Version 7.90 IP1 (August 12th, 2022)

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Interface Updates

Model Updates

- Jonathan included exogenous scenarios 12-35 RCP related
- Changed Libya and Maldives back to 0.85 for the entire scenario
- Added SANITHH, WATERHH, WATERHHCOSTLOWER, waterhhcostlowerm, waterhhcostlowershr, WATERHHCOSTHIGHER, waterhhcosthigherm, SANITHHCOSTLOWER, sanithhcostlowerm, sanithhcostlowershr, SANITHHCOSTHIGHER, sanithhcosthigherm, waterhhm, sanithhm, waterhhtrgtval, waterhhtrgtyr, sanithhtrgtval,sanithhtrgtyr, WATERHHDEM, SANITHHDEM, watsafenewsw, waterhhlifepiped, waterhhlifeboreholetubewell, waterhhlifedugwell, sanithhlifesst, sanithhlifepitlatrinebasic, sanithhlifepitlatrinetrad, WATERHHINVESTMAINT, WATERHHINVESTCAP, SANITHHINVESTMAINT, SANITHHINVESTCAP, WATERHHTREATED, waterhhtreatedm
- Added access Rates: There are two variables, WATERHH and SANITATIONHH for the percentage of people connected to the 5 categories of water and sanitation services. These are forecast via fractional logistic models driven by income, education and poverty.
- Added multipliers on water and sanitation access rates (waterhhm etc). The code is done, but not tested at all.
- Added target rates and target year on access rates. The code is done, but not tested at all.
- Added unit costs, i.e., per person capital cost as a % of per capita income, with two cost variables, one higher and one lower, for each of the service types, for each ttype of location (urban/rural) in water and sanitation. The unit cost variables are dimensioned: country, service type and rural/urban. Cost data is initialized with Huttom and Varughese (HV). Missing data are filled in with a peer - the closest income-level country from the same-HV-region.
- The per person cost is kept at the same percentage of GDP per capita throughout horizon, for now. It should still change from changes in GDP PC.
- For service types that has no cost attached,e.g., surface water, the cost variable initialize to 0. The investment computes to zero accordingly.
- Added multipliers on cost (not tested yet).
- Added life span variables for those that has life span in the HV paper (their numbers seem somewhat low, e.g., 20 years for water pipes; we have 40 now).

- Added common block variables to hold total investments in two seprate variable sets - one for capital expenditure and one for maintenance.
- Investment in the base year is initialized using data on newly connected people, as computed from the current access rate, population (rural and urban), and changes in the access rates from the previous year. The missing data on growth rate in access ius filled in from peer countries.
- Capital investment in subsequent years is computed from the per person cost multiplied with any positive change in the headcount of people connected, as computed from the access rates and population (by location) of the current year and the previous.
- Maintenance invetsment is computed from the product of the unit cost and a percentage of the current stock that needs to be replaced at a (compounding) rate so that the entire stock is repalced by the life span.
- List of things that need work:
  - The following needs work. I have not added any code on these in te current version, to avoid complications.
  - Water treatment data and variable are added. The coding is not yet complete. The connections to malnutrition through regression equations is also not completed. Connecting the new watsan to traditional infrastructure index is not yet completed. All the pieces, including the weights and z-core computation in pre-processor are checked and should generally work with two things that are new - more categories and urban, rural. I will be using the national rates initially for the watsan index.
- Switch
  - A switch is added to use the new variables for the watsan forward impacts to finance, helath, MFP and MalnPopP. In the version I am packaging here the switch is in the common, but inactive.
- Current 3-category variables
  - The current three category watsan variables are still there in the model.
- Vetting:
  - The general pattern of access rates look okay at group level for water. Sanitation results need to be revisited. Some countries (e.g., Afghanistan, Sanithh, Urban, Open defecation) has transients. Mohammod will continue to vet. If others find particular countries, please let me know.
- Cost/investment results are still not good. I will have to check them tomorrow.
- I have made some flex displays for testing.

Data Updates

- 85 Tables inserted & updated:
  - WSSDHS treated water rate, 3 new tables
  - WSSJMP Wat/San 5 tier access rate, 20 updated, 34 new tables
  - Gender related labor series (prefix Gender), 4 new tables

- Marriage rates, 7 new tables
- WSSJMP unit cost, 17 new tables
