

# Step by Step Process of Premium Finance Allocation to PCRIC Countries

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The allocation methods suggested here is based on the methodological guidance developed by ODI<sup>1</sup> (Panwar et al. 2022)<sup>2</sup> For the InsuResilience Global Partnership (IGP) to determine the 'size' of premium and capital support (PCS) at macro-level, based on the SMART PCS Principles<sup>3</sup>. A working example of how the suggested methods could work for the Pacific Catastrophe Risk Insurance Company (PCRIC) is also presented in an additional excel sheet.

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<sup>1</sup> Being a summary paper, part of text across this document is directly imported from Panwar et al. (2022) and Ward et al. (2022).

<sup>2</sup> Panwar et al. (2022): Methodological guidance to determine the 'size' of premium and capital support (PCS) at macro level. Advisory report. ODI and InsuResilience Global Partnership. London: ODI ([Link](#)).

<sup>3</sup> Töpfer and Stadtmüller (2022): Smart Premium and Capital Support: Enhancing Climate and Disaster Risk Finance Effectiveness Through Greater Affordability and Sustainability. Bonn: InsuResilience Secretariat ([Link](#))

## Potential Allocation Approaches

Following the guidance note, a **multi-criteria decision model (MCDM)** could be used to determine the allocation approach. Multi-criteria decision models are typically used to solve decision making problems where multiple criteria (or factors, objectives) have to be considered collectively to choose or prioritise among them. This also includes allocation of fixed/scarce resources across alternatives (in this case, recipient countries). MCDM could be based on quantitative, qualitative or both types of criteria.

There may be two ways to allocate premium subsidies using the MCDM. The **first approach** is predominantly quantitative and considers factors that are readily quantifiable and widely available for a larger set of countries. Primarily, it builds on the performance-based systems<sup>4</sup> (PBA) used to allocate financial resources by multilateral development institutions and funds. Allocations in a PBA system are generally determined by two components: (i) country needs and (ii) policy performance and institutional capacity. The needs-based component generally includes indicators like income (e.g., GNI per capita) and population to assess the socio-economic conditions that prevail in a country. The second component measures the policy performance and institutional capacities in the country to make best use of allocated resource.

The **second approach** is more qualitative, based on developing a scoring methodology through a mix of qualitative and quantitative criteria<sup>5</sup>. A scoring method should be designed to assign scores against different criteria on a standard metric (e.g., 0-10; 0-100). Scoring the qualitative criteria requires expert judgment, based on which, best (maximum) and worst (minimum) scores can be defined. Appropriate justification should be provided for the assigned scores and weights to ensure transparency in allocation decisions.

Option 1: PBA approach	Option 2: Scorecard-based approach
<ul style="list-style-type: none"> <li>• Predominantly quantitative</li> <li>• Less subjectivity– scoring based on actual data</li> <li>• Calculation less sensitive to weights – used as exponents</li> <li>• Prior guidance on weights</li> <li>• Bit complex to appropriate calibrate weights</li> <li>• Requires a pool of potential recipient countries to be decided in advance</li> </ul>	<ul style="list-style-type: none"> <li>• Hybrid – both qualitative and quantitative</li> <li>• More subjectivity – scoring based on relative scales and expert judgement</li> <li>• Calculations more sensitive to weights – used as linear multiples</li> <li>• Limited guidance on weights</li> <li>• Easy to implement and change weights</li> <li>• Could be applied to all countries in a region irrespective of their eligibility for premium support (e.g., all PICs).</li> </ul>

As in the guidance note, the suggested allocation methods are suitable in the following cases:

- i. where premium support allocation is considered for the macro-level
- ii. at the time when PCS prioritisation, allocation and appraisal decisions are made

<sup>4</sup> Find a review of PBA systems under Section 4 in Panwar et al. (2022). See Annex 2 in Panwar et al. (2022) for more details.

<sup>5</sup> See Annex 2 in Panwar et al. (2022) for more details.

