

APPEAL TO STATISTICIANS FOR A SUSTAINABLE FUTURE

Luc Bijmens
Janssen-JNJ

NCS2022 LLN Belgium
October 2022



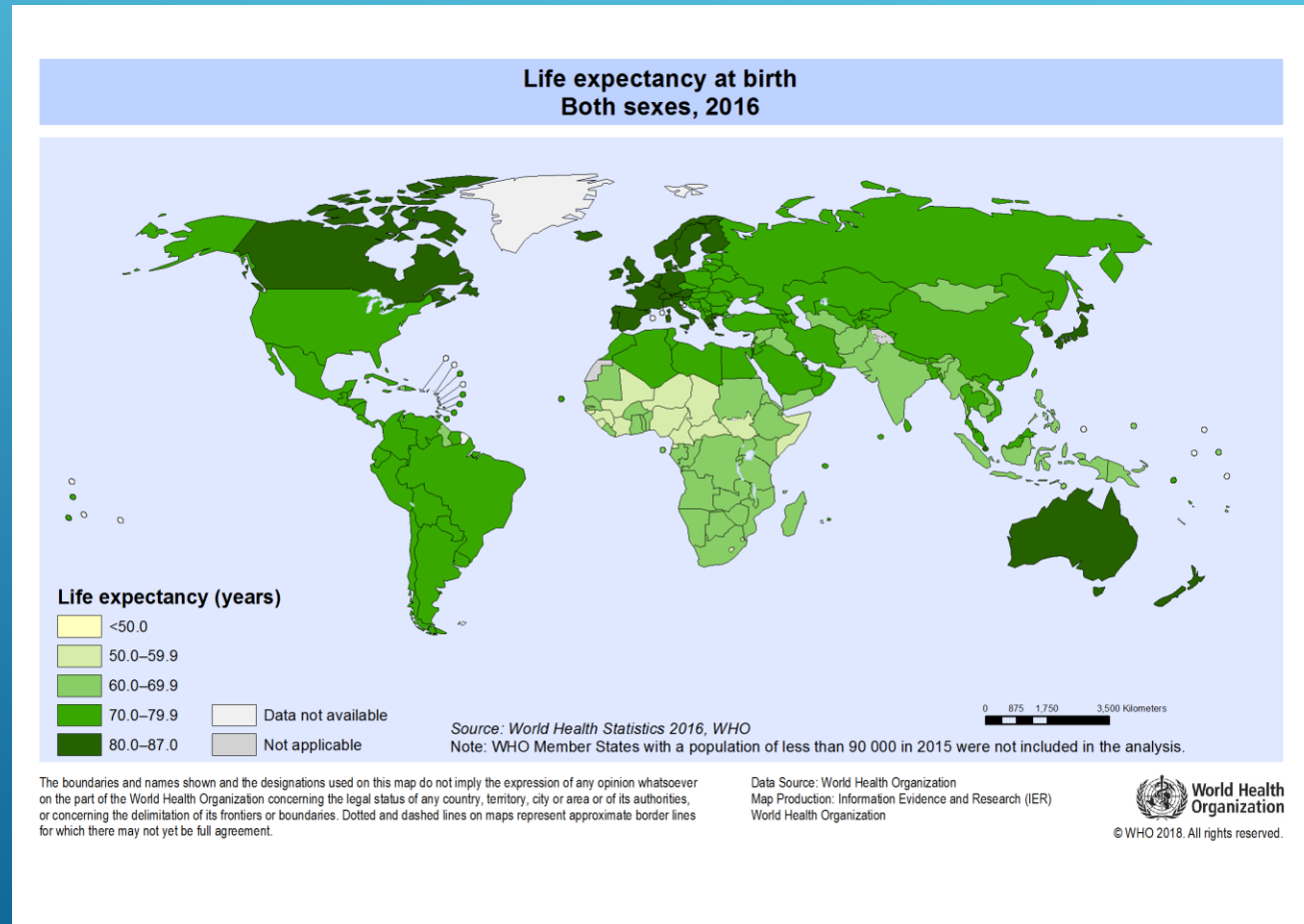
Picture of Solar Cooker International

HOW MANY PEOPLE DIE PER YEAR DUE TO CLIMATE CHANGE ONLY?

- 1.2 million
- 5.1 million
- 8.7 million



8.7 MILLION PEOPLE DIE BECAUSE OF GLOBAL WARMING EVERY YEAR*



* 4.2 million deaths because of pollution only

HOW MANY TRUCKS OF PLASTIC ARE DUMPED IN THE OCEANS WORLDWIDE?

- ▶ 1 truck per min
- ▶ 1 truck per hour
- ▶ 1 Truck per day



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- ▶ 1 truck per hour
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GLOBAL CHALLENGES

Health

Climate

Biodiversity

Fake News

FAKE NEWS

"They ran advertising campaigns designed to undermine public support, cherry picking the data ... They asked rhetorical questions designed to create confusion, to create doubt"

Naomi Oreskes, professor at
Harvard University

If the Earth is getting warmer, why is Kentucky getting colder?



Some scientists say the Earth's temperature is rising. They say that catastrophic global warming will take place in the years ahead.

Yet, average temperature records show Kentucky has actually gotten colder over the past 70 years. And there's also a cooling trend in Albany, New York—the U.S. city with the longest history (over 160 years) of continuous daily temperature records.

Now, most of us aren't climatologists. But facts like these simply don't jibe with the theory that catastrophic global warming is taking place. Which seems to say we need more research. And more evidence about this environmental phenomenon before we take any action.

If you care about the Earth—but want to keep a cool head about it—now is your chance to get more facts.

Call the Information Council for the Environment, 1-800-346-6269 extension 510. We'll send you a free packet of information on global climate change. Or just mail us the coupon below.

Because the best environmental policy is a policy based on fact.

Please send me your FREE information packet on global climate change.

