

Climate Change and Coastal Zone Regulation: Dilution of Coastal Protection, an Analysis of CRZ Notification, 2018

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Abstract: *India has a vast coastline, regularisation of activities for the protection of the coastline is one of the major concerns of the government of India. The sensitivity of the zone makes it prone to damage by the changes in the climate. Coastal Zone regulation notification acts a deterrent against these climatic influences. Protection of coastal ecosystem needs sustainable plans. Human survival is in many ways dependent on the productivity of these coasts, thus, it is crucial for us to preserve our coasts. This paper analyses the coastal zone regulation notified by the government for the protection of coasts with special emphasis on the recent notification of 2018. The author finds the 2018 notification as a sham. The coastal protection is imperative and in such vulnerable times, the government has come up with a set of schemes which in turn favour the commercialisation of coasts. The dwindling coastal ecosystem needs to be regulated to handle the climatic pressure. The paper discusses in detail the causes of coastal degradation and the ineffective coastal regulation notifications. Comprehensive plans should be made instead of releasing numerous notifications which are afterwards supported by subsequent amendments. Leaving the coasts intact has been found to be the best solution for their preservation.*

Keywords: *Climate Change, Coastal Regulation Zone Notification, Coastal Zones, Sustainable Development, Environment Protection*

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I. Introduction

Climate change is one of the greatest threats to human lives and livelihood, the awareness of this change is old enough for us to understand its repercussions especially in the coastal areas. The silent observance of this change in the coastal areas might be one of the biggest mistakes of the human race in the coming years. Coastal zones can simply be defined as the interface between the land and water. These zones are continually changing because of the dynamic interaction between the oceans and the land. The Ministry of Environment and Forests has defined 'coastal zones' in reference to the notification issued regarding the protection of the same in the year 1991 (Ministry of Environment and Forests [MoEF], 2018).

The relationship between coastal zones and climate change is direct. Projected impacts from global warming include rising sea levels, stronger tropical cyclones, larger storm surges, increasing sea surface temperatures, and—as the oceans absorb more of the carbon dioxide that human activities emit to the atmosphere—growing acidification of surface waters. For coastal ecosystems and communities, the repercussions could be considerable, threatening the livelihoods, health, and welfare of millions of people. More frequent and severe storms can inundate low-lying coastal zones, destroying infrastructure and displacing populations (Michel, Pandya, 2010).

The pressure of climate change on our fragile coastline is immense. Habitants of this region are highly vulnerable and thus need protection. The vulnerability atlas of India (BMTPC, 2006) shows 8.5% of total land in India is vulnerable to cyclones, 5% of land is vulnerable to floods and 1 million houses are vulnerable to other allied damage annually (Senapati, Gupta, 2014). Coasts of India are hit with both barrels, one side from the development activities and population pressure and the other from the climatic disturbances. Some of the mega cities of India are located on its coastline, hence the burden of development and its impact is substantial. A study entitled "Climate change and its economic impact on Mumbai" conducted by the Mumbai office of National Environmental Engineering Research Institute (NEERI) commented that Mumbai, the financial capital of India, could face damages worth Rs. 35,00,000 crores by 2050 because of climate change. Compounding the effects of saltwater intrusion, overexploitation of groundwater in and around Kolkata has led to a drop in its level, leading to further intrusion of seawater, thus making the subsurface groundwater saline (Pandve, 2010). Government of India is keen to strike a balance between the development and protection of this zone, Coastal Zone Regulation Notifications have been published by the government on a regular basis.

This paper analyses the importance of these notifications and whether the response of the government is in proportion to the threat involved. The relevance of this issue has gained importance after the release of the Draft Notification 2018 (Coastal Zone Regulation [CRZ], 2018). The notifications of this kind have been periodically released by the government but the extent of reformation is meager. The notifications prior to the notification of

2018 haven't been helpful in achieving the goal that was intended, the amendments to these notifications highlight the insufficiency and limitations that lie on the face of it. Quick changes have been observed in the climate in recent times, international programs like Integrated Coastal Zone Management (ICZM) which finds its origin in the Rio Summit and Agenda 21 have aided in achieving the goal of coastal protection on an international level (Integrated coastal zone management,2018).

