

Application of the Oeko-Institut/WWF-US/ EDF methodology for assessing the quality of carbon credits

This document presents results from the application of version 3.0 of a methodology, developed by Oeko-Institut, World Wildlife Fund (WWF-US) and Environmental Defense Fund (EDF), for assessing the quality of carbon credits. The methodology is applied by Oeko-Institut with support by Carbon Limits, Greenhouse Gas Management Institute (GHGMI), INFRAS, Stockholm Environment Institute, and individual carbon market experts. This document evaluates one specific criterion or sub-criterion with respect to a specific carbon crediting program, project type, quantification methodology and/or host country, as specified in the below table. Please note that the CCQI website [Site terms and Privacy Policy](#) apply with respect to any use of the information provided in this document. Further information on the project and the methodology can be found here: www.carboncreditquality.org

Sub-criterion:	1.1.3 Financial attractiveness
Project type:	Solar photovoltaic power
Date of final assessment:	31 January 2023
Score:	1.00

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Assessment

Relevant scoring methodology provisions

The methodology assesses the financial attractiveness of the individual project or project type to estimate the likelihood that economic actors would normally not pursue the respective mitigation activity in a given market and policy environment without carbon market revenues. The assessment considers three indicators that are important for determining financial attractiveness: The financial attractiveness without carbon credit revenues, the change in financial attractiveness due to carbon credit revenues, and the financial attractiveness with carbon credit revenues. Following the approach of the methodology the following steps are applied to derive the score:

- Step 1: Decide whether to apply the methodology to an individual project or at the level of a project type. If the methodology is applied at the level of a project type, clearly define the project type and the geographical scope for the assessment (e.g. global, region, country). Project types may be further differentiated into sub-categories, e.g. considering the project size (e.g. classes of wind turbine sizes), the type of project technology (e.g. on-shore or off-shore wind power), or other project features.
- Step 2: Collect the relevant data. Where the methodology is applied to an individual project, data provided by the project may be used, as long as this data can be reasonably verified. Where the methodology is applied at the level of the project type, different data sources could be used, including literature information or a sample of individual projects for which the necessary data is available. To the extent possible, the sample should represent different investment conditions and locations within the geographical scope.
- Step 3: Define the carbon credit price used in the calculation of the change in financial attractiveness due to carbon credit revenues. The methodology recommends using the current prices of the relevant markets the project is developed for. Assumptions made by the project proponent on expected carbon prices may be used if they are plausible. In absence of further information, the methodology recommends using a consistent proxy for all projects.
- Step 4: Identify for each project the respective value for:
 - a. The equity IRR without carbon credit revenues (IRR);
 - b. The change in equity IRR due to carbon credit revenues (Δ IRR); and
 - c. The equity IRR with carbon credit revenues, calculated as the sum of equity IRR without carbon credit revenues and the change in equity IRR due to carbon credit revenues (IRR+ Δ IRR).
- Step 5: Identify for the project the relevant project category in the CDM Methodological Tool for Investment Analysis (CDM TOOL 27) according to the following table:

Group	Categories
1	Energy Industries; Energy Distribution; Energy Demand; Waste handling and disposal
2	Manufacturing industries; Chemical Industries; Construction; Transport; Mining/Mineral production; Metal production; Fugitive Emissions from fuels; Fugitive Emissions from production and consumption of halocarbon, and Sulphur hexafluoride; Solvent use; Carbon capture and storage of CO ₂ in geological formations
3	Afforestation and reforestation; Agriculture

Step 6: Retrieve for each project the country-level expected return on equity (ROE) in the CDM methodological tool for investment analysis for the respective group identified in step 5 (The respective table can be found on page 12 of version 08.00 of CDM TOOL 27).

Step 7: Determine for each project the three indicators, by putting the IRR, the Δ IRR, and the sum of IRR and Δ IRR in relation to the expected return on equity (ROE).

Step 8: If the methodology is applied to a project type, calculate the average values for Indicator 1.1.3.1, Indicator 1.1.3.2, and Indicator 1.1.3.3 for the sample of projects.

Step 9: Apply the scoring approach in the methodology to determine the score for indicator 1.1.3.1.

Step 10: Apply the scoring approach in the methodology to determine the score for indicator 1.1.3.2.

Step 11: Apply the scoring approach in the methodology to determine the score for indicator 1.1.3.3.

Step 12: Apply the scoring approach in the methodology to determine the overall score for sub-criterion 1.1.3.

