JLIFAD

Investing in rural people

Approach to the review of the performance-based allocation system

Note to Executive Board representatives

Focal points:

Technical questions:

Périn Saint-Ange
Associate Vice-President
Programme Management Department
Tel.: +39 06 5459 2448
e-mail: p.saintange@ifad.org

Lisandro Martin
Chief
Operational Programming and Effectiveness Unit
Tel.: +39 06 5459 2388
e-mail: lisandro.martin@ifad.org

Maria Soledad Marco
Programming and Resources Officer
Tel.: +39 06 5459 2654
e-mail: m.marco@ifad.org

Dispatch of documentation:

William Skinner
Chief
Governing Bodies Office
Tel.: +39 06 5459 2974
e-mail: gb_office@ifad.org

Executive Board — 119th Session
Rome, 14-15 December 2016

For: **Review**

Contents

Abbreviations and acronyms

CLE	corporate-level evaluation
CPIA	country policy and institutional assessment
DSF	Debt Sustainability Framework
EMC	Executive Management Committee
HDI	Human Development Index
IOE	Independent Office of Evaluation of IFAD
OMC	Operational Management Committee
PAR	portfolio-at-risk
PBAS	performance-based allocation system
PMD	Programme Management Department
RSP	rural sector performance
RSPA	rural sector performance assessment
TWG	technical working group

Approach to the review of the performance-based allocation system

I. Introduction

1. In line with the approaches adopted by all other major international finance institutions (IFIs), the Governing Council of IFAD, at its twenty-fifth anniversary session held in February 2003, approved the adoption of a performance-based allocation system (PBAS) with a twofold purpose: to increase the effectiveness of the use of IFAD's scarce resources, and to establish a more transparent basis and predictable level of future resource flows.[1]

2. The PBAS has allowed IFAD to allocate its loan and grant resources to country programmes annually on the basis of the country score, which is determined by two components: (a) the country needs component, made up of two variables: rural population and gross national income (GNI) per capita; and (b) the country performance component, composed of three variables: broad policy framework, portfolio performance and rural sector performance.

3. With the exception of the changes made in 2006, when the Executive Board agreed to replace the total population with the rural population and reduce the weight assigned to rural population in the country needs component of the formula,[2] and in 2007 with the adoption of the Debt Sustainability Framework (DSF),[3] the PBAS system has remained largely unchanged. The current PBAS formula is as follows:

Box 1
PBAS formula

$$\underbrace{\frac{Rural\ population^{0.45}}{GNI_{pc}^{0.25}}}_{\text{Country needs component}} X \underbrace{(0.2CPIA + 0.45RSP + 0.35PAR)^2}_{\text{Country performance component}}$$

Note: CPIA, Country Policy and Institutional Assessment; RSP, rural sector performance score; PAR, portfolio-at-risk.

4. Many multilateral development banks (MDBs) and the Global Environment Fund allocate concessional financing with the use of performance-based systems. These systems share common variables, including: (a) a population measure, representing the extent of need; (b) GNI per capita, as a measure of poverty; (c) a measure of the quality of country policies and institutions; and (d) a measure

---

[1] See GC 26/L.4, p.9. Prior to the adoption of the PBAS, IFAD allocated its resources for financing country programmes on the basis of perceived strategic opportunities for rural poverty reduction, weighted by the absorptive capacity of countries.

[2] During the first PBAS-based allocation cycle (2005-2007), the Executive Board noted that the large variations in population among IFAD's Member States resulted in large differences in country scores and allocation. Consequently, in 2006 the Board agreed to reduce the influence of population in the formula and changed the "total population" variable in the country needs component of the formula to "rural population", with an exponent of 0.45 instead of 0.75: the new level was regarded as a "point of balance" where population still carried significant influence as a determinant of "needs" in the formula but at the same time allowed performance and GNI per capita to have a strong role (see EB 2006/89/R.48/Rev.1, p.1).

[3] The DSF was introduced to govern the form of IFAD's financial assistance to countries eligible for highly concessional lending and to enable Member States to reduce the risk of high future debt levels. In terms of debt sustainability, IFAD uses the classification of countries developed by the World Bank and International Monetary Fund (IMF) in their country debt sustainability analyses. According to the DSF, the Fund extends financial support to projects and programmes governed by the PBAS on the following basis: (i) for countries with low debt sustainability: 100 per cent grant; (ii) for countries with medium debt sustainability: 50 per cent grant and 50 per cent loan; and (iii) for countries with high debt sustainability: 100 per cent loan (see EB/2007/90/R.2). The implementation of the DSF foresees the application of a modified volume approach (MVA), which at IFAD involves a discount of 5 per cent of the value of DSF grants extended. All proceeds of the MVA discount are redistributed according to PBAS allocation rules to all countries. As committed in 2010, IFAD will "prepare and present a paper on its experience and the experience of other multilateral institutions since their adoption of the DSF, with regard to actual and estimated net losses in service charge payments, and present proposals on future approaches to compensation as required", in the context of the Eleventh Replenishment of IFAD's Resources (IFAD11) Consultation (EB 2010/100/R.28/Rev.1).

reflecting the performance of MDB-financed operations in the country. While over time some MDBs have added further variables, and while the methodology underpinning the common variables may differ (as in the case of portfolio performance variables), a substantial degree of harmonization exists across MDB allocations systems. MDBs share lessons and innovations to their PBA systems through the MDBs working group on PBAS, of which IFAD is an active member.

5. The Corporate-level evaluation (CLE) of IFAD's performance-based allocation system (EB 2016/117/R.5) conducted by the Independent Office of Evaluation of IFAD (IOE) in 2015 and 2016 found that the PBAS has enhanced the Fund's credibility as an IFI by providing a more transparent, flexible and predictable approach to resource allocation.[4] It also pointed out areas for further improvement around two main topics: the formula and the PBAS management process.[5]

6. At its April 2016 session the Executive Board acknowledged the findings of the evaluation and agreed that the PBAS needed adjustments in order to better fit IFAD's mandate, role and evolving policies and the IFAD Strategic Framework 2016-2025. The Board further underlined that the system should be able to assess food and nutrition security, economic and social inclusion, climate change and other vulnerabilities, and fragility, as these indicators would contribute to a better reflection of rural poverty. [6]

7. The general agreement was that the revised PBAS should be kept simple and easy to understand. To this end, the process was divided into two complementary phases. A first normative phase was to assess the relevance and effectiveness of each variable in capturing country needs and country performance, and the PBAS management process. A second, more quantitative phase, would consist of submitting a revised formula to include a specific proposal on variables and weights, and the final PBAS mathematical equation. The final review of the PBAS formula and management process would then be discussed with the Executive Board at its session in April 2017.

8. This report summarizes the main findings of the first phase, proposes changes to the variables in the formula for Executive Board consideration, and introduces the future steps for the second phase. Enhancements to the efficiency and effectiveness of PBAS management are also outlined below.

---

[4] The CLE ratings for each evaluation parameter were as follows: relevance: 4.6, effectiveness: 4.2, efficiency: 4.1.
[5] See p.70-75 of the CLE, and the associated response of IFAD Management p.4-5 (EB 2016/117/R.5/Add.1).
[6] Minutes of the 117th Session of IFAD's Executive Board.

II. PBAS review process

9. In line with the spirit of the CLE recommendation to enhance learning and ownership of the PBAS process within the organization, Management established a cross-departmental technical working group (TWG)[7] in May 2016 to work on the PBAS review, with the objective of taking advantage of in-house expertise and making the PBAS review a participatory process. This group has worked under the guidance of the Operations Management Committee (OMC) and the Executive Management Committee (EMC) with oversight by the Executive Board Working Group on the Performance-Based Allocation System (PBAS Working Group).[8]

10. The TWG undertook two separate and complementary analyses: a normative assessment of the variables contained in the country needs and country performance components of the formula, and a preliminary review of the PBAS management process. The TWG also explored how best to incorporate cross-cutting issues such as gender, climate change, nutrition and fragility into the formula, while maintaining its simplicity.

11. A few key principles have guided the TWG's work and choices:

    (a) **Simplicity**. The simpler the formula, the greater the weight of each of its variables. Simplicity also enhances transparency, as it ensures clarity regarding the individual variables within the formula and how the allocation calculation works. Lessons from comparator organizations show that when the formula is better understood both by clients and country teams, it plays a greater role as an incentive and guidance for better operational and policy performance.

    (b) **Efficiency.** The CLE found that the PBAS is a relatively efficient system, albeit highlighting some challenges. All changes proposed to the management process seek to gain efficiencies and build on existing IFAD processes. The analysis of current and potential variables seeks to maintain the current efficiency through considerations of availability, quality, comparability and costs of data collection in the assessment of potential variables.

    (c) **Transparency**. The work of the TWG has enhanced the transparency of the PBAS management process within IFAD, and the dialogue with the PBAS Working Group has produced a candid discussion with IFAD Member States. Transparency is key to ensuring the validity of the PBAS and the changes proposed. In addition to recording all changes to the PBAS formula and process through official documentation, the changes to the current PBAS will be shared with IFAD staff at a learning event in December 2016.

    (d) **Rural poverty**. Rural poverty is multidimensional; while no individual variable exists that captures all its aspects, several options were explored to reflect it more comprehensively.

12. Figure 1 summarizes the agreements reached in the first phase of the PBAS review process with respect to the proposed changes to the formula. The first row refers to changes in the needs component of the formula, while the second denotes changes in the performance component. In general, changes focus on adjusting the current variables of the formula or adding or excluding variables.

---

[7] The Policy and Technical Advisory Division (PTA), Environment and Climate Division (ECD), Partnership and Resource Mobilization Office (PRM), Treasury Services Division (TRE), Controller's and Financial Services Division (CFS), Strategy and Knowledge Department (SKD), and Programme Management Department divisions nominated focal points for the TWG, who are responsible for liaising with their organizational units to facilitate their active engagement in the PBAS fine-tuning.

