**General Features of the LiveCode program for the HRMI Calculator**

**Quick overview**: The user has data on a specific economic or social indicator, e.g., school enrollment rates, for a group in some country for a given year. The calculator has GDP/capita data for most countries for selected years and uses this information to determine the best performance possible on the indicator, given the country’s GDP resources. This is used to produce several metrics that assess how well the government is meeting its human rights obligations to the group.

**Navigation** to different cards is via the set of buttons at the top of each page. Each button has a ‘MouseOver’ field that explains what happens on each card. The buttons (except for the Print button) have been made into a background group that is carried to each new card, but this was not done for the popup explanatory fields. However, the preOpen script for the cards do some tests before opening a card, e.g., you must choose an indicator before you can input data on its value in the subgroup. The preopen script changes the color of the buttons to indicate which card the User is on. See later details after a brief description of key features of the cards.

The “Description of Available Indicators” card gives a list of the short names of the indicators. When an indicator name in the field is clicked, the IndicatorNumber is set to the line number in the field. So the order in the list of indicators is important because in various scripts the chosen indicator is often referenced by its line number (“IndicatorNumber”) in this list, but its short name is what is presented in the various outputs. When an indicator is selected, the Long Description information is presented. When an indicator is selected **and** an analysis was done previously, the user is asked if they want to start a new analysis. If “Yes”, the variables ParametersSent and AnalysisDone are set to empty and the user is passed to the “LongDescription” card.

The “LongDescription” card displays the proper long definition of the selected indicator information that is stored in the **substack “IndicatorDescriptions”,** which has a card for each indicator. Again, the order matters here since items are referenced by card number or IndicatorNumber. When the user clicks “Enter Data for this Indicator” button, the script sets up the parameters for the chosen indicator as elements in the “IndicatorParameters” array. The variable ParametersSent is set to 1 to record that this has been done. The calculator needs these parameters **AND** input data to do the calculations, so the user is passed to the “DataInput” card AFTER using ANSWER to give the user a notice that their data must match the procedures given in the long description AND, if there are sex-specific versions of the indicator, what is the sex composition of their data.

The “DataInput” card displays the selected indicator (and any sex categories) and has a dialog sequence that starts with selecting the country from the field. The script checks for whether there is **any** annual GDP data for that country. If the sum of all GDP data is 0, then no data exists at all and a notice is given. Next the user is asked to pick the year of the data and again the script checks whether GDP data exists for that year. The selections are echoed in a CountryInfo field and the social group is described by the user. Finally, the value of the indicator is input and a “Submit Data” button is shown. Its script does all the calculations (by calling a function that resides in the Stack script), makes the graphs, and fills in the prototype fields that will display the different results. The user is sent to the “IntroToResults” card.

The “IntroToResults” card simply describes the three ways the results are presented and has buttons at the top of the card to go to any of the three results. These buttons are also on the other Results cards.

The “GraphSummary” card gives graphs like those on [www.rightstracker.org](http://www.rightstracker.org): income-adjusted and global best scores with a little explanatory text. The graphs can be exported as .png files.

The “DetailedResults” card just gives the Concise Summary of the input data and the calculated metrics with any notes about unusual features of the data.

The “GetComparisons” card has the full explanation of what each metric measures, then presents the relevant application of that metric using the calculated results. There is a button that shows a card (“RT\_Instructions”) that gives instructions on how to get country level data from [www.RightsTracker.org](http://www.RightsTracker.org). The prototypes of these fields are given already in the calculator, but they are also given below, where you can modify the info, then copy and paste them into the prototype fields of the calculator.

The “WhatAreESR” card gives a brief summary of economic and social rights and the related International Covenants for them.

The “Explanations” card is the Methodology Appendix, which consists of a series of buttons (and related fields and grouped graphical elements) that try to explain the various metrics that the calculator produces.

The “Credits” card provides some background information and where the LiveCode program can be found.

Card ID 4701 is a “construction zone” card for holding various action buttons and/or notes.

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Cards & their buttons with contingencies

Key Progress variables:

* AnalysisDone = 1 if results have been produced or 0 no results available
* IndicatorNumber= empty or selected indicator # from List of Indicators also equal to CardNumber in the substack that has the long descriptions of the indicators.
* ParametersSent= Indicator’s characteristics put into array IndicatorParameters (but it still needs input data added to be ready for analysis)
* OldCountryName is used to test whether new country is selected on the Data Input card, if so, then initialize data input dialogue fields.
* **All of these should be set to empty when stack is first opened**.

