

Nature & Health

Driving Innovation & Impact



Gretchen C. Daily
The Natural Capital Project
Stanford University

**natural
capital**
PROJECT

**100 RESEARCH
INSTITUTIONS**

**300 IMPLEMENTING
INSTITUTIONS**

**STRATEGIC
DEMONSTRATIONS**



GLOBAL DATA & SOFTWARE PLATFORM

**natural
capital**
PROJECT

**100 RESEARCH
INSTITUTIONS**

**300 IMPLEMENTING
INSTITUTIONS**

**SCALING
PARTNERS**

ADB

IDB

WB

UN

CBs

**PRIVATE
SECTOR**

NATURAL CAPITAL PLATFORM



Coastal
Protection



Water &
Energy
Security



Climate
Security



InVEST

> 185
countries

Flood Control



Urban
Systems



Food
Production



Health



Coastal
Protection



Water &
Energy
Security



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InVEST

> 185
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Urban
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Food
Production



Health



Urban Mental Health



Urban Mental Health

City Living – Three Trends (#1)

1800: 3% of humanity urban

1950: 30% urban (< 1 billion)

83 cities > 1 million

2008: 50% urban

400 cities > 1 million

19 cities > 10 million

2050: 70% urban

Urban Mental Health

City Living – Three Trends (#2)

Much less time in nature
Much more time indoors
& on devices



Urban Mental Health

City Living – Three Trends (#3)

20% increase in anxiety disorders
40% increase in mood disorders



Mental health Review – working group – conceptual model – (model)

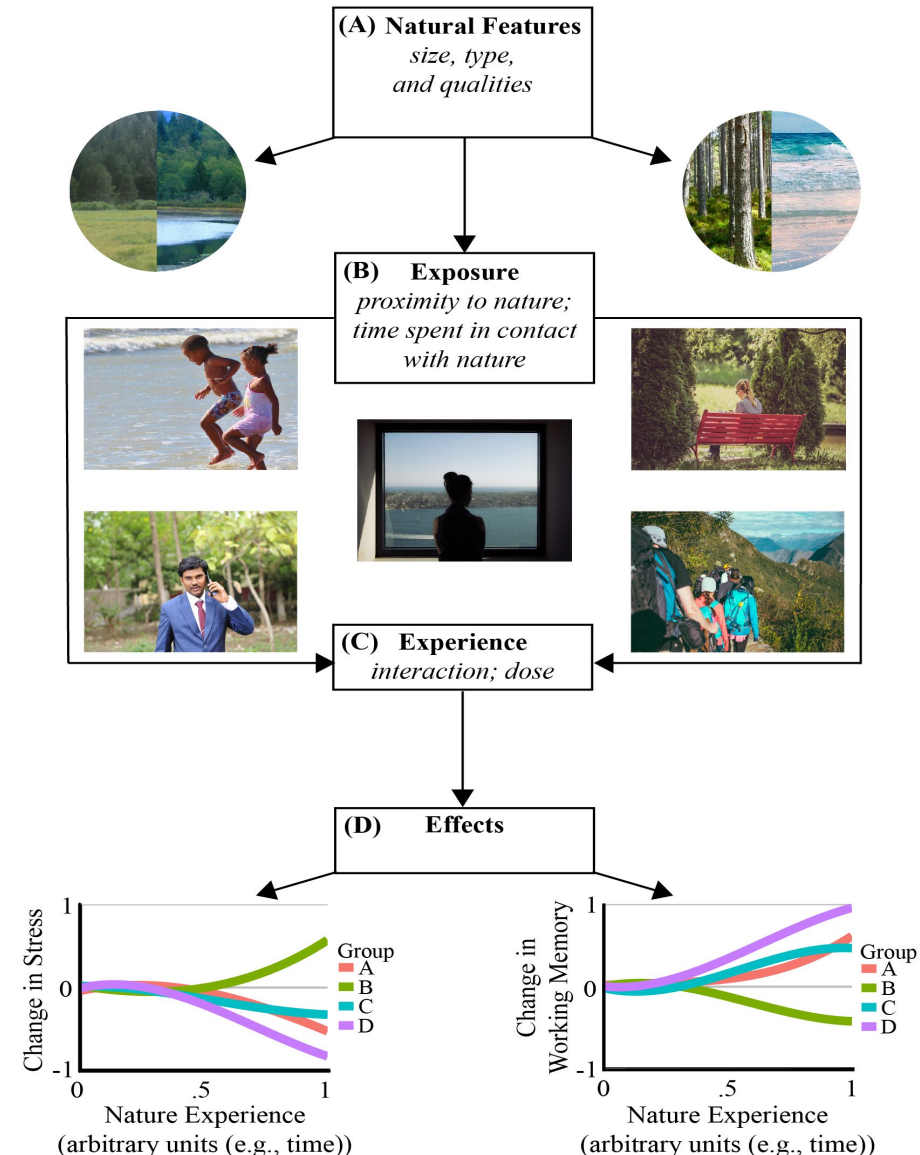
SCIENCE ADVANCES | REVIEW

SOCIAL SCIENCES

Nature and mental health: An ecosystem service perspective

Gregory N. Bratman^{1,2,3,4*}, Christopher B. Anderson^{3,5}, Marc G. Berman^{6,7}, Bobby Cochran⁸, Sjerp de Vries⁹, Jon Flanders^{10,11}, Carl Folke^{12,13,14}, Howard Frumkin^{15,16}, James J. Gross¹⁷, Terry Hartig^{18,19}, Peter H. Kahn Jr.^{1,20}, Ming Kuo²¹, Joshua J. Lawler^{1,2}, Phillip S. Levin^{1,2,22}, Therese Lindahl¹⁴, Andreas Meyer-Lindenberg²³, Richard Mitchell²⁴, Zhiyun Ouyang²⁵, Jenny Roe²⁶, Lynn Scarlett²⁷, Jeffrey R. Smith^{3,5}, Matilda van den Bosch^{28,29}, Benedict W. Wheeler³⁰, Mathew P. White³⁰, Hua Zheng²⁵, Gretchen C. Daily^{3,4,5,31*}

