

23<sup>rd</sup> October, 2019

## Aurum Small Cap Opportunities & Aurum Growth Portfolio

Dear Investors,

As a pure small cap focussed manager (with no allocation to large caps), we are currently passing through a very challenging phase. On one hand, we are facing under-performance as we await turnaround of sentiments, improved liquidity and interest coming back to small caps universe. On the other hand, we find most of our portfolio companies continue to have robust outlook, giving us the conviction to stay invested. Though illiquidity risk in a couple of our portfolio companies is high at this point in time, the underlying businesses therein continue to be robust with no likely negative surprises. Our own view is that, from a sentiment standpoint, we are perhaps standing on the verge of a cyclical turnaround on the back of policy initiatives – like the corporate tax rate cut. The co-ordinated effort by Govt and RBI to infuse liquidity and push for transmission of rate cuts to the end borrowers also will gradually but surely bear fruit. However, negative surprises in financial sector entities (banks/NBFCs) have kept investors on the edge and that remains a cause for concern!

**‘Slowdown’** is perhaps the most repeated word in economic and capital market circles today. High growth economies are expected to take a breather at some point in their long cycle of growth. Therefore, unless the slowdown is structural or systemic in nature, we should not be overly worried. The more important question to be asked is – have 1.3 billion people permanently slowed down their consumption of goods and services or is it just a temporary pause? It is another matter that technological disruption like shared mobility or other regulatory headwinds may drive consumers away from buying a car or change their preference to spend more on entertainment, travel, healthcare, etc. Further, the entrepreneurial energy that has been unleashed in the country with ample availability of domestic and foreign venture capital is also creating aspirational goods and services for all sections of the society. While individually these entrepreneurial ventures may still be tiny but collectively they are gaining critical mass and challenging the more well established players and their business models.

While the slow down is there, we are pretty amused, when one reads news report about a slow down in the sales of ₹5 biscuit pack! Are people eating less or have they supplemented the biscuits with more nutritious alternatives? Though data is difficult to get, we suspect the latter is more likely to be true.



Climate change refers to long term changes in global climate patterns because of 'global warming'. Global Warming is the gradual increase in the average temperature of earth's atmosphere

With an extended monsoon and above average rains, rural economy is again looking up and Govt's focus on infra spending is for real. Of course, there are global factors (US/China trade war, Iran, Turkey-Syria and many more) and no one can really decipher the impact of these complex and often conflicting factors on global economy. India, though seems to be well placed to navigate potential global crisis, being largely a domestic consumption led economy and also being 'friends' with countries that matter. Given this background, we strongly feel that we are on the verge of turn around of sentiments, sooner than later.

