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#SUSTAINABILITY

'Ultra-Green' Concrete

Researchers want to alter the formulation of concrete by adopting an "ultra-green concrete" approach.





partially recyclable and can even absorb CO2 from the atmosphere during the curing

the aviation and shipping

scientist at the Institute for Building Materials at ETH Zurich, hopes to change that with a new project.

Two-Fold strategy for

Concrete consists of a mixture of cement, aggregates, and water. Traditional cement is composed of about 95% produce cement, limestone and clay are burned into releases CO2 due to chemical decomposition of limestone The huge amount of energy required by the kiln further

 ${
m EPFL}$ has already launched its Limestone Calcined Clay Cements (LC3) project, in which Zunino is actively involved and which has set a new standard in cement production. It has developed a cement formulation using 50% clinker and a combination of calcined clay and limestone that has cut CO₂ emissions by around 40%.

formulation of concrete can bring about a significant increase in these environmen tal benefits. This is where Concrete (UGC) project at the ETH civil, environmental, and geomatic engineering department (D-BAUG) comes in. Zunino pursues a two-fold

strategy for the new green concrete: first, reducing clinker content, i.e. the amount of clinker per unit of cement: second, lowering the ratio of cement in the concrete. This dual strategy offers flexibility in tailoring low-carbon concrete compositions to individual markets.

"The ideal would be to mplement both at the same time but the individual com-





widely used building material worldwide, providing a foundation of our modern society's nfrastructure. It is

However, the amount of CO2 released during the manufacturing process far exceeds the amount that can be reabsorbed later. This is why the concrete industry generates around 8% of glob al CO2 emissions—more than

industry combined Franco Zunino, a senior

better concrete

clinker and 5% gypsum. To clinker in a kiln, heated to 1,450°Celsius (about 2,642 Fahrenheit), which inevitably worsens cement's carbon foot-

industry is not particularly innovative. Concrete has proven to be highly successful due to its cost-effectiveness safety, and being user-friendly. According to Zunino, "Green Concrete" could be ever cheaper than conventiona concrete. The proportion of expensive components is lower, while the quality and thus price of the concrete remain the same. This creates financial incentives for using more environmental friendly However, improving the

'Safety aspects are also important, of course."

ponents are independent of

each other. In some markets, it

may be difficult to implement

both aspects of the dual strat-

egy, as production capacity

and infrastructure need to be

put in place. However, it is

possible to implement at least

one of them and still reduce

CO2 emissions," Zunino says.

One reason for the reluctance

might be that the concrete

Cost effective concrete

"Anyone who builds a house wants to use a material tha ensures that it will stand for a hundred vears. But we have to ask ourselves whether this really makes sense, in view of the enor-CO2 emissions involved. Can we instead use a material that meets the structure's required life cycle but emits significantly less CO2? In a climate-crisis scenario, one tonne of CO2 saved today is more valuable than the same tonne saved in

We, Mothers, caught in the crossfire



he Israeli- Hamas Palestine conflict is already a devastating human tragedy. The heinous killing of innocent people by Hamas deserves the severest condemna tion. In all this, it is the civilian population which is bearing

Here are a series of poems on the conflict. Two poems are from the Israeli point of view and two

I am Aron, I am an IDF soldier,

My family, Holocaust survivors,

came to this promised land,

Our land stolen by Arabs.

The illiterate and dumb race. This race must be taught a lesson

Show no mercy, finish them!

We are the occupation force

in the West Bank,

We do as we please

Suspicious activity in one house,

We raid it at 2 am, line up

the family outside.

Show no mercy, finish them

poem is, 'We, Mothers, caught in the crossfire.' It is based on interviews by Parent Circle, a grassroots organisation, trying for a process of reconciliation between mothers on both sides of the fence, who are unable to cope with the loss of their children in this ongoing saga of violence.

Here are a series of poems on the conflict. Two poems are from the Israeli

point of view and two are from the Palestinian point of view. The unifying

their children in this ongoing saga

Conscience, is based on inter-

views given by former soldiers of

IDF, who have formed an organi-

sation of the same name. They

#POEMS

of violence.

The

view. The unifying poem is, 'We, Mothers, caught in the crossfire.' It is based on interviews by Parent Circle, a grassroots organisation, trying for a process of reconciliation between mothers on both sides of the fence, who are

Army, the Israeli Government and the Israeli press Martin Luther King famous-

ly said," Violence corrupts the soul." Both sides have their souls corrupted and they don't care. Hamas must know that violence begets violence and the only path forward is peace and negotiations. Israel must know that it can erase a race but it cannot erase the idea of a fre Palestinian state

We, mothers, caught in the crossfire Love in an Open Jail



And blow up the house. This race must be taught a lesson, Show no mercy, finish them! I am a hero in our communi A group of Palestinians have lined up. They are stone pelters The moment thev start

pelting stones, We fire at them I aim at the chest of one man and fire. He crumbles down in a heap, The crowd scatters away, This race must be taught a lesson, Show no mercy, finish them!