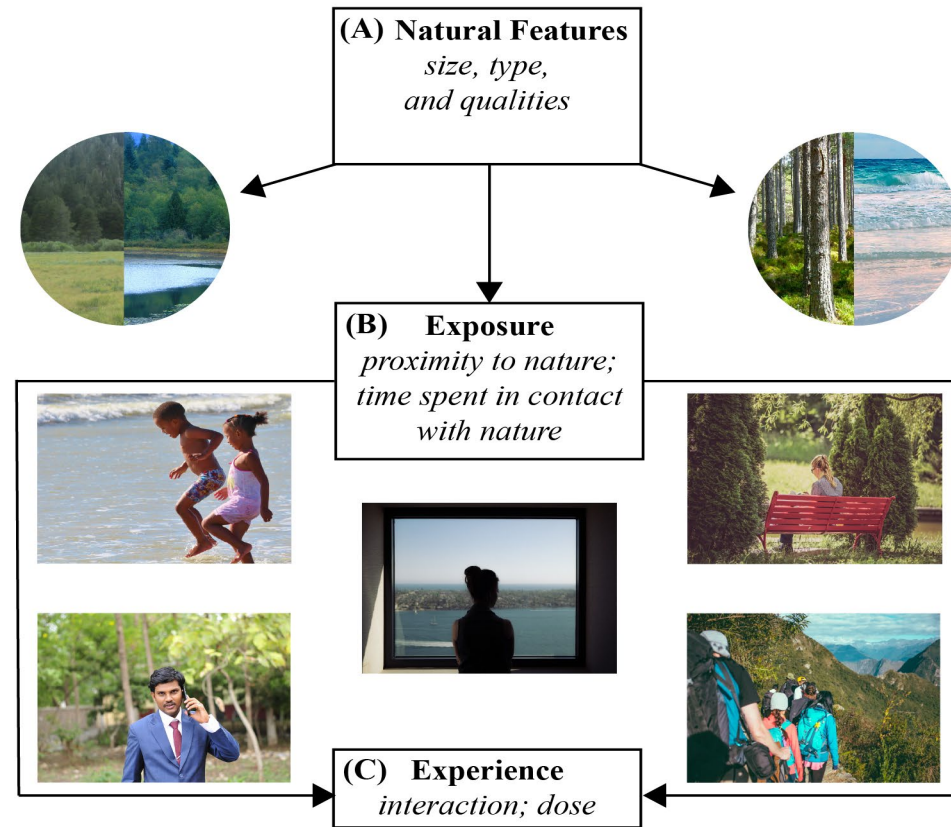
A growing body of empirical evidence is revealing the value of nature experience for mental health. With urbanization and declines in human contact with nature globally, crucial decisions must be made about preserve and enhance opportunities for nature experience. Here, we first provide points of consensus across natural, social, and health sciences on the impacts of nature experience on cognitive functioning, well-being, and other dimensions of mental health. We then show how ecosystem service assessment: expanded to include mental health, and provide a heuristic, conceptual model for doing so.