If a project or project type does not have revenues or cost savings other than carbon market revenues, an IRR cannot be calculated. As these projects fully rely on carbon market revenues, they are clearly not financially viable without carbon market revenues and are therefore assigned a score of 5.

Information sources considered

- 1 CDM Project Search. Data accessed on 5.-15 December 2022
<https://cdm.unfccc.int/Projects/projsearch.html>
- 2 World Development Indicators – Lending interest rate (Indicator: FR.INR.LEND), Data accessed on 19 January 2022. <https://databank.worldbank.org/source/world-development-indicators>
- 3 Tax Foundation – Corporate Tax Rates around the World, 2021. Data accessed on 19 January 2022. <https://taxfoundation.org/publications/corporate-tax-rates-around-the-world/>
- 4 CDM TOOL27 Methodological tool: Investment analysis – Version 08.0
<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v8.pdf>

Assessment outcome

The project type is assigned a score of 1.

Justification of assessment

In accordance with the methodology, the following steps were conducted for the analysis of the financial attractiveness of the project type:

Step 1: Decide whether to apply the methodology to an individual project or at the level of a project type

The assessment is applied at the level of the project type. The project type is here defined as follows: Installation of a new solar photovoltaic power plant. The electricity is fed into a national or regional electricity grid. The project type reduces emissions by displacing more greenhouse gas intensive electricity generation.”

Step 2: Collect the relevant data

The assessment is conducted at the project type level which requires the construction of a data sample composed of several projects to determine the financial attractiveness of the project type. For this, the CDM project database was searched for Solar PV projects. Basing the assessment only on projects that were submitted to the CDM might be subject to a selection bias because it is likely that projects that are economically viable without carbon credits do not apply for registration. However, a key purpose is to analyze how much carbon credits contribute to clearing the hurdle rate for the specific project type. Using project samples from carbon crediting programs is therefore still a viable source for conducting the assessment.

The following information is provided for the projects registered under the CDM: The CDM “project search” (Source 1) allows downloading a “Database for PA and POAs”¹ (henceforth referred to as the CDM database) in Microsoft Excel format. This database contains comprehensive information on all aspects of individual projects, such as the project name, project status, location etc. In addition, key financial information is available in the data base. This includes the estimated IRR benchmark, the estimated IRR excluding CERs and the estimated IRR including CERs. Next to this database, detailed documentation for each project is available when opening individual project entries in CDM project search (Source 1). This includes the project design document (PDD) which is often complemented by excel sheets containing the financial analysis for the project.

In the CDM database, solar PV projects are listed under the project type "solar" with the sub-type “solar PV”. As of December 2022, the database contains 441 entries with active reference numbers for the project sub-type solar PV.

Due to the high number of solar projects, a sample of projects must be drawn to serve as the basis for the analysis of the indicator. Because the CDM database contains the most comprehensive financial analysis data available among carbon credit programs, the sample was formed from CDM projects only.

For further assessment, stratified random sampling was used as a method to draw a random sample from these projects, taking into account the unequal representation of country sub-regions. Stratified random sampling is a sampling technique that is suitable when the population under study consist of varying sub-populations as it allows for a proportional representation of the individual sub-groups in the total sample. The population is first divided into smaller subgroups, or strata, based on common characteristics of the individuals, and then the required number of elements from each

¹ PA = Project Activities; PoA = Programme of Activities

stratum is randomly selected to form the final sample. The stratum size, i.e., the number of sample elements per stratum represents the weight of the stratum in the total population.

A review of the data showed that only very few small-scale projects provide financial data, as many of those use provisions of positive lists to demonstrate additionality. In total only 12 small-scale projects provide financial data. To ensure that this project size is reflected in the analysis, all 12 projects were added to the sample. In addition, stratified sampling was applied to the remaining 176 large-scale projects using the approach described in the following paragraphs.

The equation to calculate the required sample size was derived from the CDM “Guideline: Sampling and surveys for CDM project activities and programmes of activities” (Version 03.1) and is as follows:

$$n \geq \frac{1.440^2 NV}{(N - 1) \times 0.2^2 + 1.440^2 V}$$

Where:

n = Sample size

N = Total number of projects (441)

$V = \frac{SD^2}{\bar{p}^2} = \frac{\text{overall variance}}{\bar{p}^2}$

\bar{p} = Overall proportion

1.440 = Represents a confidence level of 80%

0.2 = Represents a precision level of 20%

The proportional allocation of the sample is obtained as follows:

$$n = \frac{g_i}{N} \times n \quad \text{where } i = 1, \dots, k \text{ and } k \text{ is the number of projects in the country subregion.}$$

