|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sector |  | Exposure | Sensitivity | Capacity |
| Water | Quant | **Projected change in precipitation (%).** Gross measure of threat to water resource – change in run-off might be better but not available currently. {Need an adjustment for very arid regions as % is distorting} | **% internal water extracted for all uses.** Indication of how much of the nationally controllable resource is already being used. {Have to consider whether this should be internal + external water} | **% population with access to improved water supply.** High % indicates capacity to deliver water to the population and hence lower vulnerability. |
|  | Qual | **Projected change in temperature** (needs scaling). Water quality issues rise in warmer conditions as disease growth & spread increases; less water for sanitation etc. {Also brings temperature into the axis} | **Existing incidence of water borne diseases**. Measure of current extent of problem. {Check precisely which variable} | **% population with access to improved sanitation**. As above. |
| Food | Quant | **Projected change in agricultural (cereal?) yield** (cf Wheeler) | **% population in rural sector**. These are most sensitive to impacts either through direct food production or loss of livelihood. | **Recent rate of yield increase as ratio of rate of population increase.** If yield increase is not keeping up with population then capacity poor. {What to do for countries with no cereal production?} |
|  | Qual | **Calorie deficit**. If a country is already in deficit then exposed to further shocks. | **% GDP in food imports**. {This could be swapped with exposure variable but the effect on the final index would not be changed.} Score high % as high sensitivity although there could be an argument for the opposite. | **% malnourished children**. Can this be done as “compared with the expected number for the calorie deficit” or “with GDP/cap”? |
| Health | Quant | **Estimated impact of current CC on DALYs**. Will have to use regional estimates for blocks of countries. {I have them} | **Doctor & Nurses per cap**. Attempt to measure on-the-ground delivery of health services. {How does this relate to hospital beds per cap?} | **Longevity**. Better longevity implies better capacity either through medical services or through community practices. |
|  | Qual | **% deaths dues to communicable diseases malnutrition etc** - problem: good reporting but only for 2002 – but it is an exposure snapshot | ??? | **Mortality rate of under 5 year olds**. Can this be estimated compared with a broader national health index to determine failure to deliver to young children?  Replace with maternal mortality |
| Coastal | Quant | **% land below 5 m.** This is the zone that is subject to threats from SLR and storms. | **% Population in the zone below 5m.** Sensitivity of both people and to a large extent infrastructure. | $GDP/Area??? As in GAIN 0.5 |
| {Maybe have only 1 line of variables for the three infrastructure indicators – so omit this row} | Qual | **Storm frequency** – probably estimated from CRED and corrected for length of coastline | **Area of coastal wetland as % of total land**. Coastal wetlands are usually important buffers against storms and important zones for fishing etc | ??? |
| Transport/infrastructure | Quant | **Count of floods and possibly storms (CRED)**. But how to scale this? By land area or by population? | **% of formed and sealed roads of total roads**. | **Ratio of road density to population density**. Low value implies low capacity to deliver. {Needs to be explored} |
|  | Qual |  |  |  |
| Energy | Quant | **% energy derived from either imports or hydro**. As both could be vulnerable under CC. | **Mean energy use per capita.** Sensitivity decreases as a basic level is approached – then what? – plateau or does sensitivity rise again? | **% population with access to reliable energy**. Measure of the capacity to deliver until now. |
|  | Qual |  |  |  |

The Vulnerability axis should represent the vulnerability and adaptive capacity that is largely in the domain of communities and/or national governments. Adaptive capacities that may realistically be influenced by the private sector should be in the Readiness Axis.