COSMOS GREEN

Do Good. Make Money.

Our Journey So Far

Only one asset class beats the S&P 500, hedges against inflation, provides portfolio diversification, and generates significant income.

That asset class is farmland.

Since being founded, **CosmosGreen** has given our community the opportunity to invest, own, and profit from this, while doing good to the planet and future of farming.

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COSMOS GREEN

FOREWORD

by: Sathya Raghu

I started **CosmosGreen** with my co-founders a decade ago with one pertinent question – Why is farming in India synonymous with poverty, when food is a necessity? We applied first principle thinking to find the answers. Incidentally, we have had the humility to understand things the way they are and the audacity to imagine the way things could be.

The core values which inspired us from day 1 are: - How do we create a win-win-win game for everyone who's involved, be it people who invest money, the team which is working for it, the farmers, the planet, and every stakeholder? Secondly, we believe in doing what is right, not what is easy. And lastly, we make learning a ritual. These 3 values drive our actions and decisions.

So, what exactly do we do? We create regenerative farms. These farms do good for the planet by creating cutting edge technologies to make farming future-relevant and generate good returns for the people who invest money into them.

Our first project was on a 140-acre farm in Raichur, Karnataka, where we started growing grapes to sell to a vineyard. We also grew Guar to make gum to sell it for industrial use. A couple of years into this, we realized that the ideal end-state for this farm is renewable energy. Thus, we brought together the team to create solar and wind projects in that place. To cut the long story short, by 2015 we made a strategic exit by offering it to a 48 megawatt of renewable power plant. This exemplifies the responsible choices we make to stay true to our purpose of doing good while making money.

Then we embarked on our second project in Telangana, mainly to grow vegetables. It started with open-field vegetable growing. Soon, we realized that the impact of climate change on farming is going to make it extremely difficult and unviable for us to sustain it. This realization let us to experiment with and innovate on Climate Smart Farming. Team Kheyti (www.kheyti.com) collaborated with team CosmosGreen to use this facility for research and some extraordinary things started happening. We came up with some phenomenal innovations which today are helping 1000s of small farmers. More importantly, this place became a destination for 1000s of small holder farmers to visit and learn about Climate Smart Farming.

We decided to strategically divest 20% of our project for community farming on retail basis. Recently, a well reputed eco-friendly housing developer evinced interest to explore the possibility of building an ecological community housing project.

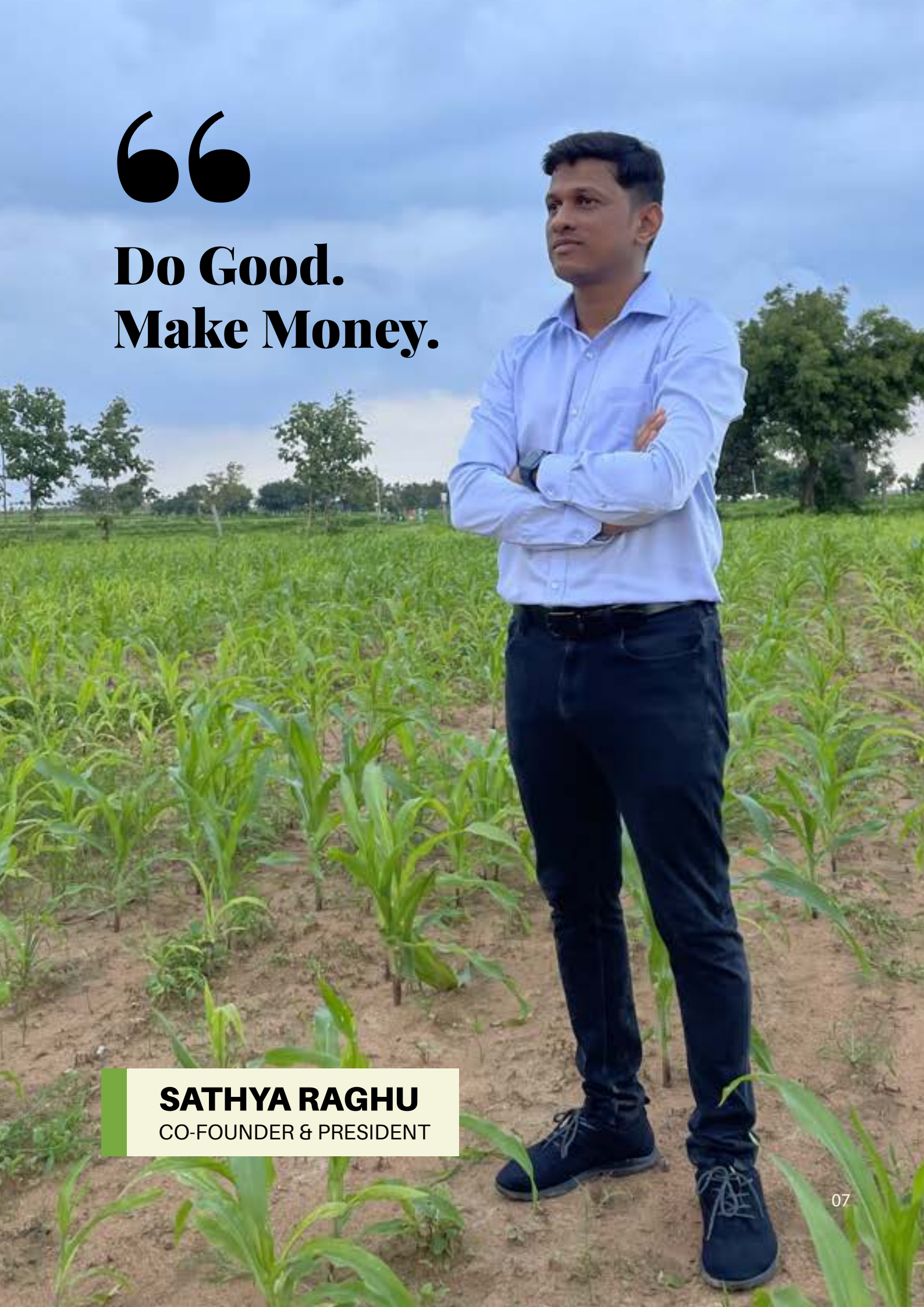
In both these projects, we initially set the expectations of returns at 15% but we ended up delivering actual returns of 20-28% on an annual basis.

With this success behind us and the growth aspirations ahead of us, we embarked on our third project, which is located around 100 kms from the Financial District in Hyderabad, Telangana. This is a 150-acre farm next to a 350-acre scenic lake. It is very close to the national highway from Hyderabad to Bangalore.

The plan for this land is to develop regenerative fruit farming, afforestation, and climate smart animal husbandry. Interestingly this land is surrounded by agricultural canals on 3 sides and hillocks at the end of the lake. With the fruit farming and mini forests that we are intending to develop, this place can become a great destination for eco-friendly housing, eco -friendly golf course or a destination wedding venue or even an eco-friendly resort. But for this to happen, we need to wait for 5-10 years for the project to realize the full potential.

I am happy to share that the investors who joined us in the first project came back to us along with their friends and family into the second project. And those who partnered with us in the second project are continuing with our third project, once again with their friends and family. So I asked them, "What is it that you saw in us that the new partners should know?" and they said 3 things, "First thing, agriculture has always been dear to us and we wanted to invest in agricultural lands but investing in them always had issues like the challenge in finding the right land; managing it in terms of security, operations; how do we exit that land when we want and how do we hold it in a legally clean manner with people staying in different parts of the world? CosmosGreen made this process seamless. Secondly, we like your motto of Do Good. Make Money. It's not this or that. It is this along with that. And we truly resonate with the choices you make, be it in terms of renewable energy for the first project or responsible housing possibilities in the second project. Third, we want to partner with good people."

Our team of partners are business leaders, scientists, doctors, lawyers, techies, and the likes. What is fascinating is the conversations between partners are becoming more and more valuable and we're creating win-win possibilities for our partners. I am deeply inspired by Bill Drayton of Ashoka Foundation who said, "Social entrepreneurs are not content just to give a fish or teach how to fish. They will not rest until they have revolutionized the fishing industry". Ours is a mission to create spaces that are larger than life and to create impact that will live beyond us. If you believe that "Do Good. Make Money." is the motto that should spread, join us in this beautiful journey.



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Do Good.
Make Money.

SATHYA RAGHU
CO-FOUNDER & PRESIDENT

WHO WE ARE

We are a team of multi-disciplinary professionals, with an objective to carry on agriculture in a profitable, professional, scientific, and eco-friendly manner.

At the core, we are a group of die-hard believers in the restorative powers of nature.

We believe that the best way to harness those powers is through regenerative farming. We have tried, experimented, even failed at times, yet we persevered. And we value those failures as stepping stones that paved our way to success.

WHAT WE DO

We build climate smart farms.

These are ecosystems where we nurture and enable co-existence of livestock & climate smart practices for growing fruits and vegetables.

The regenerative farming is done with sustainable practices of managing soil, water, and waste.

Sandbox For Innovation

We innovate with agriculture. Our projects are all sandboxes for the birth of innovative practices that have the capacity for revolution. In our first project in Raichur, Karnataka, we were the first movers to have produced Guar in South India, a crop which is usually grown way up in the North. We made it possible. Now, the Guar crop is being produced by more than 1500 farmers in the South. In Depalle, our second project, the idea of micro greenhouses as source of sustainable income for small to medium scale farmers was birthed. Non-planting innovations such as water harvesting through shadowing of rain were established and are now shared with 1000s of small holding farmers across the country.

WHY WE DO WHAT WE DO

WHY

- does farming sound synonymous with an unprofitable endeavour?
- do the small farmers, who represent 86% of the total Indian farmers and comprising around 100 million households, largely live in poverty?
- is the business risk of farming so high that it becomes unreliable?

THIS SHOULD CHANGE...

Investing in technologies for the poor is not necessarily a loss-making effort.

But how do we design win-win-win games in such a way that providers of capital (investors), the doers (management team) and providers of food (farmers) and the environment, which can't speak for itself, end up being better off?

OUR TRIGUNAS

People & Planet are at the core of our business while creating Prosperity for everyone involved.

Planet First

Being Gentle on the Planet

This is the only home we have, and it is of utmost importance to care for it while it nourishes us. Our choices of farm practices and farm innovations always have a dimension of climate consciousness.

People Centric

Making Technology Accessible to all

We are not the owners of the planet we inhabit, and therefore, it is our duty to leave it unharmed and preserve it in its pristine state for the Next-Gen. We believe that our innovations must be democratised to make them accessible to the underprivileged sections of the society. What good is technological innovation if it does not reach the least mile?

Prosperity for All

Innovation for the Future of Farming

Innovations which solve real world problems at scale excite us and we invest our time and talent in them. Our end goal is to create win-win-win games for everyone involved. We believe that only such initiatives stand the test of time. We intend to build an engine of innovation that guarantees a win today and enlightens the path towards success in future too.

MISSION

Making farm ownership seamless, meaningful, and enjoyable for all.

VISION

Creating value for all in agriculture.

Good returns for the farmers and farm investors, safe food for the people and making Climate Smart choices.

VALUES

Incentive alignment
for everyone to win

Do what's right
not what's easy

Keep learning
as a ritual

LEADERSHIP TEAM

S. Raghavan

Ex-Chairman and Advisor

Raghavan is the Chairman Emeritus of CosmosGreen. Under his able guidance, the company built its initial business models and values. He served in IBP as a Director Marketing. Later, he also served as CEO of Essar Oil. He enjoys spending time in the countryside and interacting with people to learn about their lives.

P Rama Krishna

Advisor

After spending decades in the leadership of PwC, he currently runs his boutique investment fund 'Utthishta' and investment bank 'Artha Arbitrage'. He mentors start-ups and guides them to scale. His strategies helped CosmosGreen navigate some of the most challenging days.

LEADERSHIP TEAM

Scan & Watch TED talk on Climate Smart Farming

Sathya Raghu

Co-Founder and President

He is a Chartered Accountant who briefly worked with PwC before venturing into agripreneurship. Co-founder of two agritech companies, CosmosGreen and Kheyti, Sathya Raghu has recently delivered a TED talk on Climate Smart Farming in Scotland. He has trained 25k+ finance students and is a TED, Mulago, Aspen New voices and Acumen Fellow. He loves reading books and mountain motor biking.

Ayush Sharma

Co-Founder

He started his career studying stocks as an investment analyst at Crisil. He soon used that skill to analyse plants and people in CosmosGreen. He is an offroading enthusiast and enjoys long drives in his 4x4 Jeep. He is also the Co-Founder of Kheyti. If he goes missing from the city, you will find him in the hills.

PROJECT HEAD

Gunturi Joyson

Head of Operations/Project Head, Veltoor

He is a Chartered Accountant turned agri-intrapreneur. With his strong passion to build meaningful businesses, Joy joined CosmosGreen close to a decade ago. He is the go-to man for problem solving. He thoroughly enjoys cooking and the way to his heart is through his stomach. He loves travelling and having deep conversations with people.

ONCE UPON A TIME

A farm was basically a place where our family, friends, neighbors, all of us created our lives. We created our food. Going to the farm, working in the farm and being a farmer were matters of pride in our villages, which are the backbone of our civilization.

Once Upon a time we used to get fresh produce from the farm. Kids used to go play in the mud, breathe fresh air, drink water from the streams flowing right there. Life was so simple, so beautiful, so grounded. It really taught us the values of sharing, appreciating simplicity of things. It also taught us gratitude for what is not in our control, like celebrating rain, celebrating the magic of Sun.

The beautiful cocktail of soil, seeds, air, rain, plus hope and dreams of a bountiful crop formed the fountain of life and farmers derived nourishment from it. Farmlands were the best gifts parents gave their children. This was our agriculture. This was the farm. This was the culture which taught us agriculture, but that culture is fast disappearing. The gap between soil and humans is increasing by the day.

Soil is treated as bacteria and infection not as the mother which feeds us. Empathy is fast shrinking. We are so called "developing" but not evolving enough with sustainable choices.

The groundedness in human race is evaporating. Hopefully we can reconnect these dots, but for that to happen we need to make an important collective choice. A choice to reactivate the strand in our DNA called agriculture. All of us, whether it is 1,2, 3 or many generations ago, were farmers. From the greatest civilizations, we should continue to take what is great and let go what is not agriculture, which is the source of food & source of family values. We have it in us to learn from the mistakes and to create a great future for us and for our kids.

At CosmosGreen, we think of ways and means to re-establish that connection with agriculture. In everything we do. Always. In all ways.

GLOBAL TRENDS IN AGRICULTURE

Growing population is leading to increased food requirement which is getting worsened with deforestation and is ultimately leading to increased climate risk.

Unscientific farm practices are resulting in unviable farming which is invariably displacing farmers and making agriculture more industrial.

Across the globe, people are generally becoming a lot more climate conscious, but they are unwilling to work harder which is why it becomes all the more important and urgent to focus on Climate Smart Farms and Investments.