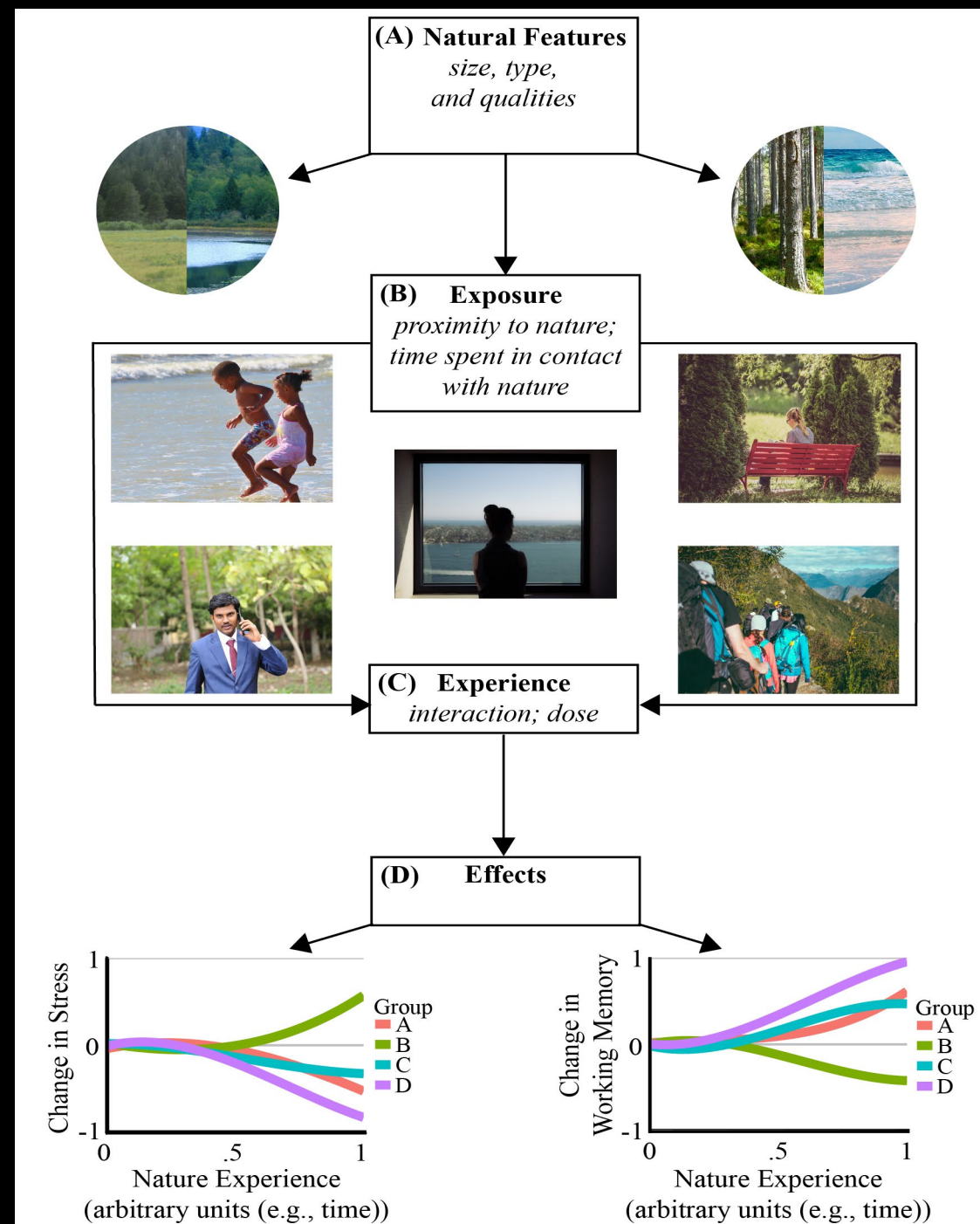




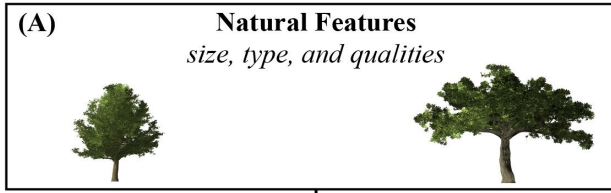
(A) Natural Features
*size, type,
and qualities*

