REPORT OF THE INDEPENDENT PEOPLE'S TRIBUNAL ON MUMBAI'S COAST ROAD

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INDEPENDENT PEOPLE'S TRIBUNAL

ON MUMBAI'S COAST ROAD

9 October 2015

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Bandra West, Mumbai 400 050

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a.	Rishi Aggarwal, Observer Research Foundation
b.	Shyama Kulkarni, AGNI
c.	Bittu Sehgal, Editor, Sanctuary magazine; National Board for Wildlife of the Ministry of Environment and Forests.
d.	Sulakshana Mahajan, Mumbai Transformation Support Unit
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	Presenters:
a.	Hussain Indorewala, KRVIA Faculty
b.	Nitin Killawala, Group Seven Architects & Planners Pvt. Ltd.
c.	Ratan Batliboi, Ratan J. Batliboi Consultants Pvt. Ltd
3. Transport	
	Presenters:
a.	Ashok Datar, Mumbai Environmental Social Network
b.	Shashank Rao/Union Leader, BEST
c.	Sudhir Badami, Reserved Bus Lane proponent
d.	Binoy Mascarenhas, World Resources Institute

4. Fishing Communities	
	Presenters:
a.	Kiran Koli, member, Machhimar Sarvodaya Sahakari Society, Cuffe Parade
b.	Shweta Wagh, KRVIA on Threat to Koliwadas
c.	Rajesh Mangela, Secretary, Maharashtra Machhimar Kruti Samiti
5. Environment	
	Presenters:
a.	Debi Goenka, Conservation Action Trust
b.	D. Stalin, Vanashakti
c.	Sumaira Abdulali, Awaaz Foundation

Commissioners

1. **V. Subramanyan** *(Former Professor of Geology, IIT Bombay)*
2. **Meenakshi Menon** *(Media & Communications Expert; Founder & Managing Trustee of NGO Vanashakti)*
3. **Sunil Shanbag** *(Theatre Director, Screenwriter and Documentary Filmmaker)*
4. **D.M. Sukthankar** *(Former Municipal Commissioner, Municipal Corporation of Greater Mumbai)*
5. **Ramchandra K. Patil** *(President of Maharashtra Macchimar Kruti Samittee; Executive Member of World Forum of Fisher People)*
6. **Jamsheed Kanga** *(Former Municipal Commissioner, Bombay Municipal Corporation)*
7. **Gerson da Cunha** *(Convenor of AGNI; Trustee, NAGAR)*
8. **D.T. Joseph** *(Retired Secretary, Urban Development Ministry, Maharashtra)*
9. **B. C. Khatua** *(Director, Mumbai Transformation Support Unit; Retired IAS Officer)*
10. **Shirish Patel** *(Civil Engineer and Urban Planner)*
11. **Shabana Azmi** *(Actress and social activist)*
12. **Major General Sudhir Jatar** *(Retired, Indian Army, Pune)*
13. **Justice (Retd.) Hosbet Suresh** *(Bombay High Court Judge)*
14. **Ajit Ranade** *(Co-founder, Trustee at Association for Democratic Reforms)*
15. **Nikhil Wagle** *(Journalist, Television Anchor; ex-editor-in-chief, IBN Lokmat and Dinank)*
16. **Rakesh Kumar** *(Chief Scientist and Head, National Environmental Engineering Research Iinstitute Zonal Centre, Mumbai)*

ACRONYMS

AGNI:	Action for Good Governance & Networking in India
BWSL:	Bandra Worli Sea-link
BMC:	Brihanmumbai Municipal Corporation
BOT:	Build Operate Transfer
BRTS:	Bus Rapid Transit System
CRZ:	Coastal Regulation Zone
CRP:	Coastal Road Project
CR:	Coast Road
CZMA:	Coastal Zone Management Authority
DP:	Development Plan
DPR:	Detailed Project Report
EIA:	Environmental Impact Assessment
EIRR:	Economic Internal Rate of Return
EPA:	Environment Protection Act
GoM:	Government of Maharashtra
IIT:	Indian Institute of Technology
IPT:	Independent People's Tribunal
IRR:	Internal Rate of Return
JTC:	Joint Technical Committee
MCGM:	Municipal Corporation of Greater Mumbai
MCZMA:	Maharashtra Coastal Zone Management Authority
MHCC:	Mumbai Heritage Conservation Committee
MOEFCC:	Ministry of Environment, Forests and Climate Change
MUTP:	Mumbai Urban Transport Project, World Bank-funded
NPV:	Net Present Value
NDZs:	No Development Zones
NIO:	National Institute of Oceanography
NFF:	National Fishworkers Forum
NOC:	No Objection Certificate
OD:	Origin-Destination
PIRR:	Project Internal Rate of Return
PPP:	Public Private Partnership
S&D:	Speed & Delay
SEAC:	State Expert Appraisal Committee
SRA:	Slum Rehabilitation Authority
TERI:	The Energy and Resources Institute.

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A. INTRODUCTION

- by Darryl D'Monte

For several years, Mumbai's citizens have been concerned that the state government - beginning with the Congress under Chief Minister Prithviraj Chavan - has been planning to build a Coast Road (CR) along the western seafront of Greater Mumbai from Kandivali to Nariman Point.

It is a serious lapse in urban governance that at no stage has the public been informed of the objectives of this project, much less the alignment and how it would impact the city as a whole, as well as certain areas adjoining the seafront. In contrast to moves in industrial countries to demolish highways along coasts and riverfronts and convert them to public promenades both for environmental and aesthetic reasons, Mumbai is forging ahead with a major infrastructure project on these obsolete lines.

The world is also moving to a low-carbon development path in the face of imminent and catastrophic climate change, where commuting by private automobiles is being discouraged in favour of public transport. With concerns about intolerable levels of air pollution in Delhi and a dozen other Indian cities being the worst in the world, Mumbai is proceeding in reverse gear to encourage means of transport which emit more toxic fumes. The only reason that Mumbai has been spared the contaminated air of Delhi is that vehicular and other pollutants are blown away by the sea breeze. With climate change, the ocean levels are rising and this is also bound to affect a road along the coast.

A first route was prescribed by a Joint Technical Committee appointed by the Brihanmumbai Municipal Corporation (BMC), which put it up on its website in 2011.[1] In 2015, the BMC came out with a 20-year Development Plan (DP) from 2014-2034 with a new alignment for the CR.

Prior to drafting the DP, the BMC only went through the motions of holding public consultations in each ward, so that citizens could voice their suggestions and objections to any proposal. Several sent in written submissions against the CR, pointing out how it would create traffcongestion in their neighbourhoods and destroy the city's most precious asset - its seafront.

When the DP was made public, citizens found that it had erroneous concepts like Transit Oriented Development, which increased FSI up to 8.00 near local railway stations - eight times the current FSI in the suburbs. It was also riddled with geographical errors. A public outcry forced the BMC to withdraw this plan and address criticisms in a revised plan.

Meanwhile, the BMC persisted with the CR and came out with a Detailed Project Report (DPR), which was drafted by architects STUP Consultants and consultants Ernst & Young. The road was 35 km long, would reclaim some 170 hectares along the coast and cost Rs. 12,000 crores. Almost all the DPR recommendations had serious flaws in objectives and data to support these.

Citizens repeatedly sought to get someone from the BMC to inform the public about the proposals

[1]Available at, http://www.mcgm.gov.in/irj/portalapps/com.mcgm.RTI_GMDA/docs/Costal%20road.pdf.

in the DPR, even while holding public meetings to object to the road. No one from the BMC was prepared to come forth and STUP Consultants were unable to present their plan without the authorization of the BMC.

It is certainly morally, if not legally, imperative for any authority to consult stakeholders whenever a project of this size is being launched. Without hearing their objections, the authorities proceeded to obtain environmental clearances from the central Ministry of Environment, Forests & Climate Change, as well as permission from the Maharashtra Coastal Zone Management Authority. (MCZMA).

The BMC is about to announce yet another alignment, while possibly deleting some tunnels and other features, and appoint a consultant with international experience to oversee the construction of the road. Once again, the public - not least, those who live and pursue their livelihoods along the seafront - have been kept in the dark about this new alignment.

It would be a travesty of the very concept of participatory democracy for the authorities to move ahead without a single public hearing on this huge infrastructure project. At a public meeting with the Maharashtra Chief Minister Devendra Fadnavis had with the Dutch Prime Minister Mark Rutte in 2015, Mr Rutte informed the government and other officials that in Holland, the authorities always consult stakeholders before launching any major infrastructure project. This, in the long run, saves both time and money since it obviates the need for citizens to move court against a project and delay its construction, as was the case with the Bandra-Worli Sea Link (BWSL).

In 2001, what was then called the Indian People's Tribunal held an open hearing on the BWSL, the completion of which faced legal and other delays and was only opened in 2009. Fisherfolk were the main opponents because the link posed a threat to their livelihood by reclaiming land in the Mahim Bay.

In sheer frustration due to lack of response from the authorities on the CR, citizens decided to hold their own Independent People's Tribunal (IPT) on 9th October, 2015, where former municipal commissioners, a retired state urban development secretary, two serving government officials and several experts and public-minded citizens served as Commissioners.

In five separate sessions - comprising planning, concerns of fisherfolk, governance, environment and transport -- representatives of NGOs, planners and experts testified before the IPT. These sessions were video-recorded and have been summarized in this report.

We have included views of some Commissioners here as well. The IPT hopes that by bringing out this comprehensive report, the public will be informed what the consequences of building the road will be for the city and its environment.

B. COMMISSIONERS' REPORTS

● D. M. Sukthankar

(Former Municipal Commissioner, Municipal Corporation of Greater Mumbai)

Based on the literature circulated to us, Commissioners, and the presentations/oral submissions made before us by participants in the public hearing held on October 9, 2015 by the IPT, I have come to the firm conclusion that the Coast Road ought not to be proceeded with, even with any modified alignment. The project ought to be dropped forthwith simply because the alleged benefits which, it is claimed, will accrue from the project, even if fully realised, will be very short-lived and will be far outweighed by the trail of several disastrous and diabolical consequences which it will inevitably entail, both in the course of its implementation and thereafter.

I will summarise as follows the bullet points which, in my view, inexorably lead to the aforesaid conclusion.

1. Several patent and glaring errors, shortcomings, lacunae and contradictions in the DPR itself, as pointed out by experts and knowledgeable critics, which completely erode its credibility.

2. The manner in which the project has been conceived and is being relentlessly pushed ahead as if it is a fait accompli, is a classic example of bad governance --- manifested by failure or reluctance to share relevant information (e.g. the alignment of the proposed coastal road) with the public/ stakeholders; lack of transparency; total absence of prior public consultation; giving unjustified precedence to the interests of well-off private car owners (who constitute a relatively small minority) over those of vast multitudes who have limited means and who use public transport; making a pretence of soliciting suggestions and objections from the public only after, as is being commonly believed, the decision to implement the project has already been made at the highest level.

3. Cost-benefit analysis shows absence of financial viability---the DPR itself rejects the possibility of Public Private Partnership (PPP); no survey of "willingness to pay" the likely substantial toll of Rs 400 for a single (one-way) trip from one end to the other has been carried out; experience of BWSL toll has been most disheartening.

4. Lack of clarity about, if not virtual absence of, a set of publicly well-understood and credible objectives, together with underlying topsy-turvy priorities, of this obviously elitist project.

5. Numerous likely adverse environmental and ecological impacts---e.g. on the coastline, beaches, mangroves (which cannot be replanted); likely alteration of the existing geomorphology and hydrological patterns which will result in disastrous consequences; reclamation, quarrying of hills for construction materials, covering and/or narrowing of drains and natural water courses etc. will also have their toll.

6. The project implies defective urban planning in every sense--- what makes it worse is that

it does not even open up any large land mass for planned development.

7. The project gives a complete go-by to sensible transport planning by putting a premium on personalised private transport and impliedly discounting public transport---Including Bus Rapid Transport System (BRTS) as its component is an eyewash and a mere bait, when there is no possibility of its attracting sizeable number of passengers, being at the extreme western edge of the metropolis.

8. As the project will violate existing CRZ Regulations, they are sought to be peremptorily amended to obviate any violation; this will only open floodgates for such ad hoc, hasty and ill-thought-out amendments in future, thereby endangering environmental conservation.

9. The project will certainly disrupt the habitats, lives, livelihoods and common assets of several fishermen communities on the western coast; no wonder that they are deeply agitated, as was evident during the hearing by the IPT; failure to fulfil various assurances of ameliorative measures given to them when projects adversely affecting their legitimate socio-economic interests were ruthlessly implemented in the past, has only exacerbated the situation and they naturally have no trust in those giving such assurances.

10. Possible alternative remedial measures have not at all been seriously considered, leave alone objectively evaluated, from the point of view of their comparative effectiveness, efficiency, environmental impact, cost: benefit ratio, opportunity costs etc. Had this been done, the CR would never have received the (undeserved) attention that it has.

11. The project will have adverse impact on heritage monuments, e.g. Mahalaxmi temple, Haji Ali Dargah, Bandra fort.

12. The "multiple benefits" that, it is claimed, will accrue from the project, e.g. relief in traffic congestion on inner city arterial roads, large additional open recreational spaces for the city, improvement in the quality of life etc. are, if at all achieved, going to be very short-lived and quite illusory, as is evident to Mumbaikars from their past experience.

- **Maj. Gen. Sudhir Jatar**

(Retired, Indian Army, Pune)

I am of the firm view that the need for the CR has to be established first. Everything else comes after.

My experience (Pune is a mini-Mumbai) is that feasibility studies and DPRs are normally fudged (we have exposed three big-time projects). It only needs perseverance and expertise to expose the Neta-Babu nexus to spend more and more of taxpayer's money for reasons that need not be recorded.

Unfortunately, our governance has descended to such lowly depths that the only recourse left to the aam aadmi is to approach the courts and hope that the judges are not biased.

Sounds simple but it takes a lot of courage, aptitude, inclination, energy and patience to expose these "scoundrels".