Coastal Zones of India are under stress. There are five anthropogenic factors causing marine environmental degradation and depletion of coastal resources: population growth, pollution, habitat degradation, multiple resource use conflicts, and over-exploitation of resources (Meltzer, 1998). Attempts at national, state and local level have been made, but these environment concerns have not been remedied. The unsustainable management of these areas has aggravated the problem. There is an urgent need to review and research and identify the flaws in the current policies. The solution should always be in accordance with the problem. The conventional system of coastal management has been found ineffective in the current scenario, the new programmes have been modeled according to the older ones. Creative solutions should be promoted. The lack of enough research and development and other problems have contributed to the current state of the coastal zones. I, through this paper have effectively tried to analyse the current coastal management schemes with drawing links with the older schemes.

This paper intends to explain the climate change and its effect on the coastal zones, the first part focuses on indiscriminate human activities that have led to a disturbed and fragile coastal ecosystem. The importance of coastal areas and the need for its protection has been highlighted. The second part discusses in detail the regulatory mechanism of the government that is the Coastal Zone Regulation Notification, the author has focused on the changes made by the government in the notification of 2018. The subsequent part critically analyses the notification of 2018 and highlights the inadequacy of the said policy in combating the effects of the climate change. The notification is a proof of the system turning a blind eye towards the gigantic problem of climate change and global warming. The conclusion is a mere plea for the government to leave the coasts the way they are and to not burden them by implementing such thoughtful policies.

II. Climate Change And The Importance Of Coastal Zone Protection

Climate change in IPCC usage refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.(UNFCC, Fact Sheet)

Though both the definitions are different but have a common attribute that is the source of climate change. The first definition is broad and holds both nature and humans responsible for the irregular climatic conditions. Human activities have been identified as causing alterations in the environment. I'll use a psychological reference to make my point clear. Humans in their natural state lack soft skills like gratitude, humility. These skills are often inculcated in them through practice and training. Humans have done injustice to the environment, they have exploited it to its maximum and have never shown gratitude towards it. Moreover, their behavior also reflects denial or the lack of acceptance of the mistake committed by them. The realization of a mistake is preceded by two stages. First stage includes the denial of the existence of the mistake, and second, where they try to shift the blame on the other person. It is after the failure of these tactics, humans reach the stage of acceptance of their fault. Humans have finally accepted the responsibility and have tried to reverse this process of climate change.

Human activities in coastal areas have both 'direct' and indirect 'implications'. The direct impact is in the nature of loss, fragmentation, and degradation of habitats, primarily by land use changes such as conversion to agriculture; Overexploitation of resources for livelihoods and commercial purposes ; Pollution, mostly by nutrient enrichment by land-based use of chemical fertilizers and sewage but also from toxins such as pesticides and hazardous chemicals; Introduction of alien invasive species and their rapid and uncontrolled spread (this is also considered a form of biological pollution); The indirect impacts are population expansion—increase of populations is followed by increased demands for resources; Distribution of wealth and social inequalities—the poor often must emphasize survival over sustainability, while the wealthy are far removed from the consequences of overexploitation of resources, leading to degradation of natural systems; Policy failure—policies that do not take into account the inherent characteristics of ecosystems permit their unsustainable exploitation (e.g., policies on land tenure are especially responsible for changing the manner in which land and biological resources are used); Market failure/distortions—ecosystem goods and services mostly bypass markets and thus are often undervalued and underpriced, so the costs of environmental destruction are not reflected in the market; Globalization—trade and market liberalization have created a global system in which commodities and their

prices are highly influenced by international pressures that do not usually take local and regional environmental impacts of production into account; Poor development model—a development model that equates increased consumption rates with growth and advancement (Pallewatta, 2010).

The utility of coastal zones can be understood from the fact that the most developed cities are found along the coasts. The comfortable climate and easy availability of other resources makes it most suitable for settlement. Though this comfort and the attraction of development are hard to forego but it is imperative for us to realize the pressure these activities are exerting on the already fragile coastal ecosystems. Coastal zones have aided the economic growth of the country. Tourism, fishing, and aquaculture are industries with major economic influences on coastal ecosystems. Coastal areas worldwide are major destinations for tourism, which represents the fastest growing sector of the global economy. Manufacturing, oil and gas extraction, waste disposal, marine transportation, and real estate development have interests in coastal zones (Creel, 2003). These activities have huge economic significance; the burgeoning industries slowly set the pace for development and population explosion in these regions. This is a major cause for the threat faced by coastal areas. Unsustainable living conditions of humans and human development at the lowest level are the two characteristic features of these areas. The condition has worsened and there is no more scope left for the so-called development to take place. Most of the resources used by humans to aid the development process have depleted by great amounts.