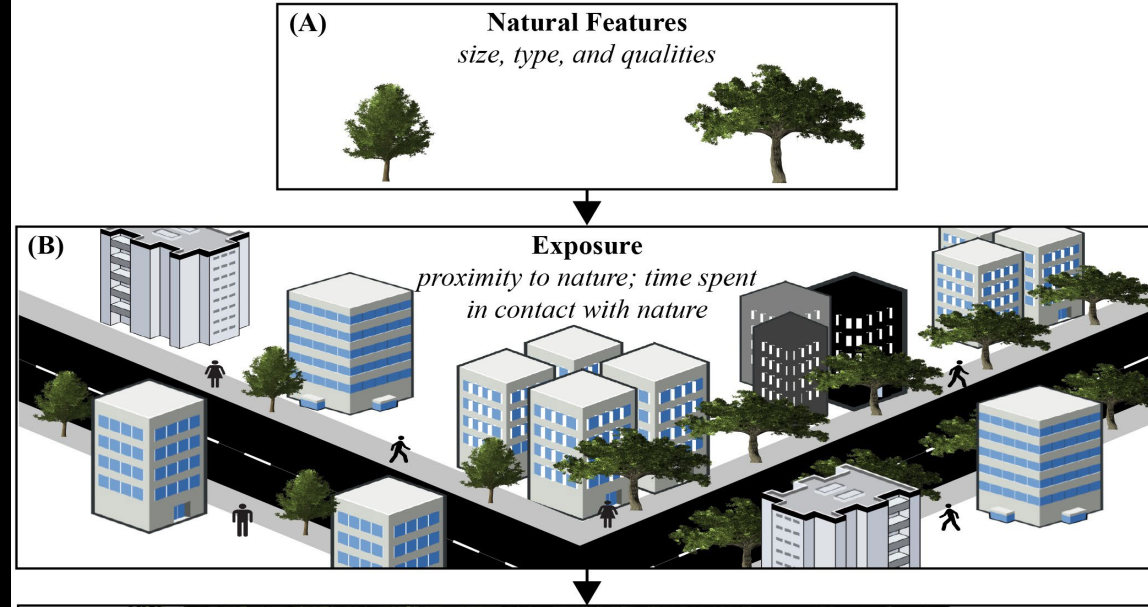


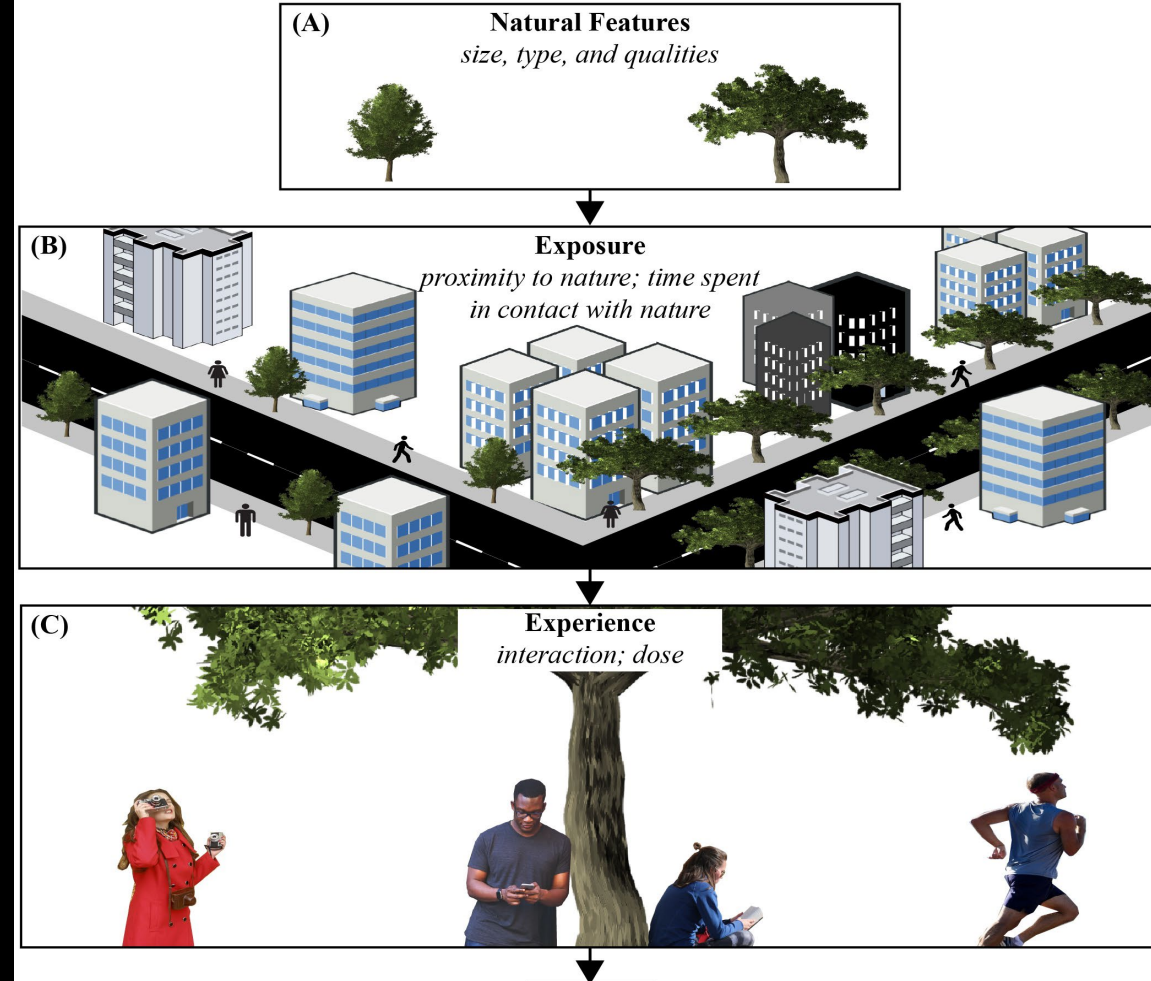


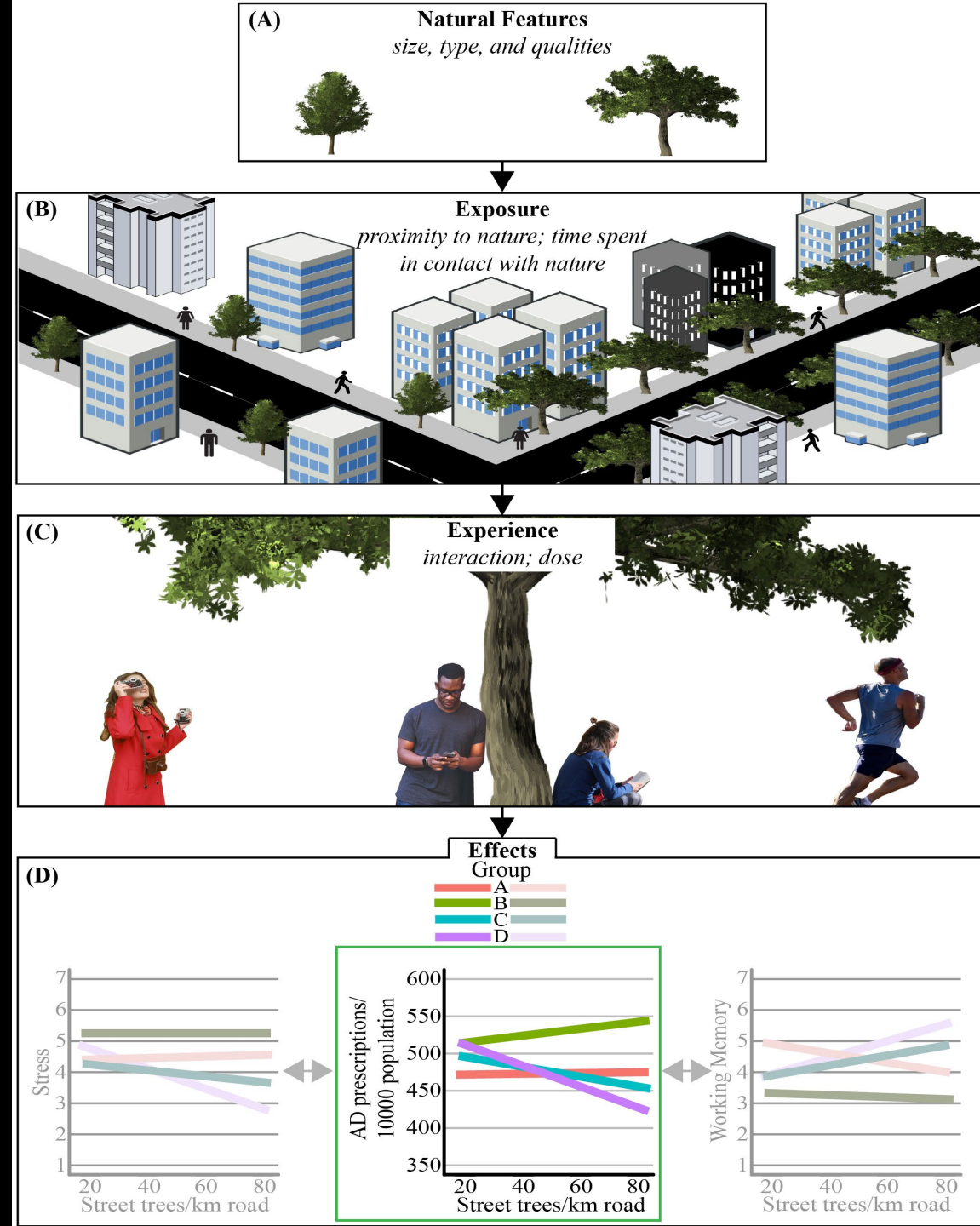


A**D****A - C =****B****E****D - F =****C****F**