- iii. for countries eligible for PCS support (e.g., countries that in the first place meet eligibility criteria for PCS support, such as those suggested in the Policy Note (see Principle ‘S’))
- iv. it is best suited for prioritising PCS allocation among a group of countries<sup>6</sup> (e.g., V20 Group, IDA eligible countries, countries on the DAC list of ODA recipients, SIDS, among others) and/or members of a sovereign risk pool

Regardless of the approach, the following steps should be taken in advance to determine the premium support allocation size:

## I. Determining the Eligibility

Basic eligibility criteria must be defined in advance to arrive at a pool of countries, where the resources have to be allocated. This *inter-alia* could include the following aspects:

- **Membership of the PCRIF** – A PIC is (or intend to be) a member of the PCRIF in order to purchase insurance from PCRIC.
- **Historical commitment to PCRIF** - This criterion may be used to reward member states that have shown strong political commitment to proactive disaster risk management and in particular to their support of PCRIF either through their purchase of insurance policies from PCRIC in the past, or through their participation in the PCRIF CoM.
- **Countries Committed to sustain insurance policy in the long-term without partner support** - National Government plan to be able to increase the proportion of premiums funded by the PICs over time via domestic resource mobilisation. **However, it is recognised that several the PICs may fall into a category of countries first identified by the October 2021 IGP policy note on Premium and Capital Support, for whom long term premium support will be required.**

**Suggestion 1:** Determination of eligibility is usually a call taken by the Institution that is providing external support - it might also include other stakeholders. This is true for every fund globally: for a particular funding period, a set of eligible recipients are chosen based on eligibility criteria. **In PCRIC’s case, a more liberal eligibility criteria may be used to accommodate countries that are likely to join the pool if premium subsidies are offered.** In case they don’t join, their share can be kept as reserve for the next funding cycle and/or can be (i) allocated equally among other members already receiving subsidy. (ii) offered to a new potential member.

To begin with, countries numbered 1 -8 in the following Table may be considered:

Current policy-holders	Other PCRIF members	Highly likely to be PCRIF member in 2023	Former policy-holders	Have shown interest in a policy from PCRIC in the past
1) Cook Islands	4) Fiji	7) PNG	8) Solomon Islands	9) Kiribati

<sup>6</sup> This is in line with Principle ‘S’ where it is argued that PCS allocation prioritisation should go beyond the basic eligibility. For instance, IDA eligibility for PCS could be a proxy for countries with severely restricted ability to pay, but further prioritisation of low-income countries might be required.

2) Samoa	5) Marshall Islands			10) FSM
3) Tonga	6) Vanuatu			11) Palau
				12) Niue

## II. Determining the Criteria for Allocation (Factors Influencing PCS Size)

SMART PCS principles, methodological guidance by Panwar et al. (2022) and other relevant literature<sup>7</sup> on PCS suggest **both needs-based and performance-based considerations should inform the PCS sizing decisions**. A snapshot of the considerations on PCS allocation from Panwar et al. (2022) is presented below:

- Subsidies should not be provided universally to all countries and income should not be the only criteria<sup>8</sup> in deciding their size, rather eligibility of countries (and size of premium support) should be evaluated based on country's (climate and disaster) risk profile and government's 'ability to pay' and 'willingness to pay' for insurance<sup>9</sup>.
- Higher premium support should be provided to countries that are poor (with weak fiscal position) and have the most vulnerable (at risk) populations (Principle 'S').
- Policy performance of the government in proactive disaster risk management (and risk financing) should be considered as an important criterion in addition to the needs-based consideration to decide the size of PCS interventions.
- Principle 'A' (accessibility) suggests that higher premium support should be provided to countries that show strong political commitment and create an enabling policy environment for greater CDRFI uptake.

### **Suggestion 2:** Factors and relevant indicators

Based on SMART PCS principles, literature review and stakeholder interviews (see Table below), the guidance note suggested a set of factors that should be used to determine the size of PCS allocation. These factors can be categorised under either needs-based criteria or performance-based criteria. Table below shows stakeholders' preferred choices (during KIIs for political economy analysis)<sup>10</sup> of factors to determine size of PCS allocation.

Rank*	Factors determining PCS allocation size	Factor choice by % of respondents
1	Proportion of vulnerable population in total population	73%

<sup>7</sup> See section 4.1 of Panwar et al. (2022) for a literature review on PCS allocation considerations.

<sup>8</sup> Despite being a critical factor in determining the size of PCS, country's income level only reflects an annual status and therefore is not a forward looking metric that accounts for increased climate risks to a country, for example.

<sup>9</sup> Panda et al., (2021c) provides a detailed discussion on eligibility of countries to receive premium support based on their ability and willingness to pay for insurance (see page 8).

<sup>10</sup> Scott et al. (2022): The political economy of premium subsidies: Searching for better impact and design. ODI and InsuResilience Global Partnership. London: ODI.

1	Climate and disaster risk profile	73%
2	Country income level	60%
3	Prior risk reduction actions/policy of a country	53%
4	Country debt accessibility constraints	27%
5	Level of insurance penetration	13%
6	Others - country size, economy size, etc.	7%

\*Ranked by proportion of choices by respondents. Respondents were asked to pick three of their most preferred choices. There was a total of 15 KIIs with risk pools (PCRIC, ARC, CCRIF), government officials and other insurance professionals. Source: Panwar et al. (2022)

## Option 1: First Approach, Exclusively Based on Quantitative Method

**Step 1:** Determine eligibility of recipient countries based on a pre-set criteria and create a pool of countries to be considered for allocation decisions.