[8] See EB 2009/97/R.48/Rev.1 for the PBAS Working Group's terms of reference. The PBAS Working Group held two meetings in 2016, on 10 June and 20 September. The current composition of the working group is as follows: France, Ireland, Japan, Sweden (List A); Nigeria, Bolivarian Republic of Venezuela (List B); Ghana (List C1); China (List C2); and Dominican Republic (List C3).

Figure 1
Summary of proposed adjustments to the PBAS formula
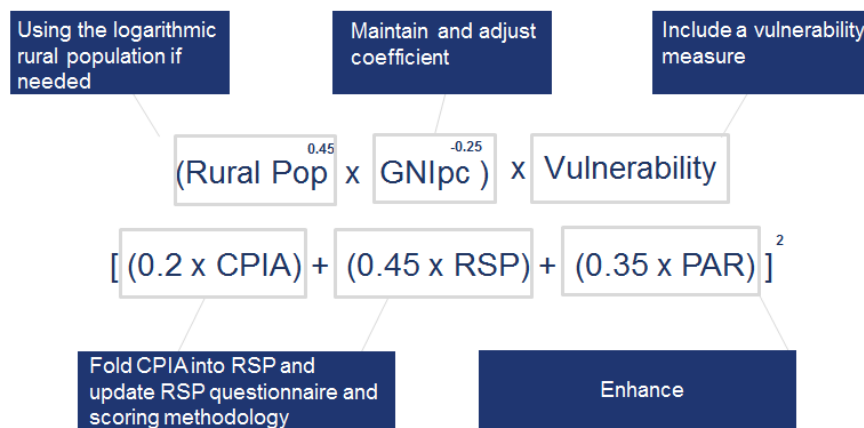
A. Enhancing the PBAS rural poverty focus

13. The country needs component of the PBAS formula is composed of two variables, rural population and GNI per capita. Rural population affects allocations positively (with an exponent of +0.45) while the level of GNI per capita is negatively related to the allocation (with an exponent of -0.25). In other words, the higher the rural population, the higher the allocation; and the higher the GNI per capita, the lower the allocation. Given that this is a multiplicative formula, the final allocations are determined by a complex interplay of the ratios of each variable with regards to other variables for the same country, and those same ratios with regards to the ratios of other countries.

14. One of the main conclusions of the CLE was the need to strengthen the rural poverty focus of the needs component of the formula, as rural population drives the allocations but does not necessarily correlate with rural poverty, and the GNI per capita correlates with rural poverty but does not reflect IFAD's focus on rural smallholders. Management analysis shows that while the last point may be of relevance for policy dialogue purposes, it is mathematically inconsequential for allocations. Moreover, the CLE found that the PBAS formula does not take into account some key emerging challenges related to climate change, fragility and vulnerability. Management has addressed each of these issues individually.

15. The rural population's influence on PBAS allocations is mainly a product of the high dispersion of rural population size among countries. In fact, the rural population indicator shows the highest variance[9] of all the variables included in the PBAS formula. This results in the need to establish maximum allocations.[10] The CLE considered that this practice reduces the integrity of the allocation system. This also suggests limitations of the weighting system of the formula to effectively moderate the contribution of rural population in the country score, especially for countries with large rural populations. As a result, the CLE recommended the use of a modified version of the rural population indicator to curve its influence in the final country scores.

16. A common practice to reduce the variance of any variable is to use a logarithmic transformation of the original variable, as it not only reduces its range of variability

---

[9] According to the CLE (p.83), the coefficient of variation (CV) – a measure of variability adjusted by scale effect – of rural population is about 10 times the CV of the performance variables (CPIA, RSP and PAR) and almost twice the CV of the GNI per capita.

[10] When IFAD's PBAS was established it was foreseen that "a minimum allocation (floor) would be set at US$1 million per annum over the relevant allocation period; and a maximum allocation (ceiling) would be set at 5 per cent of IFAD's resources over the relevant allocation period"(EB 2003/79/R.2/Rev.1).

but keeps its underlying mathematical properties. The TWG tested the use of the logarithmic transformation of rural population in the formula. The test indeed narrowed the range of allocations, bringing the allocations for the largest countries sufficiently in line to avoid the need for a maximum allocation capping. Moreover, using the logarithmic transformation of rural population redistributed resources from the highest to the lowest allocation quintiles. This latter result suggests that the existing formula variables effectively capture the scope of individual country needs, but the country needs component is now distorted by a variable with a comparatively disproportionate range.

17. It is important to note that this result is achieved by substituting the logarithmic transformation of the rural population to the rural population variable, while maintaining all other variables and corresponding exponents of the formula unchanged (*ceteris paribus*). The test therefore shows the usefulness of the logarithmic transformation of the rural population in reducing allocation variance, but also shows that further analysis is needed in the second phase of the PBAS review to determine its exponent and how this relates to all other variables within the formula.

18. As regards GNI per capita, the CLE highlighted its limited focus on specific aspects of rural poverty, and therefore questioned its relevance within the formula. One of the key advantages of using GNI per capita within the formula is that although it does not in itself reflect IFAD's focus on smallholder farmers, it does correlate with rural poverty. Moreover, it is a variable that is consistently available for all IFAD member countries, from internationally recognized sources, and is updated on a yearly basis.[11] In addition, as mentioned in the introduction, GNI per capita is one of the elements common to all MDB performance-based systems for allocating resources, and therefore represents an element of harmonization with international practices.[12]

19. Acknowledging these advantages, the PBAS Working Group requested that Management undertake a thorough normative assessment of this variable, as a basis for deciding whether to maintain it, substitute it with a better measure of rural poverty, adjust its exponent, or complement it with another variable that would enhance the rural poverty focus of the country needs component.

20. The TWG tested substituting GNI per capita with individual variables known to be strongly correlated with rural poverty,[13] such as access to water sources, electricity or sanitation facilities in rural areas. As shown in figure 2, minimal changes are observed in the regional allocation shares when GNI per capita is substituted with other indicators. Hence, substituting GNI per capita with such indicators of rural poverty adds no distributional value to the formula. Hence, compared to GNI per capita, they add no further rural poverty dimension to the formula. The reason for this result is that these indicators are highly correlated with GNI per capita.

---

[11] GNI per capita data is validated, updated and published on regular basis by the World Bank, through its World Development Indicators database.

[12] GNI per capita is also used in the performance-based allocations systems used by the World Bank International Development Assistance Association, African Development Bank, Asian Development Bank, Caribbean Development Bank and European Union European Development Fund/ACP, among other institutions.

[13] All other elements of the formula being equal.

Figure 2
Original versus adjusted IFAD10 allocations
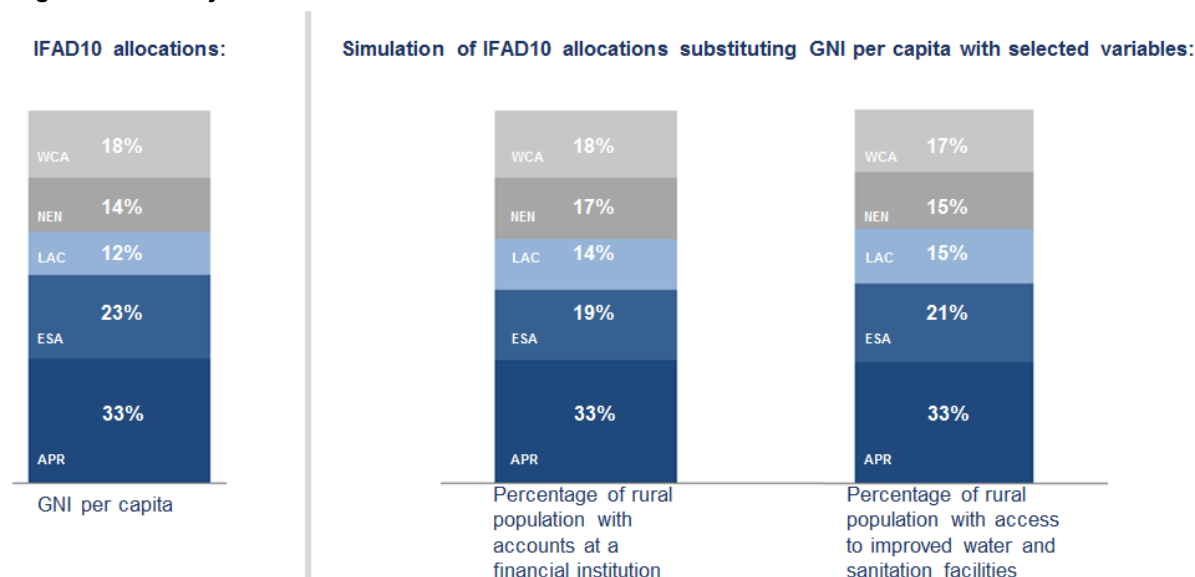
Regions: APR, Asia and the Pacific; ESA, East and Southern Africa; LAC, Latin America and the Caribbean; NEN, Near East, North Africa and Europe; WCA, West and Central Africa.

