), p. 34.

These five instruments are not the only financial interventions that might accelerate the transformational process. Other financial and political instruments, including some not offered by KfW (e. g. development policy lending), and others offered in more limited cases (e. g. policy advice), may also facilitate transformational change.

## 2.4 Creating conditions to achieve transformational change on a programme / project level

The aim of this paper is to make the transformational change concept more concrete for climate change mitigation.<sup>13</sup> The preceding sections offered a review of the concept with programme and project level applications. In this section we attempt to outline criteria and indicators that are used to assess and monitor transformational change. These criteria are based on the overarching project objectives of greenhouse gas reduction and sustainable development.

### Core criteria in the field of mitigation<sup>14</sup>

- The project needs to be host country-driven
- The project needs to have the potential to achieve significant greenhouse gas reductions in the near and long-term
- The project needs to contribute to sustainable development goals
- The results of the project need to be replicable and transferable
- The scale of the project needs to catalyse emission reductions at all levels: national, subnational, sectoral, municipal, or programmatic
- The project should prevent lock-in effects of emission-intensive technologies
- The applied technology, financial mechanism, project idea, etc. needs to achieve commercial viability in the near term
- The project should include policy actions to address barriers to low-carbon development nationally or across a sector or municipality
- The project should catalyse private sector investment and mobilise additional climate finance
- The impact of the project must show a difference to the business-as-usual (BAU) scenario. A distinct intervention that breaks from the *status quo* of existing policy, programme, project ideas, etc. is sary<sup>15,16,17,18</sup>

Not all criteria are required for every project, but the better a project fulfils the criteria, the more likely it is to possess the potential to achieve transformational change. Regardless of which criteria are defined or used, care should be taken not to apply them in an overly strict or confining manner, as it is important to give projects (especially at the early stage) the opportunity to develop.

Figure 6 illustrates the significance of replicability as a major criterion necessary to characterise a project as transformational. Replicability, on the one hand, allows the scale of the project to grow (typically corresponding to the scale of funding) and, on the other, builds the interrelationships in time and the “groundwork” necessary to maximise impact. Replicability is further supported by knowledge dissemination and enabling environments.

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<sup>13</sup> Climate-relevant programmes or projects that initiate transformational change can relate both to climate adaptation and climate mitigation. While this paper is scoped to focus on mitigation, KfW Development Bank is committed to working to achieve both transformational climate change adaptation and mitigation. For further information on transformational adaptation, see e. g., Rickards; Lauren; Howden, S. Mark (2012).

<sup>14</sup> This list of criteria does not purport to be complete; it can be extended if additional priority needs should emerge. At the present time it is a first attempt to specify the most important criteria of transformational change in the field of mitigation from KfW's perspective.

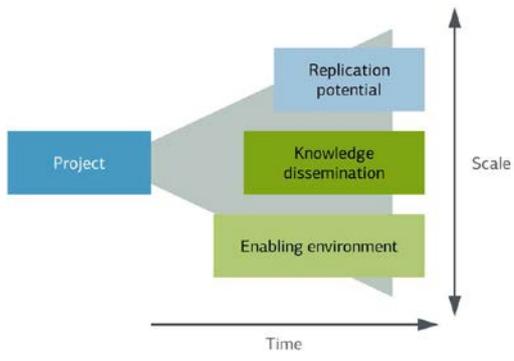
<sup>15</sup> Cf. CCAP (2013), p.1.

<sup>16</sup> Cf. Vieweg, Marion (2013), p.4.

<sup>17</sup> Cf. WRI (2013), p.15.

<sup>18</sup> Cf. UNDP (2011), p. 10.

**Figure 6: Pathways to impacts of scale**



**Source:** adapted, based on WRI (2013) p. 14.

### 3. Transformational Change in Practice

The transformational change heuristic has been employed to inform and guide the operationalisation of a number of climate policies and funding programmes. To more logically interpret the use of transformational change in these contexts, this section categorises these references into a rough typology outlined in Table 1. A case study of the United Kingdom’s International Climate Fund and four KfW projects examples are shown. These examples from the ground do not necessarily reflect the full idea of transformational change, but show how the beginning of implementing a concept could look.

