INNOVATIVE FINANCE FOUNDATION

9 May 2017

Update - Disaster Risk Insurance Facility (DIFF)

1. Background

1.1 In February 2016, the CERF appointed the IFF to undertake a feasibility study on innovative financing for humanitarian assistance. Since approximately 36% of the CERF's humanitarian assistance expenditures are related to natural disasters, the IFF recommended to the CERF that parametric disaster risk insurance could reimburse expenditures made by the CERF for natural disasters, thereby increasing the overall resources of the CERF. A parametric insurance policy pays out based on pre-agreed triggers and payment functions, usually correlated to severity of event and impact.

1.2 The IFF report was officially presented in May 2016 during the High-Level Leader's Roundtable on "Financing: Investing in Humanity" at the World Humanitarian Summit in Istanbul. It described the proposal for disaster risk insurance to cover perils such as earthquakes and typhoons as well as a premium fund to cover the annual premium payment from investment returns. Several foreign ministers present, the representative of the EU and other officials expressed their support for the recommendations.

1.3 In October 2016, the Advisory Group (AG) discussed the IFF report and the IFF proposal was refined further based on AG recommendations. A key stipulation was that any vehicle to be created would operate at arms-length to the CERF. In line with this guidance, the IFF proposed that an SPV named "Disaster Risk Insurance Facility" (DIFF) be established and capitalized with investments by interested government donors and private players.

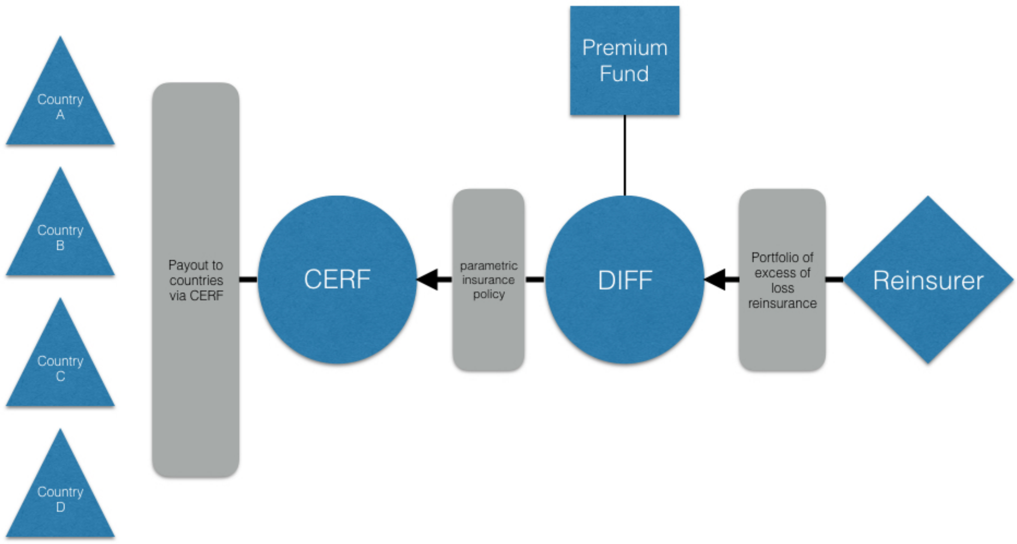
1.4 In January 2017 the IFF received an official (but unfunded) mandate letter from the United Nations Emergency Relief Coordinator to structure the DIFF.

1.5 During the period January and April 2017, IFF made further refinements to the project strategy by structuring the DIFF as a captive insurance company, which would issue insurance policies to the CERF, initially for earthquakes and typhoons while purchasing reinsurance protection to protect itself against the aggregation of losses in any year (see Figure 1).

1.6 A unique element of DIFF is a partnership stake of the DIFF in the Premium Fund, an investment fund whose purpose is to generate capital returns on investments to be used as an innovative and sustainable source of revenue for premium payments. A qualified fund manager would be appointed to mange the Premium Fund based on defined criteria, taking into account investment objective, market risks and other considerations.