Where:

g_i = Size of the i^{th} group where $i=1, \dots, k$

N = Population total

The overall variance and overall proportion of projects is calculated as follows:

$$SD^2 = \frac{(g_a \times p_a(1 - p_a)) + (g_b \times p_b(1 - p_b)) + (g_c \times p_c(1 - p_c)) + \dots + (g_k \times p_k(1 - p_k))}{N}$$

$$\bar{p} = \frac{(g_a \times p_a) + (g_b \times p_b) + (g_c \times p_c) + \dots + (g_k \times p_k)}{N}$$

Where g_i and N are as above and p_i is the proportion for the i^{th} group subregion); $i=1, \dots, k$

Substituting the values from the table below into the above equations for SD_2 and \bar{p} gives:

$$SD^2 = \frac{(181 \times 0.41(1 - 0.41)) + (3 \times 0.01(1 - 0.01)) + (10 \times 0.02(1 - 0.02)) + (34 \times 0.08(1 - 0.08)) + (32 \times 0.07(1 - 0.07)) + (8 \times 0.02(1 - 0.02)) + (140 \times 0.32(1 - 0.32)) + (13 \times 0.03(1 - 0.03)) + (18 \times 0.04(1 - 0.04))}{441} = 0.18$$

$$\bar{p} = \frac{(95 \times 0.54) + (2 \times 0.01) + (5 \times 0.03) + (17 \times 0.1) + (12 \times 0.7) + (5 \times 0.03) + (27 \times 0.15) + (7 \times 0.04) + (6 \times 0.03)}{441} = 0.33$$

Table 1 Distribution of CDM wind projects by country sub-regions

Regions	Number of projects in region (g)	Proportion (p)
Eastern Asia	181	0.41
Caribbean	3	0.01
Central America	0	0.00
Easter Africa	10	0.02
North Africa	2	0.00
South America	34	0.08
South-Eastern Asia	32	0.07
Southern Africa	8	0.02
Southern Asia	140	0.32
Southern Europe	0	0.00
Western Africa	13	0.03
Western Asia	18	0.04
Total # of projects	441	1

Source: Own calculation.

Therefore:

$$V = \frac{SD^2}{\bar{p}^2} = \frac{0.18}{0.28^2} = 2.26$$

and substituting V in the sample size equation gives:

$$n \geq \frac{1.440^2 \times 441 \times 2.26}{(441 - 1) \times 0.2^2 + 1.440^2 \times 2.26} = 93$$

The minimum sample size for large-scale projects required is thus 93 projects. This number is now divided according to the number of projects in the individual country subregions, resulting in the following strata sizes:

Sample Eastern Asia: $n_{EA} = \frac{181}{441} \times 93 = 38$

Sample Southern Asia: $n_{SA} = \frac{27}{441} \times 93 = 30$

Sample South America: $n_{SAM} = \frac{34}{441} \times 93 = 7$

Sample Southern Africa: $n_{SAF} = \frac{8}{441} \times 93 = 2$

Sample South-Eastern-Asia: $n_{SEA} = \frac{32}{441} \times 93 = 7$

Sample Western Asia: $n_{WA} = \frac{18}{441} \times 93 = 4$

Sample Caribbean: $n_C = \frac{3}{441} \times 93 = 1$

Sample Eastern Africa: $n_{EAF} = \frac{10}{441} \times 93 = 2$

Sample Western Africa: $n_{WAF} = \frac{13}{441} \times 93 = 4$

Rounding up the country subgroup strata sizes gives the number of projects to be sampled for each country subgroup.

In the next step, the subsamples were randomly selected from the CDM Database for PAs and PoAs. The projects in the database were divided by country sub-region into separate sheets. The RAND function was used to assign a random number to each project cell, and then the required number of cells was selected using an index ranking formula.

The resulting random sample of 94 large-scale projects was added to the sample of 12 small-scale projects for the further assessment of the projects. The resulting data sample contains therefore 106 entries. The structure of the CDM database was used for building the initial data sample, as its header exhibits an already comprehensive row of information categories. Additional information categories were added to the database for detailed analysis, such as IRR type, real or nominal terms, equity share of project financing, and underlying CER price.

The structure of the CDM database was used for building the data sample, as its header exhibits the most comprehensive list of information categories.