#### 3.1 Typology of uses of the transformational heuristic

**Table 1: Illustrative typology of uses of the transformational heuristic in the context of climate funding mechanisms**

Application	Form of use	Description
Rhetorical	Agenda setting	Research initiatives sometimes detail the necessary mix of technological, economic and political factors that together could transform a given sector or region. This use of the heuristic is not prescriptive guidance, but an effort to show what might be possible.
	Outlining a vision	Transformative change can be used as shorthand to generally communicate the scope of change a programme wants to affect and the specific types of interventions it intends to structure and finance.
Operational	Programme design and development	Some programmes are explicitly mandated to achieve transformational outcomes. In these instances, transformational change will likely be embedded throughout the programme’s design and operations.
	Programme strategy	Programmes (formally or informally) make reference to the transformation heuristic as they develop and operationalise their funding priorities / strategies.
	Project solicitation	Programme funding solicitations may encourage project proponents to design proposals that are transformative in character.
	Project review	Programmes may outline specific transformative criteria against which prospective project proposals are assessed.
	Programme evaluation	Programmes may be reviewed and evaluated for their programmatic success in achieving transformative change.

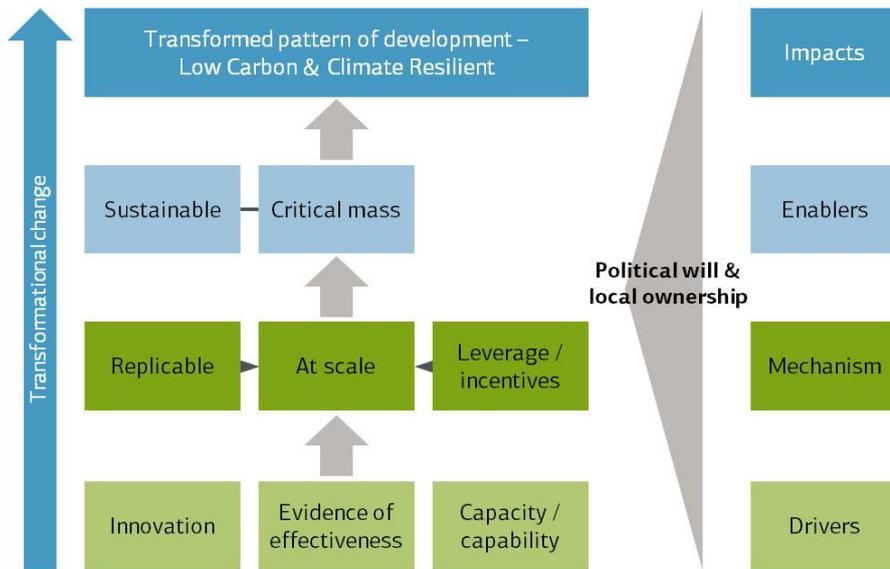
**Source:** Authors’ formulation

The rough typology outlined in Table 1 is provided to give a sense of where and how the concept of transformational change can be embedded in climate funding mechanisms. The typology is not intended as an exhaustive conceptual framework, but rather as an overview that captures the diversity of the heuristic’s climate finance applications.

### 3.2 Case study: The United Kingdom's International Climate Fund

The UK's International Climate Fund (ICF) was launched in 2011, replacing the Environment Transformation Fund<sup>19</sup> as the British government's primary channel for climate finance. As the name of its predecessor suggests, the transformation heuristic is deeply embedded in the funding mechanism's operations. Further, since it has a track record of more than four years of operations, including a mid-programme independent evaluation, the ICF provides a useful case study of how transformational change has been embedded in a funding mechanism.