NAME _____

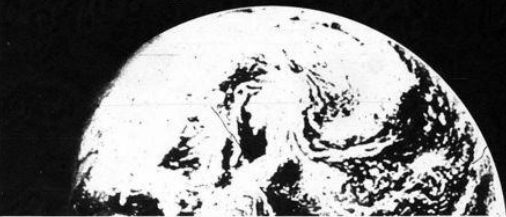
ADDRESS _____

CITY _____ STATE _____ ZIP _____

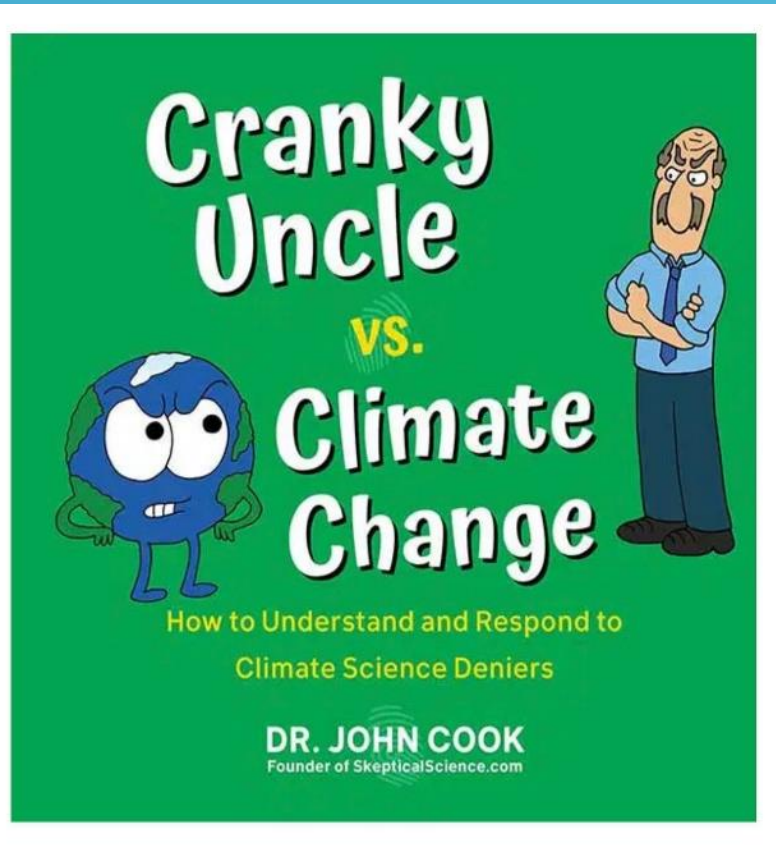
Mail to:
Information Council for the Environment
P.O. Box 44999 / Kansas City, MO 64144-4999

Information Council
for the Environment
1-800-346-6269 / Extension 510
Funding provided by a group of
concerned citizens and organizations.

The most serious problem with catastrophic global warming is—it may not be true.



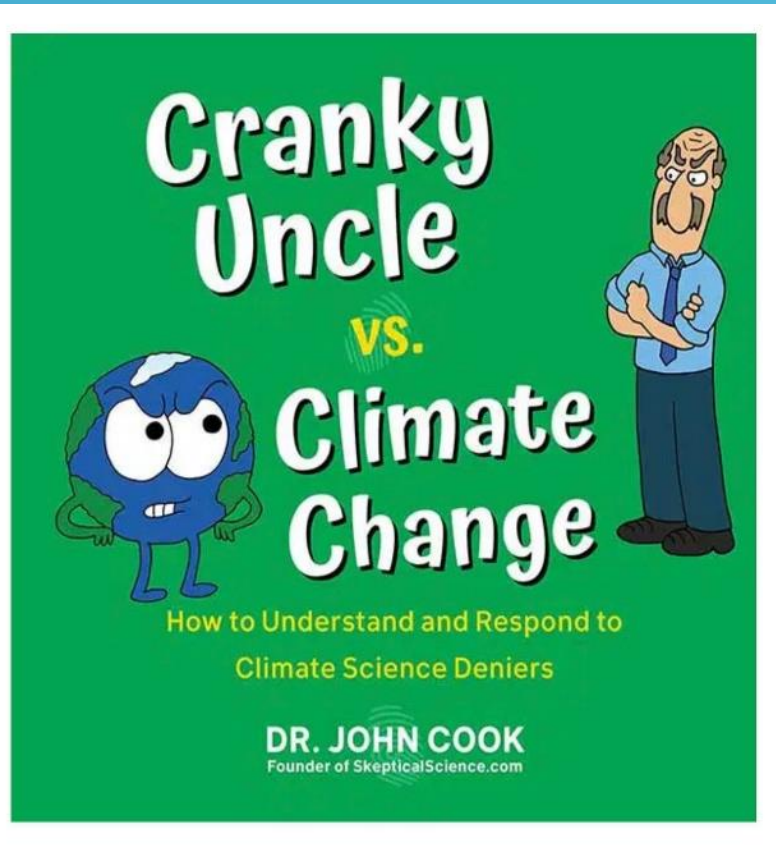
FIVE STRATEGIES OF CRANKY UNCLES



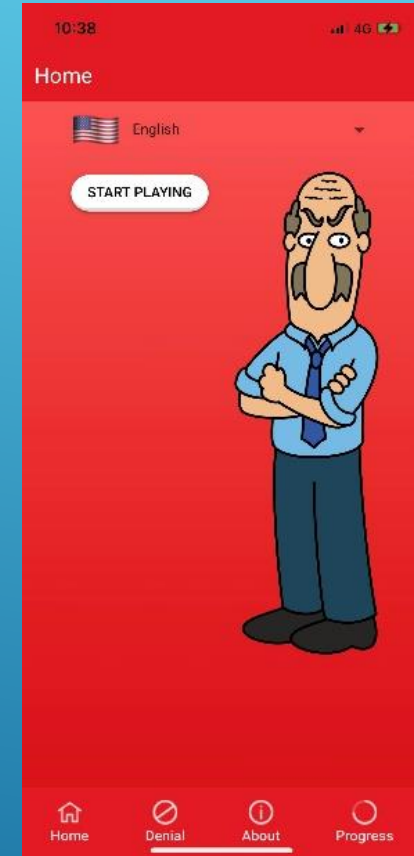
fake experts
logical fallacies
impossible expectations
cherry picking
conspiracy theories



FIVE STRATEGIES OF CRANKY UNCLES



fake experts
logical fallacies
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ENVIRONMENT – SOCIETY – GOVERNANCE (ESG-RISK SCORE)

PREVENTION OF GREEN WASHING



HOW MANY SOCCER FIELDS OF FOREST ARE LOST GLOBALLY?

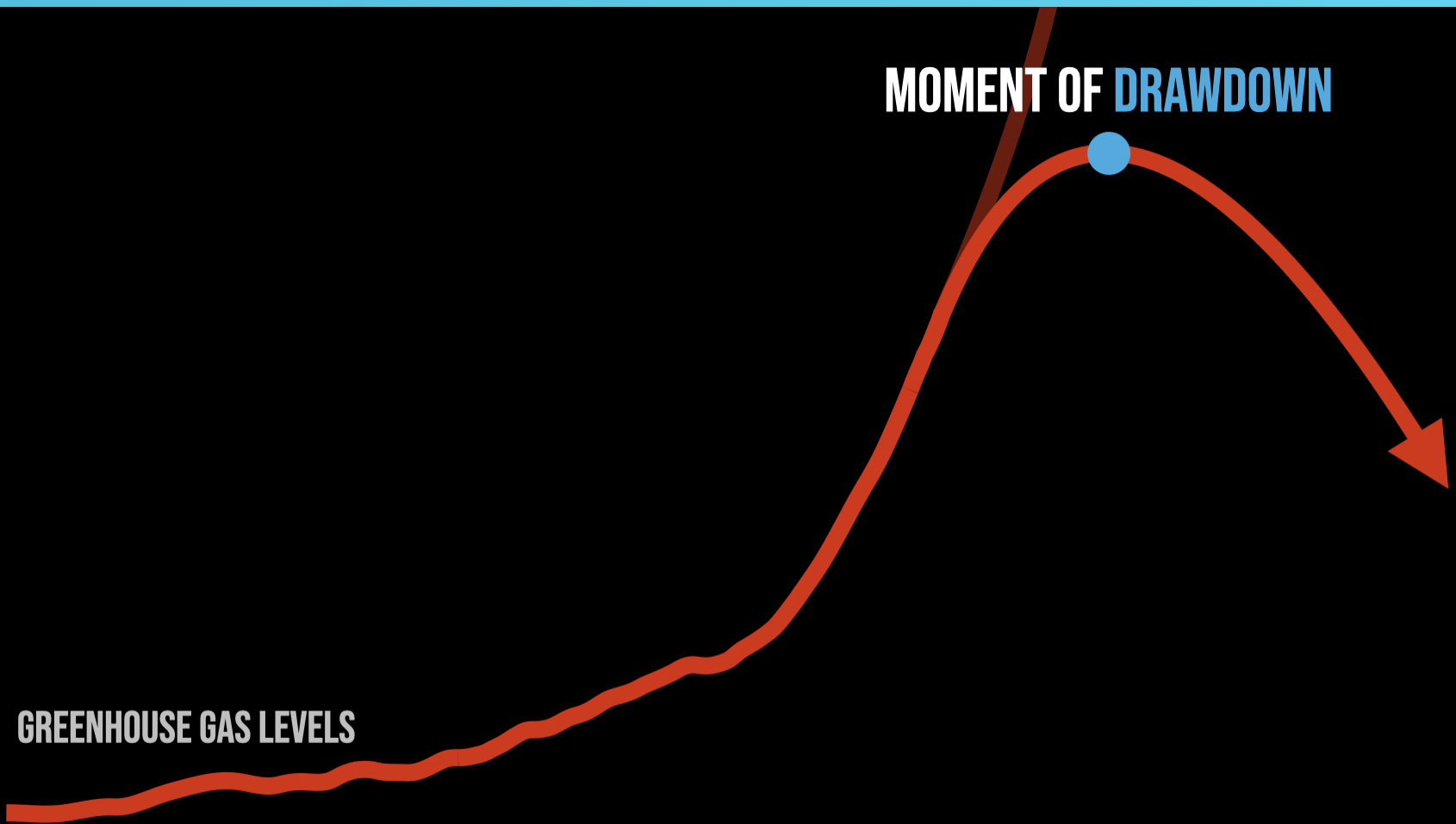
- 30 soccer fields per min
- 30 soccer fields per hour
- 30 soccer fields per day