In some areas, heavy use of fisheries has reduced endemic coastal fish stocks to 10 percent to 30 percent of the supply that existed 30 years ago. Half of the world's wetlands disappeared in the 20th century, as did 50 percent of all mangroves, and nearly 60 percent of the world's coral reefs are seriously degraded in some cases beyond recovery or are threatened by development and other human activities. Pollution from industry, agriculture, and urban areas is degrading the quality of much of the world's fresh water. As coastal communities grow, sewage can become a threat to local waterways: Demand often exceeds available sewage treatment, and much of the sewage is dumped without being treated. Bathing in or ingesting sewage-contaminated water can cause infections and transmit diseases such as cholera, particularly among children under 5. In developing countries, more than 90 percent of wastewater and 70 percent of industrial wastes are discharged in coastal waters without being treated. The United Nations Environment Programme estimates that South Asian waters are at the highest risk of pollution: 825 million people in the region do not have basic sanitation services. In Mumbai for instance, almost half of the city's 12 million residents are either slum dwellers or homeless with little access to sewage and sanitation facilities (Creel, 2003).

Governments and the public alike seem ready to respond to sudden, large-scale catastrophes but will ignore slow, cumulative processes such as climate change and sea level rise. Although the ultimate impacts of climate change could be calamitous, they are not easily recognizable over short periods and are frequently indistinguishable from the natural pattern of climatic events. The Indian Ocean tsunami of December 2004 is a case in point. It caused unprecedented loss of human lives and damage to coastal infrastructure, but its aftermath created awareness of the power of natural events, especially in societies where tsunamis were very rare, such as Sri Lanka and southern India (Pallewatta, 2010).

The effect of climate change on coastal areas is far reaching. The activities associated with and sustained by coasts need to be regulated urgently. The wrath of climate change is undesirable in the current scenario when India is already grappled with numerous structural problems and struggling to stand by her own in the competitive market. The protection of the coastal ecosystem should be one of the primary concerns of India.

Economic growth and advancement in the technology influence the default system of the Earth. Sustainable management of resources and a better understanding of the characteristics of the climate and the communities inhabiting those regions is necessary to formulate plans.

The government of India has consciously formulated plans and measures of protection and management of the coastal areas. The author seems to disagree with the idea presented above. Coastal Zone Regulation Notifications (CRZ) have been implemented by the government on a regular basis, but the credibility of the government's intentions for coastal protection is doubtful as mere executive action to address such big issue shows gross negligence. Legislature has failed to come up with any coastal regulatory framework. Moreover, short term goals of development have been given preference over planned and environment friendly developmental activities. The growing population in these zones and the absence of regulation by the government poses new threats to this region. The reiteration of these points has been done to highlight the gravity of the issue.

The inadequacy of the existing framework and the excessive frequency of the amendments made to this framework make it clear that we are ill-equipped to protect ourselves from the atrocities due to climate change. The framework that we have made to shield ourselves exposes us to greater threats because it withdraws all kinds of protection and safeguard mechanisms.

The CRZ framework is a sham. The guidelines covertly carve out a place for the big industries to flourish. The situation that we have put ourselves into will only lead to creation of a plutocratic society wherein the government is a mere slave of the wealthy. The climatic influence is horrifying and it is high time we mend our ways.

III. CRZ'11 v. CRZ'18

'Coastal Zone Regulation', is a scheme to regulate the human activities along the coastline of India. Under the Environment Protection Act, 1986 of India, notification was issued in February 1991, by the Ministry of Environment and Forests (MoEF). As per the notification, the coastal land up to 500m from the High Tide Line (HTL) and a stage of 100m along the banks of creeks, estuaries, backwater and rivers subject to tidal fluctuations, was called the **Coastal Regulation Zone (CRZ)**. CRZ along the country has been placed in four categories. The above notification included only the inter-tidal zone and land part of the coastal area and did not include the ocean part. The notification imposed restriction on the setting up and expansion of industries or processing plants etc. in the said CRZ. Coastal Regulation Zones (CRZ) were notified by the government of India in 1991 for the first time. (Coastal Regulation Zone, 2019)

The notification issued by the ministry aims at protecting the livelihood of the local communities and the flora and fauna of the region. The regulatory measure has been made keeping in mind the sensitivity of these regions. The monitoring of any developmental activity in the region has become easier and more efficient with this system in place.