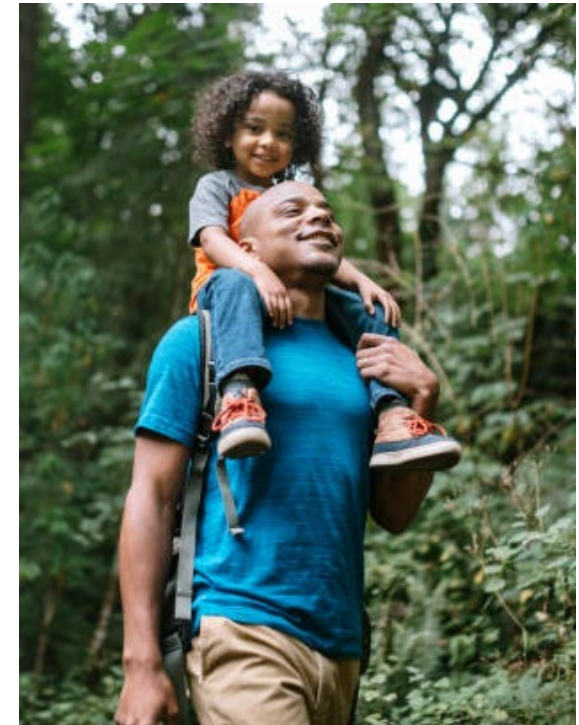
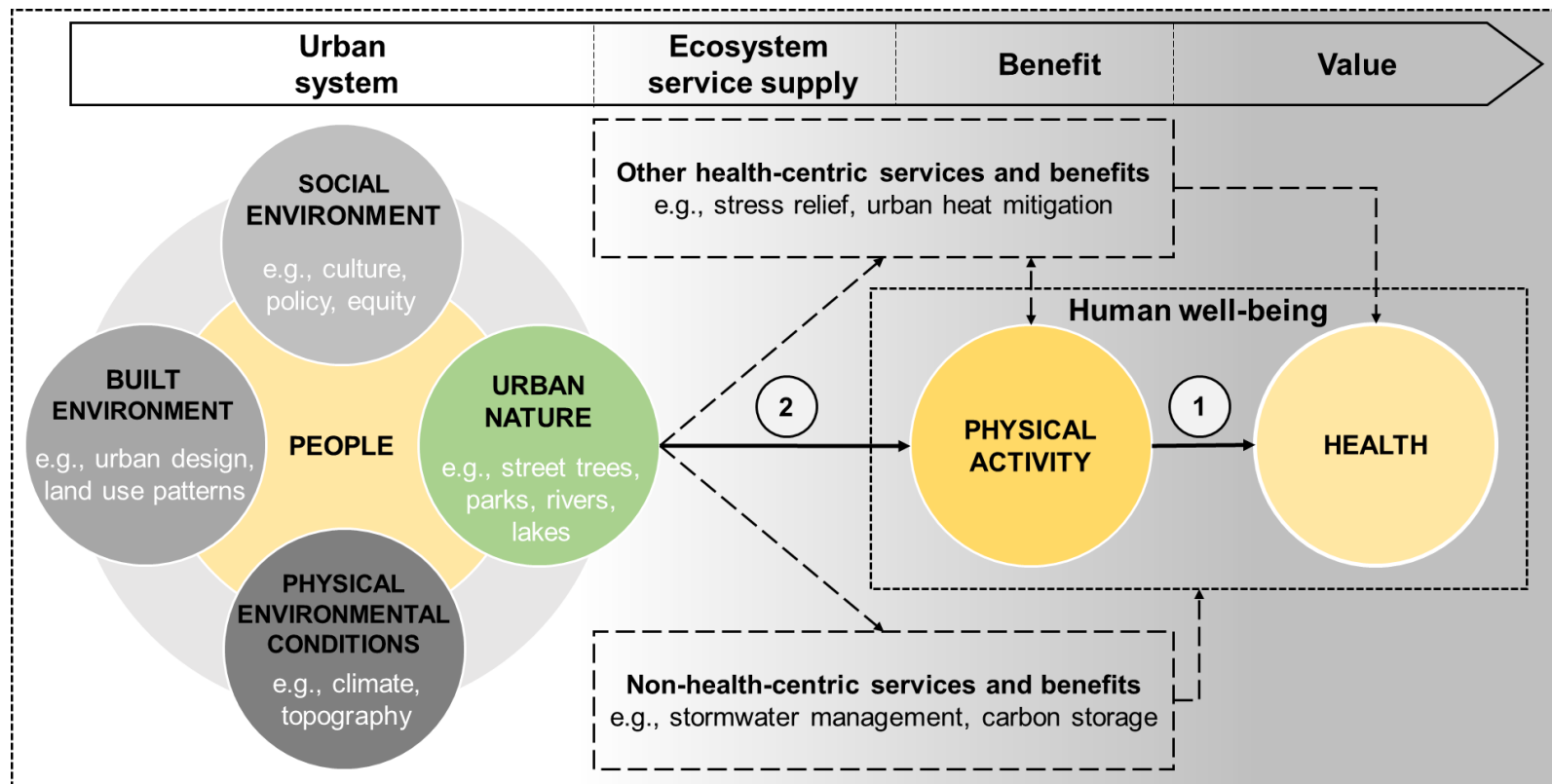






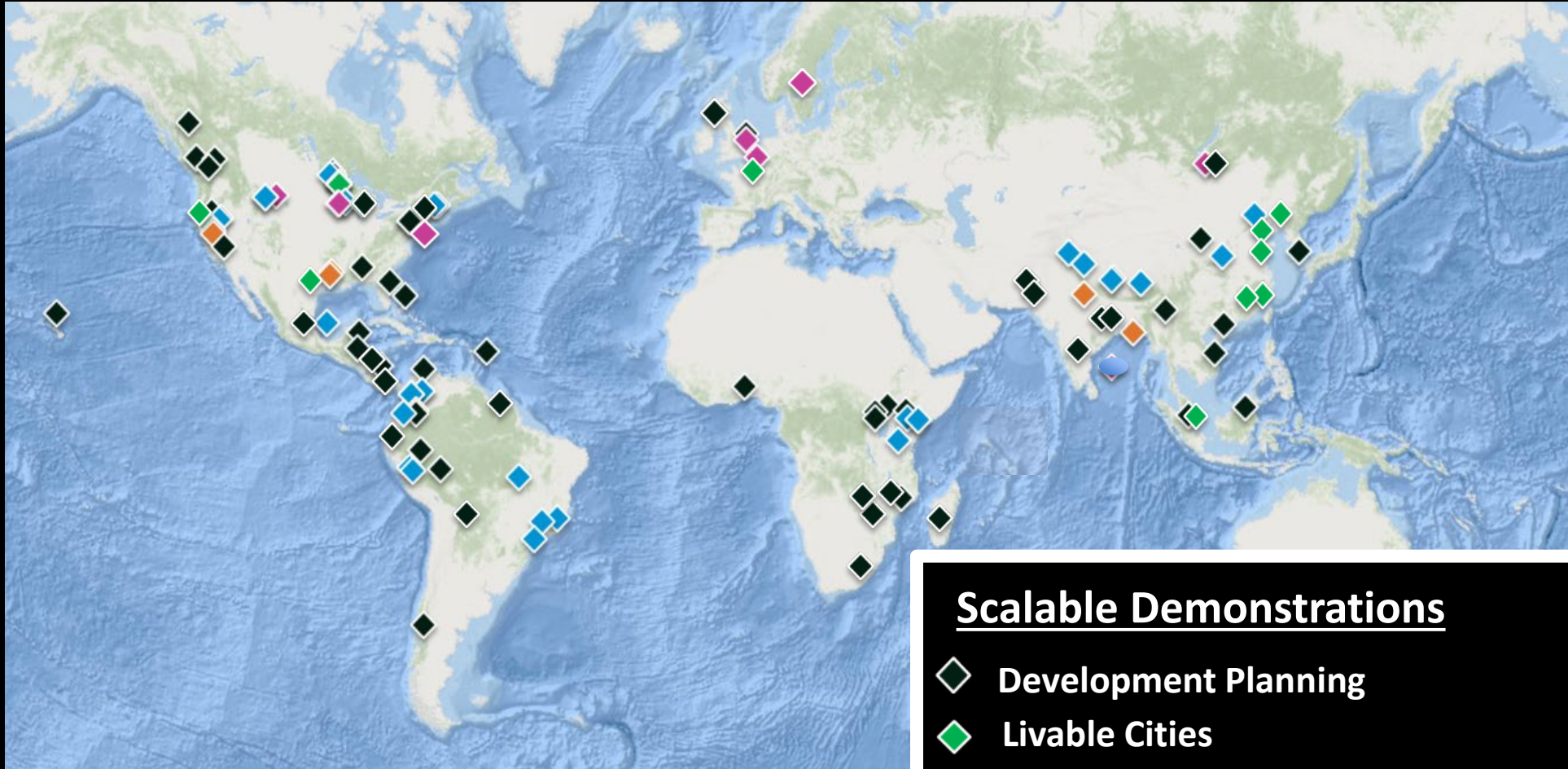
An ecosystem service perspective on urban nature, physical activity, and health