HOW MANY SOCCER FIELDS OF FOREST ARE LOST GLOBALLY?

- **30 soccer fields per min**
- 30 soccer fields per hour
- 30 soccer fields per day





GREENHOUSE GAS LEVELS

MOMENT OF DRAWDOWN



DRAWDOWN IS THE POINT IN THE FUTURE WHEN LEVELS OF GREENHOUSE GASES IN THE ATMOSPHERE STOP CLIMBING AND START TO STEADILY DECLINE, THEREBY HALTING CLIMATE CHANGE

SUSTAINABLE DEVELOPMENT GOALS (SDG)

UNITED NATIONS 2015- 2030



Poverty

Hunger

Health

education

Gender

Water

Energy

Economy

Industrial

Inequalities



Cities

Consumption

Climate

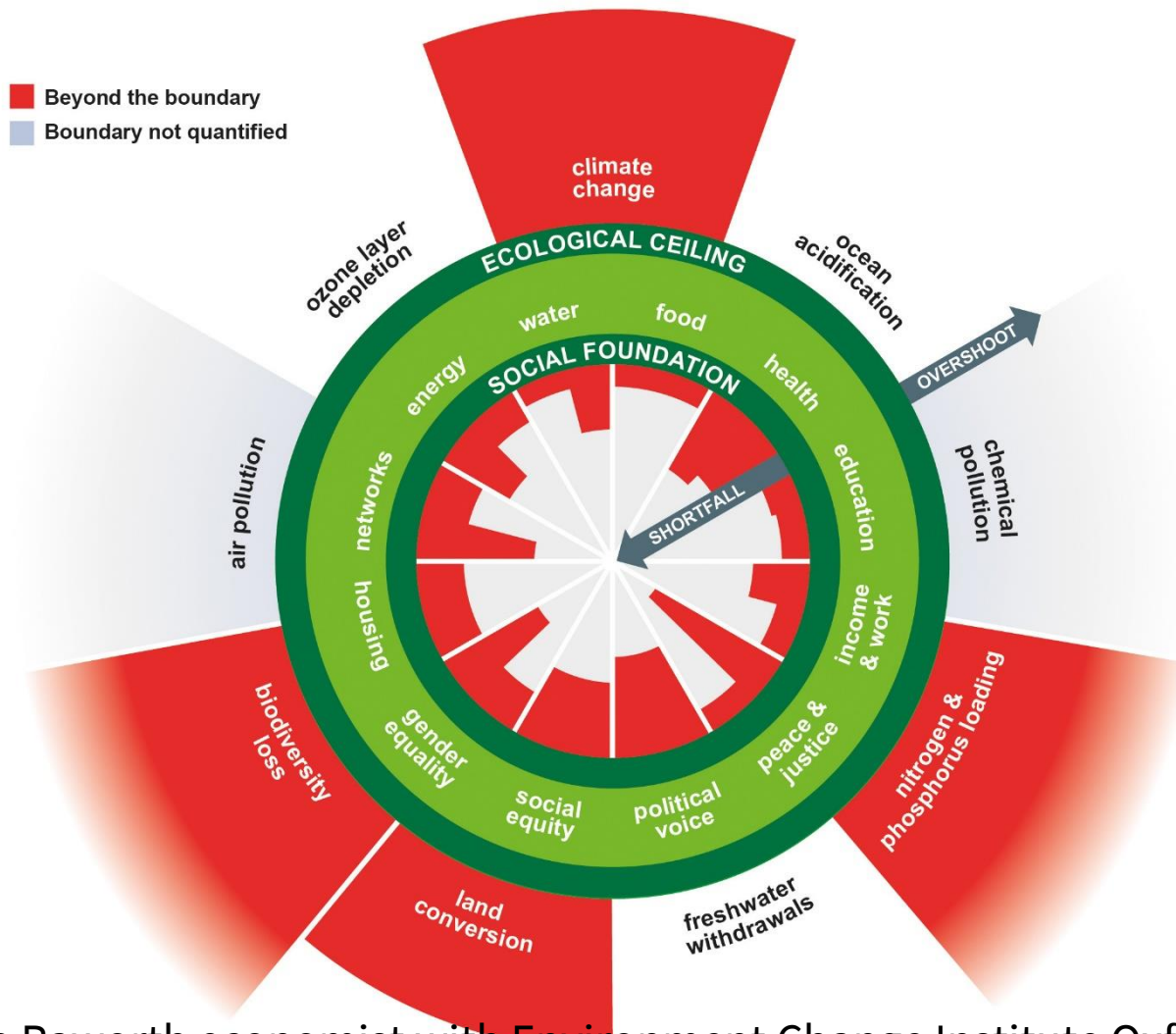
Life in water

Life on land

Peace

Partnership

DONUT ECONOMY



Kate Raworth economist with Environment Change Institute Oxford

2015 UNITED NATIONS CLIMATE CHANGE CONFERENCE PARIS, FRANCE



Photo by Presidencia de la República Mexicana

- ▶ The Paris Climate Accords
 - International treaty on climate change
 - Adopted in 2015
- ▶ Covers Climate
 - Change mitigation,
 - Adaptation
 - Finance
- ▶ The Agreement was negotiated by 196 countries

GREEN DEAL



New legislation



Set of policy initiatives to make
EU climate neutral in 2050



Greenhouse gases reduction
by 50% in 2030

"Europe's man on the moon moment"

Ursula von der Leyen

President of the European Commission



US - INFLATION REDUCTION ACT

► "WASHINGTON — The Senate passed legislation on Sunday that would make the most significant federal investment in history to counter climate change and lower the cost of prescription drugs,...". Emily Cochrane, New York Times 7 Aug 2022.