In addition, prevailing farming practices break down soil carbon into carbon dioxide that is released into the atmosphere, greatly contributing to global warming.

Other negative effects of the modern-farming paradigm include: nutrient overload in our waterways from the use of synthetic nitrogen, loss of energy reserves due to the abundant use of petrol-based chemicals (which put an increasing financial burden on farmers as oil prices rise), degradation of our soils (due to mono-cropping that requires use of synthetic fertilizer for fertility) and animal health and welfare concerns.

THE QUESTIONS WE ASKED OURSELVES

01

When agricultural land generates more returns than gold or stock market on an average, what is causing people to not invest in farm lands?

How can we harness the power of capital to fuel innovation, which transforms the future of farming for Indian smallholder farmers?

02

03

When the world has advanced so much in agriculture, why are our farmers left behind? How do we design for the Indian small farmers?

How can farming be made profitable while being judicious with the resources?

04

THE ANSWERS WE ARRIVED AT

FARMFOLIO

Farm should be viewed as a portfolio. We call it farmfolio. Good returns with ease in entry and exit and a strong regulating support on ownership are ensured.

TECH FOR SMALLHOLDER FARMERS

Technologies should be designed, prototyped and rolled out, keeping smallholder farmers in the centre. Our large farms act as sand boxes to create, iterate and innovate.

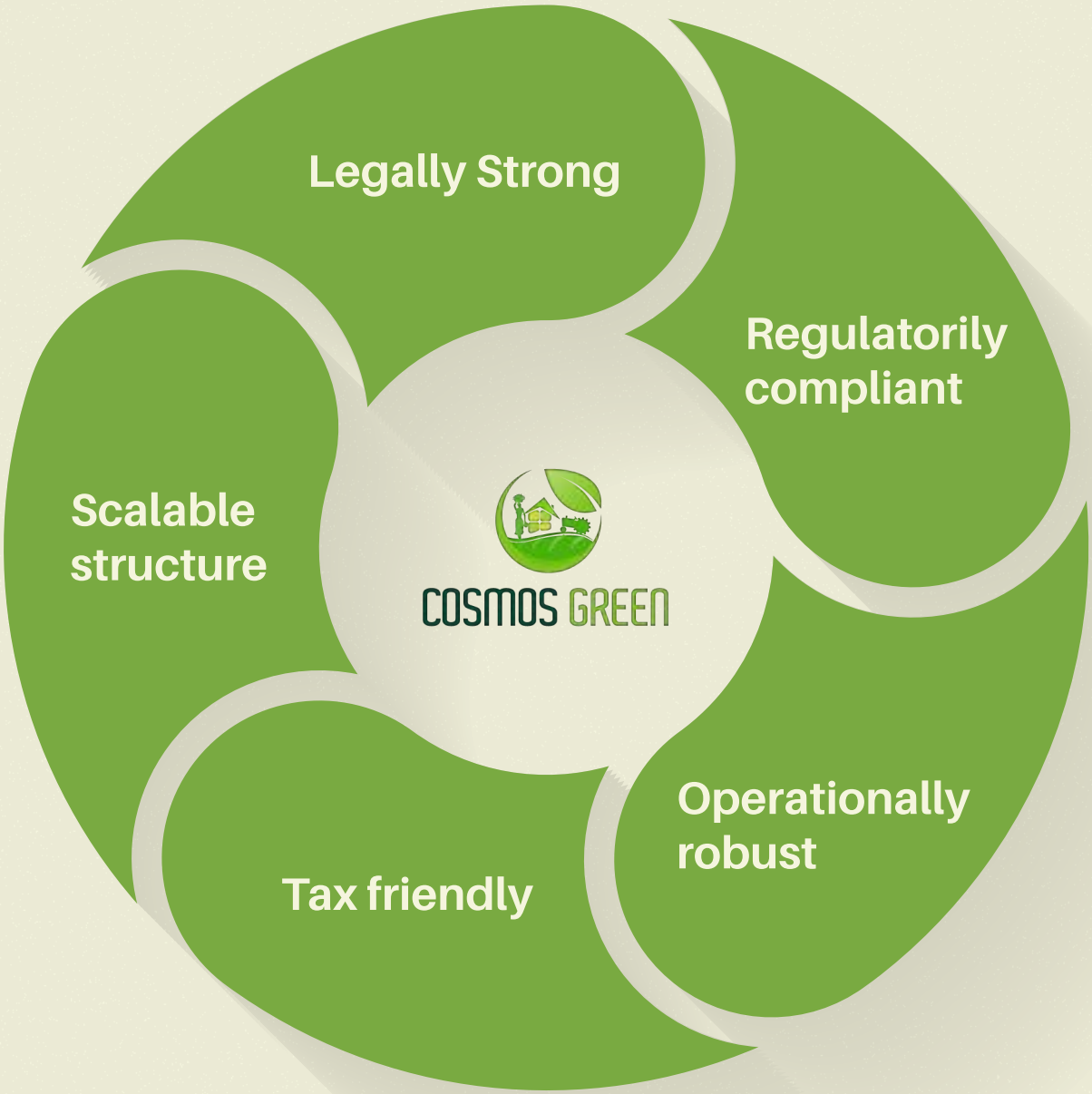
WIN-WIN-WIN

It is possible to create win-win-win for all the players, if we have a medium term horizon for the investment and clear goal orientation on what we are optimising for.

Kheyti - Depalle

This was used as a sand box for Climate Smart Vegetable Farming in collaboration with Kheyti, a globally-acclaimed, award-winning start-up. Kheyti is now serving 1000s of small holding farmers across 6 states of India.

THE COSMOSGREEN MODEL



OPERATIONALISING THE ANSWERS

LEGAL PROCESS

We created an investment vehicle in a corporate structure which is legally tight and procedurally easy.

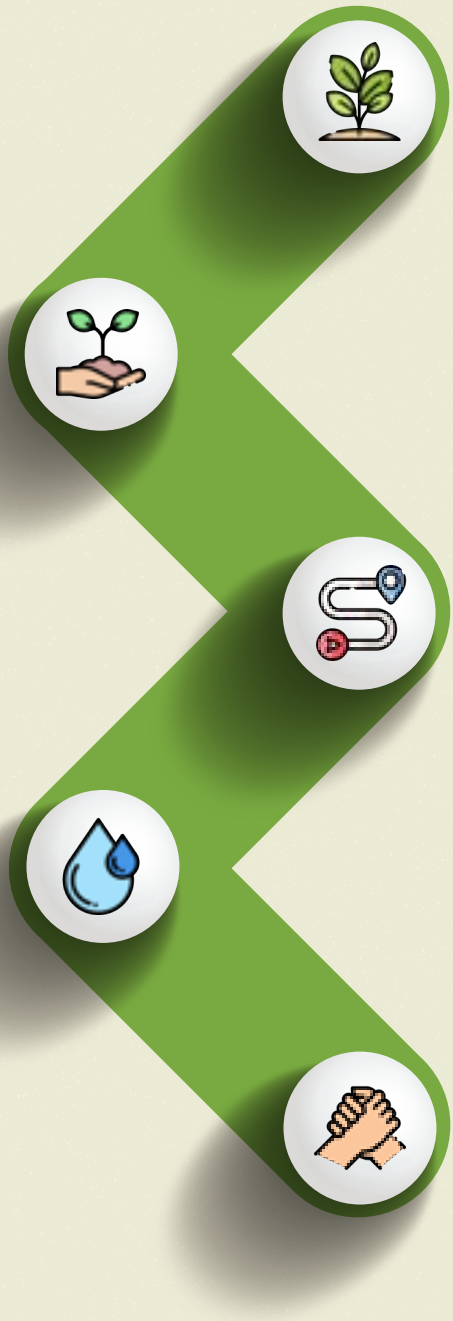
PROJECT LOCATIONS

Strategically located large lands in growth corridors for good capital appreciation and access to ample water sources.

FOCUS AREAS

Cultivate high value crops like fruits and vegetables and create climate smart ways to farm them. Afforestation measures remunerative to reduce CO2.

HOW DO WE SELECT PROJECT LOCATIONS?



Agricultural suitability

Growth corridor for future capital appreciation

Good connectivity and proximity to metro cities

Natural resource availability

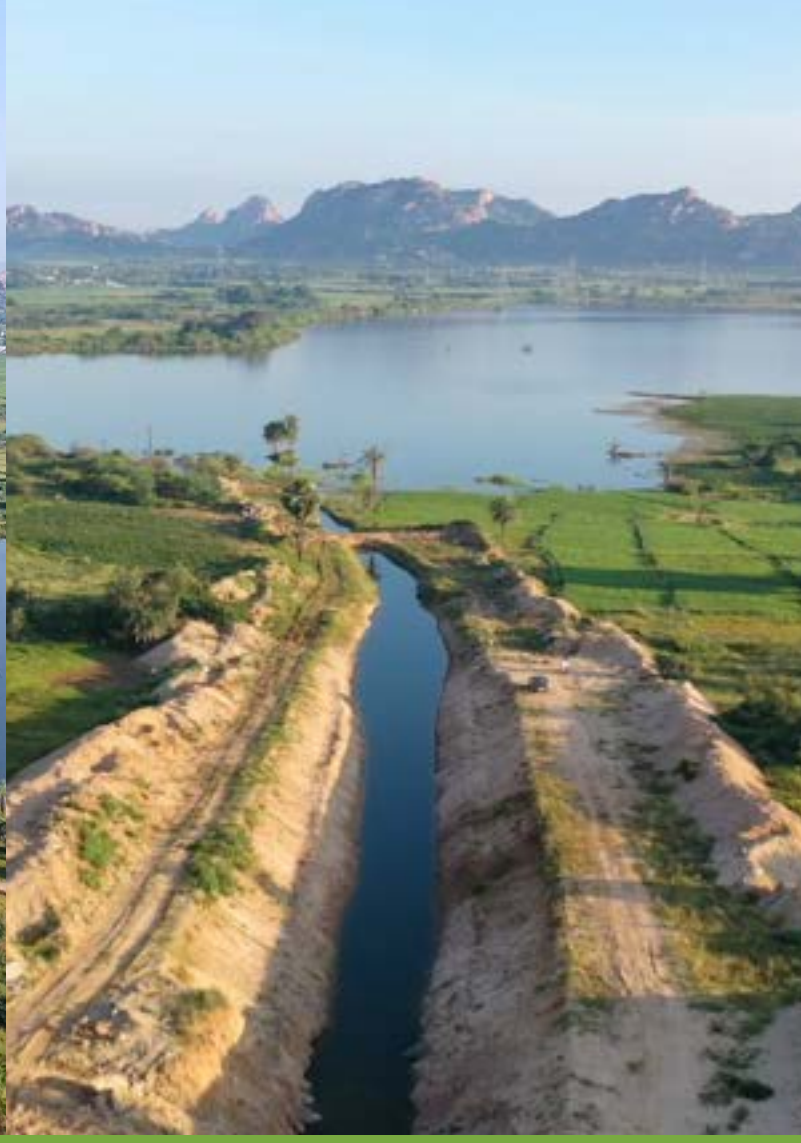
Friendly socio-political environment

OUR JOURNEY SO FAR

CosmosGreen was started in 2011 with a vision to win together with aligned incentives for people, planet, and prosperity. We're in the business of doing what's right, not what's easy. We're focused on what's good in the long term, not just to make a quick buck.

It started with regenerative farms across 140 acres of CosmosGreen Raichur project in Karnataka that eventually became a renewable energy project of 48 MW, which generated a 20% return on investment (ROI).

Our second project, CosmosGreen Depalle, was on a 105-acres Climate Smart Farm. Over 6 years we generated 28% average annualized ROI for our investors.



Armed with the proof of concept, we are now venturing into 150-acre project in Veltoor to focus on a regenerative farming initiative on Hyderabad-Bangalore highway, just about 2-hour drive from Financial District in Hyderabad, surrounded by hillocks overlooking a 350-acre scenic lake.

COMMUNITY INITIATIVES

CosmosGreen Kisaan Maitri

Kisaan Maitri is a registered farmer producer company (FPC) that works to protect small farmers by helping them participate successfully in modern competitive markets. Incorporated in 2015, the FPC has 500+ farmers as members. The FPC has actively been working with about 2500+ farmers through consulting, marketing support, running a milk collective, and conducting farmer trainings.

Padmashri Subhash Palekar visited the project to understand and appreciate Project Depalle for Regenerative Farming Practices.

Kisaan Sevaks

Kisaan Sevaks Foundation enables the education, growth, and overall development of 250+ students. We organize weekend farm schools where we promote activity-based learning & sports, and evening bridge schools where we help children learn their classes from their regular schools better and equip them to compete with children in towns. Further, through project Udaan, we fund the education of children going to mainstream schools and colleges. We also organize career counselling sessions and health campaigns.

WHAT WE SEEK IS SEEKING US TOO

Something which started as a passion, has now become our purpose.

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Cosmos is amplifying the future of CosmosGreen with serendipity and collective energy to make the seemingly impossible happen.

Something which started as curiosity, has now become our distinct identity.

Something which started in the remotest areas of South India, is now celebrated globally.

WHO IS THIS FOR?

Providentially, CosmosGreen has always attracted the righteous investment from astute partners who have been steadfast in terms of their confidence in us as the befitting organisation when it comes to earning profits as well as making an impact on people and the planet. So, let's see who would be the right fit for our investment model?

01 Middle aged & senior professionals, entrepreneurs and celebrities, who want to invest a portion of their portfolio into Climate Smart Farm Assets (Out of prudence and our expertise, we recommend about 25% of the total investible assets to be in agriculture lands)

02 Willingness to own a farm, but no time and expertise to buy and run it

03 Keen to stay invested for 5 years (while they can exit the project anytime they want)

04 Clean professional and personal track record

05 Inclination to do what is right, not just what is easy

06 Alignment with the ethos of "Do Good. Make Money"

*We also collaborate with owners of large parcels of lands to create Climate Smart Farms.

Our Partners

Without doing good, probably there are other avenues where by simply investing into a barren land, you can make more money. But the investing partners should be inclined to be a part of an initiative larger than just personal gains (which are assured any which way they look at it) and to create a tangible change in the lives of fellow humans and our planet.

