

Title : Designing An Incentive Structure for an Ethics Index in India

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Modern ideologies have strongly influenced the decision making of humans. Every single decision has a reason behind it and it mainly lies within the moral values we hold. These decisions also include the ones taken by government for various purposes including to those related to businesses. They can involve the moral values held by people too. The moral values are often referred to as ethics.

Ethics as a term has no formal definition. One definition describes it as the principles of conduct governing an individual or a group (Webster's, 2022). Ethics in its simplest form refers to the moral principles a person has and uses it to assess a situation before taking any decision. This is the complexity of the topic and this strange vagueness of it makes it a very interesting and impactful field. Ethics have various implications and one such lie in the realms of Business. It can be one of the most difficult tests of one's ethics because this field brings up various challenges which are critical for any business. Crucial decisions can be influenced by ethics which may lead to companies getting a lot of profit or maybe doing the greater good. However, it is not always that it is the factors within the organisation that affect choices made by entrepreneurs and leaders alike. This paper aims to understand just that.

Governments regulate the business environment in their country. A major factor which will affect the ethical responsibility of businesses is how the government looks towards ethics. One such question which arises is the stick or carrot approach. The stick approach means when the government punishes the bad for any unethical behaviour and the carrot approach is when the government rewards businesses that have taken ethical decision. It is a very interesting dilemma because both sides have their own advantages and this paper covers the various aspects of it. Every business will have a different view point to both the approaches and the outcomes of the same will be very different too. The government sets the template for the economy and it is their ideologies which will cause ripples of progress in the nation. I have chosen India as the nation in focus because it is a growing economy and has shown a lot of growth over the past few decades. It is slowly and steadily flourishing in every field and has the maximum potential in terms of growing more over the coming years and being the leading nation in terms of growth. Moreover, it has huge number of entrepreneurs making it the perfect market to analyse. The main goal of the paper is to identify and analyse how the government ideologies affect an ethics index. Ethics index is a method to measure the ethical values of a business. It has a lot of potential because it could revolutionize the way people and business look towards moral decisions. The world is changing rapidly now and customers are well aware of the practices of the business and the impacts they have on other stakeholders. By having an effective index stakeholders will have a true understanding of where a business lies

based on its actions. To make an ethics index more effective it is essential that the government supports it completely and allows it to reach its zenith. This paper will argue on how the effectiveness of an ethics index is influenced by the ideologies of the Indian government on the stick or carrot approach. It will explain the advantages of stick and carrot and why they might suit the Indian context based on the nature of businesses and the ideologies of the government. This is a unique context which is quite under explored. Business ethics as a field is barely touched upon and a lot is still there to be unearthed. The notion of government ideologies influencing ethics is also quite new and unexplored meaning a lot of new things could be understood from it.

The Sweet Carrot or Hard Stick?

The modern world is filled with crossroads, where one has to make a choice. The stick or carrot is one of the important ones. Do you punish somebody if they have done something bad? Or do you reward somebody who has done something good? The stick approach means that people who have done any unethical activity will be punished. This will set an example for the other businesses that if they do any unethical activity, it will be punished by the government which is something that they will fear. The carrot approach means that the government focuses on rewarding the businesses which follow ethical practices to motivate them to continue to do so in the near future.

LIGS University article (Leleh, 2020) states that the carrot and stick leadership is an old leadership style that is linked to behavioral and social scientists of the early 19th century. The construct was coined as a result of the need to motivate workers to do a commensurate work with the rewards they receive. Several ideas generally were believed to necessitate the carrot and stick approach to leadership. One such idea generally held was that human beings are lazy and would not do what is expected of them unless they are motivated by promise of rewards for good work or threatened by the possibility of punishment for failure to do as expected. Also, it was believed that people could be made to do more work than they ordinarily would in given circumstances. The prospect of meeting the lower-level needs of people according the Abraham Maslow's theory will get people motivated. The carrot and stick leadership behavior construct as the "foundation for specifying expectations, negotiating contracts, clarifying responsibilities and providing the rewards and recognitions to achieve the set objectives and expected performance between leaders and followers". It is also seen as "a traditional motivation theory that asserts, in motivating people to elicit desired behaviors, sometimes the rewards are given in the form of money, promotion, and any other financial or non-financial benefits and sometimes the punishments are exerted to push an individual towards the desired behavior". John Locke was quoted as once writing that "good and evil, reward and punishment, are the only motives to a rational creature".

Carrot

The carrot approach focuses on attracting people to act ethically by showing them a favorable result. This is primarily done by giving a reward. In this case the reward can be tax waivers, financial rewards or awards given publicly. The first benefit of the carrot approach is that focuses on people taking more ethical decisions than not taking unethical decisions. For example, a business will want to use environmentally safe raw materials so that their actions are ethical rather than focusing on not using harmful materials. They focus on doing the positive rather than not doing negative and being neutral. It will lead faster growth of the vision of ethical practices as the focus of businesses will be in parallel to the aim. This is essential because the government wants to achieve a certain set of targets and it would not want the businesses to not do the unethical things but rather do the ethical things. There is a slight difference in these two things but they have starkly different impacts. Under this approach, firms willingly embrace a diversity of potentially contrasting perspectives and the development of shared understandings with stakeholders aids firms' attempts to develop solutions to the challenges they face.

Secondly, by engendering trust between actors, a collaborative approach avoids the tendency for opportunistic behavior associated with the use of rational controls (Sundaramurthy, C., & Lewis, M. , 2003). This point demonstrates the point that through incentivizing businesses they will be more likely to agree to government terms and what the government wants to achieve rather than not supporting them.

Durand et al. (2017) argued that an issue would be viewed as more salient—and result in greater resource mobilization— when it is instrumentally aligned with achieving the firm's goals or values and beliefs. A firm will always want to gain benefits for itself like public recognition or tax benefits which align with its vision thus they will work more towards that. So, if the ethics index resonates with the views of the businesses or the ethics index is put forth to the public in a favorable way via rewards then it will easily motivate businesses to work towards the goals. Moreover, the ability and willingness of managers to allocate their attention and effort to an issue will depend on the extent to which the task is viewed as demanding. Issues which already resonate with a firm's management are likely to be viewed as less demanding, meaning that firms will be more responsive. So when the ethics index is part of the firms management goals it will lead to allocation of more resources meaning much better progress in this direction which is crucial.

Also, using incentives serves not only to allocate risks and to motivate hard work, it also serves to direct the allocation of the agents' attention among their various duties. This allows the concept of being ethical to be prioritized above any consideration like profit, when taking any decision. This is important because this leads to businesses employing the concept of ethical practices in their daily decision making meaning the whole business is more conscious towards the ethics index and business ethics. Employee recognition also increases trust in the

workplace. One survey revealed that 90 percent of employees who had received some sort of recognition for their work in the previous month have higher levels of trust in their boss, while fewer than half of those who had not been recognized said they trust their boss (Hamlin, 2019). This point shows the fact that when government rewards businesses it increases trust in them and also the ethics index which is vital because you follow something more diligently when you have trust in it. This will ensure that maximum businesses follow the ethics index and are convinced by the ideologies of the Indian government. (HR, 2020) A certain amount of recognition and appropriate reward will make the employees engage more in their work. When you know that there is a better offer waiting for you, you tend to work harder to achieve that goal. The reward sometimes acts as a bait and the employee gets a clearer picture of what he is supposed to do. This point shows the fact that by the presence of a reward businesses will be more focused on achieving the goal of being ethically responsible which is the main goal of the businesses. Thus, the chances of them following it in the future will increase too. One example of the Indian government rewarding the ethical business is the CSR award they give. Ministry of Corporate Affairs, Government of India has instituted National Corporate Social Responsibility (CSR) Awards to recognize companies that have made a positive impact on the society through their innovative & sustainable CSR initiatives. This award is the apex recognition of CSR initiatives in India (IICA, 2021).

