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International Cooperation on Climate Protection is Promoted by IFIs

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ABSTRACT

The author explores various aspects of cooperation of International Financial Institutions (IFIs) between themselves (blending), as well as with state and commercial structures of different countries in the field of solving international problems related to climate change on the planet. The **aim** of the article is to describe the role of IFIs, forms of cooperation and the financial instruments used for funding activities for sustainable economic development and solving climate problems in the world and in individual states. The author applies general scientific cognition **methods**, such as analysis, synthesis and systemic approach. The study **generalizes** the experience of IFIs in addressing the issues based on international statistics in areas such as sustainable economic development and global climate change. The paper provides the statistical analysis of individual countries, in particular, in the Central Asian region. The author makes a **conclusion** about the importance of the dialectical interconnection between the methods of collective and individual learning in solving global problems, as well as the development of universal procedures, instruments and criteria for assessing the achievement of goals. The formulated proposals may be of further use to regulators, relevant ministries and departments, as well as companies in cooperation with IFIs in the implementation of infrastructure and climate protection projects.

Keywords: global warming; mitigation; project funding; International Financial Institutions IFIs; infrastructure projects; environmental quality criteria; project cycle; application procedures; blended financing

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1. INTRODUCTION

Climate change will remain for many decades a crucial theme in international cooperation, economy and technology [1][1]. Thus, it is required to find integrated strategies to make mitigation of climate change work [2, 3]. Financing of climate protection projects is a key step in such synoptic global effort. Global climate policy essentially needs forward looking [4].

This article analyses to what extent and how *International Financial Institutions* (IFIs) provide suitable application procedures to identify substantially supportive projects, given the global system of values [5–11] promoted by climate protection. Actually, IFIs initially were founded to overcome poverty and economic dysfunction [12].

In their self-perception, all IFIs are strongly committed to environmental sustainability and social equity and apply certain sets of project quality criteria [13] accordingly to support investment decisions.

[1] FFF (2020), Fridays for Future. International youth movement. URL: https://www.fridaysforfuture.org/ (accessed on 30.04.2020).

2. THE BASIS: EVOLUTION AND DIALOGUE

The world view upon which this article is founded, has two core concepts: evolution and dialogue [14]. The evolutionary approach becomes visible in *Fig. 1*, which shows continuously more efficient energy systems in the world's economies when plotted as a function of economic level: on the left — energy demand per capita, and on the right — energy demand per GDP. Both these trends are extracted from the author's "*Global Change Data Base*" GCDB and suggest a *transition* in the global energy system.

Similar to the energy system, the entire economic fabric is undergoing a structural shift.

Table enumerates the main nine economic sectors of the UN economic statistics, whose evolving percentages are then plotted against GDP/cap in *Fig. 2* to show evolution.

The message of *Fig. 2* is manifold: visibly, each sector grows in absolute values while total GDP/cap grows, but its percentual contribution may increase or decrease, as measures by its distance from blue diagonal lines [15]. Intra-sector variance is highly

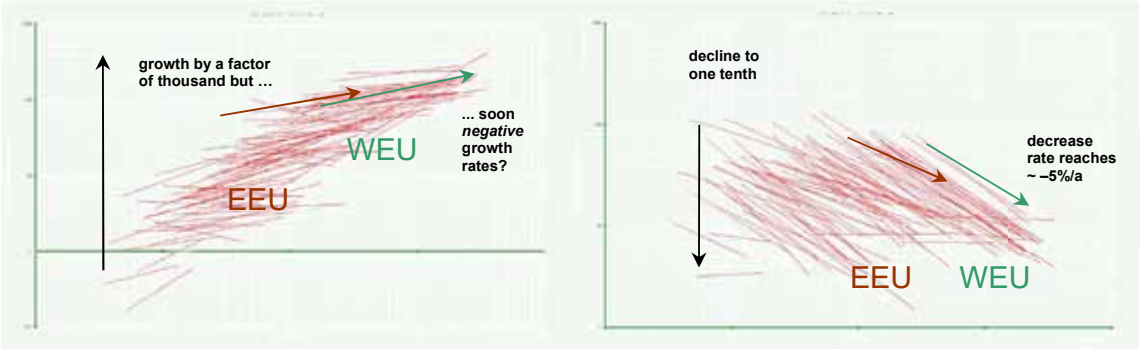

Fig. 1. **Energy demand per capita is still rising worldwide (on the left), but it already starts to saturate when plotted for all single countries as a function of economic level (Gross Domestic Product per capita = GDP/cap). Similarly, energy demand per GDP (= energy intensity) is strongly declining worldwide (on the right) and also this trend's steepness is starting to decrease strongly**

Legend: WEU = Western Europe; EEU = Central & Eastern Europe.

Source: GCDB, [15].

Table

Economic sectors according to the UN sectoral division, including this article's colour codes, while sector 1 = Agriculture is green

Colour legend for 4 industrial sectors:	Colour legend for 4 service sectors:
Violet = (2) Mining and quarrying	Orange = (6) Wholesale and retail trade
Light blue = (3) Manufacturing	Brown = (7) Transport, storage and communications
Turquoise = (4) Electricity, gas and water	Yellow = (8) Finance, insurance, real estate and business services
Dark blue = (5) Construction	Coral = (9) Community, social and personal services

Fig. 2. **Maps of the contributions of all nine classic economic sectors (above) and for the main sectors (below) to the total gross domestic product of every single country as a function of their economic levels. Colour codes are as in *Table 1:* Agriculture (green), industry (blueish), services (yellowish)**

Source: GCDB.

