

UN Sustainable Development Goals

The sustainable development goals, and taking
action

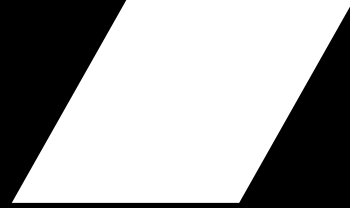
October 26th, 2022

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Idea^s





UN Sustainable Development Goals

As a lense for looking at the world around you

2030 Agenda for sustainable development

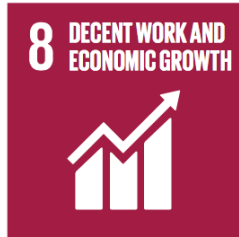
“meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

Sustainable: environment, social, and economic improvement

- A set of measurable goals: 17 goals, 169 targets, 230 indicators
- Overseen by High Level Political Forum (HLPF, was a couple weeks ago)
- Adopted by 193 countries of the United Nations General Assembly



The SDGs





2030 Agenda for Sustainable Development



- 17 goals:
- 169 targets (*Integrate climate change measures into national policies, strategies and planning*)
- 230 indicators (*Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production*)

2030 Agenda for Sustainable Development

13 CLIMATE ACTION



2019 was the [second warmest year on record](#) and the end of the warmest decade (2010- 2019) ever recorded. Carbon dioxide (CO₂) levels and other [greenhouse gases in the atmosphere](#) rose to new records in 2019.

Climate change is affecting every country on every continent. It is disrupting national economies and affecting lives. Weather patterns are changing, sea levels are rising, and weather events are becoming more extreme.

Although greenhouse gas emissions are projected to drop about 6 per cent in 2020 due to travel bans and economic slowdowns resulting from the COVID-19 pandemic, this improvement is only temporary. [Climate change is not on pause](#). Once the global economy begins to recover from the pandemic, emissions are expected to return to higher levels..

Systemic nature of the SDGs

Afghans at risk of near-universal poverty, UN report warns

Study suggests a worst-case scenario where 97% of Afghans would sink below poverty line by 2022



▲ The worsening situation can only drive more people into displacement, the UNDP says. Photograph: Aamir Qureshi/AFP/Getty Images

<https://www.theguardian.com/global-development/2021/sep/09/afghans-risk-near-universal-poverty-un>

June 11, 2021
2:58 AM CEST
Last Updated 3 months ago

Environment

Climate change and biodiversity loss must be tackled together - report

3 minute read

By Kanupriya Kapoor

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1/4

An aerial picture shows villager walks along a paddy fields affected by abrasion in Juntinyuat, Indramayu regency, West Java province, Indonesia, March 13, 2021. REUTERS/Willy Kurniawan/File Photo

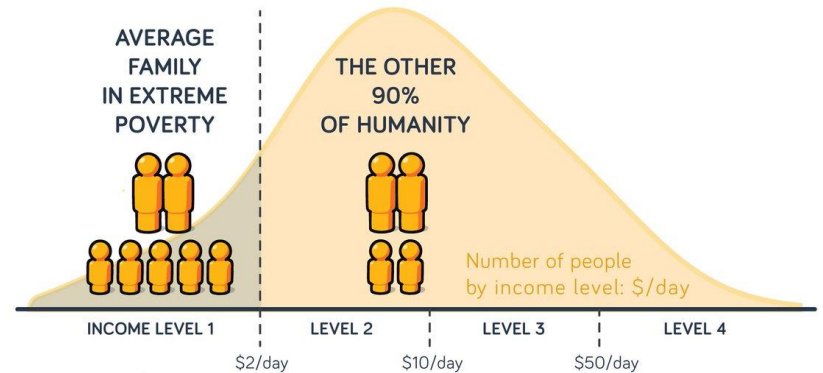
<https://www.reuters.com/business/environment/climate-change-biodiversity-loss-must-be-tackled-together-report-2021-06-10/>

Systemic change 1/2

- Some of the goals are “competing”: how to achieve climate change targets while also achieving continued GDP growth?
- Population growth: More people need more resources.
 - The better the healthcare, the more children survive to adulthood.
 - The likelier children survive to adulthood, the less children families will have.
 - There’s less children the more people are lifted out from poverty.
 - *What happens to trend if people fall back into poverty?*
- Peace: If investment is put into war, what is it away from?