Stick

Punishment is said to be effective in modifying the behavior if an individual selects a desirable alternative behavior. This shows the facts that the government can influence ideologies of businesses by imposing strict laws which is essential in an economy such that of India where laws are flouted easily hence it will lead to lower unethical activity among businesses. This point is very applicable to the Indian scenario because of the tendency of businesses to ignore laws and take decisions solely on what they want.

What the fear of punishment does is that it creates a sense of psychological pressure in the minds of the key decision makers which acts as a reminder to them of the repercussions that they may face if they act unethically. This acts as a very good barrier which will prevent them from taking unethical decisions in the future. Moreover, this psychological pressure will be more established for bigger businesses as they will be more concerned about their reputation. So they will be more considerate on this matter and the pressure will be more impactful on them. Elaborating on the point of bigger businesses, they have a particular brand image which they want to maintain. They have created a perception in the customer's mind about how their business is. They would want to keep it that way so that they can attract more customers and maintain high sales. If they receive any kind of legal action against them they will have a huge drop in sales because customers will now be aware of their unethical practices which can lead them to choosing other brands over theirs. Thus bigger brands are more likely to adhere to strict measures than any other type of business.

Another perspective from the government's point of view is that this method is cheaper than giving rewards. Punishing businesses which actually lead to income from fines rather than them having to shell out rewards for businesses. This is an advantage because in a country like India all the motivation practices will be large scale hence the costs will be too. The government will be willing to use a practice with similar results yet almost zero costs. Further, small punishments can be something which people will overlook and would not mind paying for. If suppose businesses have to pay a fine of Rs. 5000 for polluting the rivers above a certain limit it will be nothing to worry about for them. However, if they have to pay a fine of Rs. 50,00,000 then it will be something which will hurt them a lot and they will not be able to overlook the fine. This will ensure that businesses take the correct decisions because the financial loss will hurt them a lot and such a high cost is not something they will want to bear.

One example of the strict measures by the government of India is in the trials of the medical sector. The government plans to amend the Drugs & Cosmetics Act to slap up to 10 years imprisonment and cancellation of licence for violating norms for testing drugs on humans in India, a government official said. The new set of guidelines would ensure that those who do not follow the norms approved by the Drug Controller General of India (DCGI) for conducting clinical trials on humans are brought to book and punished. (Dey, 2009)

Ethics Index

The world needs a medium to measure how ethical businesses truly are. Claims on packaging or television advertisements cannot accurately indicate their real actions unless they are testified by something believable and universal. This where the ethics index comes into picture. An ethics index is a scale which is used to measure how ethical a business is. This index will allow a business to know where it stands in reality and also make the consumers aware of how ethically responsible the businesses they purchase from or use services of are.

Indexes are very useful in quantitative social science research because they provide a researcher a way to create a composite measure that summarizes responses for multiple rank-ordered related questions or statements. In doing so, this composite measure gives the researcher data about a research participant's view on a certain belief, attitude, or experience. The index according to me can be created in a fairly simple manner. Firstly, there would be certain criterions on which businesses will be awarded points. Criterions can include not harming the environment, using good quality raw materials, well being of employees etc. The different sector businesses can be segregated to ensure there is no unfair advantage. The body that will decide these points will be an individual body that will conduct checks to see the ethical practices of the business. This will ensure there is no bias. This body will be directly under the government so its progress can be tracked.

One such example is the global innovation index. The Global Innovation Index (GII) takes the pulse of the most recent global innovation trends. It ranks the innovation ecosystem performance of economies around the globe each year while highlighting innovation strengths and weaknesses and particular gaps in innovation metrics. Envisioned to capture as complete a picture of innovation as possible, the Index comprises around 80 indicators, including measures on the political environment, education, infrastructure and knowledge creation of each economy. The different metrics that the GII offers can be used to monitor performance and benchmark developments against economies within the same region or income group classification. (WIPO)

Benefits

The first benefit of having an ethics index is that it will help in mass ideology changes towards ethical practices. When something that is so widespread and acknowledged by the government itself is present, it causes the whole market to function in that manner meaning more effective implementation of the ethics index. When businesses know about the ethics index and its importance which is highlighted by the fact that the government itself is supporting it then businesses will be inclined towards supporting the index and thus taking more ethical decisions.

Secondly, the rating earned by a business on the ethics index can be used for marketing purposes by the companies which will better brand image for them and this helps in the idea of improving ethics as business will want to be more ethical to promote it to the general public thus they will take responsible decisions. Marketing is an important aspect for businesses and ethics index will be a key aspect for businesses. This index will be more effective than other methods used by businesses like CSR. Jaskaran Dhillon(2013) says that many companies used CSR as a kind of corporate PR rather than as genuine attempt to change the way they interact with society. When CSR is driven only by risk management it is not only fake and unsustainable, but also doomed to failure on its own term. Instead of addressing real issues, CSR merely stages an elaborate pantomime to conceal or distract public attention away from the corporate illness. CSR never tells the audience what happened behind the scene (i.e. what is really going on inside the company). (Dhillon, 2013) This will be a major motivation for companies to use the ethics index leading to ethical decisions being taken as they know they will be rewarded for the same. Apart from having a better image in the customers mind, they will also get more profits as customers will want to be associated with an ethically responsible business which ranks higher on the index compared to one that does not.

The third advantage will be that it will allow the government to keep a track of how the overall economy is progressing in terms of ethical practices. This is important considering the government wants to achieve a particular goal. The NITI Aayog website of the Indian government affirms to the use of parameters or indexes by stating that it is important to be able to track performance, determine outcomes to understand how well a scheme is performing, and to help diagnose reasons for poor performance and generate

recommendations for course corrections. This requires not only collecting data but putting in place proper frameworks with measurable parameters to help strengthen the effective management of limited public resources and achieve a deeper and broader impact of scheme interventions. (NITI AAYOG, 2022) Another Indian government website states that indexes are really useful for analysing progress and the Good Governance Index created by the Indian government to track progress in states regarding their governance is used for analysis. It says that it is envisaged that the results would lead to healthy and more informed policy discussions between different tiers of Governments, as well as all political, bureaucratic, academia, civil society and all stakeholders. The assessment of the States using the GGI would mark a shift to a datadriven approach to result-oriented approaches and management and promote healthy competition among States.(CGG, 2021) When the government knows how well businesses are performing it will be aid them in creating new policies or taking further decisions to ensure their goal of increasing ethical practices is being achieved.

