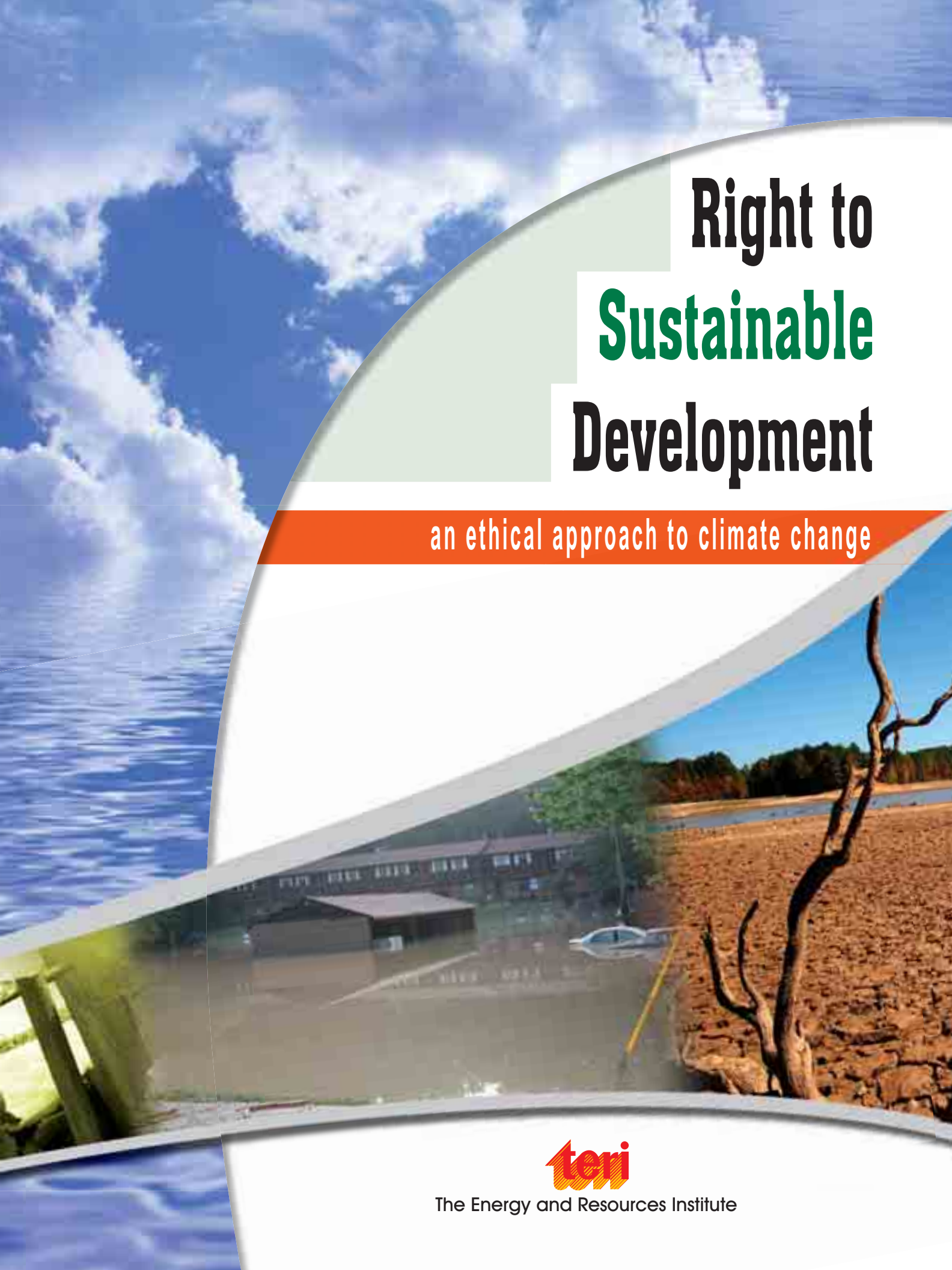
Right to Sustainable Development

an ethical approach to climate change



teri
The Energy and Resources Institute

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Background

Sustainable development essentially implies the well-being of mankind by integrating social development, economic growth, and environmental protection. The concept was formally coined by the Brundtland Commission in 1987 which defined it as development that *'meets the needs of the present without compromising the ability of future generations to meet their own needs'*. However, various international treaties and declarations before and after the Brundtland commission, such as the Universal Declaration of Human Rights, 1948; The International Covenant on Economic, Social and Cultural Rights, 1966; The Declaration of the United Nations Conference on the Human Environment, 1972; The Declaration on the Right to Development, 1986; The Rio Declaration on Environment and Development, 1992; and so on, have acknowledged right to sustainable development in different forms.