The Detailed Project Report (DPR) has not

established the need for the coast road (CR). The objectives have not been quantified accurately e.g. the number of vehicles that will be diverted to the CR in a given time frame from the existing parallel roads. The objective as stated in the Report: "This report presents studies carried out under guidance of Hon'ble Additional Municipal Commissioner (Eastern Suburb) to verify feasibility of the proposed coastal road and recommendations for detailed design stage of the project." The aim of making this road is not quantified and the objective shows that the GoM or BMC has already made up its mind to make the CR. This is the most unprofessional objective anyone can come across ever and anywhere. One does not write, "Under the guidance of Hon'ble Additional Commissioner" when this worthy is not qualified enough to make a DPR.

The Origin-Destination (OD) survey does not include "willingness to use the road" as one of the questions. The consultant has assumed that all commuters would use the CR. In fact, the surveys have not been conducted as per the Indian Roads Congress codes and mandates.

For all costly projects, it is essential to first work out the feasibility for any alternatives that may exist. This is a major drawback of the DPR. Here the issue is not 'for' or 'against'. It is whether the CR is needed and if so, at what cost?

The other drawbacks in traffic surveys are; i) Sample size not given, ii) Speed & Delay (S&D) survey done only on one corridor, iii) S&D survey not attached, iv) In the OD survey, type of vehicles counted and sample size is not given, v) The format and questionnaire including willingness for using CR not given, vi) Classified volume count done but categorisation not given. Only total number of vehicles is given.

Impact of Ganesh idols immersion on the tunnel both due to weight, change in soil conditions and social repercussions when certain beaches will not be available for immersion have not been considered.

In paragraph 15.9 "Conclusion from Economic analysis and Financial analysis", it is stated, "From the economic analysis results it may be concluded that, the construction of the proposed Coastal road may be considered as economically viable." However, paragraph 13.7 shows a negative Economic IRR at -2.55 % with a meagre 1.47 % as Project IRR (PIRR):

Key Financial Indicators

Based on the above financial projections, profitability of the CR has been calculated as below:

Results

Concession Period	30 Years
Construction Period	2.5 Years
Moratorium Period	3 Years
Loan Repayment	10 Years
Economic Internal Rate of Return (EIRR)	2.55%
Project IRR	1.47%
Net Present Value	@ 12 % discount
Total Project Cost	Rs 11,298.26 crores
Grant in %	3%
Grant in Rs.	Rs. 338.95 Crores Premium quoted Annually

There is further confusion in the statement that follows in Paragraph 15.9, "From the Financial analysis results it may be concluded that, the construction of the proposed CR is financially not viable on Build Operate Transfer (BOT) Basis."

It is stated on page 154, "NOC from High court is also required in reference to PIL 87 of 2006.The final order dated 21/09/2006 accessed on Bombay HC website in respect of PIL 87 of 2006 states, "We are afraid, the subject matter of the writ petition cannot be said to fall within the domain of Public Interest Litigation. We dismiss the writ petition accordingly." Do we need any further evidence to show that the whole DPR is fudged to enable the road being made "under guidance of Hon'ble Additional Municipal Commissioner (Eastern Suburb)"?

In the EIA, different figures of sea level rise have been quoted, when sea level rise is the most important point to take into account while planning this road. The EIA should have worked out the Social Internal Rate of Return (IRR) also.

● **Meenakshi Menon**

(Media & Communications Expert; Founder & Managing Trustee of NGO Vanashakti)

The Coast Road: Progress or Perdition for Mumbai

The fundamental problem is that there is no clarity about the purpose of the proposed Coastal road. It is meant to be an expensive promenade along the Mumbai coast or is it meant to be a system for efficient transport of people from Nariman point to Kandivali/ Malad? Is it the new "Icon" for Mumbai replacing the Bandra Worli Sea link or is it a means to unlock valuable CRZ hampered real estate on the western coast.

Given the lack of clarity on the objective of this Rs 12,000 crore flight of fancy let us assume that it is supposed to be a modern efficient mechanism to permit the easy efficient flow of automotive traffic between Nariman Point & Kandivali/ Malad.

It is with this as the basic premise that I will proceed to share my opinion built on the basis of the submi00ss..ions & discussions that took place at the IPT on October 9, 2015

1. The City needs Public Transport

Greater Mumbai with an estimated population of 14 (as of 2015) million has a public transport system that is overwhelmed. At one time the Public Transport system of Mumbai was the best in the country. The combination of the trains (western & central suburban) the BEST buses made it easy for the average mumbaikar to move from place to place.

Efficient, economical and easily accessible transport is a fundamental right which today is not available to the vast majority. The CR does not fulfil these key criteria.

It is not Efficient

The importance of Nariman Point, indeed the entire South Bombay has been declining. Businesses have moved out of here. There is no new housing stock given many areas such as Oval, Cooperage, Marine drive & Colaba causeway are heritage precincts. Thus South Bombay from Haji Ali South is predominantly residential area along the western shore. The commercial hubs of Bhuleshwar, Crawford market & Ballard estate are serviced by bus routes & taxis. Parking in these areas is impossible. Most of inflow of people has moved to the commercial hubs of Parel, Worli & Saat Rasta which are north of Haji Ali. Why build a road when there are very few people to use it?

It is not Economical

It is estimated that the toll will be between Rs.100 to Rs 400. Even if it is Rs.100. (the BWSL charges Rs 60 per trip) it is unlikely that it will be used by more than 80,000 vehicles per day. The current usage of the BWSL is 40,000 vehicles. While the current projected cost is Rs 12,000 crores, it is extremely possible that there will be cost overruns. To learn from the past, the BWSL cost of construction was projected at Rs 3,000 crores which finally ended up at Rs 16,000 crores! Thus we are looking at a huge outlay of money for just a small group of car commuters.

It is not easily accessible

The 18 interchanges planned for the coastal road are located in extremely congested areas which already have serious traffic clogging. Essentially

the flyovers built across Mumbai have interfered with the traffic dispersion and caused significant bottlenecks through bunching. They have not reduced drive time on the road. The Coast road will add to this horrendous mess. We need to take cars off the roads not create new roads for them.

Public transport is meant for the public and unless it benefits the public (over 50% of the city's population) you cannot call it public. If only a small fraction of car owners in the city will benefit from the coastal road, then it should then be called Premium Private Transport in recognition of what it is meant to be!

2. The Environment

Sea Levels are rising and rising fast. Extensive concretization within the city is preventing groundwater from soaking into the soil forcing it to run off into the sea. Depletion of mangrove cover on the western coast is facilitating coastal erosion. Human interference in the topography of the coastline is also accelerating erosion along the western Coast. Thanks to the BWSL the beach at Shivaji Park has disappeared.

The huge amount of construction required by the coastal road will wreak havoc on the suburbs of Versova, Juhu and even Bandra. The Worli promenade has seen a two-fold increase in wave action over the last five years. Water now crosses a three-lane road and waves crash over the divider at peak tides. Not just erosion but ecosystem destruction will be the legacy of the CR.

The mangroves along the western coast are critical. They are a protective barrier from the winds and the tides. They are a complete ecosystem that creates a microclimate which brings down ambient temperature by few degrees. They are also fish hatcheries and bird feeding and breeding grounds. The very real cost of the environmental damage unleashed by the coast road will be more than the budgeted Rs 12,000 crore when the first tsunami hits Mumbai. World over, coast roads are being removed at great cost and effort since there are enough studies to show that shorelines need to be kept inviolate so that nature can manage the complex process of coastal regeneration.

3. The Social Cost

The Kolis are among the seven original tribes of the city. The desire for expensive beach front housing has squeezed them out of their traditional spaces. They have been pushed into the margins of not just society but also the city. The coast road will be the final death blow. We will lose a critical part of our heritage and the Kolis will lose their livelihoods. Free access to the sea, space for drying fish, space for net repair, boat anchorage and community activities will all be lost. Given that the Kolis are marginalised their voice is seldom heard. This is the travesty of our democracy. The meek are fodder.

Mumbaikars live in cramped miniscule pocket flats. A trip to Chowpatty (the generic term for a beach) is one way of cheap easy entertainment and a big opportunity for privacy for many of our citizens. The CR will have a negative impact on lives of millions of Mumbaikars by denying them free access to the sea. The very spirit of Mumbai is under threat. The sea, the womb of mankind which has seen generations come and go will find her own way to handle the idiocy of our city planners but in the meanwhile some of them would have made enough money for the next 10 generations. Unfortunately, those generations will have nothing to enjoy since we would have devastated our city if this plan goes through.

● **V. Subramanyan**

(Former Professor of Geology, IIT Bombay)

20 presentations were made by concerned stakeholders before 16 Commissioners and an audience of interested citizens. These were grouped systematically under five themes.

All the depositions, except one, were opposed to the proposed Coast Road on various grounds. Interestingly, one of the participants pointed out that the proposal is silent on why a CR.

I had put forth my own views which I am giving below briefly.

It was stated by one of the speakers that the CR would protect Mumbai from erosion. I drew her attention to the large-scale damage caused to the residential buildings by marine erosion at Versova, south of Machhimar in the 1970s when their compound walls were pulled down by the waves, exposing the foundation pillars. It was pointed out that the coast road would not be able to prevent the erosion.

Another speaker had proposed a tunnel from Nariman Point to Worli, excavated using the Tunnel Boring Machine (TBM). I pointed out that, while the TBM is excellent in avoiding the necessity for rock blasting, the alignment he has proposed would cut across the geological fault reported by a geologist in 1968 along the Malabar-Cumballa-Worli hills. Such a 'fault' is capable of giving rise to an earthquake since Mumbai is moderately seismic.

Looking at the stretch earmarked for reclamation around the promontory at Bandra for the Sea Link, I pointed out that reclamation is an exercise that goes against Nature's operation along the coasts in which the shoreline acts as the 'Line of Control' between land and sea. Headlands are subject to erosion and the removed rock is transported by longshore currents, broken down and deposited in beaches as sands within bays. If this 'marine cycle' is interfered with by manmade activities, there are bound to be repercussions. The reduction in the width of the Dadar Chowpatty was due to the last phase of reclamation at Bandra, erosion getting directed to this stretch since it was stopped by reclamation at Bandra. The proposed reclamation is again at Bandra.

If the CR cannot be dropped, it needs to be redrafted thoroughly giving due consideration to all the objections and geological parameters.

● **D. T. Joseph**

(Retired Secretary, Urban Development Ministry, Maharashtra)

1. *Need for detailed and visible consultation with the public*

There is no consultation with the public in a true and active manner for such a huge project, likely to cost Rs 12,000 crores.

2. *Putting the Cart before the Horse*

If the intention is to improve public transportation in Mumbai, one has to consider various options and alternatives to do so. Here it appears that it has been decided to have the CR, and then merely bring up reasons and justification to do the project. Merely saying it will improve the quality of life is not enough at all.

3. *Too little planning of Connector-Roads:*

The connectors to the CR are mostly narrow, and are likely to lead to huge congestion when the commuting car owners try to join the coastal road. Many car-owners wanting to join from, say, Kemps Corner side may, it was said, find it necessary in view of the congestion to go back to Nariman Point and join the CR. What measures are being taken to improve the connectors to avoid this congestion, and unfortunate going backward have not been spelt out, maybe not even thought out.

4. *To Benefit only a Small Population:*

Alternatives like the metro, double-decker roads, BRTS, water-transport etc. should be examined, and the costs compared. The CR appears to cater only to those who travel by private cars. This percentage of those who travel by private cars compared to the total population which travels every day in Mumbai by all modes is minuscule, and therefore such a huge expenditure only for a small proportion of Mumbai's population is unfair, and not justified at all.

5. *Unwilling to Pay the High Toll:*

Toll to be collected for the CR is likely to be in the range of Rs 400 rupees per trip, presuming the rate of Rs 10 rupees per kilometre. It was suggested to take poll of commuters to get an idea of how many would be ready to spend that much amount, and how many would instead prefer to go by existing route. If the number ready to pay this high toll turns out to be low, it might affect the funding of the project. The likely return from toll may affect the viability of the project.

6. Better Vision for Heritage Areas Affected:

Nowadays heritage commands a lot of attention, and invites litigation. The CR affects the Mahalakshmi Temple, Haji Ali Masjid as a place of pilgrimage, Bandra Fort and so on. Without giving details about the ways in which these heritage structures and the views to, and fro, them will be affected, this project should not be taken up.

7. Open Spaces Adversely Affected:

It is claimed that the areas adjoining the ICR and reclaimed will be used as open spaces for the benefit of general public. But it is well-known that slums will take over any such available open and unprotected space. In the absence of clear plans of enforcement against encroachment by unscrupulous slumlords and gullible slum dwellers, this project will only lead to more slums on areas proposed to be kept as additional open spaces.

8. Environment

Environmental safeguards such as CRZ and EIA should have been used honestly and properly to envisage areas in which environment is likely to be adversely affected, and conditions necessary to be observed should have been evolved and remedial measures worked out. Mangroves flourish in an ecosystem that is fragile and once it is destroyed, it is impossible to replicate it. So, extremely detailed research for areas for mangroves to grow and such other species should be carried out in advance, before proceeding to spoil the existing system supporting the mangroves and mudflats.

9. Reclamation

It may be that Mumbai is historically a result of reclamation carried out over different periods of time. But with the modern facilities for research, and the concentrated way reclamation will now be done in large and different areas, it is necessary to build different scenarios in which reclamation will affect in terms of erosion or accretion, and carry out preventive or ameliorative measures.

10. Fishermen

They are resentful that many projects along the coast or off the coast affect adversely their facilities for fishing, fish-drying, repairs of fish-nets, or of vessels used for fishing. Hence detailed information of what would be affected, and how the project authorities would make up for what are affected is necessary. The DPR as it stands, does not seem to have done this.

I am quite aware the foregoing does not do justice to the passion and eloquence with which the public took part in the discussions, the speakers presented their points of view, and the organisers guided the deliberations that day.

