

**U Trio (USL-5UE-URF Trio) as a socio-economic-environmental karma system that leads us rapidly to the sustainable, resource-based, renewable energy-based, circular economy overcoming the top 5 most critical global crises or challenges (Draft 1)**

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**KEY WORDS:** sustainability, resource-based economy, renewable energy, circular economy, top global crises

## **ABSTRACT**

This paper is for overcoming the TOP 5 most critical global crises or challenges of our time for 5 Es (in Education, Economy, Energy, Environment, and Equality), all simultaneously within next 20-25 years or so with the back up plans lining up one after another with the USL 2, 3, 4, 5+ (depending on the monitored progress of the nations around the world). We first briefly describe what USL, 5UEs, and URF Trio are and then give the brief summary of the solutions in terms of the total costs and the time frames to complete the resolutions.

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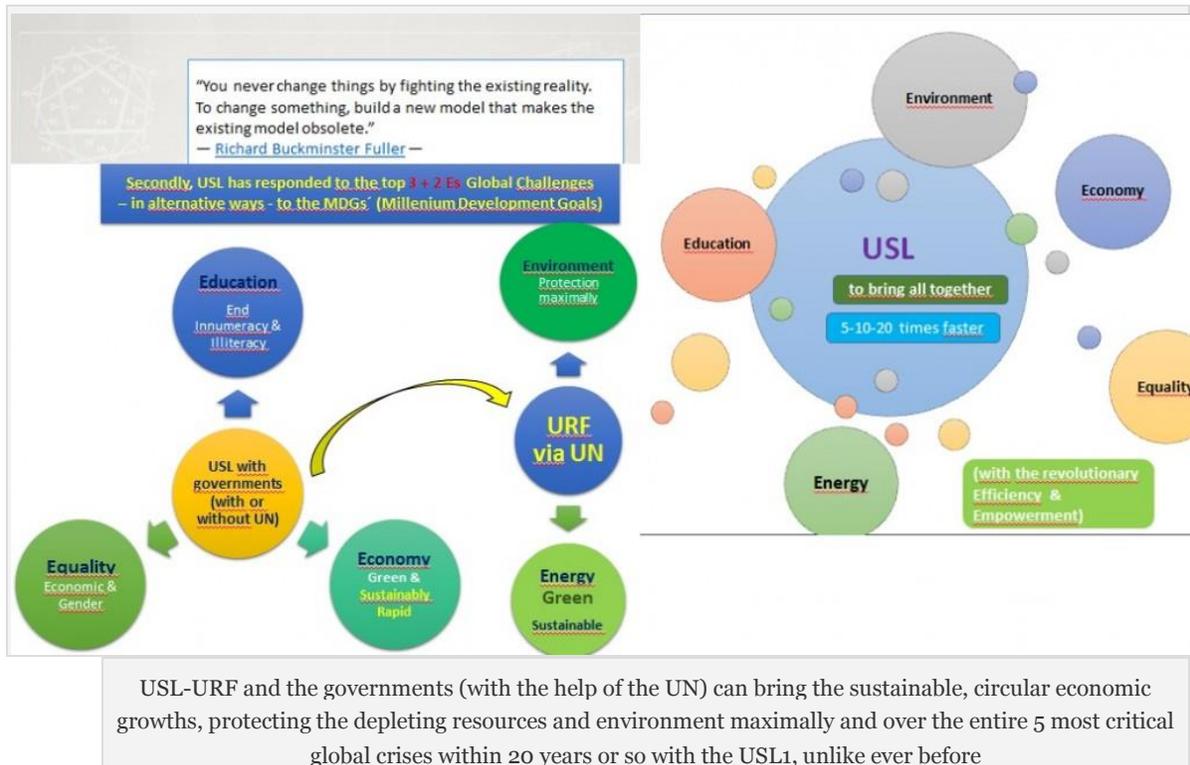
INTRODUCTION

Some of the main USL-5UE-URF Trio target goals are raised by the Secretary-General of the UN, Ban Ki-moon here.



The essential answers to the challenges posed by Mr. Ban Ki-moon arise from the following properties expected from the USL1 alone (which uses only 20% of the full capability of USL by boosting the national math average of the participating

countries by 2 years with only the 2-4 years of radical reform time, not the typical 20-30 years of reform time).



## Short summary for the USL-5UEs-URF Trio & HWU1 Rule (the rule of the games to put these together)

This seemingly complex-looking USL-5UEs-URF Trio **hinges on 3 central pieces**: **USL** (Human Capital breakthroughs to change both the face of STEM education & world economy completely), **5UEs** (the guiding principles for USL not to abuse the new breakthroughs for profits & uncontrolled growths, but to benefit everything simultaneously sustainably), and **URF** (law and financing for the world so that things can actually work instead of daydreaming).