Chronology of Coastal Zone Regulation

Coastal Zone Regulation notification issued in the year 1991 was the first specialized step to control the unsustainable activities around coastal zones. It recognized India's need to protect the interests of millions of her coastal people while ensuring their overall development, and protecting coastal ecology. The CRZ Notification was introduced with three main principles: It is necessary to arrive at a balance between development needs and protection of natural resources; Certain activities are harmful for both coastal communities and their environment, and these should be prohibited or regulated; If coastal ecosystems are sustainably managed, then the livelihoods of millions will be protected and their survival guaranteed (Equations, 2008a).

The notification received mixed response, the regulation allowed the local farmers and fishermen to access and use the coastal areas to sustain their livelihood. They were also granted legal rights to control such activities which violate the provisions of the regulation and thus they could approach the courts to ensure that their region remains safe and is not unduly exploited for the economic benefits of few. The regulation policy includes rules to control any further damage of the areas that have already had urban growth.

This regulation was also criticized for its ineffectiveness to achieve the goal of limiting industrial expansion in the concerned region. The failure of the notification became apparent when almost 25 amendments were made to it. One of the reports of the Comptroller and Auditor General implicated the MoEF for lack of implementation of CRZ Notification, 1991. Despite the amendments the objective of the regulation could not be achieved and the expansion of industries continued. Major violations were made by the tourism industry. (Equations, 2008b).

The later stages of the failed 1991 amendment paved the way for Coastal Management Zone Notification, in exercise of the powers conferred by sub-section (1) and clause (v) of sub section 2 of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 and in supersession of the notification dated 19th February, 1991, except as respects things done or omitted to be done before such supersession, the Central Government issued a notification to be known as the Coastal Management Zone (CMZ) Notification, 2008. It consisted of a new framework for managing and regulating activities in the coastal and marine areas for conserving and protecting the coastal resources and coastal environment; and for ensuring protection of coastal population and structures from risk of inundation due to natural hazards; and for ensuring that the livelihoods of coastal populations are strengthened; by superseding the said Coastal Regulation Zone, Notification, 1991. (MoEF, 2008)

The 2008 notification also turned out to be a failed attempt, it faced backlash from the coastal communities including the fishermen. It was observed that the replacement of 'regulation' with 'management' limited the government's role in the control of developmental activities in and around the coastal zone. To overcome all these problems, a new notification came in the year 2011, the 1991 notification was kept as the base and an attempt was made to codify the 25 (approximate) amendments to the 1991 notification. This notification was also based on similar principles as that of the CRZ, 1991. Protection of the coastal communities and sustainable management of the coastal areas were some of the primary objectives under the regulatory notification (Sharma, 2011). Effective provisions were made to ensure that this arrangement is free from the shortcomings like that of the previous notifications.

After constant review by various committees appointed by the MoEF, a new draft of coastal zone regulation has been approved by the government. The Coastal Zone Regulation Notification, 2018 is the most recent in the series of the Coastal Regulation Zone Notifications. Shailesh Nayak committee's efforts have been found instrumental in releasing this notification and bringing some drastic changes in the conventional draft of CRZ. But, this notification has been criticized and targeted more as compared to the notifications released earlier. The economic aspect of this notification needs to be highlighted for the fact that this notification has focused more

on the promotion of tourism in the region and the provisions have been framed to ensure protection of livelihood of the coastal communities in a sustainable manner.

Under these notifications coastal areas have been classified into four zones. This classification remained constant till the year 2003, some amendments have been made in the new notifications of 2011 and 2018. The focus of this paper is on the changes made in the notification of 2018. The coastal areas have been divided as follows;

(i) CRZ-I

A. The areas that are ecologically sensitive and the geomorphological features which play a role in the maintaining the integrity of the coast.