A procession of two funeral caskets. Heads towards the funeral ground. A large crowd follows. chanting slogans, We fire tear gas, shoot in the air. The crowd starts pelting stones, We fire at the crowd. some are dead, The people flee, Two caskets on the ground And two dead bodies besides them, This race must be taught a lesson.

> All Palestinian leaders inciting violence. Show no mercy kill them! All young Palestinians are potential terrorists. Show no mercy, kill them! All journalists reporting from their side are anti-Zionists, Show no mercy, kill them! The idea of a free state of Palestine. Show no mercy, kill it!



I am just back from my stint in IDF, My imma(mom), she is so All welcome me for protecting Israel,

At night, I look myself in the mirror. A hardened face of a 21 year old, I can't look at myself for what I have done. My conscience burns slowly, bit by bit.

Hebron was my first posting, My gear: 6 Ammo packs, 2 grenades and a machine I could feel the power in my hands. We were there to enforce a

curfew. Shoot to kill if anyone broke A young boy ran in front of I aimed and shot him dead, My first killing to protect my people, My conscience burns slowly,

bit by bit. Show no mercy, finish them! We would set up roadblocks anywhere. Barbed wire on roads to create traffic jams. Search cars, be cruel to peo-

Once I ordered everyone out, An old woman expressed her helplessness. I pulled her out with brutal She collapsed to the ground She looked at me, her face in

Burning Conscience



You have a mother. Will you treat her like this? nscience burns slowly, We rush at midnight Into a suspected terrorist's

I put a gun on his temple He shouts in fear, I blow

I executed him in self defence Our way of getting around the Court order No summary executions My conscience burns slowly, bit by bit.

Go to his room

up his brains,

We, the occupying forces, create fear in them. Make sure thev have no rights like us. Make sure they know we kill at will. Make sure they know we are not accountable. Make sure they know we, the Jews, are the superior race, My conscience burns,

> At night, I suffer pangs of I thought I was a good per-Does a good person shoot to Does a good person harass defenceless people? Does a good person blow up homes

And make people homeless?

that what we practice is

apartheid?

bit by bit.

My conscience burns slowly

Does a good person not know

slowly bit by bit.



The pain of loss of a child, approaches us, Sears the heart of many a She may be Jewish, she There is no healing, there is no closure. We, mothers, caught in

I am Noor from East My toddler son was hombed out of this world I hide the pain in a recess And live with it, day in, day out,

We, mothers, caught in the crossfire. I am Nua from West Jerusalem. My teenage son was knifed out of this world.

His laughter rings in my His infectious smile, I can't forget, We, mothers. caught in the crossfire.

senseless violence?

We, mothers, caught in

the crossfire

An organisation

We brought our children to this world, To nurture them and make them good human They were killed and we buried them. When will you feel the anguish of a mother's heart? When will you stop this

There is a way forward, A path to healing, A path to understand each other's pain, A path to find closure to our sorrow. We, mothers, caught in the crossfire

We will meet to support We will not be asked to forgive, We will not be asked to love each other, We will just respect each We, mothers, caught

For the first time we look at each other. We hear each other's story of child loss. We try to understand each other's pain, We aim to reconcile

in the crossfire.

We aim to take a small step towards peace We, mothers, caught in the crossfire. There is hope,

There is hope this flow of tears will cease, There is hope the dark clouds of sorrow will part There is hope the sunshine of peace will break through We, mothers can only

There will be peace, Our children will live Let us not be caught in

the crossfire.



 ${f I}$ am Adil; my land is an All gates are shuttered and guarded, monitored, How can love blossom here The shadow of

The shadow of

oppression

is for all to see

I was picked up by the

enemy when I was 13

vears old.

Put in a one square metre

jail, couldn't sit or lie

No water, food or toilet

They wanted me to

I stoned the Israeli army,

I refused, was jailed

without trial.

They released me after

10 months.

I was scarred and a

changed person

The shadow of

oppression

is for all to see

on the other

indoctrinated. oppression is for all to see. I have been tutored to kill Kill innocent people on the other side of fence, as My school friend Fatima, I adore they kill our own. Kill women and children, We go out for strolls at night, as kill our own, Steal kisses in dimly Destroy their homes. lit streets, as they destroy our own She wants to marry me The shadow of Unspoken, I have other oppression is for all to see. goals in life,

> I must tell Fatima today, Our love is doomed. I will ask her to forget me And move on in life. It will not be easy for me but I have been tutored to forget family, personal The shadow of oppres-

> > is for all to see. At night, they bomb our locality, In the dense smoke,

I want revenge for my

brother killed in raids

I want revenge for my

is for all to see.

I have been

reason with me. You will be killed she says, I am ready for anything, I tell her. This is my goodbye and you may never see

By Rick Kirkman & Jerry Scott

I tell Fatima She sobs and tries to

I hate the people me again, side of the fence The oppressor will be A rage smoulders in me, revenged for all to see.



Picking up young me Summarily putting them in jail, Without trail, unaccounted, If this is not oppression,

Razing a terrorist's home to ground, Pushing the family to the street and elements. While friends and others watch in helpless rage. If this is not tyranny.