The ethics index will also be a useful tool for businesses to check their own progress and know whether the decisions taken by them actually yielded results which were impactful. It may be the case that businesses assume their ethical decisions are creating an impact but in reality, it is just not impactful enough. This will again lead to an increase in the effectiveness of ethical decisions as more efficient or useful decisions will be taken so overall progress will be better. The ethics index can also be used with the stick or carrot approach. By setting benchmarks the government can enforce businesses to be above a certain limit otherwise they will be punished., meaning the stick approach. Same way, if businesses are above a certain a level then they might be rewarded meaning the carrot approach. This clear distinction will be a major motivation for businesses as they find it easier to work on clear target rather than ambiguous ones. For businesses to stay above the lower limit they will know that they need to take certain amount of actions to just stay above the limit so they will bring changes to few of their regular practices and take a more ethical approach to the practices. Although the change will be small for one business, with thousands of businesses combined the small change will have a huge effect and that effect is only going to exponentially grow in the future.

Black Economy

Another reason why the ethics index is important in India is because of the black economy or the black market. The black economy is also known as the parallel economy. Sankar Sarkar says that Parallel economy means functioning of an unsanctioned sector in the economy whose objectives run parallel and in contradiction with the objectives of official or sanctioned or legitimate sector in the same economy (Rajaram, 2006, 577). This is variously referred to as 'unaccounted economy', 'illegal economy', 'subterranean economy', or 'unsanctioned economy'. According to the D.K.Rangnekar (as cited by Datta & Sundharam, 2004, 376), "If the 'Parallel economy' poses a serious threat to stability and growth of the official economy, surely it stems from the fact that the magnitude of 'black-money' is large and rigged deals are growing in volume and complexity at an alarming rate. Apart from the wide ramifications of the 'parallel

economy', one might also be alive to the fact that 'black incomes' are accentuating the inequalities in income and wealth and breeding a new class of 'black' rich in a society which is already harshly stratified." (Sarkar, 2012) According to a study the parallel economy or the black economy accounts for approximately sixty-two percent of the Gross Domestic Product of the country which is a staggering ninety-three lakh crore rupees (or \$1.4 trillion). The black economy has resulted into a sacrifice of GDP growth by almost five percent per annum since last thirty years, otherwise the size of the Indian economy would have touched \$ 9 trillion. This would have ensured a faster growth of the Indian economy by about five percent since then, and our country could have been a much larger economy securing the top positions the world in terms of GDP with a high per capita income. (Sengupta, 2021)

There are various reasons for the running of a black economy. The first is high taxes and duties. Higher the taxes and duties, more will be the tendency among the people to evade them. They fear that the taxes will eat up a major chunk of their income. Interestingly the high earners tend to evade taxes by either not reporting at all or underreporting their income. Similarly, when the import duties on a commodity is higher, people will tend to smuggle that commodity. For example, smuggling of gold to India is still carried on because of higher import duties. Another is scarcity of commodities. Because of its huge population and low purchasing power, India has witnessed scarcity of the commodities in the market time and again. Moreover, the public distribution system ailed since the very beginning and scarcity of cement, cooking gas, groceries was quite common. Whenever there is scarcity, black marketing and hoarding are bound to occur and this led to generation of black money.

Next is Liberalization and Privatization. Though liberalization and privatization has led to competition and better services to the people, it has furthered corruption and generation of black money. In their race to win the government contracts and favors, the corporates do not hesitate to bribe the bureaucrats and ministers. There are many consequences of a black economy. The (Sarkar, 2012) clearest consequence of a substantial black economy is misinformation about the actual state of the economy. The black economy also distorts the published data on foreign trade and payments. Two major types of malpractice with respect to foreign trade flows drive a wedge between the actual level and composition of these flows and what is recorded in the official statistics. First, there is manipulation of invoices for export and import. A number of studies, such as Nayak (1977) and Thiruvengkatachari (1984) have used partner country data to argue that in most years there has been considerable net under invoicing of both exports and imports. 2 The annual scale of such under invoicing was estimated by Nayak to range from \$ 67 million to \$ 167 million for exports in the 1960s and from \$ 54 million to \$ 332 million for imports. These not inconsiderable magnitudes are dwarfed by some recent newspaper estimates of the scale of smuggling. Thus Bidwai (1983) claims smuggling "bas in all probability crossed the Rs 7,000 crore-a-year mark". The officially recorded total of merchandise imports and exports in 1982-83 was about Rs 23,000 crore. In other words, according to Bidwai's estimate, trade outside official channels were almost a third of India's recorded foreign trade.

The presence of a sizeable black economy also casts doubt on the validity of the data on the distribution of incomes and consumption. Typically, such information is compiled on the basis of household surveys. It is difficult to believe that those who receive illegal source incomes or who conceal legal source incomes from tax authorities would respond fully and honestly to household surveys. Widespread tax evasion has serious consequences for the economy's fiscal system. Another consequence is the loss of revenue that should have accrued to the exchequer. The long-run consequence of such revenue loss is to reduce the built-in elasticity of the tax system. To raise a given target of revenue the government is obliged to depend increasingly on discretionary hikes in tax rates or to expand the array of taxes. The first option has the undesirable effect of increasing the inducements for avoidance and evasion, while the second runs the risk of further complicating an already complex tax structure which is associated with a number of undesirable allocative effects. Large-scale tax evasion also undermines the equity of the tax system." Horizontal equity" is breached since the effective burden of taxation differs widely across assesses with comparable levels of economic income. For example, it is common knowledge that salaried individuals, who have their income tax deducted at source, bear a disproportionately high burden of this tax compared to the self-employed who have far greater opportunities for evasion. "vertical equity" or the progressivity of the income tax structure also becomes a casualty when an assessee's tax liability has less to do with his ability to pay and more to do with his ability to evade. Indeed~ we have suggested earlier, that a possible explanation for the dwindling relative role of personal income 315 taxation in India is the extent to which evasion has undermined its administration.

Evasion also blunts the allocational signals of the tax system. When, in the case of a large number of manufacturers and traders, the tax dues are believed to be the end product of a complicated interaction between the tax statutes, the evasion opportunities, the enforcement machinery and its susceptibility to corruption, it is idle to pretend that only the first of these factors, namely the tax statutes, is solely responsible for the resource allocation implications of the tax system. In coming to decisions on investment, production and sale, a rational economic agent will consider not only the tax code but also the possibilities for reducing its bite through legal and illegal methods.

All of this shows how big the issue of black economy is. This is a major reason why the government would want the ethics index to succeed so the value of the black economy diminishes and all those funds are accounted in the GDP. If the businesses who employ such practices are made aware of an ethics index then they will be motivated to part ways with such methods with the firstly understanding why it is better to the economy and secondly to avoid any future penalties if they are found to be violating any laws by chance.

Indian Government's Ideologies

Entrepreneurship is not new to India. To quote from the Indian Industrial Commission Report (1916-1918)—"At a time when the West of Europe, the birth place of modern industrial system,

was inhabited by uncivilized tribes, India was famous for the wealth of her rulers and for high artistic skill of her craftsmen. And even at a much later period, when the merchant adventures from the West made their first appearance in India, the industrial development of this country was, at any rate, not inferior to that of the more advanced European nations (Sunita, 2016). This has been explained by Sunita in her article on entrepreneurship development in India.

Entrepreneurship is deeply embedded in the traditions of India has been popular before and after independence. Starting a business has now become a household thing and it is something that every family encourages their children towards. This would not have been possible without the government doing its role properly. However, this was not the case since the beginning.

