

# A Concept Study to Assist Non-Profit Organizations to Better Target Developing Countries

Malek Makki

**Abstract**—The main purpose of this research study is to assist non-profit organizations (NPOs) to better segment a group of least developing countries and to optimally target the most needier areas, so that the provided aids make positive and lasting differences. We applied international marketing and strategy approaches to segment a sub-group of candidates among a group of 151 countries identified by the UN-G77 list, and furthermore, we point out the areas of priorities. We use reliable and well known criteria on the basis of economics, geography, demography and behavioral. These criteria can be objectively estimated and updated so that a follow-up can be performed to measure the outcomes of any program. We selected 12 socio-economic criteria that complement each other: GDP per capita, GDP growth, industry value added, export per capita, fragile state index, corruption perceived index, environment protection index, ease of doing business index, global competitiveness index, Internet use, public spending on education, and employment rate. A weight was attributed to each variable to highlight the relative importance of each criterion within the country. Care was taken to collect the most recent available data from trusted well-known international organizations (IMF, WB, WEF, and WTO). Construct of equivalence was carried out to compare the same variables across countries. The combination of all these weighted estimated criteria provides us with a global index that represents the level of development per country. An absolute index that combines wars and risks was introduced to exclude or include a country on the basis of conflicts and a collapsing state. The final step applied to the included countries consists of a benchmarking method to select the segment of countries and the percentile of each criterion. The results of this study allowed us to exclude 16 countries for risks and security. We also excluded four countries because they lack reliable and complete data. The other countries were classified per percentile thru their global index, and we identified the needier and the areas where aids are highly required to help any NPO to prioritize the area of implementation. This new concept is based on defined, actionable, accessible and accurate variables by which NPO can implement their program and it can be extended to profit companies to perform their corporate social responsibility acts.

**Keywords**—Developing countries, International marketing, non-profit organization, segmentation.

## I. INTRODUCTION

NPOs are specialized agencies that promote industrial development for poverty reduction, inclusive globalization and environmental sustainability in developing countries and economies in transition. The programmatic fields of activity provide technical cooperation, analytical and research functions, policy advisory services, quality-related activities, and convening and partnerships for knowledge

transfer, networking and industrial cooperation. They are created and are expected to provide solutions to any developing or poorer country, regardless of any political thoughts. They have organizational missions with budgets, and effort to improve mutual expansion of cooperation in intellectual, scientific, technological and economic activity. An NPO that has a deep understanding of the needs of developing countries brings widespread benefits to those countries, which include for example, influencing the technical content to make sure they reflect specific needs, gaining hands on experience that can help build up national infrastructures, and giving early access to information and technological knowledge. NPOs that are effective partners for creating and implementing technical assistance and training programs for developing countries gain trust from different stakeholders and donors and commit themselves to respect the purposes and functions of any funded project in an objective means. Cutting-edge technology, shifting demographics, changing social behaviors and new collaborative work practices are creating new demands and possibilities for all organizations [1]. When NPO are awarded with funds to initiate a long-term project and when this budget is limited compared to the national needs and capacities of potential beneficiaries, they cannot implement these in all developing countries. There are other constraints that are imposed by the donors, that restrict the implementation of these technical assistance programs exclusively in geographic regions, or priority must be given to the least developing and most needed countries. In addition, the expected outcomes must be checked regularly (once or twice per year), and measurable (quantitate the variables) to assess the positive implication of this project. Under these circumstances, the managerial body of any NPO needs assistance to be able to select the appropriate segments of beneficial countries that are considered developing, needier, and with the capability to make more benefit to the stakeholders and partners. The outcomes of such program contribute to build national capacities, to achieve economic growth, and to improve global relevance of international standards in a win-win relation with donors. When seeking donor supports for multi-years program, the NPO process preparation starts with identifying priorities and needs of the target developing countries. Programs are developed in an open process and reflect the views of many stakeholders including technical experts, government representatives, academics and consumers. They contribute to economic development, social progress and the protection of the environment in developing countries and support the development of the national quality infrastructure. These

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assistances are important sources of technological know-how and can be used to access knowledge in areas where they may lack expertise and resources. In general, the NPO that relies on funds to assist developing countries has to deal with different dilemma: how to ensure that the aid goes to the most in need countries, and, how to measure the positive impact of this aid?

TABLE I  
LIST OF THE DEVELOPING COUNTRIES

| A                      | D                 | L                | Q                       | V         |
|------------------------|-------------------|------------------|-------------------------|-----------|
| Afghanistan            | Djibouti          | Laos PDR         | Qatar                   | Vanuatu   |
| Albania                | Dominica          | Latvia           | <b>R</b>                | Venezuela |
| Algeria                | Dominican Rep     | Lebanon          | Romania                 | Vietnam   |
| Angola                 | <b>E</b>          | Lesotho          | Rwanda                  | <b>Y</b>  |
| Antigua and Barbuda    | Ecuador           | Liberia          | <b>S</b>                | Yemen     |
| Argentina              | Egypt             | Libya            | St Kitts and Nevis      | <b>Z</b>  |
| Armenia                | El Salvador       | Lithuania        | St Lucia                | Zambia    |
| Azerbaijan             | Equatorial Guinea | <b>M</b>         | St Vincent & Grenadines | Zimbabwe  |
| <b>B</b>               | Eritrea           | Macao            | Samoa                   |           |
| Bahamas                | Ethiopia          | Madagascar       | Sao Tome & Principe     |           |
| Bahrain                | <b>F</b>          | Macedonia        | Saudi Arabia            |           |
| Bangladesh             | Fiji              | Malawi           | Senegal                 |           |
| Barbados               | <b>G</b>          | Malaysia         | Serbia                  |           |
| Belarus                | Gabon             | Maldives         | Seychelles              |           |
| Belize                 | Gambia            | Mali             | Sierra Leone            |           |
| Benin                  | Ghana             | Marshall Islands | Singapore               |           |
| Bhutan                 | Georgia           | Mauritius        | Solomon Islands         |           |
| Bolivia                | Grenada           | Micronesia       | Somalia                 |           |
| Bosnia and Herzegovina | Guatemala         | Mongolia         | South Africa            |           |
| Botswana               | Guinea            | Moldova          | South Sudan             |           |
| Brazil                 | Guinea-Bissau     | Montenegro       | Sri Lanka               |           |
| Brunei Darussalam      | Guyana            | Morocco          | Sudan                   |           |
| Burkina Faso           | <b>H</b>          | Mozambique       | Suriname                |           |
| Burundi                | Haiti             | Myanmar          | Swaziland               |           |
| <b>C</b>               | Honduras          | <b>N</b>         | Syria                   |           |
| Cambodia               | <b>I</b>          | Namibia          | <b>T</b>                |           |
| Cameroon               | India             | Nauru            | Tajikistan              |           |
| Capo Verde             | Indonesia         | Nepal            | Tanzania                |           |
| Central Africa         | Iran              | Nicaragua        | Thailand                |           |
| Chad                   | Iraq              | Niger            | Timor-Leste             |           |
| Chile                  | <b>J</b>          | Nigeria          | Togo                    |           |
| China                  | Jamaica           | <b>O</b>         | Tonga                   |           |
| Colombia               | Jordan            | Oman             | Trinidad & Tobago       |           |
| Comoros                | <b>K</b>          | <b>P</b>         | Tunisia                 |           |
| Congo                  | Kenya             | Pakistan         | Turkmenistan            |           |
| Congo DR               | Kiribati          | Palestine        | <b>U</b>                |           |
| Costa Rica             | Korea DPR         | Panama           | Uganda                  |           |
| Cote d'Ivoire          | Kuwait            | Papua New Guinea | Ukraine                 |           |
| Croatia                | Kazakhstan        | Paraguay         | United Arab Emirates    |           |
| Cuba                   | Kyrgyzstan        | Peru             | Uruguay                 |           |
|                        |                   | Philippines      | Uzbekistan              |           |

List by alphabetic order of the 151 developing countries that are identified by the UN-G77, in addition to Eastern European and former Soviet Union countries.

The aims of this study are first to use marketing processes to identify key parameters that feature each country in the long term, and second apply reliable benchmarking to select the appropriate candidates that can optimally benefit from an NPO Program. More specifically, we define prominent and objective criteria by investigating socio-economic, behavioral, political, industrial, education, and administration systems of each developing country. We apply international marketing segmentation theories and international strategy that are essential to optimal planning and organize NPO activities in the targeted countries. The results of this research should place any NPO in an ideal position to implement their projects and adapt the strategy that meets the needs. In this conceptual research, we perform a country-based segmentation approach and we suggest 12 objectives and quantitative criteria that are reliable (GDP, growth rate, industry value added, spending on education, general competitiveness index, corruption perceived index, environmental protection index, fragile state index, exportations, Internet users, employees, and ease of doing business), accessible (government data, international independent organizations), and reproducible (yearly basis). These parameters were chosen on four bases: geography, economy, demography and behavior. Each criterion can be used as *input* to select the least developing countries, and as an *output* to measure the outcome of this program. The second step leads to attribute a weight to each estimated value of these individual criteria to highlight the impact of each variable in the general context of each country. We also combine the 12 selected criteria in one general index that represents a country, and we carry out a benchmarking technique to identify the appropriate beneficial candidates. In addition, we benchmark each country per individual criterion to assist NPO experts by pointing out the most needed field.

This research concept was designed to assist an NPO to better segment the appropriate beneficial developing countries based on needs and capacities.