1. **USL (Unified Super Learning)** (a set of breakthroughs in educating Math & Science subjects 10-20 times faster than usual) whose economic consequences far beyond anyone's wild imaginations. So we focus only on 20% of its full capacity called **USL1** (USL 1.0) as it will be sufficient to resolve the top 5 global crises of our time within just a few decades. + **USL pilot studies: so far** run for over a thousand students in 8 schools in 2 countries with the data and testimonials to back up the claims and currently. + **UPSPM1 (Usl Pilot Studies for the Post-MDGs)**: trying to expand the pilots to over 100,000 students with the help of governments, NGOs, and the UN in 2015
2. **5UEs (Unified 5Es)** where these **5 Es are** Education (USL1-triggered STEM subjects breakthroughs) --> Economy (Circular and Green Economy) --> Energy (Renewable) --> Environment (ranging from Amazon forests or Climate anomalies or plastics to the Fukushima aftermaths, etc.) --> Equality/Empowerment (for the various socio-economic crises). The 5UEs are the guiding principle/visions of USL to rapidly transform our world for much better within 10-20 years, not 50-100+ years.
3. **URF (Unified Redistribution Funds)**: we try to create a UN-led binding international treaty in such a way that the staggering GDP boosts using USL1 can be used as the motives or even baits for all the governments and NGOs to join the international treaty and set up protocols to help us thrive sustainably not at the exclusion of the rest, but all together with the **strict check and balance**. Due to the colossal economic gains associated with the USL x.x series, the governments have to respect the protocols because the more they violated, the more difficult for them to access for the next versions of USL with the increasingly higher costs. This is designed in such a way that everyone prosper together helping one another. Otherwise, those who violate will become obsolete within a decade from the rest of the world. **You can think of the trio operations are like socio-economic-environmental karma system** because the nations will get exactly what they deserve for the better or worse, just like the Nature.

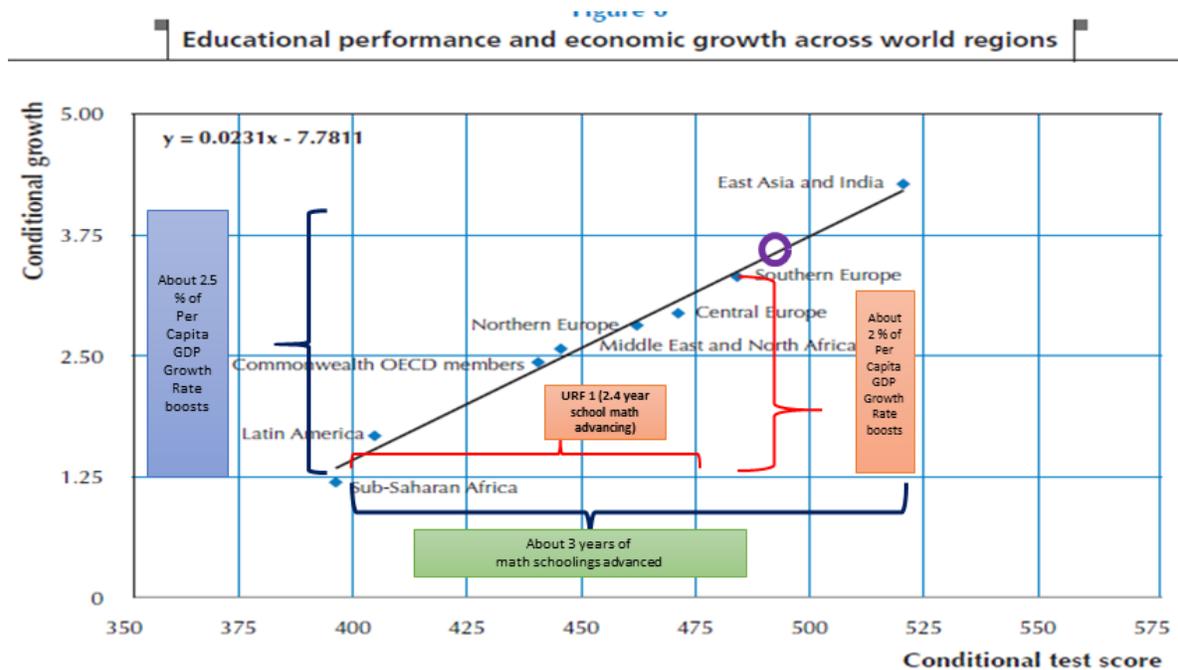
# The estimated total costs of the top 5 global crises

are roughly about 1.5-2 times of the current world GDP (over the next 25 years or so ) or about 3.5-6 times of the current entire world GDP (over the next 30-50 years or so). (We'll provide our estimations in the next version.)

