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AGRICULTURAL WATER USE IS GROWING UNSUSTAINABLY

Technologies for using water more efficiently and improving crop yields are necessary to close the supply-demand gap, says Lux Research.

Boston, MA – November 10, 2009 – Modern agriculture accounts for 86% of the world's water consumption. However, in regions where crops and livestock are actually cultivated, the rate of consumption often outstrips what local water sources can provide. Left unchecked, today's agricultural practices and policies could be sowing the seeds for a global food shortage by 2050, according to a new report by Lux Research.

The report, titled "Malthus Returns: Solving the Unsustainable Agricultural Water Demand Conundrum," projects the impact of 1) an increasing global population, 2) growing consumption of meat and other animal products, and 3) continued support for biofuels based on corn, sugar and soy. It finds that without changes in technology, the world will require 4,986 cubic kilometers (km³) of water for agriculture in 2050 – up from just 2,844 km³ today, and far greater than sustainable resources in the regions where people live and grow food. However, it also examines technological water reduction strategies that can bring agriculture water demand in line with renewable supplies.

"Dropping water tables are already posing problems for farmers from the U.S. prairies, to India and China, and today's troubles could grow far worse," said Michael LoCascio, a Senior Analyst at Lux Research, and lead author of the report. "Fortunately the technological means to begin closing the water supply-demand gap already exist, and many of them may actually be profitable for farmers to implement."

Lux Research's unique demand-side approach to projecting agricultural water use provides solid analytical footing for investors and companies developing water-saving technologies, as well as policymakers and water users. Among the report's key conclusions:

- **Solutions available to cities and industry won't work for agriculture.** Desalination and recycling may present viable alternatives to municipalities and industry where water can be piped between sources and demand centers. But it's generally impossible to recapture sufficient amounts of evaporation in agricultural regions, and farms are too large, cost sensitive, and distant from oceans for desalination to work.
- **The only option left is for agriculture to increase water efficiency.** Existing technologies can bring agricultural water demand within sustainable levels in many scenarios. Efficiency improvements from drip and smart irrigation, for example, can reduce consumption; while genetically modified crops can improve yields, require less water and resist drought. Optimal use of fertilizer and pesticides, plastic mulches, and more efficient food distribution can also help minimize water use.

- **Water needs will limit large-scale adoption of some biofuels.** If long-term projections for biofuels from organizations like the U.S. Energy Information Administration hold true, crops grown for biofuels would account for 15% of agricultural water withdrawals in 2050 – even accounting for a major shift to lower-water feedstocks like cellulosic and algae biomass. This figure could be enough to tip the scales to unsustainability, even with adoption of water-saving agricultural technologies. As a result, for biofuels to boom, the shift away from current feedstocks – such as corn, sugar, and soy – will have to be even more thorough than now projected.

“Traditionally, agriculture has been reluctant to try new technologies. But improved crop yields present financial incentives for farmers,” said LoCascio. “And water costs could become another driver promoting adoption of water conservation technologies.”

“Malthus Returns: Solving the Unsustainable Agricultural Water Demand Conundrum” is part of the Lux Water Intelligence service. Clients subscribing to this service receive ongoing research on water industry market trends and forecasts, continuous technology scouting reports, proprietary data points in the weekly Lux Research Water Journal, and on-demand inquiry with Lux Research analysts.

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