**Figure 7: The ICF “theory of change for transformational change”**



**Source:** Independent Commission for Aid Impact (2014), p. 8.

Figure 8 is a visual representation of the ICF's “theory of change for transformational change,” the central strategy guiding the Fund. Specific references to transformational change throughout the ICF's development are detailed below.

**Programme design and development:** Although it is not a central pillar of the ICF's establishment, references to the Fund's capacity to achieve transformative outcomes can be found in early programme documentation. In the ICF's founding five-year implementation plan, transformational change is cited as an important consideration in the Fund's design: “There is also value in demonstrating low carbon pathways in smaller, lower income countries who could demonstrate transformational change at pace and scale.”<sup>20</sup>

**Programme strategy:** References to the transformation heuristic appear in strategy documents informing the ICF's operationalisation. This can prominently be seen in the Fund's 2014 “theory of change of transformational change,”<sup>21</sup> but it is also evident in materials created to support the Fund's strategy development. This paper's comparative review of funding mechanisms defines transformative change as an integral part of climate effectiveness: “climate effectiveness (e. g. allocate

<sup>19</sup> See: Environmental Transformation Fund (2015).

<sup>20</sup> ICF (n.d.), p.6.

<sup>21</sup> Independent Commission for Aid Impact (2014), pp. 8 and 59-60.

resources according to climate impact, ability to support transformational change, low-carbon technology expertise).<sup>22</sup>

**Project solicitation and review:** In the solicitation for the ICF's mid-term evaluation, capacity for transformational change is positioned as a central consideration informing project selection: "Strategic ICF Board discussions have also given strong weight to transformational qualities of projects and the willingness to take risk to meet ICF innovation objectives."<sup>23</sup> The ICF uses specific scale, replicability, innovation, and leverage criteria to evaluate the innovative potential of projects.

**Project review and programme evaluation:** The ICF's mid-term evaluation was structured to qualitatively score the "extent to which ICF intervention is likely to have a transformational impact" (i. e. transformative potential is a key performance indicator in the evaluation). Additional consideration is given to evaluating the Fund's alignment with strategic objectives with specific emphasis on "transformational qualities."<sup>24</sup>

**Communications:** Transformation is echoed in how British officials communicate the outcomes of the ICF. For instance, a 2013 presentation on delivering public climate finance delivered by the British Treasury's international climate change lead concludes with a slide that is headed by "UK's ICF Spending Focused on: Delivering Transformational Change" followed by specific project types and examples.<sup>25</sup>

#### **Box 1. Transformational change in development policy**

While this paper considers transformational change in the context of addressing climate change, the heuristic has been applied to a wide range of public concerns. Development policy is one related field in which transformational change is particularly salient. In Ban Ki-Moon's "The Road to Dignity by 2030," a key report on international development, transformational change is used to describe both the nature of the problem and the character of tested solutions. "The new threats that face us, and the new opportunities that present themselves, demand a high level of ambition and a truly participatory, responsive and *transformational course of action*. [...] The MDGs [Millennium Development Goals] have greatly contributed to this progress, and have taught us how governments, business, and civil society can work together to achieve *transformational breakthroughs*" (emphasis added).<sup>26</sup>

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<sup>22</sup>Cf. Vivid Economics (2014), pp. 57-107.

<sup>23</sup> Socaba (n.d.), p.2.

<sup>24</sup> Cf. Socaba (n.d.), p.5.

<sup>25</sup> Cf. HM Treasury (n.d.), p.7.

<sup>26</sup> United Nations (2014), p.8.

### 3.3 KfW projects

Four current KfW projects with transformational characteristics are described:

#### Electricity from geothermal energy in Kenya

Kenya faces uncertainty due to a power supply that is punctuated by frequent and recurring power outages. In electricity planning efforts, such as the "Least Cost Power Development Plan" (LCPDP) and the "5000MW+ Plan", the Kenyan government has focused on developing the country's plentiful geothermal resources. Geothermal power is climate-friendly, reliable, and immune from fluctuations in fuel costs. However, up-front capital costs are significant. The high investment costs of the research and development (R&D) process have presented a serious barrier for Kenyan geothermal power plants. Drilling, which accounts for over a third of the project-related expense, and the exploration of deep resources, which entails significant risks associated with finding a geothermal resource, create further challenges for geothermal production.

