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FIVE QUESTIONS FOR EARTH INNOVATION INSTITUTE'S NEW CHIEF ECONOMIST

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What's your reaction to the recent IPCC report? (the new report by the Intergovernmental Panel on Climate Change on limiting global warming to 1.5 degrees Celsius)

> OK, I sat down with the @IPCC_CH's 1.5 C report this morning. It's every bit as grim and technical as previous IPCC reports. But it's also new in some important ways. Here are some selected reflections.
>
> — Jonah Busch (@jonahbusch) October 9, 2018

> This report gets clearer about what's at stake. Limiting global warming to 1.5 degrees Celsius is life-or-death for coral reefs, for example. pic.twitter.com/gUzundiWMb
>
> — Jonah Busch (@jonahbusch) October 9, 2018

> The time scales being talked about have shifted from "by 2100" to the near future. We'll hit a 1.5 C world by the time a child born today graduates from college, give or take a decade. pic.twitter.com/P1sGeqMlnC
>
> — Jonah Busch (@jonahbusch) October 9, 2018

> This report shows in greater detail what a world in which we actually took fighting climate change seriously would look like ("1.5 C consistent pathways"). Lots more solar, wind, and nuclear; lots less fossil fuels. Lots more forests; lots less pasture and non-agricultural land. pic.twitter.com/3NSzHJpQg6
>
> — Jonah Busch (@jonahbusch) October 9, 2018

> This report also places a much larger emphasis on carbon dioxide removal. Most of these options for taking CO2 out of the air still only exist on paper or in the lab; forests are the big exception. pic.twitter.com/7ypSxf50Gb
>
> — Jonah Busch (@jonahbusch) October 9, 2018

> There are huge forces aligned against the transformations needed to limit global warming to 1.5 degrees C. You can read the IPCC-speak below or insert the names of the current crop of political villains. pic.twitter.com/64gsYiRmVL
>
> — Jonah Busch (@jonahbusch) October 9, 2018
>
> The dismal state of current politics aside, the costs of getting to 1.5 C look awfully daunting. (2 C looks more plausible) pic.twitter.com/VZCKzjDwfs
>
> — Jonah Busch (@jonahbusch) October 9, 2018
>
> Six-word summary of the IPCC report: We are skiing into an avalanche.
>
> — Jonah Busch (@jonahbusch) October 9, 2018
>
> We probably won't be able to hold global warming to 1.5 degrees described in this report. But we can and must keep it much closer than the ~3.5 degrees we're heading for with current policies. Source: https://t.co/MtCfPlgcqD pic.twitter.com/jUOSAc7Bi1
>
> — Jonah Busch (@jonahbusch) October 9, 2018
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> So, what to do? This report gets more into the small actions individuals can take. Translation: fly less and teleconference more, drive less and bike more, plant trees, conserve energy, eat less beef and more of literally anything else. pic.twitter.com/8uW3TuzBcL
>
> — Jonah Busch (@jonahbusch) October 9, 2018
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> Even more than individual actions, we need public policies, carbon prices, and investments that will drive the energy and land transformations needed to limit climate change. We knew this already of course but this report is a clear reminder. /end
>
> — Jonah Busch (@jonahbusch) October 9, 2018

The new IPCC report is frightening but also invigorating, as I wrote in a recent series of tweets shown at right. Frightening because on our present course we will have killed off the world's coral reefs by the time today's children are adults. Invigorating because the report gives us marching orders to avoid this fate: massive and rapid transformations in how we use energy and land. Most people know about the need to shift our energy sources from fossil fuels to renewables. What's less appreciated is the

need to shift land from growing livestock and feedstock to growing forests. This is the case all over but especially in the tropics where the forests are richest in carbon and are being lost the fastest. It's a challenge that I'm excited to work on at EII. **What type of policies would transform land use from losing forests to growing back forests?** A lot of my research looks at how different policies speed up or slow down deforestation. That includes policies such as a moratorium on licenses to clear forest in Indonesia, collective forest tenure reform in China, and a hypothetical global carbon price. Last year Kalifi Ferretti-Gallon and I published a meta-analysis on what speeds up deforestation and slows it down. Roads and demand for agricultural products consistently speed up deforestation. Protected areas, payments for ecosystem services, law enforcement, and management by indigenous peoples consistently slow it down. In the last decade Brazil showed the world that it's possible to cut deforestation while increasing agricultural production. It did so using many of the policies listed above, as Dan Nepstad and other EII colleagues have described. **You're an economist; what role do finance and incentives play in protecting and restoring forests?** A big role. Forests benefit people all over the globe by stabilizing the climate and providing habitat for biodiversity. And they can benefit people living nearby by suppressing malaria and keeping clean water flowing into the reservoirs that power hydroelectric dams. But forest protection also imposes real costs on local people if they're deprived of the opportunity to grow valuable commodities like beef, soy, or palm oil. Reversing deforestation means flipping those incentives so that forests are worth more alive than dead. The way to do that is to get finance flowing from people who benefit from forests—all of us—to the people who bear the costs of protecting them. At the international level this means carbon payments. Frances Seymour and I wrote a book called *Why Forests? Why Now?* about why and how rich countries should take the lead in paying tropical countries to protect and restore forests. At the national level this means fiscal transfers from central to state governments. For example, India transfers around $6 billion every year to state governments in proportion to their forest cover. At the local level it's not only about payments for ecosystem services; it's also about extending green lines of credit to rural farmers and guaranteeing market access to zero-deforestation commodity producers. **How can state and local governments fight climate change?** There's so much that state and local governments can do to fight climate change in the absence of national leadership. Here in the United States the mantle of climate leadership has really passed from the federal government to California. You see that with Sacramento pushing back on federal rollbacks of vehicle emissions standards, for example. California is moving toward becoming a champion of tropical forest finance with the Air Resources Board putting forward a draft California Tropical Forest Standard. In Brazil, the state of Acre has pioneered an economic development model based on valuing standing forests rather than destroying them. In Indonesia, the entire district of Seruyan is looking to become certified as a sustainable source of palm oil. Last month governors of 37 states and provinces comprising more than one-third of tropical forests joined eighteen indigenous groups and seventeen civil society organizations in endorsing a landmark set of principles for collaborating to protect forests and respect

land rights. Earth Innovation Institute is deeply involved in supporting all these efforts and I'm excited to be a part of that. **Tell us about a favorite research paper of yours.** My favorite research paper isn't the one with the most citations or policy impact; it's the one that led me to my wife! One of the first papers I wrote back when I was a graduate student was about finding the most cost-effective way to recover an endangered penguin species. My future wife read the paper and was sufficiently intrigued to track me down at a seminar in DC and introduce herself. One thing led to another and two years ago we got married. At our wedding we had penguin-themed centerpieces. So the lesson is, sometimes research pays off years later and in unexpected ways!