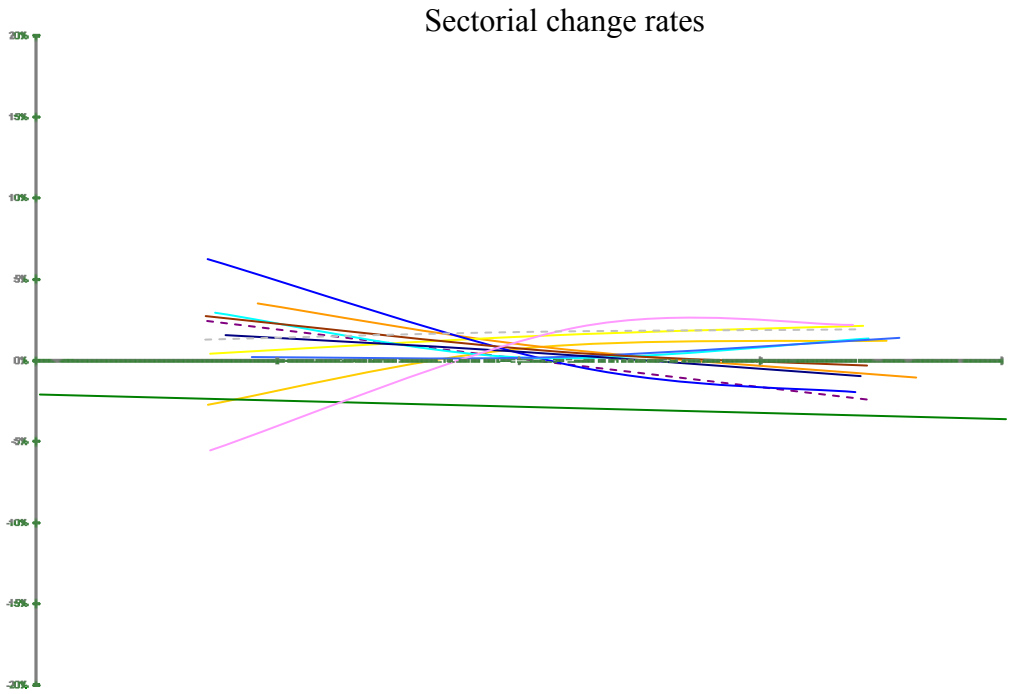

Fig. 3. **Change rates (in %) for all nine sectors as a function of GDP/capita (10 to 100000$/cap). Legend for the colours of the sectors as in *Table 1***

Source: World Bank, GCDB.

diverse, highest with geology-dependent mining, least with the aggregated service sectors. The sectors' relative growth rates seem to vary along regular patterns: fastest decrease in agriculture (primary sector since pre-history), considerable increase e.g. with the financial sectors, a recent fruit of evolution. In order to provide an overview, *Fig.* 3 shows a synopsis of all sectorial growth rates, thus providing an impression of a possibly regular sequence of GDP sectors along a hypothesised techno-socio-economic evolution.

When interpreting *Fig. 3*, the following sequences seem to govern the evolution within an economic system:

- From individual to collective;
- From material to non-material;
- From single exchange to structures and institutions for exchange;
- From direct satisfaction of needs to creation of systems for their permanent satisfaction;
- Human work force seems to be freed along all these steps, because maintaining systems appears as more efficient that individual strife.

The key message of the above sequence seems to be: once a functioning infrastructure or system has been created, it is unlikely that such a system falls apart by itself. Systems hence seems to survive better than individuals.

As a result, the human civilisational evolution is perceived here as a sequence of creation of *infrastructures*, institutions and established procedures.

New levels of challenges create new global infrastructures. Climate change is our latest global example.

History is understood here as autopoietic generation of structures: structogenesis.

At the same time, dialogue is understood as the key means to bridge (transitory) divergences of views within techno-socio-economic evolution [16]. This diagnosis does contrast with a multitude of other grand views on a hypothesised general tendency in economic world history, spanning across convergence or divergence [17, 18], namely:

a) ethically oriented globalisation concepts directed towards cultural and political consensus;

b) positive views of global development, classical development theories, exponential or over-exponential growth theories;

c) critical views such as dependency theory;

d) catastrophic theories or analyses of crises;

e) cyclical theories including narrative approaches as variants;

f) saturation paradigms, logistic curves, abatement scenarios, and post-growth concepts;

g) combined paradigms, namely integrating Kondratieff's cycles with on-going growth;

h) complexity paradigms in narrative or quantitative style, e.g., as "big history" or macro-history and more.

This rather broad world view is now focused on IFIs and their functionality in combating global warming. Section 3 describes IFIs' and their project cycles, section 4 describes blending, section 5 illustrates the example of IFCA for Central Asia, and section 6 describes the meta-level of collective learning, and section 7 provides conclusions.

3. IFIS AND THEIR PROJECT CYCLES IN GENERAL

3.1. International Financial Institutions (IFIs) in general

Background. International Financial Institutions, especially multilateral investment banks, including:

- the European Investment Bank (EIB);
- the European Bank for Reconstruction and Development (EBRD);
- the World Bank (WB);
- the Asian Development Bank (ADB);
- the German Kreditanstalt für Wiederaufbau (KfW);
- the French Agence Française pour le Developpement (AFD);
- the China-based Asian Infrastructure Investment Bank (AIIB);

are large banks with shares held by several states who have an interest to work in, cooperate with or support the countries to which the funding actions of the banks extend. The EBRD, for example, developed out of the post-war reconstruction programmes, and extended its targets to Central and Eastern Europe after the fall of the Iron Curtain.

Being based on a broad membership of borrowing and donor countries, each of these institutions operates independently. All however, share the following goals and objectives:

- to reduce global *poverty* and improve people's *living conditions* and standards;
- to support *sustainable* economic, social and institutional development; and
- to promote *regional cooperation* and integration.