Although India was flourishing in the sector of trade since a long time, it was not at a very high level compared to its global counterparts. The economic situation was not very stable and foreign business were not readily entering the country. The problem peaked in 1991 when India faced its worst economic crisis and was on the brink of a sovereign default. The 1990-91 Gulf War had led to a sharp increase in oil prices and a fall in remittances from the Indian workers working overseas. This led to a sharp depletion in India's forex reserves — at less than \$6 billion, and this was just enough to meet around two weeks of the country's imports. (Nair, 2021) This issue if not resolved could have caused the whole economy to collapse in coming years and lead to problems increasing exponentially.

A 2 step policy was undertaken by the government along with the Reserve Bank of India (RBI). It was a two-step devaluation of the rupee, which was first devalued against major currencies by around 9 per cent on 1 July 1991, followed by another devaluation of 11 per cent two days later. This was done with the aim of making Indian exports more competitive. The central bank pledged India's gold holdings with the Bank of England in four tranches from 4-18 July 1991 raising around \$400 million through this route. Prior to this, in the midst of national elections, the State Bank of India sold 20 tonnes of gold on 16 May to the Union Bank of Switzerland or UBS to raise around \$200 million. The government had also got emergency loans from the International Monetary Fund in two tranches totaling around \$2 billion earlier in the year. (Nair, 2021) After this crisis India has become a more open economy and has been an attraction for foreign businesses.

India is well acquainted with knowing how opportunities to set up their own ventures. Jahanshahi in his paper states that Entrepreneurship development and training is, thus, one of the key elements for development of micro, small and medium enterprises (MSMEs), particularly, the first-generation entrepreneurs. To undertake this task on regular basis, the Ministry has set up three national-level Entrepreneurship Development Institutes (EDIs). There are many other schemes launched by the government which aim to promote the positive business environment for new businesses. The Atal Innovation Mission (AIM) is the Indian government's flagship project to foster a culture of innovation and entrepreneurship throughout the country. Encouragement of entrepreneurship at universities and businesses is another aspect. AIM is establishing world-class Atal Incubators (AICs) at the university, NGO,

SME, and corporate industry levels to trigger and enable the successful growth of sustainable startups in every sector/state of the country, thereby promoting entrepreneurs and job creators in the country, addressing both commercial and social entrepreneurship opportunities in India and applicable globally. (Kulkarni, 2021) Contrary to Indian economics ideology before which was aligned to restrict involvement of foreign entities, the government has taken various steps to promote businesses from abroad and set up inviting platforms for them. Government has taken various steps to boost domestic and foreign investments in India. These include reduction in Corporate Tax Rates, easing liquidity problems of NBFCs and Banks, improving Ease of Doing Business, FDI Policy reforms, Reduction in Compliance Burden, policy measures to boost domestic manufacturing through Public Procurement Orders, Phased Manufacturing Programme (PMP), Schemes for Production Linked Incentives (PLI) of various Ministries. To facilitate investments, measures such as India Industrial Land Bank (IILB), Industrial Park Rating System (IPRS), soft launch of the National Single Window System (NSWS), National Infrastructure Pipeline (NIP), National Monetization Pipeline (NMP) have also been put in place. (MCI, 2021) This has led to marvelous results. As a result, India registered the highest ever annual FDI Inflow of US\$ 81.97 billion (provisional figure) in the financial year 2020-21. FDI inflows in the last 7 financial years (2014-21) is US\$ 440.27 billion, which is nearly 58% of the total FDI inflow in last 21 financial years (2000-21: US\$ 763.83 Billion). All of this shows us that the government has been promoting a healthy business environment which is in the favour of the businesses.

Coming to the perspective of ethics, with businesses on the rise in India having a control on ethics is important. That is why they have created a guideline on ethical practices to be followed by businesses. (GOI, 2018) The document states various principles which the government wants businesses to follow. The first principle states that businesses should conduct and govern themselves with integrity, and in a manner that is ethical, transparent, and accountable that. The principle recognizes ethical behaviour in all operations, functions and processes, is the cornerstone of businesses guiding their governance of economic, social and environmental responsibilities. So the government wants business to act responsibly in every action they take regarding any aspect of their business.

The second principle is that businesses should provide goods and services in a manner that is sustainable and safe. This Principle recognizes the proposition of SDG 12, that sustainable production and consumption are interrelated, contribute to enhancing the quality of life and towards protecting and preserving earth's natural resources. The Principle further emphasizes that businesses should focus on safety and resource-efficiency in the design and manufacture of their products, and use their products in a manner that creates value while minimizing and mitigating its adverse impacts on the environment and society through all stages of its life cycle, from design to final disposal. Over time, businesses should embrace the idea of circularity in all its operations. Being ethical is intricately related to the well being of the environment which is currently being exploited by businesses. So this principle is an important aspect in setting the right framework for new businesses.

The third principle is also related to the environment, only difference being that it directly wants businesses to take responsibility of improving the environment. It states businesses should respect and make efforts to protect and restore the environment. This Principle recognizes that environmental responsibility is a prerequisite for sustainable economic growth and for the well-being of society. The principle emphasizes that environmental issues are interconnected at the local, regional and global levels, which makes it imperative for businesses to address issues like pollution, biodiversity conservation, sustainable use of natural resources and climate change (mitigation, adaptation and resilience) in a just, comprehensive and systematic manner. These are aligned with SDGs 11, 13, 14 and 15. The Principle encourages businesses to assess environment impacts of its products and operations and take steps to minimize and mitigate its adverse impacts where these cannot be avoided. The Principle encourages businesses to adopt environmental practices and processes that minimize or eliminate the adverse impacts of its operations and across the value chain.

The fourth principle is an important yet unadhered to ethical responsibility. The third principle states that businesses should respect and promote the well-being of all employees, including those in their value chains. This Principle encompasses all policies and practices relating to the equity, dignity and well-being, and provision of decent work (as indicated in SDG 8), of all employees engaged within a business or in its value chain, without any discrimination and in a way that promotes diversity. The principle recognizes that the well-being of an employee also includes the well-being of their family.

Another principle states that businesses should respect and promote human rights. This Principle recognizes that human rights are rights inherent to all human beings, and that everyone, individually or collectively, is entitled to these rights, without discrimination. It further recognizes that human rights are inherent, inalienable, interrelated, interdependent and indivisible. The principle is inspired, informed and guided by the Constitution of India and the International Bill of Rights and recognizes the primacy of the State's duty to protect and fulfil human rights. The principle is further informed and guided by the UN Guiding Principles on Business and Human Rights in its articulation of the responsibility of businesses to respect human rights. It affirms that the responsibility of businesses to respect human rights requires that it avoids causing or contributing to adverse human rights impacts, and that it addresses such impacts when they occur. The principle urges businesses to be especially responsive to such persons, individually or collectively, who are most vulnerable to, or at risk of, such adverse human rights impacts. This is a really important point which focuses more on the practices of businesses like in production where child labor might be employed. It even relates to the kind of business the firm is undertaken which included illegal activities like trafficking of illegal items etc. This is a stern point which when understood about in depth is more closely related with law than other principles because of its high level of importance on a global scale.

All of the point listed above highlight how interested the Indian government is in maintaining the ethics standard of the country. It is a really important step to ensure the economy

continues to flourish because an unethical economy will flourish only to deceive. The Indian government has very well understood the importance of an inviting economy rather a one which international firms averse and do not respect.

