Annex 1 Technical description of the Measures

Some components of this Annex are still being developed and in particular the Private and Public Sector Messages

Discussion of the water measures

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| Sector |  | Exposure | Sensitivity | Capacity |
| Water  See Box 1 for the relationship between the GAIN and the Water Povert Index (WPI) | Quant  **** | **Projected change in precipitation (%).** **[PPT% ][[1]](#footnote-1)** Gross measure of threat to water. This is the commonly used indicator in both the scientific and response communities. However it is not a very effective measure as it does not take increased evaporative demand into account nor changes in the intensity and seasonality of the rainfall. It might eventually be replaced by a more integrating measure such as run-off or even precipitation minus evapotranspiration. The use of a single measure for an entire country is not very valid, especially for large countries where there are large gradients across the country.  **Source of data:** CRU data sets, http://www.cru.uea.ac.uk/  **Issues :** An increase in PPT% is taken to indicate reduced vulnerability. However, this might be misleading for dry countries where a large % increase does not imply a large absolute increase in rainfall or in rainfall effectiveness. The increased rain may come in flooding events. Similarly increased PPT% for already wet countries probably provides little useful additional water and may add to flood loads. There appears to be no objective way to correct for these problems but a subjective correction is suggested below.  It can also be argued that PPT% is is a reasonable approximation – for countries with low current precipitation an increase will be disruptive especially if flood frequency increases; for high precipitation countries additional precipitation is also disruptive. There is a range in the middle where additional rainfall might be beneficial but it is hard to adjust for this. Note however, that this is partially taken up in the Food Measures dealing with the projected impact of climate change on crop yields.  **Scaling :** The base value is taken to be no change and the index is scaled so that the most negative countries score -1 and the most positive +0.5. This partially accounts for the issues discussed in the previous paragraph.  **Cross Correlation :** Very low  **Reporting & Time Series :** All countries and a single measure only as it is a projection.  **Actionable :** Only via mitigation of GHG emissions.  **Private Sector Messages** **:** None {This is a mitigation issue. Obviously the private sector can play a role there but that is not the purpose of this index.}  **Public Sector Messages :** Actionable through mitigation.  **Alternate or related measures :** See comment on run-off above.  **Summary :** Acceptable for now, but seek eventually to update with a better measure of water impacts. | **% internal water extracted for all uses. [IWE% ]** An indication of how much of the nationally available water resource (originating internally or externally such as from inflowing rivers) is already being used. In the Index a high % extraction is taken as an indicator of vulnerability.  **Source of data:** FAO Aquastats,  <http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en>  **Issues:** Some countries (especially arid) use well over 100% of their internal water as it is either supplemented by desalination for example. These are capped to 100%.  **Scaling :** The base value is taken as 0% (=0) and 100% (=1).  **Cross Correlation :** Capped variable has low correlation with both GDP/Cap or HDI (r2 < 5%) with or without cap. It is in fact little correlated with most other measures.  **Reporting & Time Series :** Data is reported to FAO at 5 yearly intervals. About 40% compliance since 1990 with enough to detect trends in about half the countries.  **Actionable :** Water use includes domestic, industrial and agricultural of which agricultural water use is the dominant water use in most countries. Thus, this is more a measure of the threat to agriculture than the threat to domestic or industrial use.  **Private Sector messages :** This is a comprehensive measure whose value is determined by many different actions and policies. However, many of these actions are appropriate for private sector engagement ranging from water efficiency measures and recycling to desalination.  **Public Sector Messages :** Similar to those described above. Many opportunities for PPPs.  **Alternate or related measures** : Could exclude external water, but this leads to the anomaly of countries such as Zambia, with major river systems flowing through them, show as very water scare. Zambia uses only 2% of its total available water, but this greatly exceeds the amount of internally generated water. Could also include the volume of dam storage to give some idea of buffering capacity.  **Summary :** Solid measure by most criteria and one used in other indices. The main issue is whether it truly does reflect vulnerability. | **% population with access to improved water supply.** [**PIW%** ****]High % indicates capacity to deliver water to the population and hence lower vulnerability.  **Source of data:** WDI database,  SH.H2O.SAFE.ZS  **Issues :** Commonly used indicator. However, it saturates very quickly with most countries with a GDP/cap of >$5000 having close to 100% coverage  **Scaling :** Scale 0% as vulnerability of 1 and 100% as 0 vulnerability.  **Cross Correlation :** Highly correlated with HDI (r2 = 65%) and with GDP/cap (r2 = 25% and r2 = 50% with Ln(GDP/cap)). It is also correlated with PIS%.  **Reporting & Time series :**  **Actionable :** Directly actionable although many countries have already reached the highest score.  **Private Sector messages :** An activity with many opportunities for private sector engagement, especially through PPPs.  **Public Sector Messages :** See above.    **Alternate or related measures :**  **Summary :** Good indicator and commonly used in other indicators. |
| Water | Qual | **Projected change in temperature** (**TMP%** ****). Water quality issues rise in warmer conditions causing disease growth & spread; less water for sanitation etc.  **Issues :** This brings the most commonly used climate change indicator into the index. The use of a single measure for an entire country is not very valid, especially for large countries where there are large gradients across the country.  **Scaling :** The base value is taken to be no change and the index is scaled so that the most positive temperature increases (5.5C) score +1 and the lowest (1.5C) score 0.  **Cross Correlation :** Very low  **Reporting & Time Series :** All countries and a single measure.  **Actionable :** Only via mitigation of GHG emissions.  **Private Sector Messages** **:** None {This is a mitigation issue. Obviously the private sector can play a role there but that is not the purpose of this index.}  **Public Sector Messages :** Actionable through mitigation.  **Alternate or related measures :** No obvious alternatives.  **Summary :** A core measure of projected climate change and used as the basis of many projections, indicators etc. | **Existing incidence of water borne diseases (WBD )**. Measured as “Water, sanitation & hygiene deaths per 100'000 children<5 yr” to capture the effects on the most sensitive portion of the population.  **Issues :** There are similar data for all people affected but we have chosen to focus on children as they bear the bulk of the burden. There is obviously an overlap with health measures, but this reflects the strong links between vulnerability arising within the water and health sectors.  **Scaling :** The base values are taken to be no incidence (scoring 0) and 1500 incidences per 100,000 children per year, which will result in a small group of countries scoring close to 1.  **Cross Correlation :** Correlates with r2 of 50% to 60% with PIW% and PIS%. But only 35% with ln(GDP/cap).  **Reporting & Time Series :**  **Actionable :** Directly actionable with many countries having room for improvement. Overall improvement in PIW% and PIS% would improve WBD but there also a range of health related actions available.  **Private Sector Messages** **:** Opportunities for the private sector through a variety of clean water and health interventions. Probably a role for local SMEs in providing improved services to emerging cash economy farmers and middle class.  **Public Sector Messages :**  **Alternate or related measures** : A similar measure is available for the whole population. However, children under 5 account for the largest portion of deaths.  **Summary :** | **% population with access to improved sanitation [PIS% ]**. High % indicates capacity to deliver sanitation and quality water to the population and hence lower vulnerability.  **Issues :** Commonly used indicator. However, it saturates quickly, although slightly slower than PIW%, with most countries with a GDP/cap of >$12000 having close to 100% coverage  **Scaling :** Scale 0% as vulnerability of 1 and 100% as 0 vulnerability.  **Cross Correlation :** Highly correlated with HDI (r2 = 75%) and with GDP/cap (r2 = 35% and r2 = 50% with Ln(GDP/cap)). It is also correlated with PIS% (r2 = 60%) but there is still significant scatter among countries with low values of either variable.  **Reporting & Time Series :**  **Actionable :** Directly actionable although many countries have already reached the highest score.  **Private Sector Messages** **:** An activity with opportunities for private sector engagement, especially through PPPs. More difficult to achieve payments for service than for actions relating to PIW%.  **Public Sector Messages :**  **Alternate or related measures :**  **Summary :** Good indicator despite its high correlation with PIW%. There are differences between countries on the low end of both measures. |

Discussion of the Food measures

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| Sector |  | Exposure | Sensitivity | Capacity |
| Food  See Box 1 for the relationship between the GAIN and the Water Povert Index (WPI) | Quant  **** | **ACDI (Wheeler2011).** **[Yld% ][[2]](#footnote-2)** country.  **Source of data:**  **Issues :**  .  **Scaling :** -20 to 100 which covers the full range observed.  **Cross Correlation :** Low  **Reporting & Time Series :** Most countries and a single measure only as it is a projection.  **Actionable :** This is actionable by better agricultural practice, although this will be difficult to pick up in the measure.  **Private Sector Messages** **:** Opportunities for improvements in agricultural practices.  **Public Sector Messages :** As above.  **Alternate or related measures :** There are alternative, similar indices. This is based on an analysis of several different approaches to estimating threat to future yields..  **Summary :** One of many alternatives and probably among the most comprehensive. | **% population dependent on rural livelihoods [Rur% ]** y.  **Source of data:** WDI database, SP.POP.TOTL & SP.RUR.TOTL  **Issues:** %.  **Scaling :** The base value is taken as 0% (=0) and 100% (=1).  **Cross Correlation :** Correlates strongly with GDP/cap (r2 = 47%) and also with other indicators sensitive to rural poverty such as malnourished children and population with access to electricity (r2 about 35%)  **Reporting & Time Series :** s.  **Actionable :** Readily actionable and a major development issue in many countries. Differing views over whether to facilitate rural to urban migration to reduce negative impacts, or whether to try to raise opportunities in rural areas.  **Private Sector messages :** Complex engagement including urban based development, but also opportunities to encourage rurally based enterprises.  **Public Sector Messages :** Similar to those described above.  **Alternate or related measures** :There are variants such as % of workforce employed in rural occupations. The measure used is the most generic as it is based on livelihoods.  **Summary :** Solid measure by most criteria and one used in other indices. Clearly correlated with vulnerability, but lowering its score will not reduce vulnerability if the new urban livelihoods are also vulnerable. | **Agricultural capacity.** [**AgC%** ****].  This is a combination of three separate measures of agricultural technology: the amount of fertilizer used per ha, the number of tractors per area of arable land and the proportion of arable land with irrigation facilities. The measure used here takes two of the above that give the best (i.e. least vulnerable) score. This allows for missing data but also for situations such as where irrigation or fertilizer is less necessary because of rainfall or good quality soils.  **Source of data:** WDI database,  AG.CON.FERT.ZS & AG.LND.TRAC.ZS & AG.LND.IRIG.AG.ZS  **Issues :** See discussion above. And, even with three elements, it does not capture the full range of relevant agricultural technologies. Also many countries already have reached the best (least vulnerable) scores.  **Scaling :** The measure is scaled to score between 0 and 1.  **Cross Correlation :** Has low correlation with other food measures, but moderate correlations with a cluster of health indicators (r2 about 35%), although there is no obvious reason other than a link to level of technological capacity.  **Reporting & Time series :**  **Actionable :** Directly actionable by both private and public sectors.  **Private Sector messages :** An activity with many opportunities for private sector engagement. The index, despite being a combination of three measures, may not capture all effective actions to reduce vulnerability.  **Public Sector Messages :** See above.    **Alternate or related measures :** None found  **Summary :** Solid indicator. |