IFIs achieve these objectives through loans (credits) and grants to national governments. IFIs can also provide a mix of loans and grants, equity or guarantees. Such funding is usually tied to specific projects that focus on economic and socially sustainable development. IFIs also provide technical and advisory assistance to their borrowers and conduct extensive research on development issues. In addition to these *public procurement* opportunities, in which multilateral financing is delivered to the national government for the implementation of a project or program, IFIs are increasingly lending directly to non-sovereign guaranteed (NSG) actors. These include sub-national government entities, as well as the private sector.

3.2. Working with IFIs

During the recent years, IFIs have made considerable progress in *harmonising* the way they procure goods and services. In many cases, they are now using similar policies and procedures presented on IFI websites and collected in the IG, while their minor details are not relevant to us at this point.

- Country Strategies;
- The Project Cycle;
- The Procurement Process.

3.3. IFIs' project cycles

In principle, all IFI-funded projects are implemented by the *borrowing countries*, not by the IFI providing the funds. However, all borrowers must follow the IFI's concrete rules and procedures throughout the entire project cycle. This is intended by IFIs' boards to guarantee efficiency and transparency in the use of IFI funds. When applying states consider the need for IFI investment, it is important for them and their administrative staff to understand conditions and requirements related to borrowing, including, but not limited to the following:

- maximum of loans available;
- loan maturity and payback period;
- loan guarantee needed, sovereign or non-sovereign;
- availability of concessional loans;
- debt level counted for eligibility;
- country policy on borrowing.

The project cycle, which in principle has similar stages for all IFIs (see *Fig. 4*), is the framework for the design, preparation, implementation, completion and evaluation of a project. Business opportunities occur throughout the cycle, so becoming familiar with it will increase chances of identifying an opportunity and securing a contract.

In general, an ***IFI project cycle*** consists of the following stages (*Fig. 4*):

Identification: The IFI and the borrowing country identify projects that are appropriate for the country's development strategy and suitable for IFI support. Pre-feasibility studies are often required at this stage.

Preparation: Once a proposed project has entered the project pipeline, the borrower and IFI technical staff study and define it further. The actual design and preparation of the project are the borrowing country's responsibility. During this stage, the borrower and/or the IFI frequently hire consultants to help with feasibility studies, detailed project design and the assessment

Fig. 4. **An IFI project cycle in principle**

of the project's environmental and social effects. The IFI and the Executing Agency do share some of the work of project preparation but the Executing Agency is responsible for all phases of project execution & procurement, while complying with IFI regulations.

Appraisal: IFI staff conduct in-depth assessments of the technical, financial and economic elements of the project. The appraisal phase is the IFI's responsibility and culminates in a project plan.

Negotiation: The IFI and the borrower negotiate the funding agreement and the project implementation plans. Negotiations result in a loan or funding document that is presented to the appropriate IFI board(s) for approval. The funding becomes effective after board approval and after the country has signed the documents. Funds can now be disbursed, thus commencing the implementation stage of the project.

Implementation and Supervision: Implementation of the project, including procurement, is the responsibility of the borrower and is carried out with minimal IFI assistance. However, the IFI does oversee all major procurement decisions made by the borrower. Most of the funds are spent during this phase, which provides the bulk of the procurement opportunities for contractors.

Evaluation: This final phase is an assessment of the project and of the results achieved. It is performed after the project has been completed and all funds have been disbursed.

Within any global region, it is recommended that cooperation partners apply the IFIs' *environmental and social quality criteria* at the earliest stages of the investment project identification and preparation to ensure consistency and compliance with the IFIs' requirements. Besides IFIs' mechanisms, the European Union (EU) provides financial tools such as "blended financing" and additionally emphasises regional cooperation (meaning that projects should encourage neighbouring countries to cooperate in a substantial and meaningful way), and supports IFI's recent emphasis on regional cooperation. This adds a *dialogic* dimension to IFIs [17–21].

4. WHAT IS BLENDING?

Blending is an instrument for achieving European Union (EU) cooperation objectives, complementary

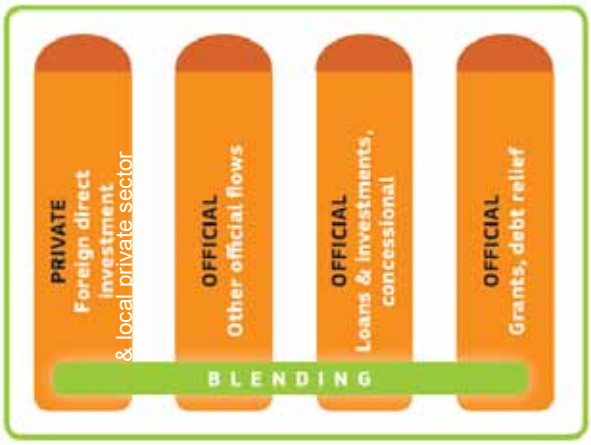

Fig. 5. **Blending cuts across silos**
Source: EU (2015)

to other aid modalities and pursuing the relevant regional, national and overarching policy priorities. Blending is the *combination* of EU grants with loans, risk capital or guarantees from other sources that may be public and private financiers. The idea behind the instrument of blending is that the EU grant element can be used *strategically* to attract additional financing for important investments for development in EU partner countries[2].

In blending, Official Development Assistance (ODA) grants are used in combination with ODA loans as well as with foreign direct investment and local private sector financing to support sustainable growth, see taken from DEVCO (2015) depicting different financial sources as "silos".

4.1. Leverage and its goals

A key concept is that of leverage [13] that answers the strategic question: which additional (i.e., marginal, in the sense of economics) fund triggers how much overall funding? This factor is the leverage factor and proud programs boast a leverage factor of 5–10.

