

Impact of addressing Sustainable Development Goal 3 Health and Wellbeing on Forests and Forest People

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SDG3: Ensure healthy lives and promote wellbeing for all at all ages

Key findings

From deforestation and health inequity for forest dependent populations to virtuous cycles: reforestation and its co-benefits





Local residents, farmers, forestry workers, hunters, recreational forest users



Regional consumers of forest products and services at a distance (e.g. urban bushmeat, firewood, water catchment)



Global consumers of aggregate forest ecosystem services (e.g. timber, food, other crops, pharmaceuticals carbon sequestration and oxygen production)

c.350m people within or close to forests depend on them for subsistence and income; of those, c. 60 million people (including indigenous communities) are wholly forest-dependent

Population uncertain

fr
c. 4.1 billion e
and dra



Summary of impacts of implementing SDG 3 targets on forests and forest people: benefits (green), context-dependent harms or benefits (yellow)

SDG 3 targets		Impacts	
		On forests	On people
1	Reduced maternal mortality	Yellow	Green
2	Reduced neonatal and U5 mortality	Yellow	Green
3	Communicable disease control	Yellow *	Green
4	Reduction of non-communicable diseases and mental health problems	Green	Green
5	Prevent substance abuse	White	Green
6	Road traffic accidents	White	Green
7	Reproductive health	Green	Green
8	Universal health coverage	Yellow *	Green
9	Pollution and hazardous chemical control	Green	Green
a	Tobacco control	White	Green
b	Improved vaccines and medicine access	Yellow	Green
c	Health financing and recruitment	Yellow	Green
d	Early risk warning	Yellow	Green



3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

Some important IDs have have emerged from forests following disturbance/hunting (e.g. HIV/AIDS, Ebola, Zika).

Forest-infectious diseases relationships vary with pathogen, susceptible populations, forest state, \pm vector (e.g. Malaria).



3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

Clean air Clean water

RESPIRATORY DISEASE ADMISSIONS

August, 2019

Porto Velho: 400 children;

Acre State: 47,000

(Lopez, 2019)

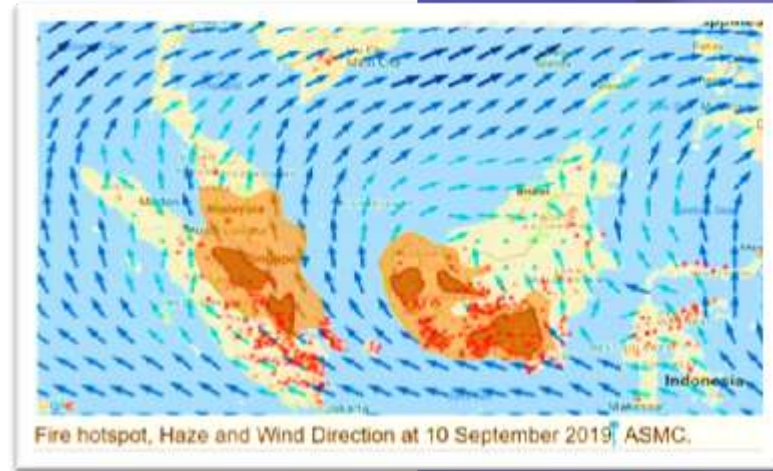
Sumatra: 32,000

(NST, 2019)



Smoke from fires in the Amazon rainforest cover the city of Porto Velho, Rondonia, Brazil, Aug. 16, 2019.

RONI CARVALHO, EPA-EFE



3.4 By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

Greenspace, including forests, linked to many benefits for mental and physical health for the growing global urban population.

Biodiversity, including forest conservation within cities

Environmental awareness and empathy



Curitiba



3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes



Failure to ensure universal access to sexual and reproductive healthcare services (including family planning) will increase pressure on forests at local, regional and global scales.



3.8 Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all

Dual benefits to people and forests: forest stewardship

80% of the populations of Developing Countries rely in traditional medicine for primary healthcare needs

Recognition and protection of traditional knowledge and medicinal forest species, safeguard future medicines



Cin



**FIRE
DROUGHT**



DIRECT HARM TRANSNATIONAL POLLUTION ETC. CLIMATE IMPACTS



INJURY,
DISEASE/MALARIA,
DISTRESS, LOSS OF
LIVELIHOODS,
PLACE, CULTURE

↑ INCOME



↑PM, CO, CO2
↓WATER QUALITY
↑BIODIVERSITY LOSS
↓NATURAL PHARMA'

↑ **FOOD + health risks**
↑ **ECONOMIC DEV'T** } SHORT TERM?

↑ MIGRATION



TIPPING POINT

28 million in Amazon
Basin majority classed as
Indigenous including c. 5000
Indigenous in voluntary isolation
Includes 5 cities with >1 million
(FAO, 2016, Butler 2019)