The UN Framework Convention on Climate Change (UNFCCC) in its preamble suggests that its interpretation ought to be in the context of the pertinent provisions of the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June 1972, which proclaims:

'[m]an has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations…'

— Principle 1, the Stockholm Declaration, 1972

The upholding of, right to equality and adequate conditions of life and well-being for present and future generations, the Declaration gives the Convention an overriding ethical and moral connotation to promote sustainable development. While the Article 3.4 of the Convention proclaims 'right to promote sustainable development', elements of equality are embedded in Article 3.1 which recognizes principles of 'equity', 'common but differentiated responsibility' and 'respective capabilities'. However, the Convention does not define the term 'equity' leaving it open to interpretation. As a result, there exist multiple criteria answering 'equity of what' question in the climate change negotiation. The challenge, therefore, is in terms of resolving these issues consistently causing impasse in negotiations.

A way forward would be to have an ethical approach to such issues. For instance, ethically every individual has an equal entitlement to global atmospheric space in pursuit of sustainable development. Therefore, though countries have sovereign rights to undertake a developmental path, they also have a global responsibility to ensure that it is not at the cost of individual entitlements. However, historically developed world have encroached upon the individual entitlements of the developing countries.

TERI proposes an accounting principle that corrects for the historical encroachment of individual entitlements. In doing so, it identifies individual entitlements both historical and that of future; its translation as respective Parties' share in the global carbon budget; and a mechanism to account for the historical responsibility which is determined as financial obligations in the form of climate debt. It gives a clean slate to Annex I Parties from their historic responsibility and allow for eliminating the differentiation amongst all Parties. This would give an ethical and equitable option to provide an objective criterion for the right to sustainable development; and create equal opportunities, and build capabilities to exercise this right.

TERI's proposal

The carbon budget approach

Limiting the global temperature rise to 2 °C is indispensable and inability to do so would lead to dangerous and irreversible impacts of climate change. There is also a political consensus on the 2 °C target as the political leaders at different forums such as G8 and Major Economies Forum (MEF) have already agreed to it. This would however require substantial restriction of global emissions. It is estimated that for limiting temperature rise to 2 °C with two-third and three-fourth probability, emissions from now till 2050 should range between 750 Gt of CO_2 to 600 Gt CO_2 respectively (WBGU 2009)[1]. Therefore, an equitable approach based on carbon budget shall be applied henceforth to be able to restrict the emission levels.

The TERI's approach to carbon budget is based on the following two broad assumptions.

1. At the beginning of industrialization, that is, in 1850, there existed a common understanding of carbon budget which would restrict global temperature rise within 2 °C in 2050.
2. Also, the principle of equity and fairness in allocation of carbon budget were duly recognized to promote sustainable development for all

Given these assumptions let,

Total cumulative emissions from 1850–2010 be (C_p)

The emissions cap from 2010–2050 to keep below 2 °C be (C_f)

Carbon Budget over the 200 years period from 1850 to 2050 be (CB)

Then,

$$CB_{(1850–2050)} = C_p + C_f$$

This approach allows for accommodating emissions that have occurred in the past and also accounts for keeping the future level of emissions such that the temperature rise is under the 2 °C. Figures 1 and 2 illustrates carbon budget for Scenario 1, that is, two-third probability of limiting to 2 °C in 2050 and Scenario 2, that is, three-forth probability of limiting to 2 °C in 2050.