[2] DEVCO (2015), Guidelines on EU Blending Operations, Volume 1 "General", Brussels & Luxembourg, DG for Developmental Cooperation DEVCO. URL: https://europa.eu/capacity4dev/t-and-m-series/document/guidelines-eu-blending-operations (accessed on 30.04.2020); EU (2019), Innovative Financial Instruments (blending). Brochure and information. URL: https://ec.europa.eu/europeaid/policies/innovative-financial-instruments-blending_en (accessed on 30.04.2020).

The following sub-effects are expected from appropriate leverage strategies:

- the financial leverage means to mobilise public and private resources for enhanced development impact and do more with less;
- non-financial leverage means: improve project sustainability, development impact, quality, innovation and enable a faster project start;
- policy leverage intends to support reforms in line with EU and partner country policies;
- aid effectiveness targets to improve cooperation between European and non-European aid actors (i.e. donors and financial institutions);
- visibility means to provide more public visibility for EU development funding.

Blending operations may constitute an opportunity to engage in a dialogue between the EU and regional governments on specific sector policies — also on the multi-government level.

5. THE EU INVESTMENT FACILITY FOR CENTRAL ASIA IFCA

5.1. The example of IFCA

Even if applied in the entire "Global South" (*Fig. 7*), let us illustrate this blending instrument when viewing the region of *Central Asia*[3]: pooling resources through the IFCA (Investment Facility for Central Asia) helps improve the coordination and coherence of donor actions in support of partner countries as they work *in true partnership* towards their *sustainable development* goals — as e.g. promoted in "Global Studies" curricula worldwide [19–22]. It also addresses cross-cutting challenges, such as the need to adapt to and mitigate the effects of climate change. IFCA has been established in 2010 with the objective to promote investments in Central Asia via blending. (With regard to the following it is noted here that IFCA is not an IFI itself, but an EU instrument to include IFIs.)

One basic concept of the EU instrument IFCA is blended financing (*Fig. 6*). *What can be an* ***added value*** *of "blending"?* The EU support can provide added value (EU, 2015) in the sense that it

(i) makes the difference between a project going ahead or being blocked; and/or;

(ii) improves a project's design, quality, timing, sustainability, innovation, impact and/or scale.

Blending means to mix several financing strategies. Thus, blending operations typically combine a grant element with loans, equity, guarantees or other risk-sharing mechanisms from public development finance institutions and others financiers, including — where relevant — private investors (*Fig. 6*).

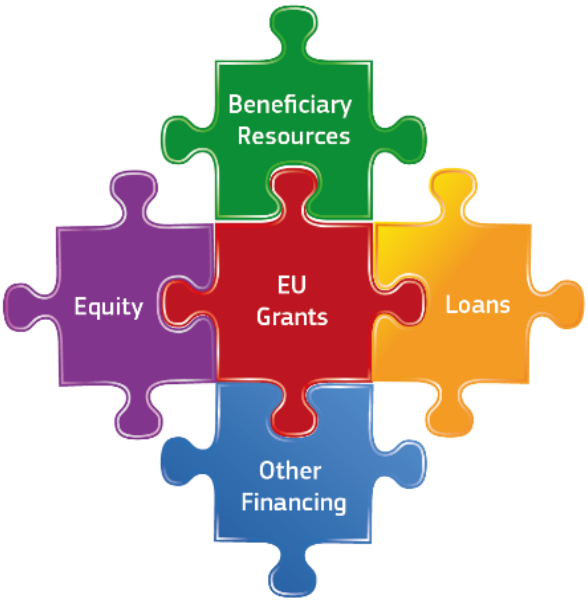

Fig. 6. **Blending components**

Source: EU Blending — European Union aid to catalyse investments. Explanation of the blending mechanism. URL: https://ec.europa.eu/europeaid/sites/devco/files/leaflet-eu_blending-2015_en.pdf (accessed on 30.04.2020).

The added value (or additionality, in this financial language) of grant support in blending operations is defined as the positive results the EU grant achieves above and beyond what could have been achieved without the grant. From an EU viewpoint, use of scarce grant funding is justified only if significant additionality is shown; this wording means here that the project would not have been implemented without the EU contribution.

On a case-by-case basis, the EU grant contribution can take different forms to support investment projects (*Fig.* 7) (EU, 2019):

- investment grant & interest rate subsidy reducing the initial investment and overall project cost for the partner country;
- technical assistance — ensuring the quality, efficiency and sustainability of the project;
- risk capital (i.e. equity & quasi-equity) attracting additional financing;
- guarantees — unlocking financing for development by reducing risk.

Blending provides various benefits to **different stakeholders**:

- beneficiary governments: a sustainable and affordable way to tap into significant additional financing for national development priorities;

[3] EuropeAid (2015), Activities in Central Asia. IFCA. URL: https://ec.europa.eu/europeaid/2015-operational-report-2015-asia-investment-facility-aif-investment-facility-central-asia-ifca-and_en (accessed on 30.04.2020).