The majority already has two-child families

90% of parents in the world today decide to have two children, on average. Across countries, cultures and religions, the ideal family is no longer a large family. But 10% of parents are still stuck in extreme poverty, with five children on average. They need children as labour force. Women are less educated and patriarchal family values are not yet replaced. As 10% of children die, parents have extra children to protect against the risk of losing some.



www.gapminder.org

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Systemic change 2/2, case covid

- Zoonotic diseases are on the rise
 - Habitat loss, unsustainable food production, illegal wildlife trade, and climate change enhancing disease vectors
- Pre covid the world was already off track to end poverty and food insecurity was on the rise
 - Health problem -> more poverty -> more food insecurity <- climate change
- Other effects: violence against women, access to education
- Disproportionate effects on different groups of people

COVID-19 IMPLICATIONS



COVID-19 MAY RESULT IN A
**6% DROP IN GREENHOUSE
GAS EMISSIONS FOR 2020**

STILL SHORT OF **7.6% ANNUAL
REDUCTION REQUIRED TO LIMIT
GLOBAL WARMING TO 1.5°C**

Sustainable Development Goals Report 2020

Stimulus and recovery packages: Between early and July 2020, G20 countries have committed at least USD 135 billion to fossil fuels and at least USD 68 billion to clean energy.

Climate change

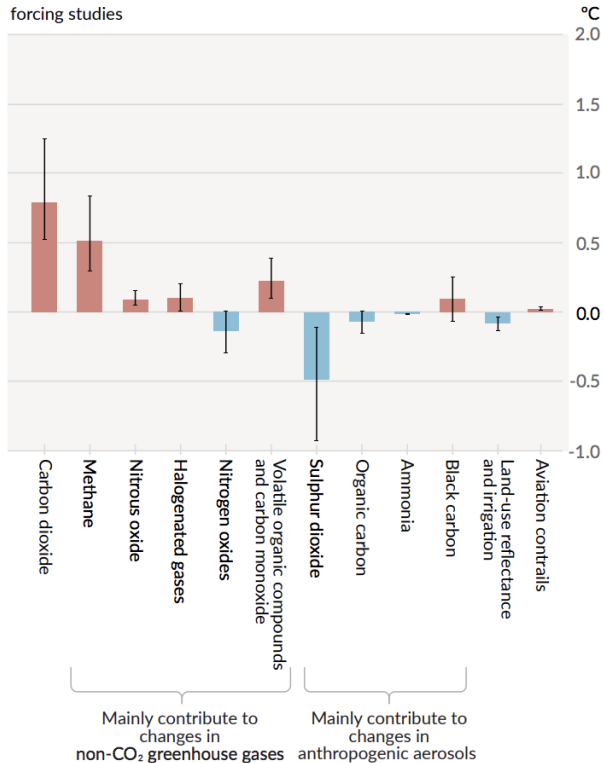


“Climate change is making the achievement of many Goals less likely. To limit global warming to 1.5°C above pre-industrial levels in accordance with the Paris Agreement, the world would need to achieve net zero carbon dioxide emissions by around 2050.”

***On average, Switzerland was in 2019 1,9 degrees hotter than in 1864. – Swissinfo
Globally about 1.1 degrees - NASA***

Main drivers of climate change

c) Contributions to 2010-2019 warming relative to 1850-1900, assessed from radiative forcing studies