***HWU1 rule below is the most critical part for all the policy makers and shapers to understand clearly whether they are from the governments, NGOs, or the UN worldwide.***

## HWU1 Rule (Hanushek-Woessmann-US11 Rule):

This is to connect the human capital boosts induced by USL1 reforms and the corresponding mathematically expected economic growth patterns. The primary pioneer on this by Hanushek & Woessmann and one of their key multi-variate regressions can be encapsulated in this diagram.



**Figure 1:** this figured was from the Figure 6, page 17 of [The High Cost of Low Educational Performance: The Long-Run Impact of Improving PISA Outcomes.](#) Eric A. Hanushek, Ludger Woessmann. *Paris: Organization for Economic Cooperation and Development*, 2010, pp. 1-55. (with the minor adjustments to indicate the horizontal line which indicates the PISA scores vs. the corresponding GDP per capita growths)

To make this more digestible for the general audiences and policy shapers and makers, we came up with a handy rule of thumb called **HWU1 (Hanushek-Woessmann-USL1.0) rule or rule of thumb as a sort of Moore’s Law in human capital vs. economic growths.** For most economies, HWU1 rule says that with the USL1, the average GDP growth will take only half the time of what is normally takes to double the GDP, the current growth rate of the world GDP of about 3.5% annually (and **the world average GDP doubles in after more than 2 decades without USL1**) will become, after the USL1 reform which may take 2-5 years, roughly 7-7.5% per year, which means that **the world average GDP will double in mere 1 decade or so after the quick USL1 reform.**

USL x.x	STDEV changes	Math skill advances (by yrs.)	Surplus GDP per capita growth boosts (by % annually over the next 70 yrs.) by Hanushek & Woessmann	Our estimated Surplus world average GDP growths due to USL x.x over 50 yrs. (compared to the current total world GDP)
USL 0.25	0.25	½ yrs.	0.5%	About 1 times
USL 0.5	0.5	1 yr.	1%	About 3 times
USL 1.0	1.0	2 yrs.	2%	About 10 times
USL 2.0	2.0	4 yrs.	4%	About 40 times
USL 5	5+	10+ yrs.	10%	200-400 times

**TABLE 1:** Primarily for the top 5 global crises or challenges (to effectively resolve them within half a century or so) The USL 1.0 is expected to resolve the 5 crises within 20-25 years. (STDEV means the Standard Deviation.) As you can see, the USL 2.0 can be used as a backup plan in case there are more unexpected global crises appear such as a numerous unexpected recessions or depressions, etc.

**Note** here that advancing the national average math levels by 1 year may resolve either possibly for the 95% transition to the renewable energy or the typical EU level sovereign debts crises in 20-30 years of time frame, but not the combined crises of these both and other environmental or poverty crises.

Now, let’s see the estimated USL1-induced average surplus GDP growths in 25 vs. 50 years

USL x.x	STDEV changes	Math skill advances (by yrs.)	Our estimated Surplus world average GDP growths due to USL x.x over 25 yrs. (compared to the current total world GDP)	Our estimated Surplus world average GDP growths due to USL x.x over 50 yrs. (compared to the current total world GDP)
USL 0.25	0.25	½ yrs.	About 0.3 times	About 1 times
USL 0.5	0.5	1 yr.	About 1 time	About 3 times
USL 1.0	1.0	2 yrs.	About 2.5-3 times	About 10 times
USL 2.0	2.0	4 yrs.	About 5-7 times	About 40 times
USL 5	5+	10+ yrs.	At least 30-40 times	200-400 times