21. In light of the above, Management assessed the potential use of various indices, such as the Human Development Index (HDI),[14] the Economic Vulnerability Index (EVI),[15] the Multidimensional Poverty Index (MPI),[16] the Human Assets Index (HAI)[17] and the Gender Development Index (GDI)[18] as potential substitutes of GNI per capita. However, no existing index has a specific rural focus or covers all key aspects of rural poverty. The HDI, for instance, includes no rural-specific dimension, is driven by GNI per capita and life expectancy, and leaves out other important rural poverty dimensions such as gender and climate. As a result, the limited focus of the HDI on rural development reduces its effectiveness as a substitute for the GNI per capita. Moreover, as shown in figure 3, testing the substitution of GNI per capita with HDI in the formula, all other things being equal, showed that this would lead to a decrease in IFAD financing on highly concessional

---

[14] The Human Development Index (HDI) is "a summary measure of average achievement in three dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The health dimension is assessed by life expectancy at birth, the education dimension is measured by the mean of years of schooling for adults aged 25 years and up and expected years of schooling for children of school entering age. The standard of living dimension is measured by GNI per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean. The HDI simplifies and captures only part of what human development entails. It does not reflect on inequalities, poverty, human security, empowerment, etc." See http://hdr.undp.org/en/content/human-development-index-hdi.

[15] The EVI "measures the structural vulnerability of countries to exogenous economic and environmental shocks. It is a composite index that comprises eight indicators, grouped into various sub-indices, each with a specific weight within the EVI." Run by the United Nations Development Policy and Analysis Division of United Nations Department of Economic and Social Affairs. See: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_criteria.shtml).

[16] The MPI "is a measure of acute global poverty developed by the Oxford Poverty and Human Development Initiative (OPHI) with the United Nations Development Programme's Human Development Report Office. It measures acute poverty by capturing severe deprivations with respect to education, health and living standards. The MPI includes 10 indicators, each with a specific weight". See: http://hdr.undp.org/en/content/multidimensional-poverty-index-mpi.

[17] The HAI "is a measure of the level of human capital consisting of four indicators, two on health and nutrition and two on education, each with an equal weight within the index". United Nations Development Policy and Analysis Division; for more information on the HAI see: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_criteria.shtml.

[18] The GDI "measures gender gaps in human development achievements by accounting for disparities between women and men in three dimensions of human development: health, knowledge and living standards, using the same component indicators as in the HDI. Reproductive health is measured by maternal mortality ratio and adolescent birth rates. Knowledge is measured by mean years of schooling and expected years of schooling. Living standards are measured by GNI per capita". See: http://hdr.undp.org/en/content/gender-development-index-gdi.

terms and an increase in financing on ordinary terms, moving resources from lower income to higher income countries.[19]

Figure 3
IFAD10 allocations with current formula and substituting GNI per capita with HDI
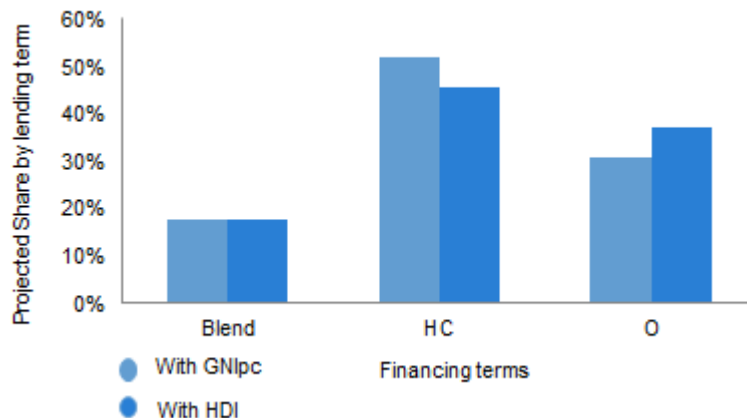
22.   The EVI, MPI, HAI and GDI were also considered and present similar limitations for capturing the multidimensionality of rural poverty. Some of these indices include relevant measures of poverty but have issues of data coverage or sustainability (MPI); others focus on specific poverty dimensions, which enhances their focus but limits their scope (GDI and HAI); still others reflect important measures of non-income poverty but include measures that are already captured by the PBAS formula, such as GNI per capita (HDI and GDI). Lastly, most of these indexes have a significant time lag (three to five years). The 2009 HAI, for example, was based on 2003-2005 data on undernourishment from the Food and Agriculture Organization of the United Nations (FAO) with about four years of lag, so did not capture the 2008 food crisis. Moreover, none of these indexes has a strong rural poverty focus. Consequently, they were discarded as potential substitutions of GNI per capita as a means to enhance the rural poverty focus of the PBAS formula.

23.   To overcome the limitations of existing variables as identified in previous paragraphs, the possibility of developing an IFAD-specific rural poverty index was explored. However, the analysis of potential variables to include in such an index showed a strong correlation with GNI per capita, and among the variables themselves. Therefore, similarly to the results of the analysis of individual variables associated with rural poverty, including such an index in the formula would add no value or relevant impact on country allocations when compared to GNI per capita, and would significantly decrease efficiency in terms of resources required to maintain such an index. Moreover, consultations with the World Bank and FAO underlined that although it is feasible to develop a rural poverty index, lack of data availability across time and space for all IFAD Member States would limit its reliability and therefore diminish the fairness and power of the formula. In fact, some of these issues are present in the current formula, for example with regards to the use of CPIA, and the CLE found that exogenous variable substitution techniques skew the allocations in unpredictable ways.

24.   Based on this analysis, GNI per capita has been retained within the needs component of the formula. Modifications to its weight will be explored in the second phase of the PBAS review.

---

[19] The Policies and Criteria for IFAD Financing call for approximately two-thirds of IFAD loans to be provided on highly concessional terms.

25. A complementary approach to strengthen PBAS focus on rural poverty was assessing the inclusion of new variables within the formula that could better capture dimensions not fully covered so far, such as food and nutrition security, climate change and vulnerability. The broad argument for this is to capture the equity or needs aspect of the system more broadly. This would allow for greater use of the PBAS formula as part of country-level policy dialogue, as recommended by the CLE.

26. One of the strongest variables the TWG analysed is the Notre Dame Global Adaptation Index (ND-GAIN)[20] – a free and open-source modular tool – which presents some interesting and unique features. This two-component index summarizes (i) a country's level of vulnerability to climate change and other global challenges, in combination with (ii) a country's readiness to successfully implement adaptation solutions.[21] The ND-GAIN vulnerability component measures the exposure, sensitivity and adaptive capacity of countries in six life supporting sectors: food, water, health, ecosystem service, human habitat and infrastructure.[22] It therefore captures some measures of poverty that are very relevant to rural poverty. Moreover, the ND-GAIN is also available adjusted for GNI per capita, thus reducing correlation and avoiding duplication of variables.

27. In practice, the features of the ND-GAIN as outlined above mean that the variables included in the GNI-adjusted vulnerability component of the index reflect additional dimensions of rural poverty currently not captured in the needs component of the PBAS formula. Moreover, because of its modular format, the ND-GAIN can be easily adapted to incorporate additional variables, or to substitute existing ones with variables reflecting rural poverty more closely. The index therefore presents characteristics that make it a good starting point to develop an additional variable to the PBAS formula in order to enhance its rural poverty focus.

28. While maintaining GNI per capita within the needs component of the formula, the TWG proposes that an IFAD-tailored ND-GAIN variable be included.

29. IFAD will maintain the basic modular structure of the GNI-adjusted ND-GAIN vulnerability component as well as its focus on climate vulnerability. At the same time, it will tailor it to its specific mandate by giving more prominence to the food sector, including additional indicators of food and nutrition security, testing the inclusion of measures that show differences in poverty levels in rural versus urban populations within countries, and merging some of the sectors that are less relevant to rural areas. Annex II provides an overview of indicators that will be included in this IFAD-specific vulnerability index, as well as the methodology for producing the index.

30. This vulnerability measure will be produced by IFAD using publicly available indicators, ensuring that there is no duplication with other variables within the PBAS formula. This eliminates earlier concerns regarding the sustainability of a measure that is produced by a public university.

31. Introducing such a variable poses challenges that will need to be accounted for in phase II. First, lessons from other MDBs that use vulnerability measures in their PBASs, such as the Caribbean Development Bank, or have considered using them, such as the World Bank, show that data for such variables change slowly both within and between cycles. Second, for some countries data may have significant time lags, making the allocation process backward-looking. Finally, most vulnerability indexes show that for some countries when data does change, it can

---

[20] For a full account of the ND-GAIN methodology see: Country Index Technical Report (http://index.nd-gain.org:8080/documents/nd-gain_technical_document_2015.pdf). For a general methodology overview see: http://index.gain.org/about/methodology.

[21] Using over 15 years of data, across 50 variables, ND-GAIN ranks over 175 countries annually based on how vulnerable they are to droughts, super-storms and other natural disasters and, uniquely, how ready they are to successfully implement adaptation solutions. See http://gain.org/about-the-index.

[22] For an overview of the ND-GAIN vulnerability component, see: http://index.gain.org/about/methodology.

do so dramatically. Such fluctuations could cause significant volatility in allocation, which would place the vulnerability adjustment at odds with aid predictability. For these reasons, it is proposed that this variable is updated once per replenishment cycle.

B. Enhancing the performance component of the PBAS formula

32. The country performance component of the PBAS formula comprises three variables: the World Bank's International Development Association (IDA) Resource Allocation Index (IRAI), the rural sector performance (RSP) score, and the portfolio-at-risk (PAR) rating.

33. The IRAI score is based on the results of the annual Country Policy and Institutional Assessment (CPIA) exercise covering IDA-eligible countries. The CPIA provides an overview of a country's broader policy and institutional performance at the national level, as assessed by World Bank staff.[23] The RSP score is a measure developed by IFAD that provides an assessment of country performance in establishing a policy and institutional framework conducive to sustained rural poverty reduction,[24] thus capturing IFAD's focus and mandate in the allocation process. As in the case of the IRAI, RSP scores are assigned by IFAD staff.[25] The CPIA and the RSP variables are assigned weights of 20 per cent and 45 per cent, respectively, in the country performance component of the PBAS formula. The rationale for incorporating both the CPIA/IRAI and the RSP variables in the formula was to ensure that the PBAS would pay explicit and considerable attention to governance and policy issues.[26]

34. The CLE recommended streamlining the PBAS governance-related indicators by reflecting on whether to retain the CPIA, since it is not available for all countries,[27] and by systematizing and strengthening the RSP questionnaire to ensure its alignment with the Strategic Framework. Moreover, the CLE found a high correlation between the indicators in the CPIA and in the RSP assessment.