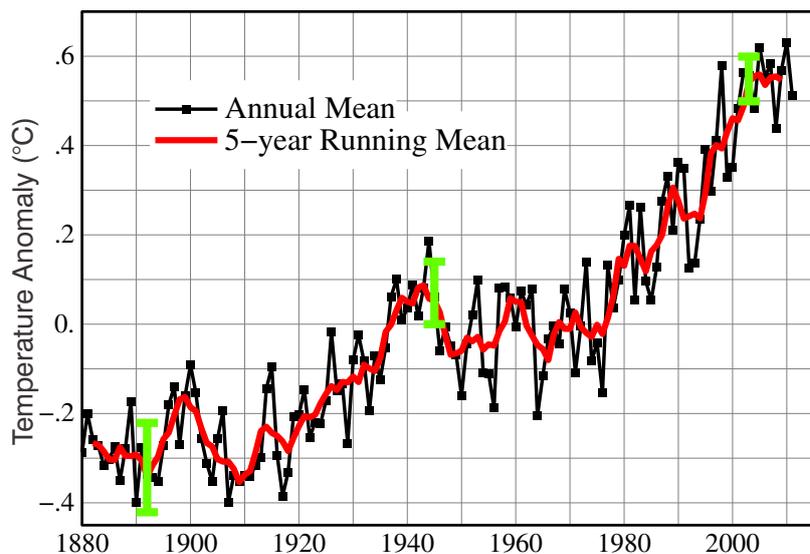
### The Mainstreaming of Climate Change

Many of you would have seen or read about a young teenager **Greta Thunberg's** speech at the recently concluded UN general assembly session! If you haven't, please do see or read her speech. Looking beyond the publicity and sensationalisation of her speech, one realizes that climate change is for real and how disconnected most of us (countries, people, world leaders) have been with this critical issue. We are not talking here as activists but as analysts and have tried to put together our thoughts on the economic upheaval that is in store for certain geographies and businesses with the mainstreaming of climate change. This quarterly update is devoted to this critical yet hugely under-estimated subject from an economic standpoint.

### What is Climate Change?

Simplistically put, Climate Change refers to long term changes in global climate patterns because of 'global warming'. Global Warming is the gradual increase in the average temperature of earth's atmosphere. Chart 1 vividly depicts this phenomena of gradually rising temperature, ie; global warming.

Chart 1: Global Land-Ocean Temperature Index



Source: NASA

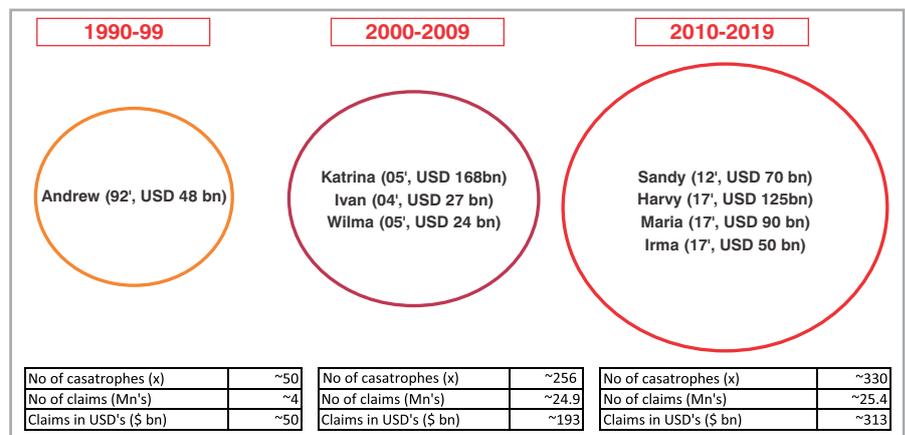


### Visible effects of Climate Change

Global Warming has led to rise in mean sea levels because of melting glaciers, increase in frequency of storms (hurricanes/cyclones/typhoons) and tornadoes, unseasonal & erratic rainfall, extreme heat waves, increase in the occurrence of droughts, among other changes. All these occurrences are already visible across the world and also in India, with their frequency and intensity increasing with each passing year.

### US: Hurricanes & Forest Fires becoming more frequent and intense

**Chart 2:** Catastrophic events in USA during the last 3 decades and insurance claims



Source: <https://www.iii.org/table-archive/20922>

In US, in last 3 decades, ferocity & number of hurricane events have gone up significantly. Names like Katrina (USD 160 b), Wilma (USD 24 b), Harvy (USD 125 b), Maria(USD 90 b), Sandy(USD 70 b) and Irma(USD 50 b) made headlines worldwide. In the years 1990-99, the total insurance claim paid out on account of such catastrophic events was ~ USD 50 bn. From 2010-mid 2019, the claim amount has already crossed USD 300 b, a six fold rise and counting. It is noteworthy that the settled claims are only a portion of the total material damage done. (Figures in brackets above represent insurance claim amounts)