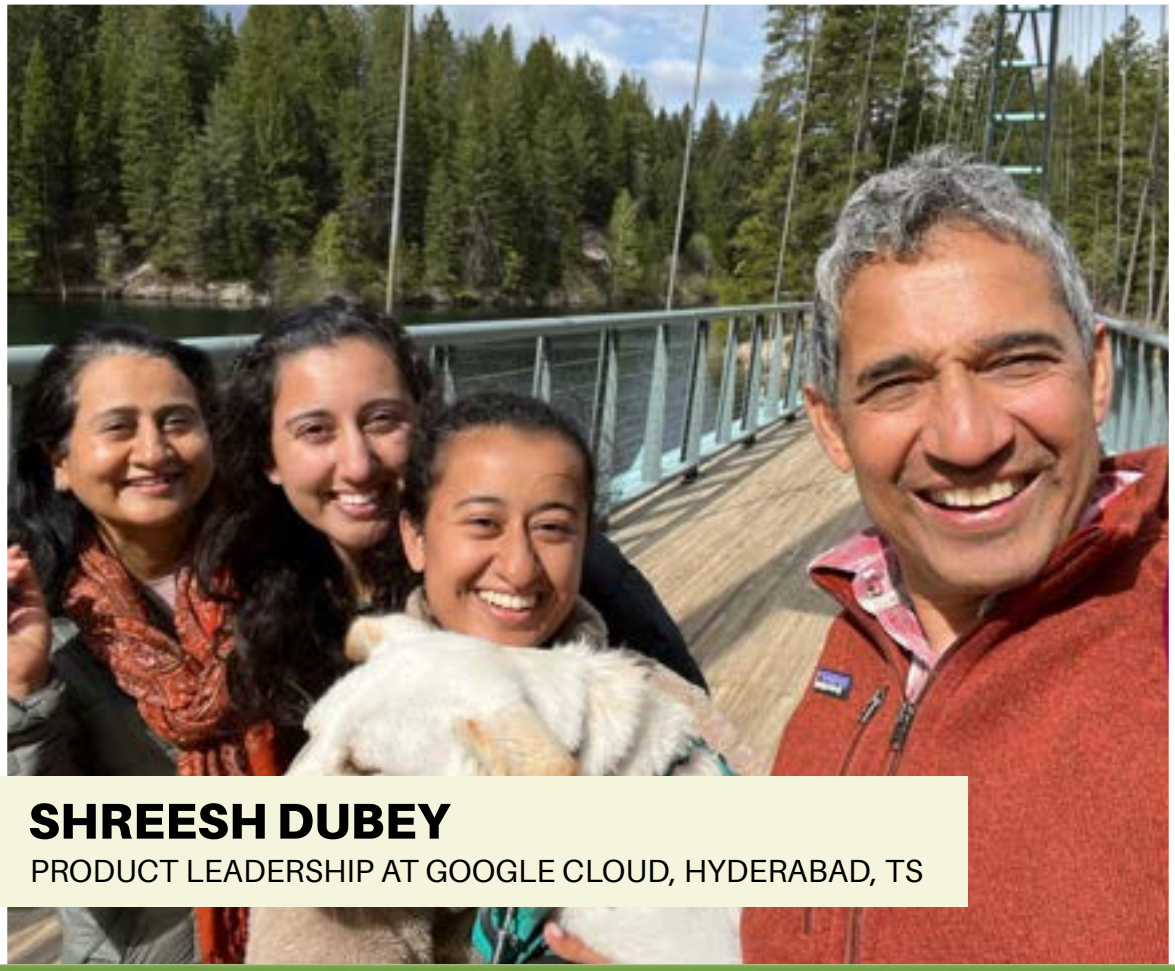
KIRAN THOTA

CA, CISA, PENNSYLVANIA, USA

For **Kiran Thota,** a Senior Manager at Ernst & Young, the decision to invest in CosmosGreen was purely driven by his belief in Organic Farming, doing what is good, association with like-minded people and the fact that he had a successful association for a considerable period of time.

Happily married to Smitha Thota, a proud father of two school going boys, he loves fruit farming amongst many other common interests.

Kiran's investment was purely influenced by CosmosGreen philosophy of "Do Good. Make Money." He is an avid reader, movie watcher and a wholehearted supporter of his wife's gardening passion in Philadelphia.



SHREESH DUBEY

PRODUCT LEADERSHIP AT GOOGLE CLOUD, HYDERABAD, TS

Being socially responsible means the world to **Shreesh Dubey**, a senior IT professional and when the opportunity presented itself to invest in CosmosGreen that resonated with his values of making a difference and making good money, he welcomed it. Being a partner makes him happy that he is in some way supporting the amazingly talented team of CosmosGreen.

With no prior experience in investing in a farming venture, his faith in the business model and the team made him take the plunge. Happily married to a supportive wife, Anupma Dubey, the couple live a fulfilled life with two very wise and lovely daughters. He loves outdoor activities like trekking and skiing. Besides whipping up some great food in the kitchen, he enjoys digging into a variety of cuisines too.

JYOTHSNA GUTTIKONDA

DOCTOR, HYDERABAD, TS

For **Jyothsna Guttikonda**, a practising nephrologist, partnering with CosmosGreen is purely based on trust in the management team of CosmosGreen, the potential of earning a good ROI and making a green contribution to the planet. This consultant physician at Star Hospitals, is married to a Manoj Vaddineni, a techie and is a happy mother of a son who just began working at his first job. Inspite of her busy life as a doctor, she loves growing her own vegetables, experimenting with food with her own produce and baking and spending time with friends. That's how she unwinds.

PAVAN KUMAR DUVVA

ADVOCATE, HYDERABAD, TS

A lawyer by profession, **Pavan Kumar Duvva** partnered with CosmosGreen as he believes that the company is trustworthy, reliable and genuine, even though he has no prior experience whatsoever in farming or investing.

A father of 3 daughters, he is an outdoor person. He enjoys playing cricket and other outdoor games with kids.

When indoors, he enjoys listening to music and watching movies with his family.

KIRAN KUMAR ALLA

CLEAN ENERGY PROFESSIONAL, HYDERABAD, TS

Kiran Kumar works in the Green Hydrogen, Clean Energy space with an American firm. With an MBA from ISB, he straddles the technical and management world. His childhood in the village, most of his life all around Hyderabad and a decade in Delhi shaped him into an environmentally conscious person which influenced him to partner with CosmosGreen. He's married to Chandrika who hails from Vijayawada and they have a daughter, Poorvee Kalyani, who works as a Copywriter in Mumbai.

For Kiran and family, it's not just about money, it's about CosmosGreen's values and vision that align his own. That's what swung it for him as he believes in investing at the right time in the right place. His peace lies in being surrounded by greenery, water bodies, eating fresh fruits and piping hot food. He loves interacting with youngsters on the threshold of their careers.

NIRMALA KOLA

SOFTWARE ENGINEER, HYDERABAD, TS

A Software Engineer, **Nirmala** looks after Business Development and HR of Aarvee Associates, a civil engineering consultancy besides running SRA OSS, a Software Engineering firm. Married to Chakrapani, a Structural Engineer, she's a proud mother of a daughter and son, both engineers.

Her keen interest in organic farming inspired her to invest in CosmosGreen's Depalle project in addition to the enthusiasm of the team. She finds the whole concept of Climate Smart Farming extremely fascinating and believes that it is the need of the hour. She's passionate about growing vegetables which she does in her terrace garden.

During her leisure time, she enjoys playing with her grandchildren, sewing, knitting, solving jigsaw puzzles, listening to music and reading.

MANOJ GOYAL

IT SERVICES EXPERT, HYDERABAD, TS

Manoj Goyal is an environmentally conscious, nature loving, IT professional and when the investment opportunity in CosmosGreen was presented to him, he was more than ready to explore it. For him, it was a chance to get closer to nature and do his bit to nurture and nourish Mother Earth. His wife, Sweety Goyal, and daughter Mansi, a psychology student and son Yash, an aspiring Core Science student, complete his world. Playing a good cricket match, watching a good movie, road trips and outdoor activities are his recipes to unwind and relax. He believes life should have a purpose to give back to the society and CosmosGreen can help in that journey.

B. R. MANOHAR

RETIRED ENGINEER AT BHEL, HYDERABAD, TS

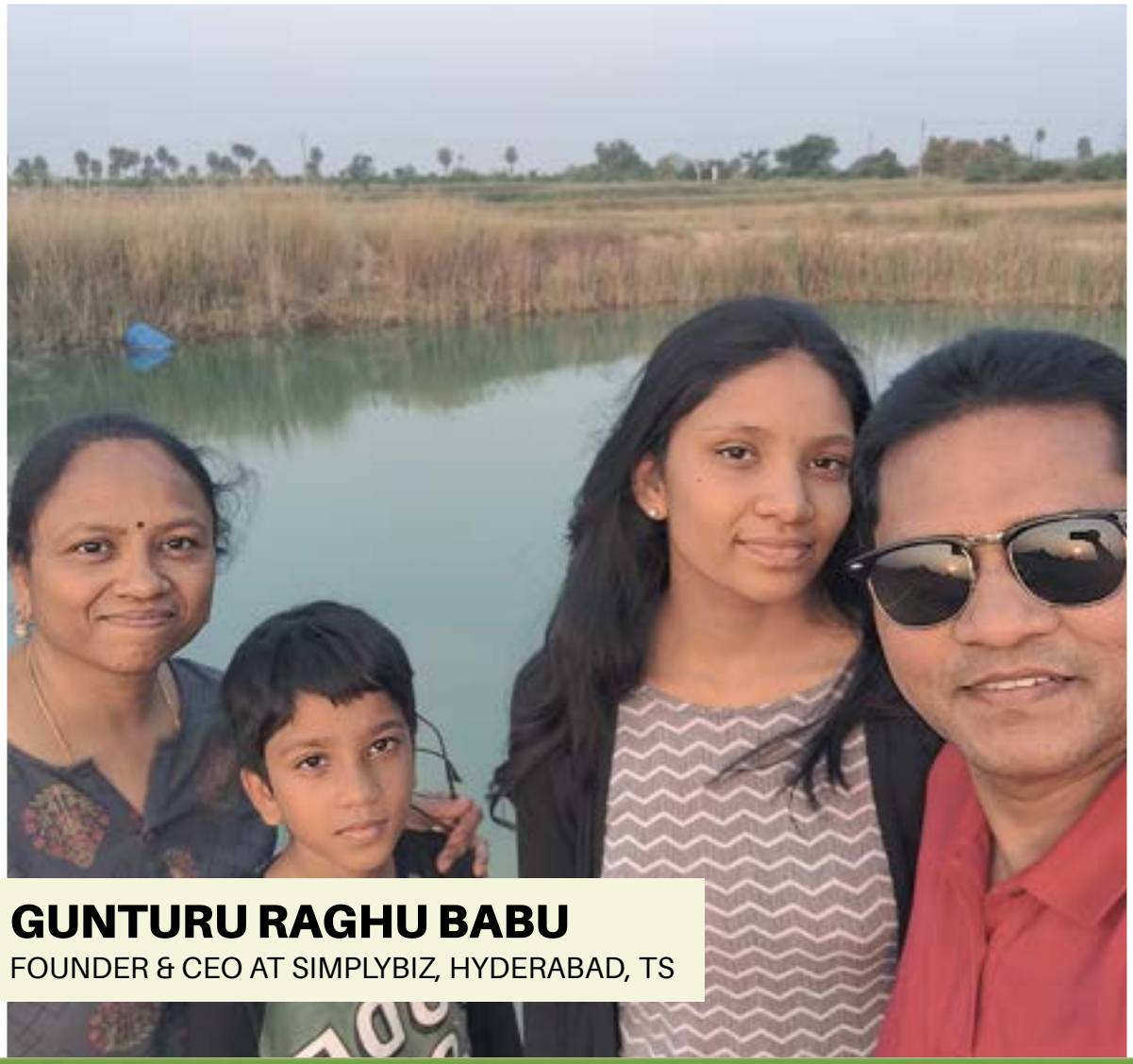
A retired Engineer from BHEL, Hyderabad, who worked, in both technical and administrative roles, **Manohar** is a proud father of two sons, both engineers working in Bangalore and San Fransisco Bay ares. What appealed to him the most about CosmosGreen is the whole concept of Climate Smart Farming. His love for farming and not having had the time to pursue agriculture prompted him to be a part of it in someway by investing into CosmosGreen projects. Though he has had no prior association with the company, he was impressed with the dedication and interest of Team CosmosGreen. Manohar is an avid reader and enjoys a good game of table tennis in addition to other indoor games.

CHANDRA SRIPADA

CLOUD ARCHITECT AT ORACLE, COLORADO, USA

Happily settled in Denver, Colorado with his wife Satya and two children, **Chandra** works as a Cloud Architect at Oracle. The key reasons that motivated him to invest in CosmosGreen are the company's Vision, Transparency and Trust. A first time investor in farming, Chandra is an ardent supporter of green projects.

He believes that the path to creating sustainable wealth in any society is through robust agricultural practices. A music buff, he also loves hiking, playing volleyball, organising get-togethers, and teaching Bhagavad Gita.



GUNTURU RAGHU BABU

FOUNDER & CEO AT SIMPLYBIZ, HYDERABAD, TS

Gunturu Raghu Babu (Raghu) is the Founder & CEO of SimplyBiz, which is into transaction advisory, entity management in the areas of accounting, tax, compliance, legal for mid segment and growing businesses. He also founded and ran R & A Associates and Samisti Legal prior to starting SimplyBiz. An angel investor and LP in a couple of early stage funds, Raghu invested in over 20+ companies across diverse sectors and believes that his investment in CosmosGreen is a good choice as it has dual advantages of serving the planet with the potential of a good ROI.

LAXMI RAO

CHARTERED ACCOUNTANT AT MICROSOFT, HYDERABAD, TS

A Chartered Accountant working with Microsoft, **Laxmi Rao** is married to Ram, also a CA who runs his own consultancy firm. Her interest in wanting to invest in a long term asset that can be of use for their children led her to CosmosGreen.

The opportunity to be associated with an environmental project coupled with the potential for long term gains made her invest in CosmosGreen's project. She loves travelling, listening to music and cooking. She is keen to be associated fruitfully with CosmosGreen for a long time.

P. RAMA KRISHNA CHAITANYA

CUSTOMER SERVICE & HR PROFESSIONAL, HYDERABAD, TS

After having worked in key positions in Amazon India and Apollo 24/7, **Rama Krishna Chaitanya** is currently working in USA as a Talent Advisor for Intel. Natives of East Godavari in Andhra Pradesh, he spent his initial years in Odisha. Interestingly, he got married when the pandemic was at its peak. What appealed to him the most when he was considering investing in CosmosGreen was the company's strategic approach to farming, their vision of thinking big and the transparency in all areas of their operations. He is an absolute movie buff, a Cinephile, loves clicking pictures, travelling & cooking.

LIKITHA PACHIGOLLA

FASHION DESIGNER, HYDERABAD, TS

A Fashion Designer by profession, **Likitha** belongs to a business family that is into aluminium extrusion and manufacturing for the last 4 decades. Her main reason to partner with CosmosGreen is her family's close association with the company since its inception. She always nurtured an interest to partner with CosmosGreen and was thrilled when she actually took the plunge. She loves watching moving, going for long walks while listening to music.

SUMEETA & HARI THALAPALLI

CEO, CALL HEALTH, HYDERABAD, TS

Hari is the CEO of a health tech company and **Sumeeta** is in a leadership position of a tech startup. Their daughter is married and settled in USA and son is a corporate lawyer in Mumbai. The couple were impressed with the concept of CosmosGreen, their cause and the fact that it is a lucrative investment. The founders' passion and commitment gave them a great deal of confidence to become partners. Hari loves playing cricket, enjoys watching movies, travelling, driving and socialising.