Roy P. Remme^{a,b,1}, Howard Frumkin^c, Anne D. Guerry^{a,d}, Abby C. King^{e,f}, Lisa Mandle^a, Chethan Sarabu^g, Gregory N. Bratman^d, Billie Giles-Corti^h, Perrine Hamel^{a,i}, Baolong Han^j, Jennifer L. Hicks^k, Peter James^{l,m}, Joshua J. Lawler^d, Therese Lindahl^{n,o}, Hongxiao Liu^p, Yi Lu^q, Bram Oosterbroek^r, Bibek Paudel^s, James F. Sallis^{t,u}, Jasper Schipperijn^v, Rok Sosič^w, Sjerp de Vries^x, Benedict W. Wheeler^y, Spencer A. Wood^d, Tong Wuⁱ, and Gretchen C. Daily^{a,z}



(Remme et al., 2021 *PNAS*)

Integrating the Values of Nature into Decisions



Scalable Demonstrations

- ◆ Development Planning
- ◆ Livable Cities
- ◆ Coastal Climate Resilience
- ◆ Securing Freshwater
- ◆ Private Sector Standards & Investment

Water Security for Cities, Food & Energy



**+ Rural Livelihood
Security**



Targeting Investments

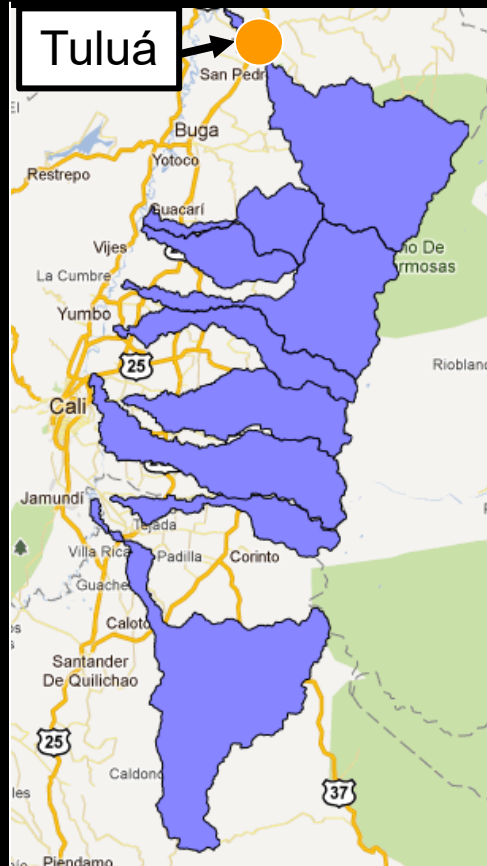
Which activities?



Where in the watershed?