| Food | Qual | **Coefficient of variation in annual cereal crop yields** (**CCV%** ****). Based on reported year to year variation in cereal yields. High variability is taken as indicating inherent exposure of yields to climate and non-climate variables (e.g. prices affecting inputs to crops). Cereals are the best available indicator of agricultural production for most countries, but clearly not valid or measurable for others. For each country the 19xx to 20xx data was detrended via an exponential function to allow for technological increases in yield and then the standard deviation of the yield calculated to give an estimate of the CV (Stdev/mean).  **Sources of data:** WDI database,  AG.YLD.CREL.KG  **Issues :** The quality of data for some countries is poor; usually reporting almost constant or regularly increasing yields. This will give these countries an artificially low vulnerability score.  **Scaling :**.  **Cross Correlation :** Very low.  **Reporting & Time Series :** Most countries and a single measure.  **Actionable :** Can be improved through better agricultural practices.  **Private Sector Messages** **:** Many opportunities for engagement and this could be reflected in the measure in a period of 5 to 10 years.  **Public Sector Messages :** Actionable as for private sector.  **Alternate or related measures :** No obvious alternatives.  **Summary :** This measure needs to be further explored. It potentially captures an important element of vulnerability, but the quality of the data needs to be further assessed. | **Food import dependency (FID% )**. Proportion of cereal consumption obtained from imports. This is taken as a measure of the countries sensitivities to food shocks in the future. Taken with the CV in national cereal yields, both internal and import dependent countries are covered to some degree.  **Sources of data:** FAO  **Issues :** Clearly the Coefficient of Variation (CV) in of cereal yields and this measure interact and could be part of a more complex measure of food security. This may produce a conceptually more satisfying model but would do less well against simplicity and transparency tests.  **Scaling :** Between 0 and 1.0.  **Cross Correlation :** Low correlations with other measures and GDP etc.  **Reporting & Time Series :**  **Actionable :** The value of the measure can be affected by government action and by major shifts in private markets, but the actions used to make these changes may affect other components of vulnerability.  **Private Sector Messages** **:** Opportunities – see above.  **Public Sector Messages :** See above.  **Alternate or related measures** : None found.  **Summary :** Acceptable at this stage but should be further considered as part of a food security measure. | **% Children under 5 showing “wasting” [Mal% ]**. A measure of malnutrition based on the percent of under 5 year-olds with a low weight for height ratio; usually taken as the best indicator of chronic malnutrition. This is taken as an indication of the lack of capacity to deliver basic nutritional needs to the most sensitive group in society.  **Sources of data:** WHO  **Issues :**  **Scaling :** From 0 to 10%. A few countries score higher than 10% but the reduced range is used to get more sensitivity among countries with less extreme problems.  **Cross Correlation**. Strong correlation with a number of water and health measures (r2 of 30% to almost 50%), but graphics suggest that it contains independent information.  **Reporting & Time Series :**  **Actionable :** Directly actionable by public and private sectors, with most responsibilities probably with the former.  **Private Sector Messages** **:** See above  **Public Sector Messages :** See above  **Alternate or related measures :** Other measures of poor nutrition considered. This was chosen as it is considered a good measure of chronic malnutrition and it does nor greatly overlap with measures in the health or water sectors  **Summary :** Good indicator. |

Discussion of the Health measures

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| Sector |  | Exposure | Sensitivity | Capacity |