- **Dr. Rakesh Kumar**

(Chief Scientist and Head, NEERI Zonal Center, Mumbai)

1. If the objective of CR is to make more people move from point A to B, then it's not serving that purpose. It can be effectively done through multiple options as discussed in the report. Even if we spend a fraction of the money (as proposed) in current public transport system, we would have solved the problem to a greater extent. The current neglect of public transport system and related policy shows that the project is mainly to move cars and not people.
2. Environmental impacts of the project have been very marginally addressed (by looking at whatever documents available). Of those, the major issue which has not been well understood and delineated is the impact on beaches and shores. More so, when we are looking at the climate change impacts which will comprise of high/extreme events and sea level rise. One clear case of small construction which can be seen is: the disappearance of Dadar beach after Sea link related reclamation which changed the current pattern resulting in high erosion.

● **Shirish B Patel**

(Civil Engineer and Urban Planner)

I fully endorse what the other Commissioners have to say in regard to their objections, and the variety of reasons they set out for not proceeding with the project. There is no point in repeating these. Let me consider instead why there is such a powerful drive to go ahead with the Western Coastal Road. This is something some of the other Commissioners have hinted at, but not pursued to a clearly articulated conclusion.

We are now well aware, at least and most emphatically in Mumbai, that we have a government of builders, by builders and for builders. Ultimate control is with this particular interest group. Which political party is in power thus becomes a matter of indifference, and policies and projects can be pursued on a long-term basis without threat of deflection. The driving force is not car owners, although they may well support any scheme that promises easier traffic flow. Instead, it is real estate, and the promise of gigantic future profits.

Imagine Marine Drive replicated many times over, all along the western coast. These high-value residential properties, with unobstructed sea views, would be interspersed with office buildings, hotels and restaurants, gyms and perhaps a club or two. The occupants would hardly need to enter the city to the east for any of their daily needs, so to them the paucity or congestion of cross-city connections would not matter. The Western Coastal Road would be all they need for their daily commute from home to work or recreation or gatherings with their social peers.

Anyone who seriously believes that the green spaces promised along the alignment would remain open and unbuilt upon has only to reflect on the history of Mumbai in recent decades to be convinced that any promised open space is unlikely to remain so. The financial pressure to build on it will be impossible to resist, and who will dare to resist it?

And the builders' lobby will have got what it wants: land for high value construction, opened up by infrastructure built at public cost. As clear a case of government and a particular interest group working in tandem as anyone could ever hope to find.

I would urge that instead of getting distracted by technical deficiencies on this or that aspect of the project we should focus instead on who really wants this project, and why. Exposing these hidden ambitions could be the first step in countering them, particularly when they so clearly run counter to the public interest and promise an increasingly fractured city.

COMMISSONERS' RECOMMENDATIONS

We take exception to the proposed 35-km-long Coast Road being planned at the cost of around Rs. 12,000 Crores by the Brihanmumbai Municipal Corporation.

The road, which will hug the coastline at several stretches between Nariman Point in the south and Kandivali to the north of Greater Mumbai, is anti-people and anti-environment.

It violates Article 21 of the Constitution of India, 1950, which provides that "No person shall be deprived of his life or personal liberty except according to procedure established by law."

It is anti-people because it caters to a tiny proportion of those who use private cars – a minuscule 1.25% of the city's population who might commute along the west coast.

It is anti-people because it deprives the fishing community to its right to livelihood, even barring access to the sea in certain villages.

It is anti-environment because it deprives the common people of that most precious asset in a congested and polluted city – the open vista of the ocean and the clean air along the seafront.

It does not address the fundamental right of citizens, which is the right to know how they will be impacted by a major infrastructure project which will alter the face of the city irretrievably.

At no stage has the Municipal Corporation had a single public hearing to inform those affected who live and work along the west coast, and the public at large, about the details of the project.

There is a deficit in public trust as a consequence and almost every other day, the public is informed of major changes in alignment and technology and even the route itself. This smacks of arbitrariness which hardly befits the status of "the *urbs prima in Indis*".

Unlike in the case of the Development Plan 2014-2034, for which there were public hearings in each ward, the Coast Road is going through without consultation. It was through an unprecedented assertion of public opposition that the original DP was scrapped. The right of citizens to deliberate on such projects have been violated in the case of the road.

From every viewpoint – democratic governance, the rights of fisherfolk in their koliwadas, the absence of a proper Environmental Impact Assessment, the observance of planning principles and proper traffic management – the proposed Coast Road fails on all fronts.

We therefore demand that the project be scrapped forthwith.

Justice (Retd.) Hosbet Suresh	D.M. Sukthankar
Meenakshi Menon	V. Subramanyan
Sunil Shanbag	Ajit Ranade
Ramchandra K. Patil	Jamsheed Kanga
Gerson da Cunha	D.T. Joseph
B.C. Kharua	Shirish Patel
Shabana Azmi	Major General Sudhir Jatar
Nikhil Wagle	Rakesh Kumar

• C. DEPOSITIONS

1. PLANNING

The CR is a project that is likely to be counterproductive from the perspective of transport planning, wasteful from the perspective of financial resources, and disruptive from the perspective of the environment and social ecology.

The CR can be evaluated along the following lines:

A. Its aims and assumptions

B. Its claims of being a public good with "societal benefits"

C. Opportunity costs

D. Inherent iniquities

E. Socio - economic and environmental impacts

A) Aims and Assumptions

The CR is justified as an attempt to decongest the city's traffic and improve mobility along the Western corridor. Increased road space generates traffic, and that the best way to tackle congestion is to make private transport expensive and inconvenient. However, the project is based on a mindset that is aimed at promoting private automobile use. The CR's proponents assume that car ownership in the city will grow at the rate of 2% for the next 20 years irrespective of policy interventions. Mumbai cannot sustain car ownership beyond current levels, and arresting or even reversing the rapid growth of automobiles has to be the thrust of policy and planning. Already, the annual increase in car ownership is about 6.4% (up from 5.5 lakh private four wheelers in 2010 to 7.2 lakh in 2014) while public vehicles have increased only at 0.9% annually. The increase in fuel consumption has increased, as a result, by 12.4% annually, a dangerous trend in a rapidly warming planet.

The absence of a comprehensive parking policy is an enormous subsidy to private car owners. Parking in a city with some of the highest real estate prices is given away for almost nothing. If we assume 3 parking spaces per car and about 20% car ownership in the city by 2034, the city will require about 20,000 hectares (ha) of built up space only for cars, in a city starved of land for homes, amenities and open spaces. A square metre of residential space in Mumbai may easily cost up to 50 times the same area of off-street parking space.

Transport planning ought to be concerned with the movement of people, not vehicles. The CR is designed for moving vehicles, especially those privately owned. While the CR in its most generous projections is estimated to move 300,000 persons per day, an improved bus system (with a BRTS on existing roads) can provide an additional 800,000 trips per day, while implementation of the Mumbai Urban Transport Project (MUTP) III (two additional tracks on the suburban rail system) can increase passenger trips by 660,000. Other measures like car-pooling can both reduce congestion as well as increase passenger trips by 100,000 persons. Apart from being easier to implement, and less polluting, these alternatives together will cost less than 60% of the CR. In other words, the Rs. 12,000 crore transport infrastructure cannot be justified on grounds of transport efficiency.

B) Public Good or Private Amenity?

Mega projects in the city almost always create net

benefits for some people and costs for others - and therefore have a heavy burden of proof to bear in terms of their overall benefit to society as a whole. The CR has been argued as a public good - the Detailed Project Report (DPR) predicts that there will be "societal benefits" as it will reduce vehicle operating costs, travel times, accidents and environmental pollution.

This argument is highly misleading for two reasons. First, it fails to account for the externalities of the project, and does not consider and evaluate the negative consequences of the project which may be more significant than the gains. The CR will result in the disruption of neighbourhoods and loss of livelihoods of coastal communities; it will result in an increase in pollution due to growth in traffic, it will impose costs on the city in terms of increased parking requirements, it will have incalculable local and larger environmental impacts, and so forth.

Secondly, the project will expend public resources to serve roughly 1% of the city's privileged residents. The CR is, for that reason, not a public good - such as mass transit or social housing - - but a transfer of wealth and subsidies to the rich.

The CR has been justified in its earlier (2011) or Joint Technical Committee version ("JTC version") as well as the latest (2015) Detailed Project Report version ("DPR version") as having other benefits such as the creation of "green open spaces," reduction of "health hazards" due to reduction in pollution as well as public transport benefits through the introduction of the BRTS. The problem, however, is that there are already quite a few natural open spaces along the coast that will be built over by the project, to be replaced with promenades and parks along the highway.

Furthermore, access to public spaces and proximity to residential areas are crucial to the functioning of waterfront recreational areas. An eight-lane highway with uninhibited traffic is quite different from a Marine Drive or Carter Road where pedestrians can prevail over cars. The only way these new reclaimed promenades can be accessed will be through underpasses across 50-60 metres of road, making them highly unattractive. Already, the poor use of the promenade in Bandra Reclamation shows the ineffectiveness of such projects. Access to the sea that is now available to thousands of visitors will also be cut off due to a sea wall, providing fine views to motorists but a massive barrier to residents.

The BRTS has been thrown in to silence public transport advocates. The use of a BRTS must aim at reducing car use and shifting people to buses for quicker, cheaper and more sustainable mobility. A BRTS typically helps relieve congestion through modal shifts on existing arteries. Moreover, being on the edge of the city, the catchment area for the BRTS system on the CR will be quite limited. The DPR version of the CR also proposes multi-level car parking facilities with the assumption that people will drive to the Road, park their cars and take a bus.

C) Opportunity Costs

Another important question that requires asking is what is the opportunity cost of this project? In other words, what has been foregone as a result of this choice to build a Rs. 12,000 crore road for motorists? The city is overwhelmingly in need of public spending for the improvement of living conditions (slum improvement), sanitation and drainage, basic services, public transport, healthcare and education, among others. All of these are

opportunities lost, and all of these are ignored because they are redistributive measures. What is the cost of ignoring these choices? None of the reports justifying the projects make any such assessment. Only two alternatives are presented - build the CR or do nothing. There are many good alternatives to facilitate the mobility of millions of commuters along the Western corridor that are more efficient, more economical and more sustainable. The CR is not one of them.

Floods in 2005 resulted in the death of 546 people[2] and caused widespread damage, but despite being ever more vulnerable to flooding, the new drainage system lies incomplete, under construction for almost 20 years. The CR will increase the risk of floods due to massive reclamation of mangroves and wetlands, and hard construction along the coast. How much will it cost to not build the stormwater system?

According to the 2011 Census, 1.13 million households (42.6%) in Mumbai live in what a Government report termed "housing poverty," living in "unacceptable physical and social conditions." 72% of households in the city live in single room accommodations or without any exclusive room. Mumbai's primary health system is highly deficient with a requirement of at least 199 new health centres as per National Urban Health Mission (NUHM) norms. How much will it cost to not improve living conditions in the city and improve its health infrastructure?

D) Socio-spatial Inequities

The CR cannot be financed by tolls simply because it will have restricted use (being a car-only project). Tolls will not pay for maintenance, lighting and security - notwithstanding the projections of the DPR. If tolls are increased to the BWSL levels (Rs. 10/km), usage will drop. This means that public money will finance the project.

And even if the project is financed based on the 'user-pay' principle, the consequence is an exclusive, two-tier system where the privileged enjoy improved, but costly infrastructure while the poor have to make do with low quality facilities. This sort of development also serves to price the poor out, further shrinking the minuscule public realm in the city.

It would be better if, by some means, one could take a poll of the future users of the Road, and ask them if they would be prepared to pay Rs. 400 to travel one-way. If the majority says no, the rationale of the government for building the road drops.

Ultimately, the real aims of the coastal road have to do with the interests of global and local investors, developers, wealthy home owners and middle class commuters. Net benefits of the project will be predictably picked up by lenders and financiers, for whom big infrastructure projects ensure public guarantees on investments; by car manufacturers, for whom road construction is an indirect subsidy and the city a potential market; by developers and real estate owners, for whom the highway represents increased real-estate values along the coast and in the suburbs to profit from; and by car owners, for whom it is a much desired device to leapfrog the "undesirable" parts of a complicated city.

E) Externalities

In addition to its narrowly targeted benefits and irrationally high public investment, the CR will

2 http://cat.org.in/index.php/site/article/concerned-citizens-commission-an-enquiry-into-mumbais-floods-2005

have incalculable social and environmental costs. These costs will be borne by others: the disruption of neighbourhoods and livelihoods of coastal communities as costs borne almost entirely by the poor, environmental impacts and pollution costs by current and future residents, the need for more parking facilities and infrastructure as costs to the city.

Livelihoods of more than 35,000 people depend on fishing, a large number of who inhabit the western coast of the city. The CR will in some cases put an end to fishing activity. The entry and exit ramps to the northern tunnel between Moragaon (north Juhu) and Khar Danda fishing villages lie on the beaches of these villages, indicating the disregard for the habitats of the city's working poor. In addition to these direct impacts, fishing as a whole will be affected due to reclamation and construction.

The efforts to "beautify" and "landscape" the coast are an attempt to transform the productive functions of the coast into leisure and recreational functions, to suit the lifestyle needs of middle and upper income groups, and render them unusable for the livelihood needs of coastal communities. As the city is re-organised for the tourism, leisure and entertainment sectors, productive uses and communities that depend on them are pushed out from the city core to be replaced by monumental waterfronts, recreation zones and tourist attractions.

One of the arguments used to justify the CR is that it will help improve the "quality of life" in the city. Quality of life however is a function of the city's vibrant and inclusive public sphere, not an indication of private luxury or consumption. To cite Enrique Penalosa, the ex-mayor of Bogota who introduced a highly successful BRTS, quality of life is in fact a function of the city's public sphere, not a function of private luxury. And as the American urbanist Janes Jacobs put it in the 1960s, if the city does not restrict the automobile, the automobile will eventually erode the city.

The artificial link between car ownership and quality of life is mistaken as well as dangerous, since apart from devouring land space for roads and parking, cars are also notorious for guzzling oil and warming the planet. Despite this, Mumbai's planners are looking for an urban transformation that will convert a dense city with high concentration of uses where 78% of non-walking trips are made on public transportation systems - one of the highest in the world - into a sprawling, energy hungry urban agglomeration infested with cars.