1.7 Throughout the development process, IFF has consulted with interested CERF donors, stakeholders and partners including MunchRe, Pictet Bank, SwissRe, and Willis Towers Watson, all of which have provided their expertise and made detailed proposals for the implementation of the DIFF.

Figure 1: DIFF operations



Source: Innovative Finance Foundation, Willis Towers Watson, 2017

2. Current Work Program and Budget

I. Developing insurance polices to be issued by DIFF

a. Objectives and requirements of CERF
b. Initial focus in terms of countries and perils
c. Expected growth in the portfolio and timeline
d. Defining and managing basis risk
e. Risk modelling
f. Structuring of policy for each peril/country

II. Optimizing and negotiating reinsurance of DIFF

a. Financial objectives of SPV
b. Retentions and limits of reinsurance required
c. Modelling of insurance portfolio
d. Correlations between countries and perils
e. Reinsurance optimisation
f. Market selection
g. Development of indicative terms
h. Execution of reinsurance

III. Developing the investment arm of DIFF (Premium Fund)

a. Financial objectives of DIFF investments
b. Retentions and limits of capital fund required
c. Modelling of performance
d. Market selection
e. Presentation of the capital fund to the CERF/AG
f. Execution of fund documents

IV. Negotiating capitalization of DIFF

a. Determining seed capital required
b. Fundraising and soliciting commitments
c. Execution of contribution agreements

V. Establishment of DIFF

a. Domicile
b. Licence Application
c. Establishment

2.1 The total one-time budget for the execution of the project strategy and work program up to the launch of the DIFF is US$880,000. This includes professional fees, travel and meetings. The estimated time for project implementation is 8 months from the time when the total financing has been secured.

2.2 Once established, the DIFF platform will incur annual recurrent costs for maintenance and operations of approximately US$800,000 per year as set out in Figure 2 below. These costs take into account annual re-adjustment of the insurance policies and the gradual growth in coverage and perils over time. It will be required to secure from champion donors the recurrent costs for the first two years. These fees would be paid directly to the established DIFF.

Figure 2: Annual DIFF maintenance costs

1	Management of the DIFF	WTW	150,000
2	Risk modelling	WTW, others	300,000
3	Insurance program structuring	WTW	150,000
4	Reinsurance optimization	WTW	100,000
5	Reinsurance placement	WTW	150,000
	TOTAL		**800,000**

Source: Willis Towers Watson, March 2017

3. Project Status and Decisions

3.1 The DIFF is a tailor-made solution guided by the expectations and requirements of the CERF and its client countries. The immediate objective is to determine by way of comprehensive data gathering and modeling the "sweet spot" of maximum coverage, maximum payout, maximum frequency of payout (triggers) at minimum premium. The more events, countries and the lower the trigger the higher the premium.

3.2 In order to provide some indication of a possible insurance policy, some of the grand lines of the process and policy design elements are provided for illustration purposes. The process begins with an examination of historical earthquake data 2007-2015 (see Figure 3) as the countries to be covered must be individually identified in the policy.