Analysis

The Indian government clearly wants business to indulge in fair practices. They understand the issue of the black economy and how it has been internally harming the economy and not allowing to reach its maximum potential. The black economy also sows seeds of extremely dangerous goods like weapons being illegally traded because of the resources that have been made available to pass unnoticed from the eyes of law. This has extremely threatening repercussions. The government will thus be inclined to go ahead with the idea of an ethics index. The ethics index will be the perfect measure to raise awareness about the issue of ethical practices because that is what the government aims for. By comparing business ethics index the government can highlight how certain business have been doing well while some still have to catch up. This will create a healthy competitive environment where businesses will want to take ethical decisions. This will in turn benefit society as a whole. Manufacturing business will now pollute less for example. This benefits the environment and especially in a country where manufacturing is a key aspect the impacts will be very high. Employees will be well treated which ensures their mental health is positive and because they are a major part of the population, the overall country's mood will be positive and optimistic. Furthermore, illegal practices will be slowly eradicated from the economy which as mentioned earlier allows the economy to truly flourish and reach new levels. The tax earned by the government will naturally increase and the GDP will increase too. So, the government will gain a lot of positives from this and will want the ethics index to act as a check on businesses. Now arises the question of whether the ideology of the Indian government will lead them to choosing which method out of the stick or carrot. My hypothesis is that a combination of the stick and carrot approach will best work to increase the effectiveness of an ethics index. It is the most impactful method. The main reason for this is that human behaviour and the situation that will arise will not be the same every time. Thus, a fixed framework of actions will not suffice to reach the desired output.

Sundarmurthy(2003) has shown us that by creating a mutual relationship between businesses and the government it is likely that they will follow the policies laid down and also support the government in many of its decisions. However, if the government is not stern with businesses then as highlighted earlier, businesses could not actually be affected by any of the effects of taking unethical decisions. For example if the government gives a verbal warning or a small penalty is charged then businesses can simply comply with the same and still continue with unethical practices. Thus a more stern approach which will be the stick approach will be to impose a fine of a high amount. The higher fine will cause more damage to the business . This

will lead to the business being more careful next time of repeating such offences because they know the damage that can be caused to their business if they are caught violating it. This shows that having a balance of the two approaches is essential.

Furthermore, Durand et al (2017) shows us that businesses will view something as more important when it aligns with their goals and benefits them. Thus the government will want to reward businesses which for example are high up on the ethics index or have been taking impactful ethical decisions which have greatly benefitted society. Thus when the businesses get rewarded via tax waivers or public awards their reputation increases and their brand image is shown in a very positive way which is vital for any businesses. The decision makers of businesses will see their company's benefit here and hence will be inclined to take ethical decisions and be higher up on the ethics index. This will lead to aim of a more ethical economy being achieved by the government. However, businesses with already well-established reputations such as multinationals will not be keen towards these rewards because they already have a very favorable brand image in the customer's mind. Hence, here to reduce unethical practices the government should take strict action which will negatively affect the reputation of the business that will lead to lowering in sales. Punishments like a public apology or legal cases can severely affect the brand image of MNCs in every nation they operate. On top of that, if pressure groups revolt against them then it will create a lot of further damage because of the strength they have. All off this affects sales which affect profits. Therefore, a business will not want to face any of this trouble and because they know this fact, they will not want to undertake any unethical practices which leads to the stick policy being very effective. This example again shows us the fact that both approaches need to be used together and one method only will never yield good results.

Another aspect which is important to consider is that the punishment or reward should not be generalized. I suggest that larger businesses should have a larger stick while smaller businesses should have a larger reward. This runs in parallel with the idea that I had suggested of bigger businesses ignoring small fines. If a big firm is charged with a big fine then it will lead to them being affected by it thus they will take notice of it and not repeat the offence that lead to the fine. A small fine would have not affected multinational firms because they can easily bare the losses as the have huge profits hence the fine would not be effective. However, if huge fines are levied on small firms it can be very detrimental to them because they may not be able to bare it due to their scale being low thus lower profits and sales. It may lead to them closing the business all together as the huge fine for a comparatively smaller offence may not be sustainable to them.

Talking about rewards, if a small firm is given a big reward it will help them achieve their targets and hence scale up in size. The larger rewards will be a stepping stone for their future success which is something the government would want. Bigger firms have already established themselves and gaining large rewards from the government will not really benefit them because they may not need such benefits in a very competitive environment. A low cost

research facility is not something that a multinational would want because they themselves have extremely expensive research areas. Thus it will not help them to get a big reward which will be beneficial to the smaller businesses.

All of the points stated above prove the point that a combination of the approaches is the best way forward for the government and that it will be the most beneficial.

The implementation of the ethics index I suggested can be a bit tricky, but there are certain rules which the government can create to make the ethics index more meaningful. In general, the ethics index format suggested by me can be very useful. It will provide a very good way of analysing the ethical decisions taken by businesses. One key aspect of it can be that there can be thresholds set to bring in the stick or carrot strategies. If a business is below a certain number like 3 on a scale of 10 then it will face strict action from the government. This will ensure that the businesses will look to take ethical decisions so that they do not have to face any kind of legal action or revolts from pressure group. The lower limit will allow businesses to plan their decisions before hand so that they can be above the benchmark. Moreover, there can be a crossing limit of roughly 7, wherein if a business crosses that limit, they will be rewarded by the government. The rewards can vary according to what the government thinks is right.

This will be the best way for the government to promote more ethics in the economy as now managers will want to work to win the carrot which leads to the aim of the government being successfully achieved. This will again use a mix of stick and carrot to get the best possible result. This will be great in the Indian economy because businesses tend to use unethical decisions as a way of benefitting themselves but always forget the moral responsibility they have. With a minimum level to cross they will work towards achieving the goal because of the repercussions of failing to do so and it will cause a shift in ideologies of the economy as a whole. Businesses that relied on illegal and unethical practices will now not do so hence benefitting the economy.

Conclusion

Ethics in the sector of business is important because it allows the smooth functioning of the economy. The factor of government ideologies plays another important aspect because without their vision no economy can ever prosper. This is the primary reason it is important to understand how the Indian government thinks about issues and what their approach will be. All of this condenses to suggest what will be beneficial in effectively implementing an ethics index which is the primary reason thus paper was written. The paper understands how the thinking process of the Indian government has varied over the years since independence because it is vital to know how their thinking is. The government is very firm on ethics being maintained when businesses operate, with clear guidelines outlined for them. They punish the ones who violate any laws and have awards reserved for those who display excellent ethics. This brings us to the concept of stick or carrot which is a crucial segment of this paper. The carrot approach allows businesses to push themselves to earn the reward, creates more mutual agreement between the government and the businesses, reinforces trust between the involved parties and promotes businesses to look up to the businesses who have gained rewards so that they get the reward too. The stick approach prevents any kind of unethical decisions being taken as people have a fear in their mind and a heavy fine or loss of reputation acts a psychological fear in the minds of the managers thus leading to them taking more ethical decisions. All of these points shows that both approaches have their own merit and both can make an ethics index more effectively followed. Coming to the topic of ethics index, it is a powerful tool which can alter the way industries operate. A rating which can lead to the perspective of businesses being changed is really great and something which should be implemented. A simple scale that reflects a businesses' impact of ethical decision, the ethics index has a lot of aspects which attracts businesses. From a good marketing strategy to a good aspect which attracts employees, the ethics index has various benefits businesses. This will make it part of their annual goals thus ensuring the ethics index is effectively followed. As said earlier, the best way to ensure the ethics index is followed by using the stick and carrot approach both. It would not be a good practice to just use one method because it might not always work. Even the exact same scenario may have to be dealt in a different manner because different kinds of and sizes of businesses will be involved. Therefore, the Indian government can take a significant step by implementing an ethics index and using the approach described above as a tool to increase its effectiveness.