JANESHWAR TEJA PACHIGOLLA

CHARTERED ACCOUNTANT, SINGAPORE

A Chartered Accountant by qualification, **Janeshwar** works with PwC in Mergers & Acquisitions. A family man to the core, his father P. Ramakrishna's association with CosmosGreen spurred him on to partner with the company. His wife Sneha is an e-commerce professional. Janeshwar strongly believes in sustainable agriculture and green spaces' development in the long term. His belief in Team CosmosGreen and the fact that farming is a safe investment the way it is structured by CosmosGreen made him invest in their projects. The positive feedback he received from his family and friends who had invested in CosmosGreen encouraged him in a big way to take the step. He keeps himself fit by playing squash, badminton and cricket and enjoys spending time in green outdoors.

RAMESH REDDY LEGALA

BUSINESSMAN, HYDERABAD, TS

Living life leisurely on an alternate track, taking care of his own business, **Ramesh Reddy** thoroughly enjoys spending time and traveling with family, friends and colleagues, watching sports, participating in outdoor activities.

He is married to Shalini, a doctor and proud father of daughter Raasha, a bright high school student studying grade 9.

Ramesh's faith in Cosmos Green's promoters good work and the desire to be a part of an initiative that improves farmers' lives influenced him to invest in the company.

He is the happiest when he is contributing to causes and businesses that make a social impact.

SUMANI CHOPPALA

HOMEMAKER, HYDERABAD, TS

Currently a homemaker, **Sumani** graduated in Computer Sciences Engineering from Gitam, Visakhapatnam. She has worked in software companies like Satyam and JDA in the past for nine years. Married to Ramesh Bob A , who works in financial services sector, the couple has a 10-year-old son Suhas, who is currently studying in 5th standard. Her key reasons to partner with CosmosGreen include the interest to associate in some activity related to farming, reference from a trusted source and the new gen team of CosmosGreen. She found the process of investing in CosmosGreen very smooth. She loves cooking and listening to good music.

PRUTHVI AMILINENI

SOFTWARE ARCHITECT, OKLAHOMA, USA

For this Software Architect, partnering with CosmosGreen was mainly steered by the company's mission of being environmentally friendly with value adds like a great group of people with greater vison and objectives. He is happy that the ROI has been great considering the appreciation in the last 3 years and the security this investment offers. He has been a part of Depalle project since 2019 and has added his share twice over. An outdoor person to the core, he loves to go on a hike with his family. A huge fan of sports he loves playing volleyball and follows cricket, Formula1, NBA, NFL, the works.

AKSHAY SARMA

CFO, AXIO, HYDERABAD, TS

CFO at Axio (formerly Capital Float), **Akshay** belongs to a small family consisting of his parents, his wife and their much-loved dog, Pepper. What motivated him to partner with CosmosGreen is his long time association with the founders besides the fact that he has always been a big fan of their passion for agriculture in India. Ever since he did a consulting project with CosmosGreen as a part of his MBA, Akshay has been impressed with their mission and is super excited about the prospects. He enjoys reading books, different workout regimes, playing squash and cricket.

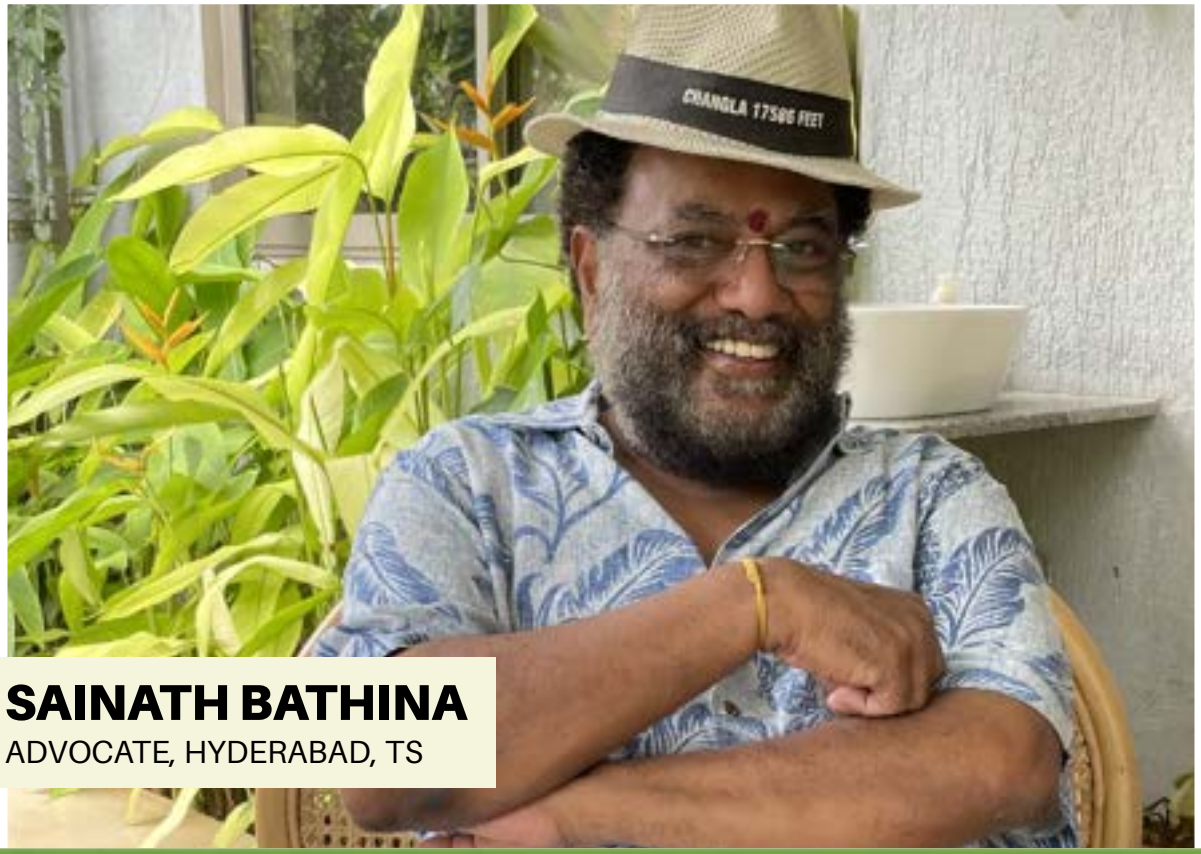
PAVAN DENDULURI

CUSTOMER SERVICE & HR PROFESSIONAL, FLORIDA, USA

His trust in CosmosGreen's experience and customer service did it for him and he cherishes the experience of investing in their projects.

A father of two naughty boys, he doesn't find much leisure time after work, but when he does, he loves playing cricket, spending time outdoors, exploring trails and watching movies.

Pavan and his wife Sasi Bhargavi have been die-hard supporters of Climate Smart Farming and organic agriculture.



SAINATH BATHINA

ADVOCATE, HYDERABAD, TS

Sainath Bathina has been a practicing Advocate for the last four and half decades. He consults for most of the leading Real Estate & construction firms in Telangana and across India. He is also a builder and has developed many Commercial & Residential projects at Hyderabad & Bangalore. Hailing from an agricultural family, he has a keen interest in agriculture and projects related to agriculture. Despite his busy professional life, he has always taken time to indulge himself in agriculture.

Having built a stupendous career in law, he wanted to slow down and retire in nature's lap. That's why he shifted to Organo Naandi near Hyderabad where he met the Co-founder of CosmosGreen, Sathya Raghu. Within no time they struck a chord and became a part of each other's family. Purely trusting Sathya's vision and dynamism he decided to invest in this project. Looking back, he says his trust has been upheld and his decision was spot on.

DR. ASA PRIYANKA

DENTIST, HYDERABAD, TS

Armed with a Masters in Public Health Dentistry, **Dr. Asa Priyanka** is a dentist by profession. Interestingly, she is a prodigious art enthusiast and loves experimenting and improvising with mixed media crafts. Married to Phani Kiran, a practicing Chartered Accountant, she believes that sustainability should be be at the heart of everything she does. Projects in the green space are of special interest to her and her husband Phani Kiran. As soon-to-be parents, they wanted to invest in projects that will in some way be instrumental in making our planet a better place for the next generation. That's what inspired them to invest in CosmosGreen. In addition to being the founding member and volunteering teacher of CosmosGreen's education initiative, Kisaan Sevaks, Phani Kiran had had a close knit relationship with the company. Their trust and years of association with the leadership team of CosmosGreen sealed the deal. They are totally into gardening, painting and love travelling.

MANISHA DAYANAND

PSYCHOLOGIST, HYDERABAD, TS

Married to Dayanand Shanmugham and mother of Arunimma and Udayann, **Manisha** is a practising psychologist and also offers consulting and coaching service. Her key reason for investing in CosmosGreen is her passion for green living and farming.

She loves travelling with her family and friends, engaging with nature, trekking, playing indoor and outdoor games in addition to self-development work.

DR. NAGAMALLIKA GUDIPATY

DEAN - ENGLISH AND FOREIGN LANGUAGES UNIVERSITY, HYDERABAD, TS

Being associated with a foreign languages university as a Professor is the part that is closest to **Dr. Nagamallika's** heart. Mother of two sons, she loves watching movies, enjoying outdoors, travelling short distances and spending time in nature. Her passion to be associated with an environmentally conscious organisation was instrumental in investing in CosmosGreen. She is confident that she has done the right thing and that her investment will serve dual purposes of the company's motto – Do Good. Make Money.

AMAR. R. NEBURI

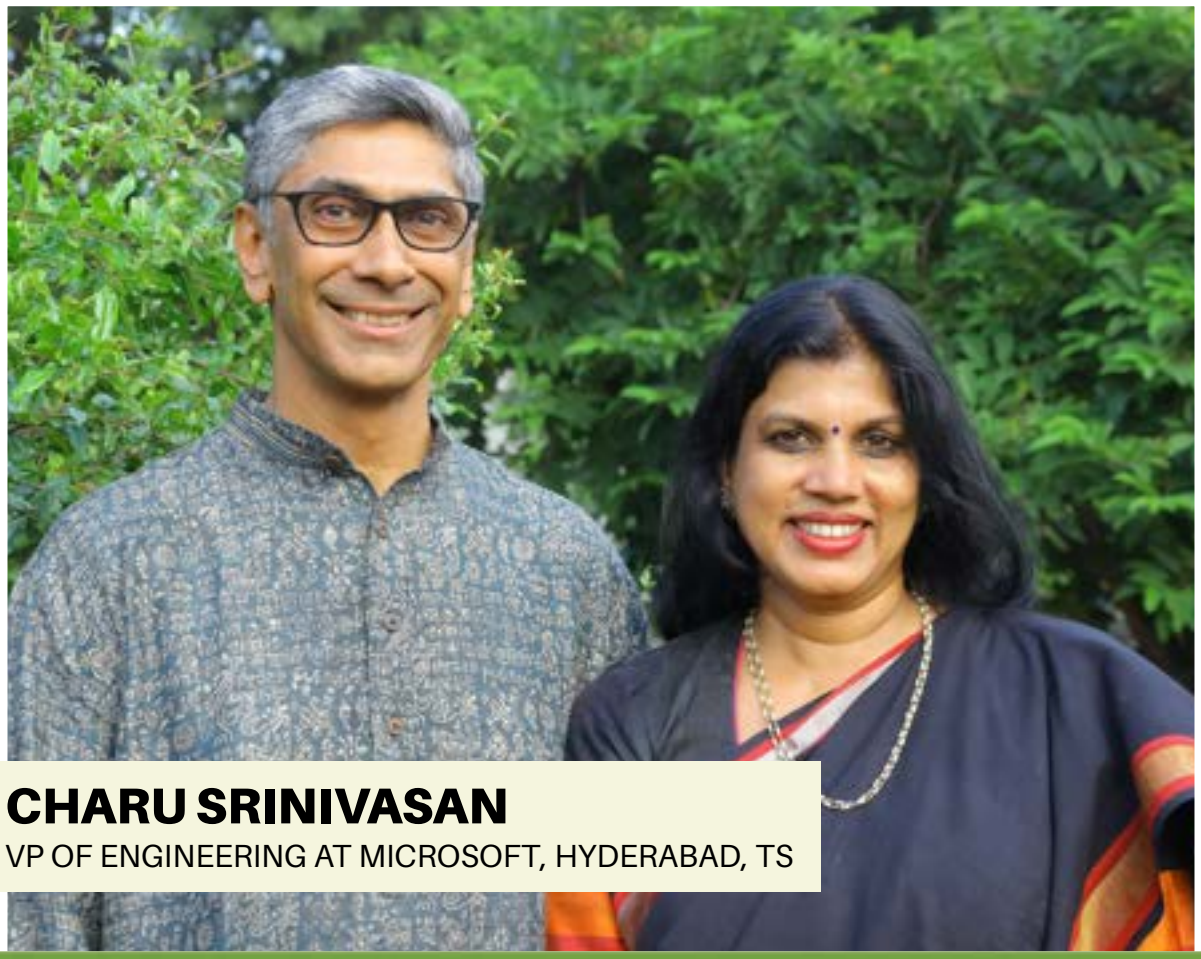
SOFTWARE PROFESSIONAL, TEXAS, USA

Amar and **Rani Samyukta** are the quintessential NRI couple, both software professionals, living in Dallas, Texas for the last 2 decades. Like they say, you can take Indians out of India but not India out of Indians –they've stayed connected deeply at heart with India; they have a deep affinity for farmers; they have serious interest in Green projects. When the opportunity to invest in CosmosGreen came their way, they didn't think twice. Staying invested is what they believe will get them good ROI and they are all for it. Besides their love for movies and music, what binds them together is hanging around with friends and family and going on vacations with them.