Figure 3. Top 30 Earthquake Historical Data

No	Country	People Affected	No Significant Events	Total Damage (USD)
1	China	76,146,492	158	110,339,357,000
2	India	28,565,623	32	5,222,700,000
3	Chile	9,921,984	31	35,512,070,000
4	Indonesia	9,284,784	116	11,696,356,000
5	Pakistan	7,275,388	31	5,329,755,000
6	Turkey	6,924,329	77	24,685,400,000
7	Guatemala	6,446,409	16	1,215,050,000
8	Nepal	6,372,100	8	5,480,000,000
9	Peru	6,261,568	45	1,505,150,000
10	Philippines (the)	5,798,678	28	583,178,000
11	Haiti	3,700,000	2	8,020,000,000
12	Iran (Islamic Republic of)	2,691,488	106	11,826,628,000
13	Mexico	2,658,353	32	6,161,000,000
14	El Salvador	2,549,991	10	3,406,500,000
15	Japan	1,819,337	62	379,662,400,000
16	Ecuador	1,628,468	19	4,835,000,000
17	Colombia	1,460,319	25	2,313,666,000
18	Algeria	1,367,579	20	10,270,929,000
19	Italy	1,084,694	35	49,284,852,000
20	Greece	1,037,523	32	7,727,300,000
21	Sri Lanka	1,019,306	1	1,316,500,000
22	Nicaragua	748,175	10	890,000,000
23	Azerbaijan	734,973	5	15,000,000
24	Afghanistan	722,748	32	54,060,000
25	New Zealand	634,076	10	28,687,669,000
26	Yemen Arab Rep	401,500	1	2,000,000,000
27	Romania	392,850	13	2,010,000,000
28	Argentina	246,065	5	80,000,000
29	Taiwan (Province of China)	174,228	14	15,127,900,000
30	Kyrgyzstan	171,063	8	175,000,000

Source: Willis Towers Watson, April 2017

3.3 Between 2007-2015, CERF specifically has on average experienced 1.7 "losses" from earthquakes per year, with the average loss value of US$8.9 million per event and an annual average loss of US$14.8 million.

3.4 In order to provide indicative terms for a reinsurance of a parametric structure, both the terms of the underlying parametric policy issued by DIFF and the terms of the reinsurance policy need to be defined. Below are some illustrative elements of indicative terms that might apply with respect to earthquakes:

- Definition of a qualifying earthquake (in terms of intensity/PGA/epicentre);
- Basis upon which DIFF claim payment to CERF will be calculated;

- Basis of reinsurance (e.g. per event or on an annual aggregate basis);
- Attachment and exhaustion probability of reinsurance, driven by DIFF capital and financial objectives.

3.5 One example structure for earthquakes might be (illustration only):

- Covered countries: Any country included on top 30 list above plus Bhutan and Dominican Republic
- Qualifying earthquake: Magnitude [8] or greater; more than [1m] people affected; epicentre within a covered countries.
- Payment amount: Pre-agreed amount per person (perhaps linked to income per capita for the country)
- Basis of reinsurance: Aggregate excess of loss
- Reinsurance attachment probability: 10% (1 in 10 year)
- Reinsurance exceedance probability: 0.05% (1 in 200 years)
- Reinsurance policy limit: [USD 80m]

3.6 Detailed modeling would lead to the design of an insurance policy that accurately reflects the expectations of the CERF, its donors and partner countries and the active participation of the CERF secretariat as the single most important repository of data and information is indispensible. Currently the CERF secretariat does not posses the capacity to engage on this aspect and it is highly desirable that it acquires such capacity, either by consultancy, temporary assignment or other modalities as may be determined by the CERF and its donors.

3.7 ***Action required:*** *To allocate human resources in the form of a focal point in the CERF secretariat skilled in data management and modeling.*

3.8 The contractual engagement of IFF has elapsed in May 2016. However, between May 2016 and May 2017, the work has been carried forward as a contribution to the CERF and the project worth US$97,000. This included refining the DIFF concept and strategy, discussions with potential DIFF business partners and a mission to London for discussions with Willis Towers Watson in light of the refined strategy taking.

3.9 Over the last months, the project has faced a challenge to move forward decisively due to the availability of only tentative terms and conditions of insurance policies. In order to complete the policy design, the required funding of the project must be secured.

3.10 ***Action required:*** *To secure financial resources for project implementation*

3.11 Finally, in order to adequately involve champion donors and private players, to accurately reflect their common vision and to facilitate communication while the DIFF project is being implemented, the AG might consider constituting a steering group to guide the project. The time requirement for participation is expected to be about 1 hour a week, 4 hours per month.

3.12 ***Action recommended****: To constitute a steering group to guide the DIFF project.*