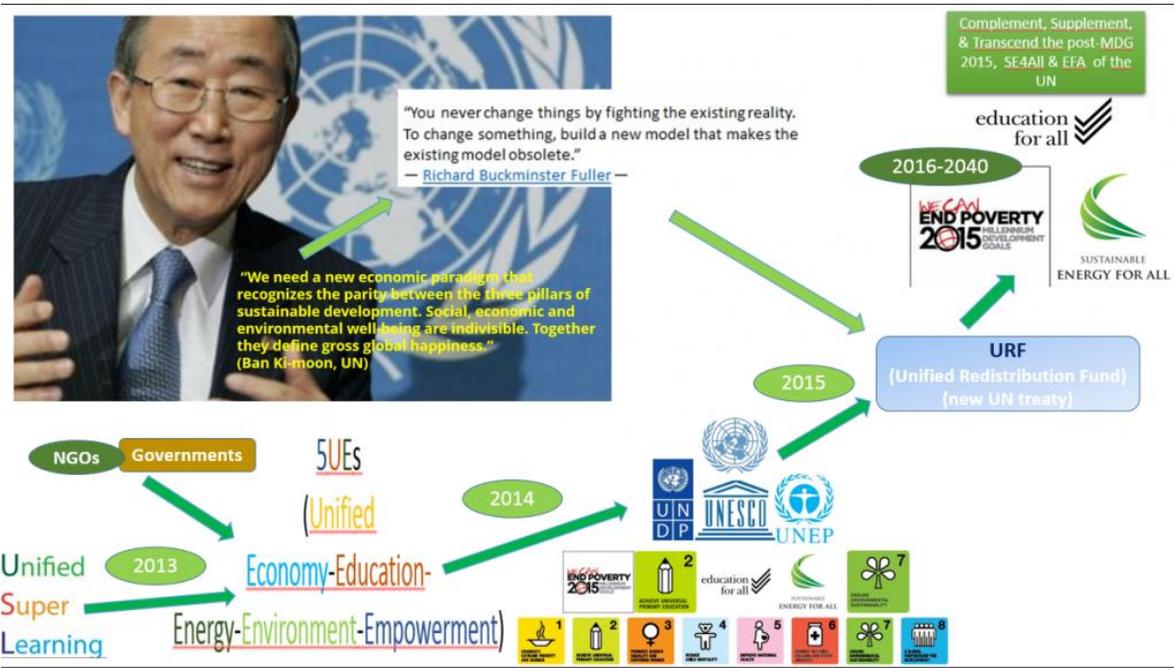
**TABLE 2:** As you can see, the USL 1.0 after the first 25 years or so can take care of most of the complete transition to RE and the sovereign debts. Again, in case, if the USL 1.0 is not enough, a quick math education reform based on USL 2.0 globally within few years can take care of the economic boosts even if some severe recessions or depressions hit in the worst case scenarios. (STDEV means the Standard Deviation.)

With the USL1 alone (which uses only 20% of its full USL capacity), **the projected USL1-induced economic contribution to the surplus world GDP ( if we use HWU1 rule)** are given as follows in the chronological order:

1. **The Surplus World GDP will be roughly 2.5-3 times larger** than the entire current world GDP if we use HWU1 rule (in 25 years or so).
2. **The Surplus World GDP will be roughly 10 times larger** than the entire current world GDP if we use HWU1 rule (in 50 years or so).

## **How USL1 can help us overcome all the top 5 most critical global crises**

If you compare the above results from the last section with the The estimated total costs of the top 5 global crises, USL1 (which uses only less than 20% of its full USL capacity) can still take care of the total costs necessary to resolve most of the top 5 global crises in just 20-25 years and as time goes on. In case there is an unexpected extra global crises, such as a new financial meltdowns, etc., and even if the USL1 plan gets a bit delayed - as these are mathematical projections - it will still achieve the goals soon if the world is willing to try this approach as the costs are relatively far smaller than the gains. The worst case scenario is to release USL2 to the countries that behave well according to the 5UE principles and the URF protocols.



### How we may use the USL 2, 3, 4, 5+ as the current crises need only the USL 1 mostly

1. USL 1.5 or beyond is primarily reserved for pushing the humanity to the next levels because the current education establishments will resist the changes for some time for sure. The rest series will emerge to liberate the unnecessary suffering to learn 12 years of math in 1/2-1 year. Similar rules may follow the

mathematical sciences. This will literally eliminate the differences between the elites and the general populations although the gifted children will contribute much faster to the societies than ever before.

2. This **will be the beginning of New Renaissance Women and Men** because we will have literally 3-5 years of our lives freed up from studying hard for math and hard-core sciences.
3. **Especially USL 3, 4, 5+ will be used for the holistic developments of the world, obviously including the much more detailed environmental protections**, the family values, and non-materialistic issues. Regardless, we have to focus on the top 5-10 global crises first and resolve them first to move to the next stage of the human history.

## APPENDIX

The basic model estimated for the 23 OECD countries is:

$$g = -3.54 - 0.30 \text{ GDP/capita}_{1960} + 1.74 C + 0.025 S \quad R^2=0.83$$

(2.0)    (5.8)                      (4.2)            (0.3)

where  $g$  is the average annual growth rate in GDP per capita between 1960 and 2000,  $\text{GDP/capita}_{1960}$  is initial national income,  $C$  is the composite measure of cognitive skills, and  $S$  is years of schooling (measured in 1960, but qualitative results are the same when measured as average over 1960-2000). Absolute values of t-statistics are reported in parentheses below coefficients. (The sources of data are found in Annex B along with alternative estimation models.)

This segment was taken from [The High Cost of Low Educational Performance: The Long-Run Impact of Improving PISA Outcomes](#). Eric A. Hanushek, Ludger Woessmann. *Paris: Organization for Economic Cooperation and Development*, 2010, pp. 1-55.

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