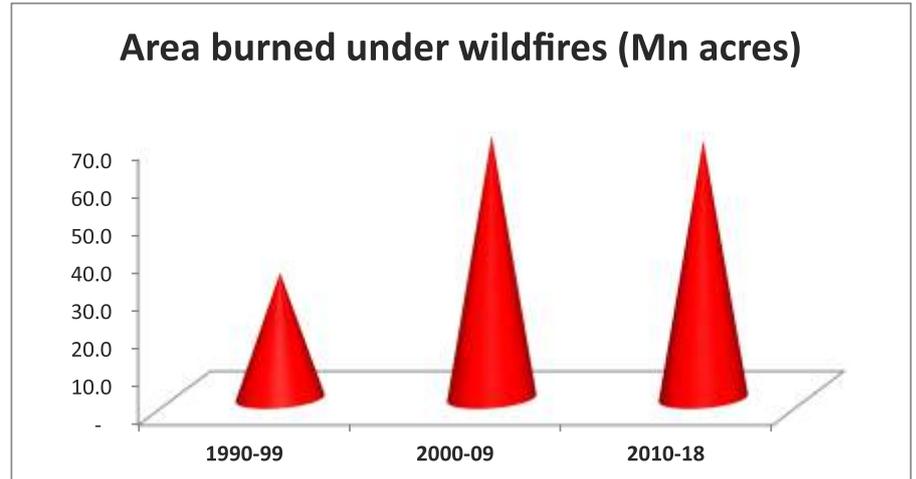
**In the years 1990-99, the total insurance claim paid out on account of such catastrophic events was ~ USD 50 bn. From 2010-mid 2019, the claim amount has already crossed USD 300 b, a six fold rise and counting**



The number of warm days was ~2x and ~3x in the decade of 2009-18 over 1959-68, for Bengaluru and Mumbai, respectively!

Similarly, forest area destroyed in US alone, by forest fire has more than doubled in 2010-18, over 1990-99.

**Chart 3:** Wildfires in US during last 3 decades and its impact

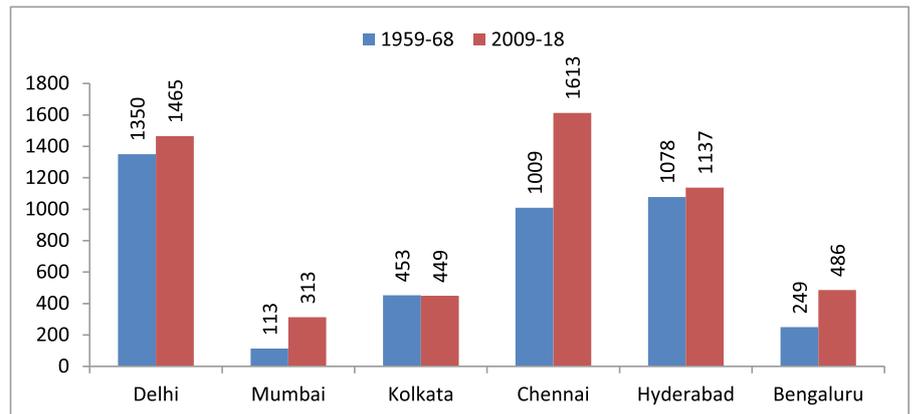


Source: <https://www.carbonbrief.org/factcheck-how-global-warming-has-increased-us-wildfires>

**India: Warmer weather and erratic rainfall**

Closer home, in India, as depicted in Chart 4 below, the number of warm days (+35 degree centigrade) has gone up across the spectrum. The number of warm days was ~2x and ~3x in the decade of 2009-18 over 1959-68, for Bengaluru and Mumbai, respectively!

**Chart 4:** Number of days when maximum temperature exceeds 35 degrees Celsius



Source: <https://www.livemint.com/news/india/the-growing-threat-of-climate-change-in-india-1563716968468.html>

Those living in Mumbai, Chennai or other parts of India are also aware of the erratic and intense nature of rainfall and flooding thereof.

It is believed that by 2050 many global cities may require seawalls to survive. Estimates vary, but conservatively sea levels are expected to rise 1 to 4 feet (30 to 100 cm), enough to inundate many small Pacific island nation states like Vanatu, Maldives, etc, famous beach resorts (Hilton Head) and coastal cities (Bangkok, Boston, New York).