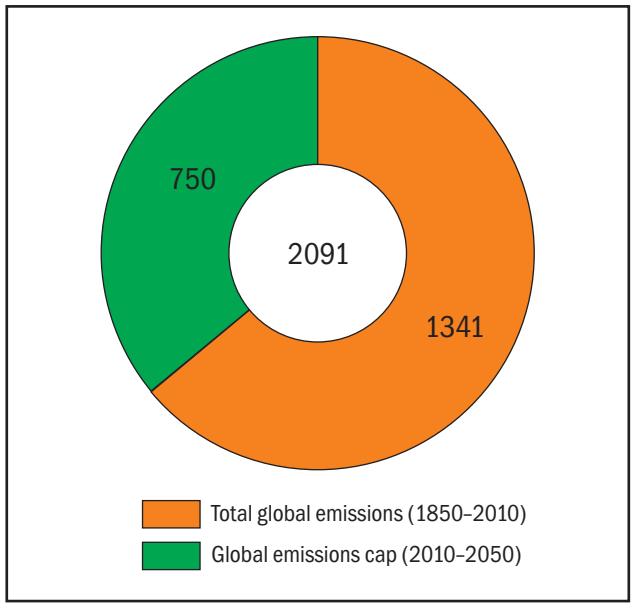

Figure 1 Carbon Budget: Scenario 1

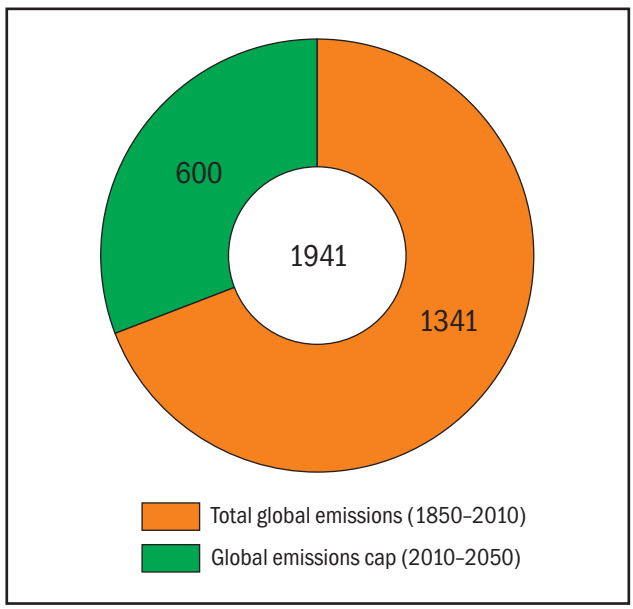

Figure 2 Carbon Budget: Scenario 2

[1] Due to the great longevity of CO_2 in the atmosphere, this particular substance will become increasingly dominant in the long term compared to short-lived greenhouse gases and aerosols. For that reason, only CO_2 emmissions are considered.

The carbon budget is then used to estimate the net climate debt of Annex I Parties and the sums accruable to Non-Annex I Parties.

Furthering on the broad assumptions, average entitlement per human year over the period 1850–2050 is calculated as follows.

Let,
Total human years[2] from 1850–2050 be
$H_{(1850–2050)}$
The average entitlement per human year be E

Then,
$E = CB_{(1850–2050)} / H_{(1850–2050)}$

The entitlement in Scenario 1 and Scenario 2 are 3.44 and 3.19 tons per human year, respectively. However, alarming is the fact that average emissions per human year for Annex I Parties in the past (1850–2010) has been 13.97 and that of Non-Annex I Parties is only 1.98 (Figure 3). Annex I Parties have not only used their entitled carbon budgets and borrowed all their entitlements from the future but also that entitled to the N-Non-Annex I. However, if all were to start with a clean slate from 2010 then the Annex I Parties owe climate debt to the Non-Annex I Parties.

The Climate debt is therefore the difference in the entitled carbon budget and the utilized carbon budget. This approach accounts for the historical responsibility of Annex I Parties.

Let,
The average entitlement per human year for time period (t) be E
Total human years for period (t) be H_t
The total cumulative emissions that have occurred in time period (t) be (C_t)
The climate debt for historic responsibility of the period (t) be D_t

Then,
$D_t = E^* H_t – C_t$

The TERI proposal considers four different periods (t) of historic responsibility namely,
Case 1 1850–2010 as 1850 marks the beginning of industrial revolution;
Case 2 1900–2010 for it would be 150 years to 2050;
Case 3 1970–2010 as it is the period in which concerns regarding environment protection were raise at various forum including the United Nations Conference on the Human Environment in 1972 and the first Earth day being recognized in 1970 in the US.
Case 4 1990: 2010 for Rio conference