## II. TAXONOMY OF DEVELOPING COUNTRIES

It is generally thought that development is centered on the main criterion of the rate of economic growth, and hence, the level of national development was given by gross national product (GNP) or gross national product per capita. This concept stressed economic growth through industrialization (technology and capital) as the key to development [2]. Non-economist scholars were not satisfied by reducing the definition of development to the sole economic index implying that poverty is equivalent to underdevelopment. Nowadays, each international institution or organization has its own definition of the term "*developing countries*". For example The World Trade Organization (WTO) [3] leaves it to each member to announce for themselves whether they are "*developed*" or "*developing*" countries. While the International Monetary Fund (IMF) [4] uses a flexible classification that considers per capita income level, export diversification and the degree of integration into the "global financial system". The World Bank (WB) classifies countries into four income groups according to their Gross National

Income per capita (GNIc). For the current 2016 fiscal year, the WB uses the following ranges of income economies [5]:

- a) Low-income economies are defined as those with a GNI per capita of \$1,045 or less
- b) Low-middle-income economies are those with a GNI per capita between \$1,045 and \$4,125
- c) Upper-middle-income economies are separated at a GNI per capita between \$4,125 and \$12,736.
- d) High-income economies are those with a GNI per capita of \$12,736 or more.

For the purposes of this study, we use the list defined by the "Joint Declaration of the Seventy-Seven Developing Countries" or the Group of 77 at the United Nations established on 1964 [6]. The group was enlarged over the years and more countries from all over the world were added so that the list has 136 members, but retains the original name G-77. We included a group of 15 Eastern European and former Soviet Union countries that are members of the UN so the final has 151 members (Table I).

### III. OBJECTIVE OF THIS STUDY

A NPO Program is financed through contributions from external donations such as national development agencies and government ministries. Developing countries are also requested to contribute to the initiatives from which they benefit. When deciding how to distribute technical assistance over the multi-years period, priority is given to the least developed countries complemented by criteria related to their level of competence and performance in specific areas. The donors require that the aid is well spent, and that it will make a positive and lasting difference by its contribution to capacity building, achieving economic growth and alleviating poverty. Thus, efficient and reliable segmentation methods must be performed to identify the appropriate beneficiaries. The outputs of the *Program* or the expected results of the activities to be undertaken must be identifiable. We highlight five main areas of improvement for NPOs in developing countries because it is essential for *Program* acceptance to insure the donors that the expected key outcomes will be reached: *i)* recognize the effective role of an NPO in support of public policies, *ii)* strengthen the strategic capabilities of national entities, *iii)* increase their operational and technical levels, *iv)* increased involvement of developing country members in international organization, and *v)* coordination and synergies with other organizations and among projects implemented. To perform the segmentation process, we consider these beneficiaries countries as a *market*, with multi-cultural differences, political divergences, divers and heterogeneous languages, laws, and habits. This heterogeneity provides substantial possibilities in identifying different segments so that these developing countries will be broken down for a particular segment [7] so that NPO has more potentials to obtain favorable responses and greater profits. This research profiling aims to provide appropriate data to identify candidates that can benefit from this aid in order to enhance capabilities in emerging technology, sustainable economy, and new development for the coming years. The results of this

investigation will assist NPO to become in ideal position to promote technological, educational and industrial advances and adaptation of economic and business strategy that meet the needs of different countries. With this regard international marketing segmentation and international strategy are essential to *i)* identify different common basis for these countries, *ii)* select key parameters that reflect their needs and their capacities, *iii)* define the accurate metric to combine these values, *iv)* benchmark the regions and the countries, and *v)* suggest a segment based on all objective criteria. In this investigation we define the most prominent and objective criteria that represent the socio-economic, the industrial, education, and business administration. Prior to the launch, and to avoid extra time-shift (seeking funds, approval to implementation, etc.), suspension of the project (security, suspension), or running two parallel projects targeting the same segment, a complete and full comprehension of each country is required in terms of socio-economics, stability, demography, industry, and education. After completion of such a study, the selected countries are considered a set target for the project starting date.

In practice, the limited budget per annum, and fewer contributions from developed and developing countries, will reduce the number of beneficiary countries. The market segmentation of these 151 countries allows us to identify the appropriate target and prioritize the contribution knowing the most needed areas of interest. In the other hands, the political and economic dynamic in the developing countries is challenging, and to some extent might restrict the intervention, particularly in countries with raising armed conflicts. We will identify several indices that reflect economic growth, investment, industrialization, communication, competitiveness, market development, political stability, and so on. These are quantitative data provided by each country thru indices, absolute values, or percentage. The next steps require attribution of a "weight" to each variable so that we obtain an overall variable per criterion and an index per country. For each developing country we have to benchmark them with more or less developing countries by re-scaling these variables to define an equivalent index that is exclusively representative of the defined list. The applied segmentation process uses both qualitative and quantitative data and must insure that the selected segments are *i)* identifiable (segmentation with measurable and comparable characteristics), *ii)* substantial (large sample (+150) to be analyzed so that the *Program* can be profitable), *iii)* accessible (safe to communicate with them), *iv)* stable (for a long enough period of time to be marketed as sustainable), *v)* differentiable (the organizations in these countries have similar needs) and *vi)* actionable (NPO is able to provide services to these segmented countries). The chosen procedures provide objective and rational variables that help decision-makers to sharpen their thoughts and to be able to select the appropriate place (location, low/high GDP per capita, high/low competitiveness, etc.), means (language, low expense, colonial ties, etc.) and time (political stability, environmental crisis). Developing countries are improving in terms of access to

education, urbanization, lifestyles, advances in information and communication technologies, and the increasing flow of labor, money, and technology across borders and life style. Despite the heterogeneity of these countries (language, culture, socio-demographic, ethnic, politic, etc.), they do have lot in common that helps structuring these differences [8]. These make it easier to integrate *pan-regional* strategy developed in five interacted procedures. These form a loop that starts with the strategy and then followed by the marketing mix, marketing system, as well as collection of information and an actionable plan that confirms the strategic moves (Fig. 1). The results clearly point to countries where an NPO Program must be implemented first, and more specifically, which area of interest must be targeted on the basis of the defined criteria.

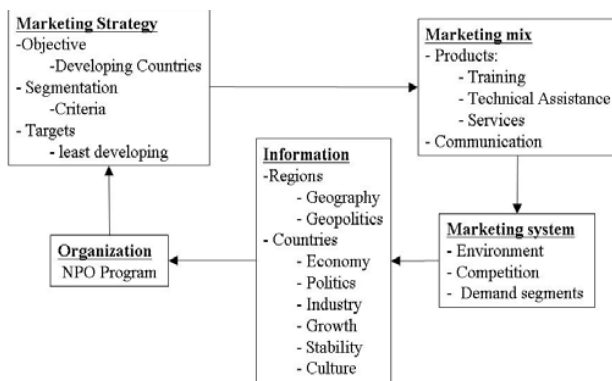


Fig. 1 NPO program is organized in pan-regional strategy developed in five interacted procedures. These form a loop that starts with the strategy and then followed by the marketing mix, marketing system, and collection of information and actionable plane that confirms the strategic moves

#### IV. RESEARCH PLAN

##### A. Major Segmentation Variables and Sampling Plan

These countries are considered as a "market" and split into sub-sets with similar characteristics, capacities, desires and demands. The split ought to satisfy their needs in a much better way than it could have been otherwise. The segmentation is defined by four relevant factors: economics, geography, demography, and behavioral. Each contains a list of variables that are observable, highly accessible, and can be quantified either with an index or an absolute value (USD, %GDP, or population). The realization of this of this research involves collecting data published by trusted and well-known international organizations (UN, IMF, WTO, WEF, etc.) and local government statistics.

##### B. Economic and Industry

We consider four variables: *industrialization, GDP, growth rate, and Exportation*. Although this segmentation is generally used for Business-to-Business marketing it applies for NPO Program because one can measure results and outcomes.

- o Countries GDP Per Capita Based on Purchasing Power Parity GDP<sub>c</sub> (PPP). It is considered one of the indicators

of a country's standard of living, however it is not a measure of personal income. GDP<sub>c</sub> PPP (given in international USD) are more useful when comparing the generalized national wealth differences in living standards, because PPP takes into account the relative cost of living and the inflation rates of the countries, rather than using only exchange rates, which may distort the real differences in income [9].

**Example:** Niger = \$1,080 UAE=\$67,617

- o *GDP Growth (Annual Per Capita) ΔGDP<sub>c</sub>*. It represents the annual percentage growth rate of GDP at market prices based on constant local currency. The aggregates are based on constant 2005 USD, World Bank national accounts data, and the Organization for Economic Cooperation and Development (OECD) National Accounts data files [10]. The real GDP growth rate was converted from percentage to USD per capita for comparison across regions and countries:

$$\Delta GDP_c = \frac{\%Growth \times GDP}{Population} \quad (1)$$

**Example:** Algeria, Total GDP = \$213,513 Millions, Population = 36.3 Millions, Growth in % GDP = 3%, ΔGDP<sub>c</sub> = 231,513 x 0.03 / 36.3 = \$176.