(a) Mangroves, in case mangrove area is more than 1000 sq mts, a buffer of 50meters along the mangroves shall be provided; (b) Corals and coral reefs and associated biodiversity; (c) Sand Dunes; (d) Mudflats which are biologically active; (e) National parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas under the provisions of Wild Life (Protection) Act, 1972 (53 of 1972), the Forest (Conservation) Act, 1980 (69 of 1980) or Environment (Protection) Act, 1986 (29 of 1986); including Biosphere Reserves; (f) Salt Marshes; (g) Turtle nesting grounds; (h) Horse shoe crabs habitats; (i) Sea grass beds; (j) Nesting grounds of birds; (k) Areas or structures of archaeological importance and heritage sites.

B. The area between Low Tide Line and High Tide Line

(ii) CRZ-II - The areas that have been developed upto or close to the shoreline.

Explanation.- For the purposes of the expression “developed area” is referred to as that area within the existing municipal limits or in other existing legally designated urban areas which are substantially built-up and has been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains;

(iii) CRZ-III - Areas that are relatively undisturbed and those do not belong to either CRZ-I or II which include coastal zone in the rural areas (developed and undeveloped) and also areas within municipal limits or in other legally designated urban areas, which are not substantially built up.

(iv.) CRZ-IV

A. the water area from the Low Tide Line to twelve nautical miles on the seaward side;

B. shall include the water area of the tidal influenced water body from the mouth of the water body at the sea upto the influence of tide which is measured as five parts per thousand during the driest season of the year.

According to the notification of 2011, CRZ extends to ;

(i) the land area from High Tide Line (hereinafter referred to as the HTL) to 500mts on the landward side along the sea front.

(For the purposes of this notification, the HTL means the line on the land upto which the highest water line reaches during the spring tide and shall be demarcated uniformly in all parts of the country by the demarcating authority(s) so authorized by the MoEF in accordance with the general guidelines issued at Annexure-I.)

(ii) CRZ shall apply to the land area between HTL to 100 mts or width of the creek whichever is less on the landward side along the tidal influenced water bodies that are connected to the sea and the distance upto which development along such tidal influenced water bodies is to be regulated shall be governed by the distance upto which the tidal effects are experienced which shall be determined based on salinity concentration of 5 parts per thousand (ppt) measured during the driest period of the year and distance upto which tidal effects are experienced shall be clearly identified and demarcated accordingly in the Coastal Zone Management Plans (hereinafter referred to as the CZMPs).

(Explanation.- For the purposes of this sub-paragraph the expression tidal influenced water bodies means the water bodies influenced by tidal effects from sea, in the bays, estuaries, rivers, creeks, backwaters, lagoons, ponds connected to the sea or creeks and the like.)

(iii) the land area falling between the hazard line and 500mts from HTL on the landward side, in case of seafront and between the hazard line and 100mts line in case of tidal influenced water body the word ‘hazard line’ denotes the line demarcated by Ministry of Environment and Forests through the Survey of India taking into account tides, waves, sea level rise and shoreline changes.

(iv) land area between HTL and Low Tide Line (hereinafter referred to as the LTL) which will be termed as the intertidal zone.

(v) the water and the bed area between the LTL to the territorial water limit (12 Nautical miles) in case of sea and the water and the bed area between LTL at the bank to the LTL on the opposite side of the bank, of tidal influenced water bodies.

CRZ Draft Notification, 2018

CRZ-I areas are environmentally most critical and are further classified as under:

CRZ-I A: (a) CRZ-I A shall constitute the following ecologically sensitive areas (ESAs) and geomorphological features which play a role in maintaining the integrity of the coast :

(i) Mangroves (in case mangrove area is more than 1000 square meters, a buffer of 50 meters along the mangroves shall be provided and such area shall also constitute CRZ-I A); (ii) Corals and coral reefs; (iii) Sand dunes; (iv) Biologically active mudflats; (v) National parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas under the provisions of Wild Life (Protection) Act, 1972 (53 of 1972), Forest (Conservation) Act, 1980 (69 of 1980) or Environment (Protection) Act, 1986 (29 Of 1986), including Biosphere Reserves; (vi) Salt marshes; (vii) Turtle nesting grounds; (viii) Horse shoe crabs' habitats; (ix) Sea grass beds; (x) Nesting grounds of birds; (xi) Areas or structures of archaeological importance and heritage sites.