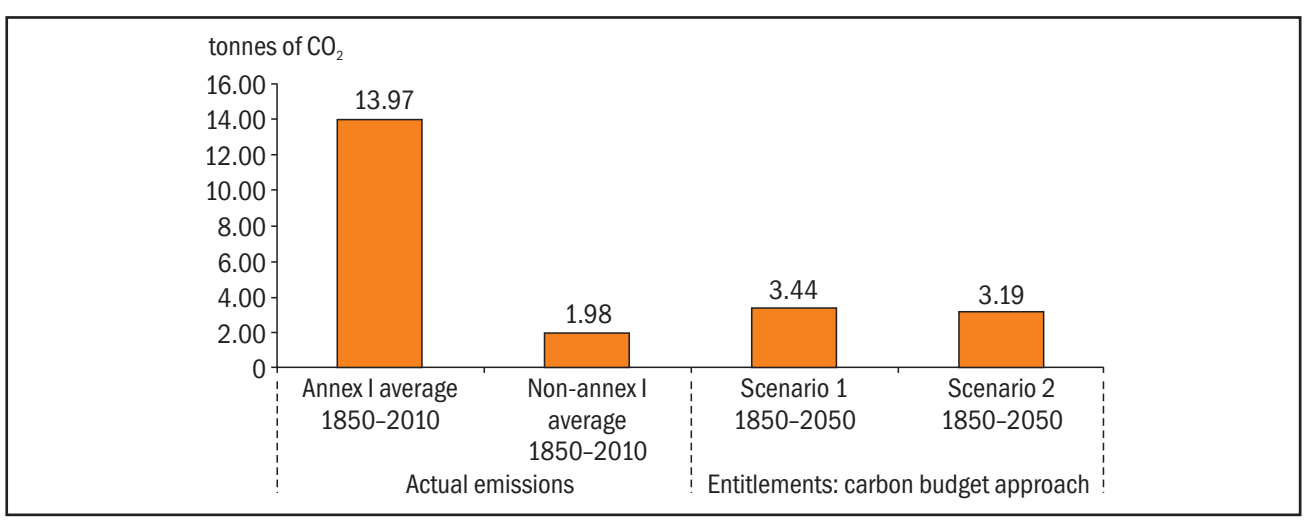

Figure 3 Comparison of actual emissions per human year and entitlements per human year

[2] One human year is defined as a year in the total lifespan of an individual. Mathematically, it is the sum total of annual population of all the years in that period.

The proposal considers an average price of carbon ranging form 10 USD per ton of CO_2 to 30 USD per tone of CO_2 only for the purposes of illustration. The climate debt accumulated over this period is huge to be generated at one point in time neither do most of the Non Annex I countries have the absorptive capacity to utilize that amount, it has therefore been annualized for the period of 2010–2050, that is, over 40 years. The table 1 gives the calculated debt. The figures 4 and 5 shows the climate debt of annex I Parties and the credit of non Annex I Parties in terms of their GDP in 2005 respectively.

Table 1 Annual climate debt

Scenario 1

	Period	@ 10 USD	@ 15 USD	@ 20 USD	@ 25 USD	@ 30 USD
Case 1	1850–2010	174.97	262.45	349.93	437.41	524.90
Case 2	1900–2010	165.52	248.29	331.05	413.81	496.57
Case 3	1970–2010	102.56	153.84	205.13	256.41	307.69
Case 4	1990–2010	55.54	83.31	111.08	138.85	166.63

Scenario 2

	Period	@ 10 USD	@ 15 USD	@ 20 USD	@ 25 USD	@ 30 USD
Case 1	1850–2010	179.12	268.68	358.24	447.80	537.36
Case 2	1900–2010	169.68	254.52	339.36	424.20	509.03
Case 3	1970–2010	105.56	158.35	211.13	263.91	316.69
Case 4	1990–2010	57.17	85.75	114.33	142.91	171.50

All figures in billion USD per year (2010–2050)