T. SRINIVASA RAO

GROUP CFO, RAIN INDUSTRIES LIMITED, HYDERABAD, TS

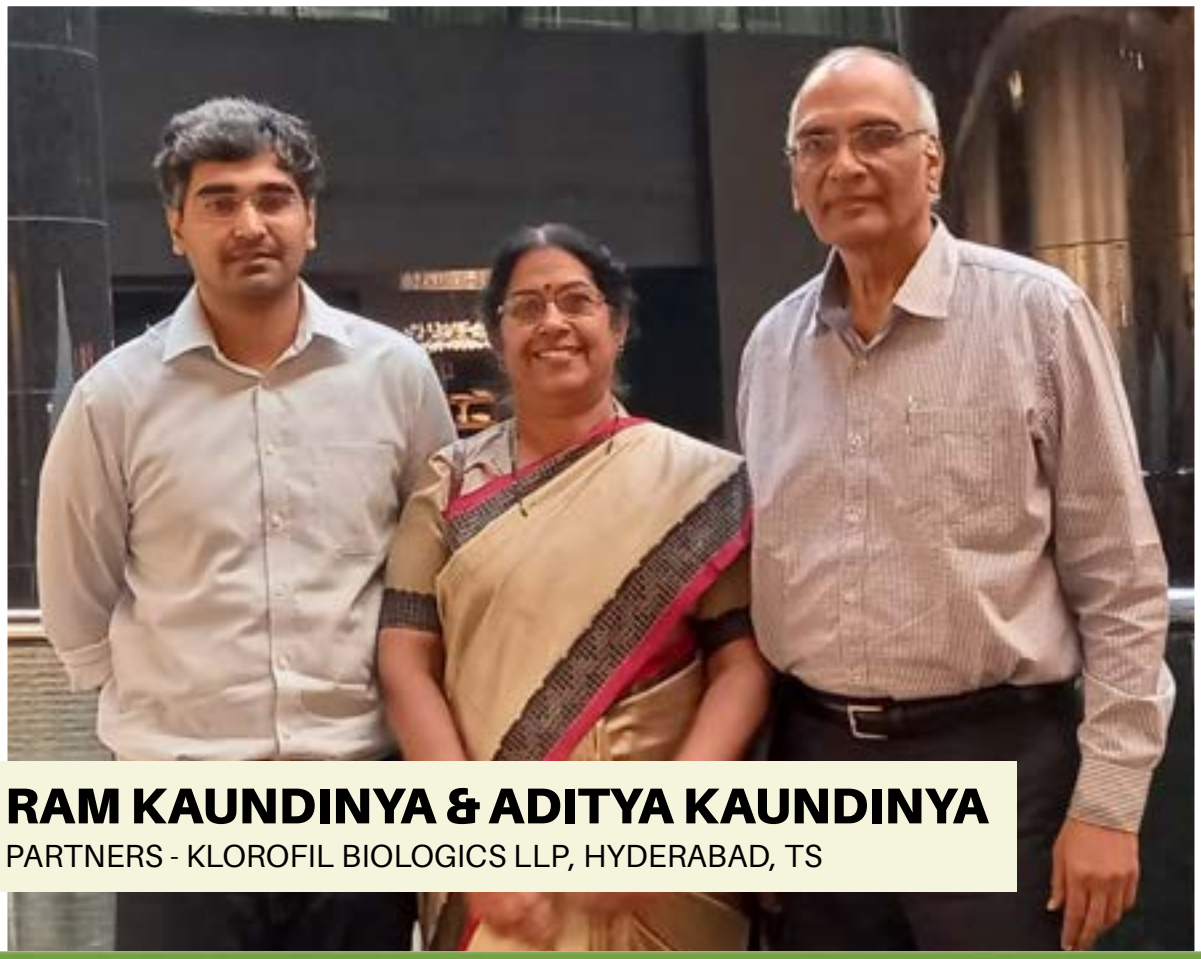
Srinivas Rao and his wife **Kalyani** have been ardent supporters of organic farming. Rao's mentor Ramakrishna was instrumental in influencing him to invest in CosmosGreen. Rao is confident that the returns will be safe and stable because of the land component, based on his previous experience of investing in Depalle project. Kalyani & Srinivas Rao are proud parents of Sumedha, who's pursuing her Masters in Finance, and Samardh who's an engineering student in VIT, Vellore. He enjoys watching movies in cinema halls, pilgrimage travel, visiting relatives and reading. He believes that every member of team CosmosGreen Is fully committed to making a difference through regenerative farming. That's what makes the company trustworthy and reliable.



CHARU SRINIVASAN

VP OF ENGINEERING AT MICROSOFT, HYDERABAD, TS

Her love for organic farming has led her to creating a green haven in her expansive farmhouse on the outskirts of Hyderabad. Every single plant, tree, flower, and fruit reflect the passion with which she nurtures them. An attractive part of their garden is occupied by the net house, which is one of the spots Charu is immensely proud and fond of. Her faith in regenerative farming and the need to make an impactful investment swung it in the favour of CosmosGreen. She and her other half Srinivasan were quite touched by CosmosGreen's co-founder Sathya Raghu's commitment to make farming a profitable investment in addition to the company's philosophy of doing good while making money. Charu intends to stay invested in CosmosGreen's projects for a long time to come.



RAM KAUNDINYA & ADITYA KAUNDINYA

PARTNERS - KLOROFIL BIOLOGICS LLP, HYDERABAD, TS

The father and son duo were totally convinced by CosmosGreen's Climate Smart Farms. Ram Kaundinya, an IIM Ahmedabad alumnus, has been in the field of agriculture as his chosen profession and has held key management positions in some of the leading global organisations. He is currently the Director General of Federation of Seed Industry of India and also on the boards of Axis Finance, NICR and Kalgudi. His son Aditya, also an IIM Alumnus, is totally urban at heart having grown up in the buzzing Mumbai city. Their common belief that regenerative farming and climate smart farming practices are the way to go, drew them to CosmosGreen's investment model of assured returns while doing good for the planet. As partners in their own business as well as in CosmosGreen, they're keen to stay associated with the company for a long time to come.

RADHIKA GUDIPATI

TELUGU TUTOR & BUSINESS PARTNER, HYDERABAD, TS

Radhika has her hands full with growing organic vegetables and fruits in their farmhouse, teaching Telugu, being a partner in her husband, Satish Chander Gudipati's Consultancy firm and being a hands-on homemaker. Their only son Surya Shashank works for an IT firm in the USA.

What influenced her to invest in CosmosGreen is the fact that she knows the leadership team personally and the potential for appreciation. Her favourite pastime includes listening to music, gardening, travelling and painting.

PARUL SHARMA

LEGAL CONSULTANT, NAVI MUMBAI, MH

A Legal Consultant, **Parul** is a happy mother of a daughter and a son. Her 3 Key Reasons to partner with CosmosGreen are that start-up costs are low, it is stable as the major investment is on land and she likes the working style of team CosmosGreen. This is her first time with the company and investing in it is a feel-good factor for her. She believes in the project and foresightedness of the management. She loves to counsel people, playing with kids, cooking new recipes, cycling, playing badminton and swimming. When she is not doing any of these, you'll find her chatting with senior women.

ALL YOU NEED TO KNOW ABOUT RIGHTEOUS INVESTMENT

When it comes to making the world a better place, investing isn't the first thing that comes to mind. But Socially Responsible Investing (SRI), and Socially Conscious Investing (SCI), Sustainable Investing (SI) and Triple Bottom Line (TBL) investing are more attainable and profitable in this day and time than ever. So, let's delve deeper into each category to understand what the terms mean and how we can choose our investments responsibly and wisely.

Socially Responsible Investing:

Once considered a fairly radical strategy, SRI has increasingly gained in popularity. According to a 2019 Morgan Stanley survey, 85% of individual investors are interested in sustainable investing, up from 75% in 2017. The options available to those investors have also grown: Investment research company Morningstar says there were 303 sustainable open-ended mutual funds and exchange-traded funds in 2019, up from 111 in 2020.

Socially responsible investing (SRI) is an investing strategy that aims to generate both social change and financial returns for an investor. Socially responsible investments can include companies making a positive sustainable or social impact, such as a solar energy company, and exclude those making a negative impact.

SRI tends to go by many names, including values-based investing, sustainable investing and ethical investing. The abbreviation "SRI" has also come to stand for sustainable, responsible and impact investing. Some SRI practices use a framework of environmental, social and governance factors to guide their investing.

Socially Conscious Investing:

Then there is Socially Conscious Investing, which is the general term for an investment that has both financial and social/environmental objectives. SCI allows you to positively impact the world in a profitable manner. It's important to note that socially conscious investing is not an asset class but a philosophical approach to investing across all asset classes.

Sustainable Investing:

From responsible investing, we begin to move across the socially conscious investing continuum to sustainable investing. Sustainable investing is an investment approach that uses ESG criteria to help choose companies to invest in. (Environmental, social, and governance (ESG) criteria are a set of standards for a company's behavior used by socially conscious investors to screen potential invest-ments) Environmental criteria consider how a company safeguards the environment, including corporate policies addressing climate change, for example.

Social criteria analyse how a company handles relationships with employees, suppliers, customers and the communities where it operates. Gover-nance criteria look at areas such as a company's leadership, executive pay, audits, internal controls and shareholder rights.

Triple Bottom Line Investing:

Next, we have triple bottom line (TBL) investing—also known as integrated bottom line and the three pillars—which involves investing in companies that, as part of their mission, want to positively impact people, planet and profit in some way.

TBL companies conduct business in a wide variety of industries and have products and services that may or may not have any specific positive social or environmental impact. However, whatever their industry, they look to report progress in the three pillar areas: people, planet and profits.

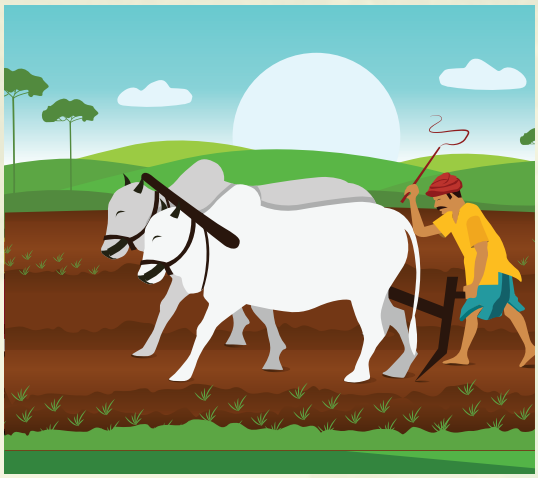
WHAT IS REGENERATIVE FARMING?

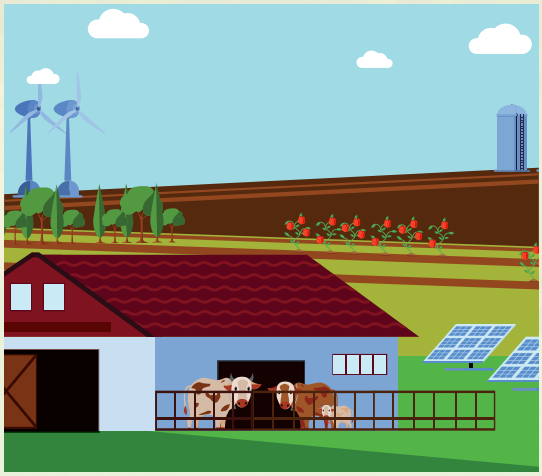
To begin with, why do we need to understand Regenerative Farming? Why is it important for us? With climate change threat looming large, we are observing a global process of degradation and desertification – rich soil turned to dust, and deserts that were once self-sustaining landscapes now void of nutrients. In fact, drylands cover about 46% of the earth's surface, and around 9% of those drylands are facing severe desertification! In simpler words, if we don't change the way we cultivate our food, very soon there will be no food to cultivate. It's now or never!

It's time for us to ask, "How can we work in collaboration with the land?" instead of "What can we get from the land?" That's what Regenerative Farming does. Also referred to as restorative farming, regenerative agriculture, when implemented over time leads us to receive abundance in community.

These practices are not new. While the current urban dwellers are now just scraping the surface of this wisdom and science, indigenous communities across the world, have been living in a reciprocal manner for centuries. Often the science and techniques that we employ today are actually culturally embedded ways to understand the land.

More than anything, regenerative agriculture asks us to trust the planet that is much older than the human race. This requires understanding nature as it is and scientifically validating the cause and effect relationship for our actions.





So, where does CosmosGreen stand in the scheme of things?

We, at CosmosGreen, began our quest to find solutions to make our planet a better place to live in, by blending modern science and ancient wisdom. Ignorance combined with greed has led us to the place we are currently in and if we don't make amends in every possible way, we may reach a point of no return. In order to do our own small bit, we began with Climate Smart Farms.

What exactly are Climate Smart Farms?

These are ecosystems where we nurture and enable co-existence of livestock & climate smart practices for growing fruits and vegetables. The farming is done with sustainable practices of managing soil, water, and waste. And thus, this beautiful ecosystem gives way to experiencing a planet-friendly, low carbon footprint, conscious-living community. We find ways of spreading the success of these farms.

CosmosGreen is a part of the solution

Regenerative organic farming methods can transform agriculture. Farmers can transition to new practices relatively quickly and inexpensively using low-cost tools. Carbon dioxide levels are minimized in summer when lush vegetation promotes a sponging action, and are maximized in winter when plants go dormant. However, the greenhouse gas sponging ability of the soil itself may make more of a difference than what's growing on the land.

Data from Rodale Institute and other studies indicate that regenerative and organic practices can dramatically alter the carbon storage of arable lands, building soil "humic substances" that remain as stable carbon compounds for many years.

The key to greater, more stable carbon sequestration lies in the handling of soil organic matter (SOM). Because SOM is primarily carbon, increases in these levels will be directly correlated with carbon sequestration. While prevailing farming practices using synthetic inputs typically deplete SOM, regenerative farming practices, including the integration of crop and animal production, build it. Before forests and grasslands were converted to field

agriculture, SOM generally composed 6 to 10 percent of the soil volume, well over the 1- to 3-percent levels typical of today's agricultural field systems. Building soil organic matter by better nurturing our agricultural lands can capture the excess atmospheric carbon dioxide and begin returning this lost carbon to the soil. Forests and rangelands hold a greater capacity for carbon sequestration than the aboveground biomass measurements often used in equating their values.

In the hustle and bustle of daily life, we often lose sight of what is most important for us - our health, cultivating quality relationships, and caring for our planet. Fortunately, there doesn't have to be a trade-off between economic opportunities and doing what's right for ourselves and our environment.

At CosmosGreen, we build Climate Smart Farms. These are ecosystems where we nurture and enable co-existence of livestock; climate smart practices for growing fruits and vegetables. Responsible micro dosing and phased reduction of synthetic substances creates a sensible solution.

The farming is done with sustainable practices of managing soil, water and waste. At the same time, we are committed to supplying viable investment opportunities for our partners, while also working to create a happier and healthier world to live in.

Our Team

M. Madhvulu

He's the all rounder at Project Depalle. He discovered his love for animals and farming through CosmosGreen and plays an active role in milk collection at Depalle. He loves playing sports and is a cricket enthusiast. He leads his team to victory, whenever he plays cricket.

Krishna Bulusu

A BBA Graduate from Christ University, Krishna is good with numbers and has worked as a Financial Analyst before joining CosmosGreen. He loves reading and writing. He has always had the enthusiasm to try something new. He likes to describe himself as a 'Niranthara Sanchari'- an Eternal Traveler.

Md. Shamshuddin

With CosmosGreen since inception, he was a regular farmer who turned into an organic farmer after joining the company. He is a workaholic and a dedicated manager at the farm. He loves to spend time with his daughter after work and is a complete family man. Shamshuddin says the most important thing he has learnt throughout his journey with CosmosGreen is responsibility. Responsibility for the staff, fellow farmers and the company.

Our Team

Shweta Sharma

An MBA in International Business from Aligarh Muslim University, this former teacher found her calling when she discovered Kisaan Sevaks Foundation, a community initiative of CosmosGreen with the mission to educate underprivileged children. She loves to talk, have conversations, watch movies and travel.