- o *Industry Value Added Per Capita (IVAc)*. Industry corresponds to the International Standard Industrial Classification (ISIC divisions 10-45). Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs [11] and comprises mining, manufacturing, construction, electricity, water, and gas. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. It is originally given as %GDP, but we converted to absolute value and adjusted to per capita (\$ per inhabitant) for peer countries comparison:

$$IVA_c = \frac{IVA \times (\%GDP)}{Population} \quad (2)$$

**Example:** Cote d'Ivoire, Total GDP = \$34,513 million, Population = 21.395 million, IVA in % GDP = 21.1%, IVAc = 34,513 x 0.211 / 21.395 = \$338.

- o *Economy Export per Capita (EE<sub>c</sub>)*. It provides the total amount of merchandise exports ( $Export_{Total}$ ) on a free on board basis (USD). These figures are calculated on an exchange rate basis, i.e. not in purchasing power parity terms. The aggregates for all countries are compared for Economy "Exports per capita", and CIA World Factbooks (2010-2013) [12]. The population figures were retrieved from: (1) United Nations Population Division - World Population Prospects, (2) United Nations Statistical Division - Population and Vital Statistics Report (various years), (3) Census reports and other statistical publications from national statistical offices, (4) Eurostat: Demographic Statistics, (5) Secretariat of the Pacific

Community: Statistics and Demography Programme, and (6) U.S. Census Bureau: International Database.

The total amount was divided by the number of population to convert this to per capita so that we can compare with peer countries (\$ per inhabitant):

$$EE_c = \frac{Export_{total}}{Population} \quad (3)$$

**Example:** Brazil Total export = \$191,100 Million, Population = 200,000,400  $EE_c = \$955.5$ .

### C. Geographic

We measure two variables: Environment, and Wars and Political satiability

- **Wars and Political Stability Index (WPSI).** For wars and instability we list the ongoing conflicts involving militias-guerrillas, terrorist-separatist-anarchic groups [13]. The political stability criterion consists of the traditions and institutions by which authority in a country is exercised. It includes the process by which governments are selected, monitored and replaced, the capacity of the government to effectively formulate and implement policies, the respect of citizens and the state for the institutions that govern economic and social interactions [14]. The classification ranges between -2.5 (the weakest) to +2.5 (the strongest). The combination of these 2 variables "wars" and "political stability" provides a reliable criterion to decide whether or not the country is safe for NPO experts.

**Example:** Iraq, Wars/Conflicts = 49, PSI = -2.47, Botswana, Wars/Conflicts = 0, PSI = 1.02.

- **Environmental Performance Index (EPI).** This is a Yale-based initiative that evaluates how 180 countries all over the world protect ecosystems and human health [15]. EPI measures national and global protection of ecosystems and human health from environmental harm, and draws out trends and highlights data gaps in priority areas including air quality, water management, and climate change. Out of this list, we extracted the 151 developing countries and we adjusted their index to re-scale the range accordingly.

**Example:** Georgia = 22.08, Singapore = 3.64.

### D. Demographic

We measure three variables: employment rate, public spending for education, and the global competitiveness index.

- **Economy Employment Ratio ( $EER_{15+}$ ).** We measure the percent of the labor forces (inhabitant over 15 years of age) that are employed [16]. The ratio of the total number of employees that are over 15 years of age ( $Employees_{15+}$ ) to the total number of population over 15 years of age ( $Population_{15+}$ ) is given by:

$$EER_{15+} = \frac{Employees_{15+}}{Population_{15+}} \quad (4)$$

**Example:** Moldova  $EER_{15+} = 39.9$ , Peru  $EER_{15+} = 73.1$ .

- **Public Spending on Education, Total of GDP per Capita**

( $PSE_c$ ). Public expenditure on education includes government spending on educational institutions, education administration, and transfers/subsidies for private entities (students/households and other private entities). Public expenditure on education as %GDP is the total public expenditure (current and capital) on education in a given year [17]. This value was rescaled and converted to USD to represent public spending on education per capita (\$ per inhabitant):

$$PSE_c = \frac{(Spending\_Education) \times (\%GDP)}{Population} \quad (5)$$

**Example:** Belarus, Spending on education 5.15% GDP, GDP = \$76,139 Million, Population = 9,466,000,  $PSE_c = 76,139 \times 5.15\% / 9,466 = \$414$ .

- **The Global Competitiveness Index (GCI).** The Global Competitiveness Report (World Economic Forum 2015-2016) is a comprehensive dataset that assess national competitiveness worldwide [18], [19]. The GCI includes statistical data from internationally recognized agencies: IMF, UNESCO, WHO and data from the WEF's annual Executive Opinion Survey [20]. These indicators are grouped into 12 pillars: *i*) institutions, *ii*) infrastructure, *iii*) macroeconomic environment, *iv*) health and primary education, *v*) higher education and training, *vi*) goods market efficiency, *vii*) labor market efficiency, *viii*) financial market development, *ix*) technological readiness, *x*) market size, *xi*) business sophistication, and *xii*) innovation [21]. They are organized into three sub-indices to capture concepts that matter for productivity and the three main stages of development: 1) Basic requirements, 2) Efficiency enhancers, and 3) Innovation and sophistication factors.

**Example:** Sierra Leone = 3, Swaziland = 44.

### E. Behavioral

Some countries may be feathered as easy of doing business while others the opposite. We consider the following variables: *corruption, easy of doing business, and internet users.*

- **Ease of Doing Business Index (EDBI).** It presents quantitative indicators on business regulations and the protection of property rights that can be compared across 189 economies and over time. The indices are determined by sorting the aggregate distance to frontier scores on 10 topics, each consisting of several indicators (Appendix I), giving equal weight to each topic leading to an overall index [22], [23]. The 10 included areas are: *i*) Starting a business, *ii*) Dealing with construction permits, *iii*) Getting electricity, *iv*) Registering property, *v*) Getting credit, *vi*) Protecting minority investors, *vii*) Paying taxes, *viii*) Trading across borders, *ix*) Enforcing contracts, and *x*) Resolving insolvency. Countries are ranked on their ease of doing business, from 1–189. A high score means the regulatory environment is more conducive to the starting and operation of a local firm.

**Example:** Bhutan = 64, Kyrgyzstan = 122.

- *Fragile State Index (FSI)*. It is produced by "The Fund for Peace" [24] and it highlights pertinent issues in weak and failing states and assesses political risk and early warning of conflicts. Scores are apportioned for every country based on 12 key political, social and economic indicators (which in turn include over 100 sub-indicators): *i)* Demographic pressure, *ii)* Refugees and Internally displaced persons, *iii)* Group grievance, *iv)* Human Flight, *v)* Uneven development, *vi)* Poverty and Economic decline, *vii)* Legitimacy of the state, *viii)* Public services, *ix)* Human Rights, *x)* Security Apparatus, *xi)* Factionalized Elites, and *xii)* External intervention. This analysis is then converted into a score representing the significance of each of the various pressures for a given country.

**Example:** Cambodia = 26.6, Afghanistan= 96.9.

- *Corruption Perceptions Index (CPI)*. The Corruption Perceptions Index measures the perceived levels of public sector corruption worldwide [25]. A country's score is on a scale of 0 (highly corrupt) to 100 (very clean). A country's rank indicates its position relative to the other countries in the index. We extracted the sub-group of 151 developing countries and rescaled the CPI so that we can compare the index to peer developing countries within this group.

**Example:** India = 38, Qatar = 71.

- *Internet Users (IU)*. Internet users compare the number of users within a country (expressed per 1,000 people for the same year) that access the Internet. Statistics vary from country to country and may include users who access the Internet at least several times a week to those who access it only once within a period of several months All countries were compared for Media > Internet > Internet users per thousand people [26]. The population figures were retrieved from: (1) United Nations Population Division - World Population Prospects, (2) United Nations Statistical Division - Population and Vital Statistics Report (various years), (3) Census reports and other statistical publications from national statistical offices, (4) Eurostat: Demographic Statistics, (5) Secretariat of the Pacific Community: Statistics and Demography Programme, and (6) U.S. Census Bureau: International Database. The role of communication in developing country ought to change. The equality of distribution of NPO information must spread to villagers and urban poor so that the benefits of the *Program* outcomes should be the priority audience for development programs to close the socioeconomic gaps.

**Example:** Turkmenistan = 4.9, South Africa= 24.7.

#### V. REALIZATION OF THE RESEARCH

To perform data analysis, we rely on existing and most recent quantitative data, that are reliable (trusted organization, representative of the country), reproducible (yearly basis, each country), and accessible (to public and private institutions). The input variables are commonly known (exports, spending, GDP, etc.) and are defined with quantitative value (USD,

percentage, population, etc.) and parameters to be able to perform inter/intra countries comparison.

#### A. Data Collection

In general, all these indices and variables (economics, demographics, behavioral, and geographic) are available separately and are provided for all countries no matter whether they are developed, developing or poor countries. In fact, there are no specific data dedicated to developing countries, and furthermore, there is no existing source (neither public nor private, governmental nor non-governmental) that combines all criteria into one variable that reflects the country development level. These lacks of resources and information are the key points that justify the needs to perform such an international segmentation study. The data are collected per country and per criterion and based on estimated values: USD, percentage, or index (Table II). We collect the most recent data whenever it is possible (starting by 2016 and backward 2015 or earlier). When data are over five years old, they are discarded to avoid aging of information bias. We consider adding a binary index (1=Go, 0=No-Go) to either include or exclude a country based on the level of securities. This index will multiply by the combination of the 12 criteria to obtain a global index that represents the country.