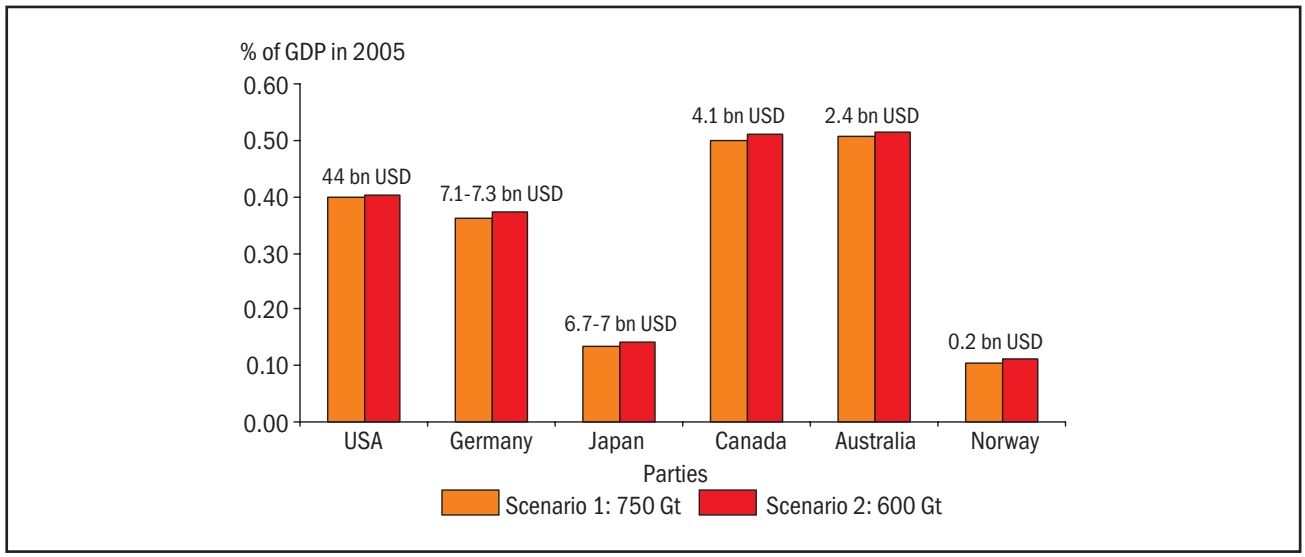

Figure 4 The climate debt of annex I Parties in terms of their GDP in 2005.

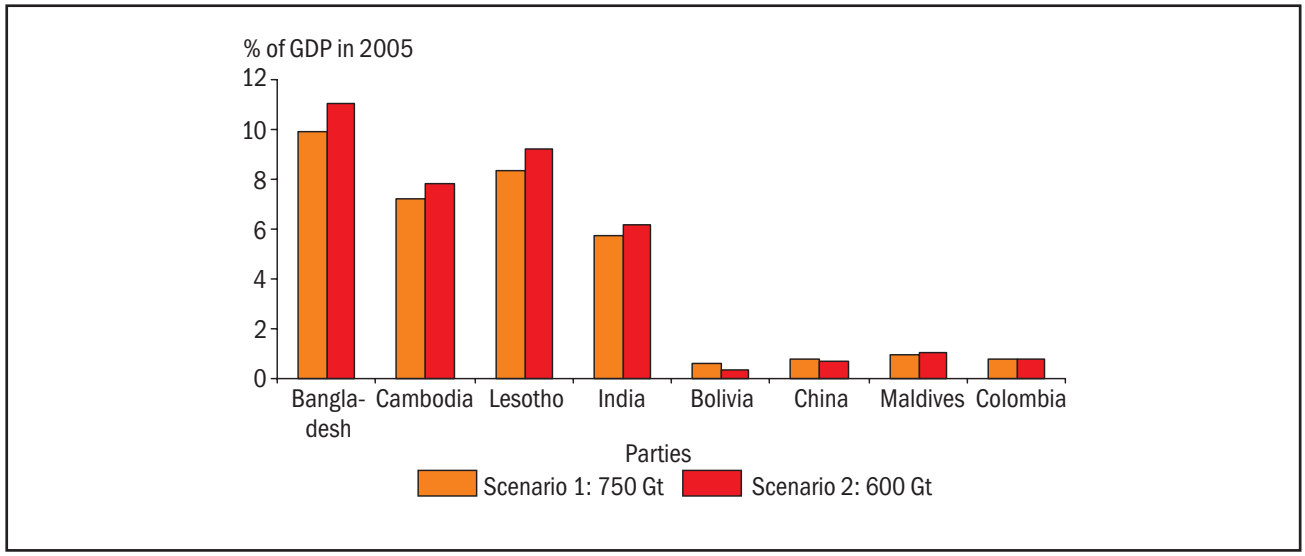

Figure 5 The climate credit of non Annex I Parties in terms of their GDP in 2005.

Realizing this climate debt would give a clean slate to the historic responsibility and from 2010 onwards all Parties are entitled to only 2.2–1.8 per human year. This is based on the emissions cap from 2010–2050 to keep below 2 °C be (C_f) and the projected human years from 2010–2050.