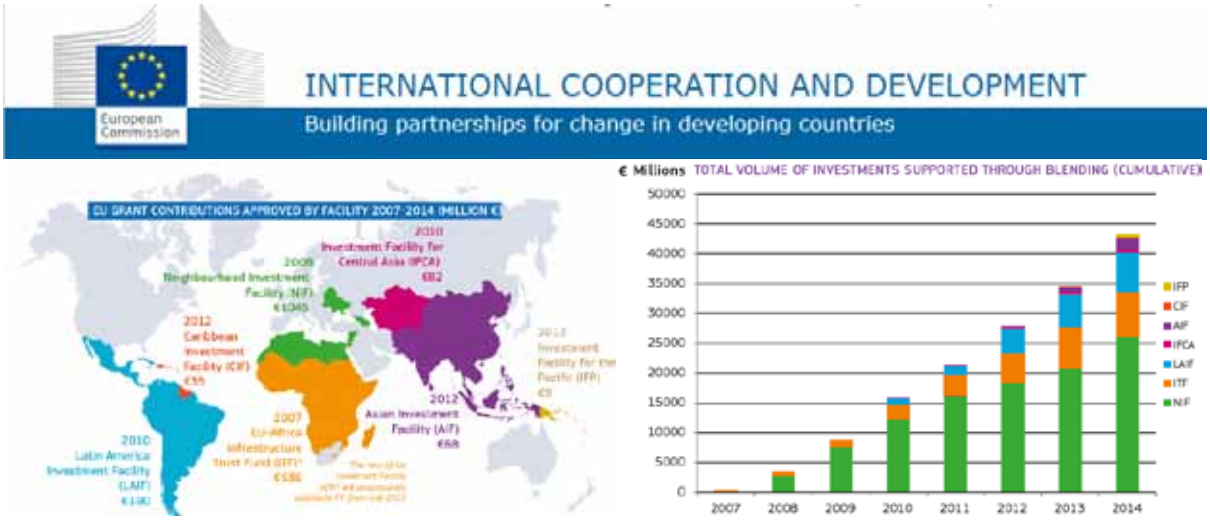

Fig. 7. **Basic blending data. On the left: geographic extension of the main EU instruments using a blending strategy: apart from Central Asia, most main developing countries are covered. On the right: the dramatic increase of EU's available financial volumes for said blending activities is clearly visible, with a clear focus on the EU neighbourhood countries (green)**

Source: EU (2015), EU Blending — European Union aid to catalyse investments. Explanation of the blending mechanism. URL: https://ec.europa.eu/europeaid/sites/devco/files/leaflet-eu_blending-2015_en.pdf; EU (2019), Innovative Financial Instruments (blending). Brochure and information. URL: https://ec.europa.eu/europeaid/policies/innovative-financial-instruments-blending_en (accessed on 30.04.2020).

- final beneficiaries: increased access to public services, infrastructure and credit, to increase socio-economic development;
- financiers: mitigate the risk of investing into new markets and sectors;
- European Union: leveraged impact of EU aid, improved aid effectiveness through greater donor and lender coordination.

The report [13] provides the list of IFCA's "environmental and social project criteria".

5.2. Two key concepts characterize IFCA: additionality and leverage

What do these concepts mean? They are relevant for higher educational processes because of their collaborative approach and their distributed roles in the overall financial decision process.

- **Additionality** — what the EU contribution will add specifically to the project in terms of the benefits defined in the application form[4].
- **Leverage** — third party funds, mobilised by the EU contribution which finance the project (*Fig.* 8)[5].

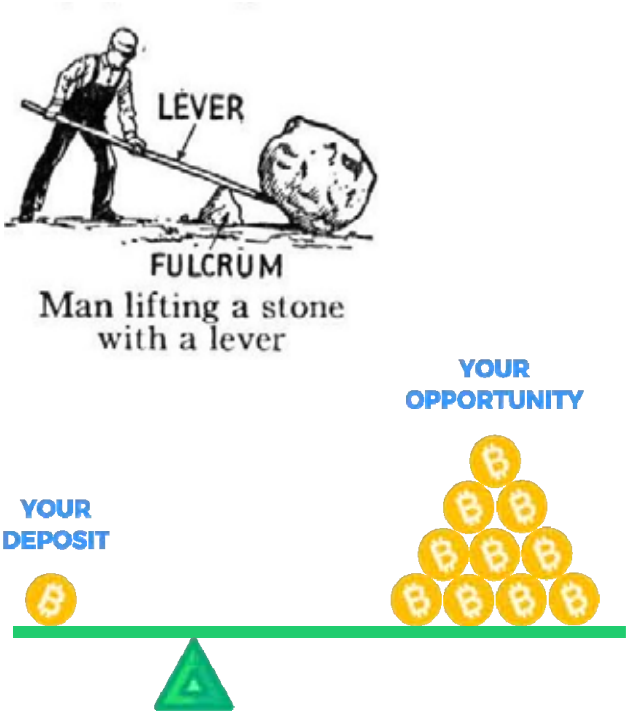

Fig. 8. **The principal functioning of leverage: the raised weight is more than the effort, both in the case of physics (on the left) and of financing (on the right); the "B" symbols represent any funds**

[4] EIB (2016). The European Investment Bank. Including relevant subpages. URL: http://www.eib.org/about/index.htm (accessed on 30.04.2020).

[5] EU (2015), EU Blending — European Union aid to catalyse investments. Explanation of the blending mechanism. URL: https://ec.europa.eu/europeaid/sites/devco/files/leaflet-eu_blending-2015_en.pdf; EU (2019), Innovative Financial Instruments (blending). Brochure and information. URL: https://ec.europa.eu/europeaid/policies/innovative-financial-instruments-blending_en. (accessed on 30.04.2020).

Fig. 9. **On the left: situations in which blending appears as helpful and suitable. On the right: blending rules distinguish between three basic sets of financial institutions (FIs) being qualified for different roles of Lead FI and Supporting FI**

Source: Investments and EU Blending: ppt file from the training for EC staff, 25–27 October 2017, New Delhi, India.

Blending as such is defined as the strategic use of a limited amount of grants to mobilise financing from partner FIs and the private sector to enhance the development impact of investment projects (see *Fig.* 8).

5.3. Themes for IFCA

The *Investment Facility for Central Asia* (IFCA) is the instrument with which the European Union supports the development priorities of its partner countries in the Central Asia region. The facility provides assistance in implementing key infrastructure projects that contribute to inclusive and sustainable growth in the region. Since its launch in 2010, the IFCA has helped beneficiary countries in Central Asia to implement major energy, environmental and social programmes that have had a significant impact in terms of economic growth and job creation[6]. Some of the present analysis was performed for Central Asia[7].