35. The TWG explored the potential implications of the suggested changes for the PBAS. Specifically, it first explored the consequences of dropping the CPIA variable altogether. Testing showed that eliminating the CPIA variable, all other things being equal, resulted in significant allocation variations for those countries that score well on macroeconomic stability, which the CPIA tends to reward.[28] Since this runs counter to one of the underlying drivers of the PBAS process – to serve as an incentive for better country performance – the TWG explored alternative options. The conclusion was that the CPIA should be dropped as an individual variable but would fold some of its macro-level dimensions into a revised RSP assessment. Moreover, the current RSP questionnaire will be updated to better align it with the Strategic Framework, and better incorporate cross-cutting issues such as climate change, gender and nutrition.

36. To achieve this objective, the TWG is undertaking a normative review of the RSP assessment and questionnaire that privileges simplicity, efficiency and usefulness for policy dialogue by:

---

[23] IDA Resource Allocation Index: http://ida.worldbank.org/financing/ida-resource-allocation-index.
[24] See EB 2003/79/R.2/Rev.1, annex I.
[25] Other MDBs, such as AsDB and AfDB, undertake similar assessments, rated by their own staff, and use such ratings as one of the variables in their PBA systems.
[26] See EB 2003/79/R.2/Rev.1, annex IV: Governance indicators in the IFAD PBAS.
[27] The World Bank discloses the IRAI (CPIA) data only for IDA-eligible countries. Therefore, CPIA scores are unavailable for 35 per cent of IFAD's Member States.
[28] "The CPIA is a diagnostic tool that is intended to capture the quality of a country's policies and institutional arrangements—i.e. its focus is on the key elements that are within the country's control. The CPIA measures the extent to which a country's policy and institutional framework supports sustainable growth and poverty reduction, and the effective use of development assistance." See: http://siteresources.worldbank.org/PROJECTS/Resources/40940-1244163232994/6180403-1372096800800/webFAQ12.pdf.

- Improving the phrasing of each of the questions to establish a direct link with the observable feature that needs to be measured to assess country performance;

- Retaining the relevant sections from the CPIA, namely those containing macroeconomic and environment sustainability variables;

- Reducing the number of questions by accurately scoring the variables that reflect the Strategic Framework, with a special focus on climate change, gender and nutrition; and

- Designing a mixed method approach using a combination of qualitative and quantitative metrics to ensure the validity of the overall exercise. Scoring guidelines that include clear definitions as well as the required evidence to support performance assessment will be developed.

37. The above actions stem from consultations with technical and regional experts and development partners.[29] Moving forward, the RSP questionnaire will be updated to incorporate questions related to new thematic areas, such as fiscal policy, absorbed in the RSP variable from the CPIA; and nutrition, which will be a new thematic area within the refined rural sector performance assessment (RSPA). The questions will be reorganized around IFAD's three strategic objectives. This will frame the RSPA within IFAD's focus areas and provide a solid basis for engagement in policy dialogue at country level, feeding the development of country strategies.

38. In parallel with the development of the questionnaire, the TWG will develop scoring guidelines to ensure a consistent and comparable application and analysis across countries. At the procedural level, the TWG is also developing a quality verification system that will seek the active engagement of regional economists, the Policy Desk in PTA, and the Operational Programming and Effectiveness Unit (OPE) in the Programme Management Department (PMD).

39. The RPS assessment exercise will take place every three years rather than annually, as only marginal changes are observed in the performance indicators that this indicator intends to monitor within a three-year PBAS cycle. The assessment would take place the year before the beginning of a PBAS cycle, in order to inform allocations for the following three years.

40. The CLE on the PBAS recommended that ways be explored to capture IFAD's performance at the country programme level beyond the PAR score. Management is working on how to operationalize this recommendation. During phase II of the PBAS review the TWG will explore how to increase the elasticity of the disbursement rating within the PAR variable through quantitative analysis and simulations. Disbursement performance is already an element of the portfolio performance assessments included by other MDBs in their PBA formulas, as it is considered a good proxy for projects and programmes performance. The work of the TWG will build on the results of the ongoing in-depth disbursement performance study being carried out by the Research and Impact Assessment Division in partnership with the Financial Management Services Division and OPE.

C. Enhancing PBAS management process

41. The CLE on PBAS highlighted the importance of implementing a series of innovations in the PBAS management process in order to enhance its efficiency and effectiveness. This conclusion reinforced ongoing Management efforts to improve PBAS's reporting, learning and reallocation processes.

42. Management will continue to report to the Executive Board on PBAS implementation at every December session, through a dedicated section of the

---

[29] At the time of writing, about 30 technical or regional experts have been consulted. Consultations engaged regional economists, portfolio advisors, country programme managers, technical specialists in ECD, and technical specialists in PTA.

programme of work and budget document. Management will expand the scope of reporting by providing information on active countries, the capping rationale, use of allocation floors and ceilings, explanation on the countries that come in and out of a PBAS cycle, as well as reallocations. The first enhanced report is being presented to the Board at the same session as this approach paper in December 2016.

43. To strengthen the allocation calculation process, Management is working in partnership with the Information and Communications Technology Division team on the development of an IT system that would calculate allocations automatically. Also, once the PBAS review has been completed, a PBAS manual will be developed to enhance clarity, ensure transparency and promote knowledge sharing on how IFAD allocates resources to partner countries.

44. To further promote learning, Management is for the first time organizing a learning event on the PBAS aimed at sharing with IFAD staff the work done in response to the CLE, and facilitating the exchange of experiences between country programme managers and across regional divisions.

45. Finally, as already done in 2014 and 2015, Management has enhanced the decision-making process around PBAS allocations through the engagement of IFAD's main management coordination bodies, OMC and EMC, which discuss lessons learned and clear the allocations. Additionally, Management is also testing the impact of moving away from the end-of-cycle reallocations towards second-year reallocations, and assessing whether this affects allocations variability and predictability.

III.   The way forward

46. Phase I of the PBAS revision process encompassed adjustments to the variables in the PBAS formula and improvements to the system management process. Phase II will be more quantitatively oriented and will focus on reviewing the weights assigned within the formula, assessing adjustments needed to accommodate the inclusion of new variables, and analysing the impact that these changes may have on IFAD's global resource allocations and operational activities.

47. The review of weights involves an analysis of the relative importance of each component and variable in the formula. Modifying the coefficients and exponents of the formula is a task that requires a meticulous analysis, as it may have substantial effects on the country score (see box 1 on the PBAS formula) and therefore on country allocations. Consequently, changes will need to be carefully analysed. In line with the practice of other MDBs, this analysis will also assess how to allocate resources more effectively to countries in fragile situations.

48. The discussion on weights will also provide more evidence-based elements to define a better balance between the country needs component and the country performance component of the formula, a concern expressed at meetings held by the PBAS Working Group since April 2016. In fact, at its last meeting on 20 September, the PBAS Working Group proposed to rename the PBAS the needs and performance-based allocation system (NEPAS) to highlight that the needs component is as relevant as the performance component in allocation decisions.

49. Finally, Management will continue to review and improve the RSP and PAR score methodologies during the second phase, and to refine the new vulnerability variable.

Review of RSP assessment methodology
I. Introduction

1. This annex proposes a revised structure for the rural sector performance assessment (RSPA) based on systematic analysis of the shortcomings of the current structure and review of the academic literature. It also builds on consultations with relevant IFAD departments. During the second phase of the PBAS revision, a detailed questionnaire and assessment criteria will be developed. As suggested by the corporate-level evaluation (CLE), this new RSPA will be undertaken and RSP scores will be updated at the beginning of the replenishment cycle, beginning with the Eleventh Replenishment of IFAD's Resources (IFAD11).

2. The RSPA is designed to provide a measure of the performance of countries' policy frameworks in areas of interest to the rural sector. In the PBAS formula, it plays the role of balancing the focus on each country's need with a focus on the extent to which it demonstrates good governance and performance on key policy issues – rewarding countries with better performance.

3. The need to revise the RSPA was identified by the CLE of IFAD's PBAS,[30] which recommended that the Fund refine the rural sector performance variable by revisiting indicators and questions, so as to "reflect emerging priorities, opportunities and challenges in the rural sector", as well as to strengthen and make more uniform the process through which RSP scores are allocated.

4. Prior to this review, the RSPA was broken into a series of 12 categories of indicators, each with several subquestions. The proposed changes, which will increase the extent to which gender and climate change are represented in the formula, will reduce the questionnaire to six core assessment areas in order to simplify it and to increase the sensitivity of the formula to each variable.[31] Additionally, IFAD will no longer use the World Bank's CPIA in its formula, given problems generated by lack of consistent data for all IFAD borrowing countries and the effect of this on the stability of the formula. However, the RSPA will now encompass some important elements of the CPIA, such as macroeconomic management.

5. Widespread consultations were held in-house to understand content- and procedure-related challenges when undertaking RSPA. The results are presented below.

II. Proposed changes to the structure and content of the RSPA

6. This section provides an overview of the analysis that was undertaken on both the RSPA and CPIA, and summarizes the findings and suggestions for moving forward with reform of the RSPA.

A. Analysis of the RSPA

7. The RSPA is organized into 12 categories, each with several subquestions, relating to the policy and institutional environment in which rural investments occur. These questions allow teams to make qualitative judgements about the strength of policies and institutions. These are scored on a 6-point system akin to that used by

---

[30] See EB 2016/117/R.5.