(b) A detailed environment management plan shall be formulated by the states and Union territories for such ecologically sensitive areas in respective territories, as mapped out by the National Centre for Sustainable Coastal Management (NCSCM), Chennai.

CRZ-I B: The intertidal zone i.e. the area between Low Tide Line and High Tide Line shall constitute the CRZ-I B.

CRZ-II: CRZ-II shall constitute the developed land areas up to or close to the shoreline, within the existing municipal limits or in other existing legally designated urban areas, which are substantially built-up with a ratio of built-up plots to that of total plots being more than 50 per cent and have been provided with drainage and approach roads and other infrastructural facilities, such as water supply, sewerage mains, etc.

CRZ-III: Land areas that are relatively undisturbed (viz. rural areas, etc.) and those which do not fall under CRZ-II, shall constitute CRZ-III, and CRZ-III shall be further classified into following categories

CRZ-III A: Such densely populated CRZ-III areas, where the population density is more than 2161 per square kilometre as per 2011 census base, shall be designated as CRZ-III A and in CRZ-III A, area up to 50 meters from the HTL on the landward side shall be earmarked as the 'No Development Zone (NDZ)', provided the CZMP as per this notification, framed with due consultative process, have been approved, failing which, a NDZ of 200 meters shall continue to apply.

CRZ-III B: All other CRZ-III areas with population density of less than 2161 per square kilometre, as per 2011 census base, shall be designated as CRZ-III B and in CRZ-III B, the area up to 200 meters from the HTL on the landward side shall be earmarked as the 'No Development Zone (NDZ)'. 2.3.3: Land area up to 50 meters from the HTL, or width of the creek whichever is less, along the tidal influenced water bodies in the CRZ III, shall also be earmarked as the NDZ in CRZ III. Note: The NDZ shall not be applicable in the areas falling within notified Port limits.

CRZ- IV: The CRZ- IV shall constitute the water area and shall be further classified as under:- **CRZ- IVA:** The water area and the sea bed area between the Low Tide Line up to twelve nautical miles on the seaward side shall constitute CRZ-IV A.

CRZ- IVB: CRZ-IV B areas shall include the water area and the bed area between LTL at the bank of the tidal influenced water body to the LTL on the opposite side of the bank, extending from the mouth of the water body at the sea up to the influence of tide, i.e., salinity of five parts per thousand (ppt) during the driest season of the year.

CRZ in this notification has been demarcated on the same line as that of 2011 except one change that now the CRZ shall apply to the land area between HTL to **50 meters** or width of the creek, whichever is less on the landward side along the tidal influenced water bodies that are connected to the sea and the distance upto which development along such tidal influenced water bodies is to be regulated shall be governed by the distance upto which the tidal effects are experienced which shall be determined based on salinity concentration of five parts per thousand (ppt) measured during the driest period of the year and distance up to which tidal effects are experienced shall be clearly identified and demarcated accordingly in the Coastal Zone Management Plan.

IV. Opposition to CRZ Notification 2018

Indian coastline is vast and the population sustained by this coastline is increasing every day. While we've already understood the importance of our coasts in the previous chapters, it is vital for us to revise those lessons in the light of the new CRZ Notification of 2018. The author has observed that the criticism of the notification has been greater than the appreciation. The precarious time for the human population and the loose regulations under the notification are the factors that have led to the backlash faced by this notification.

The coastal areas are inclusive of the communities of the region, these notifications were issued to ensure a sustained livelihood of these people. The major criticism has come from these communities that were not included and consulted while formulating the policies of these regions.

Some of the new features of this notification like amendments in the area categorized as No Development Zone (NDZ) and introduction of CRZ IV A and B and the related permissions and exceptions have led to an increased trouble in the coastal areas. The protection of coastal areas has taken a backseat and the other infrastructural activities have been promoted and protected under the guise of this notification.

The changes in the new notification of 2018 highlight the ignorance towards the climate change and the repercussions of the same. The draft of the 2018 notification has been made without due consultation with the coastal communities, and thus the criticism received has been maximum from this section. The author has focused on the changes made in the rules regarding coastal areas and the activities permitted therein. A detailed analysis of the changes in the 2011 and 2018 notification has been made below.