TABLE II  
SEGMENTATION DIVISION AND VARIABLES

| Divisions   | Variable                       | Value           |
|-------------|--------------------------------|-----------------|
| Geographic  | Environmental Performance      | Index           |
|             | Wars, conflicts and suspension | Binary          |
|             | GDP per capita                 | USD             |
| Economic    | Industrialization              | Index           |
|             | Growth                         | Percentage      |
|             | Export                         | Percentage      |
| Demographic | Spending on education          | Percentage      |
|             | Employment rate                | Percentage      |
|             | Competitiveness                | Index           |
|             | Information development        | Number of users |
| Behavioral  | Corruption                     | Index           |
|             | Easy of doing business         | Index           |
|             | Fragile State                  | Index           |

The data collected of the four segmentation bases, and 13 criteria.

TABLE III  
WEIGHTED ESTIMATED VALUE OF EACH COUNTRY

| Malaysia          | Estimated | Weight | W x E |
|-------------------|-----------|--------|-------|
| GDPc              | 26,315    | 5      | 1316  |
| AGDPc             | 542       | 10     | 54.2  |
| FSI               | 45.1      | 10     | 4.51  |
| EDBI              | 173       | 5      | 8.65  |
| GCI               | 122       | 5      | 6.1   |
| CPI               | 50        | 5      | 2.5   |
| IVA               | 4615      | 5      | 231   |
| EPI               | 12.81     | 10     | 1.28  |
| EE <sub>c</sub>   | 7787      | 5      | 389   |
| PSE <sub>c</sub>  | 592       | 10     | 59.2  |
| ER <sub>15+</sub> | 63.5      | 20     | 12.7  |
| IU                | 648.04    | 10     | 64.8  |

The (W x E) value is result of the weight time the estimated variable and the final index is the combination of all weighted criteria. An example of such attributes and values are given in Table IV for Malaysia.

### B. Coding and Scoring Method

We attribute a "weight" (W) for each estimated value (E) to reflect the relative importance of each criterion compared to others within the same country, and to highlight the needs and expectation from a NPO program. The criterion that is of greatest importance and makes higher impact on the outcomes was given a higher value. The final result is defined as  $W \times E$  = weighted estimate (Table III).

### C. Construct and Measure of Equivalence

We apply the same procedural data collection for all countries to report the value of each criterion and we do not inter-change resources when we search for a variable. The segmentation variables must be equivalent across countries to avoid biases and misinterpretation in a common grouping form. To construct the equivalence, the selected criteria must be functional (i.e. used world-wide and serve the same purposes and function in different countries), and conceptual (i.e. services and products are interpreted similarly in different countries). The collected data have three kinds of dimensions that require calibration and adjustment. We have variables defined as percentage (growth rate and spend on education), while others are defined by absolute value (GDP per capita in USD), and a third category by index (corruption perceived, competitiveness). To combine the percentage and the absolute value for certain criterion, we convert the percentage into value per capita. For example, the real growth rate expressed as %GDP was converted to absolute value per capita in USD, similarly for industry, IVA, PSE, and export per capita (from %GDP to per capita USD). The two other dimensions (i.e. absolute USD per capita, and index) are converted to a combined index representative of the country development.

### D. Index Equivalence

We define an index that reflects the level of each developing country in our list of developing countries. This procedure requires to measure the deviation of the defined variable from the average of all 151 countries and normalize it to extract a dimensionless value:

$$Index_{i,j} = 100 \cdot \frac{v_{i,j} - V}{V} \quad (6)$$

i: refers to country [1..151]; j: refers to criterion [1..12]; V = average of all variables  $v_i$ ,  $v_{i,j}$  = weighted estimation of the criterion variable j, of a country i.

Example: Average IVAc = \$227, Vietnam IVAc = \$799, weight = 15%  $v = \$120$ , Global Index = -47.

### E. Benchmarking

There is a need to establish a specific approach to benchmark these countries to align them and compare their criteria separately and their overall development level. First, we rescale the weighted-value ( $I=W \times E$ ) by performing an objective benchmarking approach using a linear correlation to fit the calculated variables per countries:

$$S = A \times I + B \quad (7)$$

The two coefficients (A and B) can be easily obtained for each country and per criterion since the extreme values are well defined: the minimum value is always 1, and the maximum value is the total number of selected countries. We benchmark each weight-estimated variable ( $I=W \times E$ ) for all countries (N) by adjusting the attributed index to generate a new index S:

$$S_{i,j} = \frac{(N-1)}{Max_{i,j} - Min_{i,j}} \times (I_{i,j} - Min_{i,j}) + 1 \quad (8)$$

N = total number of countries,  $I_{i,j}$  = index of variable i of country j,  $Min_{i,j}$  and  $Max_{i,j}$  are respectively the minimum and the maximum value of  $I_{i,j}$ .

$$A_{i,j} = \frac{(N-1)}{Max_{i,j} - Min_{i,j}} \quad B_{i,j} = 1 - A_{i,j} \times Min_{i,j} \quad (9)$$

In Table IV, we demonstrate the results of this procedure choosing Panama as an example (randomly selected).

TABLE IV  
BENCHMARKING OF EACH COUNTRY

| Criteria           | Panama    |           |       |       |       |     |       |      |
|--------------------|-----------|-----------|-------|-------|-------|-----|-------|------|
|                    | $I_{Min}$ | $I_{Max}$ | A     | B     | E     | W   | Index | Bmk  |
| EPI                | -99       | 353       | 0.327 | 33.54 | 12.68 | 10% | -43   | 19.6 |
| GDPc               | -94       | 663       | 0.195 | 19.44 | 21765 | 10% | 95    | 38.0 |
| IVAc               | -98       | 1765      | 0.057 | 6.59  | 3190  | 5%  | -30   | 4.9  |
| $\Delta$ GDPc      | -455      | 6263      | 0.022 | 11.02 | 866   | 10% | 3016  | 77.5 |
| EEC                | -99       | 1964      | 0.071 | 8.12  | 4965  | 5%  | 25    | 9.9  |
| PSEc               | -98       | 785       | 0.167 | 17.50 | 505   | 10% | 68    | 29.0 |
| EER <sub>15+</sub> | -100      | 185       | 0.518 | 52.86 | 62.6  | 15% | 52    | 80.0 |
| GCI                | -100      | 227       | 0.452 | 46.27 | 90    | 10% | 90    | 87.0 |
| IU                 | -99       | 563       | 0.223 | 23.10 | 445   | 5%  | 16    | 26.7 |
| CPI                | -62       | 244       | 0.483 | 31.01 | 39    | 10% | 34    | 48.0 |
| EDBI               | -100      | 236       | 0.440 | 45.07 | 120   | 5%  | -6    | 44.2 |
| FSI                | -100      | 242       | 0.433 | 44.33 | 56.4  | 5%  | 0     | 44.2 |

The intermediate variables obtained to achieve a benchmarking (Bmk) of the segmentation per countries. The indices of each estimated variable per criterion range between  $I_{Min}$  and  $I_{Max}$ . The correlation variables A and B are calculated with equation (9). A typical example is provided for Panama

## VI. SEGMENTATION RESULTS

### A. Excluded Countries

Four countries were excluded because they lack reliable and up-to-date data and statistics: Sao Tome & the Principe Nauru, Somalia, and South Sudan. For these we did not perform any intermediate analysis (index per criterion, global index, benchmarking). For the others (N=147), we first present the results of the segmentation when combining all criteria in one index, then we provide the results of the segmentation for each criterion separately using a percentile presentation.

### B. Segmentation per Countries All Criteria Combined

The overall index that combines the 12 selected criteria applied to all 147 countries was calculated on the basis of (6) and was benchmarked using our suggested (8). The results of

this process are shown in Table V, based on the conflicts and political instability (WPSI) index. For this criterion, we do not attribute any weight, but we adopt the *Go-No-Go* strategy. Nevertheless, we mentioned their index for future use with hope that the WPSI becomes normal in near future. The 16 suspended countries are: Syria (*index=141*), Palestine (*index=151*), Korea DR (*index=155*), Sudan (*index=158*), Yemen (*index=172*), Djibouti (*index=175*), Eritrea (*index=182*), Ethiopia (*index=188*), Libya (*index=197*), Iraq (*index=200*), Mali (*index=200*), Pakistan (*index=218*), Nigeria (*index=220*), Ukraine (*index=271*), and Afghanistan (*index=274*). We performed the intermediate and final analysis on each criterion for these excluded countries, and recommend the NPO to exclude them. The combined weighted criteria values for the 147 analyzed countries range

from 92 for Haiti, the least developing country, to 1,071 for Qatar that is considered as a highly developing country on the basis of our analysis. The global index average is  $306 \pm 150$  with a median value of 275. The top 30 least developing countries are spread all over the globe: Haiti and Dominica in the Caribbean and Central America, Congo DR and Burundi in Sub-Saharan Africa, Marshall Islands and Vanuatu in Oceania, Syria and Yemen in the Middle East, Korea DPR in East Asia, Nepal in Central Asia. On the other hand, a subgroup of the last 10 countries in the list comprises members know as Gulf countries, which are oil traders (Saudi Arabia = 566, Bahrain = 583, UAE = 591, Oman = 63, Kuwait = 770, Qatar = 1071), while Uruguay (598), Macao (631) and Singapore (893) are mainly services providers.