[31] The performance aspect of the formula, and the RSP score in particular, has historically had a relatively limited impact on allocations. According to calculations made by the technical working group, if the CPIA increased by 1 per cent, the allocation increased by 0.2 per cent; if the RSP score increased by 1 per cent, the allocation increased by only 0.02 per cent, and if the PAR increased by 1 per cent, the allocation increased by 0.3 per cent. This is in contrast to GNI per capita and rural population variables, where a 1 per cent variation increases the allocation by 0.5 and 0.8 per cent, respectively. Additionally, the performance of CPIA and RSPA indicators does not change with frequency, as they represent long-term institutional and legal variables, which are notoriously "sticky".

IFAD to assess its projects' performance during implementation and at completion, with 1 being the lowest and 6 being the highest score. A matrix indicating what characteristics a numerical score should represent guides teams undertaking the scoring. It considers both de jure and de facto institutions and rules, emphasizing implementation.

8.   This scoring system, and the review process that was in place, encouraged a strong convergence of RSP scores towards middle-range values (e.g. ranging from 3 to 5). It also allowed a degree of subjectivity. Table 1 demonstrates the narrow range of scores allocated across countries, from minimum scores of 2.4 to maximum scores of 5, with the mode and median around 4.

Table 1
Descriptive statistics: RSP average scores for all countries

	Average of averages	*Combined score average*
Min	2.44	2.43
Max	5.03	5.02
Mode	**4.18**	**4.11**
Median	3.91	3.92
Average	3.89	3.90

9.   In addition to the problem of homogeneity of scores across a very diverse set of countries, the RSPA also contained a strong degree of correlation among individual RSPA clusters.[32] These strong correlations are demonstrated in table 2, which highlights in red those cases in which the correlation coefficient between categories was greater than 0.60. The strongest correlations were found for RSPA clusters C(iii) "access to agricultural input and product markets" and E(i) "allocation and management of public resources for rural development", both of which were correlated between 0.6 and 0.75 with all other RSPA questions.

---

[32] The strengths of institutions and policies tend to cluster because institutions are complementary and arise from similar historical experiences and legal precedents. Thus institutions not only trend together, but they are mutually reinforcing. See Douglas C. North, *Institutions, Institutional Change and Economic Performance* (Cambridge, UK: Cambridge University Press, 1990), for a classical examination, and more-modern applications in theoretical perspectives such as Peter A. Hall and David Soskice, *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (Oxford: Oxford University Press, 2001). In addition, there may be strong differences between the governance and policies of the rural sector and other sectors. In particular, rural policies and institutions may be weaker than those of other sectors because of a historical underinvestment in public goods provision and policy frameworks for rural development. For an overview, see David Booth "Agricultural Policy Choice: Interests, Ideas and the Scope for Reform", International Institute for Environment and Development Working Paper, September 2014; and for more classical treatments of urban bias, see Michael Lipton, *Why Poor People Stay Poor: Urban Bias in World Development* [Cambridge, Massachusetts, USA: Harvard University Press, 1977). Additionally, modern scholars have found persistence of urban bias in policy frameworks in both the agriculture sector: see Dirk J Bezemer and Derek Heady, *Agriculture, Development and Urban Bias*, World Development, vol.36, issue 8 (Amsterdam: Elsevier, 2008) pp.1342-1364; and other sectors such as education , see David Stasavage, *Democracy and Education Spending in Africa*, American Journal of Political Science, vol.49, issue 2 (Michigan State University, 2005) pp.343-358.

Table 2
Spearman correlation coefficients, RSPA categories and questions, all countries (2015)

												Average
RSPA cluster average	A(i)	A(ii)	B(i)	B(ii)	B(iii)	C(i)	C(ii)	C(iii)	D(i)	D(ii)	E(i)	E(ii)
A(i)	1.00											
A(ii)	**0.83**	1.00										
B(i)	0.59	0.55	1.00									
B(ii)	0.59	0.57	**0.67**	1.00								
B(iii)	**0.61**	0.59	0.48	**0.65**	1.00							
C(i)	0.55	0.55	0.57	0.53	0.46	1.00						
C(ii)	0.58	0.56	**0.62**	0.53	0.46	**0.64**	1.00					
C(iii)	**0.74**	**0.69**	**0.64**	**0.73**	0.65	**0.63**	**0.65**	1.00				
D(i)	0.37	0.37	0.52	0.34	0.33	0.53	0.59	0.44	1.00			
D(ii)	0.57	0.59	**0.62**	0.54	0.35	0.56	0.57	0.55	0.58	1.00		
E(i)	**0.69**	**0.67**	**0.70**	0.59	**0.60**	**0.64**	**0.69**	**0.70**	0.58	**0.60**	1.00	
E(ii)	0.59	0.63	**0.64**	0.53	0.54	0.50	**0.66**	**0.60**	0.51	**0.65**	**0.71**	1.00

Note: see table 3 of this annex for full cluster definitions.

10. This finding suggested either that these indicators be used in lieu of most or all other RSPA indicators, as they capture very well the overall score for the RSPA, or that these two indicators be broken down to assess how individual aspects of their scoring correlate with other indicators.

B. Analysis of the CPIA

11. The CPIA measures 16 broad-ranging criteria, including: macroeconomic management; fiscal, debt and trade policy; the business regulatory environment; gender equality; policies and institutions for environmental sustainability; and metrics of public-sector management, transparency and corruption.[33] While the CPIA is thus much broader-ranging than the RSPA, which focuses on the rural sector and does not look at macroeconomic areas, there was substantial overlap between the two indexes.

12. Table 3 highlights some categories measured by the CPIA and RSPA that were similar, demonstrating that correlation coefficients between RSPA questions such as "investment climate for rural business" and the CPIA categories under "business regulatory environments" were strongly correlated (Spearman correlation coefficient of 0.73 in 2013). Thus countries that performed poorly on both the CPIA and RSPA were doubly penalized for poor governance, institutions and policy performance, whereas countries without CPIA scores had their higher RSPA scores more heavily weighted.[34]

---

[33] See The World Bank, *The World Bank's Country Policy and Institutional Assessment: An IEG Evaluation* (Washington, D.C., 2010) for a complete list of variables, indicators and questions.

[34] The current PBAS methodology foresees that, when the CPIA scores are not available, the performance component of the formula is this: $(0.43*PAR + 0.57*RSP)^{2.0}$.

Table 3
Spearman correlation coefficients (2013-2015) for selected CPIA and RSPA categories, all countries

RSPA clusters	CPIA comparable criteria	2015 (RSP scores 2015 vs. CPIA scores 2014) *Spearman correlation (rho)*	2014 (RSP scores 2014 vs. CPIA scores 2013) *Spearman correlation (rho)*	2013 (RSP scores 2013 vs. CPIA scores 2012) *Spearman correlation (rho)*
A(i) Policy and legal framework for rural organizations	(B6) Business regulatory environment	0.57	0.57	0.52
A(ii) Dialogue between government and rural organizations	-	-	-	-
B(i) Access to land	(C11) Policies and institutions for environmental sustainability	0.30	0.38	0.30
B(ii) Access to water for agriculture	(C11) Policies and institutions for environmental sustainability	0.34	0.35	0.27
B(iii) Access to agricultural research and extension services	-	-	-	-
C(i) Enabling conditions for rural financial services development	(B5) Financial sector	0.49	0.57	0.55
C(ii) Investment climate for rural business	(B6) Business regulatory environment	0.58	0.71	0.73
C(iii) Access to agricultural input and produce markets	(B6) Business regulatory environment	0.55	0.70	0.64
D(i) Access to education in rural areas	(C7) Gender equality	0.61	0.73	0.68
D(ii) Women representatives	(C7) Gender equality	0.55	0.74	0.61
E(i) Allocation and management of public resources for rural development	(D13) Quality of budgetary and financial management	0.55	0.72	0.63
E(ii) Accountability, transparency and corruption in rural areas	(D16) Transparency, accountability and corruption in the public sector	0.47	0.67	0.57

13. Notable exceptions to these strong correlations are found in those RSPA questions related to the policy and legal framework for rural organizations, which is not as strongly related to the business regulatory environment more broadly, and in the two RSPA questions related to natural resource governance on access to water for agriculture and access to land, which correlated only weakly with the much broader "policy and institutions for environmental sustainability" included in the CPIA (Spearman correlation coefficient of 0.27 to 0.38 from 2013 through 2015).

III. Findings and recommendations

14. The two sets of analysis of the RSPA and CPIA resulted in the following three guiding principles for reforming the RSPA going forward:

   (i) A streamlining of the RSPA to avoid unnecessary overlap and strong correlation between indicators, prioritizing indicators that were able to capture multiple features of rural development policies and institutions in a synthetic fashion;

   (ii) The addition of variables assumed to be relevant to rural development performance, which were previously captured by the CPIA but not the RSPA – in particular, variables related to macroeconomic performance; and

(iii)   A revision of variables included in the RSPA, but that did not sufficiently reflect current IFAD corporate priorities or development theory, such as environmental policies, and a better mainstreaming of gender throughout the questions (in addition to a specific gender policies section), using the CPIA as a guide where possible.

15.   More specifically, IFAD has suggested regrouping the RSPA questions into six categories, all of which, with the exception of macroeconomic indicators, maintain a focus on rural sector performance. These categories are described below.

1. Macroeconomic management, policies and conditions

16.   Metrics of macroeconomic management and fiscal, debt and trade policy are critical to rural and agriculture-sector performance, much like other sectors of the economy. As IFAD's 2016 Rural Development Report argues: "Rural transformation does not happen in isolation, but as part of a broader process of structural transformation shaped by the interlinkages between agriculture, the rural non-farm economy, manufacturing and services."[35] There is empirical evidence arguing that it is difficult for individual sectors of the economy to outperform the broader macroeconomic conditions of a country.[36] The CPIA includes questions on whether the macroeconomic framework is thought to be conducive to growth, the sustainability of fiscal policy, the sustainability of debt policy and the restrictiveness/openness of the trade regime. Some mix of these four sets of questions is expected, with heavier emphasis on macroeconomic management and fiscal policy.[37] Indicators will be used when possible to reduce subjectivity.