**Step 2:** Setting minimum and maximum limits to adjust calculated allocation of premium support

- All PBA systems prevalent at the global scale have some operational limitations and therefore it is not possible to calculate 'optimum' levels of allocations for all the countries
- There could be a scenario where the calculated premium support allocation might not be adequate to a substantial part of the premium for country – to avoid such scenario and to ensure a fair allocation of available resources, it is advised to set pre-defined minimum and maximum limits for premium support.
- These **limits can be set in terms of % of external premium support to the total premium and/or a \$ amount** that is suitable to cover a substantial part of the premium.

**Suggestion 3:** Prior information on the actual or indicative premium amount for country will be useful in deciding min. and max. support limits.

**Step 3:** Once the pool of countries has been confirmed and limits of allocation has been set, finalise a set of factors and respective indicators, along with weights that will be used to determine PCS allocation size (see Table below for suggested indicators and weights).

Factor	Suggested indicator/ proxy	Suggested range of weights as ex- ponent (for sim- ulations)	Rationale/priorities
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Needs-based component			
Income-level of a country	GNI per capita	- 0.08 to - 0.25	Level of income is inversely linked to allocation size to provide for higher allocation to lower income countries
Debt accessibility/debt stress levels	Debt status indices (debt to GDP; Debt to revenue) or, debt stress risk/ranking (World Bank-IMF's DSF) or other suitable metric	0.1 - 1	Higher allocation for countries with high debt stress/accessibility constraints
Poor (vulnerable) population (incl. people on the margins of poverty lines)	World Bank's poverty headcount ratio, or IGP's vulnerable population criteria	0.1 – 1	Higher allocation for countries with larger proportion of poor (and vulnerable) population
Climate and disaster risk (hazard exposure)	ND-GAIN index, or hazard exposure score from other similar indices	0.1 – 2	Higher allocation to countries that have higher vulnerability to climate risks
Performance-based component			
Climate and disaster resilience	ND-GAIN readiness index, or resilience score from other similar indices	0.1 - 2	Higher allocation to countries that show progress in resilience-building
Policy performance and institutional effectiveness	World Bank' CPIA	2 – 4	Higher allocation to countries that have effective policy performance and institutional capacity

Source: Panwar et al. (2022)

#### **Suggestion 4:**

- The suggested weight range in the Table above is based on existing PBA systems and expert judgement considering the rationale/priorities relevant for different indicator laid down in SMART PCS principles.
- Although guidance from the existing PBA systems could help, **weights for the indicators should ideally be assigned using a participatory approach**. For this, consultative processes such as workshops, focus group discussions and key informant interviews could be helpful.
- The **climate risk (exposure) factor/indicator could be modified to suit hazard-specific contexts**. For example, for a drought product, exposure metric depicting risk to crops and agriculture sector may be used instead of a composite metric/index score.

**Step 4:** In this step, country score will be calculated using either of the following methods.

(A) Multiplicative approach - used by most PBA systems (**preferred – less sensitive to weights**)

$country_i (score) = [Needs\ based\ component] \times [Performance\ based\ component]$

$$= [(x)_1^{w1} * (x)_2^{w2} * (x)_3^{w3} * (x)_4^{w4}] \times [(y)_1^{w5} * (y)_2^{w6}]$$

(B) Additive approach – less used in practice

$country_i (score) = [Needs\ based\ component] + [Performance\ based\ component]$

$$= [(x)_1^{w1} * (x)_2^{w2} * (x)_3^{w3} * (x)_4^{w4}] + [(y)_1^{w5} * (y)_2^{w6}]$$

Where x and y are indicators and w is weight. Please note that other modes to represent weights as exponents may also be used. For example, a combined weight may be assigned to the performance-based component. Similarly, in the additive approach, weights can be added within each component (e.g.,  $[(x_1 * w_1) + (x_2 * w_2) + (x_3 * w_3)] + [(y_1 * w_5) + (y_2 * w_6)]$ ).