Kumar Abhinav (Prakash)

A Mechanical Engineer by qualification, Abhinav worked in the tractor division of a corporate before becoming a part of CosmosGreen. Discipline and teamwork are his strengths. Ayush - the Co-founder of CosmosGreen has been his guru since inception and he believes that 'Freedom is the key to good work'. When he's not working, you'll find him playing volleyball and cricket, his favourite sports.

Yashaswi

An Economics & Data Analytics graduate, Yashaswi is currently pursuing Informations Systems Engineering and Management for her Masters and working for CosmosGreen because it aligns with her vision of creating a positive impact on lives. It's a group that dreams big, and works hard to make them a reality. She loves to read philosophy and fiction, and go on fun hikes. Cooking Indian food and eating are her other interests. As a part of experimenting with confidence, she shaved her head off and it worked wonders for her self esteem!

AN INDEPENDENT PRESENTATION OF IPCC CONCLUSIONS BY JOHN LANG

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

THE SCIENCE OF CLIMATE CHANGE

SIXTH ASSESSMENT REPORT (AR6)

I — II — III — SYR

THE IPCC

A UN body of government representatives that commissions expert reports on the state of the climate.

ASSESSMENT REPORTS

Massive systematic reviews of all the world's climate knowledge, every seven years or so

INTERGOVERNMENTAL

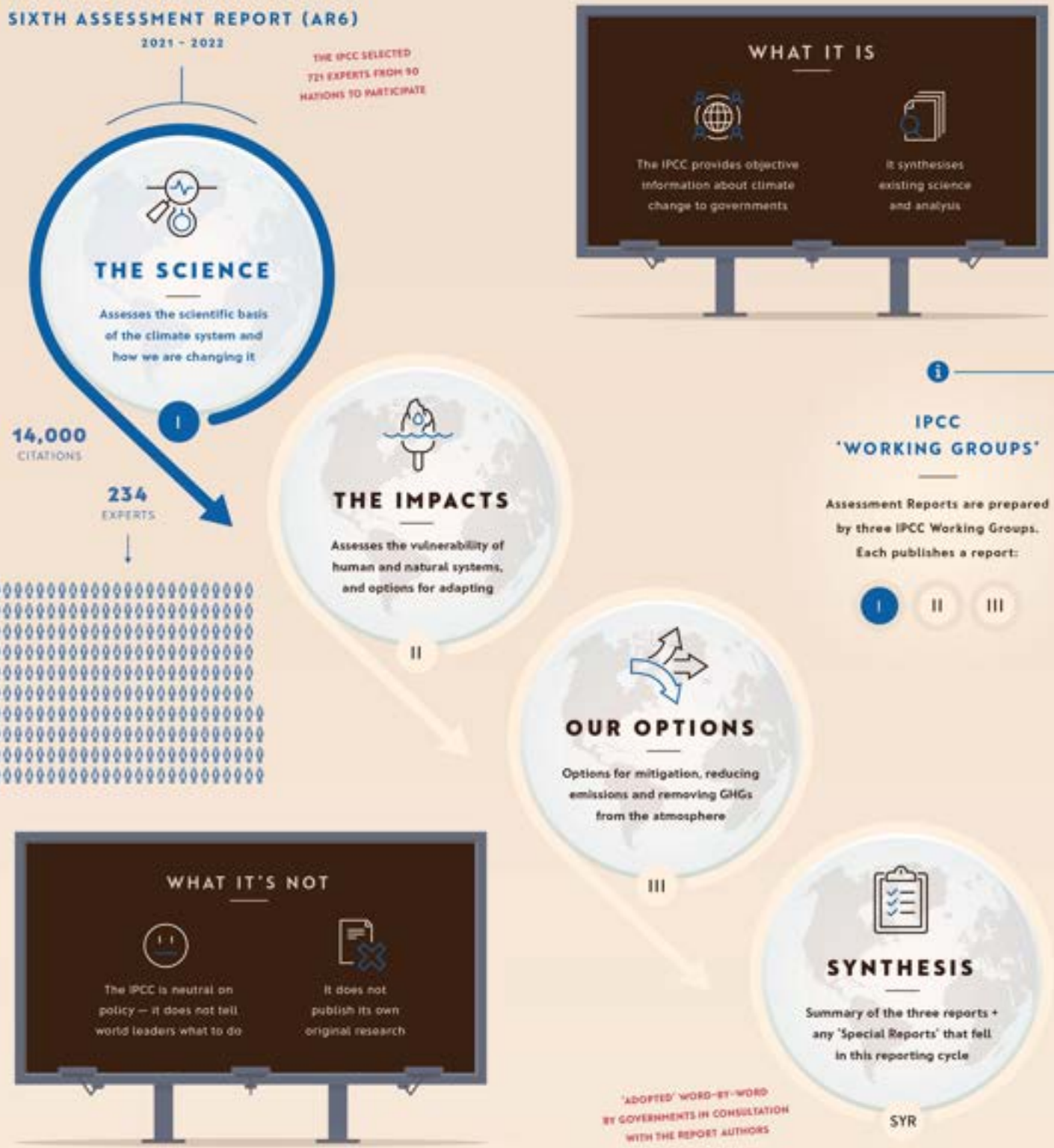
IPCC report summaries are endorsed by all 195 member nations before publication

MEANING GOVERNMENTS CANNOT IGNORE THE FINDINGS THEY HAVE THEMSELVES ENDORSED

VOLUNTEER EXPERTS

Hundreds of scientists (and other experts) contribute thousands of hours to IPCC reports

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT



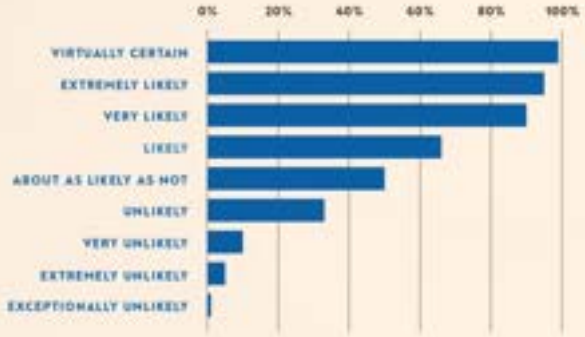
COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

COMMUNICATING UNCERTAINTY

For all findings, IPCC working groups use 'calibrated language' to convey the likelihood ('very likely') or level of confidence ('very high') in their synthesis conclusions.

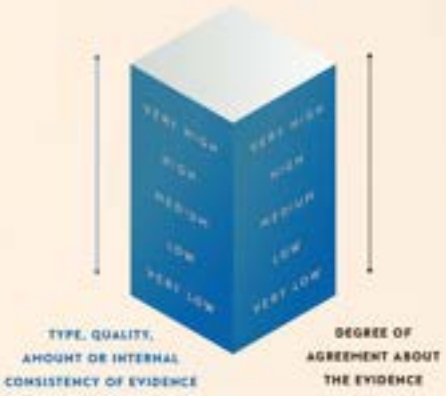
LIKELIHOOD
(PROBABILISTIC)

A quantitative measure of certainty in a finding based on statistical observations, model results, expert surveys etc.



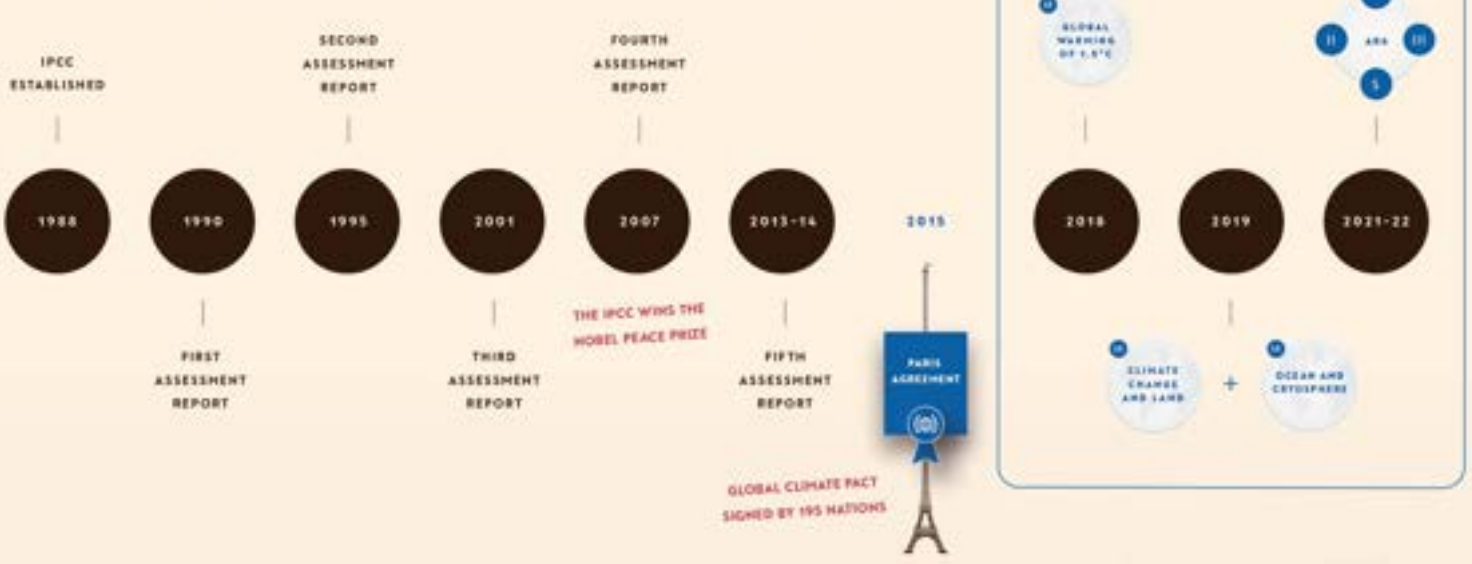
CONFIDENCE
(QUALITATIVE)

Assessing the level of confidence involves considering two dimensions



Special Reports are interdisciplinary assessments of specific issues:

- SR — GLOBAL WARMING OF 1.5°C
- SR — CLIMATE CHANGE AND LAND
- SR — OCEAN AND CRYOSPHERE



COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

WHAT THE SCIENCE TELLS US

The world is heating up because carbon dioxide (CO_2) and other greenhouse gases (GHGs) are accumulating in the atmosphere, meaning less heat can escape to space. The growing thickness of this extra planetary blanket has caused widespread and rapid changes in the atmosphere, biosphere, cryosphere and ocean.

Climate change is **real**, it's **caused by us** and it's **bad**. But — it **can be fixed**.

1. It's real

CO_2: 'I'M CUMULATIVE'

ATMOSPHERIC LEVELS OF CO_2 ARE ALREADY HIGHER THAN AT ANY TIME IN AT LEAST 2 MILLION YEARS

01 Humans emit about 40 billion tonnes of CO_2 into the atmosphere every year. ← EQUIVALENT TO THE WEIGHT OF ABOUT 863,000 TITANICS

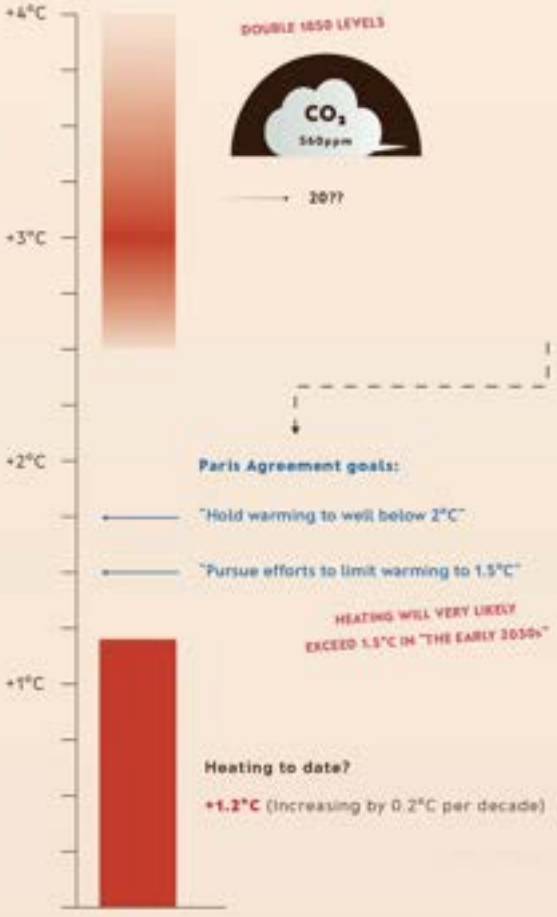
02 Since 1750, we've emitted over 2,500 billion tonnes of CO_2. ← 53 MILLION TITANICS

03 In 2021, the land + ocean absorbed about 56% of human CO_2 emissions, but this proportion will decrease the more CO_2 we emit into the atmosphere.

04 But — about 40% of the CO_2 we emit today will still be in the atmosphere in 100 years. ← AND ABOUT 20% WILL STILL BE UP THERE IN 10,000 YEARS!

05 Because CO_2 is stubborn and accumulates in the atmosphere, in order to stabilise Earth's temperature at any level, we have to take human CO_2 emissions to net zero.