The tendency to pour big money and launch grand projects as solutions to problems that may require simpler and less spectacular interventions has often been detrimental to practical and inclusive urban development. The complex nature of the transport system requires a tentative and experimental approach, not massive rewiring.

The NGO Action for Good Governance & Networking in India (AGNI) had done a survey a few years ago regarding what were the top four concerns on the minds of Mumbaikars of which traffic was listed as being one. Even someone who travels in a very congested train thinks about the rush hour traffic. If indeed traffic is such a big factor, and yet we are saying de facto 30% growth in four years and if nothing is done about disincentives it will grow. One wants to know what is causing this behaviour.

In 1994, Atkins had done the Mumbai Metropolitan Region - Comprehensive Transport Study. It was working on a projection of 21 million people in 2015 in the region, which comprises 4,355 sq. km.

It said the government should build no more roads in a north-south direction; all new roads should be east-west links. Preferably no new freeways should be built. It asked to augment rail infrastructure, impose parking charges, congestion prices and so forth, connect CST with Churchgate. On the other hand, in 2005, when World Bank did a study, it came up with the opposite conclusions. Technical experts should be technical, objective.

The only access the public has to this project is through the DPR. It has never had the opportunity to meet any bureaucrats or planners. The DPR talks about how and where, but not about why. Why this project is nowhere mentioned. Where it will be constructed, where would the interchanges be and how it will be done?

One has to see what the present traffic conditions are. Our roads are wide enough, especially after concretization of most of the arterial roads. Road widths are not at all optimized. If there are four lanes, we use three; if there are three, we use two. Look at the classic example: SV Road was built so many years ago. We have built Link Road, which is almost three times wider, but it takes more time to travel from Andheri to Kandivali on Link Road. Similarly, there is no discipline for traffic, which is very important.

The municipality has a budget of Rs 2,000 crores only for repairing potholes. This is fundamentally wrong. While there is need to regulate ownership of cars, in Singapore your property is directly connected with the license of your car.

What are the precedents of this project? The latest is Eastern Freeway, which has been constructed from Mankhurd to Fort. It is almost identical to this project. This is west coast, that is east coast. It has not reduced traffic a bit, as far as Ghatkopar or Chembur or Mankhurd or such areas are concerned. It is just adding some more traffic.

We had been told when the flyovers were made on Western Express Highway, you would reach the airport in 10 minutes from Kandivali. Today, with ten flyovers in just 15 km, these flyovers are a holding space for cars. In peak hours, they're not really used as a highway. Even the BWSL link does not address the point to point distance.

Another issue is cost escalation. The public is told that Metro One cost Rs 2,300 crores till almost it was completed; that went up to Rs 4,300 crores. One fails to see why this Rs 2,000 crores was necessary and who is paying it. Civil construction costs have not gone up that much, Costs of cement, steel etc. have not risen so drastically. There is absolutely no accountability.

The DPR says, in dealing with finance, that construction will be completed is 30 months. The persons who have drafted this report should be put to task. Whether it is a Metro, a sea-link project or a simple road, escalations are inevitable. It is time there was accountability and punishment for lapses.

What are the alternatives? The Sewri-Nhava Sheva Trans Harbour Sea Link is one. The CR does not lead to the creation of a new land mass. Any project of this nature should open up new boundaries, like from Mumbai to Navi Mumbai; here it is a parallel road. Why not Nhava Sheva, where across the harbour we have still affordable properties. The government has been talking about it for the last 15-25 years. After having received the CRZ Clearance for this project in July, 2013, the Hon'ble NGT kept the CRZ Clearance in abeyance until the final EC is granted to the said project.

Another partial solution which is practical, sustainable and economical for the distance

between Worli to Nariman Point is an underground tunnel. This will circumvent the problems posed by the CR. In comparison to a length of at least 13.2 km for an elevated road and 11.7 km for a surface coastal road, the tunnel would be just 9 km. Assuming the projected 20,000 trips per day, the impact of a shorter distance will be experienced in savings in trip times and a massive reduction in the overall carbon emissions. In addition to the long term benefits, an underground tunnel is largely non-intrusive during its construction and operations, and would be integrated into the existing road network through appropriate entry and exit points. Its capital cost is larger at Rs 300 to Rs 350 crores per km, but the operating costs are much smaller. So a 9-km-long tunnel could cost about Rs 4,500 to Rs 5,000 crores.

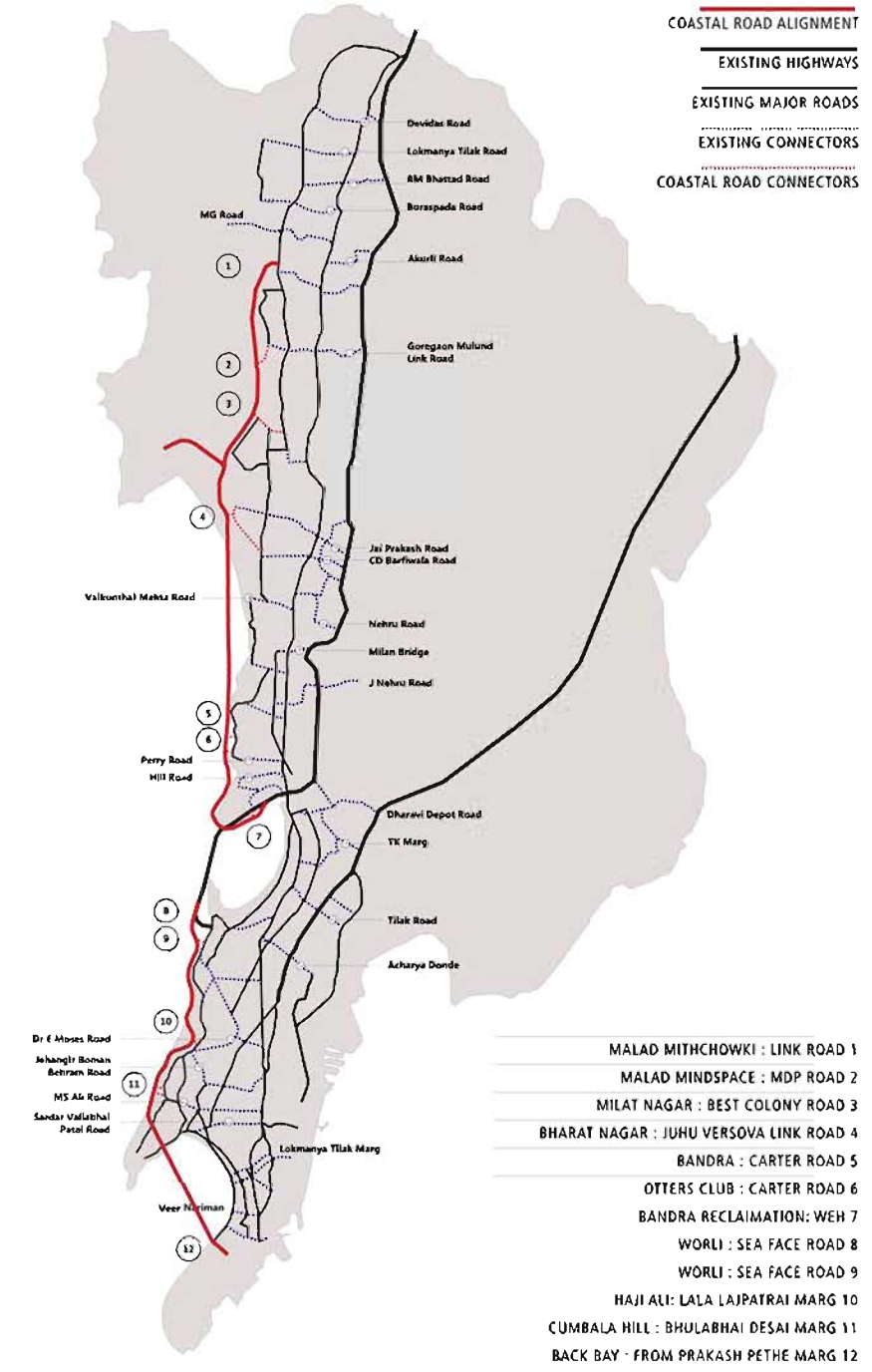
However, there are geological problems around building a tunnel. If at all a tunnel is feasible in that section, there might not be the need for a tunnel all the way to Nariman Point because Nariman Point has declined as a Central Business District and with that, traffic has also declined. Marine Drive is today wide enough to take the traffic. The problem is only the Peddar Road bottleneck. And the bottleneck causes backup of traffic on both sides. The choke is actually only the bottleneck. If one de-bottlenecks this road, one has a solution. There could be a coastal road or only a tunnel under Malabar Hill in the original plan, a small tunnel 600 metres long, or a tunnel below Peddar Road. The last can end at Tambe Chowk, just beyond Babulnath. There is absolutely no need to go to Nariman Point for another Rs. 2,000 crore tunnel. Marine Drive is wide enough to take that load.

Fungible FSI - revenue from selling additional floor-space to builders -- will be funding a part of the project. Fungible FSI is charged when FSI is given for flower-beds etc., which are not liveable space. In 2013, this FSI was made chargeable and at a premium. The BMC earns about Rs 3,500 to Rs 4,000 crores a year as incremental revenue.

People who live on the western seafront are in mostly posh buildings. Prices are going to skyrocket in these areas and the builders are going to benefit. Whenever there is any new public infrastructure, immediately one sees announcements in the press that such properties are going to be within 2 or 5 minutes of such infrastructure. It is a marketing strategy and builders jack up prices. The government should levy a premium on these buildings to capture a part of the incremental value from these properties to fund the project. People who are going to benefit from this project should pay.

Summarised by Darryl D'Monte and Hussain Indorewalla

ALIGNMENT OF COAST ROAD



Greater Mumbai Proposed Coastal Road Alignment and Connectors Map

The CR begins at Nariman Point. There is a tunnel through Chowpatty Bay, which goes below Malabar Hill. It emerges just to the north of Priyadarshini Park. It is an eight-lane tunnel for an eight-lane highway. Then the road is a reclaimed all along Nepean Sea Road and Warden Road, right up to Mahalaxmi. All the area between the shore and the CR will be reclaimed. There are a few connectors from Warden Road to the CR. All these points are likely to become bottlenecks or congested areas because the feeder roads that are connecting the coastal road connect to existing road that do not have the capacity to take that much traffic.

The CR will form a reclaimed edge along the headland on which Mahalaxmi temple is located. The road will be considerably raised above the existing sea level on a 3.5 metre high sea wall and will cut off the existing water edge and temple from the sea. In fact, it will be a barrier, completely blocking off the city from the sea. Around Mahalaxmi Temple it enters Haji Ali bay. It is partially a reclamation and then it will ramp up and run on stilts. There is a tangle of connectors and feeder roads in Haji Ali Bay so this is likely to completely obstruct the view of the Dargah from the existing city. Also, no one knows what will happen is to pilgrims who will probably have to take an underpass below the road to access the Dargah.

The next stretch from Haji Ali to Worli is a reclaimed along the Worli sea face. It will connect to the sea-link, which has already been built. The sea-link road connects to the Bandra reclamation. From there, again, the CR is a reclaimed around the Lands' End, near Bandra Fort, an archaeologically significant, protected monument. The Fort is an important public space, not just a local landmark for Bandra residents, but also an important landmark for the city. There is an unhindered view of the sea from the Fort today. The CR will be reclaimed around the rocks that surround Bandra Fort and it is likely that once built, there will be an unrestricted view of a freeway instead of the sea. People come to the Fort every day for the sea breeze and the sea view.

The next stretch is Bandra Bandstand and Land's End. It is a rocky beach. The coastline of Mumbai is not homogeneous or uniform. It consists of a number of natural features. There are headlands, bays, rocks and sandy beaches; there are also estuaries with mangroves. The coastline is quite diverse.

And there are also fishing villages along the coastline and important historic sites. So the natural heritage of Mumbai will be significantly altered as a result of the road. Most of the rocky beaches will be reclaimed and entirely concretized. The open space that the authorities are planning to create as a result of the reclamation will be between the highway and the existing land. All the space in between will be reclaimed as open spaces. The authorities are saying that it will improve environmental quality and they are planning afforestation etc. The rendering from the DPR and the EIA Report actually show that most of these are concretized landmasses. What is likely to happen is that Mumbai's entire waterfront will be entirely concretized and there will be a sea wall which will separate the city from the sea. Another thing that was mentioned in the EIA was that the coastal road will provide an unhindered and exclusive view for commuters. So they are not really concerned about citizens or people living in the city, but are more worried about the sea view that

commuters will have.

Carter Road is a very active, vibrant public space, adjoining the suburb of Bandra. A lot of people come here, not just people from Bandra, but it's also an important public space for the city. In this stretch the coastal road will be a road on stilts up to Khar Danda fishing village, where it ramps down and then there is a cut-and-cover portion. After, there is an undersea tunnel right up to Juhu. Even though this road is on stilts, there are two connectors from Carter Road, which will connect to the stilted road. One is over a fish drying area and another over a stretch of mangroves. This is also likely to disrupt the existing Carter Road promenade. This is a narrow road and the kind of traffic, congestion that will be created at these points will create a lot of difficulties for the residents. At Khar Danda fishing village, there will be a reclamation in front of the fish drying areas. Most of the koliwadas will be losing their access to the sea due to the creation of such reclaimed waterfronts.

The road then becomes an undersea tunnel and it emerges at Juhu beach. Juhu Moragaon fishing village is at the northern end of Juhu beach. The road emerges right at in front of Juhu Moragaon fishing village. This is a cut-and-cover portion, an excavation on Juhu beach to construct the ramp that will lead to the undersea tunnel. The ramp joins a road which is on stilts over the mangroves. This will result in a significant destruction of the Juhu beach and will also result in a complete loss of livelihood in Juhu Moragaon fishing village. People living behind the seawalls on the one-km-long southern and northern ramps will lose visual and physical access to the sea.

The CR then becomes a stilted road on mangroves. It crosses Juhu, and Andheri and Versova. In Versova, it actually goes over the Nana-Nani Park. A lot of residents in Versova are actually opposing the road because it is a very popular park. Most of the residents in Versova use the park. It is an important public space. The CR will be a stilted road, an eight-lane freeway over the park. It will be impossible for the trees to survive without light. The park may be completely destroyed and converted into a parking lot.