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Space Debris and Its Solution

Humans have now begun to explore the realms of the universe, or, the multiverse. Future locations for humans to call home, finding planets which tell more about our enigmatic past, and countless other aims are what scientists are focusing on. To get to the iota of things, space missions are widely used. The Indian Space Research Organisation alone has carried out 123 space missions and 82 launch missions¹. With space explorations on the rise, scientists are continually discovering new secrets of our solar system. Space missions are not easy to carry out. It takes months of dedicated planning and hard work to get the mission up and running. The costs too are a constraint. It is not possible to spend millions of dollars on every space mission. Due to this reason and the efforts behind it, if any mission fails, the organization becomes crestfallen. If there is a major loophole in the space craft, then scientists can still understand the fact, but missions failing because of few centimeters of steel? That is completely unacceptable. This is the rising problem, that if not countered can become as huge as global warming is now. There are over 128 million pieces of debris under 1 cm orbiting right now². These high velocities pieces can be the factor between success and failure. These small infamous pieces are known as Space Debris.

I. Space missions

The race to space, as its popularly known, is getting more intense. All countries are trying to become space superpowers by launching multiple missions and being the first to uncover something. Missions to: moon, mars and other places of the galaxy are being executed and newer ones thought of. Although the costs of space missions have been reducing, they still are in billions. That is a major reason why scientists can't afford to make any errors. The intricate designing and details mean months of patience and determination goes into making the machines ready for their purpose. Successful missions have found out more about the moon, black holes, spectacles of black hole taking in something big, collisions between black hole and a neutron star, seeing the brightest light and what not.³ Human kind has learned more about the past only through these explorations, hence they play such a vital role in the progress of mankind. Every space missions focus has always been results. That is where we humans are making a mistake.

II. How space missions end?

¹ [All Missions - ISRO](#)

² [ESA - Space debris by the numbers](#)

³ [26 Mind-Blowing Discoveries and Breakthroughs in Space in 2019 \(businessinsider.com\)](#)

Nobody really focuses on how space missions actually end; or what happens to the shuttles once their purpose is served. The truth is quite puzzling. Until SpaceX's recent revolution, all space missions ended in a grand but abysmal manner. The most common ending would be the space shuttles or rockets exploding themselves! There have been instances when shuttles crash into other planets like the rings of Saturn to destroy itself. This is a popular practice which has been used for many years. The reason why this kind of waste has been neglected is because the common man cannot see it. The waste is in the space so organisations don't really worry about it. A Chinese space mission increased the trackable waste by 25% alone. These are staggering facts which if not done something can be a big problem mankind has to counter. The waste in space is known as space debris.

III. What is space debris?

Space debris is defined as all non-functional, defuncted, human-made objects, including fragments in Earth orbit or re-entering into Earth's atmosphere. This is basically left over of failed missions, rockets whose purpose has been served etc. The space debris are of various sizes: from a few millimeters to more than a meter. However, the size won't make a difference as even the smallest of pieces can damage shuttles and lead to the withdrawal of manned or unmanned missions. The amount of space debris accumulating is increasing each year. The debris forms a layer over the atmosphere which basically obstructs the smooth flow of rockets and can lead to mission failures. Nobody can plan for these problems as they are oblivious to us.

IV. How does the debris harm us?

There are innumerable ways the space debris can harm us. As iterated above, rockets and shuttles can be damaged due to it. Satellites that are orbiting earth can also be affected due to the fragments. Thus, leading to communication problems on earth. If the debris is in the Lower Earth Orbit (LEO), then the probability of it falling back down to the earth is also very high. This means humans can be harmed by the debris and can also lead to damage of buildings etc. Sometimes, missions are planned in such a way that the rockets would explode and fall back into the ocean. This is a major issue as the ocean gets polluted in extremely harmful ways. The fuel of the rockets, sharp small pieces, and other parts like wires can cause adverse effects to the marine life. A simple example being fishes consuming the small parts like wires assuming it to be some kind of food and then leading to their illness. Furthermore, the International Space Station has also been damaged on many occasions due to the space debris. There is also a 'hidden cost' which many people are unaware of. Firms cannot predict the nature of the

debris hence any damage done to the spacecraft by the debris is needed to be repaired which is the additional cost. The reason it known as 'hidden cost' as it is unknown to the firms how much the cost will be. It can range from being too much, too just a minimal amount. Moreover, once a rocket has been abandoned, there can be some fuel left in the fuel tank. Over time there can be mixing of fuel components which can further trigger self-ignition. This undoubtedly increases the number of debris but also reduces the size and makes the junk orbit at high velocities, again becoming a threat to other missions. The high velocities are the important factor due to which the debris is so dangerous.

V. Reducing the debris

There are a few ways of reducing the space debris. The most common one is to make rockets which can serve a longer duration. This increases efficiency and reduces the space debris being accumulated. A rocket has many energy sources. After it has been used the leftover energy sources can be an issue. The energy sources are vulnerable to self-ignition, as mentioned above. Therefore, an energy dissipating system should be in place for prevention of damage. Batteries are present in spacecrafts and are an important energy source. So, a battery management system can be developed to ensure the batteries are discharged in the end. One more of the methods to reduce space debris may sound a bit naïve , but it a fact in reality. There have been instances of spacecrafts colliding with each other in outer space.⁴ It also common for satellites to collide with space debris. Hence Collision Avoidance Techniques should be in place. This includes sensing if any other crafts are around. Also avoiding spacecrafts to travel in crowded orbital regions will prevent damages . These are just few of the methods we can use to prevent space debris from being created. However, prevention can't be the way forward as this is just delaying the final outcome. There has to be a system or a way of eliminating all the space debris.

VI. Existing methods to remove space debris

Leading space agencies have come up with ways to counter the space debris issue.

a. ESA's 'e.DeOrbit mission'

ESA created an idea in 2014 of using techniques to capture or hold the space junk using nets , harpoons , robotic arms and tentacles. This can be an easy method with fewer complications although this would mean that every time a new device will have to be created, if alternative ideas not used. Capture would be conducted in one of two ways: either by using mechanical tentacles or nets. The tentacles

⁴ [Satellite collision creates copious space junk | New Scientist](#)

option included equipping the spacecraft with robotic arms, one of which will first capture a holding point, before the remaining arms embrace the derelict and secure it with a clamping mechanism. The net option included equipping the spacecraft with a deployable net on a tether, that will envelop the target derelict before the spacecraft will begin changing orbit. The net option has the advantage of being able to capture objects with a wide range of sizes and spins.⁵

b. Switzerland's 'ClearSpace One'