The methodology uses the following three indicators to assess financial attractiveness:

- 1.1.3.1 The internal rate of return (IRR) without carbon credit revenues, in relation to the relevant IRR benchmark
- 1.1.3.2 The change in IRR due to carbon credit revenues, in relation to the relevant IRR benchmark
- 1.1.3.3 The IRR with carbon credit revenues, calculated as the sum of IRR without carbon credit revenues and the change in IRR due to carbon credit revenues, in relation to the relevant IRR benchmark

The data sample was therefore further consolidated by removing projects for which neither of the following information was available:

- IRR without carbon credits (information required for calculating indicator 1.1.3.1 and 1.1.3.3.)
- IRR with carbon credits (information required for calculating indicator 1.1.3.2)
- IRR benchmark (information required for all three indicators)

For most CDM projects all three parameters are available as entries in the CDM database. For projects where this information was lacking, the project design documents, and key project information were searched.

Not all projects have information available on each of the three parameters listed above. Therefore, the number of projects that exhibit sufficient data for the calculation of the relevant indicator differ for each of the three indicators as summarized in Table 1 below.

Table 2 Number of sample projects used to calculate the three indicators for financial attractiveness

	1.1.3.1 IRR / benchmark IRR	1.1.3.2 Δ IRR / benchmark IRR	1.1.3.3 IRR with carbon credits / benchmark IRR
Total # of projects	62	55	55
Regions			
Eastern Asia	45	42	42
Southern Asia	9	5	5
Southeastern Asia	4	4	4
South America	4	4	4
Countries			
China	43	40	40
India	9	5	5
Thailand	4	4	4
Peru	3	3	3
Republic of Korea	2	2	2
Chile	1	1	1

Source: Own compilation.

The methodology further suggests applying a single carbon price for all projects in the data sample when calculating the indicators. To be able to perform calculations for all projects with a single carbon price, detailed financial information on a project is required in order to be able to reproduce the financial analysis with a different price than assumed by the project proponent. For each project in the consolidated data sample, key project documentation was reviewed for the availability of such detailed information. This review showed that only for 49 CDM projects such detailed financial information is available. Each of these projects provides a separate Excel file with detailed financial data (see Table 2).

Table 3 Number of projects with sufficiently detailed financial information to perform calculations with a single carbon price

	All indicators
Total # of projects	49
Regions	
Eastern Asia	36
Southern Asia	6
South-Eastern Asia	4
South America	3
Countries	
China	35

India	6
Thailand	4
Peru	2
Republic of Korea	1
Chile	1

Source: Own compilation.

The coverage of countries and regions in this data sample is lower than in the sample that also contains projects that do not provide detailed financial information. Furthermore, there is a high concentration of projects in China, which form 71% of the data sample (see further elaborations on this point below).

Step 6 of the methodology further suggests selecting the IRR benchmark from the country-level expected return on equity (ROE) outlined in the CDM methodological tool for investment (see CDM TOOL 27). This benchmark does, however, only apply to projects that use an equity IRR in their financial analysis. For projects that use a project IRR as the financial indicator, the appropriate benchmark is the weighted average cost of capital (WACC).

To prepare the data sample for calculating the indicators with the correct benchmark, the project design documents for each of the projects were reviewed to determine whether equity or project IRR was used for the financial analysis.

There is no publicly accessible database for WACC across industries and countries. The WACC for an individual firm can be calculated using the following formula:

$$WACC = r_e \times W_e + r_d \times W_d \times (1 - T_c)$$

Where:

- r_e = Cost of equity
- W_e = Percentage of financing that is equity
- r_d = Cost of debt
- W_d = Percentage of financing that is debt
- T_c = Corporate tax rate

The most accurate way of calculating a WACC benchmark would be to build a peer group of companies active in a particular country and industry related to the project type and calculate the average WACC that applies among that group. This would require very comprehensive data. The second-best option is to calculate the benchmark by using country specific data for the parameters listed in the formula above. This option was used for the assessment.

The required data for each of the parameters were sourced as follows:

- Cost of equity: Data from the CDM TOOL27 was used.
- Cost of debt: The “World Development Indicator DataBank” includes a time series on the lending interest rate for meeting short- and medium-term financing needs of the private sector (Source 5). The data description specifies that when reporting these data, countries should use effective and not nominal interest rates. These data were used, taking into account the host country and the start date of the project activity. For some countries data on the lending interest rate are not available. These projects were therefore removed from the analysis.

- Corporate tax rate: The “Tax Foundation” maintains a time series with the relevant data (Source 3) that was used for the analysis.