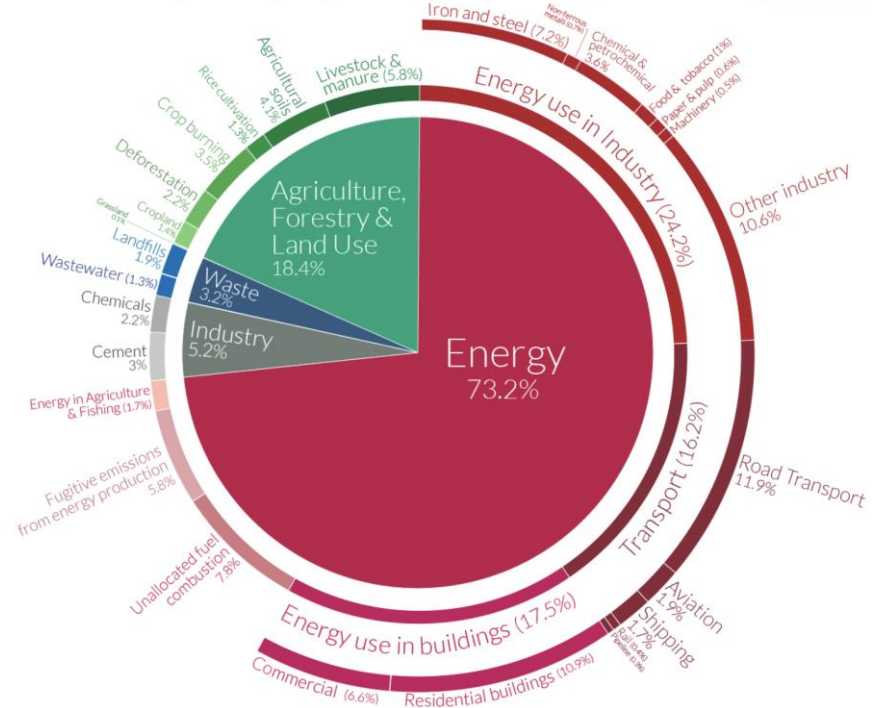


Source: IPCC report 21

Global greenhouse gas emissions by sector

This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.

Our World in Data



OurWorldinData.org – Research and data to make progress against the world's largest problems.

Source: Climate Watch, the World Resources Institute (2020).

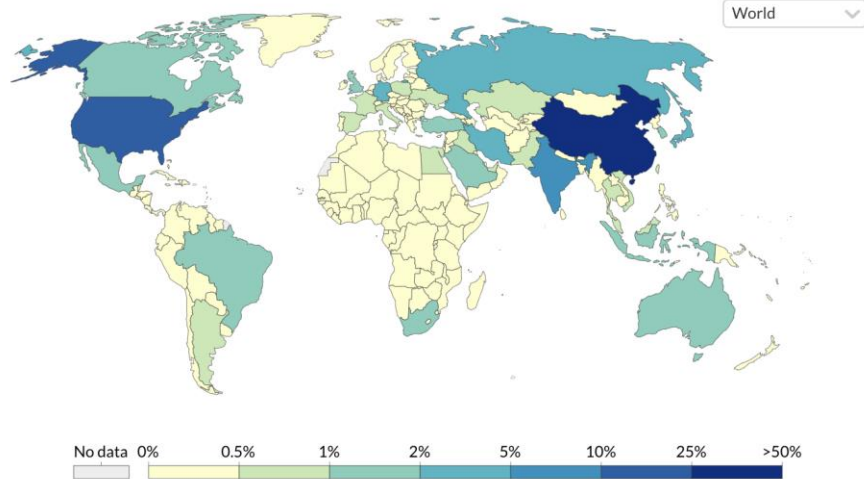
Licensed under CC-BY by the author Hannah Ritchie (2020)

Who's fault is it

Annual share of global CO₂ emissions, 2018

Each country's share of global carbon dioxide (CO₂) emissions. This is measured as each country's emissions divided by the sum of all countries' emissions in a given year plus international aviation and shipping (known as 'bunkers') and 'statistical differences' in carbon accounts.