**Step 5:** Now, calculating country share by dividing individual country score by the sum of all country scores.

$country_i (share) = country_i\ score / sum\ of\ scores\ for\ all\ PCS\ recipient\ countries$

**Step 6:** Next, calculating the country allocation share by multiplying the country share by the funds to be allocated.

$$country_i (allocation) = country_i\ share * total\ allocation\ amount\ (fund)$$

**Suggestion 5:** Although calculations until Step 6 can be done without information on 'total allocation amount'. It is advised to decide amount of funds available for a specific period of allocation or allocation cycle. For example, in PCRIC's case, it may be decided to allocate part of the 9 million euros for two consecutive years (say, allocation cycle 2023 to 2025) as premium subsidy. The remaining part can be allocated in the next allocation cycle.

**Step 7:** Finally, the calculated allocation share is to be adjusted according to the pre-set minimum and maximum premium subsidy limits.

- Minimum share = actual allocation or minimum limit, whichever is higher
- Maximum share = actual allocation or maximum limit, whichever is lower

**Suggestion 6:**

- **Maximum and minimum limits can be based on any of the following options:** proportion of premium to be financed, share of total fund (say, for example, no country will get more than 15% and less than 10%) and a pre-fixed dollar amount in relation to country's premium.

- If the calculated and limit adjusted allocation needs **further adjusting to provide extra premium support a country or countries due to their unique characteristics** (e.g., socio-economic, geo-political role, etc.) that might not be fully captured in the calculations, an additional allocation over and above the allocated value<sup>11</sup>. The additional allocation criteria and amount should be pre-defined and should be applicable subject to availability of funds. (Suggestion: an additional premium support of \$100 thousand (or say extra 10%) for first two-three years may be given to new recipients (who never availed premium subsidies before), subject to availability of funds)
- It is important to note that **using either of these approaches, a combined allocation share (and not yearly) can be calculated, which then have to be manually distributed over multiple years** considering country-specific total premium amount and availability of funds. For example, this method will distribute a total of 9 million euros among recipients – the country share can be further distributed over multiple years (say, 3 years). Alternatively, year-wise allocation amount can be decided in advance before applying this method. For example, 3 million euros could be total amount for one year – for three consecutive years

## Option 2: Second Approach, Based on Qualitative Scorecards

**Step 1 (eligibility)** and **Step 2 (limits)** will remain the same as in ‘option 1’ explained above. This option, however, gives more flexibility to include a larger set of country in consideration (for example, all pacific SIDS can be scored at once)

**Step 3:** In this step, criteria for scoring should be decided. **In addition to being relevant, the selected criteria should be manageable (small number of criteria), operational (capable of being assessed) and easy to communicate**<sup>12</sup>. For this scorecard-based approach, criteria could be both quantitative and qualitative.

Suggested criteria (see Table below) for allocation decisions through this approach could be the same as in the PBA approach explained previously.

Factors	Criteria (quantitative)
Income of country	GNI per capita (relative income, among pool of countries)
Vulnerable population	Poverty rate (relative number of poor)
Climate (disaster) risk profile	Climate risk (exposure) index -NDGAIN (relative scores)
Debt accessibility constraints	Debt to government revenue ratio
Climate resilience (readiness)	Climate readiness index – NDGAIN (relative scores)
Institutional and policy performance	CPIA (composite) (relative scores)

<sup>11</sup> Example: Asian Development Fund (ADF) provides an additional funding to eligible countries based on their ranking in United Nations Economic Vulnerability Index. See [ADF’s concessional assistance policy](#) for more details.

<sup>12</sup> Ward et al. (2022): Methodological guidance to assess the value for money of premium and capital support towards climate and disaster risk finance and insurance. ODI and InsuResilience Global Partnership. London: ODI.



Note: The indicators suggested here are quantifiable and readily available for most countries. These suggested criteria are based on the considerations of avoiding redundancy, keeping the number of criteria manageable and operational. However, this list of factors (and indicators) may not be exhaustive and could include additional indicators suitable to be considered for allocation decisions.

**Step 4:** Designing a scoring method for the selected criteria is a crucial next step.

A scoring method should be designed to **assign scores against different qualitative and quantitative criteria on a standard metric**. Typically, in such multi-criteria decision models, scoring is assigned in a range (e.g., 0-5, 0-10, 0-100), where a **wider range provides more flexibility in scoring**. The absolute difference between scores **should be** meaningful, i.e., on a given criterium, moving from a score of 20 to a score of 40 should be only half as valuable as moving from a score of 20 to a score of 60.

If most indicators included are of quantitative nature, a scale of 0-100 is preferable to allow for greater nuance, whereas a scale of 0-10 is more appropriate if most indicators are qualitative, as scorecards are easier to develop and apply for a 0-10, rather than 0-100 range.

Scoring the qualitative criteria requires expert judgment, based on which, **best (maximum) and worst (minimum) scores** can be defined. Similarly, for a quantitative criterion, **score for an expected quantity/value can be relative to pre-defined highs and lows**.