2. Rural governance, transparency and public administration

17.   The current RSPA considers the allocation and management of public resources for rural development as well as accountability, transparency and corruption in rural areas. This tracks closely with CPIA questions about accountability, public resource management, transparency and corruption at the macro level. A combination of the more objective metrics in the CPIA (which rely on international survey data, such as that compiled by Transparency International) and the more subjective and rural-sector-specific questions in the RSPA would be the best combination of

---

[35] IFAD, *Rural Development Report 2016: Fostering inclusive rural transformation (*Rome, 2016), p.17. In fact, many economic models of structural transformation make an even more-radical series of assumptions: that it is the decline of agriculture as a share of the economy that defines structural transformation, particularly through the impact that declining agriculture has on the share of labour available to work in other aspects of the economy. See, for example, Douglas Gollin, Stephen Parente and Richard Rogerson, *The Role of Agriculture in Development,* The American Economic Review, vol.92, no.2 (May 2002), pp.160-164.

[36] While some theorists suggest that firms can use their capacity to maximize profits and microeconomic incentives to overcome weak domestic institutions and policies (see Gary S. Hansen and Birger Wernerfelt, *Determinants of Firm Performance: The Relative Importance of Economic and Organizational Factors*, Strategic Management Journal vol.10, no.5 [Wiley, 1989] pp.399-411), another set of empirical research suggests that national conditions place a hard constraint on the success of individual firms, with rare exceptions when firms are able to tap international markets and streams of revenue (see, for example, Marcel Peter and Martín Grandes, "How Important is Sovereign Risk in Determining Corporate Default Premia? The Case of South Africa", *IMF Working Paper* No. 05/217 [Washington, D.C.: International Monetary Fund, 2005]). As this is not the natural case for agriculture, we assume that national macroeconomic conditions create a serious constraint on the more-generalized performance of the sector.

[37] The focus on fiscal policy and growth is prioritized, because consideration to debt policy is given through IFAD's Debt Sustainability Framework. Additionally, there is a more distant relationship between IFAD investments and trade in manufactured goods, which is what the trade policy indicators are designed to track.

indicators and questions.[38] The specific budgetary questions in the RSPA, which look at budgetary procedures as well as allocations, could be improved by focusing on more quantitative metrics of rural sector spending in budgets (dependent on internationally comparative statistics) and on questions related to budget procedures and institutions more grounded in political science theory to reduce subjectivity.[39]

### 3. Policies and legal framework for rural organizations and rural people

18. The RSPA includes two sets of questions within this category: one set on the policy and legal framework for rural organizations, and one on the extent and content of dialogue between government and rural organizations. Highly relevant to IFAD's RSPA, these two sets of questions are very highly correlated (0.83). Thus further proposals will examine the impact of streamlining these questions, potentially modified to incorporate IFAD models for assessing the strength of rural institutions and a more substantial gender perspective. IFAD has developed a model for analysing the capacities and maturity of rural organizations;[40] these insights could be added to the analysis of the legal framework for rural organizations to give a better sense of performance of the organizations themselves.

4. Environmental policies and practice

19. At present, with regard to natural resource management, the RSPA asks about access to land (with four questions on access, tenure, the presence of land markets and regulation of common property) and access to water for agriculture. While these sections would be maintained, the technical experts consulted have suggested some areas of reform. The RSPA also asks, in the same category, about

---

[38] Alternative metrics of governance were also considered. For example, the PBAS Working Group found that variables included in the World Bank's World Governance Indicators (WGIs) tracked closely to the RSPA as a whole. For example, government effectiveness and regulatory quality were closely related to the RSPA, with correlation coefficients of 0.69 (see scatter plots in graph 1). Nonetheless, this alternative was not explored in great depth because the WGIs are not used by the World Bank for allocations (despite the fact that they correlate very strongly with the CPIA), and the World Bank encourages other institutions not to use them for this purpose. This is in part because the zones of confidence for each indicator are large, and at the extremes could have unintended effects on allocations.

Graph 1
Scatter plots, World Bank World Governance Indicators (subset) vs. IFAD RSP scores and World Bank CPIA scores
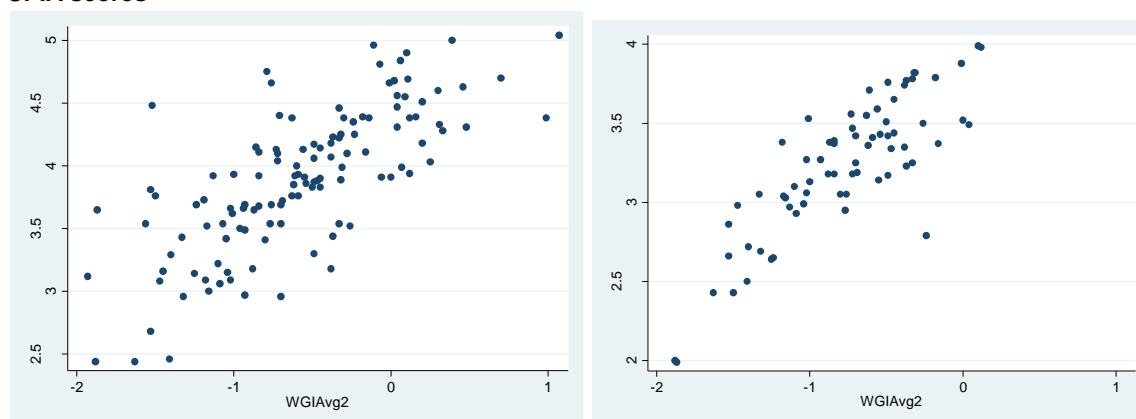
[39] On that last point, while the process by which national budgets are developed varies from country to country, all countries have a set of budgetary institutions, which set out "all the rules and regulations according to which budgets are prepared, approved and carried out" (Alberto Alesina and Roberto Perotti, "The Political Economy of Budget Deficits," *Staff Papers, International Monetary Fund* vol.42, issue 1 [Washington D.C: IMF, 1995] pp.1-31). These are both procedural (dictating who reviews what, when and how) and numerical (dictating how much gets spent on what type of good). Budgetary institutions also depend on the extent to which they are hierarchical, the rules for approving and emending budgets, and the levels of transparency and flexibility. Internationally comparative data is available on budgetary institutions and rules, and guidelines for creating indicators are multiplying (see, for example, World Bank, *Budgeting and Budgetary Institutions* [Washington, D.C.: World Bank, 2007].

[40] See "How to Do: analyse and develop the social capital of smallholder organizations" https://www.ifad.org/documents/10180/a6c58339-ad94-4709-861d-ce19fcf05cc3.

agricultural extension.[41] Notably, however, it overlooks some areas that the CPIA covers on the presence of policies that "foster the protection and sustainable use of natural resources and the management of pollution".[42] Neither set asks about the extent to which countries have incorporated climate change mitigation and adaptation into their policy frameworks. Further emphasis is also needed on women's access to natural resources. Thus this category of questions would be changed to reflect these important priorities, which form a core pillar of the IFAD Strategic Framework 2016-2025.

5. Financial policy, access to services and markets

20.   As was emphasized in the analysis of the RSPA above, the indicators under the category C(iii) "access to agricultural input and produce markets" are strongly correlated with other indicators, both within the section on finance and markets, and across the other RSPA indicators. It is thus suggested that this indicator be prioritized at the expense of other indicators and questions in the same section (i.e. merge C(ii) and C(iii)). Broader indicators of the business climate appear to be less useful in capturing business conditions in the rural and agriculture sectors, which is true even for newer, more specialized indices.[43] In reviewing this set of indicators, special attention will be dedicated to capturing both men's and women's access to services and markets.

6. Nutrition and gender equality

21.   Finally, the last category requires the addition of new variables on nutrition policy and reforms of the gender equality variables to enhance consistency with the corporate Strategic Framework. While gender will also be better mainstreamed across all questions in the RSPA, the specific indicators on gender equality were more encompassing in the CPIA than in the RSPA. The CPIA included a metric on policies and institutions on gender equality,[44] as well as metrics on human capital development (access to health care and education) and access to economic and productive resources. The RSPA included only metrics on access to education in rural areas and access to representation at the national level. As such, the focus on

---

[41] The interviews with technical experts suggested including a metric not only of land access, but also of the quality of land available.

[42] See the World Bank's CPIA criteria 2015, p.35.

[43] Part of the World Bank's motivation in creating a specific "Enabling the Business of Agriculture" (EBA) index, using the model of its "Doing Business" index, is to capture the specific features needed to enable agriculture. Though the EBA is not focused particularly on smallholders, and does not as yet have universal coverage, initial analysis was done on the relationship between various indicators in the RSPA and EBA (some staff advocated using this metric to complement our analysis). Preliminary data suggested there was weak correlation between the performance of EBA sub-indicators and RSPA sub-indicators (e.g. access to markets in both yielded a correlation coefficient of only 0.14), and broader comparisons also yielded weak relationships, that is, of about 0.40 (see graph 2).