The result of this data collection are two different samples of projects – projects with limited information (Table 1) and projects with full information (see Table 2).

Only the second data sample allows the application of all steps of the methodology, both samples are similar in geographic distribution.

Assessment of Sample with complete information

As described above, this data sample consists of those CDM projects that have submitted detailed financial information in form of a separate Excel sheet. These sheets provide information on the IRR without carbon credits, the IRR with carbon credits, the carbon price used to calculate the latter as well as other cash-flow related data and calculations.

Step 3: Define the carbon credit price used in the calculation of the change in financial attractiveness due to carbon credit revenues.

The methodology recommends either using the carbon price estimated by the project proponent if it can be considered as plausible or setting a single carbon credit price applicable to all projects. Here, both approaches are implemented and then compared.

The single carbon credit price for the assessment is set at EUR 10 per ton/CO₂e. This value is chosen with the expectation that carbon credit prices will surge in the future and because the performance of projects at these higher values is of most interest when looking at the financial attractiveness of the project type. In principle different prices are possible, however the main objective is to apply a uniform price to all projects to enhance comparability of the results. The carbon price is an important input factor when calculating the contribution that carbon credit revenues can make to a project clearing the financial hurdle rate. If a carbon price is used that is higher than what can reasonably be expected this might skew financial calculations of a project. Choosing a uniform carbon price across all projects tries to mitigate this risk.

Step 4: Identify for each project the respective value for

- a) the IRR without carbon credit revenues (IRR);
- b) The change in IRR due to carbon credit revenues (Δ IRR); and
- c) The IRR with carbon credit revenues, calculated as the sum of IRR without carbon credit revenues and the change in IRR due to carbon credit revenues (IRR+ Δ IRR).

The respective values are calculated both using, as outlined above:

- The original carbon credit price assumed by project proponents as available in the CDM database.
- The single carbon credit price of EUR 10 per ton/CO₂.

Step 5: Identify for the project the relevant project category in the CDM Methodological Tool for Investment Analysis (CDM TOOL 27):

Solar PV falls within project category 1 of the Methodological Tool for Investment Analysis.

Step 6: Retrieve for each project the country-level expected return on equity (ROE) in the CDM methodological tool for investment analysis for the respective group identified in step 5 (The respective table can be found on page 12 of version 08.00 of CDM TOOL 27).

The respective values are retrieved for each project as outlined in Step 2 above.

For most projects no information is available in the project design document or other key project documentation on the distribution of debt and equity for the project. An assumption was therefore made that the percentage is 50 percent for each source of financing. This assumption is guided by the respective guidelines in CDM TOOL 27 that recommends this procedure for cases where information is not available (see paragraph 25 on page 9).

Moreover, the respective indicator values were determined separately using two different benchmarks:

- The original benchmark applied by the project proponents in their financial data.
- An adjusted benchmark that is either based on the expected return on equity for the project type in the respective country (based on the CDM TOOL27) or on the WACC applying in the respective country at the time of the start date for the project as calculated using the formula specified in Step 2. Most projects do not specify whether they conducted the investment analysis in nominal or in real terms. For calculating the adjusted benchmark, it is here assumed that projects used real terms instead of nominal terms for their financial data. Therefore, no adjustment for inflation was applied to the return on equity values of CDM TOOL27. As described above, the lending interest rates used for calculating WACC are also based on effective interest rates.

Step 7: Determine for each project the three indicators, by putting the IRR, the Δ IRR, and the sum of IRR and Δ IRR in relation to the benchmark IRR.

For each of the projects the three indicators were derived by putting the respective IRR, Δ IRR and sum of IRR and Δ IRR to the respective benchmark.

In doing so, different combinations of benchmarks values (original or adjusted) and carbon credit price (original and adjusted) were used respectively. Table 3 below provides an overview of the scoring results for each combination.

Indicator 1.1.3.1 is not affected by changes in the carbon price, which is why here only two values were calculated: one based on the original benchmark and another on the adjusted benchmark. For indicators 1.1.3.2 and 1.1.3.3, values for all four different combinations have been calculated.

Step 8-12: Calculation of the values for the indicators and the scores

Values for each of the three indicators were calculated for each of the projects using the combinations for benchmarks and carbon credit prices. After this the values were used to derive the scorings for each indicator using the respective scoring formulas outlined in the methodology. Finally, average scores were determined for each indicator.

