Growing desertification worldwide threatens to swell by millions the number of poor forced to seek new homes and livelihoods. And a rising number of large, intense dust storms plaguing many areas menace the health of people even continents away, international experts warn in a new report.

Thick storms rising out of the Gobi Desert affect much of China, Korea and Japan and even reduce air quality over North America, according to Ecosystems and Human Well-Being: Desertification Synthesis. The report is based on information generated for the Millennium Ecosystem Assessment (MA), a $22 million, four-year global study by 1,300 experts from 95 countries.

“An increase in desertification-related dust storms is widely considered to be a cause of ill-health (fever, coughing, sore eyes) during the dry season,” says the report. “Dust emanating from (the Gobi desert) and the Sahara has also been implicated in respiratory problems as far away as North America and has affected coral reefs in the Caribbean.”

The report shows infant mortality in drylands in developing countries averages about 54 children per 1,000 live births, 10 times that of industrial countries. Importantly, the rate in such drylands is twice as high as that of other, non-dryland regions in developing countries.

The authors rank desertification – land degradation in drylands as a result of climatic factors and human activities – among the world’s greatest environmental challenges, destabilizing societies by deepening poverty and creating environmental refugees who can often add stress to areas that may not be degraded. Desertification has other strong adverse impacts on non-drylands as well. In addition to dust storms, biophysical impacts include downstream flooding, impairment of global carbon sequestration capacity, and regional and global climate change.

“Given the size of population in drylands, the number of people affected by desertification is likely larger than any other contemporary environmental problem,” says the report.

Occupying more than four-tenths (41%) of the world’s land area, drylands are home to over two billion people, among them some of the world’s most impoverished, dependant on the environment for basic needs. Indeed, half of all people living in poverty are in drylands.

Impacts of desertification are exacerbated by political marginalization of the dryland poor, and the slow growth of health and education infrastructure.

“The cross boundary nature of the problem makes desertification a global concern – one that receives too little attention,” says co-author Zafar Adeel, Assistant Director of the United Nations University water academy in Canada, the UNU International Network on Water, Environment and Health.
Desertification is not the result of drought alone, as often believed, says co-author Gregoire de Kalbermatten, of the UN Convention to Combat Desertification. “Drylands experience frequent droughts without harm. However dryland ecosystems are fragile and human activity can increase their vulnerability to seasonal fluctuations and droughts.”

“Population growth, inappropriate policies, and some aspects of globalization are the main drivers that lead to unsustainable pressure on dryland ecosystems,” he says.

Adds co-author Uriel Safriel of Hebrew University of Jerusalem, a visiting professor at the University of Maryland: “For centuries pastoral people lived in such regions with minimal impact. This ‘harmony’ was a default result of smaller populations, low stocking rates, and large areas to forage on. The conversion of rangelands to croplands reduced the available pasture and the collection of firewood by many, not necessarily just the pastoralists, reduced range quality. The lesson is that increasing population pressure not accompanied by management practices compatible with the new population size, is the cause of degradation.”

As populations in drylands increase, especially in urban areas, water scarcity increases in tandem. Drylands contain 43% of the world’s cultivated lands, much of it dependent on water from sources typically located outside drylands.

The low average water availability in drylands today (1,300 cubic metres per capita per year, already below the threshold of 2,000 considered a minimum for meeting human needs), is expected to fall further due to a combination of pressures in and around the drylands including population growth, reduced freshwater availability due to global warming and drought, and economic growth.

As well, inappropriate economic policies, including agricultural subsidies totalling US$ 300 billion in 2002, can contribute to desertification.

“Studies have shown that trade liberalization, macroeconomic reforms and a focus on raising production for exports can lead to desertification,” the report says. “Such distortions to international food markets drive down prices and have often seriously undermined the livelihoods of food producers in many poorer countries.”

“These practices eventually lead to decreased land productivity and a downward spiral of worsening degradation and poverty,” says Prof. Safriel.

An Environmental Danger of Unknown Scope

Desertification diminishes plant and animal biodiversity, while flooding from denuded plains affects areas adjacent to drylands.

Despite the importance of its global impacts, the exact extent of desertification is unknown. Nor is it known accurately how fast it is increasing. Based on three studies in the past 15 years, an estimated 10 to 20% of world drylands are degraded, with a much larger fraction at risk of future desertification.

“Bridging the wide gaps in determining the extent and understanding the processes of desertification are urgent requirements in order to develop policies that are sound from economic and scientific standpoint” says Mr. de Kalbermatten.
"The Millennium Development Goals, a suite of objectives globally agreed by world leaders in 2000 to be met by 2015, cannot be met without addressing the problem of desertification effectively," says Dr. Adeel. Effective policies and sustainable agricultural practices can reverse the decline of drylands. Chief among these are measures that protect soils from erosion, salinization and other forms of degradation. Proper land use management policies are needed to protecting existing vegetative cover from overgrazing, over-exploitation, trampling and unsustainable irrigation practices.

Finally, creating viable livelihood alternatives for drylands populations should become part of national strategies to combat desertification and poverty reduction.

The greatest vulnerability is ascribed to sub-Saharan and Central Asian drylands. For example, in three key regions of Africa—the Sahel, the Horn of Africa, and Southeast Africa—severe droughts occur on average once every 30 years. These droughts triple the number of people exposed to severe water scarcity at least once in every generation, leading to major food and health crises.