In 2019, the European Space Agency (ESA) called for experts to submit a solution for removing debris from Space for the first time. ClearSpace was selected, out of a panel of more than 12 candidates, to conduct the first space mission to remove an item from orbit. The mission aims to clean up Space actively while also demonstrating the technologies needed for future commercial debris removal. ClearSpace-1 will launch in 2025. The ClearSpace-1 mission will target the Vespa (Vega Secondary Payload Adapter) upper stage left in an approximately 800 km by 660 km altitude orbit after the second flight of ESA's Vega launcher back in 2013. With a mass of 100 kg, the Vespa is close in size to a small satellite, while its relatively simple shape and sturdy construction make it a suitable first goal, before progressing to larger, more challenging captures by follow-up missions – eventually including multi-object capture.⁶ It has cubes attached at the side of the planes which safely take the debris out of the orbit. This may be a cheap method but it is not a solution to the problem. They will have to work out a way to reduce the waste and not just take it further away from Earth.

c. Texas A&M university's 'Sling-Sat Space sweeper'

The proposed satellite design, Sling-Sat, also exploits existing momentum to save fuel. Debris is captured at the ends of a spinning satellite. Adjustable arms control the angular rate to achieve a desired tangential ejection speed. Timing the release exacts the ejection angle. Through this process, debris can be redirected to burn up in the atmosphere or, by lowering the perigee; the consequent drag increase will then reduce the debris lifetime.⁷

⁵ [e.Deorbit - Wikipedia](#)

⁶ [ESA - ESA commissions world's first space debris removal](#)

⁷ [Engineering Project Aims To Remove Space Debris - Texas A&M Today \(tamu.edu\)](#)

d. Japan's electrodynamic tether

The proposed technology (first announced in 2014) would include a spacecraft that would deploy a 700-meter-long (2,296 feet) electrodynamic tether (EDT) and guide it toward a piece of space junk. The tether would latch onto the orbiting hunk of trash, and the operating spacecraft would then drag the debris down into the incinerator of Earth's atmosphere (causing the operating spacecraft to burn up as well).⁸ This can be an effective way to reduce the debris but this method cannot be regarded scalable.

e. The British CubeSail

CubeSail will be the first launched three-axis stabilised solar sail, and makes use of a novel center of mass/center of pressure offset technique to provide enhanced attitude control. CubeSail will build on our small satellite experience, such as the STRAND-1 nanosatellite, launched on 25 February 2013. Furthermore, the mission critical sail deployment mechanism has undergone an extensive testing and validation process as part of the ESA Gossamer Deorbiter project carried out here. Several PhD projects are centered on Cubesail's development, and it will serve as a technology platform for at least two further educational satellites developed here. The CubeSail mission objectives are ambitious, and will raise the technology readiness level (TRL) of several technologies to flight demonstration level.⁹

VII. Factors of reliability

All of these methods seem to be unique and optimistic but still don't live up to the job this mission needs to have. However, most of the missions are still in progress and are continuously developing and upgrading. We need a solution that can be quickly brought into action. The situation is critical and if no action is taken soon, then the problem can become larger. There are four primary factors which decide if a project is suitable or not: costs, scalability, efficient designs and risks. These factors of reliability, developed by me, are the boxes to tick when developing any machine for a space mission. The first and most important point is costs. No space agency can afford to spend millions in every projects. Here, cost also includes time as a cost. Like finances, no agency has many years to brainstorm about a project and then slowly work on it. Everything needs to be

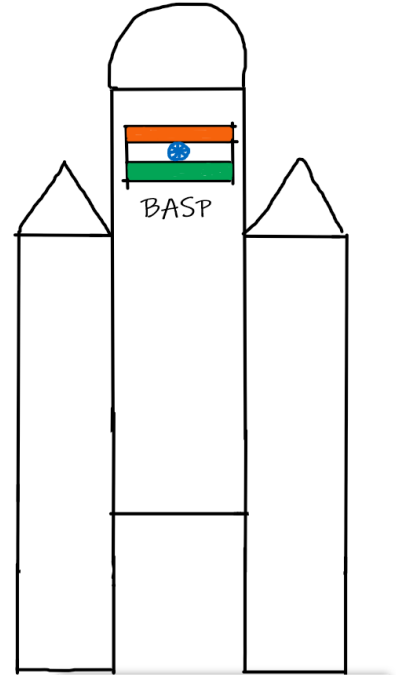
⁸ [Space Junk Solution? Japan Would Use a Tether to Nab Debris & Destroy It | Space](#)

⁹ [CubeSail mission | University of Surrey](#)

in a specific frame of time. An ideal space mission has to be of a minimal cost, to such a point that neither quality is compromise nor the budget. Space agencies have multiple projects in mind at once thus spending too much on one isn't possible; and also shows great inefficiency. The next factor is scalability. A project that only goes out and gets back one piece of debris is completely futile. Thus, the project should be on a bigger scale to gain maximum efficiency. Collecting maximum number of debris should be the primary goal, unlike Japan's electrodynamic tether which cannot be regarded as scalable. A project is a great investment of the scientists' effort and making a device that does not reach a certain benchmark to make a real impact to the problem is a waste of time. Another factor, is efficient design. Every organisation needs to make a machine that can work smoothly. The design should be less complicated so that error finding can be quick and understanding the machine easy. It is obvious that rockets or shuttles cannot have an easy design but making the core and purpose of the machine simpler will automatically reduce complexity and help in facilitating other factors too. The final but a major factor is risk. Sending any rocket in space is a risk in itself. However, every risk should be calculated and all the aspects of it should be considered. The opportunity costs from the risks should be well analysed. Reducing the risk factor is the toughest and should not be brought down to a level where the mission doesn't find out anything new and is not worthwhile. It takes cautious steps to understand the risk involved in the mission, albeit only a risk will lead to progress. Striking a good balance between all the four factors is near impossible. Achieving a good balance between them is what organisations should aim for. There have been only a few projects which have performed well on this scale and are undoubtedly the most successful ones. All the missions above can now be analysed based on these factors and the results will be very clear. We still need a good device that can solve the problem of space debris. Therefore, I have developed my own device to get a break through in this daunting issue raging for years.

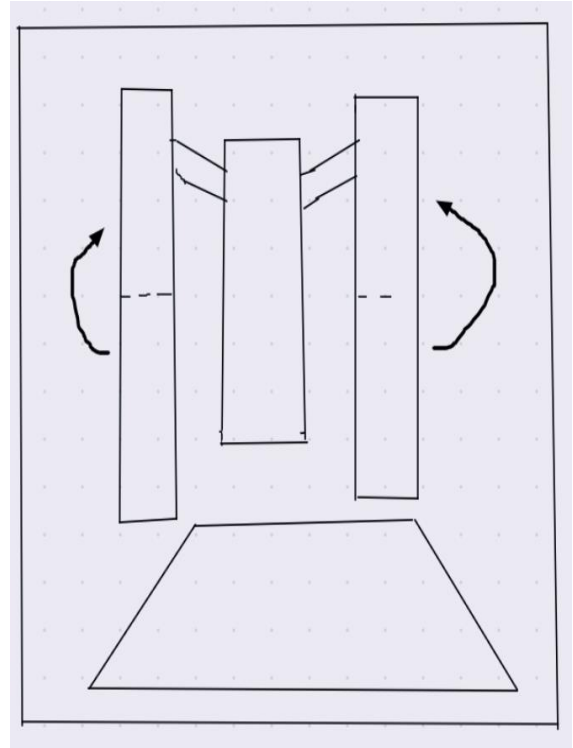
VIII. Introduction to my idea

My device shall be known as ‘ Bhartiya Antriksh Safayee Pranali ’ or ‘ The Indian Space Cleaning System’. This ingenious device BASP will not be a one time use project but will be at the services of ISRO for many years to come. The device can be manned or unmanned and will use re-usable rocket boosters. The rocket boosters will be inspired by SpaceX’s latest development and idea of landing the boosters back on earth. This leads to lower costs too. The naming of my creation is inspired by the Indian culture. The main rocket would be known as ‘Cheel’ or ‘Eagle’. The boosters would be called as ‘Bheem – 1’ and ‘Bheem – 2’. BASP is quite a simple yet effective way to clean out the debris from space.