Olkaria I+IV: This project has extended the energy generation capacity of geothermal power plants at the Olkaria I and Olkaria IV geothermal fields in Kenya by 280 MW. Steamfield Development Bogoria-Silali Block: The Geothermal Development Company (GDC) is a Kenyan corporation wholly-owned by the Government of Kenya. With its activities, it could be viewed as a role model and knowledge broker in the region. The project supports GDC in the early stage of steamfield development at the Bogoria-Silali Block by financing drilling operations, infrastructure works, and consultancy services. In addition, KfW – together with the African Union - has set up a programme, the Geothermal Risk Mitigation Facility (GRMF), with the support of the German Federal Ministry for Economic Cooperation and Development, the European Union, and DFID to support geothermal development in 11 East African countries. The GRMF grants financial contributions to explore geothermal sites (surface studies and grants for reservoir confirmation drilling) in order to mitigate the risk associated with geothermal resource exploration. In the first two application rounds since 2013, nine projects have been awarded grants. In the ongoing third application round, 18 projects from eight countries have been invited to submit a full application with a view to being awarded grants by Q1 2016. The GRMF programme has been successfully adapted to the Latin American context, where KfW will set up a regional geothermal programme, the GDF.

#### GET FiT- Leveraging private investment in renewable energy in Uganda

To prevent power supply shortages, considerable investments are needed in Uganda's electricity generation over the coming years. The Government is committed to renewable energy and private sector participation. However, necessary investments are held back by perceived high political and economic risks, a (too) low feed-in tariff, and a lack of access to debt and equity financing. As part of the GET FiT programme, these barriers are addressed and private investment in renewable energy sources is promoted. The aim of the programme is to improve the conditions for private investment in renewable energy with an innovative bundling of results-based premium payments on the feed-in tariff as well as guarantee instruments and cooperation with private banks. So far, 16 smaller renewable energy power plants (with an installed capacity of between 1 MW and 20 MW) have been approved for support under GET FiT. Once constructed, up to 127 MW or about 600 GWh p. a. of generation will be fed into the grid. Additional projects are currently being selected for support under the third and last Request for Proposals. In this way, the implementation of a climate-friendly development path that reduces dependence on fossil fuels and contributes to poverty reduction is being supported in Uganda. The first bagasse projects will soon start delivering electricity and the first hydro projects have started construction.

#### Implementation Mexico New Housing NAMA

This project is the Financial Cooperation component of the joint Technical / Financial Cooperation programme "Implementation of New Housing NAMA in Mexico",

which is based on the Nationally Appropriate Mitigation Action (NAMA) for Sustainable Housing in Mexico launched by the Government of Mexico at the COP 17 in Durban, South Africa in December 2011. The main goal of the financial component of the project is to facilitate the progressive incorporation of small and medium-sized (SME) housing developers into the low-carbon housing market by eliminating investment barriers and improving access to finance for the construction of low-carbon housing. This will contribute to the development of a self-sustained market for energy-efficient residential houses in Mexico. The Financial Cooperation component of the project is being implemented by the Mexican development bank Sociedad Hipotecaria Federal (SHF) and consists of three main activities. (1) Financial incentives for financial intermediaries that present a portfolio of low carbon houses eligible under the program. (2) Financial incentives for small and medium-sized project developers for the use of a limited number of energy efficiency components and eco-technologies. (3) Project-specific advisory services for small and medium-sized project developers and financial intermediaries participating in the programme. Through the combination of financial incentives and advisory services under the FC component with SHF's standard programmes for guarantees and bridge loans for SMEs, the project is expected to mobilise between EUR 80 and 120 million for the construction of low-carbon houses within the implementation period of the FC component of five years.