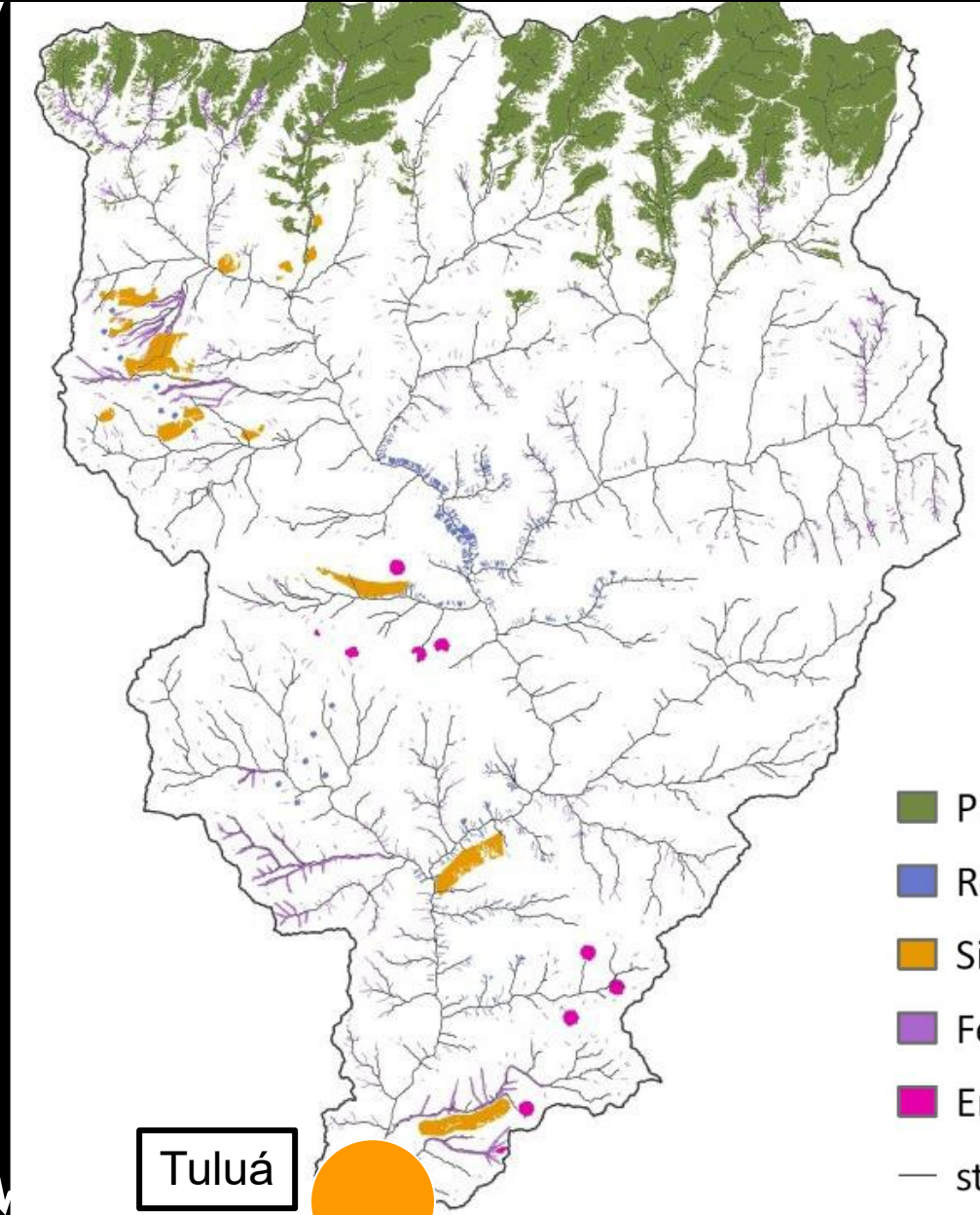
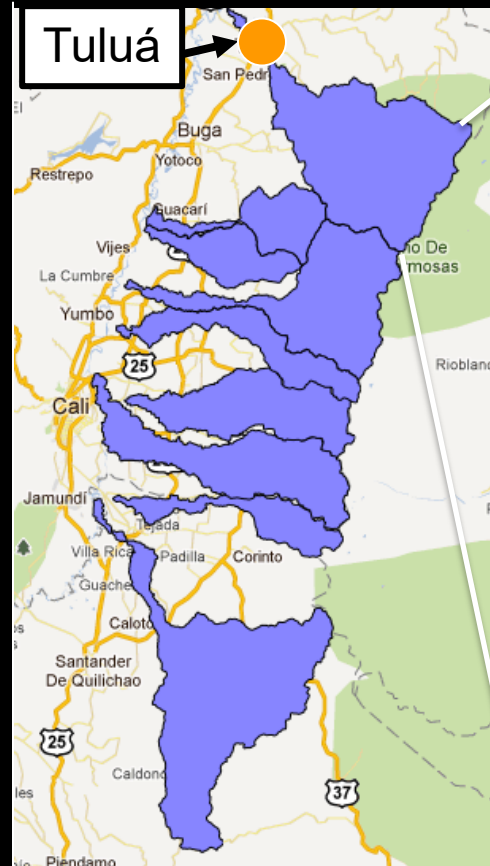


Investment Portfolio



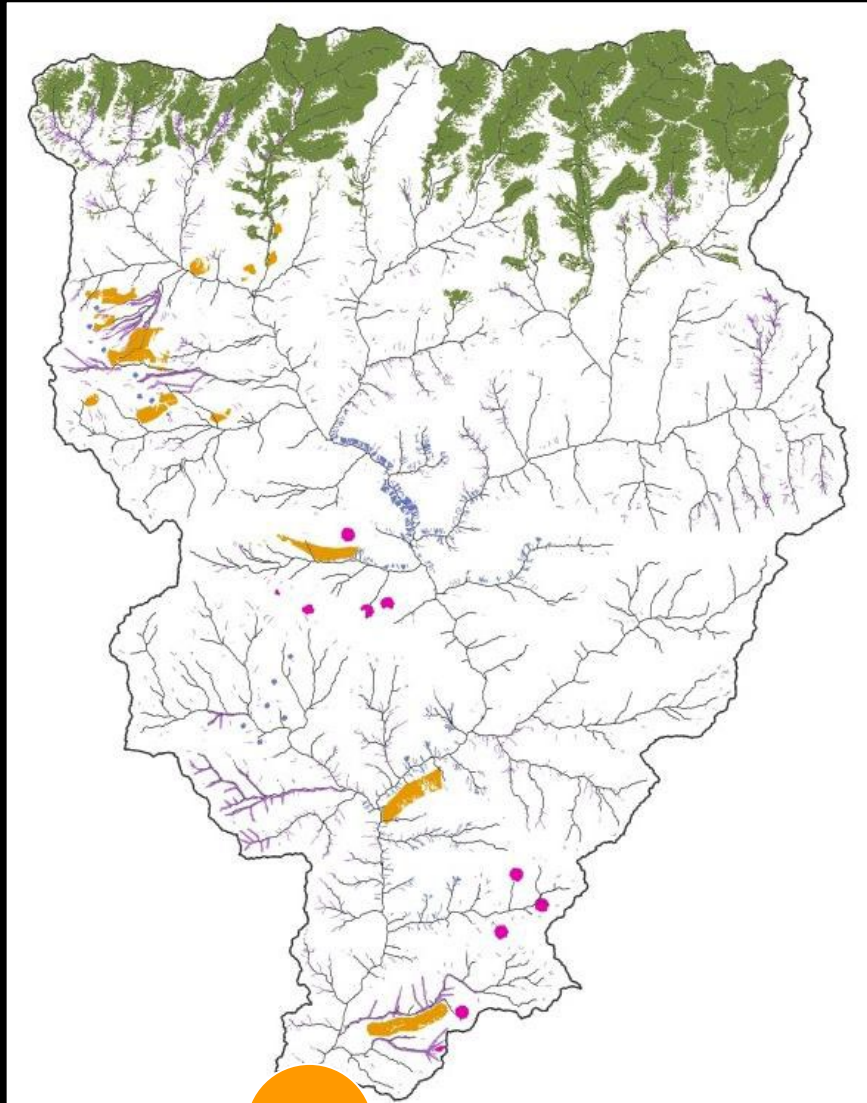
**Cauca Valley
Colombia**

Investment Portfolio



What is the ROI?