The CR comes as a stilted road, goes around Versova fishing village -- one branch goes northward towards Malad and Kandivali, while the second branch connects to Madh Island. It crosses over Malad creek and connects to a road in Madh Island. Most of the area at Madh Island, Aksa and Marve was a no-development zone in the 1991 DP. It has a lot of natural areas, fishing villages and also a lot of coastal commons and natural features. Most of this area has also been experiencing speculative development and real estate pressures. Once the coastal road connects it, all this area will also be opened up for development. In the new Development Plan, the area was given an FSI of 2.

The CR then is a stilted road, partly landfilled over mangroves adjoining Lokhandwala, it then comes to Malad Creek. It goes right through the creek. It is partly a stilted road, but a significant portion of the road is landfilled right in the middle of Malad creek, all the way along the length of the creek right to the mouth. They are reclaiming the creek. There are mangroves on either side. On one side of that there is the Malvani Resettlement Colony and on the other is Mindspace. It is likely that eventually all the land in between will get reclaimed. So even though the DPR says only a small amount of mangroves is being reclaimed,

it is likely that most of the mangroves will die out. In fact, the creek itself will cease to exist.

This has significant repercussions. One is that there is reclamation down south, which is likely to result in erosion in beaches in the north. There is significant erosion that is estimated to happen in the Juhu and the Versova areas. In fact, the city might lose an important public space like Juhu. It might entirely be lost due to erosion. There is a precedent for this. Reclamation during the BWSL and Bandra Reclamation had led to severe erosion of Dadar Chowpatty. This is likely to happen to the beaches in the north of the city. In that sense, the city likely to lose this public space.

As a result of constructing landfilled roads within creeks, these will be entirely destroyed. Mangroves are also important because they hold water during the monsoons and floods. The EIA report mentions that if so much reclamation had not happened during the construction of the Bandra-Worli sea-link and the Bandra reclamation, it says that fewer people would have died during the Mumbai floods. But despite that, the authorities are planning to reclaim land. In fact, dilute CRZ regulations to allow stilted roads and also reclamation in mangrove areas. This is putting the city and its citizens at peril.

Finally, the CR comes from Malad creek, crosses the Malad-Marve road and joins the Link road somewhere in Charkop or Kandivali. Link road is already congested. The road will also cause severe traffic congestion at all the points where it connects to existing roads. Mumbai has historically not been planned as a car-centric city. It has evolved, there are different kinds of neighbourhoods -- many of them are gaothans and koliwadas. Even in the DP today, there is a lot of road widening proposed through such areas. Widening of existing roads have also been proposed. So the CR will not only have impacts along its route but will also significantly transform the existing character of the city as it exists today and also cut off the city which has historically been a waterfront city from its coastline.

Severe flooding is expected during the monsoon, especially during high-tides in all the upstream areas like Andheri, Goregaon, Malad, Jogeshwari, just as the Mithi River flooded in 2005.

- by Shweta Wagh

2. FISHING COMMUNITY

Impacts on Koliwadas

This chapter summarises the depositions presented and discussions which took place during the session: Impacts on *Koliwadas*. It examines the specific impacts of the Coast Road (CR) on *Koliwadas* or fishing villages. Being located along the coast, these villages provide homes and work to the indigenous fisher community and other coastal communities who depend directly on the coastal resources for their livelihood activities. Some of the questions that were raised during this session were: to what extent is the livelihood of fishing still practised in the city? How vulnerable are coastal communities to environmental changes along the coast? How does the CR affect the coastal environment and communities? How are the existing policies for the protection of coastal environment and livelihoods being diluted for the CR? Who will bear these costs and who will reap the benefits of the CR?

All those who deposed during this session, including community representatives/ experts, spoke against

the CR. It was evident from their depositions that of all the stakeholders in the city, the Koli community stands to be the most affected due to the construction of the road.

The depositions made during this session highlighted the following points. 1. Importance of fishing as a livelihood in Mumbai, 2. Nature of impacts of CR on koliwadas 3. Environmental destruction and loss of livelihoods, 4. Impact on the coastal commons and fish drying areas, 5 Impetus to speculative development along the coast, 6. Dilution of the CRZ protection legislations, 7. Absence of requisite Environment/ Social Impact Assessment, 8. Lack of public accountability, participation and engagement with local communities during the conception and formulation stages of the project.

(1) *Importance of Fishing as a Livelihood in Mumbai*

Fishing is a thriving industry in our country and despite Mumbai being a large metropolis, a significant number of people in the city are still dependent on this primary occupation. According to the Census of Marine Fisheries in 2003, Mumbai has 23 active fishing villages and as per the census more than 35,000 people depend directly on fishing or related activities for their livelihood. The estimated number of fishing boats in the city (city (both registered and unregistered) adds up to about 6,000. A large number of people are also engaged in ancillary activities related to fishing such as ice factories, diesel provision, overseeing the functioning of local institutions, fish-markets and drying, packaging or trading of fish. Fishing, thus is an important economic activity in the city.

(2) *Nature and Scale of Impacts of CR on koliwadas*

Experts pointed out that the CR will have three kinds of impacts on the coastal environment and coastal communities: 1. Direct short term impacts, 2. Indirect short or medium term impacts, and 3. long term impacts. Direct Impacts include (a) Impacts due to construction of ramps to underwater tunnels, (b) loss of coastal commons and access to the sea due to reclamation and construction of a sea wall, (c) loss of fish drying areas due to alignment of Coastal road/ connectors, (d) impact during the construction phases of the project. Indirect short or medium term impacts include:(a) loss of coastal resources, habitats and fish-breeding areas, (b) beach Erosion and loss of foreshore areas for ancillary activities, (c) flooding/Water-logging in low lying, areas and fishing villages, (d) Impact on Koliwadas and gaothans due to proposed roads and road widening. Long term impacts include: (a) Impacts of speculative development, (b) Increase in vulnerability and impacts due to climate change

Although it is being argued in the DPR for the CR that the project will directly affect only two fishing villages, it is anticipated that the CR will affect fishing along the entire western coast of Mumbai and about 15 villages which lie along the city's western edge.

(3) *Environmental Destruction and Loss of Livelihoods*

The CR which is a 34.56 km long project which proposes to reclaim land, build stilted roads and construct underwater tunnels will have an enormous impact on the delicate ecology of the western coast. Reclamation will not only destroy rocky beaches and mangroves which are habitats for fish breeding and thus important for coastal livelihoods but will also increase the threat of erosion of sand from beaches in other areas. Landfilled roads and roads on stilts through creeks and estuaries will destroy large stretches of mangroves which perform several important ecological functions such as purification of water,

flood control and climate control. The drilling of tunnels in the shallow sea bed is both risky and expensive. Contrary to the notion that the road will form a protective barrier and protect the city from sea level rise due to climate change, the reclamation for the sea wall which is not continuous will divert sea water to other areas and cause flooding. The CR will thus end up making the city even more vulnerable to risks due to natural hazards.

(4) *Impact on the Coastal Commons and Fish Drying Areas*

Lives and livelihood of the fishing community is closely related to the use of lands along the coastline, including beaches and intertidal areas in the vicinity of the villages which constitute the coastal commons. These lands which have traditionally been used for productive functions such as fishing and ancillary activities including drying of fish, docking, parking and mending of boats are faced with the threat of being enclosed, privatised or converted to recreational uses once the road is constructed. One of the arguments used to justify the project is that reclamation will create new land for fish-drying and will be advantageous for the fishing community. But based on their past experience of common lands being enclosed and appropriated by developers and private interests, the fishing community is doubtful that the reclaimed land will be reserved for their use.

(5) *Impetus to Speculative Development along the Coast*

While the Kolis have been systematically penalised for reconstructing their houses or expanding their homes in open areas adjoining the koliwadas, encroachment of mangrove lands by developers to construct high-rise apartments for the rich has been allowed to take place in blatant violation of existing protective laws and policies. The CR has already given impetus to speculative development in the Madh Marve region which will be connected to the mainland by the road. This is evident from several real estate advertisements in local newspapers. This needs to be looked at in conjunction with other proposals such as road-widening projects and proposed new roads in Gaothans and Koliwadas in the draft development plan, increased FSI, efforts to designate of Koliwadas as slums so that they can be brought under the SRA, opening up of coastal areas protected as No Development Zones (NDZs) in the previous development plan. The fishing community sees all these as efforts to appropriate their land and redevelop their villages into high-rise complexes. They are concerned that while the city is severely lacking in basic infrastructure and services, permission is being granted for this kind of indiscriminate construction activity.

(6) *Dilution of the CRZ and Coastal Protection Legislations*

In February 1983 the Government passed a resolution granting the permission for government lands in the vicinity of fishing villages to be used for fish-drying and fishing related activities. This was the result of a struggle by the fishing community to claim their rights under the leadership of Bhai Bhandarkar. The CRZ legislation for the protection of coastal resources and livelihoods had been won after a countrywide agitation by the fishing community organised under the National Fishworkers Forum (NFF). The fishermen had agitated again in 2010 when this legislation was about to be diluted and amended. The stilt roads, tunnels and reclamation proposed in the CR are a violation of the CRZ. By exempting the project from CRZ regulations the MoEF and Government is undermining existing coastal protection laws which have been won due to a

long and sustained struggle by the fishing community. This is being done for a project that is hardly in the public interest.

(7) *Absence of Requisite Environment/Social Impact Assessment*

Any new project of such an enormous scale and proportion that is likely to impact livelihoods or habitats of the city's fishing community needs to be carefully evaluated and a detailed independent socioeconomic impact assessment needs to be undertaken. This has not been done. Besides the concept of an EIA is that it should begin with an analysis of alternatives for the project to evaluate which option entails the least cost, least damage to environment and least cost to the social infrastructure. In this particular case they have only two options: to build the road or to not build it. Although the report enumerates in detail the consequences of the project, the mitigation measures that the EIA report proposes, such as compensatory afforestation or mangrove plantation, seem trivial in comparison. The EIA report of the CR seems like a farce, and in the words of one of the commissioners, "it is almost equivalent to doing a post-mortem for the project" and using it to justify it, as opposed to being a fair evaluation of options based on their consequences.

(8) *Lack of Participation and Engagement with Communities*

The fishing community is not opposed to development per se, but they oppose the CR which has been aimed at addressing the mobility and needs of the upper classes and has been conceived and planned without any consultation with coastal communities. Despite the fact that the greatest burden of the coasts of these projects will be borne by them, they will derive almost no benefit from this so called public infrastructure project. The Koli community is apprehensive about the undue delay regarding the demarcation of fishing villages in the land use plans for the DP or the Coastal Zone Management plan which will enable the protection of their villages and commons. It is also concerned about the general lack of transparency when it comes to decisions that will affect them and have also raised concerns about the state often working against their interests. As a crucial part of the city's living heritage, provisions should be made to protect and conserve its historic urban fishing villages but instead this project seems like a threat to their survival. The community has therefore unanimously decided to oppose the project and will protest in large numbers and or even go to court to prevent this project from being executed.

- Summarised by Shweta Wagh

3. GOVERNANCE

The first issue is really the people's right to know about the CR There has been a deafening silence, except for the detailed project report.

The BMC has subsequently incorporated the alignment of the CR into the 20-year Mumbai DP from 2014-2034. But the DP was discarded when experts and citizens pointed out hundreds of errors, omissions, shortcomings and contradictions.

While the stage was set for preparation of a new DP, the CR was put forward and the citizens of Mumbai were given one month to send in their views and objections; this was later extended by another month.

The manner in which the CR was conceived and

is being relentlessly pushed ahead as if it is a fait accompli, is a classic example of bad governance. "Governance is a process whereby societies make their important decisions, determine whom they involve in the process and how they render account."

Here, there is a failure to consult with the stakeholders/public and a complete lack of transparency - a struggle to get information. We are only informed that the Ministry of Environment, Forests & Climate Change (MoEFCC) has already given most of the environmental clearances needed for the CR, barring a few to do with the CRZ law, which are in the pipeline. This is a complete travesty of the entire process of governance.

The project report itself does not establish the need for the CR; why is the road being proposed? There are no well-understood credible objectives. However, it does give unjustified precedence to the well-off private car owners (who constitute a really small minority). Even if some car owners on the Western north-south axis of the city use it, they are barely 1.5% of the city's population. Rs. 12,000 crores are to be spent for this minuscule minority. The vast multitudes who use public transport have been ignored. The Government done nothing significant for them in decades. As many as 7 million people use the suburban railway network, on which 10 people die on an average per day. There is a desperate need to improve these services drastically.

With its massive population of around 12 million, Mumbai needs an efficient, economical and easily accessible transport system. It is a fundamental right which is denied the vast majority. The CR will merely be premium private transport for the 1.5%.

The National Urban Transportation Policy 2006 of the Government of India explicitly states that the focus and priority of transport policies and investments in Indian cities, should be to move people and not cars. For a decade and more, we have only seen a violation of that policy in Mumbai.

The CR proponent - the MCGM - is offering it as a solution to traffic congestion in Mumbai. A city the size of Mumbai does not have a functional and well-equipped transport and traffic planning cell in its local government, which is unimaginable in a city of this size.

The deponents also voiced their concern that to build a CR to cater to such a small percentage of population is gross injustice and a waste of public money. The use of citizen's taxes to pamper a few is simply bad governance.

The CR would severely impact the livelihood of the fishing community and Gaothans along the coast, which are some of the weakest and most neglected sections of society (dealt with in subsequent sections).

The CR would also create a huge physical barrier that will disconnect Mumbaikars from the coastline. It will irretrievably change the face of the city. The special identity of the Mumbaikar, who lives by the sea, is threatened.

Clearly there has been no comprehensive EIA study undertaken. No evaluation or consideration has been made for alternative ways of improving the transport system in a practical, balanced and equitable manner.

This CR is not participatory, responsive, consensus oriented, accountable, transparent, effective and most importantly not efficient, equitable and inclusive. All these are the main characteristics of

Good Governance as defined by the UN Economic and Social Commission for Asia and the Pacific (ESCAP).