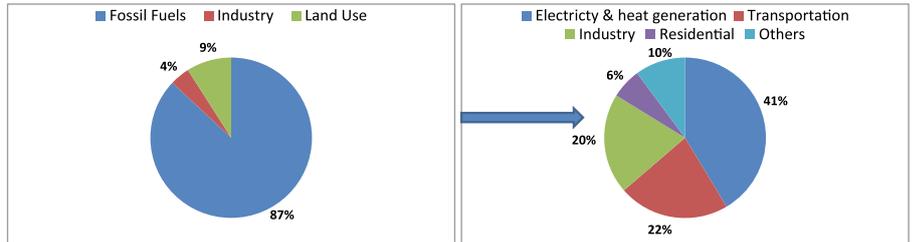


90% of CO2 released in the atmosphere is because of burning of fossil fuel (coal & crude derivatives). So obviously, the fight against global warming is about reducing the CO2 emissions and in turn reducing dependence on fossil fuel

### Cause of Global Warming

Global warming is caused by rise in CO2 emissions because of human activity. Higher concentration of CO2 in the atmosphere traps heat from the sun, leading to a gradual warming up of the atmosphere and climate change thereof. As would be obvious from chart 5, ~90% of CO2 released in the atmosphere is because of burning of fossil fuel (coal & crude derivatives). So obviously, the fight against global warming is about reducing the CO2 emissions and in turn reducing dependence on fossil fuel.

Chart 5: Sources of CO2 emissions by sectors (%)



To reduce CO2 emission, we need to first understand the sectors & consumption patterns which account for most of the CO2 produced (chart 5, above), namely;

- Electricity and Heat generation (Thermal power plants, 41%),
- Transportation(22%),
- Industry (20%),
- Residential & others (16%).

Attempt to reduce the carbon emission has been mired in the complexities of economics, technology and socio political issues. However, of late it has moved from 'sustenance vs growth' argument and is now evolving into an 'existence vs growth' argument. While an attempt is being made to reduce carbon emission, it is a multi-decadal effort.

### Sectorial Impact of Global Warming

**1. Agriculture:** Farming, as an economic activity, is majorly dependent on stable weather conditions and availability of water. Globally and specific to India, agriculture is feeling the brunt of water stress and volatile weather pattern. In India, agriculture consumes ~80% of water consumed in the country. Within agriculture, paddy, cotton and sugar cane account for 80% of consumption (chart 6). The agricultural sector represents 15% of India's Gross National Product (GNP) but supports 40% of population, directly or indirectly.

Chart 6: Water usage pattern in India



Source: United States Geological Survey

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**Impact:**

- Agriculture is a socio politically sensitive issue. Disruption of agriculture will jeopardize livelihood of those engaged in agriculture and allied activities, impact food security and also translate into food inflation.
- It is also likely to impact crop yields (both positively and negatively), as well as the types of crops that can be grown in certain areas, like almonds in California or sugar cane in Marathwada, Maharashtra.

**Policy Dynamics & Opportunities:**

- Reduce water intensity of agriculture by means of investment in drip irrigation.
- Conservation and revival of water bodies and intense afforestation
- Development of drought resistant seeds and resilient crops
- Farm level mechanization will grow and automation, data based decision making will become mainstream, as large number of people move away from agriculture as a profession
- Huge opportunity may open up for hydroponic agriculture and vertical farming as that is done under completely controlled conditions.

**2. Electricity and Heat/ Thermal Power Plants (TPP):** Globally, TPPs accounts for about 41% of CO<sub>2</sub> generated and also guzzle lots of water. For instance ~13% of total water consumed in India is by TPPs. Thus, TPPs are a double whammy when it comes to climate change! Further water used in TPPs becomes highly contaminated with chemicals that are used to prevent foaming, fouling and require significant treatment before recirculation or release. In addition to emitting CO<sub>2</sub>, TPPs also emit Nitrogen Oxides (NOX) and Sulphur Oxides (SOX) which are toxic air pollutants.