**Suggestion 7:** Define best and worst scores on each criterion from among the pool countries under consideration. For example, give maximum score to country with lowest per capita income and then score other countries relative to that country's score.

**Step 5:** To prioritise factors that are considered to have a relatively high importance in determining the allocation size, appropriate weight are to be assigned.

**Weights are usually assigned after scoring has been done or minimum and maximum scores are defined for each criterion.** Typically, weights will be set so that they sum to 100%, but other approaches are also valid.

As for the scoring approach, it is advised to use participatory approaches in the process of determining weights. **Flexibility must be given to local experts/users of scorecards to adjust weights according to the local context.**

**Weights can be assigned to both individual criterions as well as individual components.** For example, in PCS allocation case, composite weights can be assigned to needs-based component and performance-based component.

**Step 6:** Next step is to aggregate scores and weights and develop a scorecard. In PCS allocation case, **a balanced scorecard is advised where sum of weights for all criteria is 100, and so is the sum of weights for both components.**

There are generally two main models available to aggregate scores and weights: the linear additive model and the weighted product model:

Linear additive:  $(x_1 * w_1) + (x_2 * w_2) + (x_3 * w_3) + [(y_1 * w_5) + (y_2 * w_6)]$

Weighted product:  $[(x_1)^{w_1} * (x_2)^{w_2} * (x_3)^{w_3} * (x_4)^{w_4}] + [(y_1)^{w_5} * (y_2)^{w_6}]$

**A linear additive model is more commonly used** because it is easy to understand and communicate. The weighted product model is less commonly used but it is less sensitive to weights.

**Step 7:** Once the composite scores for each country are calculated, they should be **interpreted with some decision rules, developed based on expert judgement.**

**Suggestion 8:** Possible options for interpretation

- i. Like the PBA approach, country scores can be used to calculate country share and thereby allocation share per country (see Step 5 and Step 6 in the PBA approach).
- ii. The calculated country scores may also be treated as share of external premium to be paid by donors. For example, a score of 80 may mean 80% of premium for a country can be subsidised through external support.
- iii. Range of premium subsidy support could be developed in advance. For example:
  - a.  $X < \text{Final score} > Y = 80\%$
  - b.  $Y < \text{Final score} > Z = 85\%$  and so on.

**Step 8:** Finally, much like the PBA approach, **the calculated allocation share is to be adjusted according to the pre-set minimum and maximum premium subsidy limits.**

- Minimum share = actual allocation or minimum limit, whichever is higher
- Maximum share = actual allocation or maximum limit, whichever is lower

**Suggestion 9:**

- Maximum and minimum limits can be based on any of the following: proportion of premium to be financed, share of total fund (say, for example, no country will get more than 15% and less than 10%) and a pre-fixed dollar amount in relation to country's premium.
- If the calculated and limit adjusted allocation **needs further adjusting to provide extra premium support a country or countries due to their unique characteristics** (e.g., socio-economic, geo-political role, etc.) that might not be fully captured in the calculations, an additional allocation over and above the allocated value<sup>13</sup>. The additional allocation criteria and amount should be pre-defined and should be applicable subject to availability of funds. (Suggestion: an additional premium support of \$100 or more for first two-three years may be given to new subsidy recipients, subject to availability of funds)
- It is important to note that **using either of these approaches, a combined allocation share (and not yearly) can be calculated, which then have to be manually distributed over multiple years** considering country-specific total premium amount and availability of funds.

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<sup>13</sup> Example: Asian Development Fund (ADF) provides an additional funding to eligible countries based on their ranking in United Nations Economic Vulnerability Index. See [ADF's concessional assistance policy](#) for more details.

## List of Abbreviations

**CDRFI:** Climate and Disaster Risk Finance and Insurance

**IGP:** InsuResilience Global Partnership

**PCS:** Premium and Capital Support

**PCRIC:** Pacific Catastrophe Risk Insurance Company

**PCRIF:** Pacific Catastrophe Risk Insurance Foundation

**PBA:** Performance Based Systems

**MCDM:** Multi Criteria Decision Model

**PIC:** Pacific Island Countries

**IDA:** International Development Association

**ODA:** Official Development Assistance

**V20:** Vulnerable 20 Group

**GNI:** Gross National Income

**ARC:** African Risk Capacity Group

**ADF:** Asian Development Fund

**CCRIF:** Caribbean Catastrophe Risk Insurance Facility

**PSIDS:** Pacific Small Island Developing States

**CPIA:** Country Policy and Institutional Assessment

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