TABLE V  
SEGMENTATION RESULTS

| Country                       | GI  | Country                         | GI  | Country            | GI  | Country                          | GI   |
|-------------------------------|-----|---------------------------------|-----|--------------------|-----|----------------------------------|------|
| Haiti                         | 92  | Egypt                           | 203 | Serbia             | 276 | Azerbaijan                       | 427  |
| Congo DR                      | 115 | <i>Myanmar</i> <sup>1</sup>     | 206 | Samoa              | 277 | Kazakhstan                       | 428  |
| Marshall island               | 130 | Micronesia                      | 208 | Belize             | 277 | Montenegro                       | 451  |
| Burundi                       | 132 | Congo                           | 210 | Vietnam            | 278 | Trinidad & Tobago                | 458  |
| Guinea                        | 139 | Niger                           | 212 | Sri Lanka          | 279 | Costa Rica                       | 476  |
| <i>Syria</i> <sup>1</sup>     | 141 | Tanzania                        | 212 | El Salvador        | 279 | Latvia                           | 484  |
| Malawi                        | 145 | Venezuela                       | 216 | Honduras           | 280 | Seychelles                       | 489  |
| Kiribati                      | 147 | Cambodia                        | 218 | Morocco            | 288 | Lithuania                        | 503  |
| Madagascar                    | 149 | <i>Pakistan</i> <sup>1</sup>    | 218 | Turkmenistan       | 289 | Panama                           | 507  |
| <i>Palestine</i> <sup>1</sup> | 151 | Swaziland                       | 220 | Guatemala          | 290 | Mauritius                        | 508  |
| Chad                          | 152 | <i>Nigeria</i> <sup>1</sup>     | 220 | Solomon Islands    | 295 | Malaysia                         | 520  |
| Guinea-Bissau                 | 152 | Senegal                         | 222 | Paraguay           | 297 | Barbados                         | 528  |
| <i>Korea DPR</i> <sup>1</sup> | 155 | Cameroon                        | 222 | Armenia            | 298 | Chile                            | 557  |
| Vanuatu                       | 157 | Kenya                           | 225 | Grenada            | 298 | Saudi Arabia                     | 566  |
| Zimbabwe                      | 156 | Nicaragua                       | 226 | Bosnia Herzegovina | 301 | Uruguay                          | 568  |
| <i>Sudan</i> <sup>1</sup>     | 158 | Rwanda                          | 228 | Cuba               | 301 | Bahrain                          | 583  |
| <i>Yemen</i> <sup>1</sup>     | 172 | Benin                           | 229 | Liberia            | 303 | UAE                              | 591  |
| Central Africa                | 174 | St Lucia                        | 230 | Cape Verde         | 304 | Brunei                           | 621  |
| Timo-Leste                    | 174 | Tonga                           | 231 | Equatorial Guinea  | 307 | Macao                            | 631  |
| <i>Djibouti</i> <sup>1</sup>  | 175 | Cote d'Ivoire                   | 237 | Lebanon            | 309 | Oman                             | 631  |
| Uganda                        | 177 | St Vincent & Grenadine          | 236 | Jamaica            | 302 | Kuwait                           | 770  |
| Burkina Faso                  | 181 | Bolivia                         | 241 | Ecuador            | 324 | Singapore                        | 893  |
| <i>Eritrea</i> <sup>1</sup>   | 182 | Zambia                          | 241 | Bhutan             | 327 | Qatar                            | 1017 |
| Mozambique                    | 182 | Moldova                         | 244 | India              | 327 |                                  |      |
| Sierra Leone                  | 185 | Laos PDR                        | 248 | Belarus            | 331 | Nauru <sup>2</sup>               |      |
| <i>Ethiopia</i> <sup>1</sup>  | 188 | Uzbekistan                      | 249 | Ghana              | 334 | Sao Tome & Principe <sup>2</sup> |      |
| Gambia                        | 191 | Philippines                     | 249 | Dominican Rep      | 346 | Somalia <sup>2</sup>             |      |
| Nepal                         | 192 | Papua New Guinea                | 250 | Gabon              | 347 | South Sudan <sup>2</sup>         |      |
| Tajikistan                    | 192 | Kyrgyzstan                      | 253 | Mongolia           | 348 |                                  |      |
| Bangladesh                    | 192 | Lesotho                         | 253 | Argentina          | 349 |                                  |      |
| Dominica                      | 193 | Guyana                          | 259 | Surinam            | 356 |                                  |      |
| Comoros                       | 196 | Algeria                         | 261 | Indonesia          | 358 |                                  |      |
| Togo                          | 197 | <i>Ukraine</i> <sup>1</sup>     | 271 | China              | 418 |                                  |      |
| <i>Libya</i> <sup>1</sup>     | 197 | <i>Afghanistan</i> <sup>1</sup> | 274 | St Kitts & Nevis   | 420 |                                  |      |
| <i>Iraq</i> <sup>1</sup>      | 200 | Albania                         | 274 | Tunisia            | 421 |                                  |      |
| <i>Mali</i> <sup>1</sup>      | 200 | Iran                            | 274 | Thailand           | 421 |                                  |      |
| Angola                        | 200 | Fiji                            | 275 | South Africa       | 423 |                                  |      |

The full list of the 151 developing countries classified by the global index (GI). The superscript (1) indicates country with high risk of wars conflicts and political instability (total=16). The superscript (2) indicates country that lack data to have a reproducible and accurate assessment of the global index (total=4).



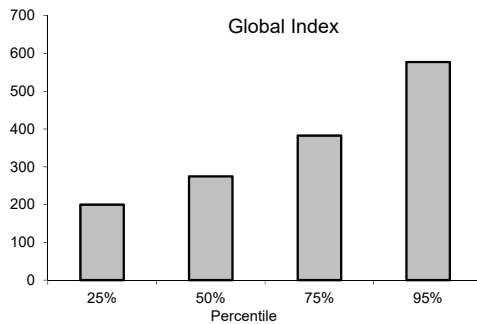


Fig. 2 The Percentile presentation of the country-based segmentation all criteria combined. The global index of the 25th percentile equals 200, while the 50th percentile is 275. The 75th and 95th percentile are respectively 383 and 577

### C. Percentiles per Country and Criteria

The grouping per percentile is another useful technique to present the results of the segmentation per country and the percentile of each criterion separately. To achieve this goal, we selected four percentiles (25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 95<sup>th</sup>) and we identified the four threshold values of the general combined index (respectively 200, 275, 383, and 577). This allows us to segment the countries into four major categories (Fig. 2). For this representation, we excluded countries labeled unsafe with high risk of wars to polish the final decision. For each selected country, we repeated the same procedure for each criterion to highlight the developing level of each area of interest so that

the NPO are more assisted to prioritize the implementation. For each criterion (GDPc, ΔGDPc, IVAc, EEc, PSEc, EER<sub>15+</sub>, FSI, EDBI, CPI, GCI, EPI, and IU) we calculated the 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup> and 95<sup>th</sup> percentile values and we generate a range for each per country (Table VI). This allows us to identify the segment of the least developing countries (Table VII) that are in the 25<sup>th</sup> percentile (index < 200) example Haiti (92), then Congo DR (115), while the last country in the list is Togo (197). This segment includes 25 countries, and they can be characterized as the most in need countries. Second, we extracted the value for each criterion and we provided the percentile it belongs to. We apply this technique to better assist the NPO to prioritize their implementation in the least developing area shown by the 25<sup>th</sup> percentile. We can also identify the 50<sup>th</sup> percentile category or the second segment (index between 200 and 275), which includes 32 countries starting with Angola (200), followed by Egypt (203), while the last country is Iran (274). The percentile value for each criterion was shown separately (Table VIII). The 75<sup>th</sup> percentile per country has 37 members and starts with Fiji (275), then Serbia (276) and ends with Croatia (382). Each criterion percentile value was also provided (Table IX). Finally, we identified the group of highly developing countries (total = 37) that are in the 95<sup>th</sup> percentile (index > 383), which starts with Colombia (384), followed by Brazil (385), while the last country in the list Qatar (1017). We extracted the percentile value for each criterion (Table X).