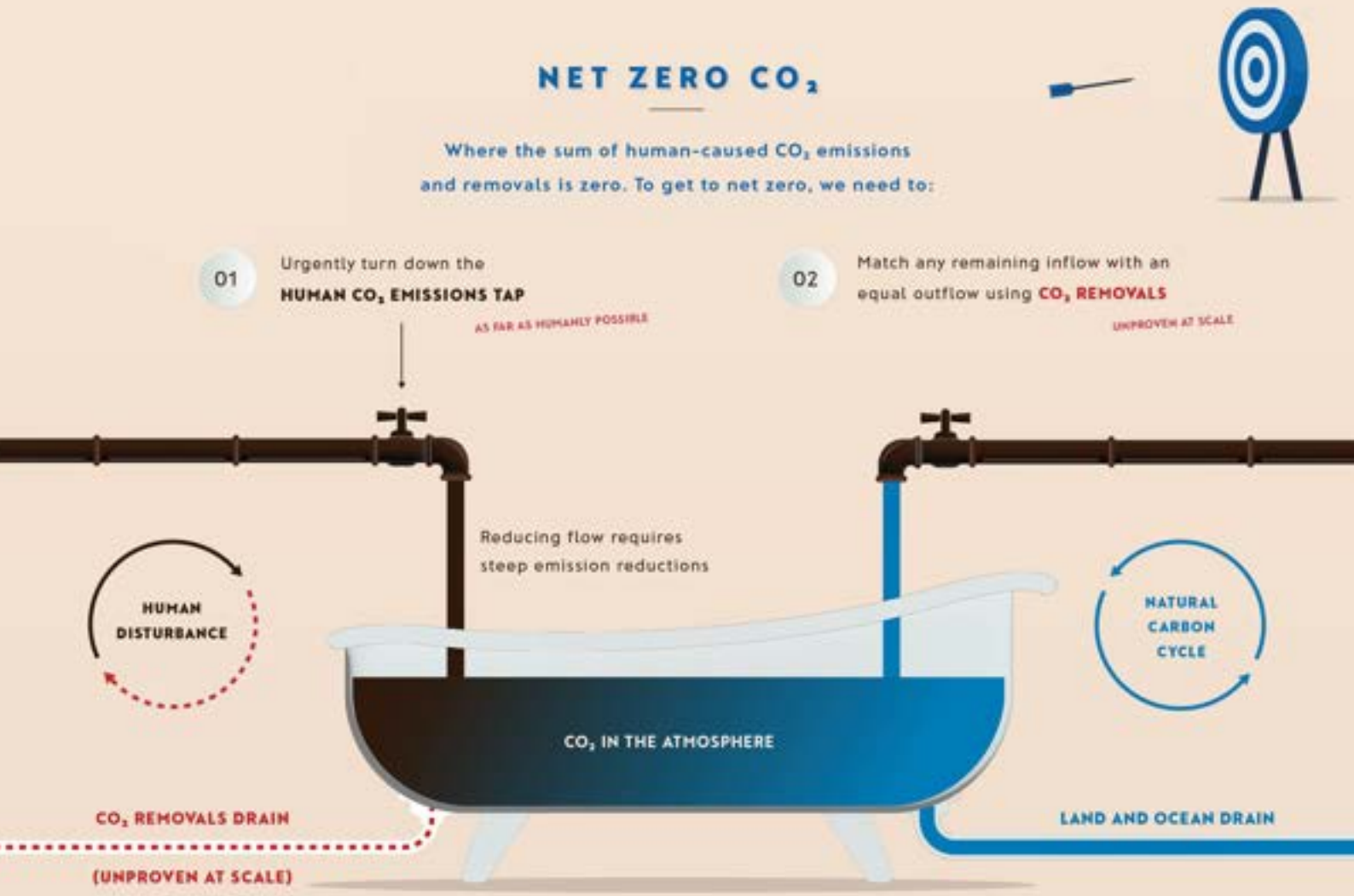
IF CO_2 LEVELS DOUBLE FROM 1850, THE BEST ESTIMATE IS WE'LL EVENTUALLY HEAT UP BY ABOUT 3°C. IF WE GET UNLUCKY, IT COULD BE MUCH HIGHER



OTHER GHGs

Greenhouse gases like methane (CH_4) and nitrous oxide (N_2O) need "strong, rapid and sustained" reductions, too

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT



'UNPRECEDENTED' CHANGES

Global heating is leading to unprecedented and irreversible changes. As a 1.5°C-hotter world approaches, it's the temperature extremes that will affect people and nature most. A 1.5°C world is more different than it sounds.

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

The last decade was likely the hottest in

125,000

YEARS

BACK THEN, HOTTER TEMPERATURES WERE CAUSED BY SLOW MULTI-MILLENNIAL VARIATIONS IN EARTH'S ORBIT (MILANKOVITCH CYCLES)

THE HUMAN-ENHANCED GREENHOUSE EFFECT

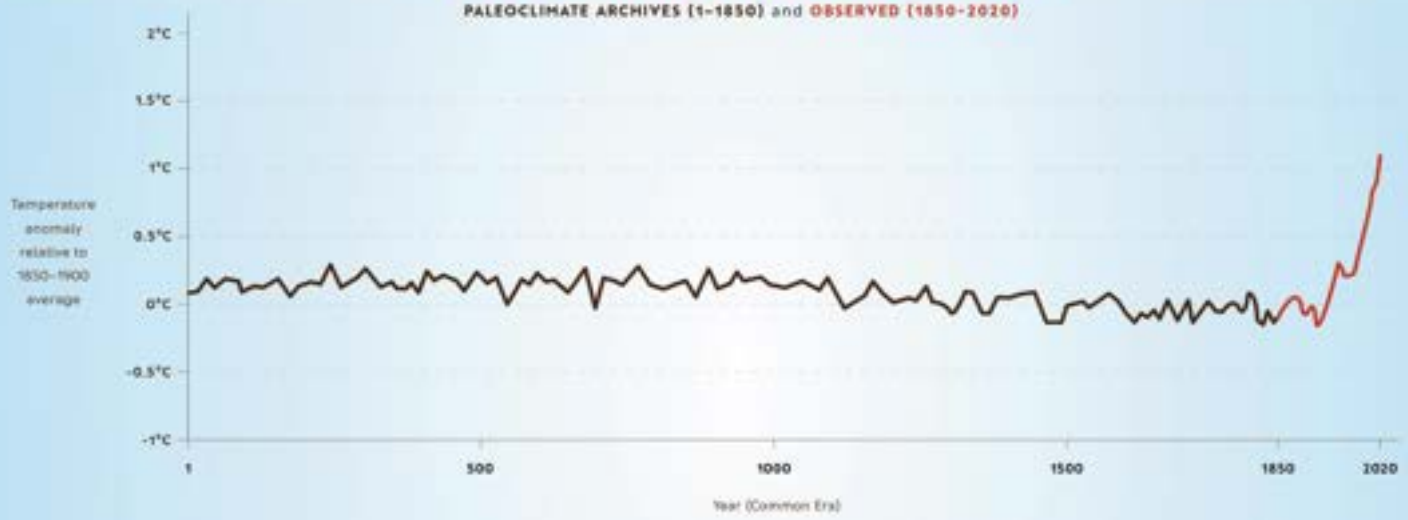
We're heating at a rate unprecedented in at least

2,000

YEARS

CHANGE IN GLOBAL SURFACE TEMPERATURE

PALEOCLIMATE ARCHIVES (1–1850) and OBSERVED (1850–2020)



COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

The link between **human-caused heating** and increasingly severe extreme weather is now "an established fact".

HOT EXTREMES

Virtually certain that "the frequency and intensity of hot extremes have increased"

MARINE HEATWAVES HAVE "APPROXIMATELY DOUBLED IN FREQUENCY" SINCE THE 1980s

HEAVY RAINFALL

Likely increased since 1950 and has been increasing faster since the 1980s

AVERAGE PRECIPITATION AND EVAPORATION ARE INCREASING, VERY LIKELY WITH A RANGE OF 1-3% PER 1°C

TROPICAL CYCLONES

Likely that "occurrence has increased over the last four decades", as well as heavier associated precipitation

FOR EVERY 1°C HOTTER IT GETS, THE ATMOSPHERE CAN HOLD ABOUT 7% MORE WATER VAPOUR

DROUGHTS

Decreases in water availability due to increased evapotranspiration

TEMPERATURE OVER LAND

Since 1850 it's warmed **1.59°C** over land, much more than over the ocean (0.88°C)

NO ONE LIVES IN THE GLOBAL AVERAGE... MANY HIGH LATITUDE REGIONS HAVE ALREADY WARMED MORE THAN 2°C

CLIMATE ZONES

Climate zones have shifted polewards in both hemispheres. Species are on the move...

The volume of ice lost every day from the Greenland and Antarctic ice sheets could fill

300,000

OLYMPIC SWIMMING POOLS

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

The rate of ice sheet loss has increased

400%

in just 20 years

MASSIVE WHITE SPACES LIKE ARCTIC SEA ICE PERFORM A VITAL SERVICE BY [illegible] BACK TO SPACE BEFORE IT'S CONVERTED INTO HEAT. ANY LOSS OF ICE ACCELERATES CLIMATE CHANGE

Late summer Arctic sea ice area is smaller than at any time in at least the past

1,000

YEARS

Sea-level has increased by 0.20 metres in the last 120 years, and it's accelerating... fast.

Sea levels are rising due to:

- Thermal expansion: 50%
- Glacier ice loss: 22%
- Ice sheet loss: 20%
- Other: 8%

WATER EXPANDS AS IT HEATS UP

The ocean has absorbed about

25%

of humanity's CO_2 emissions to date

THE OCEAN ACIDIFIES AS IT TAKES UP MORE CO_2, ADVERSELY AFFECTING MARINE CREATURES LIKE CORAL REEFS

The ocean has warmed faster over the past century than at any time in the last

11,000

YEARS

WARMING RATES ARE HIGHEST IN THE UPPER 700m OF THE OCEAN

The ocean has absorbed about

90%

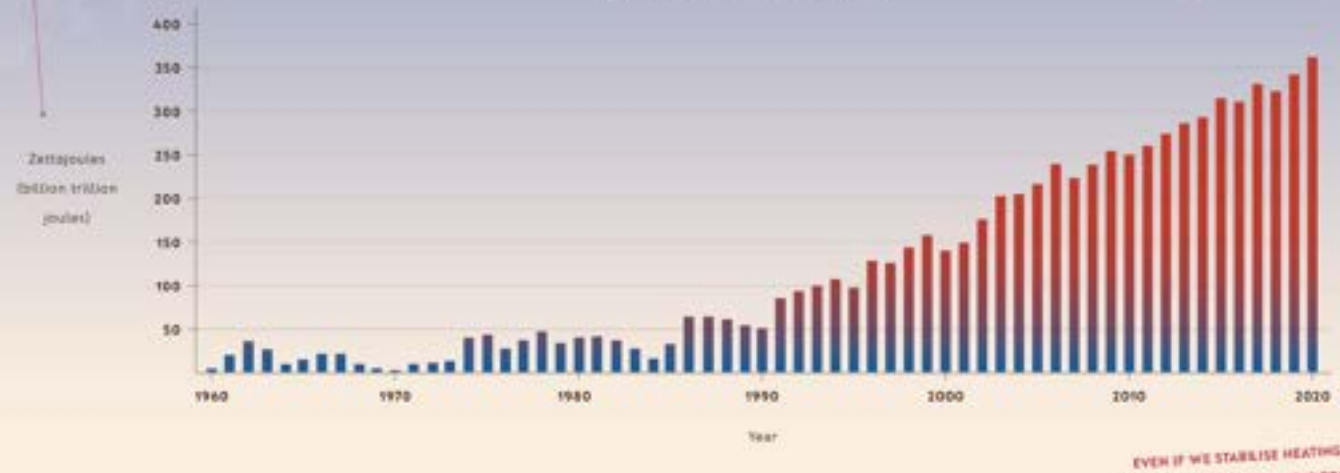
of the excess heat caused by humans

"IT'S HOT IN HERE"

"A LOT"

GLOBAL OCEAN HEAT CONTENT

(Relative to 1958-1960 average)



EVEN IF WE STABILISE HEATING, THE OCEAN WILL KEEP ABSORBING HEAT FOR A MILLENIUM

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

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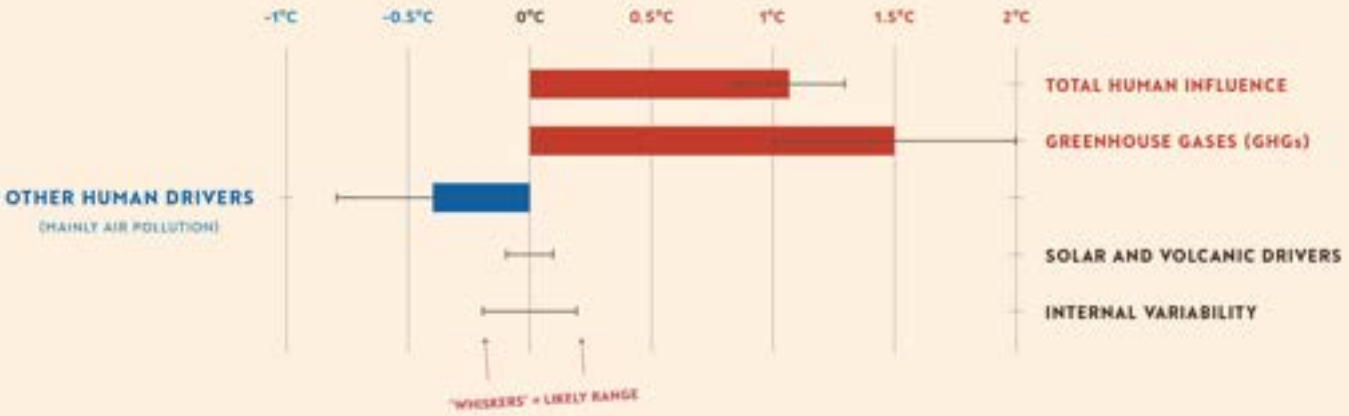
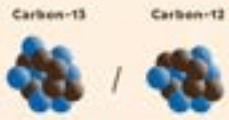
2. It's us

"It is unequivocal that human influence has warmed the atmosphere, ocean and land." The best estimate of the human contribution to modern heating is around 100%. Humans have their fingerprints all over climate change.

The increase in global surface temperature has been largest since 1980, a time during which solar activity has been decreasing. Compared with human drivers, "there has been negligible long-term influence from solar activity and volcanoes." Aggregated contributions to 2010–2019 heating relative to 1850–1900:



Measured decreases in the fraction ($^{13}C/^{12}C$) of types of carbon (isotopes) in the atmosphere and a small decrease in atmospheric oxygen levels show that the rise in CO_2 is overwhelmingly from the combustion of fossil fuels.



SCIENTISTS CAN IDENTIFY WHERE CO_2 'COMES FROM' USING THESE FRACTIONS E.G. IF IT'S FROM ORGANIC / PLANT MATTER (FOSSIL FUELS)

As the lower atmosphere (TROPOSPHERE) heats up due to an enhanced greenhouse effect, the upper atmosphere (STRATOSPHERE) is cooling as a consquence: "The TROPOSPHERE has warmed since at least the 1950s, and it is virtually certain that the STRATOSPHERE has cooled."

The global heating driven by human emissions of GHGs is partially masked by human-emitted PARTICULATE POLLUTION (sunlight-reflecting atmospheric particles like sulfur dioxide that cars and factories belch out). These have a substantial cooling effect on the planet, of roughly 0.4°C.

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

3. It's bad

And it's going to get worse.

Temperatures will continue to increase until mid-century under all scenarios. In the absence of deep reductions in CO_2 emissions, 1.5°C and 2°C will be exceeded this century. Many changes are baked in for thousands of years. Changes to global sea level, the ocean and ice sheets are "irreversible" on timescales relevant to human societies.

SEA-LEVEL

Over the next 2,000 years, mean sea-level will eventually rise:

- At 5°C: 19-22 metres
- At 2°C: 2-6 metres
- At 1.5°C: 2-3 metres

"It will remain elevated for thousands of years"

DUE TO CONTINUING DEEP-OCEAN WARMING AND ICE-SHEET MELT

OCEAN

"Changes are irreversible on centennial to millennial time scales in global ocean temperature, ocean acidification and deoxygenation"

GLACIERS

Under a best case scenario, glaciers will lose 18% of their current mass by 2100

ICE SHEETS

At sustained levels of heating between 3°C and 5°C, "ice sheets will be lost irreversibly over multiple millennia":

- West Antarctic Ice Sheet: complete loss
- Greenland Ice Sheet: near-complete loss

WORLDS APART: POSSIBLE FUTURES

The IPCC used five illustrative scenarios – **'Shared Socioeconomic Pathways' or SSPs** – to investigate how emissions and heating may increase. In all of them, CO_2 increases out to about 2040. What happens after that depends on choices we make now.

