CLIMATE CHANGE AND GLOBAL WARMING ACTION PLAN FOR INDIA

- By Darshan Goswami, Pittsburgh, PA., USA

Clean air and a livable climate are inalienable human rights. And solving this crisis is not a question of politics. It is a question of our own survival.

Climate change is real. Global warming is the root cause of Climate Change. Far too often climate change is dismissed as an issue for the future. Numerous studies have shown that the earth temperatures are rising. According to the World Health Organization air pollution is responsible for the premature deaths of over 7 million people worldwide per year. "Pollution kills more people every year than wars, car accidents, and homicides combined." -- Arnold Schwarzenegger. The Climate Change is having devastating impact on the lives of children in poorer countries like India and Bangladesh – whose childhoods are being washed away. Over 50 children in the age group of one month to 14 years die of cancer every day in India, according to a recent study which also highlights the significant monetary burden of the disease and lack of advanced treatment options in the country.

Courtesy: Times of India

Air Pollution Problem Delhi

Most Terrifying Global Warming

Polar Bear Global Warming

A number of cities in the Persian Gulf region may be unlivable by the end of the century due to global warming, if humans do not curb greenhouse gas emissions, according to new research. Every year we're seeing new and undeniable climate events, droughts, extreme weather events intensifying, Greenland ice sheets melting at unprecedented rate - decades ahead of scientific projections, and our oceans are acidifying with methane plumes rising up from the ocean floor. And unless we reverse course regarding the fossil-fuel-burning path chosen, there will be even more such early deaths attributed to the igniting of these fuels. Climate change is our single greatest security threat. Pollution control should be the top priority for India.

The answers to Climate Change are very simple. The world needs to create a future powered by renewable energy. Renewable energy (especially solar and wind) is a game-changer for most countries in the world. It has the potential to re-energize the world by creating millions of new jobs, achieve energy independence, and combating climate change. Even providing 100% renewable energy is not a fantasy for someday, but a reality today. Many countries have already set a target to reach 100% Renewable in the very near future. World leaders have it in their power to make it possible a real and measurable difference putting

the planet on track. I remain unwaveringly convinced that if the air-pollution crisis is resolved, we resolve the climate-warming issue in the process. I call that a win-win proposition for humanity.

World leaders have it in their power to make possible a real and measurable difference putting the planet on track. What is needed now is a new focus and global efforts by Governments, corporations, citizens and nonprofits to comply with the United Nations Framework Convention on Climate Change (UNFCCC). I urge them to do so now. It is our moral and ethical obligation to prevent this human tragedy because it is totally preventable.

ACTIONS NEEDED TO REVERSE CLIMATE CHANGE AND GLOBAL WARMING IN INDIA

What we need in India is a bold new climate and energy policy. And we need a whole new set of social and technical knowledge to get us there. We need transformational thinking and new policy tools. We also need major legislation such as putting a price on carbon. However, we also need to know, if those steps will even be enough to keep us below the scientifically endorsed and aspirational goal included in the Paris Agreement of limiting global average temperature increases between 1.5°C and 2°C by 2100. We need to immediately find solutions to solve this pollution problems.

Courtesy: Nissan Leaf Electric Car

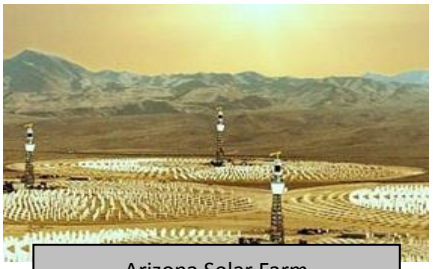
Courtesy: BYD Electric Bus China

Tesla Powerful Charging Unit

Micro-grid Solar Installation

Commercial Scale Installation - eBay

Solar Power Mojavi Desert



Arizona Solar Farm

CPV Installation at Nichols Farm

Solar Farm

Solar Charging Roadways

(1) **Introduce a Carbon Tax**: Capturing carbon and reducing greenhouse gas emissions and **Planting Trees** could help slow and eventually reverse global warming trends.