Our World
in Data

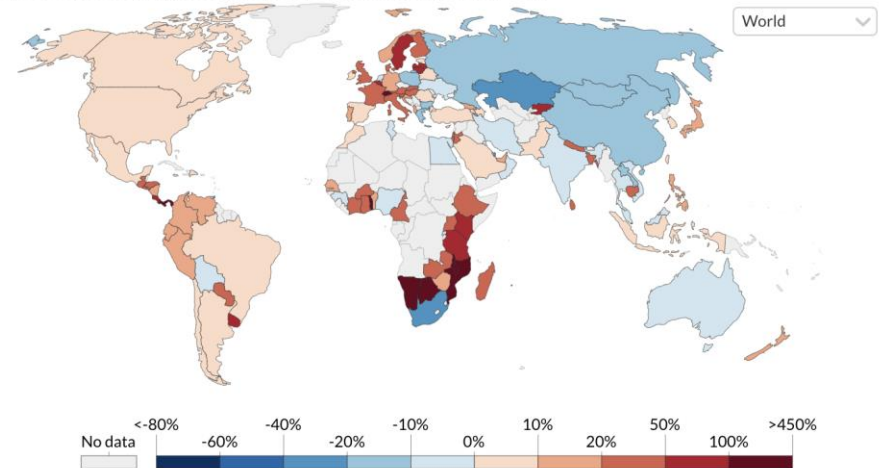


Source: Our World in Data based on the Global Carbon Project
[OurWorldInData.org/co2-and-other-greenhouse-gas-emissions](https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions) • CC BY

CO₂ emissions embedded in trade, 2018

Share of carbon dioxide (CO₂) emissions embedded in trade, measured as emissions exported or imported as the percentage of domestic production emissions. Positive values (red) represent net importers of CO₂ (i.e. "20%" would mean a country imported emissions equivalent to 20% of its domestic emissions). Negative values (blue) represent net exporters of CO₂.

Our World
in Data



Source: Our World in Data based on the Global Carbon Project
[OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/](https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions/) • CC BY



Key take-aways



- The challenges we are facing are enormous and systemic
 - choose one key point to focus on
 - evaluate what your idea from different viewpoints, for example through checking it against the SDG framework
- For example: what are the causes? What are the proposed solutions that exist?
- Pro tip: Do order of magnitude calculations



Climate innovation

Investment in climate tech has gone up with ~50% more climate deals in Q2'21 vs Q2'20 – Climate Tech VC

Case carbon dioxide removal (CDR)

Taking CO₂ out of the atmosphere
(carbon removal or carbon capture)

Storing the CO₂ (carbon sequestration
or carbon storage)

Making something out of CO₂ (carbon
to value or carbon tech)

Climeworks – a Swiss startup

- capture carbon dioxide directly from the air and then use it as material or store it away



<https://climeworks.com/co2-removal>

Case building materials

Cement production produces CO₂ emissions through decomposition of limestone and heating the kiln – 3% of total GHG emissions

Sublime Systems, a Boston based startup

- Electrifying cement production: potential to cut CO₂ emissions of cement by 50-100%
 - The solution: an electrochemical cell that decomposes limestone at room temperature, can be powered by renewables, smoothing grid, the produced CO₂ emissions are pure and can be captured and stored
- Founder Leah Ellis has PhD in chemistry: *“In the first conversation with Yet-Ming Chiang (post-doc professor), he proposed that we should work on something radical. The improvements of lithium-ion batteries would be only incremental. That’s how we decided to work on electrifying cement production despite neither of us having a background in it.”*

Case sustainable fashion

The fashion industry is the second largest industrial polluter after aviation, + 92 million tonnes of waste produced per year and 1.5 trillion litres of water consumed

https://www.researchgate.net/publication/340635670_The_environmental_price_of_fast_fashion

New Cotton Project – a three year multi stakeholder project with 12 partners, including adidas and H&M group

- The solution: using chemical recycling technology turning old clothes to cellulosic fiber that looks and feels like cotton



<https://newcottonproject.eu/>



Taking action

Social climate is changing

- *“For the first time, the leaders of the Roman Catholic Church, the Eastern Orthodox Church and the Anglican Communion have jointly warned of the urgency of environmental sustainability, its impact on poverty, and the importance of global cooperation.”* <https://unfccc.int/news/religious-leaders-issue-joint-appeal-ahead-of-cop26>
- What have you been able to see?






Facing grand challenges




Are you doing everything you can?