One of the deponents also perceived that the CR presented opportunities. The main economic objection is to the high cost. But it is part of a network which has been planned as a comprehensive transport strategy for Mumbai. The sea link was an expensive alternative, but this road is cheaper. The Peddar Road flyover has been made redundant by the CR.

While the CR is for private vehicles, arterial roads like SV Road and the Western Express Highway could have a Bus Rapid Transit System (BRTS). Thirdly, coastal communities will be affected. But this is also an opportunity. While reclaiming land for CR, one can reclaim land and create infrastructure for them.

Fourth is the threat to the coastal environment. The CR protects the city against natural erosion, it was argued. The western coast is eroding slowly and the CR Road if designed properly can protect the city. A study conducted by the National Institute of Oceanography says that sea-level rise will affect the north-western coast of the city. We can design a CR to protect the city from this and enhance coastal features such as rocks, dunes and beaches with additional investment.

The real problem is with governance. As members of civil society, we have no faith in our own governance system. The prominent reasons for lack of trust are well known. Mistrust in political and administrative leaders is the most important.

Think of the Konkan Railway, where the leadership of one single person could change the course of the project. We can always demand a leader for this project with impeccable track record like E. Sreedharan. With these caveats, the CR has the potential to become as famous as famous as Marine Drive. However, the commissioners did not accept these arguments in favour of the CR.

- Summarised by Vivek Sundara

4. ENVIRONMENT

No comprehensive Environmental Impact Assessment (EIA) has been carried out. This is pre-requisite for any project of this type. Possible alternative remedial measures have not at all been seriously considered, leave alone objectively evaluated from the point of view of their comparative effectiveness, efficiency, environmental impact, cost-benefit ratio, opportunity costs, etc. Had this been done the CR would have been a non-starter. Consequently, the financial cost of environmental destruction has not been included in the project.

The destruction of mangroves along the west coast of Mumbai will rob the city of its natural protection against cyclones and tsunamis and will make the city flood prone. Coastal Regulation Zone (CRZ) notification for afforestation requires five times the number of mangroves that are being destroyed to be planted by the project proponents. In this case only three times the number of mangroves being destroyed are to be planted. In any case, mudflats which are essential for the growth of mangroves are hardly available along the Mumbai coast. The destruction of mangroves and natural features will adversely affect marine life, particularly intertidal marine life and migratory birds which depend on this habitat.

It will alter the course of existing rivers and creeks. This could lead to alteration of low tide and high

tide lines. The CR will completely block natural drainage of water into the sea and will rely on manmade drainage systems. Similar manmade systems have been identified as a major contributing factor to flooding all over the city every monsoon.

The two underground tunnels proposed will also alter the existing geomorphology and cause disturbance to and destruction of the existing open spaces. Altering the existing geomorphology and the hydrological pattern will result in erosions, inundations, and water logging. It will lead to increased flooding of the city and suburbs during the monsoons. We know that Mumbai is under threat from the sea level rise and in the last monsoon more of Mumbai was flooded: Colaba Walls were breached, Worli Sea Face had massive waves, Shivaji Park was flooded and JP Road in Andheri was also inundated.

Reclamation and construction activities have caused damage to the environment, the Detailed Project Report itself states: "The worst affected area in Mumbai is the entire Western Front except Carter Road where the mangroves have grown due to participation of citizens' forums fighting individually."

The CR involves further severe damage to every environmental issue including water, air and noise pollution. A) Water pollution will increase due to blockages of natural drainage system and consequent risk of flooding. B) Additional reclamation, quarrying of hills and illegal sand mining for construction material will cause severe air pollution in different areas. C) Vehicular traffic on the CR will increase noise pollution and also contribute to air pollution. All these factors will have a huge bearing on the health of the city. As it is, Mumbai is one of the most polluted cities in the world.

The CR will as it is cut off the convenient access to the sea for all citizens. The prime feature of the city is its beautiful Western coastline with mangroves, sandy beaches and rocky outcrops. Through citizen efforts partnering with Government, some beaches including Chowpatty and Juhu beach have been preserved and beautified. However, even these and other beaches are shrinking.

The CR will pass in front of the Bandra Fort, an important historical and archaeological place in Mumbai. It will only ensure that the unhindered view of the sea will be replaced by a view of the CR. The CR will also pass in front of religious places like Mahalaxmi Temple and Haji Ali. Reclamation will cut off these historic sites from the sea.

Reclamation is an exercise that goes against nature's operation along the coasts in which shoreline acts as the 'line of control' between land and sea. Headlands are subject to erosions and the removed rock is transplanted by longshore currents, broken down and deposited in beaches as sands within bays. If this "marine cycle" is interfered with by manmade activities, there are bound to be repercussions. The reduction in the width of Dadar Chowpatty was due to the reclamation at Bandra. Earlier Versova had felt the effects of the Backbay reclamation. Alibag too has suffered the effects of changed tide patterns due to reclamation projects elsewhere. Such adverse effects on the coastline north and south of Mumbai have not been adequately studied.

Reclamation in Mumbai has the potential to adversely impact the western coastline due to

changes in tidal patterns and it is against the public interest to even consider granting environmental clearances to this project

- Summarised by Vivek Sundara

5. TRANSPORT

Of the four experts who made their statements on the transport aspects of the Coast CR, one favoured the project, with qualifications, while the three others opposed. Arguments presented in this session were largely evaluative, though alternatives were proposed as well. Analysis and critique of the CR centred around (a) the economics and transport assumptions of the project, (b) the nature and quality of open spaces that the project aims to create and (c) questions of public transport. The alternatives to the CR touched upon issues of (a) parking policy, (b) traffic management, (c) BRTS and BEST, and (d) suburban rail and metro.

ANALYSIS AND CRITIQUE:

(a) *Economics of the CR*

The CR is economically unviable. The project is to be financed through the revenue from fungible FSI, revenue earned by the BMC through selling additional buildable space created next to CR's alignment. The project will not be financed through tolls - and as one expert commented, it is a "criminal thought" to not recover investment through tolls to build an eight-lane highway. The cost of moving only 2 lakh passengers per day with an investment of Rs 12,000 crores is unjustifiable. Energy costs per passenger per kilometre on the CR - which is essentially costs to the passenger as well as the environment - will be about 15 times that of suburban rail, or 7.5 times that of the metro. Over the past 20 years, Rs 5,000 crores have been spent on flyovers in Mumbai, but only 6-8% of the passengers who commute over these roads use the bus, and 92% use private cars. This shows that car owners have been the major beneficiaries. The BWSL and the Eastern Freeway are both used 98% by car users. The use of cars on the Western Express Highway (WEH) has increased in the last 6 years, leading to traffic jams, and effectively reducing the performance of these roads. In other words, money is being spent, it seems, to reduce the number of trips per day. (Buses are not allowed on these roads or are limited.

(b) The nature and Quality of Open Spaces

While the fact that new open spaces are being created was appreciated, what was questioned was the net benefit since many existing open spaces will be defaced to create new kinds of open spaces. The best example of the type of open spaces the CR will generate is the Bandra Reclamation promenade. Typically, there will be a sea wall on the seaward side elevating the road, a promenade, an eight-lane highway and then an open space on the landward side. The only way by which the promenade can be reached will be through underpasses. The problem here is that many of the existing open spaces provide easy access to the sea, while the CR will cut of access to the sea. Underpasses are usually a deterrent and provide poor accessibility - as witnessed in the case of the Bandra Reclamation Promenade. On the other hand, the Bandstand promenade is intensively used due to its easy accessibility and proximity to residential areas.

(c) Questions of Public Transport

One issue that unites all the critics of the CR (even some who favour it with certain reservations) is

that the project is meant exclusively for motorists. Though the DPR mentions a BRTS, all are convinced that the project proponents are not serious about it. Buses cater to short distances, and the time it will take to get onto and get out of the CR will be quite a lot, especially since there will be a lot of car traffic that will clog the connectors. Furthermore, the project itself is an indication that the city government is not willing to invest for the development and improvement of public transport in Mumbai.

Alternatives to the Coast Road

(a) Parking policy

Every car has to move from one parking spot to another, and often with one more along the way. This means that with a rise of 7-8% of cars every year, parking demand goes up by 20% per year. Cars then end up eating up road space even when they are parked, which adds to the congestion. A parking space occupies about 200 square feet area, and this is a cost that the city has to bear. As people have often experienced, when parking spaces are unavailable, the car has to keep moving, consuming road space and burning fuel at the same time. Parking has to be addressed - essentially by making parking more expensive to car owners that will be a disincentive to use the car.

(b) Traffic Management

The single minded focus on mega-projects such as the CR divert attention from the more mundane but crucial aspects of mobility such as traffic management, that can do a lot to reduce congestion and improve efficiency of existing infrastructure. For instance, by providing right turning lanes under five out of the 10 flyovers on the WEH, throughout can be increased by up to 30%. While there is a great deal of talk about removing hawkers from streets to relieve congestion, no one talks about simple traffic management or parking improvements.

(c) *BRTS and BEST*

Currently, the number of people using the BEST network is falling, one of the reasons being that earlier BEST used to provide longer routes, but over the years there has been a shortening of routes. Only 1,000 additional buses have been added over 20 years in Mumbai. Traffic jams are attributed to rickshaws, taxis and buses, but the opposite is true. Auto rickshaws complement the BEST services by providing point to point services. Dedicated bus lanes on the WEH, link road and SV Road will greatly improve the traffic situation.

Assuming that passenger trip is output and investment is input - for the estimation of the viability of a transport project - the CR will move 2 lakh passengers per day with an investment of Rs 12,000 crores. A BRTS on the WEH and an improved bus system will require an investment of about Rs 2,700 crores, and can provide 8 lakh additional trips per day. While fuel costs on the CR will be about Rs. 3 per km per user, the bus system will cost Rs. 0.50 per passenger per km. This is a huge improvement not only in terms of number of trips for the amount invested, but is also much more efficient and sustainable as an alternative. More importantly, the BRTS on WEH will take away car users from the WEH and put them in buses, bringing down traffic congestion and making the highway more efficient.

(d) *Suburban rail and Metro*

Similarly, providing two additional lines on the suburban rail network (MUTP III) will cost not

more than Rs 4,500 crore and provide an additional 6 lakh trips. This is three times the output of the CR for less than half the cost. Fuel cost on the railways will not exceed 0.20 paise per passenger per km, which makes it effectively the least polluting mode of (motorized) transport. Providing air conditioned coaches on the railways (which does not cost too much more) and switching to an electronic signalling system (to increase frequency) will easily improve the already robust railway system. It will also encourage car users to use the trains. Metro one cost Rs 4,000 crores and carried 3 lakh people, before the fares were hiked, bringing it down to 2.5 lakh users per day. Metro 2 and 3 will provide up to 5 lakh trips per day.

- Summarised by Hussain Indorewala

A. OVERVIEW

1.HISTORY OF RECLAMATION AND COASTAL PROTECTION LAWS

The idea of protecting the environment of coastal areas was initiated in 1981 when the government advised all coastal states not to permit any construction on the shore up to 500 metres from the high tide line as the degradation of beaches due to artificial development (including reclamation) posed problems. Subsequently, Environmental Guidelines for development of beaches was set up.

'Land Reclamation' has been a prohibited activity since the promulgation of the very first enactment on protection of coastal stretches such as bays, seas, rivers and backwaters, viz. Coastal Regulation Zone Notification, 1991. The idea behind prohibition of reclamation was to ensure there are no geomorphological changes that affect biodiversity of coastal stretches, fishing and allied activities. Wetlands and mangroves were to be considered 'natural watchmen' since they are the protective barriers of the shoreline. Through a 1997 amendment to the 1991 Notification, reclamation was permitted only within port limits for operation, maintenance and expansion of ports, jetties, wharves, quays, etc.

Subsequently, there was the CRZ Notification of 2011 which replaced CRZ 1991 to protect the fisherfolk community and this new notification once again prohibited land reclamation. The exceptions were made for foreshore activities such as construction of ports, maintenance of waterways, channels and ports, and activities meant for defence purposes only after having done detailed Environment Impact Assessment (EIA) studies. EIA studies particularly require scrutinizing as to what extent a land is being reclaimed, what kind of earthwork is involved and the quantitative details.

On 25th June 2015, MoEF had released a draft amendment to the CRZ Notification by adding road on stilts and roads on reclaimed surface as exceptions under the prohibited activities. which was adopted on December 31st, 2015. Further, it adds that construction of road by way of reclamation in CRZ area shall be made only in exceptional cases and if mangroves are damaged, three times the number of mangroves shall be replanted. It is not mentioned under which circumstances would the exceptional clause be invoked and to what extent the reclamation will be allowed. Thus, this amendment allows coastal stretches to get reclaimed arbitrarily, which would defeat the very object and purpose of the CRZ Notification. Not only this, it will also set up Coast Road as a bad precedent for the upcoming mega infrastructure projects in pipeline in ecologically sensitive coastal areas.

2. DEFIANCE OF REGULATORY REGIME

The Coast Road has been sanctioned in utter disregard of the current environmental laws and policies in the country.

I. Importance of Fisherfolk Community Under Coastal Regulation Zone Notification, 2011 Apart from the primary intention of the legislature in ensuring livelihood security of the fisher folk community while drafting the CRZ notification 2011, the importance of the fisherfolk community can be ascertained through the degree of inclusiveness of the fishermen community. Clause 6 of the CRZ notification, 2011 explicitly mentions that enforcement of the CRZ notification, 2011 which requires State Coastal Zone Management

Authority (CZMA) to constitute district level committee containing at least three representatives of traditional coastal communities including from the fisherfolk and further also requires the dwelling units of such fishermen to be regularized. Such inclusion of the fisherfolk to the level of district level committee establishes the prime importance of the security of fishermen.

The CRZ notification, 2011 provides that traditional fishermen community be given special consideration as numerous difficulties are faced by such fishermen. Clause 7(v) of the notification stipulates specifically that CRZ areas falling within municipal limits of Greater Mumbai be given special consideration for the purpose of protecting the critical coastal environment and difficulties faced by local communities. The plight of the traditional fishermen of Mumbai has to be judged on the basis of such protection already.