\$369 billion spend over a decade

30 % reduction in green
house gases

Does not meet 50 %
Reduction by 2030 as
Promised in Paris

20% not covered

RELIANCE ON SOLUTIONS OF INDUSTRY

Plan for zero emissions in 2050

Scope 1-2-3

Green electricity

Health is of special interest in Pharma → global warming

Industry is a product of people

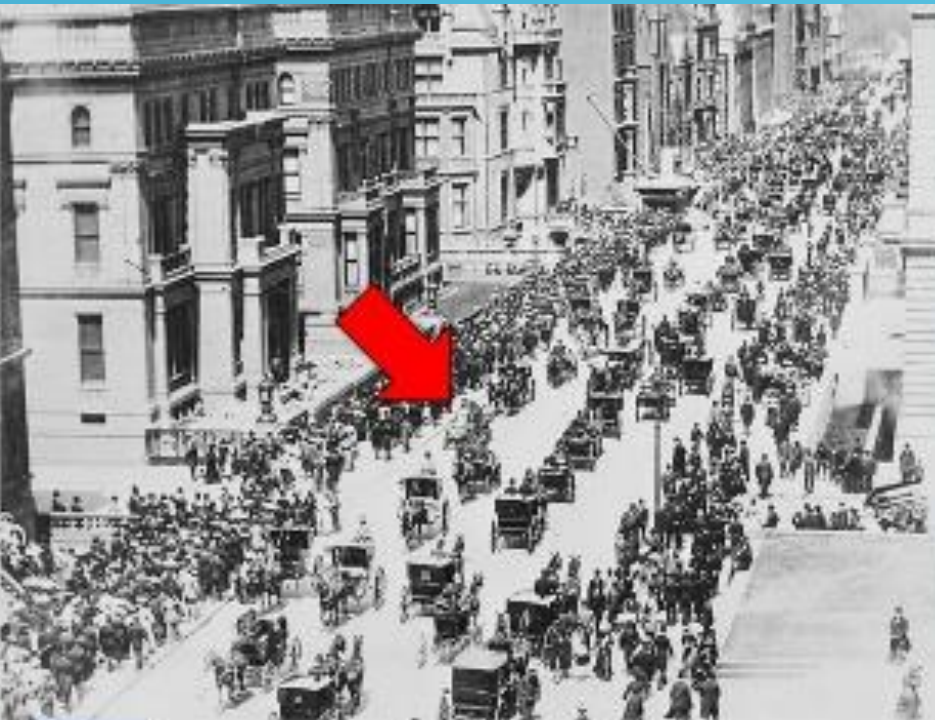
People can change their habits

HOW LONG DID IT TAKE FOR NEW YORK TO SWITCH HORSES TO CARS FOR TRANSPORTATION LAST CENTURY?

- ▶ 13 years
- ▶ 22 years
- ▶ 30 years



TRANSPORTATION IN NEW YORK



1900



1913

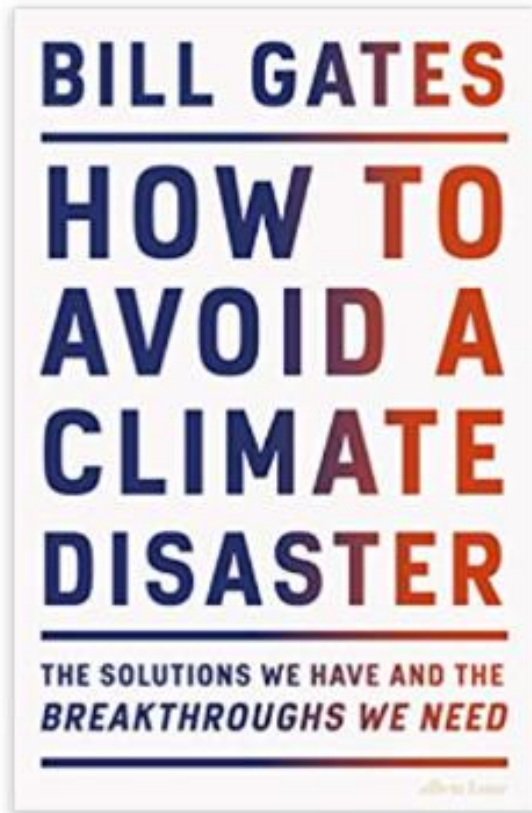


Munich Business School
University of Applied Sciences

insights



CLIMATE CHANGE



How can we
have most
impact to reach
the Paris
agreements in
2050

Role of the
individual citizen

Role of industry

- Global public health
- Stay within the limits of the planet
- Close the 'price gap' using the green premium

Role of the
government

ACCESS TO MEDICINE INDEX

"There have been massive improvements in global health in the past decades, with all major pharmaceutical companies taking action."

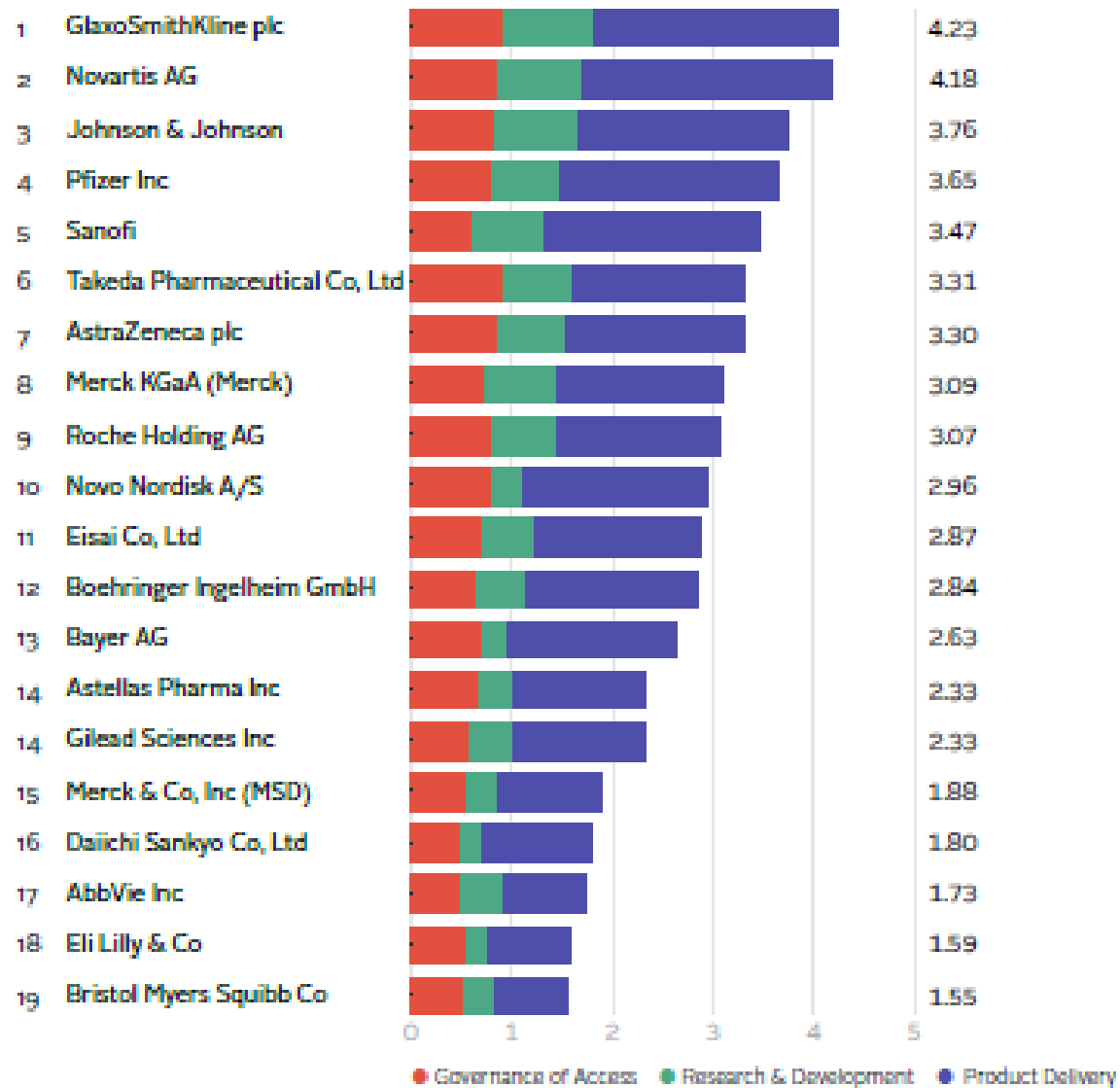
To close the gaps that remain, a greater diversity of companies must get involved and stay engaged."