| Health | Quant  **** | **Climate Change Induced DALYs** **[DALY ][[3]](#footnote-3)** A model-based estimate of the quality adjusted loss of life years under several different climate scenarios. The most extreme scenario and for 2100 was used here to achieve maximum discrimination between country exposures.  **Source of data:** Ebi 2008  **Issues :** This index is calculated for regions of the world and for sub-groupings of countries within these regions (eventually xx different groups). Thus many countries share the same value of the measure as others.  **Scaling :** 0 to 0.4 which encompasses the full range found in the study.  **Cross Correlation :** Low  **Reporting & Time Series :** Reported for regions as described above.  **Actionable :** This is actionable by better agricultural practice, although this will be difficult to pick up in the measure.  **Private Sector Messages** **:** Opportunities for improvements in agricultural practices.  **Public Sector Messages :** As above.  **Alternate or related measures :** There are alternative, similar indices. This is based on an analysis of several different approaches to estimating threat to future yields..  **Summary :** One of many alternatives and probably among the most comprehensive. | **Medical staff [MEDS ]** Sum of the number of doctors, nurses and midwives per 1000 population in the country. The number of doctors is multiplied by 2 before the summation as there tends to be about twice as many nurses and midwives as doctors. This means that progress in proportional increasing either group will have the same effect on the measure.  **Source of data:** WDI data-base, SH.MED.PHYS.ZS & SH.MED.NUMW.P3  **Issues:** None.  **Scaling :** Between 0 and 25. A few countries have up to 50 staff per 1000 population, but most OECD countries only have about 20..  **Cross Correlation :** A number of correlations of 30% to 40% with other health related measures. R2 = 52% with ln(GDP/cap).  **Reporting & Time Series :**.  **Actionable :** Readily actionable and a major development issue in many countries. Differing views over whether to facilitate rural to urban migration to reduce negative impacts, or whether to try to raise opportunities in rural areas.  **Private Sector messages :** Complex engagement including urban based development, but also opportunities to encourage rurally based enterprises.  **Public Sector Messages :** Similar to those described above.  **Alternate or related measures** :There are variants such as % of workforce employed in rural occupations. The measure used is the most generic as it is based on livelihoods.  **Summary :** Solid measure by most criteria and one used in other indices. Clearly correlated with vulnerability, but lowering its score will not reduce vulnerability if the new urban livelihoods are also vulnerable. | **Longevity** [**LONG** ****]. Average life span of males and females. Used as a measure of the overall capacity of a country’s health services. This measure seems to differentiate countries within OECD countries as well as in LDCs.  **Source of data:** WDI database, SP.DYN.LE00.IN  **Issues :** none.  **Scaling :** Longevities between 35 and 85 are scaled to 0 to 1. Observed longevities are 44 to 83.  **Cross Correlation :** Many strong correlations with measures of health water quality and development (r2 50% to 60%).  **Reporting & Time series :**  **Actionable :** Directly actionable by both private and public sectors.  **Private Sector messages :** An activity with many opportunities for private sector engagement. The index, despite being a combination of three measures, may not capture all effective actions to reduce vulnerability.  **Public Sector Messages :** See above.    **Alternate or related measures :** None found  **Summary :** Solid indicator. |
| Health | Qual | **% mortality from communicable diseases** (**MCD%** ****). .  **Sources of data:** WHO, [http://apps.who.int/ghodata/?vid=99001#](http://apps.who.int/ghodata/?vid=99001)  **Issues :** The coverage of diseases.  **Scaling** : From 0 to 40% are scale to 0 to 1. Some countries exceed 50% and many countries cluster around 35 to 50%.  **Cross Correlation :** Very low.  **Reporting & Time Series :** Only a single estimate available for 2008.  **Actionable :** Can be improved through a wide range of health care practices.  **Private Sector Messages** **:** Many opportunities for engagement and this could be reflected in the measure in a period of 5 to 10 years.  **Public Sector Messages :** Actionable as for private sector.  **Alternate or related measures :** No obvious alternatives.  **Summary :** This measure needs to be further explored. It potentially captures an important element of vulnerability, but the quality of the data needs to be further assessed. | **% external resources for health care (Hext% )**. The percentage of external resources (e.g. bilateral payments, NGO operations etc) in total health expenditure.  **Sources of data:** WDI database, SH.XPD.EXTR.ZS  **Issues :**.  **Scaling :** 0 to 100% scale to 0 to 1. Most countries have scores of 0 or at least <10%, but some approach 100%.  **Cross Correlation :** Moderate correlation with some health and water related measures.  **Reporting & Time Series :**  **Actionable :** This measure should be responsive to a country taking action to improve internal support to health services.  **Private Sector Messages** **:** Most responsibilities are with public sector, but private action in providing low-cost health care will assist.  **Public Sector Messages :** See above.  **Alternate or related measures** : None found.  **Summary :** Solid indicator. | **% Life time risk of maternal death” [MatR% ]**. Measure of the capacity to deliver health services to a vulnerable and important group.  **Sources of data:** WDI database, SH.MMR.RISK.ZS  **Issues :**  **Scaling :** 0 to 4% is scaled to 0 to 1. The highest values are about 9%.  **Cross Correlation**. High correlation (r2>60%) with some health related measures..  **Reporting & Time Series :**  **Actionable :** Directly actionable by public and private sectors with opportunities for improved private actions in the provision of local maternity services. Rapid gains can probably be made.  **Private Sector Messages** **:** See above  **Public Sector Messages :** See above  **Alternate or related measures :**  **Summary :** Good indicator. |

Discussion of the Infrastructure measures

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| Sector |  | Exposure | Sensitivity | Capacity |
| Coastal | **** | **% of area of country less than 10m above sea-level** **[][[4]](#footnote-4)** A commonly used measure of exposure to a range of coastal threats, including seal-level rise, storms and storm surge and salt water intrusion. It is not directly related to flooding due to rises in mean sea-level.  **Source of data:** CIESIN 2007 http://sedac.ciesin.columbia.edu/gpw/lecz.jsp  **Issues :** See discussion above. Also land-locked countries automatically score 0 vulnerability. Also the data is often missing for small islands. Where it is missing a high vulnerability score has usually been inserted as usually the entire area of a small island is subject to coastal impacts.  **Scaling :** 0 to 100% are scaled to 1 to 0  **Cross Correlation :** Low  **Reporting & Time Series :** Single value.  **Actionable :** Not actionable.  **Private Sector Messages** **:** None.  **Public Sector Messages :** As above.  **Alternate or related measures :** Some studies use 1 m rather than 5 m while other use a distance from the coast. All convey related, but different information.  **Summary :** Solid indicator, but further work on a synthetic measure combining elevation, distance from coast etc might be of use. | **% of population living less than 10m above sea-level** **[]**. See opposite.  **Source of data:** CIESIN 2007 http://sedac.ciesin.columbia.edu/gpw/lecz.jsp  **Issues:** As opposite.  **Scaling :**. 0 to 100% are scaled to 1 to 0.  **Cross Correlation :** Low. Only an r2 = 48% for area below 10m.  **Reporting & Time Series :**.  **Actionable :** Managing coastal settlements is an important challenge to the public and, to a lesser extent, the private sector.  **Private Sector messages :** Role in protecting own facilities and in contributing to safer coastal planning.  **Public Sector Messages :** Similar to those described above.  **Alternate or related measures** : Some indices use % of GDP producing capacity exposed to seal-level effects. However, this is usually a modeled estimate based on elevation, population maps, night lights and similar indirect measures.  **Summary :** Good measure of a very direct component of sensitivity. |  |
| Energy |  | **% population with access to reliable electricity** (**Elect%** ****). .  **Sources of data:** UNDP & WHO analysis {url}  **Issues :** There is a question of what constitutes adequate access to reliable energy (not just electricity) sources and just what is reliable. Data is often missing and may still require quality checking.  **Scaling** : From 0 to 100% are scale to 0 to 1. Most countries score in the high 90% with a global average of 75% (i.e. average of country percentages, not proportion of people with access). We have maintained the full range of scores to encourage all countries to move towards 100%.  **Cross Correlation :** Has the highest correlation with water and health measure of any of the infrastructure measures (some r2 of 50% to 70%).  **Reporting & Time Series :**  **Actionable :** Can be improved through a wide range of public and private actions.  **Private Sector Messages** **:** Many opportunities for engagement and this could be reflected in the measure in a period of 5 to 10 years.  **Public Sector Messages :** Actionable as for private sector.  **Alternate or related measures :** No obvious alternatives with adequate data.  **Summary :** An important indicator. | **% energy (electricity) production at risk (ERisk% )**. This is an estimate of how vulnerable electricity production might be to climate impacts. Currently it is a measure of the percentage of total electricity (analogue for energy) that is either imported or derived from hydro-electricity. The rational is that imported energy could increase in price or be cut off in crises, while hydroelectricity is going to be subject to the impacts of change rainfall patterns and competing uses. See Issues below.  **Sources of data:**  **Issues :** This is an important measure of vulnerability, but further work is needed on constructing a better measure and in supplying data. The measure could be expanded to capture the risk to fossil fuel based energy production as imported supplies of fuel are just as subject to crises as imported electricity.  **Scaling :** 0 to 100% scale to 0 to 1. The average score is 43%..  **Cross Correlation :** Low correlations.  **Reporting & Time Series :** There is a lot of missing data. Estimates were inserted in many cases.  **Actionable :** This measure should be responsive to a country taking action to improve internal energy supplies.  **Private Sector Messages** **:** Most responsibilities are with public sector, but private action in providing infrastructure and managing distribution.  **Public Sector Messages :** See above.  **Alternate or related measures** : None found.  **Summary :** An important area of sensitivity that would repay further work. | . |
| Transport | **** | **Floods per decade per 100,000 km2** **[Flood ]** This is used as a measure of exposure as floods are usually the greatest threat to road infrastructure.  **Source of data:** CRED database for flood “disasters” over the period 1992 to 2007. 15 years is barely a long enough time span, but reporting prior to this becomes increasingly unreliable.  **Issues :** This is the only use of the CRED database as we wanted to use the historical record as a means of testing the validity of the measures chosen.  **Scaling :** 0 to 0.4 which encompasses the full range found in the study.  **Cross Correlation :** Low  **Reporting & Time Series :** Single value available for most countries.  **Actionable :** No, other than by reducing the likelihood that a flood will become a disaster.  **Private Sector Messages :** None.  **Public Sector Messages :** None.  **Alternate or related measures :** No obvious alternatives  **Summary :** Solid indicator of exposure. | **% Paved roads [Paved ]** Taken as a measure of the sturdiness of the road system.  **Source of data:** WDI database, IS.ROD.PAVE.ZS  **Issues:** None.  **Scaling :** 0 to 100% scaled to 0 to 1 with an all country average of 50%.  **Cross Correlation :** A number of correlations of 30% to 40% with a variety of measures.  **Reporting & Time Series :** .  **Actionable :** Readily actionable and a major development issue in many countries.  **Private Sector messages :** Multiple opportunities for engagement.  **Public Sector Messages :** Similar to those described above.  **Alternate or related measures** : No obvious alternatives  **Summary :** Solid indicator. |

1. **** values for the measure indicate greater vulnerability; **** indicates that low values indicate greater vulnerability. Each measure is rescaled to a range from 0 to 1 with 1 indicating high vulnerability before being incorporated in the GAIN Vulnerability Index. [↑](#footnote-ref-1)
2. **** values for the measure indicate greater vulnerability; **** indicates that low values indicate greater vulnerability. Each measure is rescaled to a range from 0 to 1 with 1 indicating high vulnerability before being incorporated in the GAIN Vulnerability Index. [↑](#footnote-ref-2)
3. **** values for the measure indicate greater vulnerability; **** indicates that low values indicate greater vulnerability. Each measure is rescaled to a range from 0 to 1 with 1 indicating high vulnerability before being incorporated in the GAIN Vulnerability Index. [↑](#footnote-ref-3)
4. **** values for the measure indicate greater vulnerability; **** indicates that low values indicate greater vulnerability. Each measure is rescaled to a range from 0 to 1 with 1 indicating high vulnerability before being incorporated in the GAIN Vulnerability Index. [↑](#footnote-ref-4)