PROJECTIONS (GHG EMISSIONS)	VERY LOW	LOW	INTERMEDIATE	HIGH	VERY HIGH
	A BEST CASE SCENARIO: NET ZERO CO_2 BY 2055		ROUGHLY IN LINE WITH CURRENT NATIONAL PLEDGES UNDER THE PARIS AGREEMENT		REVERSAL OF CLIMATE POLICIES
SSPs:	SSP 1-1.9	SSP 1-2.6	SSP 2-4.5	SSP 3-7.0	SSP 5-8.5
YEAR WE HALVE CO_2 EMISSIONS TO ABOUT 20 BILLION TONNES PER YEAR	2035	2050	2087	WE DON'T	NO WAY JOSÉ
YEAR WE PASS 1.5°C GOAL	2035	2032	2030	2030	2027
YEAR WE PASS 2°C GOAL	EXTREMELY UNLIKELY TO BE EXCEEDED	EXTREMELY UNLIKELY TO BE EXCEEDED	EXTREMELY LIKELY TO BE EXCEEDED (~2052)	WOULD BE EXCEEDED (~2046)	WOULD BE EXCEEDED (~2041)
TEMP. INCREASE BY 2050	1.6°C WAIT FOR IT —	1.7°C	2.0°C	2.1°C	2.4°C
TEMP. INCREASE BY 2100	1.4°C ... DROPS BACK BELOW 1.5°C AFTER SMALL 'OVERSHOOT'	1.8°C	2.7°C	3.6°C	4.4°C
TEMP. INCREASE BY 2300	—	—	2.3 - 4.6°C SIMILAR TO TEMPERATURES 3 MILLION YEARS AGO (2.5 - 4°C)	—	6.6 - 14.1°C SIMILAR TO TEMPERATURES 50 MILLION YEARS AGO (10 - 18°C)
CO_2 EMISSSIONS TAKEN UP BY LAND + OCEAN SINKS	70%	65%	54%	44%	38%
SEA-LEVEL RISE BY 2150	37 - 86cm	46 - 99cm	0.66 - 1.33m	—	0.98 - 1.88m SEA LEVEL RISE OF 5 METRES BY 2150 "CANNOT BE RULED OUT"

Overall, the carbon cycle is expected to "weaken" as a result of increasing temperatures, leading to more CO_2 emissions remaining in the atmosphere and less being absorbed by the land and ocean. That's not good news because without the land and ocean doing its thing (generously absorbing about half of the CO_2 we emit today) climate change would already be around twice as bad as it is now.

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

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While the **VERY HIGH** scenario is unlikely as the rate of annual CO_2 emissions slows down — as we transition away from fossil fuels and decouple emissions from economic growth — the CO_2 levels it contains "cannot be ruled out". This is because as we heat up, there's an increasing risk we open a Pandora's Box of climate feedbacks...

CLIMATE FEEDBACKS

Earth's energy balance is not only affected by 'climate drivers' such as CO_2 emissions. Climate feedbacks (or 'carbon-cycle feedbacks') are self-reinforcing changes to the Earth's temperature from a secondary factor.

DESTABILISING FEEDBACKS

'Positive feedbacks' that amplify human-caused global heating

IN OTHER WORDS, NOT THAT POSITIVE...

E.G.

STABILISING FEEDBACKS

'Negative feedbacks' that dampen human-caused global heating

E.G.

CO_2 'FERTILISATION EFFECTS' CAN LEAD TO PLANTS SEQUESTERING MORE CARBON

A THAWING PERMAFROST

Will release 3-41 billion tonnes of carbon per 1°C of heating by 2100

THE PERMAFROST IS ESTIMATED TO CONTAIN 5,500 BILLION TONNES OF CO_2, TWICE THE TOTAL THAT'S IN THE ATMOSPHERE TODAY

SHIFTS IN FOREST ECOSYSTEMS

"The probability of crossing uncertain regional thresholds increases with future warming (high confidence)"

E.G. AMAZON FOREST DIEBACK

CLOUDS

The "net cloud feedback is positive (high confidence)", so amplifies human-induced warming

"CLOUDS REMAIN THE LARGEST CONTRIBUTION TO OVERALL UNCERTAINTY IN CLIMATE FEEDBACKS"

It's "virtually certain" that the combined effects of all feedbacks is to amplify the heating caused by emissions, and these are expected to become more powerful over time, further amplifying heating.

CLIMATE FEEDBACKS ARE ONE OF THE MAJOR SOURCES OF UNCERTAINTY WHEN MODELLING HOW MUCH HOTTER WE MIGHT GET

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT

4. We can fix it

The door is still open to a VERY LOW scenario and avoiding the worst impacts and risks of a hotter planet – keeping 1.5°C alive is geophysically and technically feasible. But it depends on political leadership.

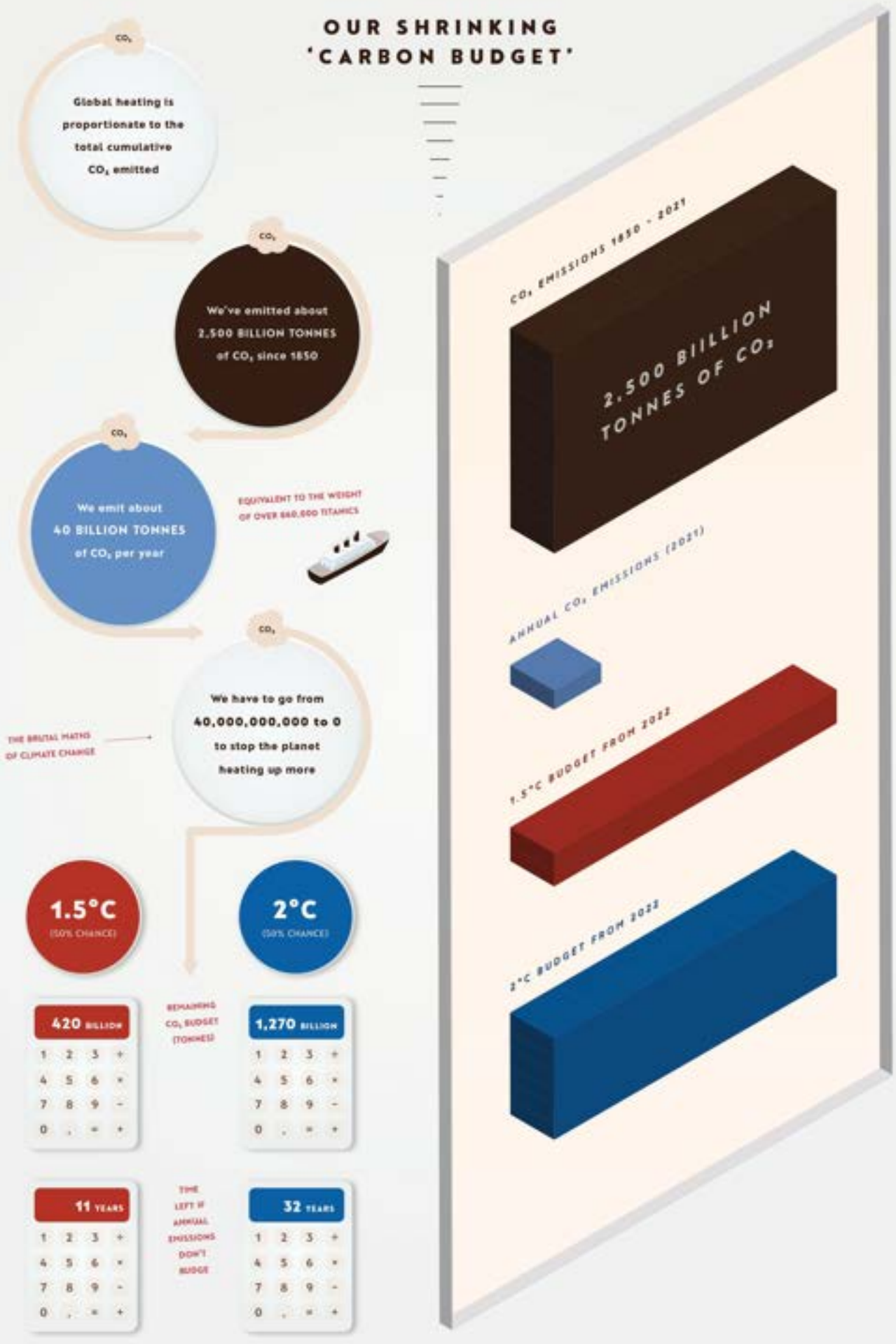
SCIENTIFICALLY SIMPLE

01 By 2050, if we bring our **CO_2 emissions down to net zero** and **reduce other GHGs** heating can be stabilised at 1.5°C.

02 If we then implement ways to draw carbon down from the atmosphere at scale using carbon dioxide removal (CDR), temperature increase could be reversed.

CDR IS DEEPLY UNCERTAIN AT SCALE. THIS CENTURY WE'D NEED TO BUILD A CDR INDUSTRY THAT RIVALS THE SCALE OF TODAY'S GLOBAL AUTOMOBILE SECTOR TO PUT US ON TRACK TO ACHIEVE THE PARIS AGREEMENT TEMPERATURE GOALS

COURTESY: IPCC REPORT 2022 - ENERGY & CLIMATE INTELLIGENCE UNIT



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A MINEFIELD

Climate change isn't a cliff we go off at 1.5°C or 2°C. It's more a minefield we're stepping into. The farther we step in — the more we heat the planet — the more likely it is we set off devastating tipping point-like changes.

HOW QUICKLY MIGHT HEATING STOP?

Once CO_2 emissions reach **NET ZERO**, heating is likely to stabilise very quickly i.e. after a few years

THIS MEANS WE HAVE THE POWER TO CHOOSE OUR FUTURE

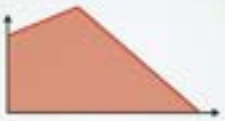
THE PATHWAY TO NET ZERO MATTERS

The path we take will determine the total amount of CO_2 we emit.

LESS CUMULATIVE EMISSIONS

The earlier the action, the lower the cumulative emissions.

THE LOWER THE CUMULATIVE EMISSIONS, THE LOWER THE TEMPERATURE OUTCOME



MORE CUMULATIVE EMISSIONS

The later the action, the higher the cumulative emissions.

Every tonne of CO_2 we emit adds to global heating and reduces the remaining carbon budget.

By John Lang

Energy&Climate

NET ZERO LAWYERS ALLIANCE

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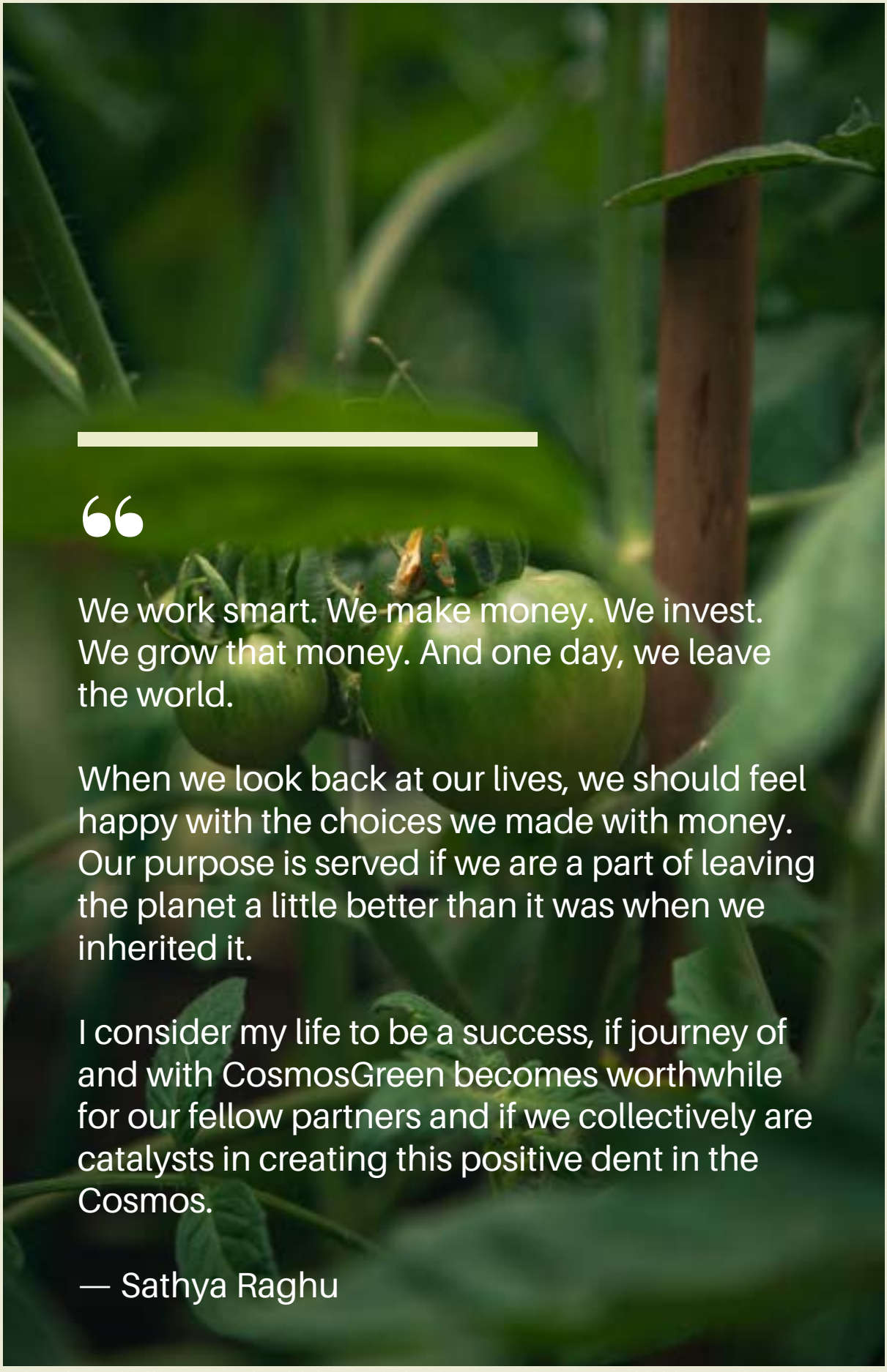

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We work smart. We make money. We invest. We grow that money. And one day, we leave the world.

When we look back at our lives, we should feel happy with the choices we made with money. Our purpose is served if we are a part of leaving the planet a little better than it was when we inherited it.

I consider my life to be a success, if journey of and with CosmosGreen becomes worthwhile for our fellow partners and if we collectively are catalysts in creating this positive dent in the Cosmos.

— Sathya Raghu

A Win-Win-Win for Everyone!

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