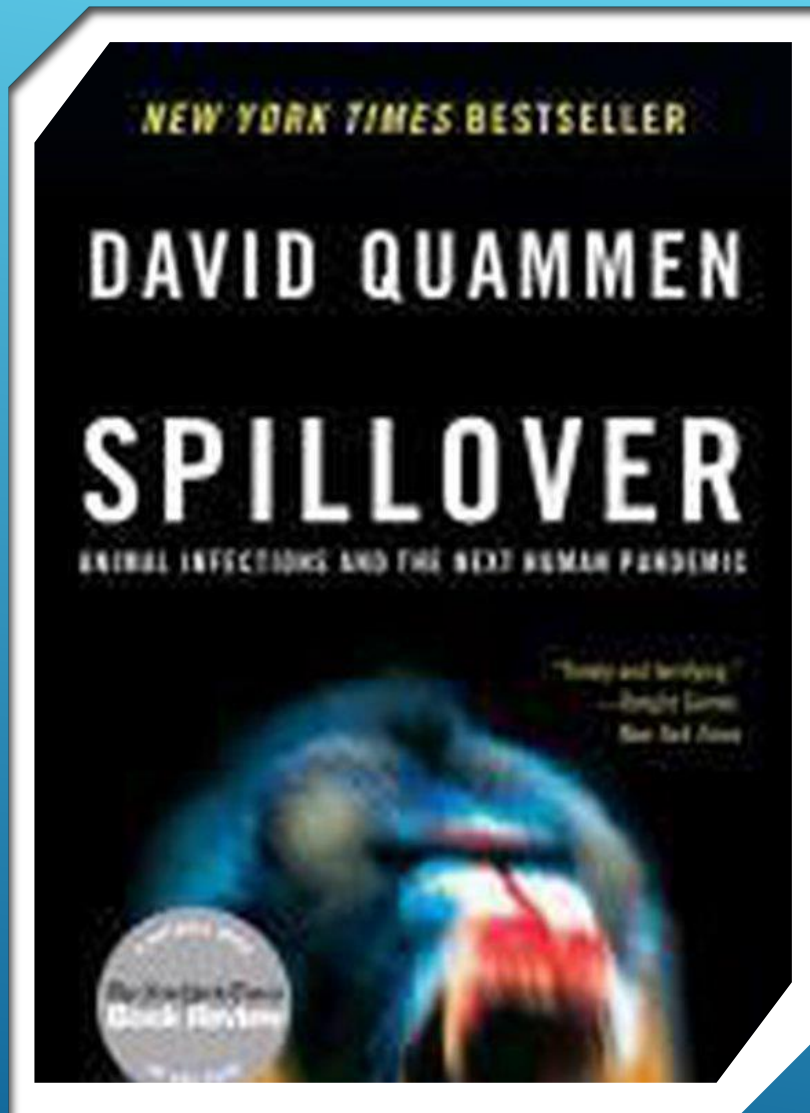
Jayasree K. Iyer
CEO, Access to Medicine Foundation

WHAT IS THE POSITION OF YOUR COMPANY ON
THE LIST OF THE ACCESS TO MEDICINE INDEX?