CRZ I - As per the notification of 2011, this zone was categorized as ecologically sensitive and thus tourism activities and infrastructural development were prohibited. Defense, public utility services, strategic projects were permitted. In the 2018 notification, CRZ has been divided into two zones, wherein CRZ IA eco-tourism activities such as mangrove walks, tree huts, nature trails, etc., have been allowed in these ecologically sensitive areas. Land reclamation (creation of new land from oceans and lake beds) which has a strong impact on the coastal ecology has been permitted in these areas in the intertidal for CRZ IB zones.

CRZ II - Construction of buildings and other projects was allowed on the landward side subject with the existing Floor Space Index or Floor Area Ratio Norms and without change in present use, as per the 2011 notification. A significant change that can be marked in the 2018 notification as the builders and project developers can now increase the floor area ratio or floor space index, and build resorts and other tourism facilities. A large part of South Mumbai falls in this category.⁽¹⁵⁾ Setting up of temporary tourism facilities like shacks, washrooms, walk ways, shower plans etc., while maintaining a minimum distance of 10 meter from HTL have also been sanctioned under the new plan.(Kukreti, 2019)

CRZ III- CRZ 2018 allowed all the activities in CRZ III as were in CRZ IB, NDZ has been shrunk to 50 m from HDL in densely populated areas (where population exceeds 2,161 per sq km as per the 2011 Census). This has led to resorts, hotels and tourism facilities to be built right up to HTL. In the earlier notification (2011), NDZ extended to a distance of 200m from the HTL. Also, the NDZ was kept outside the purview of activities permitted under CRZ IB. The new notification has snatched away the exclusiveness of the NDZ and made the inhabitants of the new zone vulnerable to any kind of extremities of weather.

CRZ IV- This area is the most important zone for those whose livelihood is based on fishing and allied activities; this fishermen zone is also a zone that is amenable to maximum amount of waste from offshore activities like mining, oil exploration and shipping. CRZ notification framed rules and regulations to prevent the area from facing the repercussions of these activities and other pollution due to climate change. The notification of 2018 doesn't even slightly mention the importance of these regulations, it completely overlooked these rules and instead gave permissions to reclaim the land for setting up ports, harbours and roads, facilities for discharging treated effluents, transfer of hazardous substances; and construction of memorials or monuments. This move bears testimony of the callous attitude of the authorities towards the coastal communities and the environment.

The schemes and the policies of the government seem to promote destruction over development in the well-known sensitive area. It is difficult for any common man to accept these norms as for the protection of the coastal zones. The disguised notification is pro-industrialist in its true form.

V. Conclusion and Suggestions

The coastal ecology is volatile, disruption follows creation and vice versa. It is independent like any other part of the environment, it is capable of effectively maintaining itself. If this postulate is true then why do we need specific coastal zone regulation or conventions or any either common principles of governance of these areas for that matter. The answer to the question is simple, human intervention has been found to be the root cause of any loss to the environment. Human brain has always failed to understand the power of the environment, the irony lies in the fact that humans have destroyed the environment for ensuring protection of the same. The detailed plans to sustain the ecology have been written down on hundreds of pages made by cutting the trees. The short wavelength of human brain is easier to understand by evaluating the so called intelligent decision it takes. The coastal Zone regulation is one of those master plans made by the massive brains of various self proclaimed environmentalists and officers of effective governance and development. The basic idea of regulating the coastal zones is flawed, for these areas are best developed when left in isolation.

The Coastal Zone Regulations have been amended time to time to secure these areas and guard them against any kind of climatic influence. The primary notification of 1991 was a major step towards undoing the harm caused to the coast by the humans, the amendments made to this notification led to the shift of authority to the new notification of 2011 which has now been replaced by the notification of 2018. There is a unique similarity in the acts of humans and CRZ. The early human has maintained camaraderie with the environment and has used it only to the level of its capacity to replenish itself. The gradual change in the class of humans has led to intensification of the greed for development and resulted in excessive exploitation of Mother Nature. The CRZ has also had a similar history, the 1991 notification was more environment friendly as compared to the recent notifications. The drafters of these regulations have failed to mask their real intentions behind passing such reckless regulation notifications. The 2018 notification when compared with the 2011 notification brings to our notice the major flaws in the schemes formulated by the government for environment protection and preservation. This notification is highly deceptive and a scam for the coastal communities.

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