There should only be 4 possible combinations of the first three progress variables:  
 Combination AnalysisDone ParametersSent IndicatorNumber  
 A 0 0 0 0=empty  
 B 0 0 # # is some number > 0  
 C 0 1 #  
 D 1 1 #

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Card Name🡺 | Minor Cards | List of Indicators | Long Definition | Data Input | Results |
| Tests on PreOpenCard | none | none | If IndicatorNumber = empty, Answer and go to List of Indicators card / Hide Enter Data button if IndicatorNumber =19 | If IndicatorNumber=19, answer “GDP not indicator” and go to List of Indicators card/ If ParametersSent=empty, Answer and go to List of Indicators card | If AnalysisDone=0, Answer and go to data input card |
| Actions on Card | irrelevant | **Click on Indicator**:  If AnalysisDone=1, Answer “New analysis; will erase Results?” IF “YES”: IndicatorNumber = Linenumber / ParametersSent=empty / AnalysisDone=empty Go to Long Definition card IF “NO” do nothing. | **Click on Enter Data Button**: ParametersSent=1/ Go to Data Input card / Answer with reminder that their data must match this definition / Answer (if relevant) sex composition of data /  Insert relevant parameters for indicator | **Test for new country:** if selected country NE OldCountryName, reset data input screen /  **Click on Submit Data**: calculate metrics, set  AnalysisDone=1, make graphs, replace coded variables in the text files with proper metrics / Go to Results | Varies by which results are shown. |
| NOTES: |  | Above action will make it impossible to go to Data Input or to Results cards. |  | The Preopen card test could go to the Long Definition card if IndicatorNumber >0, but am forcing a restart. | User can revise Data Input or review Long Definition and return to Results without having to start all over. |

**See the script files for additional comments**.

--- the text below can be modified and pasted into the calculator’s “ComparisonsPrototype” field. NOTE: the clickable “here” to get instructions to RightsTracker must be formatted in the prototype field as “link” text **within LiveCode** whenever this is updated. The link on the last line may need to be done manually as well.==> Use the project browser to make the field visible, go to the Comparison card, unlock the text with edit tool; go to browse/input mode, paste new text in the prototype field (if needed), select the text for link(s), use text format menu to select “Link” format, go back to edit tool, lock the text in the field, use project browser to make field invisible (or use edit tool+inspector), then back to browse tool.

**THE INFORMATION YOU PROVIDED**

Short name of Indicator: #IndicatorName.

This indicator measures one aspect of the Right to #Right in #AssStd Assessment Standard(s)\*.

Indicator data are for “#PopSubGroup.”

Sex composition of subgroup: #SexGroup.

Subgroup lives within #Country.

Data are from year #Year.

The indicator value in the subgroup is #KeyVal% and gives the percent that are #BeFulfilled among the #AtRiskGroup.

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\*There are two Assessment Standards: one most relevant for Low and Middle income countries (LMY) and one most relevant for High income countries (HiY). The indicators included in a particular right score, e.g., education, will differ between the assessment standards.

**CALCULATOR DATA**

**The GDP/capita for #Country in #year is $#GDP/capita. This is measured in a manner that is comparable across countries and over time. It is HRMI's measure of a country’s resources for meeting its human rights obligations.**

**CALCULATED METRICS**

***Income Adjusted Benchmark****:*

Countries with the **same GDP/capita** have widely different values on #IndicatorName. The value in the best performing countries define what should be possible at this GDP/capita level. This value is called the ***Income Adjusted Benchmark***. It gives an achievable goal if the country uses its GDP/capita resources efficiently and fairly. Since this is a national benchmark, it applies to all population groups within the nation.

**=>Given the GDP/capita of $#GDP in #Country, the *Income Adjusted Benchmark* for #IndicatorName is #Frontier%. If #Country used its resources efficiently and fairly, it should be able to reach this indicator value in all subgroups within the country.**

***Performance Shortfall***:

Most countries have indicator values that are lower than the *Income Adjusted Benchmark*. The difference is called the ***Performance Shortfall***. It is calculated as the *Income Adjusted Benchmark* minus the indicator value. It gives the increase (or decrease if the shortfall is negative) in the indicator value that could be achieved for that subgroup if the country used its resources **efficiently and fairly**.