2021 ACCESS TO MEDICINE INDEX – OVERALL RANKING



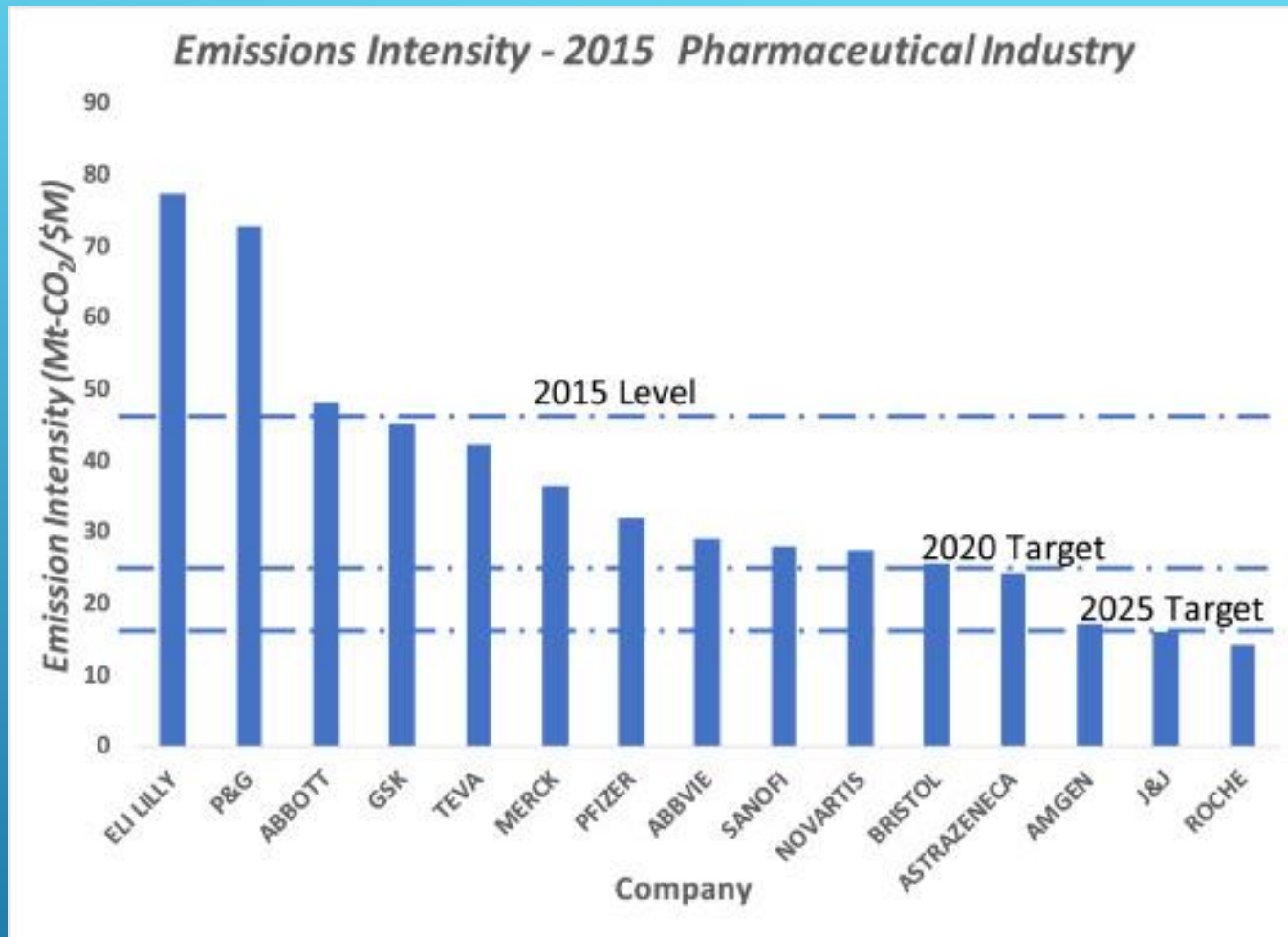


- ▶ JNJ convinced the WWF to address spillover
- ▶ WWF protects of the Malaysian and Indonesian Orangutang

SPILLOVER OF INFECTIONS FROM ANIMALS TO HUMANS

WHAT IS YOUR COMPANY DOING TO REACH ZERO EMISSION?





Loffi Belkhir, Ahmed Elmeligi, Carbon footprint of the global pharmaceutical industry and relative impact of its major players, *Journal of Cleaner Production*, Volume 214, 2019, Pages 185-194, ISSN 0959-6526, <https://doi.org/10.1016/j.jclepro.2018.11.204>.



POWER PURCHASE AGREEMENT



DEEP GEOTHERMAL ENERGY



RACE TO ZERO

CAMPAIGN OVERVIEW

Race to Zero is the UN-backed global campaign rallying non-state actors – including companies, cities, regions, financial and educational institutions – to take rigorous and immediate action to halve global emissions by 2030 and deliver a healthier, fairer zero carbon world in time.

All members are committed to the same overarching goal: **reducing emissions across all scopes swiftly and fairly** in line with the Paris Agreement, with transparent action plans and robust near-term targets.

Led by the High Level Climate Champions for Climate Action, Race To Zero mobilises actors outside of national governments to join the **Climate Ambition Alliance**, which was launched at the UN's Climate Action Summit 2019 by the President of Chile, Sebastian Piñera.

It mobilises a coalition of leading net zero initiatives, representing **82 regions, 103 cities, 7126 companies, 103 educational institutions, 541 financial institutions, over 3,000 hospitals from 60 healthcare institutions and 24 "other" institutions.**

All actors must meet stringent criteria which will bring them to the starting line to credibly race to zero emissions. These 'real economy' actors join 120 countries in the largest ever alliance committed to halving emissions by 2030 and achieving net zero carbon emissions by 2050 at the

earthwards®

moving towards a healthy future

Our earthwards® program recognizes products that meet a number of strict sustainability requirements. To qualify for this recognition, product teams must demonstrate that the product makes at least three significant improvements across our seven impact areas.

The earthwards® impact areas



With its 12 earthwards® products (as of 2019), Janssen is making a contribution to Johnson & Johnson's sustainability target. By the end of 2020, 20% of sales will be generated by products that are recognized by the earthwards® program.

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UNITED NATIONS BACKED RACE-TO-ZERO INITIATIVE

SOLUTIONS BY STATISTICIANS IN GOVERNMENT OF NON-PROFIT



- ▶ Missing data
 - ▶ National databases of indicators
 - ▶ Social impact
 - ▶ Software
 - ▶ Multivariate analysis
-
- ▶ **The statistician should be the guardian of good climate science**

ROLE OF THE STATISTICIAN IN THE PHARMA INDUSTRY

- ▶ CMC minimize climate impact
- ▶ Recycling
- ▶ Energy consumption
- ▶ Clinical trials
- ▶ Know your company's SDG's
- ▶ Be ready for the Greta-Thunberg - generations



PERSONAL LEVEL

- ▶ At home
- ▶ Do voluntary work
- ▶ Read critically about sustainability
- ▶ Talk about it