II. Reclamation

Under the Coastal Regulation Zone Notification, 1991 [para 2(viii)] prohibited complete land reclamation in the coastal areas and the only exception that was granted was for the expansion of port of harbours, only after the amendment that was carried out to the Notification in 1997 and subsequently recommended the protection of mangroves and take up shelterbelt plantations along the habitations, prevent reclamations of sand dunes, mudflats, lagoons, etc. to locate dwelling units behind appropriate setback zone, on the basis of the vulnerability of the coast to natural hazards.

The Committee further recommended that this prohibition was necessary since reclamation causes ecological and geomorphological changes, which can have adverse impact on other areas. The committee said, Reclamation can be permitted only in places such as within special economic zones, port and harbours, defence units and for repairing existing authorised stretches with open spaces, after detailed EIA studies including public consultation that too by keeping such activity of reclamation to the barest minimum.

It was also recommended that, vacant plots in CRZ areas within municipal limits should be left open to be used for parks, gardens, playgrounds etc.; all efforts should be made to discourage and reduce population densities and new activities in these areas. There was a need to sensitize Panchayat Members on the population supporting capacity of fragile ecosystems. Further, it recommended that all construction activities, pipelines, cables, jetties, reclamation, should be banned in ecologically sensitive areas; only repairs of existing authorized structures be permitted within open spaces.

The CRZ Notification of 2011 permitted land reclamation activities as in the 1991 notification with the additional condition of EIA studies to be conducted.

The latest amendment adopted by the Ministry of Environment, Forests and Climate Change [MoEFCC} in December 2015 alters Part II, Section 3, Sub-section (ii) in the 2011 Notification to allow for the land reclamation in for the purposes of construction of roads.

III. Environment (Protection) Act, 1986

The Environment (Protection) Act, under which the notification to protect and preserve Coastal Zones in India has been issued, lays down the penal provisions for violation. Under section 15, any violation of the law is punishable with imprisonment for a term which may extend to

five years with fine which may extend to Rs 1 lakh, or with both. Section 16 and 17 lay down that this penalty applies equally to individuals and entities like companies as well as to Government Departments. So with the future consequences of erosion of beaches and mudflats bound to take place with this project and the precautionary principle being an integral part of the environmental jurisprudence in the country, going ahead with such a project shall violate these sections under the Environment Protection Act, 1986.

IV. Problems with EIA Report (Inconsistent with The Procedure Laid Down Under EIA Notification, 2006)

The Environment Impact Assessment is not scientifically defined under the Indian legislation. However certain definitions can be found under the universal environmental damage mitigation policy such as one given by World Bank, that says EIA as, "an instrument to identify and assess the potential environmental impacts of a proposed project, evaluates alternatives, and design appropriate mitigation, management, and monitoring measures."[3]

In India, the Ministry of Environment, Forest and Climate Change (MoEFCC)and State Expert Appraisal Committee (SEAC) plays a role in the Environment Impact Assessment process, which comprises of (a) preparation of the EIA report, from scoping to documentation, (b) Public hearing/Consultation procedure, (c) review of EIA reports and decision-making and lastly (d) post project monitoring. It also outlines the time schedule for each process.

An EIA report is to consider all the possible alternatives i.e., alternatives to the project including a 'no project option' and an assessment of impacts in case of each alternative if resorted to.[4] Alternatives typically should cover locations and process technologies. Alternatives selected must be such that offer the best balance between the environmental viability and optimum economic benefits for public at large.

Disappointingly, the Environment Impact Assessment Report of the CR Project, does not incorporate any of the above. Firstly, EIA only compares alternative alignments and architectural options of the coastal road, and not alternatives to the project itself such as traffic management.

Secondly, the EIA report claims that there will be no significant impact on natural drainage patterns because structures like culverts and bridges have been provided in design.[5] However due to absence of efficient solid waste management system in the city, water drains tend to get clogged in Mumbai, and thus even a slight mismanagement of the proposed cross drainage structures is capable of wreaking havoc in the city.

Thirdly, the report goes on to admit that 168 hectares of land reclamation will affect the High Tide Line (HTL) but takes the view of the National Institute of Oceanography commissioned study that land reclamation up to 100 metres would not cause any adverse impact on tidal movement. But it is highly unlikely that during the actual construction, reclamation is strictly restricted to this limit.

[3] OP 4.01, Annex A - Definitions, January 1999, available at, http://go.worldbank.org/BT7VI5UD50.

[4]Environment Impact Assessment Notification, 2006, accessed December 2, 2015, http://envfor.nic.in/legis/eia/so1533.pdf

[5] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report, Vol VIII Environmental Assessment Report, February 2015, 138.

Fourthly, the EIA Report of the CR admits "mangrove occupies the most dominant land cover class covering approx. 6.5% of the total project area."[6] yet goes on to suggest afforestation of mangroves to make up for the loss of mangroves during construction.[7] It is known that complex ecosystems like mangroves that exist for years and contribute in a unique way to sustain the habitat cannot possibly be replanted or compensated for, as there is going to be irreversible and substantial loss of their biodiversity. In fact, a study in Mumbai in 2005 points out that fragile mangroves are sharply receding, succumbing to increasing pollution levels and development projects. The study put forth measures such as strict implementation of Coastal Regulation Zone (CRZ) laws and awareness programmes for the safeguard of the mangroves as urgent need of the city.[8]

3. IMPACT OF CR ON ENVIRONMENT, LIVELIHOOD AND RESIDENTS OF MUMBAI

I. Impact On the Environment

The CR Project is suspected to have irreversible catastrophic changes in the city's environment as discussed below:

a. Destruction of Mangroves

It is known that mangroves are an essential part of coastal ecosystem which supports a large diversity of flora and fauna. The genetic importance of conserving these species for posterity is immeasurable. The mangroves also provide oxygen for the city. Besides, the microorganisms that flourish in the estuary where mangroves grow decompose sewage and other effluents. In terms of productivity mangroves are the richest areas in a marine ecosystem as well.

It is shocking that the project requires reclamation or destruction of 27 hectares of mangroves, which have already has been facing continuous degradation for years. This includes a 2.8-km stretch between the northbound Madh Island Road and Yamuna Nagar and between Rajan Pada and Ryan International School.[9] As stated above, the CR will be constructed on mangroves comprising 6.5% of the total project area.

The road between Juhu and Malad is proposed to pass through the Malad creek and over mangroves[10] near Versova fishing village, and this will lead to severe damage and ultimately affect the fishing community. Although the DPR suggests access for fishing boats should be considered in the design of the bridge, suggestions for its incorporation in ground level is absent.

b. Adverse Effect on Coastline

The CR Project demands the conversion of natural

[6] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report, Vol VIII Environmental Assessment Report, February 2015, 266.

[7] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report, Vol VIII Environmental Assessment Report, February 2015, 143

[8] V. Vijay, R. S. Biradar, A. B. Inamdar, G. Deshmukhe, S. Baji & Madhavi Pikle, "Mangrove Mapping and Change Detection around Mumbai (Bombay) Using Remotely Sensed Data," Indian Journal of Marine Sciences 34 (3) (2005): 310-315. Available at, http://nopr.niscair.res.in/bitstream/123456789/1566/1/IJMS%2034%283%29%20310-315.pdf.

[9] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report- Executive Summary, February 2015, 266.

[10] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report- Executive Summary, February 2015, 53.

beaches like Bandstand into concrete leading it to be completely cut off from the sea by the road and also affecting the public access to the coastline.

The EIA report and the DPR mentions that the *"Committee has found that the proposed reclamation of an average width of about 100 meters does not cause any impact on the tidal movements and no adverse effects to the coastline are envisaged."*[11] But past experience and alternative views from experts and scientists suggest that the opposite may be true. For instance, it has been reported that reclamation for the BWSL resulted in severe erosion of sand from Dadar Chowpatty. Similarly, reclamation is likely to erode the north section of Juhu beach due to reduction in the areas of natural bays, and displacement of large volumes of water.

Ironically, the EIA report claims that there will be negligible changes in macroclimate factors due to the road[12] but it goes on to project the mayhem of car traffic, and yet suggests, afforestation in 3-4 years as sufficient duration for total ecological restoration.

c. Damage to Ecology

Massive land reclamation practices have been taking place in countries such as Bahrain due to increasing pressures of population and economic development. This resulted in massive damage to the Marine Ecology. Environmental issues have been investigated extensively and predict loss of habitats and smothering of communities and species due to land reclamation in these countries.

Now that the Project for Coastal Road is expected to lead to the reclamation of land for 11.61 km which is almost a third of the road, similar consequences are inevitable. The CR proposes reclamation of about 168. Hectares, destroying almost all of Mumbai's remaining rocky seafronts right from Worli, Nepean Sea Road, Dadar and Bandra to Juhu.

Effect of Reclamation in Singapore, Thailand, Japan & Saudi Arabia

Singapore witnessed a dramatic reduction in the mangroves from 12% of its area in 1922 to only 3% in 1987. Reefs in the vicinity of dredging activities in Indonesia and Thailand were damaged. These operations have led to conflict with local fishermen because of loss of fishing grounds. In Japan, after the 1960s, large coastal areas were reclaimed for industrial purposes. These activities reached their peak in 1974, with 40 sq. km of the sea being reclaimed, and now continues to lose 10 - 15 sq. km per year. Reclamation in the coastal areas of Jeddah in Saudi Arabia has also reported to have caused the disappearance of several coastal organisms.

d. Depletion of Groundwater Table and Change in Soil Profile

The CR Project is proposed to be constructed with the expert help of Government of Netherlands. The memorandum of understanding looks justified considering the history of land reclamation in the Netherlands dating back to the 12th century. However, case studies in Netherlands have led to the depletion of groundwater. In many areas, numerous shallow, salt or freshwater lakes were pumped dry, changing the lakes into polders.[13]

d. Threat of Soil Liquefaction

Soil liquefaction describes a phenomenon whereby a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress, usually earthquake shaking or other sudden

[13] A piece of low-lying land reclaimed from the sea or a river and protected by dykes, especially in the Netherlands.

change in stress condition, causing it to behave like a liquid. It is known that a major part of Mumbai city comprises of reclaimed land which comprises alluvium and sand. Also, there are some bigger water bodies are found within the city range.

A study on the potential soil liquefaction in terms of safety at Mumbai by IIT, Mumbai shows that that high degree of liquefaction failures is likely to occur at many sites in the city during a severe seismic event. The study emphasizes that the areas developed on reclaimed land along coastline having large thickness of soft soil and shallow groundwater levels are observed to be more susceptible to liquefaction.[14]

e. Flooding

Mangroves, which act as natural sponges and play a crucial role in flood prevention, are going to be destroyed at large scale in the course of construction. Additionally, Mumbai has also been experiencing a drastic sea level rise due to climate change, making as many as 11 million people vulnerable to flooding hazard.

Ironically, the EIA Report for the CR Project acknowledges it in context of Mumbai's past experience of severe Flooding of 2005.

It says, *"Had Mumbai's Mithi River and Mahim creek mangroves not been destroyed by builders, fewer people would have died and the property damage would have been dramatically less"*.[15] Further, Indorewala & Wagh point out that construction within natural drainage channels may lead to flooding in low-lying areas of koliwadas and gaothans. Similarly, the upstream areas of creeks i.e., Malad, Goregaon and Charkop are also expected to face severe flooding. It is unfortunate that DPR still doesn't address the issue.

II. Impact on the Livelihood of Local Communities

According to the Census of Marine Fishermen (2010), 40,953 fisherfolk reside in Mumbai. Most of the fishing activity is carried out by traditional fishermen families along the western coast, in villages such as, Worli, Mahim, Chimbai, Khar Danda, Juhu Koliwada, Juhu Moragaon, Versova, Madh, Bhati, Malvani, Manori and Gorai. The CR is suspected to almost entirely wipe out livelihoods at points where under-sea tunnel is proposed to begin and emerge. This will affect villages of Khar Danda and Juhu Moragaon. The impact is so much so that even the EIA *report mentions that the preparatory activities will change the land use pattern of the project influence area for a temporary period due to use of existing access roads, construction of new ones, construction of quarters, storage go- downs, stockyards, etc.*[16] Though the EIA emphasizes on the temporary nature of such change, the alternatives for the livelihood for these fishing communities, during the 'temporary change' are not answered.

III. Impact on City Life of Mumbai Residents

a. Counterproductive for Traffic Congestion Management According to the Detailed Project Report [DPR] an estimation of overall growth of car ownership in Mumbai is taken at the rate of 2% over the next 30 years.[17] It is worth considering the actual implications of such

[14] Jagabandhu Dixit, D. M. Dewaikar & R. S. Jangid, IIT Bombay, Nat Hazards (2012) 63:375-390 doi: 10.1007/s11069-012-0154-0.

[15] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report, Vol VIII Environmental Assessment Report, February 2015, 88.

[16] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report, Vol VIII Environmental Assessment Report, February 2015, 130.

[17] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report- Executive Summary, February 2015, 21.

staggering automobile growth in already cramped city like Mumbai. As rightly observed by Indorewala, as the DPR assumes, if the traffic in the city grows to 240 cars per 1000 persons, the city will have 34 lakh cars in coming years and with such many cars, it will cumulatively need more road space than the total road area of Mumbai, defeating the very basis of proposition for such CR Project. Also contrary to the assumption of reduction in congestion, certain areas such as 12 connectors leading to the coastal Road might face a drastic increase in traffic congestion. This will affect the traffic system of already congested Malad and Bandra area while at the same time, making the existing sea-facing roads such as Carter road to lose its present public character.

b. Increase in Road Traffic and Air Pollution

A recently published air quality status of Maharashtra, published by the Maharashtra Pollution Control Board (MPCB) and The Energy Research Institute (TERI) states people living in Mumbai and Navi Mumbai have been breathing polluted air, which falls under the "poor to severe" category for a considerable number of observations throughout 2013-14. The massive projections of private automobile traffic according to the DPR and continuous production of fumes carried by coastal breeze will prove nothing will add to the menace. On the other hand, afforestation as a mitigation measures are hardly effective considering the years before which plantation won't be able to balance the toxicity likely to be spread till that happens.