Investment Portfolio

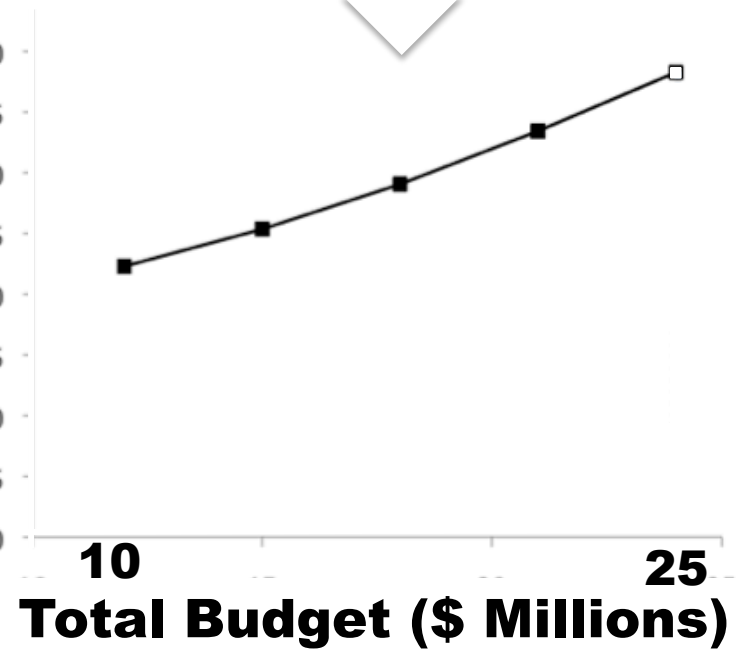


InVEST

integrated valuation of
environmental services
and tradeoffs



Water Quality (%)



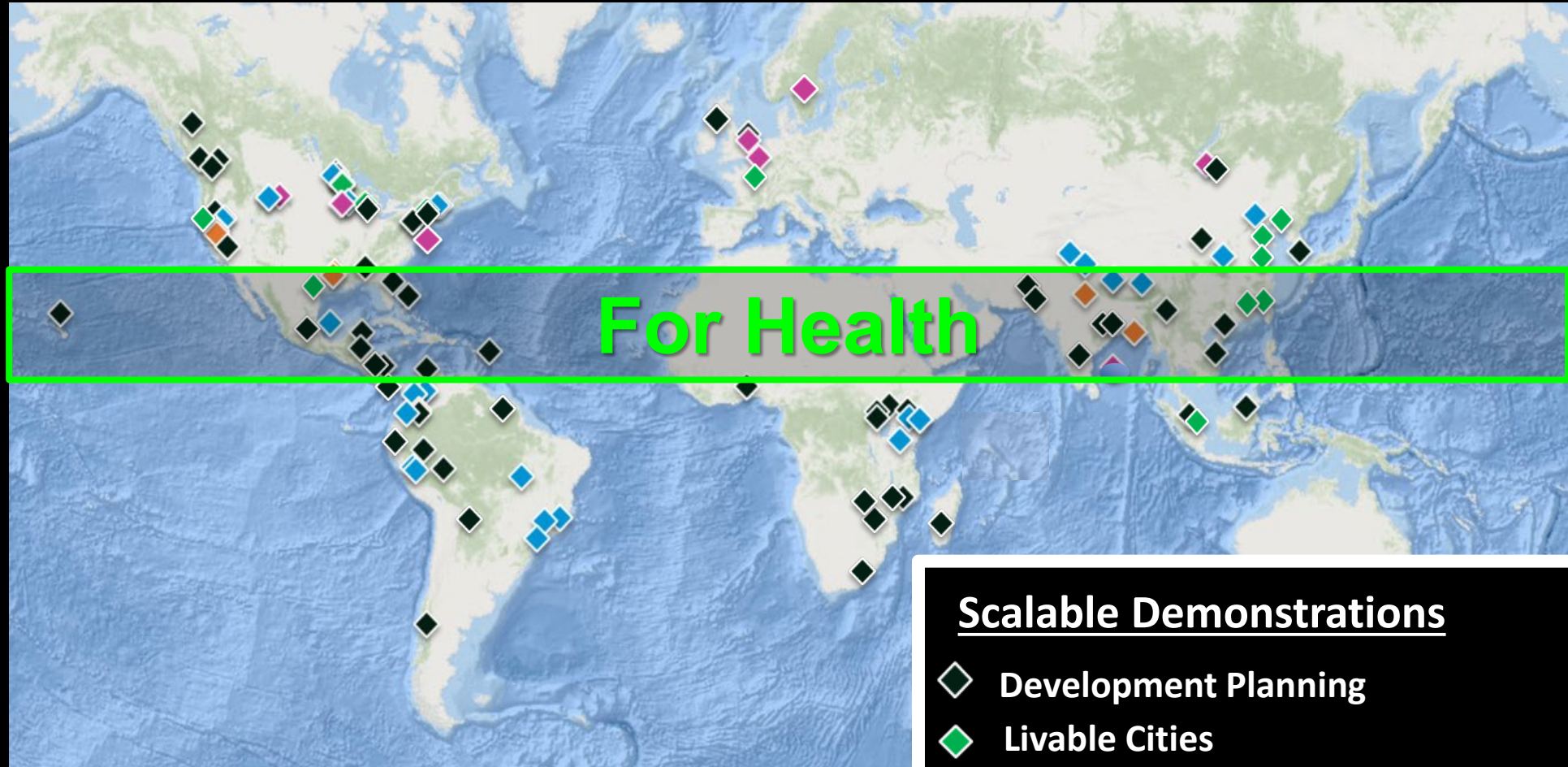


**Standardized
Approach**

**Science
Financing
Governance**

Scaling: 55 Funds in L America
Growing in Africa & Asia
Opening in hydropower sector

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