Mowing the lawn. Mowing down the men women and children, All so 'that one' is killed, If this is not massacre, What is?

Grabbing our ancient land, Grabbing our water resources, Rendering us landless in the land of our forefathers. If this is not injustice. What is?

Ordering one million people out

of their homes in one day. Closing their water. food and power, Bombing their homes to dust Killing innocent people and children. If this is not genocide, What is?

You lost six hundred thousand in the Holocaust. We lost in the same proportion The preachers of human rights look on. Our Arab brothers look on, History replays itself,

If this is not Holocaust redux, What is? rajeshsharma1049@gmail.com

Holocaust



to promote biodiversity.

pogenic carbon. While this study elevated a dis-

Forest Carbon Capture Due to ongoing deforestation, the

total amount of carbon stored in forests is ~328 Gt below its natural Of course, much of this land is

used for extensive human development including urban and agricultural land. However, outside of those areas, researchers found that forests could capture approximately 226 Gt in regions with a low human footprint, if they were allowed to recover. Approximately 61% of this potential can be achieved by protecting existing forests, so that they can recover to maturity. The remaining 39% can be achieved by reconnecting fragmented forest

#AFFORESTATION

A Biodiversity Boost

The forest carbon potential has been a highly controversial topic.



landscapes through sustainable

highly degraded. In fact, many peo-

ple have never been in one of the

few old growth forests that remain

on Earth," says Lidong Mo, a lead

author of the study published in the

oiodiversity, ending deforestation

ersity accounts for approximately

ighted that, to achieve the full car-

bon potential, restoration efforts

should include a natural diversity of

species. In addition, sustainable

agricultural, forestry, and restora-

tion practices that promote biodi-

versity have the greatest potential

The authors stress that responsi

tree plantations to offset carbon

half of the global forest productivi

must be a top priority.

for carbon capture.

'A Fundamentally

"Most of the world's forests are

restoration.

management and

capture approximately 226 gigatonnes of carbon, but greenhouse gas emissions, a new study shows The study highlights the critical importance of forest conservation, restoration, and sustainable management in moving

biodiversity targets. The researchers stress that this potential can be achieved by incentivizing community-driven efforts

towards international climate and

The forest carbon potential has been a highly controversial topic. Four years ago, a study published in the journal Science found that the restoration of forests can capture over 200 gigatonnes of carbonwhich could draw down approximately 30% of excess anthro-

cussion about the role of nature in fighting climate change, it also raised concerns around the adverse environmental impacts of mass tree plantations, carbon offsetting schemes, and greenwashing. While some scientific studies have supported the scale of this finding, others argued that this forest carbon estimate could be up to 4 or 5 times too high.

To address this controversial topic, researchers led by the Crowther Lab at ETH Zurich joined forces to build an integrated assessment using a comprehensive range of approaches, including vast ground-sourced data and satellite

Social Endeavour

ble restoration is a fundamentally social endeavour. It includes countless actions such as conservation, natural regeneration, rewilding, silviculture, agroforestry, and all other communitydriven efforts to promote hindiver sity. It requires equitable development, driven by policies that prior itize the rights of local communities and Indigenous people. "We need to redefine what restoration means to many people," says senior author Thomas Crowther, a orofessor at ETH Zurich "Restoration is not about mass

directing the flow of wealth owards millions of local communities, indigenous populations, and farmers that promote biodiversity across the globe. Only when healthy biodiversity is the preferred choice for local communi ties will we get long-term carbon

iournal Nature. "To restore global capture as a bi-product. The researchers conclude that ecologically responsible forest The dataset revealed that biodirestoration does not include the conversion of other ecosystems that would not naturally contain ty. As such, the researchers high-

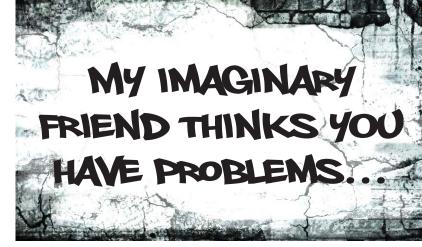
"Global restoration is not only about trees," says Constanting Zohner, a senior researcher at ETH Zurich. "We have to protect natural biodiversity in all ecosystems including grasslands, peatlands and wetlands that are equally essen-

tial for life on Earth."

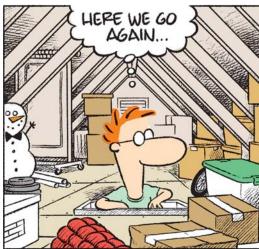
This study brings to light the critical importance of natural diverse forests in contributing to 30% of carbon drawdown potential However, forests cannot be a substi tute for cutting fossil fuel emissions The study warns that if emissions continue to rise, then on-going droughts, fires, and warming will threaten forests and limit their abil ity to absorb carbon.

"My biggest fear is that corpora tions misuse this information as an excuse to avoid cutting fossil fuel emissions. The more we emit, the more we threaten nature and peo ple. There can be no choice between reducing emissions and protecting nature because we urgently need both. We need nature for climate and we need climate action for

THE WALL



BABY BLUES



I CAN HARDLY MOVE AROUND



ZITS