**Impact:**

- In India, 61 TPPs have faced intermittent shutdown between 2013-2017, due to water related issues. Further, about 41 GW of TPP or ~20% of our installed TPP capacity of 223 GW are located in water stressed zones and may become operationally unviable
- Overall, financial viability of many TPPs may get impacted due to the lack of availability of water & continued investment in pollution control (water & air) systems.
- Boiler, turbine and generator suppliers like BHEL, Thermax, ABB, are struggling with growth challenges
- While today the price of renewable power is equal to that of TPP, going forward TPP as a sector will be significantly impacted when utility scale battery facilities to store renewable power become viable

**Policy Dynamics & Opportunities:**

- **Investment in Renewable:** It is obvious that our energy requirements will continue to rise. The obvious way out of this energy conundrum is to invest in renewable (solar & wind) energy. Apart from being significantly less carbon intensive, solar also requires only 4% of water for similar power generation as TPPs (Solar requires 876 cubic meter per MW p.a. for a 5 MW installation Vs. 22,700 cubic meter p.a. for a 5 MW TPP), though solar needs much more land.

**Chart 7: India's Solar Installation**

Category	FY 19(Installed)	FY 22(Plan)
Solar rooftop	6,000	40,000
Large-scale solar power projects	10,000	57,000
<b>Total</b>	<b>16,000</b>	<b>97,000</b>

Source: MNRE

That being the case, we have seen an accelerated addition of solar capacities in India. Consequently;

- To enable unpredictable and often erratic renewable energy flow and ensure grid stability we anticipate significant & renewed investment in a T&D 'green corridor'
- Progressive 100% net metering to enable two way flow of energy from household, commercial and industrial establishments who produce solar energy but also consume grid energy
- Continued investment in air based cooling, water treatment & air pollution control systems like Flue Gas Desulphurization (FGD) system for TPPs
- As energy efficiency rating standards get progressively more stiff we believe large opportunity would emerge in efficient motors, new generation lubricants, etc

**3. Manufacturing Industry:** Globally, Industry accounts for about 20% of CO2 emission. It also consumes ~3% of water as a part of the manufacturing process and generates effluent that is then released (treated or otherwise) in water bodies. With stressed water situation and progressively higher effluent treatment standards, water intensive industry will face head wind. Some of the high water intensity industries are;

- Tanneries
- Pulp & paper
- Textile
- Breweries & soft drink
- Steel – blast furnace wash, pigging line and acid pickling
- Pharmaceutical & chemicals
- PVC & polyurethane (artificial leather)

**Policy Initiatives & Opportunities:**

- Continued investment in zero liquid discharge (ZLD) & other waste & water treatment systems
- Within industry some visible trends are;
  - Redesigning products and packaging to move towards circular economy, impacting consumption of various material including plastic & chemicals
  - In textile, gradual move towards air dyeing from current practice of water based dyeing
  - Enzymes gradually replacing metals & chemicals in textiles & tanneries for scouring
  - Move from chlorine based bleaching to hydrogen peroxide (H2O2) based bleaching process

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Absence of regular and secure water supply can impact value of real estate. A case in point is Latur in Maharashtra which witnessed series of severe droughts leading to exodus of population and decline in the value of real estate

- Engineering to enable greener chemistry in manufacturing process  
Infrastructure,

**4. Real Estate, Transport & Infrastructure:** The urban infrastructure of today may not be able to withstand extreme weather & climatic events that global warming will frequently unleash. Existing infrastructure would require major re-designing and re-calibration involving significant investments. Infrastructure like mass transport, drainage systems, water storage, disaster management & flood prevention amongst many others would require significant re-engineering and re-investment.

**Impact:**

- Absence of regular and secure water supply can impact value of real estate. A case in point is Latur in Maharashtra which witnessed series of severe droughts leading to exodus of population and decline in the value of real estate. Areas seeing frequent storm or inundation may also become uninhabitable and decline economically. In the medium to long term, it will inhibit and change the distribution pattern of industrial and economic development.