**=>If #Country was using its resources efficiently and fairly, #Shortfall percent more of the #AtRiskGroup in “#PopSubGroup” would be #BeFulfilled.**

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Possible Application of the *Performance Shortfall*:

=>**If you know the *number* of people** who are: #AtRiskGroup in “#PopSubGroup,” you can calculate the ***number* of additional people** in “#PopSubGroup” who could be #BeFulfilled. For example, suppose there are 50,000 #AtRiskGroup in “#PopSubGroup”, then 50000x#\_ShortfallFraction = #\_\_ShortfallNumber and you could state:

**=>If #Country were using its resources efficiently and fairly, #\_\_ShortfallNumber more of the #AtRiskGroup in the “#PopSubGroup” would be #BeFulfilled.** (**NOTE**: This illustration **assumes** “#PopSubGroup” has 50,000 #AtRiskGroup.)

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***Income Adjusted Score (IAS)***:

The most important metric is the ***Income Adjusted Score (IAS)***. It assesses the **government’s** performance on the indicator. *IAS* scores always range between 0% and 100%. When *IAS* =100%, the observed indicator is at the *Income Adjusted Benchmark*. That is, the country is doing as well as the best performing countries **with a similar GDP/capita level**. When *IAS*=0%, it means the indicator value is at the lowest value of the indicator observed in any country over the past few decades. This lowest value is called the ***Natural Minimum*** and reflects what would occur without government efforts to raise the country’s performance on the indicator. Since the *IAS* considers a country’s current resources, every country should be able to reach 100% on the *IAS*. Scores less than 100% reflect levels of government failure. Since the *IAS* also considers the *Natural Minimum* of the indicator, one can compare *IAS* scores on different indicators to assess where government performance is stronger or weaker. **Most important**: *IAS* scores can be used to compare the government performance of different countries and on different indicators.

**=>For #Country the *Income Adjusted Benchmark* on this indicator is #Frontier%.**

**=>For #IndicatorName the *Natural Minimum* is #NatMin%.**

**=>The *Income Adjusted Score* is #SERF%. This means the government is achieving #SERF% of its current potential on #IndicatorName for "#PopSubGroup".**

The *IAS* gives useful information by itself. It also allows direct comparisons to the *Income Adjusted Scores* on other indicators or for other countries or subpopulations. Particularly useful is comparing your subgroup’s *IAS* to the *IAS* for the entire country. If your subgroup has an *IAS* lower than the country’s *IAS*, then your subgroup is a disadvantaged group relative to the general population. Click here for the steps to find the national indicator metrics at [www.RightsTracker.org](http://www.RightsTracker.org) if they are available.

**ADDITIONAL RESULTS**

***Global Best Benchmark* & *Global Best Score (GBS)****:*

The *IAS* measures a government’s current performance relative to a benchmark that should be **achievable with current resources**. A similar approach can measure a government’s progress toward the ultimate goal of achieving the best possible fulfillment of human rights. The ***Global Best Benchmark***is the highest indicator value (usually 100%) observed for any country **at any income level**. The ***Global Best Score (GBS)*** shows the government's performance level between the *Natural Minimum* and the *Global Best Benchmark*. The *Income Adjusted Score* and *Global Best Score* will be the same when a nation has sufficient resources to reach the *Global Best Benchmark*.

**=>The *Global Best Benchmark* for #IndicatorName is #GBBenchmark%.**

**=>The *Global Best Score* on this indicator for “#PopSubGroup” is #GBScore%.**

**Note on “Penalty” applied to *IAS* and *GBS*:**

The *Income Adjusted Benchmark* increases as a country’s GDP/capita increase—up to the point where a country has enough GDP/capita to reach the *Global Best Benchmark*. All countries with higher GDP/capita levels than that have an unchanging benchmark. If two of these countries had the same indicator value, they would have the same *IAS* and *GBS*, even if one country had ten times the GDP/capita of the other. However, the wealthier country does not deserve an equal *IAS* or *GBS* because it has many more resources. Consequently, if a country has enough GDP/capita to achieve the global best benchmark, but fails to do so, a penalty is subtracted from the initial IAS and *GBS* scores. This penalty increases as a country’s GDP/capita increase. (The methodology appendix explains the penalty in more detail.)