Graph 2
Scatter plot, EBA finance and RSP scores, available countries
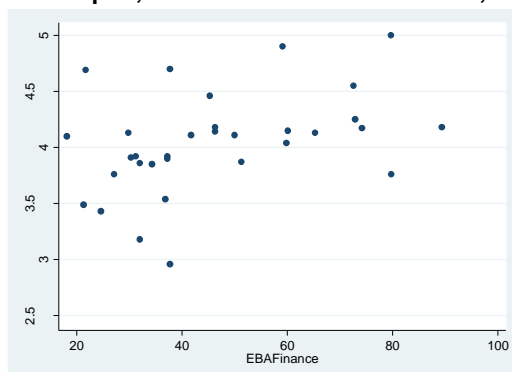
[44] This criterion assesses the extent to which the country has enacted and put in place institutions and programmes to enforce laws and policies that: (a) promote equal access for men and women to human capital development; (b) promote equal access for men and women to productive and economic resources; and (c) give men and women equal status and protection under the law.

policies and institutions related to gender equality should be included and expanded, while maintaining a focus on rural access to education. In particular, the Gender Development Index (see footnote 19), Gender Inequality Index (United Nations Development Programme) and Social Institutions and Gender Index (Organisation for Economic Co-operation and Development [OECD]) should be considered for inclusion. Alternatively, measures of maternal health may be included. With regard to nutrition, as the country needs component of the PBAS formula will be measuring nutritional conditions in the population (e.g. malnutrition and undernourishment within the IFAD-tailored vulnerability index), the country performance component should focus on assessing whether there is a formal focal point on nutrition in its ministry of agriculture, measuring the existence (and degree of implementation) of a nutrition strategy, and assessing the existence (and strength) of multisector teams focused on nutrition.

IV. Way forward

22. The proposed RSPA format and categories reflect all the thematic areas to which Management committed in response to the guidance of the Executive Board Working Group on the Performance-Based Allocation. The proposed categories provide a sound overview of the performance of countries' policy frameworks on areas of interest to the rural sector, and solidly align the RSPA to the current Strategic Framework. Management will continue to work to refine the RSPA's methodological aspects. A technical document including the revised RSPA questionnaire and scoring methodology will be produced. The resulting RSPA will contribute to policy dialogue and will feed into country strategies.

Inclusion of vulnerability in the PBAS

I. Introduction

1. The corporate-level evaluation of the PBAS recommended that Management strengthen the rural poverty focus of the country needs component of the PBAS formula, in particular by assessing how to include measures of vulnerability, fragility, inequality and non-income poverty. It also recommended that the PBAS objectives and overall specifications be sharpened, ensuring that IFAD's core mandate of promoting food production and food security is adequately reflected.[45]

2. Dialogue with the Executive Board Working Group on the Performance-Based Allocation System (PBAS Working Group) made the potential elements of this new variable more explicit, leading to a specific focus on vulnerability, climate, food security and nutrition in rural areas.[46]

3. The technical working group on the PBAS assessed several indices (outlined in paragraphs 21-30 of this document's main text) to identify a suitable existing index that would comprise all these rural poverty measures and concluded that currently no such measure is available. Consequently, the group sought to identify an existing index that could constitute a solid starting point in developing an IFAD-tailored vulnerability measure.

4. The Notre Dame Global Adaptation Index (ND-GAIN) was selected for this purpose. The unique technical features of the ND-GAIN, how it was modified to satisfy IFAD needs, and the methodology underpinning the new IFAD vulnerability index (IVI) are described in the following sections.

II. ND-GAIN technical features and their application to IFAD's vulnerability index

5. The ND-GAIN index was initially developed by the Global Adaptation Institute in Washington, D.C., and in April 2013 was transferred to the University of Notre Dame's Environmental Change Initiative (ND-ECI), a strategic research initiative focused on "science serving society". The index was designed to inform strategic operational decisions regarding supply chains, capital projects, policy changes and community engagements by corporate, NGO, government and development decision makers.

6. The ND-GAIN index recognizes that all countries face the multiple challenges of rapidly changing social and economic conditions and, more recently, the effects of a changing climate. They vary in their vulnerability to the impacts of these challenges. Some countries are more ready to deal with these challenges through government action, community awareness and the ability to facilitate private-sector responses. The ND-GAIN measures both these dimensions through two separate components: vulnerability to climate change and other global challenges and readiness to implement adaptation solutions.

7. The ND-GAIN index was among the first to use a strongly structured approach to selecting the individual indicators that make up the index. The advantage of this approach is that each measure within the index has a distinct purpose and can be easily substituted if a better alternative measure becomes available. In constructing an IFAD-tailored index, this structured approach is particularly useful as the overall structure can be maintained while individual indicators are changed to fit the purpose.

---

[45] EB 2016/117/R.5, recommendation 1, paragraph 56.
[46] The technical working group on the PBAS considered options for implementing this recommendation, and discussed them with the PBAS Working Group. In this context, a decision was made to address fragility separately during the second phase of the PBAS review, through review of the exponents and weights of the individual variables of the formula. This is in line with the practice of other MDBs.

8. The proposed IFAD Vulnerability Index builds on the ND-GAIN vulnerability component and maintains the described ND-GAIN modular structure, as well as organization of the indicators around three key elements that determine a country's vulnerability: exposure to climate conditions and shocks; sensitivity to those shocks; and the capacity to deal with them. In particular, exposure to climate variation is primarily a function of geography. For example, coastal communities will have higher exposure to sea level rise and cyclones, while communities in semi-arid areas may be most exposed to drought. Sensitivity refers to the degree to which a system is affected by or responsive to climate stimuli. And adaptive capacity refers to the potential or capability of a system to adapt to climatic stimuli or their effects or impacts.[47] Organizing the index around these three elements ensures that all dimensions of climate vulnerability are taken into account.

III. Selecting measures for an IFAD-tailored vulnerability variable

9. The indicators within the IVI have been selected to reflect IFAD's specific focus on poor rural people. As indicated by the PBAS Working Group, special attention has been devoted to identifying indicators that not only reflect climate vulnerability, but also other key dimensions of rural poverty, such as food security, nutrition and inequality. By doing this, the scope of the IVI has broadened beyond climate change vulnerability, and the index has become, in broad terms, an indicator of well-being in rural areas, factoring in the effects of climate change.

10. Indicator selection is based on a series of principles: (i) each indicator must relate to one of the dimensions of poverty that the IVI seeks to reflect; (ii) changes in the performance of each indicator reflect changes in exposure, sensitivity or capacity and, particularly, in the circumstances of the rural poor; (iii) data for each indicator are collected regularly and come from an open, public source that is maintained and quality-checked by a reputable body; (iv) indicators are responsive to change and thus can be used to track changes over time; and (v) data are available for all or most active IFAD countries.

11. The structure and initial indicators selected for the preliminary version of IVI are shown in table 1. The indicators are organized around the three elements that determine climate vulnerability (exposure, sensitivity and adaptive capacity). Each of them can be associated to one or more of the IVI focus areas (food security, nutrition, inequality and climate vulnerability).

12. **Food security** is reflected through assessment of several of its dimensions: food production variation (indicator 1), volatility of food prices (indicator 2), food dependency on imports (indicator 4), food production level and growth (indicator 9). Performance in these dimensions determines how much food is available per capita, whether the available food is produced internally or imported, whether sufficient inputs to agricultural production are available, whether internal production grows over time to ensure an adequate food supply, and to what extent food production is exposed to existing climate and economic volatilities.

13. **Inequality** is captured through measuring how much the poor spend on food (indicator 5), how difficult it is for the poor to reach services and markets (indicator 12), and a measure of the rural/urban divide (indicator 11). The latter is a combined measure of the rural population's disadvantage with respect to the urban one regarding access to basic services such as electricity and improved water and sanitation. These are combined into a proxy indicator representing the attraction to move from rural to urban areas.

---

[47] World Meteorological Organization and United Nations Environment Programme, Intergovernmental Panel on Climate Change, Working Group II: Impacts, Adaptation and Vulnerability (Geneva, 2001), www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=650.

14. Nutrition is captured through two key indicators of child malnutrition (indicator 3) and undernourishment (indicator 8). These reflect a country's capacity to adequately feed its children and meet the dietary energy requirements of its population. In addition, countries with weak performance on these indicators will also be more sensitive to food-related stressors and will be less capable of coping with a changing climate and socio-economic conditions and shocks.

15. Two indicators directly reflect climate vulnerability. Indicator 7 regarding a country's crisis risk and indicator 10 on water availability and use in agriculture. "Crisis risk" refers to the existing and most likely future exposure to climate hazards such as flooding, drought, storms and earthquakes, all of which can disrupt food production and distribution.[48] A specific water-related indicator is also proposed as high water usage in agriculture is likely to be associated with increasing fluctuations in agricultural water availability and increasing competition among diverse water uses.

16. Besides the specific focus of these indicators, each proposed IVI indicator was selected for both its contribution to a specific focus area and the fact that it was likely to either be affected by climate change or reflect how people, and in particular poor rural people, might react to a changing climate. For example, all the food security indicators also reflect climate vulnerability, as food production or price volatility may depend on high climate volatility. Similarly, malnourished or undernourished populations are less resilient to climate change. In turn, climate change can be the cause of food insecurity and nutritional deficits.

Table 1
Structure and initial indicators selected for the preliminary version of IFAD's vulnerability index

Vulnerability element		
Exposure	*Sensitivity*	*(Lack of) adaptive capacity*
1. Index of variability of per capita food production *Source: FAO, Food security indicators*	**2. Food price volatility** *Source: FAO, Food security indicators*	**3. High child malnutrition measured as wasting (weight to height ratio in children under 5)** *Source: World Health Organization and FAO, Food security indicators*
4. Value of food imports over total merchandise exports (%) *Source: World Bank, World Development Indicators*	**5. Share of food expenditure by poor** *Source: FAO, Food Security Indicators*	**6. Low fertilizer use per ha agricultural land** *Source: World Bank, World Development Indicators*
7. Natural hazard and exposure dimension of the Index for Risk Management (INFORM) *Source: Inter-Agency Standing Committee (IASC) for Preparedness and Resilience, and European Commission*	**8. Prevalence of undernourishment** *Source: FAO, Food security indicators*	**9. Low growth in the per capita Food Production Index** *Source: World Bank, World Development Indicators*
10. Water – percentage of available internal water withdrawn for agriculture *Source: World Bank, World Development Indicators and FAO AQUASTAT*	**11. Rural/urban divide in access to improved water, sanitation and electricity** *Source: World Bank, World Development Indicators*	**12. Infrastructure – little access to all-weather roads in rural areas** *Source: FAO*

[48] See the Index for Risk Management (INFORM) www.inform-index.org/InDepth/Methodology.