IX. The working

This is the internal part of the main body of the BASP. The specialty of this are the magnets inside. My idea is as follows. After the BASP is in space, the flaps of the body will open, allowing the partially foldable powerful electromagnets to come out. The electromagnets are foldable to save space and increase surface area of the magnet by using a wider and bigger size to attract more of the debris. These magnets will now attract most of the space debris towards it as most of the parts are made up of aluminum or titanium. The BASP will go towards more crowded orbital regions leading to it being very close to the space debris; thus this reduces chance of high velocity debris colliding with

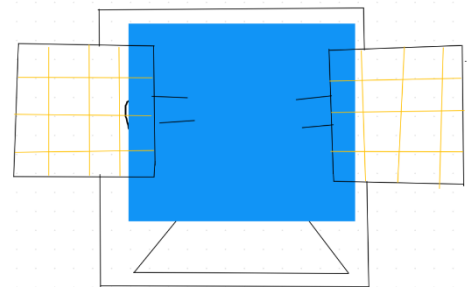


electromagnets as point of magnetic attraction will be very close. These powerful magnets would keep the debris magnetized towards it. There would be sensors attached which will measure the weight of the debris. If a lot of debris is collected then it is possible the electromagnet may break away from the BASP and leading to mission failure. After a certain mass has been reached, the sensors would send signals to the actuators to bring in the magnets along with the debris. The main body of the BASP would act as a storage system. This simply means that the debris won't be thrown further away in space but rather brought back to earth so that it can be treated. Bringing the debris back to Earth also means that the debris can be recycled hence making future missions more environmentally friendly and also reduces the costs. The model can be altered to make even bigger BASP's for more storage allowing more efficient removal of the junk. As mentioned earlier the mission is not a one time use mission, the booster will come very handy in the competition of the mission. After the electromagnets are safely in, the BASP will use the boosters to get thrust to go towards the earths, and then use it to land safely on a designated location on Earth. When refueled and serviced the booster will again serve a mission for us. The boosters can also be used to navigate through space to reach towards the debris.

The reason BASP is highly efficient is that it does not have only one source to collect the debris. Every single existing space debris mission included only one way to collect the

debris , but my idea has two separate ways to collect the debris and create a bigger impact. The top most part of my BASP there would be a net made up of fiberglass. Fiber glass ropes are extremely strong and tough. They exhibit high tensile strength. Thus they would be easily holding onto a heavy quantity of debris. Then the net will come out of the compartment, the space debris would be collected in the net. It can be argued that there is a possibility the net can come in contact with the boosters and catch fire. It is worthwhile to note fiberglass can withstand temperatures up to 500°C. The net is very far away from the boosters so there is almost no chance of the heat reaching up till the net, and even if it does then the net can withstand up till 500°C so solving the problem as the temperature is unlikely to cross this. Again, using sensors after a particular weight there would be a covering on the net which would ensure that the debris does not leave the net from where it entered. The net is mainly to collect all the non-metallic items which might be in space which the electromagnets cannot attract. The net can be altered to make it impossible for even the smallest debris to escape. The net will stay out from the time it has come out of the compartment. The net will not go back into the compartment but will stay outside itself. The net is quite strong to hold the weight of the debris and force that may oppose it when the boosters push the BASP back to Earth for landing. There is absolutely no doubt that the fiber glass may snap and break. This is a very reliable method to collect more debris and make the mission more useful.

A more environment friendly solution can be that solar panels are attached on top of the BASP to provide energy for the boosters. The massive amount of energy radiated by the sun can be used effectively.



X. Stages of the mission

The whole mission is divided into 4 major stages. The functioning of every stage and smooth transition between every stage is vital for the mission to be a success.

- a. Stage 1 – This stage includes the launch of the BASP. The launch would take place from a launch pad in a place a bit far away from human habitation. This to prevent any unanticipated blasts from harming human life. Precision will be a key

as any mistake here would mean the end of the mission. I have also come up with an idea to prevent the tremendous amount of smoke released to harm the environment. Therefore, the boosters will be partially submerged in a tunnel which would collect all the smoke released from the boosters and carry them to a different location. Then the smoke can be treated to ensure this is safe to release in the environment.

- b. Stage 2 - This is possibly the most important stage of the mission. This stage will decide whether the specialty of the mission which is that it can be re-used will actually work or not. Here the 2 boosters will detach themselves from the main body and land back to the specially allocated different landing pads. The Bheems will detach themselves at a specific altitude to begin the return journey. They will again land very far from human habitation to ensure if any blasts take place no humans are hurt. The boosters after successful landing will be collected , by ships if landing on sea or huge trucks if landing on land and then be taken to be serviced to come back in action.
- c. Stage 3 - In this stage, the electromagnets and then net will be released one by one to serve their purpose. Then the magnet will attract all the debris; and while the BASP would be moving the net would capture the junk. When a particular mass is reached then the sensors would send signals to close the net's opening and the magnets would be called in. The sensors data will be visible back on Earth so we will know how much of the junk has been successfully collected. This will also help to show if there is any fault in the mechanism and the debris is not being collected.
- d. Stage 4 - In the final stage, the booster installed in the main body will come out. It would provide the thrust to allow the remaining of the BASP to land back. The booster will aim to create a soft and smooth landing as it will now be of a heavier mass than before and any error can be quite costly. After the landing, the debris can then be removed out and the BASP made ready for another mission. This will mark the end of the mission and will be revolutionary change to fill the void in collecting space debris efficiently.

XI. Why is BASP a better idea than the rest?

The main benefit is that it is highly efficient. The fact that it can be used several times is luring. The amount of space debris that can be collected is very high. If compared with any other method till date, BASP will be the clear leader. This will enable it to create a

real impact to the problem. With my device having the ability to be unmanned , it reduces the risk of human loss. If however my device is manned then the control of the BASP will be much more effective leading to better results. BASP also fares well on all the four factors mentioned above. This is a revolutionary method which should be implemented as soon as possible to help mankind

XII. Conclusion

The world has a major issue knocking on its door. Space debris has to be contained now or it can be an enormous problem. The danger debris possesses is unrealized now. The consequences can be unfathomable. It is the need of the hour to have a good system to contain the space junk. If damages to space missions are happening the same way they are happening now then progress for mankind will be defied by four walls. Mankind is also affected by the debris as the damage can be severe in the near future. It is a collective effort that solves any problem and not just one nation doing the job all by itself. Different countries need to come together to provide resources for the projects to help collectively counter a problem. When all the elite and great scientists come together to brainstorm about the BASP, or any other project the results are bound to come. BASP is a brilliant idea to solve the space junk problem. More developments are essential to accommodate more junk in the main body of the BASP. BASP will be the turning point in space history and will undoubtedly go down as one of the most important projects for the space agencies.