World Climate Debt Fund (WCDF) – a proposal

A new global mechanism is suggested to operationalize the above accrued climate debt with a new fund 'world climate debt fund' to be created under the guidance and authority of CoP. The creation of this fund gives clean slate to the historic responsibility of Annex I Parties and put entitlement cap on all Parties for the future. Financial resource generated from the Annex I Parties shall be on the basis of respective Parties' climate debt and similarly, financial resources disbursed to the Non annex I Parties shall be on the basis of respective Parties' unutilized entitlements. For illustration, the climate debt for individual Annex I Parties and the climate credit for individual Non annex I Parties has been calculated for case 3 (1970–2010).

The WCDF should be equitable, ensure balanced representation and transparent. It shall be managed by a trustee supported by and Executive Board and Technical Panel under the guidance and authority of CoP. The Executive

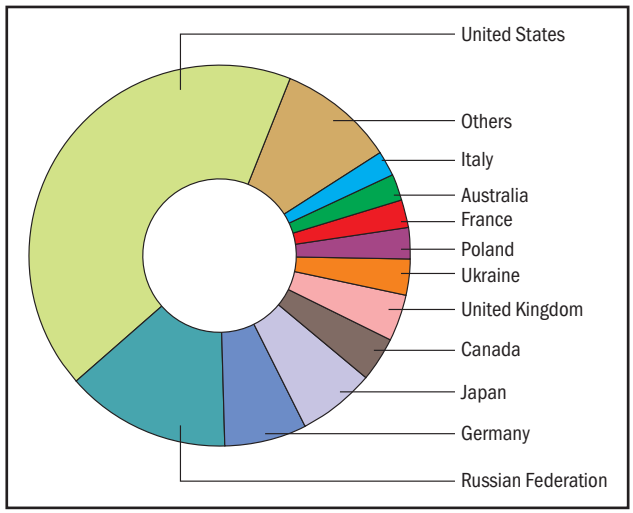

Figure 6 Percentage share of annex I parties

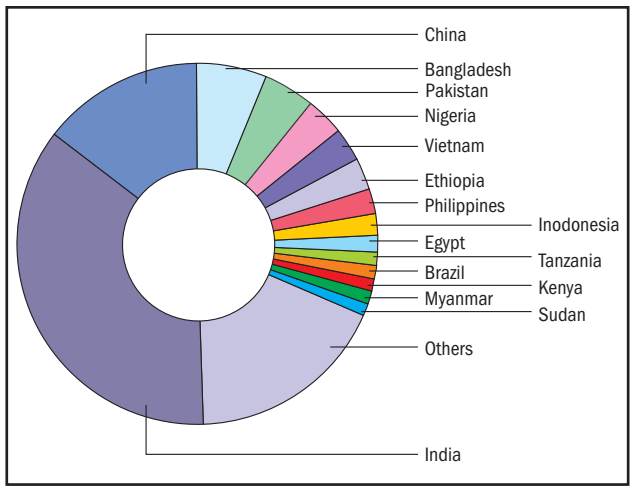

Figure 7 Percentage share of non annex I parties

Board may have 2 representatives from the Annex I Parties, 2 from Non annex I Parties and 1 from LDCs and SIDs.

The above illustration sets annual financial target for each Annex I Party to clear their debt at the same time also sets a cap of withdrawals by non Annex I Parties. The Technical Panel ensures MRV and compliance of the same. This fund may be utilized for mitigation, adaptation or technology needs as per national priority of the Non-annex I Parties. However, both the financial flow and the climate actions are MRVed. Some Non-Annex I Parties may not have absorptive capacity to utilize the financial resources so they may bank it for future use and withdraw at a later stage. This fund may be complemented by other funds that may evolve under the UNFCCC.

This approach also means that all Parties agree on a future entitlement as well which essentially caps the emissions per human year in the range of 2.2 to 1.8 tons of CO_2 for all Parties. While all Parties will have to take domestic measures to consume only the future entitlements, trading and transfers may also be allowed within Parties. This would create a new market. The financial flows from this market mechanism should however over and above the accrued climate debt.

Conclusion

The above proposal gives an ethical approach to equity by taking into account equal entitlements for all individuals. It accounts for the historical responsibility by correcting for the historic encroachments of carbon budget by Annex I Parties in terms of financial flows that can be utilized for mitigation, adaptation and technology development. It proposes future entitlements to limit temperature rise to 2 °C and allows for enhancement of markets. In the end, it also removes the differentiation amongst Parties by clearing the historical climate debt and giving equal future entitlements.