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CASE STUDY

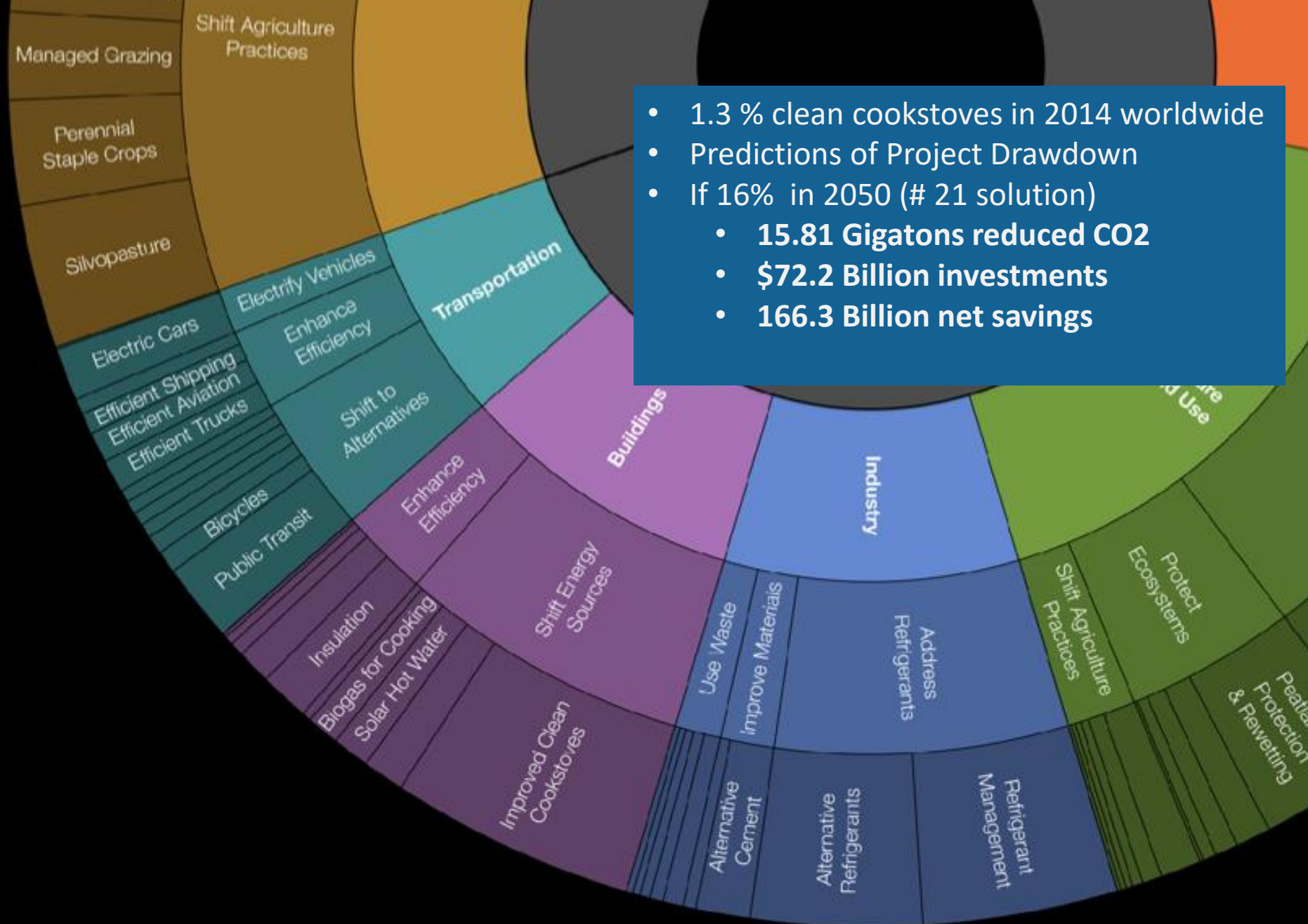
SOLAR COOKERS



ACKNOWLEDGEMENT

- ▶ Wim Deferme (UH)
- ▶ Steven Abrams (UH)
- ▶ Sara Schaeken (UH)
- ▶ Yannick Vandendijck (JNJ)
- ▶ Martin Otava (JNJ)
- ▶ Tobias Mielke (JNJ)
- ▶ Rosalien Bijmens
- ▶ Chris De Bruyn
- ▶ May Boey
- ▶ Family Bijmens





- 1.3 % clean cookstoves in 2014 worldwide
- Predictions of Project Drawdown
- If 16% in 2050 (# 21 solution)
 - **15.81 Gigatons reduced CO2**
 - **\$72.2 Billion investments**
 - **166.3 Billion net savings**

WHY SOLAR COOKING (SOLARCOOKERS.ORG)

3 in 7 people lack sustainable fuel to cook meals

2.4 billion people cook over wood, animal waste, or charcoal fires

They breathe in smoke and soot every day

More people rely on unsustainable fossil fuels

People who harness free solar energy for cooking

- breathe cleaner air
- drink safe water
- preserve the environment

Solar cookers help achieve all 17 United Nations Sustainable Development Goals (SDGs)



Solar Cookers For All Recycled Soda Cans for Cooking

"Makala" : l'épopée d'un forçat de la terre en RDC



What if he could support his family by recycling soda cans in the future?



<https://information.tv5monde.com/afrique/makala-l-epopee-d-un-forcat-de-la-terre-en-rdc-205865>

YAMO DUDO

- Parabolic
- Performance : 127 Watts



PROTOTYPE 4



Performance 11.5 Watt
Increase performance with bag



RAW MATERIAL



PROTOTYPE 5

ONLY SODA CANS AND IRON WIRE



PERFORMANCE EVALUATION PROCESS (PEP)*

ASAE S580.1 NOV2013
Testing and Reporting Solar Cooker Performance



American Society of
Agricultural and Biological Engineers

**S
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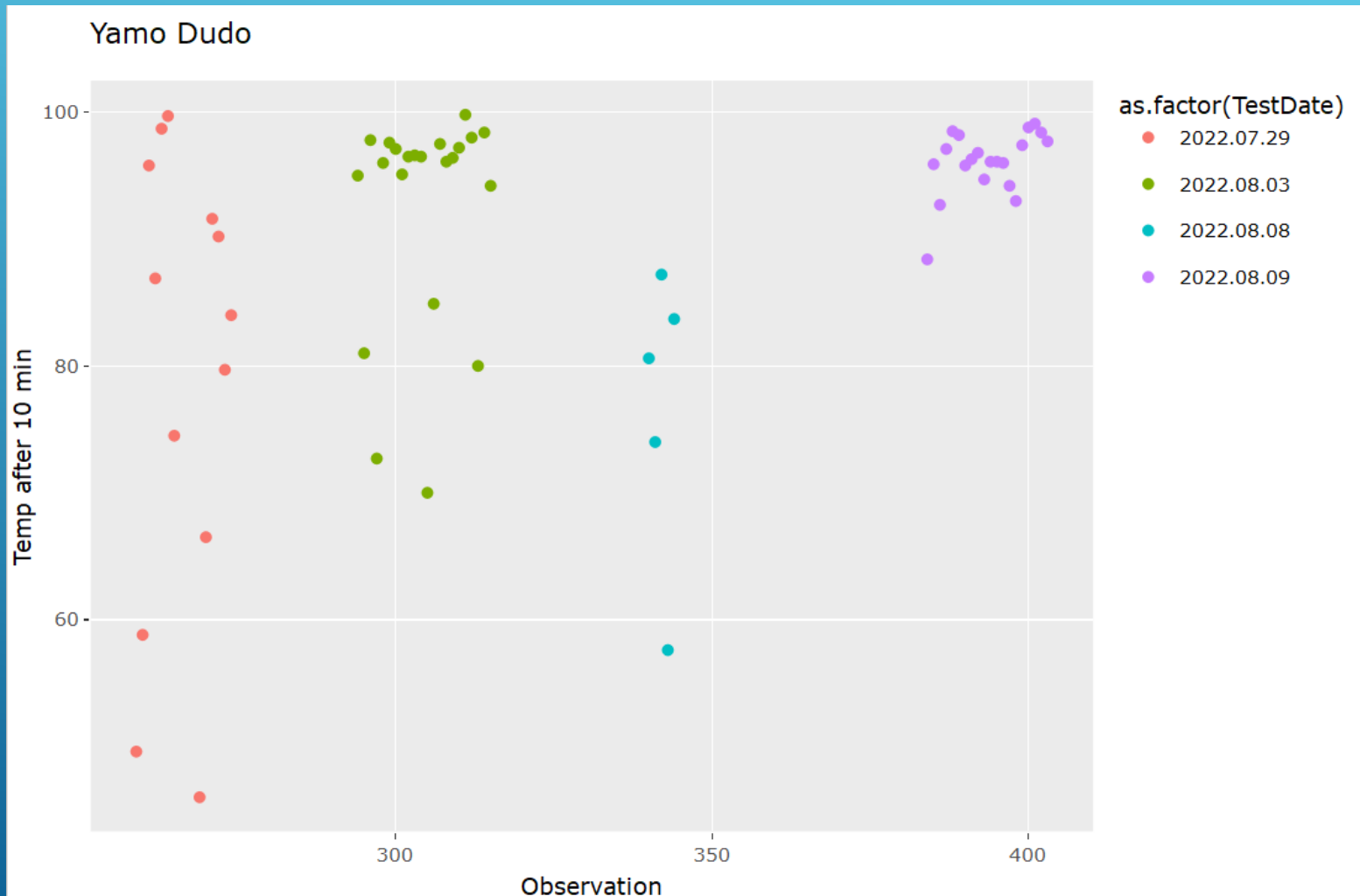
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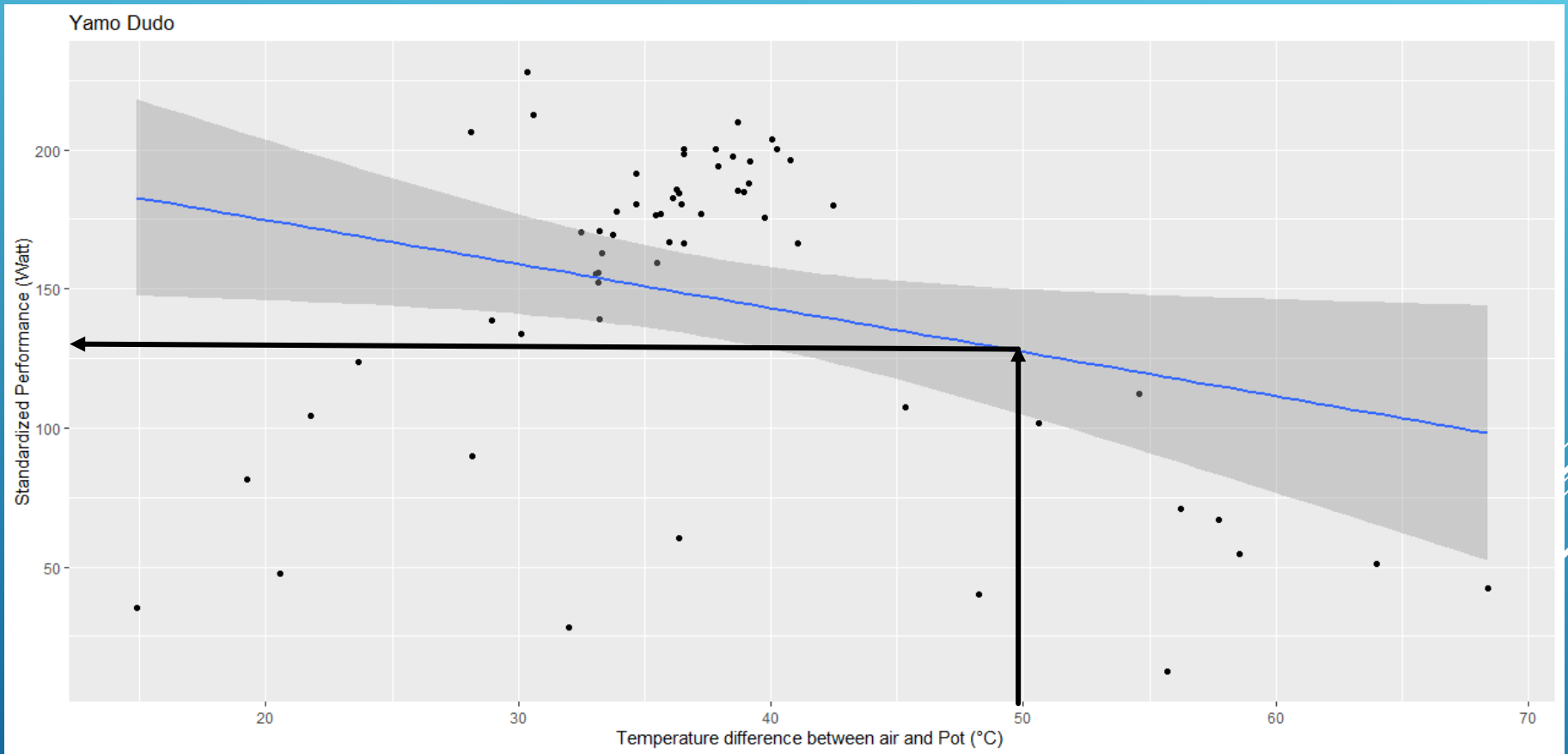
*<https://www.solarcookers.org/work/research>