Contexts of maximum co-benefits

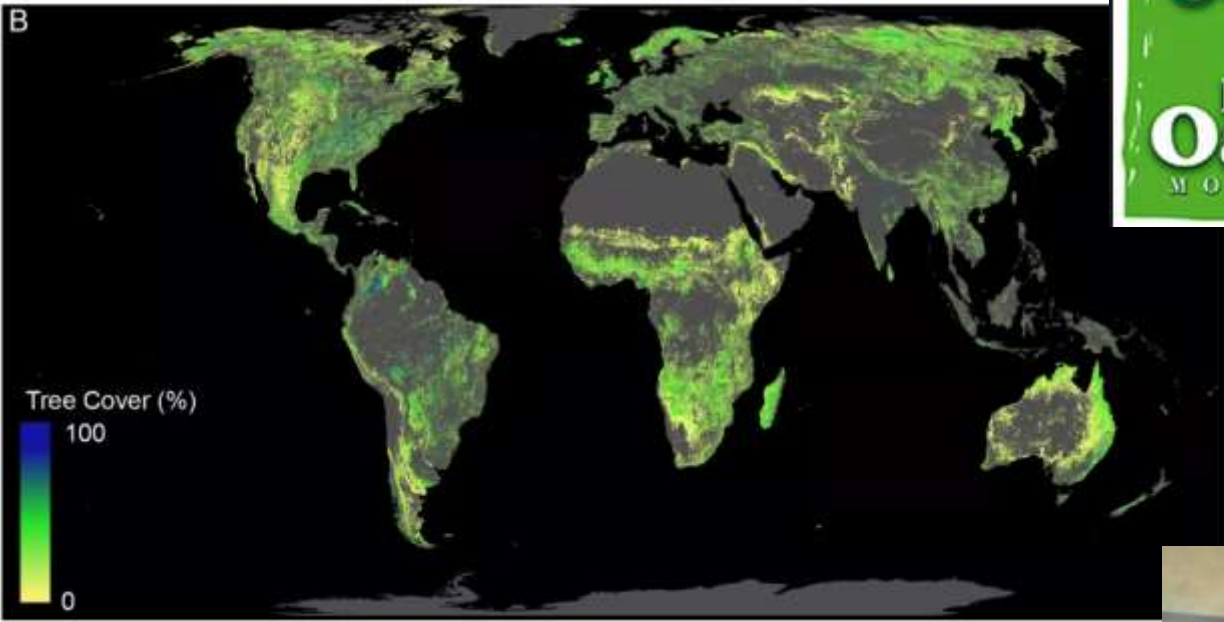
Synergies and tradeoffs



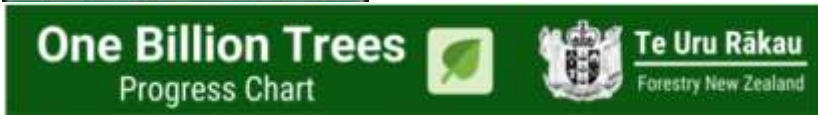
Many Indigenous Rural
Healthcare centres are
threatened



Restoring forests for survival



A map of the potential for forest restoration around the world. | *Science*



Bastin, J. F., Finegold, Y., Garcia, C., Mollicone, D., Rezende, M., Routh, D., ... & Crowther, T. W. (2019). The global tree restoration potential. *Science*, 365(6448), 76-79.



Health risks and benefits of enhanced forests

Is anyone disadvantaged?

What will offset any disadvantage?



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1	Reduced maternal mortality	Yellow	Green
2	Reduced neonatal and U5 mortality	Yellow	Green
3	Communicable disease control	Yellow	Green
4	Reduction of non-communicable diseases and mental health problems	Green	with more forests?
5	Prevent substance abuse	Green	
6	Road traffic accidents	Green	
7	Reproductive health	Green	
8	Universal health coverage	Yellow	
9	Pollution and hazardous chemical control	Green	
a	Tobacco control	Green	
b	Improved vaccines and medicine access	Yellow	
c	Health financing and recruitment	Yellow	
d	Early risk warning	Yellow	



References

Additional to :

McFarlane, R.A, Barry, J, Cisse, G, Gislason, M. Gruca, M, Higgs, K, Horwitz, P, Nguyen, GH, Sahu, S . Butler, CD (*in press*) The effect on forests and forest residents from seeking to attain SDG3 targets, in Sustainable Development Goals: Their Impacts on Forests and People (Eds. Katila, P, Colfer, C, de Jong, W,). Cambridge University Press, Cambridge.

Bastin, J. F., Finegold, Y., Garcia, C., Mollicone, D., Rezende, M., Routh, D., ... & Crowther, T. W. 2019. The global tree restoration potential. *Science*, 365(6448), 76-79.

[Borges, T. & S. Branford](#) 2019 Amazon indigenous groups feel deserted by Brazil's public health service. Mongabay website accessed on 2019/09/19 at <https://news.mongabay.com/2019/08/amazon-indigenous-groups-feel-deserted-by-brazils-public-health-service/>

Butler, R. 2019. People in the Amazon Rainforest. Mongabay website accessed on 2019/09/19 at https://rainforests.mongabay.com/amazon/amazon_people.html

FAO. 2016. *AQUASTAT website* . Food and Agriculture Organization of the United Nations (FAO). Website accessed on [2019/09/19] at <http://www.fao.org/nr/water/aquastat/basins/amazon/index.stm>

Goicolea, I. and San Sebastian, M., 2010. Unintended pregnancy in the amazon basin of Ecuador: a multilevel analysis. *International journal for equity in health*, 9(1), p.14.

Lopes, M. 28.8.2019. As the Amazon burns, breathing problems spike. Washington Post website Accessed 2019.09.19 at https://www.washingtonpost.com/world/the_americas/as-amazon-burns-breathing-problems-spike/2019/08/28/497ed9ec-c908-11e9-9615-8f1a32962e04_story.html

Respiratory illness spikes, travel affected as haze hits South-east Asia 17.9.19 Straits Times website accessed 2019.09.19

Smith, L.T., Aragao, L.E., Sabel, C.E. and Nakaya, T., 2014. Drought impacts on children's respiratory health in the Brazilian Amazon. *Scientific reports*, 4, p.3726.

Tejada, C. A. O., L. M. Triaca, F. K. da Costa & F. Hellwig 2017. The sociodemographic, behavioral, reproductive, and health factors associated with fertility in Brazil. *PLOS ONE* 12(2): e0171888.



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Thank you