The larger political context framing IFCA is:

- **New European Consensus for Development**: alignment with 2030 Agenda for Sustainable Development and Addis Ababa Action Agenda on Financing for Development
- IFCA's catchword is: from millions to trillions!
- IFCA's ultimate goal is: job creation and inclusive sustainable growth.

Like the other EU blending facilities, the IFCA steps in (see *Fig.* 9) when the market fails to offer sufficient or affordable financing for capital-intensive infrastructure projects that have the potential to promote inclusive and sustainable socio-economic development and change people's lives. By using grant funding, the IFCA has leveraged loans from finance institutions to implement infrastructure projects in the five countries of Central Asia.

The IFCA's overarching aim is to contribute to sustainable development and economic growth in the region. To achieve this, it focuses on projects with the goal of improving **energy infrastructure** and **social service** systems, particularly in health and education. It also aims to increase **protection of the environment** and to support partner countries in their efforts to adapt to and mitigate the effects of **climate change**. A key aim of the facility is also to tap into the potential of the **private sector**, particularly small and medium-sized enterprises (SMEs), as an engine to generate growth and create jobs.

The European Commission allocated €166 million to the IFCA for 2010–2016. The IFCA uses this funding to provide support in a number of ways. Contributions are made to projects in the form of investment grants, technical assistance or risk capital and other risk sharing instruments (*Fig. 10*). Sometimes the IFCA contribution can be a combination of two or three of these elements. Investment co-financing has been the primary form of support used by the facility over the past six years, accounting for 61% of total IFCA contributions. Technical assistance, which helps ensure the long-term sustainability of projects, has accounted for almost 31% of support, and risk capital has accounted for 8%.

The IFCA sets up partnerships with multilateral and bilateral European Finance Institutions, Regional Development Banks, partner countries and

[6] IFCA (2016). Investment Facility for Central Asia. URL: https://ec.europa.eu/europeaid/2016-operational-report-ifca-aif-ifp_en (accessed on 30.04.2020).

[7] Wecoop2 (2017). EU-Central Asia enhanced regional cooperation on environment, climate change and water. EU project, co-organising the EU-Central Asia Working Group on Environment and Climate Change. URL: http://wecoop2.eu/ (accessed on 30.04.2020).

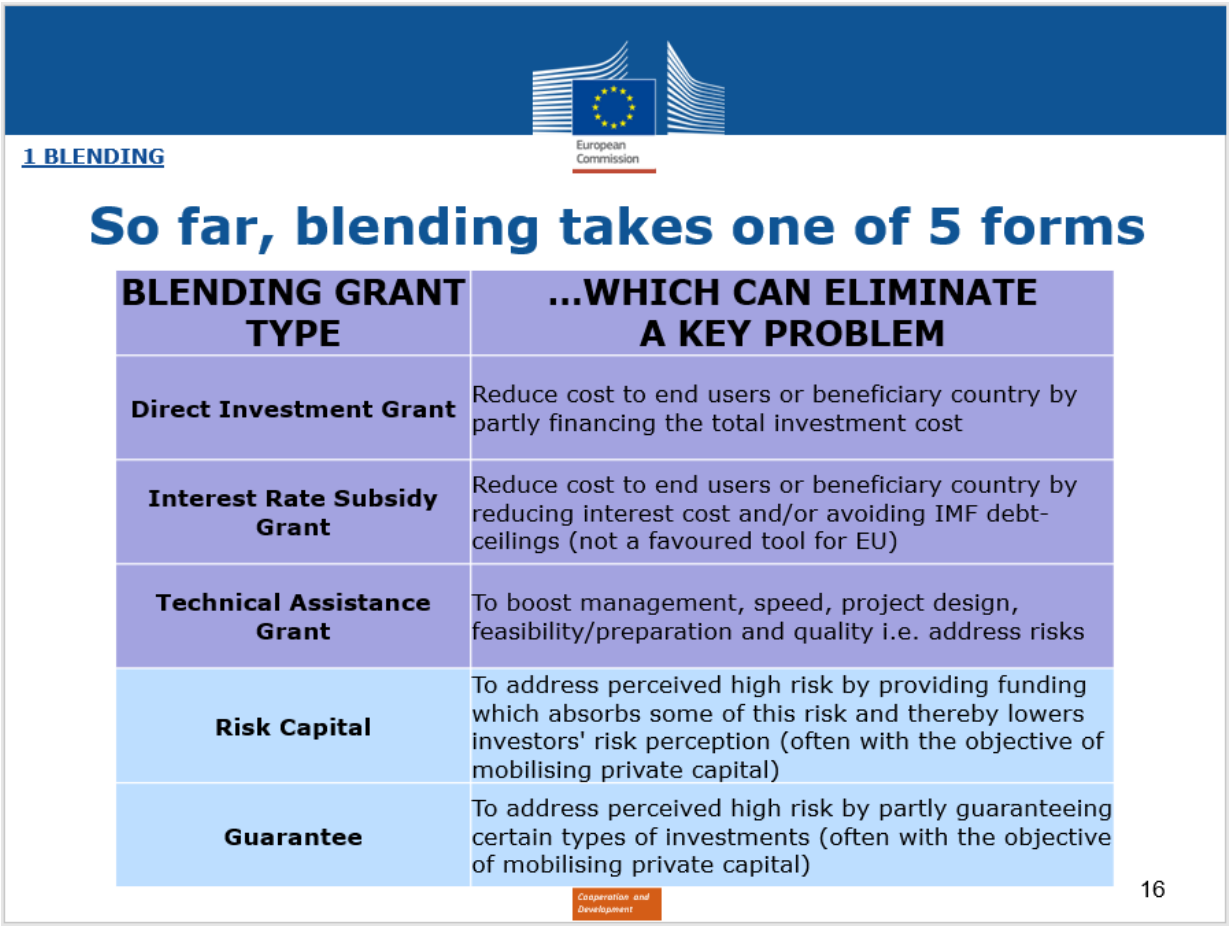

Fig. 10. **Five forms of blending after the Commission definition (EU 2017: 137)**

Source: Investments and EU Blending: ppt file from the training for EC staff, 25–27 October 2017, New Delhi, India.

beneficiary institutions in Central Asia. The range of international expertise and regional knowledge that these partnerships provide ensures that IFCA funding is used to the greatest possible effect. Furthermore, the IFCA Board, which is made up of representatives from the European Commission, Member States and other donors, works closely with the European Commission to ensure overall coherence of IFCA operations.