OBSERVATIONS YAMO DUDO PARABOLA



Performance of Yamo Dudo Parabola

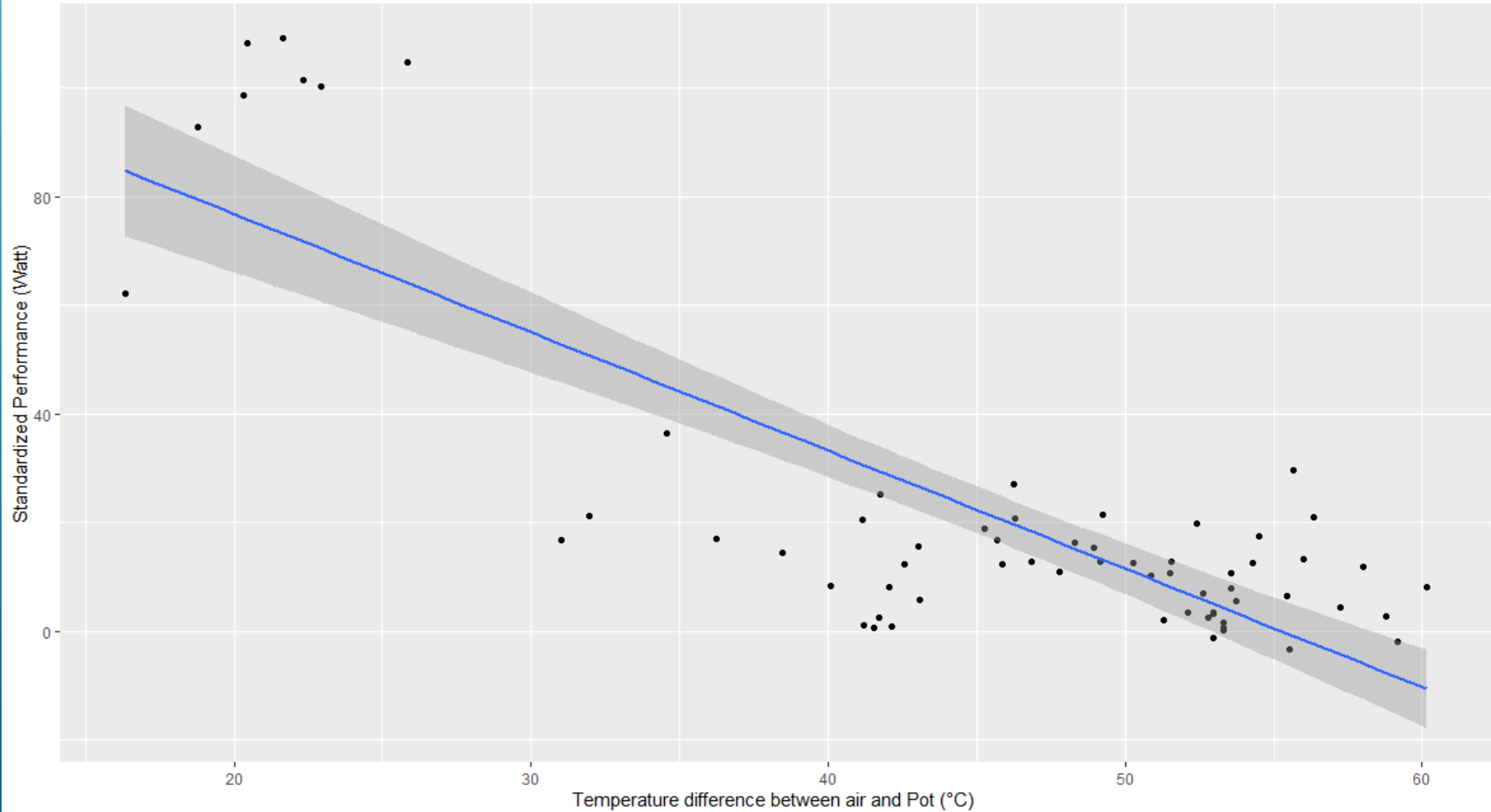
127 Watts, CI (104.69, 149.91)



PERFORMANCE PROTOTYPE 4

11.47 WATTS - 95% CI (6.78,16.16)

Parabolic Prototypes



STATISTICAL CHALLENGES



- ▶ Design of experiments for Performance evaluation
- ▶ Expand the existing protocol with new statistical methods
- ▶ Develop free software for testing centers