Not perfect, but better

Or, how do you eat an elephant?

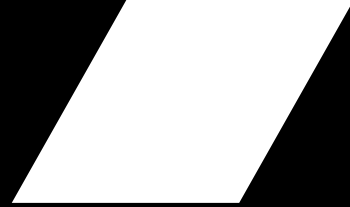


Priviledge - a blessing



- Right now your job is to learn
- Spending hours at work by 2050:
 - $7,5\text{h/day} * 260\text{days/year} * 28 \text{ years} = 54\ 600 \text{ hours}$

There are things you have control over, things you can affect, and things you cannot have an effect on.



Taking action – Student project examples at IdeaSquare

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#Crowd4SDG



- Crowd4SDG is a three-year Horizon 2020 Research and Innovation Action supported by the European Commission's Science with and for Society (SwafS) programme.
- Through an innovation cycle called GEAR (Gather, Evaluate, Accelerate, Refine), the transdisciplinary Crowd4SDG consortium of six partners will promote the development of citizen science projects aimed at tackling the SDG's, with a focus on climate action.
- Its goal is to assess the usefulness of practical innovations developed by the teams and to research how AI applications can enhance and provide effective monitoring of SDG targets and indicators by citizens

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2 ZERO HUNGER



Current estimates show that [nearly 690 million people are hungry, or 8.9 percent of the world population](#) – up by 10 million people in one year and by nearly 60 million in five years.

The world is not on track to achieve Zero Hunger by 2030. If recent trends continue, the number of people affected by hunger would surpass 840 million by 2030.

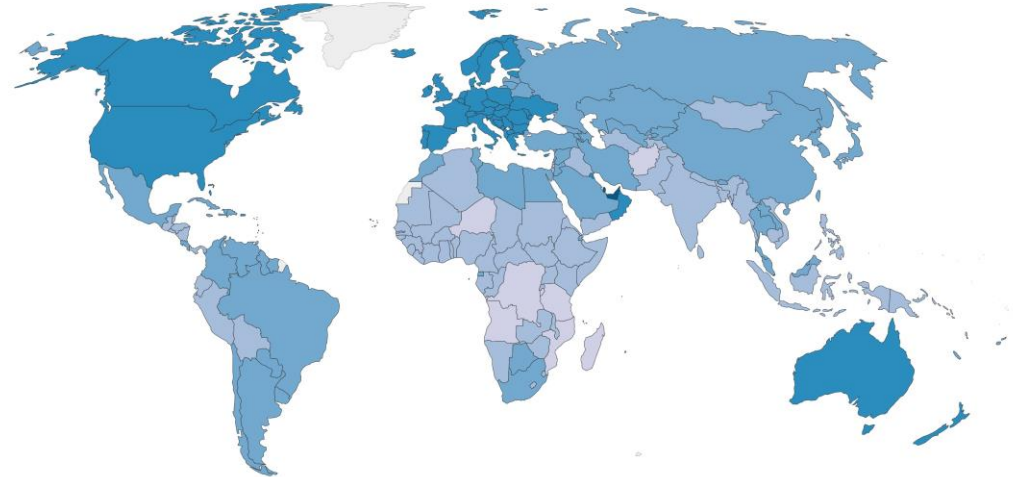
According to the World Food Programme, [135 million suffer from acute hunger](#) largely due to man-made conflicts, climate change and economic downturns. The COVID-19 pandemic could now double that number, putting an additional 130 million people at risk of suffering acute hunger by the end of 2020.

Energy vs. Food: How can we fix this?

Minimum daily requirement of calories, 2020

The minimum amount of daily dietary energy per person that is considered adequate to ensure they maintain a minimum weight for health. Across a population, this takes factors such as the age, sex, height, and activity levels of different individuals into account.

Our World
in Data



Source: Food and Agriculture Organization of the United Nations

OurWorldInData.org/hunger-and-undernourishment • CC BY

Annual world energy production: 6×10^{20} J. Minimum average food (energy) need: $\sim 5 \times 10^{19}$ J ... Close...