TABLE VII  
LIST OF COUNTRIES IN THE 25<sup>th</sup> PERCENTILE

| 25 <sup>th</sup> percentile Total<br>= 25 | Percentile of each criterion for the defined countries |       |      |     |      |                    |     |      |     |     |     |    |
|---|--|-------|------|-----|------|--------------------|-----|------|-----|-----|-----|----|
|   | GDPc   | ΔGDPc | IVAc | EEc | PSEc | EER <sub>15+</sub> | FSI | EDBI | CPI | GCI | EPI | IU |
| Haiti                                     | 25   | 75    |      | 25  | 25   | 25                 | 25  | 25   | 25  | 25  | 50  | 25 |
| Congo DR                                  | 25   | 50    | 25   | 25  | 25   | 25                 | 25  | 25   | 50  |     | 75  | 25 |
| Marshall Islands                          | 50   | 95    | 50   | 75  | 95   |                    | 25  | 75   |     |     |     | 50 |
| Burundi                                   | 25   | 25    | 25   | 25  | 25   | 25                 | 25  | 25   | 50  | 25  | 50  | 25 |
| Guinea                                    | 25   | 25    | 25   | 25  | 25   | 75                 | 25  | 25   | 25  | 25  | 50  | 25 |
| Malawi                                    | 25   | 25    | 25   | 25  | 25   | 25                 | 25  | 25   | 75  | 25  | 25  | 25 |
| Kiribati                                  | 25   | 50    | 25   | 25  | 75   |                    |     | 50   |     |     | 95  | 50 |
| Madagascar                                | 25   | 25    | 25   | 25  | 25   | 50                 | 25  | 25   | 50  | 25  | 50  | 25 |
| Chad                                      | 25   | 50    | 25   | 50  | 25   | 75                 | 25  | 25   | 50  | 25  | 75  | 25 |
| Guinea-Bissau                             | 25   | 50    | 25   | 25  | 25   | 75                 | 25  | 25   | 25  | 25  | 75  | 25 |
| Vanuatu                                   | 50   | 25    | 50   | 50  | 50   |                    |     | 95   |     |     | 95  | 50 |
| Zimbabwe                                  | 25   | 25    | 25   | 25  | 25   | 25                 | 25  | 25   | 50  | 25  | 50  | 25 |
| Central Africa                            | 25   | 25    | 25   | 25  | 25   | 95                 | 25  | 25   | 50  | 25  | 95  | 25 |
| Timor Leste                               | 50   | 50    | 50   | 25  | 50   | 25                 | 50  | 25   | 25  |     | 95  | 25 |
| Uganda                                    | 25   | 50    | 25   | 25  | 25   | 25                 | 25  | 50   | 50  | 50  | 50  | 50 |
| Burkina Faso                              | 25   | 50    | 25   | 25  | 25   | 95                 | 25  | 25   | 50  | 25  | 75  | 25 |
| Mozambique                                | 25   | 50    | 25   | 25  | 25   | 75                 | 25  | 75   | 25  | 25  | 50  | 25 |
| Sierra Leone                              | 25   | 25    | 25   | 25  | 25   | 25                 | 50  | 50   | 75  | 25  | 75  | 25 |
| Gambia                                    | 25   | 25    | 25   | 25  | 25   | 25                 | 25  | 50   | 75  | 25  | 50  | 50 |
| Nepal                                     | 25   | 25    | 25   | 25  | 25   | 25                 | 25  | 50   | 75  | 50  | 25  | 25 |
| Tajikistan                                | 25   | 50    | 25   | 25  | 25   | 75                 | 25  | 25   | 50  | 50  | 25  | 50 |
| Bangladesh                                | 50   | 50    | 50   | 25  | 25   | 75                 | 50  | 25   | 50  | 25  | 50  | 25 |
| Dominica                                  | 75   | 75    | 25   | 50  | 25   |                    |     | 95   |     |     | 50  | 95 |
| Comoros                                   | 25   | 25    | 25   | 25  | 50   | 50                 | 75  | 25   | 50  | 25  | 75  | 25 |
| Togo                                      | 25   | 25    | 25   | 25  | 25   | 25                 | 75  | 50   | 75  | 25  | 95  | 50 |

List of the least developing countries (Total = 24) that are in the 25<sup>th</sup> percentile when we combine together all the defined criteria. This table also shows the result from the segmentation per countries for each criterion separately and the corresponding percentile.

TABLE VIII  
LIST OF COUNTRIES IN THE 50<sup>TH</sup> PERCENTILE

| 50 <sup>th</sup> percentile (N = 32) | Percentile of each criterion for the defined countries |       |      |     |      |                    |     |      |     |     |     |    |
|--------------------------------------|--|-------|------|-----|------|--------------------|-----|------|-----|-----|-----|----|
|                                      | GDPc   | ΔGDPc | IVAc | EEc | PSEc | EER <sub>15+</sub> | FSI | EDBI | CPI | GCI | EPI | IU |
| Angola                               | 50   | 75    | 25   | 95  | 50   | 25                 | 75  | 25   | 25  | 25  | 95  | 50 |
| Egypt                                | 75   | 75    | 50   | 50  | 50   | 50                 | 75  | 50   | 25  | 50  | 25  | 25 |
| Micronesia                           | 25   | 25    | 25   | 50  | 75   |                    | 95  | 75   |     |     | 25  | 75 |
| Congo                                | 75   | 25    | 75   | 95  | 50   | 75                 | 50  | 25   | 50  | 25  | 95  | 25 |
| Niger                                | 25   | 25    | 25   | 25  | 25   | 25                 | 50  | 25   | 75  |     | 95  | 25 |
| Tanzania                             | 25   | 50    | 25   | 25  | 50   | 50                 | 50  | 50   | 25  | 25  | 95  | 50 |
| Venezuela                            | 95   | 25    | 95   | 95  | 95   | 75                 | 50  | 25   | 25  | 25  | 25  | 75 |
| Cambodia                             | 50   | 50    | 50   | 50  | 25   | 25                 | 25  | 50   | 50  | 75  | 50  | 25 |
| Swaziland                            | 75   | 50    | 50   | 75  | 50   | 25                 | 75  | 75   |     |     | 95  | 50 |
| Senegal                              | 25   | 50    | 25   | 25  | 50   | 75                 | 25  | 50   | 50  | 25  | 75  | 50 |
| Cameroon                             | 50   | 50    | 25   | 25  | 25   | 25                 | 50  | 50   | 75  | 50  | 95  | 25 |
| Kenya                                | 50   | 50    | 50   | 25  | 25   | 75                 | 50  | 50   | 50  | 25  | 50  | 75 |
| Nicaragua                            | 50   | 95    | 50   | 50  | 50   | 75                 | 25  | 25   | 75  | 50  | 25  | 50 |
| Rwanda                               | 25   | 50    | 25   | 25  | 25   | 50                 | 50  | 75   | 75  | 50  | 25  | 25 |
| Benin                                | 25   | 50    | 25   | 25  | 25   | 25                 | 50  | 25   | 95  | 25  | 95  | 25 |
| St Lucia                             | 95   | 95    | 75   | 75  | 95   |                    |     | 95   |     |     |     | 95 |
| Tonga                                | 50   | 50    | 75   | 25  | 75   |                    |     | 95   |     |     | 75  | 95 |
| Cote d'Ivoire                        | 50   | 75    | 25   | 50  | 50   | 95                 | 25  | 25   | 25  | 75  | 95  | 25 |
| St Vincent & Grenadine               | 95   | 95    | 95   | 50  | 95   |                    | 25  | 95   |     |     |     | 95 |
| Bolivia                              | 75   | 75    | 50   | 50  | 75   | 75                 | 50  | 25   | 25  | 50  | 50  | 75 |
| Zambia                               | 50   | 50    | 50   | 50  | 25   | 25                 | 75  | 50   | 95  | 50  | 75  | 50 |
| Moldova                              | 50   | 25    | 50   | 50  | 50   | 75                 | 25  | 75   | 25  | 75  | 25  | 50 |
| Laos PDR                             | 50   | 75    | 50   | 50  | 50   | 95                 | 25  | 50   | 25  | 50  | 75  | 50 |
| Uzbekistan                           | 50   | 75    | 50   | 50  |      | 95                 | 75  | 50   | 75  |     | 50  | 75 |
| Philippines                          | 50   | 75    | 50   | 50  | 50   | 75                 | 25  | 50   | 25  | 75  | 50  | 75 |
| Papua New Guinea                     | 25   | 95    |      | 75  | 75   | 95                 | 25  | 50   | 50  |     | 75  | 25 |
| Kyrgyzstan                           | 50   | 25    | 50   | 50  | 25   | 75                 | 75  | 75   | 25  | 50  | 50  | 50 |
| Lesotho                              | 50   | 25    | 50   | 50  | 50   | 50                 | 50  | 75   | 50  | 50  | 95  | 25 |
| Guyana                               | 50   | 95    | 50   | 75  | 50   | 25                 | 50  | 75   | 75  | 50  | 50  | 75 |
| Algeria                              | 75   | 50    | 75   | 95  | 95   | 25                 | 50  | 25   | 25  | 75  | 75  | 50 |
| Albania                              | 75   | 75    | 75   | 50  | 50   | 50                 | 50  | 75   | 25  | 95  | 25  | 75 |
| Iran                                 | 75   | 50    | 95   | 75  | 75   | 25                 | 75  | 50   | 75  | 75  | 25  | 75 |

The second group of least developing countries (Total = 32) that are in the 50<sup>th</sup> percentile when we combine together all the defined criteria. This table also shows the result from the segmentation per countries for each criterion separately and the corresponding percentile.

