

A really inconvenient truth: Divorce is not green

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The data are in. Divorce is bad for the environment. A novel study that links divorce with the environment shows a global trend of soaring divorce rates has created more households with fewer people, has taken up more space and has gobbled up more energy and water.

The findings of Jianguo “Jack” Liu and Eunice Yu at Michigan State University are published in this week’s online edition of the Proceedings of the National Academy of Sciences.

A statistical remedy: Fall back in love. Cohabitation means less urban sprawl and softens the environmental hit.

“Not only the United States, but also other countries, including developing countries such as China and places with strict religious policies regarding divorce, are having more divorced households,” Liu said. “The consequent increases in consumption of water and energy and using more space are being seen everywhere.”

Liu and his research assistant Yu started with the obvious – that divorce rates across the globe are on the rise. Housing units, even if they now have few people in them, require resources to construct them and take up space. They require fuel to heat and cool. A refrigerator uses roughly the same amount of energy whether it belongs to a family of four or a family of two.

When they calculated the cost in terms of increased utilities and unused

housing space per capita, they discovered that divorce tosses out economy of scale. Among the findings:

- In the United States alone in 2005, divorced households used 73 billion kilowatt-hours of electricity and 627 billion gallons of water that could have been saved had household size remained the same as that of married households. Thirty-eight million extra rooms were needed with associated costs for heating and lighting.
- In the United States and 11 other countries such as Brazil, Costa Rica, Ecuador, Greece, Mexico and South Africa between 1998 and 2002, if divorced households had combined to have the same average household size as married households, there could have been 7.4 million fewer households in these countries.
- The numbers of divorced households in these countries ranged from 40,000 in Costa Rica to almost 16 million in the United States around 2000.
- The number of rooms per person in divorced households was 33 percent to 95 percent greater than in married households.

To track what happens when divorced people returned to married life, the study compared married households with households that had weathered marriage, divorce and remarriage. The results: The environmental footprint shrunk back to that of consistently married households.

Liu, a University Distinguished Professor of fisheries and wildlife and Rachel Carson Chair in Ecological Sustainability at MSU's Center for Systems Integration and Sustainability, has spent more than two decades integrating ecology with social sciences to understand the complex

interrelationships between nature and humans and how those interactions affect the environment and biodiversity. Liu and Yu began to discuss this research project when Yu was a high school student.

This new work also acknowledges that divorce is not the only lifestyle trend changing family living structures – the demise of multigenerational households, people remaining single longer are examples.

“People’s first reaction to this research is surprise, and then it seems simple,” Liu said. “But a lot of things become simple after research is done. Our challenges were to connect the dots and quantify their relationships. People have been talking about how to protect the environment and combat climate change, but divorce is an overlooked factor that needs to be considered.”

The research, Liu said, shows that environmental policy is more complex than one single solution. Governments across the world may need to start factoring in divorce when examining environmental policy, Liu said.

“Solutions are beyond a single idea,” Liu said. “Consider the production of biofuel. Biofuel is made from plants, which also require water and space. We’re showing divorce has significant competition for that water and space. On the other hand, more divorce demands more energy. This creates a challenging dilemma and requires more creative solutions.”

Source: Michigan State University

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