### **Self-Supply Renewable Energy in Chile (SSRE)**

This NAMA Support Project is part of Chile's effort to reduce GHG emissions through the Self-Supply Renewable Energy NAMA (SSRE), a comprehensive programme of measures to remove barriers and incentivise the incorporation of SSRE in private and public infrastructure in the short term. In this context, the challenges are related to: (i) Financial barriers resulting from a lack of experience and incentives for project investors and financial institutions in financing SSRE; (ii) lack of awareness, capacities and experience among potential users and service and technology providers. The programme has been developed with two components: a financial component that develops a bankable project pipeline and provides incentives for financing and investment, and a technical support component which aims to improve awareness and local capacities in SSRE technologies. Through addressing the barriers faced by current small-scale RE investors in Chile, this project will produce substantial synergies to contribute to the long-term development of the RE sector in Chile. The NAMA's financial component is expected to leverage from local commercial banks and investors a total investment in SSRE of approximately USD 100 million through the financed investment grant and guarantee scheme.

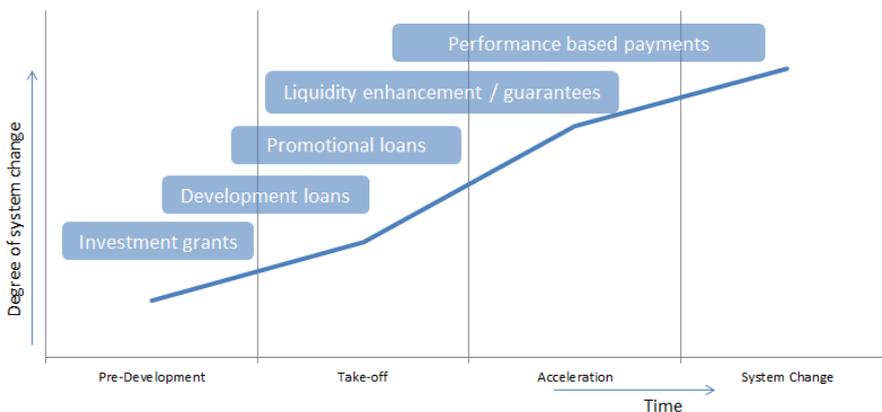
## 4. Conclusion

This paper explores the concept of transformational change. It examines how the concept has been applied in the context of addressing climate change and how it may be realised through the deployment of specific financial instruments and the operationalisation of specialised funding mechanisms.

The paper tries to generalise visualisations of the process's different stages. The stages are: pre-development, take-off, acceleration and system change. This is intended to be generally applicable and can be used to plot transformational changes on any scale, from a country, city, or sector of the economy down to an individual project or programme.

By outlining the role specific financial instruments can play to accelerate specific stages of transformation, this paper aims to add a constructive dimension to the question of how finance can catalyse transformative outcomes. The paper indicatively ties specific instruments – as applied by KfW – to particular milestones in the cycle of transformation.

**Figure 8: KfW's financial instruments in the different stages of transformational change**



**Source:** adapted, based on Mersmann, Florian, et al. (2014), p. 34.

Each financial instrument is positioned in the stage where it may be of greatest utility in accelerating the transformational process.

The paper contributes to advancing framing of the role of finance in conceptualising transformational change. An optimistic perspective on the role financial interventions may play is presented. The review also notes that some conditions will need to be in place to achieve scale. Designing and replicating financial interventions to achieve transformative outcomes offers a tremendous opportunity to achieve real changes to development pathways.

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KfW Development Bank  
Palmengartenstrasse 5 – 9  
60325 Frankfurt am Main, Germany  
Telephone +49 (0)69 74310  
Fax +49 (0)69 7431 2944  
[info@kfw-entwicklungsbank.de](mailto:info@kfw-entwicklungsbank.de)  
[www.kfw.de](http://www.kfw.de)

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