TABLE IX  
LIST OF COUNTRIES IN THE 75<sup>TH</sup> PERCENTILE

| the 75 <sup>th</sup> percentile (N = 37) | Percentile of each criterion for the defined countries |       |      |     |      |                    |     |      |     |     |     |    |
|--|--|-------|------|-----|------|--------------------|-----|------|-----|-----|-----|----|
|  | GDPc   | ΔGDPc | IVAc | EEc | PSEc | EER <sub>15+</sub> | FSI | EDBI | CPI | GCI | EPI | IU |
| Fiji                                     | 75   | 75    | 75   | 75  | 75   | 50                 | 75  | 95   |     |     | 75  | 75 |
| Serbia                                   | 75   | 50    | 75   | 75  | 75   | 25                 | 50  | 95   | 50  | 75  | 25  | 75 |
| Samoa                                    | 75   | 25    |      | 25  | 95   |                    | 95  | 95   |     |     | 75  | 75 |
| Belize                                   | 75   | 95    | 75   | 95  | 75   | 50                 | 95  | 75   |     |     | 50  | 50 |
| Vietnam                                  | 50   | 75    | 75   | 75  | 75   | 95                 | 50  | 50   | 25  | 75  | 50  | 75 |
| Sri Lanka                                | 50   | 75    | 50   | 50  | 50   | 95                 | 50  | 95   | 25  | 50  | 25  | 50 |
| El Salvador                              | 75   | 95    | 50   | 75  | 75   | 75                 | 50  | 75   | 50  | 75  | 25  | 75 |
| Honduras                                 | 50   | 95    | 50   | 50  | 50   | 95                 | 25  | 50   | 25  | 50  | 75  | 50 |
| Morocco                                  | 75   | 75    | 75   | 50  | 50   | 50                 | 95  | 50   | 25  | 50  | 50  | 75 |
| Turkmenistan                             | 95   | 95    | 95   | 95  |      | 50                 | 95  |      | 75  |     | 95  | 25 |
| Guatemala                                | 50   | 95    | 50   | 50  | 75   | 95                 | 25  | 50   | 75  | 50  | 50  | 25 |
| Solomon Islands                          | 25   | 50    |      | 75  | 75   | 75                 | 95  | 95   |     |     | 95  | 50 |
| Paraguay                                 | 75   | 75    | 75   | 75  | 75   | 75                 | 95  | 95   | 25  | 50  | 25  | 75 |
| Armenia                                  | 75   | 50    | 50   | 50  | 50   | 50                 | 50  | 75   | 75  | 75  | 25  | 75 |
| Grenada                                  | 75   | 95    | 95   | 50  | 95   |                    | 95  | 75   |     |     |     | 95 |
| Bosnia Herzegovina                       | 75   | 50    | 75   | 75  | 25   | 25                 | 50  | 75   | 50  | 75  | 25  | 95 |
| Cuba                                     |  | 95    | 95   | 75  | 95   | 95                 | 95  | 25   | 95  |     | 25  | 50 |
| Liberia                                  | 25   | 25    | 25   | 50  | 25   | 75                 | 50  | 25   | 95  | 95  | 75  | 25 |
| Cape Verde                               | 50   | 50    | 50   | 50  | 50   | 25                 | 95  | 75   | 95  | 25  | 50  | 95 |
| Equatorial Guinea                        | 95   | 25    | 25   | 95  | 50   | 95                 | 75  | 25   | 25  | 25  | 75  | 50 |
| Lebanon                                  | 95   | 75    | 75   | 50  | 75   | 50                 | 75  | 50   | 75  | 50  | 75  | 95 |
| Jamaica                                  | 75   | 95    | 75   | 50  | 75   | 50                 | 95  | 75   | 50  | 50  | 50  | 75 |
| Ecuador                                  | 75   | 25    | 75   | 75  | 75   | 95                 | 50  | 50   | 25  | 75  | 75  | 75 |
| Bhutan                                   | 75   | 75    | 75   | 50  | 75   | 75                 | 75  | 95   | 75  | 50  | 25  | 75 |
| India                                    | 50   | 50    | 50   | 50  | 25   | 25                 | 50  | 95   | 95  | 95  | 95  | 50 |
| Belarus                                  | 95   | 25    | 75   | 95  | 75   | 95                 | 75  | 75   | 75  |     | 25  | 75 |
| Ghana                                    | 50   | 25    | 25   | 50  | 50   | 95                 | 95  | 75   | 50  | 25  | 95  | 50 |
| Dominican Rep                            | 50   | 95    | 50   | 75  | 75   | 50                 | 95  | 50   | 25  | 75  | 50  | 95 |
| Gabon                                    | 75   | 75    | 95   | 95  | 95   | 50                 | 95  | 75   | 75  | 50  | 75  | 50 |
| Mongolia                                 | 50   | 75    | 75   | 75  | 75   | 75                 | 95  | 50   | 95  | 50  | 75  | 25 |
| Argentina                                | 75   | 50    | 95   | 95  | 95   | 50                 | 75  | 75   | 75  | 50  | 25  | 95 |

| the 75 <sup>th</sup> percentile (N = 37) | Percentile of each criterion for the defined countries |       |      |     |      |                    |     |      |     |     |     |    |
|--|--|-------|------|-----|------|--------------------|-----|------|-----|-----|-----|----|
|  | GDPc   | ΔGDPc | IVAc | EEc | PSEc | EER <sub>15+</sub> | FSI | EDBI | CPI | GCI | EPI | IU |
| Surinam                                  | 95   | 95    | 95   | 95  |      | 95                 | 95  | 50   | 75  |     | 75  | 75 |
| Indonesia                                | 50   | 75    | 50   | 50  | 50   |                    | 50  | 75   | 75  | 95  | 75  | 50 |
| Macedonia                                | 75   | 75    | 75   | 95  | 75   | 0                  | 25  | 95   | 95  | 95  | 25  | 95 |
| Romania                                  | 95   | 95    | 95   | 95  | 95   | 50                 | 75  | 75   | 50  | 95  | 25  | 75 |
| Georgia                                  | 75   | 50    | 50   | 75  | 50   | 50                 | 75  | 95   | 50  | 95  | 25  | 75 |
| Croatia                                  | 75   | 50    | 95   | 75  | 75   | 50                 | 75  | 75   | 95  | 95  | 25  | 95 |

List of the third group of 37 developing countries that are in the 75<sup>th</sup> percentile when we combine together all the defined criteria. This table also shows the result from the segmentation per countries for each criterion separately and the corresponding percentile

TABLE X  
LIST OF COUNTRIES IN THE 95<sup>TH</sup> PERCENTILE

| 95 <sup>th</sup> percentile (N = 37) | Percentile of each criterion for the defined countries |       |      |     |      |                    |     |      |     |     |     |    |
|--------------------------------------|--|-------|------|-----|------|--------------------|-----|------|-----|-----|-----|----|
|                                      | GDPc   | ΔGDPc | IVAc | EEc | PSEc | EER <sub>15+</sub> | FSI | EDBI | CPI | GCI | EPI | IU |
| Colombia                             | 75   | 75    | 75   | 50  | 75   | 75                 | 75  | 75   | 95  | 95  | 50  | 75 |
| Brazil                               | 95   | 25    | 75   | 75  | 75   | 75                 | 75  | 75   | 95  | 75  | 25  | 95 |
| Botswana                             | 95   | 75    | 95   | 75  | 95   | 25                 | 95  | 95   | 75  | 50  | 75  | 50 |
| Jordan                               | 75   | 75    | 75   | 75  | 75   | 50                 | 50  | 25   | 95  | 50  | 50  | 75 |
| Maldives                             | 95   | 95    | 95   | 75  | 95   |                    | 75  | 75   |     |     |     | 95 |
| Namibia                              | 50   | 75    | 50   | 75  | 95   | 50                 | 95  | 95   | 95  | 75  | 75  | 50 |
| Peru                                 | 75   | 75    | 75   | 75  | 50   | 95                 | 50  | 95   | 75  | 95  | 50  | 75 |
| Antigua & Barbuda                    | 95   | 95    | 95   | 75  | 75   |                    | 95  | 95   |     |     | 95  | 95 |
| Bahamas                              | 95   | 95    | 95   | 95  | 95   | 25                 | 95  | 95   |     |     | 95  | 95 |
| China                                | 50   | 95    | 75   | 75  | 50   | 75                 | 95  | 95   | 25  | 95  | 75  | 75 |
| St Kitts & Nevis                     | 95   | 95    | 95   | 95  | 95   |                    | 25  | 95   |     |     |     | 95 |
| Tunisia                              | 75   | 50    | 75   | 75  | 75   | 25                 | 75  | 50   | 50  | 75  | 95  | 75 |
| Thailand                             | 95   | 75    | 95   | 75  | 75   | 95                 | 50  | 75   | 50  | 95  | 50  | 50 |
| South Africa                         | 75   | 50    | 75   | 75  | 95   | 25                 | 95  | 95   | 95  | 75  | 75  | 75 |
| Azerbaijan                           | 75   | 95    | 95   | 95  | 75   | 75                 | 50  | 95   | 75  | 95  | 25  | 95 |
| Kazakhstan                           | 75   | 75    | 95   | 95  | 75   | 75                 | 50  | 75   | 75  | 95  | 50  | 95 |
| Montenegro                           | 95   | 75    | 75   | 75  |      | 25                 | 75  | 95   | 50  | 95  | 25  | 95 |
| Trinidad & Tobago                    | 95   | 95    | 95   | 95  | 95   | 95                 |     | 95   | 95  | 95  | 50  | 95 |
| Costa Rica                           | 95   | 95    | 75   | 75  | 95   | 95                 | 75  | 50   | 95  | 95  | 25  | 75 |
| Latvia                               | 95   | 75    | 75   | 95  | 75   | 95                 | 75  | 75   | 95  | 95  | 25  | 95 |
| Seychelles                           | 95   | 75    | 75   | 95  | 95   |                    | 95  | 95   | 95  | 75  | 95  | 95 |
| Lithuania                            | 95   | 75    | 95   | 95  | 95   | 50                 | 75  | 75   | 95  | 95  | 25  | 95 |
| Panama                               | 95   | 95    | 75   | 95  | 95   | 95                 | 75  | 75   | 95  | 95  | 25  | 75 |
| Mauritius                            | 95   | 75    | 75   | 75  | 75   | 50                 | 95  | 95   | 95  | 75  | 50  | 75 |
| Malaysia                             | 75   | 95    | 95   | 95  | 95   | 95                 | 95  | 95   | 50  | 75  | 50  | 95 |
| Barbados                             | 95   | 95    |      | 95  | 95   | 75                 | 95  | 75   |     | 95  | 95  | 95 |
| Chile                                | 95   | 95    | 95   | 95  | 75   | 50                 | 75  | 95   | 95  | 95  | 25  | 95 |
| Saudi Arabia                         | 95   | 95    | 95   | 95  | 95   | 50                 | 95  | 50   | 95  | 75  | 95  | 75 |
| Uruguay                              | 95   | 75    | 95   | 75  | 95   | 95                 | 75  | +5   | 95  | 95  | 50  | 95 |
| Bahrain                              | 95   | 95    | 95   | 95  | 95   | 95                 | 95  | 75   | 95  | 75  | 95  | 95 |
| UAE                                  | 95   | 95    | 95   | 95  | 95   | 95                 | 75  | 75   | 75  | 75  | 95  | 95 |
| Brunei                               | 95   | 25    | 95   | 95  | 95   | 95                 | 75  | 95   |     |     | 95  | 95 |
| Macao                                |  | 95    | 95   | 95  | 95   | 95                 |     |      |     |     |     | 95 |
| Oman                                 | 95   | 95    | 95   | 95  | 95   | 95                 | 95  | 95   | 50  | 95  | 95  | 95 |
| Kuwait                               | 95   | 95    | 95   | 95  | 95   | 75                 | 75  | 50   | 95  | 95  | 95  | 95 |
| Singapore                            | 95   | 95    | 95   | 95  | 95   | 95                 | 95  | 95   | 95  | 95  | 25  | 95 |
| Qatar                                | 95   | 95    | 95   | 95  | 95   | 95                 | 75  | 95   | 95  | 75  | 95  | 95 |