(2) **Exponentially increase the deployment of Renewable Energy:** Aggressively expand large-scale deployment of both

centralized and distributed renewable energy including solar, wind, hydro, biomass, and geothermal to ease the strain on the present transmission and distribution system — and allow more off-grid populations to be reached. Provide incentives to kick start Renewable Energy programs for massive Solar Roof-tops over 100 million Solar Rooftops with Home Energy Storage Battery like "**Tesla Power Wall**," etc.

(3) **Develop National Renewable Energy (RE) Policy** - Enact and deploy a comprehensive new energy roadmap with innovative RE policies. In addition, set National RE Standards such as 20 percent by 2020, 40 percent by 2030 and 100 percent by 2050 — to create demand, new industries and innovation, and a new wave of green jobs.

(4) **Electrifying Transportation** - Expedite a move to electrify transportation by encouraging expanded use of Electric Vehicles (EV) and plug-in hybrids, and deployment of solar-powered EV charging stations around the country. Develop and implement time-of-day pricing to encourage charging of vehicles at night and other times when peak demand is low. Adopt nationwide charging of electric cars from solar panels on roofs and solar-powered EV charging stations around the country. In addition, launch the public transportation system of the future with "**zero-emission**" battery-powered Electric Buses (like CHINA is doing in their country) in all major cities to reduce air pollution, reverse climate change and global warming. India must make a massive shift that will lead to widespread adoption of EVs in the next 5 to 7 years.

(5) **Energy Efficiency**: Promote energy efficiency in the economy, notably in industry, transportation, buildings and appliances. Make energy efficiency a high priority by expediting the development and implementation of cost-effective energy efficiency standards. To reduce the long term demand for

energy, engage states, industrial companies, utilities and other stakeholders to accelerate energy efficiency investments such as large scale nationwide use of LED lamps, etc.

(6) **Utility-Scale Projects** - Plan for the long-term - Phase out conventional energy subsidies, and develop a long term plan to replace fossil with utility-scale renewable generation. We can no longer ignore the effect of pollution and climate change on health of our citizens.

(7) **Renewable Innovative Financing Solution:** Provide innovative financing (e.g., Tax-Free Solar Bonds or Green Infrastructure Bonds, etc.) to instill more confidence from potential investors and decrease the cost of financing for renewable energy projects. Create and fund a national smart infrastructure bank to accelerate local demand for Renewable Energy.

(8) **Decentralized Energy** – Avoid future fossil fuel investments in India and, instead, emphasize nationwide deployment of community scale solar projects and micro-grids with storage. India's present 40GW solar target should be extended to include photovoltaic panels on the rooftop of every home in India, generating enough power to reduce the country's massive dependence on fossil fuels.

(9) **Micro-grids:** Aggressively invest in a smart, two-way grid (and micro-grids). Invest in smart meters, as well as reliable networks that can accommodate the two-way flow of electricity.

(10) **Solar Roadways** - India should also take advantage of the vast, network of roads across India and the sun that beats down on them and turn them into energy-creating solar super highways. The idea of solar panel roads is to replace traditional asphalt roads with glass based "solar panels that you can drive on" in a bid to turn roads into sources of renewable energy.

(11) **Develop Energy Storage**: Including thermal, grid battery storage (e.g., Tesla Powerwall home battery backup), compressed air/gas, vehicles-to-grid/home, pumped hydro, fuel cells or hydrogen, flywheels, superconducting magnets and super capacitors. Develop a "H**ydrogen Economy**" plans. Recent innovations in hydrogen generation, storage, transport and use could transform it into the ultimate source of clean energy. Now India can export **Sunshine** around the world by converting solar energy into "**Liquid Hydrogen Fuel**."

(12) **Transform India into a global solar manufacturing hub:** Establish R&D facilities within academia, research institutions, industry, government and private entities to guide technology development.

India has the technical potential to meet its current power needs more than 10 times over with solar energy alone. There are no insurmountable technological or economic barriers to tapping India's vast potential to achieve 100% renewable energy. India can easily build a 100% renewable energy system at costs comparable to or less than what it would have to spend to continue its reliance on fossil and nuclear power. There is no downside to this transition. We can make India the world leader and super power in Renewable Energy, and eliminate suffering of millions of people in Delhi and many other cities from pollution problems.

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