Table 3 below summarizes the results of the analysis. The analysis shows a low performance of the project type for all three indicators. The overall score for sub-criterion 1.1.3 for the project type solar PV on a global level is 1.00 (applying the combination with the adjusted price and the adjusted benchmark). The average carbon price of those projects that used EUR as currency was only slightly higher than the reference price of 10 EUR per ton of CO₂, but exchange rates differed substantially.

Adjusting the benchmark led to greater differences, but overall scoring of all variants of the assessment show an overall score of 1.00 opposed to 1.06 using project data.

Regional differences exist for some of the scores. A regional differentiation of scores is however not feasible because of the low numbers of projects in the sample size for some of the regions.

Conclusion of the assessment

We check whether the results would be different, if the assessment was based on the largest number of projects with information for a respective indicator. The table below shows the results for the indicators without need for full financial information for the two samples (indicator 1.3.1 e.g., only needs information on the expected IRR without carbon credits. Information on the estimated carbon price is not required. This information is however required for indicator 1.1.3.3, hence a project not providing this information can be used for indicator 1.1.3.1 but not 1.1.3.3). The overall score for indicator 1.1.3 stays at 1.00 also when the assessment would be based on the larger sample with adjusted benchmark. Hence, the score for sub-criterion 1.1.3 for the project type Solar PV is 1.00.

Table 4 Final results for sub-criterion 1.1.3 for the project type Solar PV

	Original Price					Original Price			
	Original Benchmark					Adjusted Benchmark			
	1.1.3.1	1.1.3.2	1.1.3.3	Score		1.1.3.1	1.1.3.2	1.1.3.3	Score
Sample with complete information									
Sample size	49	49	49			49	49	49	
Score	3,14	2,11	2,47	1,06		2,67	2,18	2,96	1,00
Largest sample possible									
Sample size	62	55	55			61	58	61	
Score	3,15	2,07	2,48	1,04		2,85	2,07	2,72	1,00

Source: Own calculation.

Table 5 Scoring for sub-criterion 1.1.3 for the project type Solar PV

Sub-criterion 1.1.3	Sample Size	Original Price				Original Price				Adjusted Price (EUR 10)				Adjusted Price (EUR 10)			
		Original Benchmark				Adjusted Benchmark				Original Benchmark				Adjusted Benchmark			
		1.1.3.1	1.1.3.2	1.1.3.3	Score	1.1.3.1	1.1.3.2	1.1.3.3	Score	1.1.3.1	1.1.3.2	1.1.3.3	Score	1.1.3.1	1.1.3.2	1.1.3.3	Score
Global	49	3,14	2,11	2,47	1,06	2,67	2,18	2,96	1,00	3,14	1,88	2,27	1,00	2,67	1,93	2,85	1,00
Regions																	
Eastern Asia	36	3,25	2,25	2,47	1,25	2,93	2,31	2,76	1,18	3,25	2,00	2,25	1,00	2,93	2,04	2,59	1,00
Southern Asia	6	2,32	1,73	2,97	1,00	1,49	1,92	3,99	1,00	2,32	1,47	2,75	1,00	1,49	1,61	3,87	1,00
South-Eastern Asia	4	3,14	1,57	2,04	1,00	1,28	1,84	4,28	1,00	3,14	1,47	1,98	1,00	1,28	1,70	4,18	1,00
South America	3	3,10	1,78	2,23	1,00	3,76	1,63	1,61	1,00	3,10	1,61	2,13	1,00	3,76	1,40	1,75	1,00
Countries																	
China	35	3,27	2,21	2,41	1,21	2,93	2,28	2,73	1,14	3,27	1,96	2,20	1,00	2,93	2,01	2,57	1,00
India	6	2,32	1,73	2,97	1,00	1,49	1,92	3,99	1,00	2,32	1,47	2,75	1,00	1,49	1,61	3,87	1,00
Thailand	4	3,14	1,57	2,04	1,00	1,28	1,84	4,28	1,00	3,14	1,47	1,98	1,00	1,28	1,70	4,18	1,00
Peru	2	2,93	1,61	2,29	1,00	3,44	1,55	1,81	1,00	2,93	1,45	2,20	1,00	3,44	1,40	1,75	1,00
Republic of Korea	1	2,70	3,67	4,38	2,53	3,21	3,48	3,80	2,60	2,70	3,25	4,03	2,14	3,21	3,08	3,34	2,16
Chile	1	3,44	2,10	2,11	1,13	4,38	1,78	1,21	1,13	3,44	1,93	1,98	1,00	4,38	-	-	-

Source: Own calculation