List of the last group of 37 developing countries that are in the 95<sup>th</sup> percentile when we combine together all the defined criteria. This table also shows the result from the segmentation per countries for each criterion separately and the corresponding percentile.

## VII. DISCUSSION

This international marketing study aims to assist and advise any NPO to select the least developing countries and to target the most in need areas. This insures that the implemented program and the provided aid make positive and lasting differences. When budget is allocated and the finance is limited to cover all developing countries, international market segmentation and international strategy are the appropriate means by which NPO has the capabilities to identify the most in need countries and prioritize the contribution based on objective quantitative criteria. We applied a procedure that

allows targeting the least developing countries by selecting 13 criteria that have been identified as complementing each other. The first criterion covers the level of security and stability of each country to decide whether it is safe for any NPO personnel to implement a program. The 12 other criteria include environment, state fragility, employment, education, competitiveness, GDP, growth, industrialization, export, corruption, ease of doing business, and circulation of information. Each criterion was quantified and was attributed with a weight to highlight their relative importance within the country. A benchmarking process was performed, and an index was affected per criterion and the combination of all

these index-criteria represented the final value per country. The results of this study point to 16 countries that are unsafe, due to political instability and wars: Syria, Palestine, Korea DPR, Sudan, Yemen, Djibouti, Eritrea, Ethiopia, Libya, Iraq, Mali, Pakistan, Nigeria, Ukraine, and Afghanistan. The majority of these countries belong to the 25<sup>th</sup> percentile, with exception of Ukraine and Afghanistan (50<sup>th</sup> percentile). Our first recommendation for NPO personal is to avoid any of these countries until the lift of the risk. Nevertheless, if the risk is lifted and stability returns to normal, the index of each country shows precisely the percentile it belongs to for future consideration and implementation. If an NPO wishes to implement its program in the least developing countries, we highly recommend the decision-makers to deeply look into the provided list of countries within the 25<sup>th</sup> percentile (all criteria combined) as a 1<sup>st</sup> choice, and to examine the area where more need is requested based on the result of each criterion percentile. A careful look at this segment shows that almost each criterion alone stands within the 25<sup>th</sup> percentile. This means that the needs for these countries cover the four selected bases: economics, geographic, demographic and behavioral, and there is an obvious link between political stability, economic growth and quality of life.

Our findings showed that one-third of developing countries (~50 least developing) spread across all continents: Central America (Haiti = 92), Sub-Saharan Africa (Congo DR = 115), South Asia (Nepal = 192), Central Asia (Tajikistan=192), Middle East (Egypt=203), East Asia (Cambodia = 218) and South America (Venezuela = 216). With this regard, and to reduce direct and indirect cost, it is more appropriate to select a specific region at a time to start with. If there is a need to balance between geographic regions, we recommend selecting any country in the 50<sup>th</sup> percentile. While few countries do not provide data for specific criteria (for example there is no employment rate for Benin, Korea DPR, Cambodia, or Bahamas), others do not have up to date statistics (such as Cuba, Iraq, and Libya with regards to ease of doing business or competitiveness). Nevertheless, the results of these countries are reliable because the remaining criteria are widely available, up-to-date and complement each other. When seeking to implement any aid program, we have to keep in mind that the lack of resources and capabilities are tightly linked to the level of development which explains the absence of statistics and data in some areas. The UN-G77 list was established in 1964 by 77 developing countries at the UN Conference on Trade and Development. Over the last decades many countries joined the group, but it retains the original name. Political stability and unity are necessary for continued economic growth and well-being is essential to improve quality of life. In this regard, the drive for the quantification of development helped define what development was and was not a dollars-and-cents yardstick. For example, the People's Republic of China was one of the poorest countries, and the largest, that in two decades had created a miracle of modernization. The opening of international relations with the rest of the world allowed insight into the details of the country's pathway to development. China's planning system

on public health and family welfare, increasing equality, well-fed and clothed citizens, as well as an enviable status for women eyed by some of the world's the richest nations. China, and to a lesser extent Uruguay, and Namibia, suggested that there must be alternatives to the dominant paradigm of the UN list of G77. Furthermore, emerging countries and emerging markets, like Brazil, South Africa and India with huge demographic impact and economic potentials in international markets will ultimately require review of the list of G77 and adjustment to the criteria based on their needs and expectations from non-profit international organizations. On the other hand, it is also necessary to review the engagements and contributions of these countries to such organizations. The sudden rise of oil and gas prices allowed several countries like Qatar, Kuwait, and Saudi Arabia in the Gulf region, to substantially increase their spending to access to technology, to shifting demographics and to be highly competitive in trade and capital movement. Their economics are evolving and their sophistication is increasing making it easier for them to improve participation to NOP programs and raise support. In Africa, oil trader countries like Gabon and Namibia have also increased the amount of state cash flow. In addition Sub-Saharan Africa has improved in terms of regulatory reforms making is easier to do business over the last three years [27]. For these reasons, stakeholders and partners from the above mentioned countries (or the 95<sup>th</sup> percentile) are capable of more engagement in NPOs to help implementing their programs in co-region countries in a win-win relationship. It is highly recommended for NPOs to adopt a new definition of developing countries that corresponds to its own strategy and plans, instead of merely using the UN-G77 list or our suggested modified G-77 list.

We selected objective and reliable criteria to perform this study, and relied on existing international segmentation theories and methods based on quantitative and comparable data equivalence. Nevertheless, this concept study has some limitations. First, the attributed *weight* (*W*) to the estimated value of each criterion relies on an assumption based on the studied countries and it would be more appropriate to consult a representative of each country to have an *on-the-field*-like view to attribute such a value. The second limitation is related to missing data or outdated information. In fact, this criterion was just ignored; although, it is possible to analyze performance over the last decade and predict a value, this is not the purpose of this study. Another main issue is related to the risk and fragility and the interaction between development and stability. This criterion is unpredictable and might change suddenly, and thus, the list of excluded/included countries is never definitive and requires regular revision. Obviously, the list of 12 criteria can be extended to include other criteria covering other bases to achieve a more comprehensive segmentation. This can be performed in future studies using our approaches of international segmentations and strategy. Finally, this study was carried out in a pure scientific approach, regardless of the subjective political sympathy or relation ties of the donors to some countries that might have different views that lead to some changes in the final decision.

As such, this is more a concept investigation using methodological approaches that provides reliable results, with objective recommendation that needs approval from NPO to test the validity. To measure the outcome of their program, NPO might extend the same research study following the implementation and update the estimated values and weight of these criteria, and correlate the differential with the final results.

### VIII. CONCLUSION

To improve their capabilities, and to make it easier in the area of financial system, education, social services, health, tourism and other industries, developing economies need assistance. On the other hand, an NPO with an efficient project for creating and implementing technical and training programs for developing countries needs assistance to identify beneficial countries based on objective multi-dimensional criteria. This study provides NPO governance and administrators with valuable data and analysis to promote the implementation of a program in the least developing countries and for those most in need, through the better segmentation of most countries. It was also extended to highlight those areas of interest most in need for each country, regardless of their (un)stable situation. The results are based on international marketing research procedures, and combining objective analysis of 12 criteria covering socio-economic, demographic, behavioral and geographic basis. Our segmentation approaches and benchmarking techniques combine international marketing strategies that can be extended to any organization or firm seeking to enter a market in developing countries either to invest or to implement any corporate social responsibility project.

### APPENDIX

**Distance to Frontier** The distance to frontier score aids in assessing the absolute level of regulatory performance and how it improves over time. This measure shows the distance of each economy to the “frontier,” which represents the best performance observed on each of the indicators across all economies in the *Doing Business* sample since 2005. This allows users both to see the gap between a particular economy’s performance and the best performance at any point in time and to assess the absolute change in the economy’s regulatory environment over time as measured by *Doing Business*. An economy’s distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier [28].

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