Data sources

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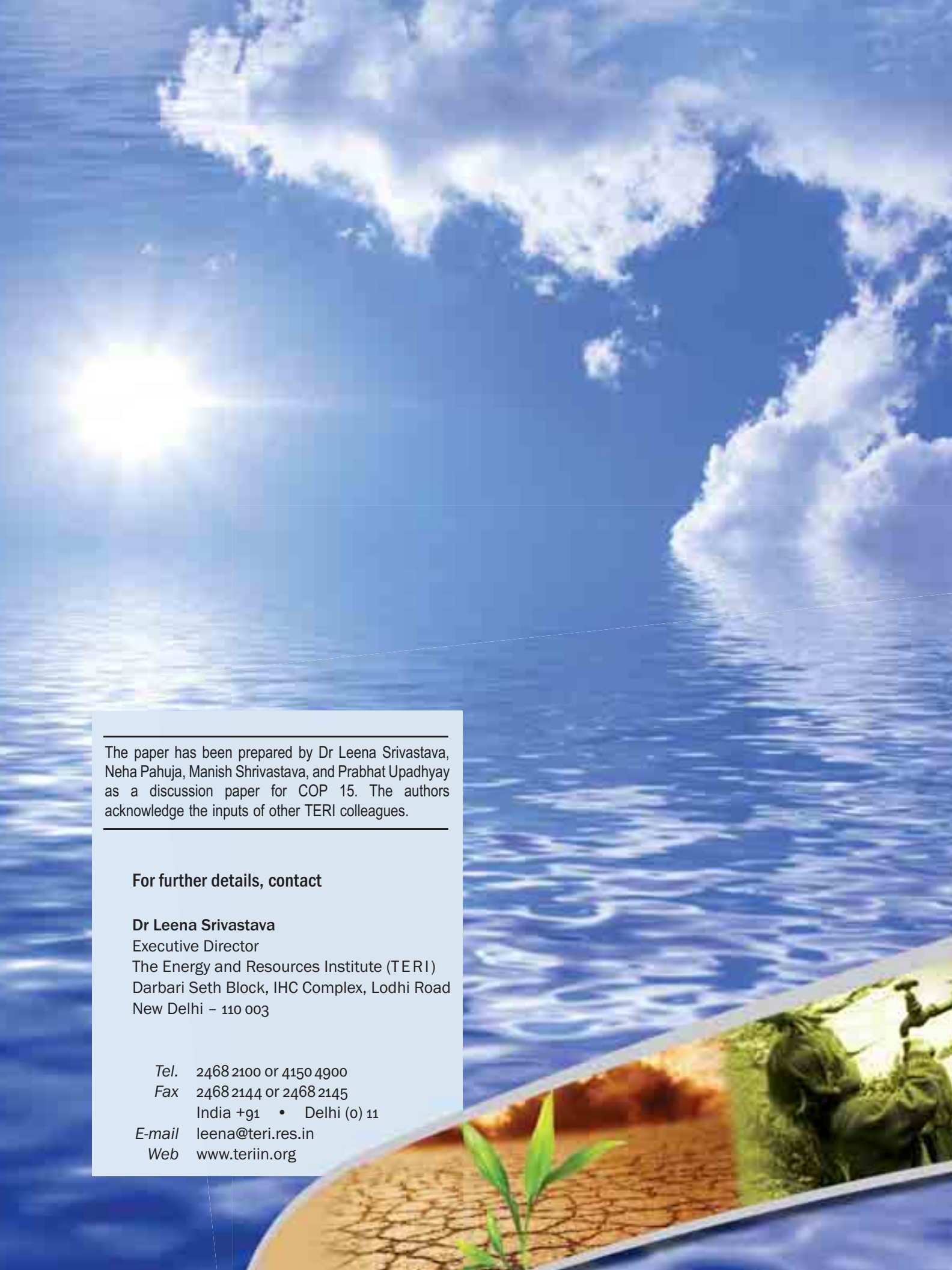

The paper has been prepared by Dr Leena Srivastava, Neha Pahuja, Manish Shrivastava, and Prabhat Upadhyay as a discussion paper for COP 15. The authors acknowledge the inputs of other TERI colleagues.

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