Source: [Our World in Data](https://ourworldindata.org)



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10 REDUCED INEQUALITIES



[COVID-19 has deepened existing inequalities](#), hitting the poorest and most vulnerable communities the hardest. It has put a spotlight on economic inequalities and fragile social safety nets that leave vulnerable communities to bear the brunt of the crisis. At the same time, social, political and economic inequalities have amplified the impacts of the pandemic. On the economic front, the COVID-19 pandemic has significantly increased global [unemployment](#) and dramatically slashed workers' incomes.

COVID-19 also puts at risk the limited progress that has been made on [gender equality](#) and women's rights over the past decades. Across every sphere, from health to the economy, security to social protection, the impacts of COVID-19 are exacerbated for women and girls simply by virtue of their sex

Income & Employment: How can we fix this?

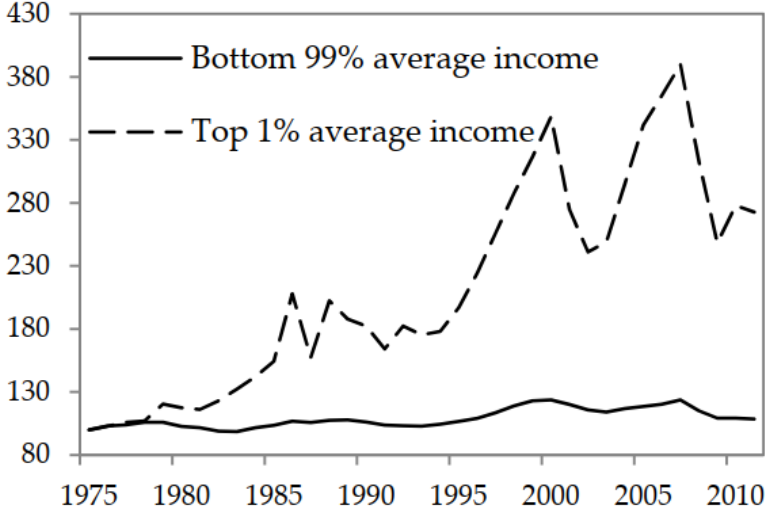
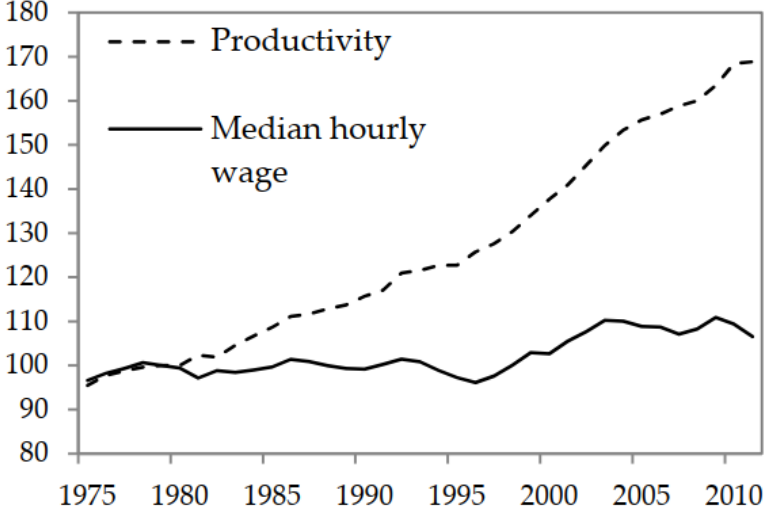
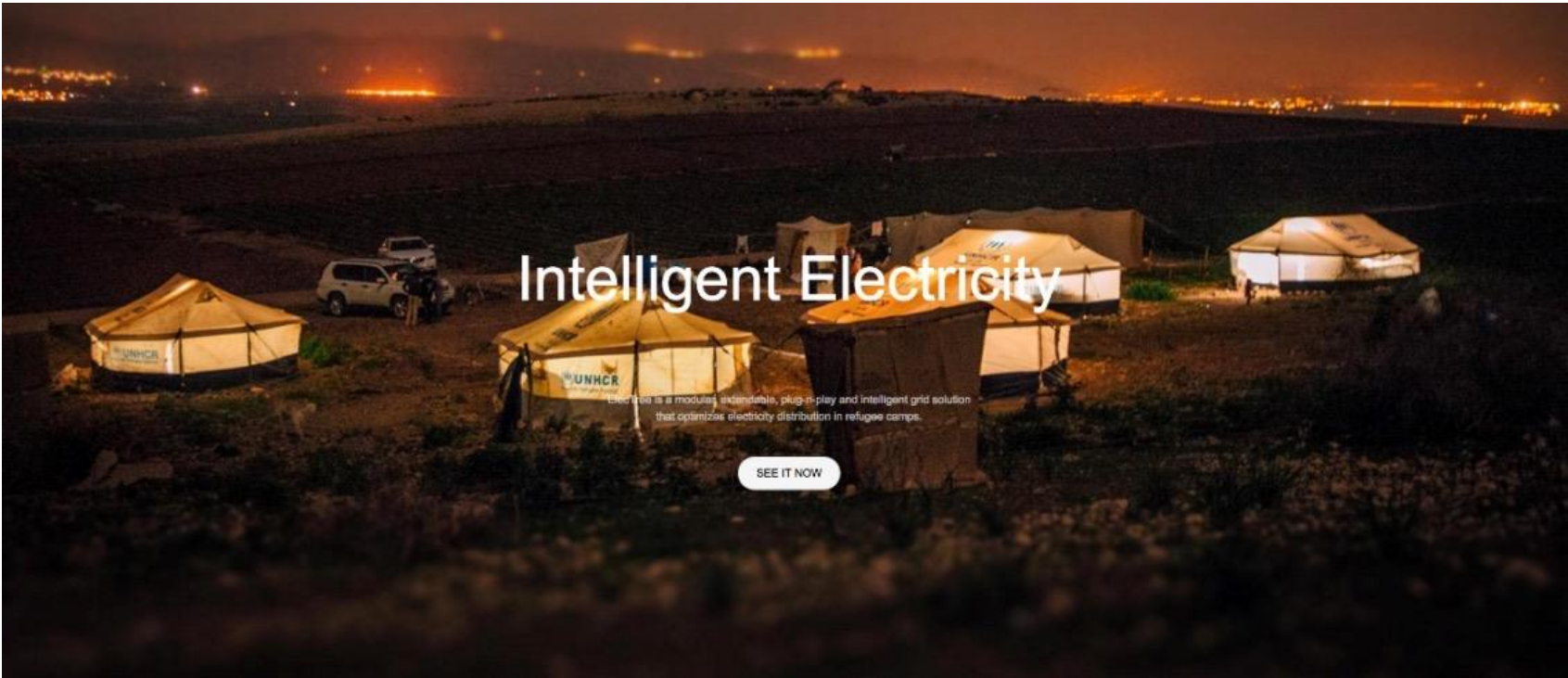


Figure 1 – Wages, productivity and average incomes in the US (1975-2013)
Sources: 'The State of Working America, 12th ed.' by the Economic Policy Institute (left panel); T.Piketty and E.Saez (right panel)

Source: J. Stiglitz, «[Inequality and Economic Growth](#)»



Intelligent Electricity

Electra is a modular, extendable, plug-n-play and intelligent grid solution that optimizes electricity distribution in refugee camps.

[SEE IT NOW](#)

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4 QUALITY EDUCATION



[About 260 million children were still out of school](#) in 2018 — nearly one fifth of the global population in that age group. And more than half of all children and adolescents worldwide are [not meeting minimum proficiency standards](#) in reading and mathematics.

In 2020, as the COVID-19 pandemic spread across the globe, a majority of countries announced the temporary closure of schools, impacting more than 91 per cent of students worldwide. By April 2020, close to [1.6 billion children and youth were out of school](#). And nearly [369 million children who rely on school meals](#) needed to look to other sources for daily nutrition.

HELPING YOUNG AUTISTIC CHILDREN TO COMMUNICATE

IV.
Solution

https://www.youtube.com/watch?v=w5S8vSHH_XA



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