17. The list of indicators presented in table 1 is preliminary. An initial assessment of correlation among indicators has been undertaken and correlation is low, indicating that there is no indicator duplication. However, further analysis will be undertaken to ensure that the IVI is as parsimonious and simple an index as possible.

IV. Calculating an IFAD-tailored vulnerability variable

18. A preliminary IVI has been constructed by combining the above indicators. As with all indices, judgements were made on how to scale the variables into ranges to make them comparable, on the method of combining the measures, and on any weighting that should be applied to particular measures.

19. In constructing the preliminary IVI, the approach to scaling adopted was to scale each measure to the range 0 to 1.0 using the formula:

    Scaled value = (value – lower_limit) / (upper_limit – lower_limit)

20. The lower_limit was set to approximately the 5th percentile of the data (i.e. the lowest 5 per cent of values will be scaled to 0) and the upper_limit to the 85th percentile. The sharper cut-off at the upper limit reduces the influence of extreme values (outliers) on the measure. This produced a set of scores for the 12 measures that had similar averages and scatters, which means that each will contribute more-or-less equally to the IVI vulnerability component. The use of the 5th and 85th percentiles means that these lower and upper limits can be kept constant in future years as updated data become available, thus providing stability to the IVI calculation.

21. The measures were combined by calculating a simple average across all 12 measures without weighting, as there was no a priori rationale for determining any weights. Thus the vulnerability scores are constrained to a range between 0 and 1 and, in the current data set, the average range is 0.46.

22. Inevitably, there are missing values in the data set. Thus rules were set for how many values could be missing for a country to still be included in the results. Since the IVI follows the ND-GAIN structure, such rules were developed based on the ND-GAIN experience in addressing missing values. Detailed modelling and analysis on the ND-GAIN index had shown that data could be missing for up to a quarter to a third of the measures for a country without greatly distorting the results. A similar rule was applied to the IVI. However, specific rules will need to be developed for those countries in which there is systematic underreporting, or for which many global measures are less applicable, such as small island developing states.

23. As regards potential correlation with GNI per capita, the IVI does not include any direct economic measures of poverty. Consequently, there is weak correlation between the IVI and GNI per capita. However, unsurprisingly, the poorest countries (<US$5000 GNI per capita) are more vulnerable.

Chart 1
Correlation analysis between the IVI and GNI per capita
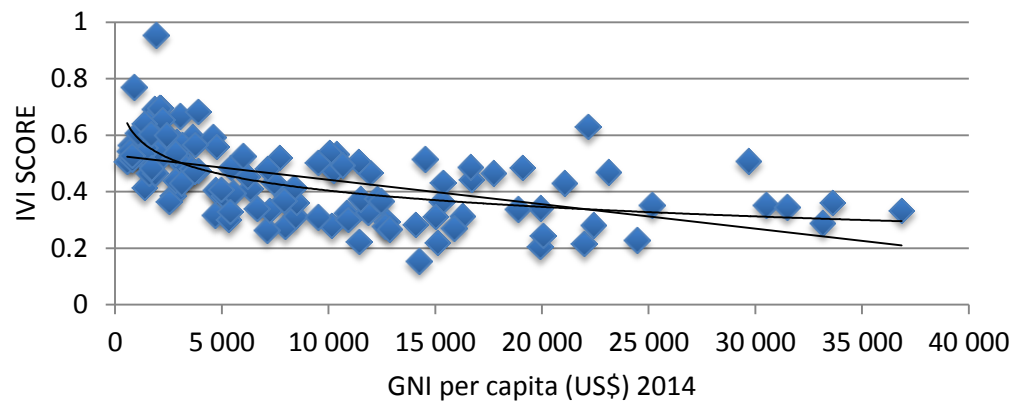
V. Way forward

24. In its current form, the IVI reflects all the variables Management committed to reflecting in response to the guidance of the PBAS Working Group. It is composed of a purposeful selection of measures, where each has a defined purpose. Further work is needed to refine the methodological aspects of the IVI on issues such as data gaps. This work is in progress and will be reflected in a technical document, together with the methodology for putting the index together. In so doing, Management will ensure that the IVI composition is easily understood, the measures selection clear, and the overall IVI production transparent.

Weights and elasticities in the PBAS formula

1. Variations in the final country scores are associated with both the nature of the formula and the individual characteristics of the variables included in it. On the one hand, the PBAS formula explicitly defines both the magnitude and direction of the contribution that each variable has in the final country score through the choice of the fixed values and signs of the weights. On the other, units of measure, size of variance and interaction between individual variables determine the overall impact on the distribution of country scores. The country score in turn determines the distribution of resource allocations.

2. To analyse the response of the formula to specific changes in each of the variables, let's consider the current PBAS formula:

$$CS = \sqrt[4]{N \cdot P^2} = \sqrt[4]{\left(\frac{RP^{9/5}}{GNI_{pc}}\right) \cdot (0.2CPIA + 0.45RSP + 0.35PAR)^2}$$

3. Where: N and P stand for the needs and performance components of the PBAS formula, respectively; RP is the rural population; and GNI_{pc} is the GNI per capita.

4. Elasticities of the country score with respect to each of the indicators in the needs component are given by:

$$\varepsilon_{RP} \equiv \frac{\partial CS}{\partial RP}\frac{RP}{CS} = 0.45$$

$$\varepsilon_{Ypc} \equiv \frac{\partial CS}{\partial Y_{pc}}\frac{Y_{pc}}{CS} = -0.25$$

5. These equations suggest that percentage changes in the rural population and GNI per capita are associated with constant percentage changes in the country score. In fact, the first (second) equation suggests that 1% change in RP (GNI$_{pc}$) increases (decreases) in 0.45% (0.25%) the final country score.

6. From the performance component side, the elasticities are given by the following expressions:

$$\varepsilon_{CPIA} \equiv \frac{\partial CS}{\partial CPIA}\frac{CPIA}{CS} = \frac{0.4}{0.2 + 0.45\frac{RSP}{CPIA} + 0.35\frac{PAR}{CPIA}}$$

$$\varepsilon_{RSP} \equiv \frac{\partial CS}{\partial RSP}\frac{RSP}{CS} = \frac{0.9}{0.2\frac{CPAI}{RSP} + 0.45 + 0.35\frac{PAR}{RSP}}$$

$$\varepsilon_{PAR} \equiv \frac{\partial CS}{\partial PAR}\frac{PAR}{CS} = \frac{0.7}{0.2\frac{CPAI}{PAR} + 0.45\frac{RSP}{PAR} + 0.35}$$

7. Unlike elasticities of the needs component, one interesting feature of the elasticities of the performance component is their dependency on the levels of the CPIA, RSP and PAR. Each of these elasticities exhibit a non-linear relationship with respect to all of the performance indicators. Furthermore, a more detailed analysis – not presented here – on the behaviour of these elasticities shows that in all cases the own-value elasticity is positive, while the two cross-elasticities are negative.

8. This analysis highlights the non-trivial character of the choice of the PBAS formula weights, as they ultimately determine the magnitude and direction of the change in the country score derived from variations in its components or individual variables.

References

ADF (2013) ADF-13 Report: Supporting Africa's Transformation, African Development Fund

IDA (2010) *IDA's Performance-Based Allocation System: Review of the Current System and Key Issues for IDA16.* Washington, D.C.: World Bank.

IDA (2010) *IDA's Performance based allocation system for IDA16*, Annex 2

IDA (2014) *IDA17: Maximizing Development Impact: Summary of Conclusions and Recommendations.* World Bank: Washington, D.C.: World Bank.

IDA (2016) *Special Theme: Fragility, Conflict and Violence*, IDA Resource Mobilization Department (DFiRM) May 31, 2016

IFAD (2003) *The structure and operation of a performance-based allocation system for IFAD*, EB 2003/79/R.2/Rev.1, Rome, Italy

IFAD (2006) *Progress report on implementation of the performance-based allocation system*, EB 2006/89/R.48/Rev.1, Rome, Italy

IFAD (2007) *Proposed arrangements for implementation of a debt sustainability framework at IFAD*, EB/2007/90/R.2, Rome, Italy

IFAD (2008) *Progress report on implementation of the performance-based allocation system*, EB 2008/95/R.51, Rome, Italy

IFAD (2015) *Overview of the performance-based allocation system – First meeting of the working group on the performance-based allocation system, 16 July 2015*, Rome, Italy

IFAD (2016) *Strategic Framework 2016-2025 Enabling inclusive and sustainable rural transformation*, Rome, Italy

IFAD (2016) *Response of IFAD Management to the corporate-level evaluation on IFAD's performance-based allocation system*, EB 2016/117/R.5/Add.1, Rome, Italy

IFAD (2016) *Fine tuning the performance based allocation system – OMC Meeting, 9th May 2016*, Rome, Italy

IFAD (2016) Fine *tuning the performance based allocation system – Third Meeting of the Working Group on the Performance-based Allocation System, 10th June 2016*, Rome, Italy

IFAD (2016) *Assessment of Variables to Adjust the Performance Based Allocation System – Fourth Meeting of the Working Group on the Performance-Based Allocation System, 20th September 2016*, Rome, Italy

IOE (2016) *Corporate-level evaluation on IFAD's performance-based allocation system*, IFAD, International Fund for Agricultural Development, Rome, Italy