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YALE EXPERTS ADDRESS CHANGES IN ENVIRONMENTAL PERFORMANCE INDEX METHODS

NEW HAVEN, Conn. – The Environmental Performance Index (EPI) is a biennial ranking of how countries perform on high-priority environmental issues. Some countries that have experienced marked differences in rankings between the latest 2014 edition of the EPI and previous versions are questioning changes made to the underlying data and methods used to calculate the Index.

The research teams at Yale and Columbia universities are committed to synthesizing the most relevant, up-to-date, and scientifically sound data for each version of the EPI. Because of new scientific knowledge and advances in technology, we have always incorporated the best-available data to calculate indicators in the EPI and will continue to do so. However, by and large, **the methodology and framework used to construct and calculate the EPI have not changed since the first pilot version was published in 2006.**

“While some countries question why their rankings fluctuate between editions of the EPI, we emphasize the standalone or snapshot nature of each EPI. Comparisons should not be made between EPIs because of differences between datasets, weightings and targets. Starting in 2012, we provided time series data for countries to understand whether they’ve improved or declined in performance using the current data and methodology,” said lead author Angel Hsu. What matters is the relative bi-annual position for each country that results from that time series data, not the performance between versions of the EPI. **“For a policy tool to be relevant, it has to reflect the most up-to-date scientific evidence which is what we do for every EPI,”** Hsu added.

For the 2014 EPI, the indicators to assess human health impacts from environmental pollution have largely remained unchanged. Updates were made to indicators used to assess ecosystem impacts, including new indicators for water resources and climate change, which together account for a quarter of a country’s overall score. **A new indicator on wastewater treatment assesses how countries perform in terms of how much industrial, municipal, or household waste effluent is treated prior to release into freshwater and marine ecosystems.** This indicator replaced the previous Change in Water Quantity indicator that did not comprise a high percentage of a country’s score in the 2012 EPI, due to its reliance on a hydrological modeled dataset that researchers said was a one-off academic effort.

“We created an indicator for wastewater treatment to parallel negotiations in the United Nations for a Sustainable Development Goal on water quality. This indicator more closely reflects countries’ policy performance for water resources, since it deals more directly with countries’ policy and infrastructure to treat wastewater, which is a major driver of freshwater quality,” said Omar Malik, a co-author of the 2014 EPI report and the lead researcher on the wastewater treatment dataset.

In terms of climate change, **new indicators that reflect countries abilities to reduce trends in carbon intensity replace previous measures for carbon emissions per unit economic growth, population, and kilowatt-hour of electricity generation.** These indicators reflect differing policy goals based on international commitments through the United Nations Framework Convention on Climate Change, which upholds different climate mitigation goals for countries that are set relative to levels of economic development.

“Costa Rica’s performance on climate change is lagging, at 98 out of 129 countries scored. The country has experienced an almost 117 percent increase in overall carbon dioxide emissions from 1990 to 2010. Our data further reveal that carbon dioxide emissions per unit GDP have only decreased by 22 percent between 2008 and 2010,” said Laura Johnson, a co-author of the EPI report.

A new data source was also used to assess changes in countries’ forest cover. Due to documented problems with country-reported forestry statistics through the Food and Agriculture Organization (FAO), which was the previous source of the EPI’s forest data, satellite-derived estimates of forest loss developed by University of Maryland professor Matthew Hansen were used instead. These data – published in the prestigious journal *Science* – have the advantage of providing consistent measurements for every country, globally, using satellite imagery from the Landsat sensor from the last decade.

“The satellite-derived estimates of forest cover change do represent a huge improvement in our ability to compare countries,” said Hsu as data previously used was outdated and based on national reporting.

More details on the 2014 EPI, including in depth discussion of each indicator, are available at <http://epi.yale.edu>.