**=>The I*ncome Adjusted Benchmark* equals the G*lobal Best Benchmark* above $#\_GDPatPenalty/capita.**

**=>The penalty applied to the previous *Income Adjusted Score* was #\_SERFPenalty.**

**=>The penalty applied to the previous *Global Best Score* was #GBPenalty.**

***Minimum Necessary GDP/capita, Income Efficiency Score & Excess Income Score***

Countries with the **same indicator value** vary in their GDP/capita levels. Among these countries the one with the **lowest GDP/capita** is most “efficient” at using its resources to achieve the **observed indicator value**. This GDP/capita value provides a benchmark -- the ***Minimum Necessary GDP/capita***-- for achieving a specific indicator value in the entire country. This benchmark provides two useful metrics. Dividing the *Minimum Necessary GDP/capita* by the Country’s GDP/capita gives the country’s ***Income Efficiency Score***. This tells you what percent of the country’s income is actually needed **to achieve the subgroup’s observed indicator value in the entire country**. Low scores indicate a country would not be using its resources efficiently in achieving the subgroup’s performance level for the entire country. The ***Excess Income Score*** is just the inverse of the *Income Efficiency Score*: divide the country’s GDP by the *Minimum Necessary GDP*. This tells you how many times more income the country has than necessary to achieve the observed indicator value for the entire country. NOTE: When the *IAS* is 100%, the *Income Efficiency Score* will be 100% and the *Excess Income Score* will be 1.00.

**=>The *Minimum Necessary GDP*/capita to achieve #KeyVal% on #IndicatorName for #Country is $ #MinNecGDP /capita.**

**=>#Country is using its resources at #IncEff% efficiency when assessing its ability to achieve this indicator value for the entire country.**

**=>The country has #ExcessInc times the resources needed to achieve this indicator value for the entire country.**

**AVERAGING ESR *INDICATOR* METRICS INTO A *RIGHT* METRIC**

Each economic & social **right** score, e.g., right to education, is the **average of specific indicator scores** (within a particular Assessment Standard\*). You can calculate a **right** score for your subgroup data, if you have data for all the ESR **indicators** used for that **right**. For example, if you had an *IAS* of 64.1 for child survival, 71.0% for adult survival, and 69.2% for contraceptive use, the *Income Adjusted Score* for **Right** to Health (using the LMY assessment standard\*) would be 68.1%. A similar *Global Best Score* for a right can be calculated with the global best scores for each relevant indicator.  
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\*There are two Assessment Standards: one most relevant for Low and Middle income countries (LMY) and one most relevant for High income countries (HiY). The indicators included in a particular right score, e.g., education, will differ between the assessment standards, see: <http://humanrightsmeasurement.org/methodology-handbook/> .

-------------------------------------------- end of text for full prototype field ----------------------------------------------

The “UseExamplesPrototype” field, which is only referenced via the Print button, is similar to the above, but does not have the explanations of the metrics, just the introductory data and the “🡺” information.

**Updating the calculator consists of several components**:

1. Put new GDP/capita PPP$2017 data into the GDP\_Array on the Input Data card, which can be made visible using the Project Browser. This file should be tab delimited and any missing data values (“..”) from the World Development Indicators website should be set to “0” scores. The years extracted should run from 1990 to the last year covered in the current update (2020 for the 2023 update). This last year should be entered as a global variable in the script for the field CountryNames, where the last year replaces the XXX in the “ put XXX into last year” script. The dataset should be read into GDP\_Array from a file that is tab delimited, but with no column names; just rows with country name and GDP data for the proper number of years. Note that some of the country names should be changed to more familiar or formal names. Use the RightsTracker for reference. After changing the names be sure to sort the dataset by country name so that everything will be in alphabetic order.
2. Extract the country info from this file and put that into the CountryNames field. It is essential that the rows in this file correspond to the proper rows in the GDP\_Array file because the row numbers in this file are used to look up the GDP data in that file.
3. Add/change any years in the YearsButton using the property inspector.
4. Update the indicators and their descriptions, which are given in the substack (IndicatorDescriptions, which can be accessed by the Project Browser, where you can use Ctrl+2 or +3 to move among the cards/descriptions. Use the object menu to insert a new card or delete one. You can also select all items on card and paste them into the new card for editing.
5. To update the short descriptions list, use the property inspector (+ contents tab) to change entries in the shortdescriptions field on the “Descriptions of Available Indicators” card. (If additional indicators are added, be careful about how they are included and the need to reorder long descriptions and parameters for the new and old indicators.)
6. Change any equation parameters that are in the script for the “Enter Data…” button on the Long Definition card for new indicators or when new frontiers are made for old indicators. The script uses the Switch function based upon the indicatornumber that is created when the short list of indicators is presented on the second card (“Descriptions of Available Indicators”), so make sure these lists are consistent.
7. You might need to change/update the results description that have embedded fields for the calculated parameters and results. See the draft given above.
8. Update information on the Credits page and…
9. Update information at the GitHub page.