Global warming mitigation measures include:

- limiting the emission of greenhouse gases caused by human activity;
- improving energy efficiency and increasing energy saving;
- increasing the production and use of renewable energy;
- protecting and/or enhancing greenhouse gas sinks and reservoirs.

Global warming adaptation measures include:

- reducing human and environmental vulnerability to the impact of climate change;
- promoting climate change adaptation technologies, including the related infrastructures;
- measures for emergency prevention and preparedness to cope with natural disasters.

At the 21st Session of the Conference of Parties to the United Nations Framework Convention on Climate Change (COP21) in Paris in December 2015 [23], countries pledged to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

When tentatively comparing the foci of action of those IFIs cooperating most often under the IFCA umbrella to date, it may be observed that

- WB concentrates among others on water resources, power lines and power grids;
- EBRD concentrates on water supply, sanitation and renewable energy;
- ADB concentrates on water resources, agriculture and irrigation.

WB often gives loans to state governments, EBRD addresses the private sector and local governments; ADB addresses both.

6. ON THE META-LEVEL: IFIS' ROLE IN COLLECTIVE LEARNING

Evolution, and especially economic evolution (see Section 2) is understood in this article as being fuelled by collective learning procedures. Similar to individual learning, where personal world views develop, collective understandings and world views evolve through *collective learning*.

This brief IFI analysis was conceptualised and started on the basis of practical experience with IFIs, namely during the largest EU environmental project in Central Asia, where the author (acting as long-term environmental governance and climate change expert) invited several experts from each portrayed IFIs to quarterly conferences with the target to implement ten large-scale transboundary infrastructure projects in the five Central Asian states in cooperation with their governments.

Based on the author's university teaching experience since 1997 (and subsequent three decades of development of didactic procedures), he perceives the design of institutional structures as analogous to advanced, *collective learning design*. Insertion of humanitarian responsibility into our tertiary education[8] is actually a very profound target of all pedagogy.

In this article, combating climate change is seen as a learning endeavour which need suitable global institutions with suitable rules, procedures and structures. This article investigates how these should look like.

The question is: Can International Financial Institutions (IFIs) save the globe from the greenhouse effect and from global warming? When couching in a (neo-)liberal philosophy, which is optimistic of the options for free-market forces to optimally allocate resources[9] [3] to direct climate-relevant action, then possibly the answer is yes.

However, such optimism necessitates clearly guided framework conditions for the functioning of "free" optimal allocation of capital to available project ideas.

Actually, during the past years, practically all such IFIs (list below) established catalogues of "environmental and social quality criteria" which should guide project proposals to optimally obey long-term global society's preferences for sustainability. More specifically, project proposals presented to IFIs for (co-) financing are measured against these detailed quality criteria, and if a proposal does not sufficiently meet the criteria it will not be funded. Such quality criteria in the field of environment will represent the main body of the present article. These were analysed in 2017 by the author and an "Investor Guide" [13] for large infrastructural projects was created (*Fig. 11)*. In the context of the then largest environmental EU project in Central Asia, the "Investor Guide" has the target to inform actors and stakeholder such as governments and industry about options to receive funding for large infrastructure projects of some 10–100 M€ per project [24]. In practice, several IFIs are co-financing such large, and often transnational projects, such as large dams, power plants, irrigation systems, agricultural amelioration, regional waste management — briefly, often climate change mitigation and adaptation projects.

This article understands the act of establishing a rule-based procedure for identifying global infrastructure construction as an act of "*collective, global learning*".

Today in our rule-based societies, higher education providers use sets of quality criteria for defining, implementing and monitoring quality on the level of individual learning. Equally, in the domain of "*collective learning*", such compliance [25] has to be guaranteed: the world's international financial institutions (IFIs) and their "environmental and social quality criteria" are here seen as a lever for society to master the new challenges of climate change in a worldwide environment full of competitors, and competing paradigms.

First, infrastructure projects (such as powerplants, dams or waste management plans) proposed to IFIs are urged to satisfy Quality Assurance criteria to improve their operations. Second, they must satisfy the society's needs for lifelong employability. Third, they have to enhance a respectful economic culture through leading to competency-based societal build-up.

The deeper meaning of an IFI is to support materialisation of societal values. For selecting submitted projects, IFIs use appraisal procedures with quality criteria on environment and climate change.

Again, in this article, the additional target (beyond portraying IFIs' work) is to highlight in which way their actions can be perceived as "societal learning" or "collective learning" with humanity facing the challenge of global warming. IFIs are portrayed and evaluated while keeping in mind that these are key players in the endeavour of mankind's learning experience of how to manage global change, globalisation, and especially climate change.

In this view, the role of an IFI is *at the same time the role of a learner and of a trainer* for learning of other agents (by imposing their rules on the project application and financing mechanism), mainly of project implementers such as large international companies

[8] EUCEN (2017), UNIBILITY — University Meets Social Responsibility. URL: http://www.eucen.eu/projects/unibility (accessed on 30.04.2020).

[9] WB (2017), The World Bank. URL: http://treasury.worldbank.org/cmd/htm/GreenProjectCycle.html (accessed on 30.04.2020).