**Policy Dynamics & Opportunities:**

- Government has a huge focus on managing water resources (storage, treatment, re-cycling etc.) and will benefit those with a long term focus on the sector
- Investment in development of new materials, construction technologies, etc
- Investment in mass transport system and renewables
- The entire ICE to EV value chain is in a state of transition. While those likely to lose out are obvious, beneficiaries are not yet in sharp focus

**5. Pests & Diseases:** Generally, rising temperatures favour agricultural pests, diseases and disease vectors. Increased temperatures also increase the reproduction rates of microbes and insects, speeding up the rate at which they develop resistance to control measures and drugs (a problem already observed with malaria in Southeast Asia).

**Impact:**

- Pest populations are on the rise and illnesses once found only in limited, tropical areas are now becoming endemic in much wider zones. In Southeast Asia, for example, where malaria was largely restricted to wet season is again endemic almost throughout the year. Likewise, dengue fever, once largely confined to tropical areas, has become endemic to the entire region.

**Policy Dynamics & Opportunities:**

- We anticipate higher usage of acute medication and renewed effort to develop next generation antibiotics
- Continued growth in both preventive and post disease diagnostics process
- Continued investment in development of vaccines
- Pestilence may see an increase. However, going forward, pest control is likely to be more precise and directed, instead of the usual spray and pray methodology



A long term investor should be watchful while looking at the RE / general insurance industry

**6. Tourism:** Tourism is one of the largest and the fastest growing industries in the world, and contributes to around 9.5 % of Global GDP and 9.1% of the global work force. India sees tourism & hospitality as nascent industry with large employment potential. However, rapid changes and extreme weather conditions can upset most plans to develop tourism as an industry.

**Impact:**

- With change in lifestyle, travel and tourism is expected to see significant growth over an extended time frame. However, global warming is expected to change the average climate in touristy places and also result in extreme weather events. It can also impact availability of water in tourist locations. Both of these can gradually reduce the appeal of tourist destinations, impacting livelihood and business investments made in these places. Conversely, it will also give rise to new areas for tourists to flock to.

**7. General Insurance & Banking:** Perhaps the biggest impact of Climate Change is being felt by the reinsurance / general insurance sector. Over longer time frame it will also likely spill into the banking sector as well. The falling ROEs of top 20 global reinsurers in **Chart 8** below says it all! The rise in combined ratios and decline in RoE have coincided with years when countries like US experience disproportionate impact from hurricanes (higher natural catastrophe loss)

**Chart 8:** Top 20 Global Reinsurer's combined ratio & ROE performance

	2013	2014	2015	2016	2017	2018E
*Combined ratio (%)	84.6	84.6	87.5	91.9	111.8	97.5
Natural Catastrophe losses (%)	4.4	2.5	2.3	5.2	21.5	8.0
RoE (%)	13.9	13.4	11.0	9.5	(1.0)	8.0

Source: S&P Financial services LLC: The top 20 global reinsurers are: Alleghany, Arch, Argo, Aspen, AXIS, China Re, Everest Re, Fairfax, Hannover Re, Hiscox, Lancashire, Lloyd's, Markel, Munich Re, PartnerRe, Qatar Ins., RenRe, SCOR, Sirius, and Swiss Re

\*Combined ratio= (Incurred losses + Expenses)/Earned premium

**Impact:**

- As the frequency of catastrophic occurrences increases due to climate change, loss of property is likely to raise manifold making general insurance companies susceptible to mammoth claims year after year. As predicting weather patterns becoming increasingly difficult, it would be a nightmare for general insurance companies to arrive at a premium pricing that allows them to acquire clients for growth and yet generate decent ROEs. We may see increased bankruptcies being declared leaving businesses and their bankers open to big risks. A long term investor should be watchful while looking at the RE / general insurance industry.

### **Conclusion**

The volatile impact of climate change has already begun to show up in various sectors. As we write this piece, another calamity in the form of Typhoon Hagibis has hit Japan causing huge loss of property, displacement of people and also lives. We expect climate change to create headwinds for many businesses while opening up opportunities for others in times to come. Filtering investments by applying ESG frameworks will increasingly become more important and as a manager we have basic ESG filters in place to screen our investments.

Looking forward to your continued support and encouragement.

Warm regards,

**Sandeep Daga**

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