Fig. 11. **The author's "Investor Guide" for large infrastructural projects to be co-financed by IFIs collected information on their "environmental and social quality criteria" [13]. Stakeholders (i.e., learners in the endeavour of societal learning) use it as "course manuscript" guiding through fact-based content of their learning endeavour. The graphical composition of the title pages shows the target to inform stakeholders in Central Asia (on the left) about IFIs' options to pour" money into these five countries, symbolized by the shape of a funnel targeting this geographic region (on the right)**

and governments [26]. Thus, and because of their institutional situatedness amidst the global control system of finances, IFIs can be in a position to considerably accelerate "global learning", i.e. humanity's answer to global warming.

In comparison to individual learners, all IFIs (such as the World Bank, European Bank for Reconstruction and Development EBRD, European Investment Bank EIB, Asian Development Bank ADB etc.) can be perceived as "collective learners" are strongly committed to environmental sustainability and social equity and apply targeted sets of project quality criteria [27] accordingly to support investment decisions. As a quick example describing the main European Union bank, EIB had defined four priorities[10], supporting projects that make a significant contribution to sustainable growth and employment, specifically in the following four priorities: (1) innovation and skills, (2) SMEs (small and medium enterprises) and midcaps (companies with middle-size share values), (3) infrastructure, and (4) climate and environment.

As a case study on the level of sovereign republics (representing the real actors and subjects of "collective learning") in the area of Central Asia, the EU had launched a regular consultative process entitled the "EU-Central Asia Working Group on Environment and Climate Change"[11] which is intended to the professionals of Central Asian state administrations who are involved in identification and preparation of international investment projects in the areas of Environment, Water and Climate Change.

The main purpose of this "collective learning process" [16] is to:

[10] EIB (2016), The European Investment Bank. Including relevant subpages. URL: http://www.eib.org/about/index.htm (accessed on 30.04.2020).

[11] WGECC (2017), EU-Central Asia Working Group on Environment and Climate Change. Regular consultative process on the state level. URL: http://wecoop2.eu/events/ (accessed on 30.04.2020).

- apply economic knowledge and procedural skills required to develop bankable project proposals that are compatible with the *requirements of climate change*;
- to raise awareness on mechanisms and conditions of various relevant IFIs and donors providing funds for climate change adaptation and water and environment projects;
- to improve knowledge on preparation and submission of project proposals;
- to support implementation of concrete measures included in relevant policies or strategies and promote exchange of experience between actors and countries.

7. CONCLUSIONS AND RECOMMENDATIONS

The target of this article was planned as twofold:

- (1st) Inform everybody interested about the roles and rules of IFIs, and to understand their activity as part of an endeavour of worldwide "societal learning", namely to protect our planet from global warming and other environmental and social threats. IFIs have an increasing option to act as ally when fighting climate change — even if this might still seem unexpected when sticking with old implicit subjective convictions.
- (2nd) To inspire those from the educational community who are willing to draw conclusions from the domain of "societal learning" for their own work in "individual learning" — when courageously deliberating the potential hypothesis that individual and societal learning might have common structural success factors.

Regarding the *first* target: as explained at the end of article 3, the Europe-centred IFIs were fastest to incorporate climate protection necessities into their structures and procedures. While AFD and KfW exhibit strong self-conviction of being leaders in adapting their criteria sets for project assessment to the needs of climate protection, the practical implementation of this lucky self-definition is still to be expected. Together with the "EU's bank" EIB, and to a lesser extent EBRD, who both declare climate protection as important mission targets, these IFIs should coordinate their enhanced versions of "environmental and social project criteria". Such cooperative effort should be supported by well-established national environment agencies, preferably from EU countries, with high level of experience in international projects.

Regarding the *second* target: in "collective learning", the establishment and implementation of clear success criteria was diagnosed as being an essential prerequisite. Additionally, the unceasing renewal of success criteria on the basis of recent scientific findings and in the light of how these recently proved to work or fail. Performance analysis and "manoeuvre critique" will enable the learning actors (i.e. IFIs) to swiftly adapt their definition of targets, operational criteria, and thus primary "work products", namely funded large-scale infrastructure projects. Analogously, in "individual learning", a pragmatic and very quick re-adaptation of a learner's ethic orientation may be essential if the learner wants to survive. Else, sinking down into negligence and lack of relevance for society would be the result. As many of us, i.e. the readership of this volume, might work in tertiary education, the structural reluctance of university structures to renew themselves might serve as an example to be avoided. The author claims that universities and academies of science should be any society's location where societies rejuvenate themselves, but not petrify. The author's personal experience suggests that both in the former USSR and in Europe the design and selection of curricula often reflects the societal needs from half a century ago, but not of the present and future. Structural modernisers such as our youth[12] should thus individually target to overcome the bias of classical disciplinary content definition at universities and take the risk of non-classical avenues for higher formation.

Summing up, this article has been undertaken to portray the endeavour of establishing worldwide sets of "social and environmental criteria" (under whatever name they may appear in different IFIs) as a task of global "collective learning" in the face of the global climate crisis.

The article enumerated the various sets of such criteria that are employed to filter out non-sustainable project applications (at least in theory — and to an unknown degree also in practice) and suggests that they represent a meaningful step towards worldwide rule setting.

The *main conclusion* is that the toolboxes (i.e., the criteria lists plus the project application procedures) from *individual* learning may also be applied to *collective* learning and *vice versa*. Thus, all enhancement provided by "individual pedagogy and didactics" should be invested into "collective pedagogics and didactics", including knowledge on how to maintain high levels of enthusiasm, professionality and achievement.

[12] FFF (2020), Fridays for Future. International youth movement. URL: https://www.fridaysforfuture.org/ (accessed on 30.04.2020).

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