[18] Municipal Corporation of Greater Mumbai, Draft Detailed Project Report- Executive Summary, February 2015, 73.

4. QUESTION OF FINANCIAL VIABILITY

a. Financial Implications

Currently, the cost, fixed and declared for the Coast Road Project is at R 8,500 crore, but it could go up to R 11,000 crore. For example, earlier the plan accounted for just one tunnel, but now there could be one more between a suburb on the eastern side of the city to south Mumbai. Apart from inflation-led escalation, it is expected that there might be some additional costs. For example, roads made over mangroves will be made on stilts. Apart from that, Nearly Rs. 26 crores, roughly the cost of building a flyover in Mumbai, has been spent on planning three infrastructure projects on the west coast. Such elementary financial losses that would have otherwise helped in traffic management such as increasing AC rides and more buses would help in curbing use of public transport.

b. Absence of Realistic Projections of Cost Recovery

The Detailed Project Report disingenuously uses different assumptions for traffic projections (using NH4) and different ones for calculating toll i.e., as per the Maharashtra State Toll Policy.[18] These different sets of numbers complicate the estimate of the toll collections or traffic count on the CR. However, the state government has also announced that it will do away with tolls altogether on the northern and southern stretches of the CR, leaving them only on the BWSL as at present. The CR planners fail to estimate indirect costs (environmental damage, loss of livelihoods, etc.) as well as pollution, parking and congestion, etc. The experience of the BWSL, the cost of which escalated six times what was originally proposed, places a question mark on the environmental and financial costs of this entire project.

B. WRITTEN DEPOSITIONS

1. GOVERNANCE

(Shyama Kulkarni, AGNI)

Action for Good Governance & Networking in India (AGNI) is a voluntary, non-political, non-sectarian NGO which fosters a working partnership between government agencies, elected representatives and citizens' groups to achieve transparency and accountability in the governance of Mumbai.

In 2011 when then CM Prithviraj Chavan put up a proposal for the coast road, Bandraites had started a signature campaign as one of the connectors was cutting into Joggers Park, a public, open space. We hoped the new government would reconsider the proposal. To our horror we find that not only do they plan to implement it but for some reason they have handed over the entire project to the MCGM.

The estimated cost of the coast road is Rs. 12,000 crores. Only 7% of Mumbaikars using motorised transport to commute to work will use this road. To build a coast road to cater to such a small percentage is a gross injustice and a waste of public money.

The use of my taxes to pamper a few is bad governance. Promises that there will be bus routes and a metro corridor are not feasible as a majority of the people travelling will need another means of transport from the coast road to the main shore and vice versa. This is a way to hoodwink the common man, the office-goer, by using his taxes for a project meant for the upper class - the rich, who will only travel by private cars.

The Mahalakshmi Temple, the Haji Ali Dargah, and finally the Bandra Fort. These are heritage structures, which will be submerged by this project. Citizens, especially in Bandra, have fought to save these sites, built promenades using the funds of the local elected Representatives; - our taxes used sensibly and with a purpose. Will the Coast Road not blow up the taxes spent on these projects?

Several fishing communities earn their livelihoods along the coast, almost 50,000 of them. The Coast Road will affect the Koli Samaj which constitutes the original settlers of Mumbai, not only in their livelihood but also their settlements. Heavy construction reclamation will negatively impact fishing activity making it almost impossible to pursue. The sensitive coast ecology will be adversely affected, and the thriving fishing communities of Khar Danda, Chimbai, Moragaon, Malad, and Kandivali will be deprived of their livelihood. This would be an unmitigated disaster.

How much toll will be charged to recover the cost? A one-way toll imposed from Kandivali to Nariman Point could be as much as Rs.400. Who will pay this? Or is it to fill the pockets of a few at the cost of many? The toll on the Bandra-/ Worli sea link has increased instead of reducing. Our taxes paid for the construction and the number of cars has only gone down.

The total distance of the coast road is 36 km. To save mangroves, a few of these kilometres will be built on stilts. Will the stilts take the weight of a metro corridor, and a six lane road with a bus lane? Which mangrove and which stilt will survive

this load? Further, the tunnels planned below Malabar Hill and Juhu beach will also do severe ecological damage, but this will be discovered only after the project is completed, and then it will be too late to do anything about it.

The coast road infrastructure will be a huge physical barrier that will disconnect Mumbai residents from their coast line. My special identity as a Mumbaikar is threatened. Our centuries-old connect with the sea will be lost forever. The Environment Minister has claimed that there will be parks and open spaces along the coast Road, on the seaward side. I would like to ask him how the public can access these parks and open spaces? By crossing six lanes of traffic? That is why even the NGO "NAGAR" is against the coast road.

Public money to the extent of 100% is being used for the convenience of 7% of the public. We must stop this wastage of public money. The Development Plan (DP) was outsourced, and so was the Coast Road. Once again our money is being fruitlessly spent in foreign exchange when we have the expertise to make the Plan ourselves in India. A better Plan with better local knowledge. Use of my taxes to pamper a few, is bad governance, and has no transparency or accountability. Are Mumbaikars being shortchanged for the comfort of a few? 92% of this city's population travels by public transport. Should they be made to pay taxes for the Coast Road?

A Rs.12000 crore infrastructure project of such a scale, built with public money, i.e. our taxpayers' money, is a disaster, whichever way one looks at it.

- ***Sulakshana Mahajan, Mumbai Transformation Support Unit***

Why I think it is a good project...

Four kinds of objections are raised against the proposed coastal road in Mumbai by activists, based on exaggerated concerns for environmental damage, high economic cost, limited use value to mass transport needs of Mumbai and adverse impact on the livelihood of coastal communities. I share some of those concerns only because of lack of faith in the ability of our municipal governance to undertake such project, shoddy implementation and disregard to follow through investments and environmental management. In fact, I see multiple benefits that can accrue from the project which, rarely are mentioned in the arguments put forward by those who are vehemently opposing the project.

Eroding Mumbai Coast

Generally speaking, one cannot deny adverse impacts of reclamation on the coast. However, the erosion of land by sea on the west coast and accretion of land on the east coast is a natural phenomenon for Mumbai. The coastal road would protect Mumbai from erosion. The loss of mangroves due to coastal road is largely limited to north-west, and if due care is taken they could be restored and even enhanced through design and vigilance just as the mangroves in the East at Palm Beach road were protected and nurtured. Looking back, it must also be noted that without reclamation, which improved habitable conditions for people, Mumbai could not have achieved its economic success. Mumbai would not have been so attractive without reclamation for Marine Drive.

Liability vs Assets

The cost of the coastal road is pegged at Rs. 12000 crores. However, even considering the minimum value of additional land at 30 Crore/ Ha, the 400 Ha of reclaimed land would create assets worth Rs. 12000 Cr. Hence cannot be considered as a loss to public revenue. Besides the value of 250 ha area of green public spaces would be much more in environmental and social terms and could make the city secure from expected rise in sea level due to climate change. It is possible to effectively manage flooding due to rains in Monsoon while implementing the coastal road project. The project would make the Pedder Road Flyover proposal (cost R. 1400 Cr) and expensive sea link extension (which was planned earlier) redundant and effectively get the road at much lower cost with value addition. The expensive tunnel at Marine Drive proposed as part of the coastal road may not be taken up at a later date and only found useful after the completion of other stretches. This would substantially reduce the cost of the project.

Cars vs Public Transport

There is no denying that the coastal road would largely cater to the car traffic. But at the same time we cannot deny the possibility of a new opportunity to restructure the inner city arterial roads such as Western Express Highway and SV Road, by converting them to other traffic calming proposals, which would reduce noise and air pollution, improve urban street environment for non-car users, reclaiming road space on the mainland for mass transit like BRT or light rail on ground, reduce barrier effects of cars by increasing pedestrian spaces and cycle tracks in populated areas, boost local economic activities and make streets Article for Mumbai safe. Coastal would help create more than adequate capacity in public transport and improve quality of life in the present populated city areas.

For the Benefit of Fisher folk

The project would also need to create additional land thru reclamation to settle the coastal communities, providing them with bigger spaces and enhance their livelihood and expand their habitat through planned development of infrastructure for fishing activities and provide more market spaces to improve overall economic activity for the community. I think for these reasons, one should support the proposed coastal road and persuade Mumbai Corporation to incorporate these ideas into the main project deliverables.

- ***Rishi Aggarwal***

I would like to place the following points on record for the consideration of the Commissioners with regards to my objection to the coastal road project proposed by the MCGM and supported by the state and national governments. The project in my opinion is symptomatic of bad governance and my points below argue against the project on governance grounds.

I am an environmental and civic issues activist for the past 15 years and have been closely involved with impacting numerous issues which would lead to a better quality of life in Mumbai. I take keen interest and involve myself on a continuous basis with aspects related to the good governance of Mumbai. I have been opposing the coast road since early 2011 when it was first proposed and have been expressed my views at numerous governmental and public forums till now.

I am attaching two different letters sent by me

regarding the same and also a petition which I started in 2013 against the project. Some key points are below

Points for deposition

1. It pains me that a few politicians have chosen in their wisdom to call the coast road project as one of national importance. The lifeline of Mumbai, the suburban railway network carries 8 million people daily, it is a global marvel. Almost ten people lose their lives daily on this network. I would imagine that a project of national importance would be to find a solution to put a complete stop to these deaths. This would confirm with the tenets of good governance. The coastal road project will make absolutely no difference to the conditions on the suburban system or to saving the lives of those who die on it every day.

   As per estimates the coastal road would have a capacity of transporting a maximum of 300,000 people every day (with a lot of doubt) as compared to the 8 million on the suburban system. The coastal road project has been projected to cost Rs. 13,000 crores in 2015 costs. A reasonable level of improvements in various aspects of the suburban system would cost less than Rs. 1000 crores from what I gather through various readings in the papers and official reports.

So it is a situation where there is enormous enthusiasm in the government to spend Rs. 13000 crores on transporting 300,000 people daily but almost zero enthusiasm in spending Rs. 1000 crores on improving a system which is transporting 8 million people daily. How can this be justified on a good governance parameter? Would not a government interested in delivering good governance have a balanced approach?

2. The National Urban Transport Policy 2006 by the Government of India explicitly states that the focus and priority of transport policies and investments in Indian cities should be to move people not cars. For a decade and more we have only seen a violation of that policy in Mumbai. Having received no resistance MCGM became brazen and has leapfrogged but not in the way the NUTP would expect.

3. The land use and mobility pattern in Mumbai has undergone a drastic change in the past three decades. A large number of people who work in Greater Mumbai need not be staying within. These are people staying with other municipal corporations within the Mumbai Metropolitan Region (MMR). Mobility, residence and work patterns increasingly have an inter-regional pattern and our transport planning has not kept pace with the requirements. Multimodal integration is still not convenient in the region. For these purposes development of functional Unified Metropolitan Transport Authority (UMTA) has been suggested for Mumbai for very long. Robust institutions as we know are the fundamental tenet of good governance.

   Again the government has shown abysmal commitment to establish an UMTA for MMR. Enthusiasm for the coast road by releasing full page advertisements, carpeting the city skyline with self-congratulatory messages on hoardings has been there for all to see. The same politicians and administration shows a

zero concern for addressing the day to day mobility challenges faced by millions in the region.

4. The coastal road proponent - the MCGM - is offering the coastal road project as a solution to the traffic congestion being faced in Mumbai. A city the size of Mumbai and with intentions of becoming world class does not see a functional and well equipped transport and traffic planning cell within itself. It is unimaginable a megapolis of this size in the developed world to not have a well functioning traffic and transport planning cell in its local self-government.

   The coastal road report alludes to the presence of similar roads in developed countries and uses them to build a case for the coastal road. But what about a traffic cell, which is a fundamental requirement if you want to handle traffic congestion? Why no interest in having a traffic cell? All of these world class cities have world class traffic monitoring departments staffed with the best trained staff and with budgets and facilities to match. There is an unmistaken sincerity in the way some of these global cities are governed, which is woefully missing from the governance of Mumbai.

   Is the coast road a case of having cake when we do not even have bread?

2. PLANNING

● *Hussain Indorewala*

Urban Planning & Socio-economic Aspects of the Proposed Coastal Road

Executive Summary:

This presentation will try to show why the Coastal Road Project (CRP) is sure to be counter-productive from the perspective of traffic congestion management, wasteful in terms of public expenditure, disruptive in terms of ecology and livelihoods, and ignores cheaper and more efficient alternatives. The project will increase the number of vehicles on the road, cause considerable environmental damage and adversely impact livelihoods of fishing communities. Moreover, as a project that serves to transport not more than 1.5% of the city's population on any given day it is more of a private amenity than a public good. And despite doing nothing to ease the burden on the congested public transport network, the public will be made to finance this fundamentally in-egalitarian project.

Some have argued that the CRP is necessary to improve the "quality of life" in the city. But this is based on a misunderstanding of the concept. Quality of life is not a function of private luxury or consumption, but the result of a vibrant and inclusive public realm. The CRP will create a two-tier system, where a few will benefit from an expensive but improved infrastructure, while the rest will be forced to make do with poor quality facilities. A better "quality of life," requires investment in the strengthening and nurturing of the city's public systems and efforts to make them more accessible. The Road heads us in the opposite direction.

Urban Planning & Socio-economic Aspects of the Proposed Coastal Road

Conceived narrowly, planning is the adoption of coherent means for the achievement of a given set of objectives, based on the understanding of constraints and resources at hand by evaluating the predictable consequences of intervention. Convinced broadly, planning is the process of creating an enabling environment for all people to fulfil their creative potential, which involves the formulation and fulfilment of social goals, and the distribution of resources and opportunity. Since planning is undertaken to determine the direction of public investments and policy, it is crucial that these are directed towards the creation of an equitable and sustainable city.

However, in reality, objectives are rarely determined collectively, social consequences - especially to vulnerable groups - are rarely evaluated, and resources are frequently mis-allocated. Large infrastructure projects are often proposed without a comprehensive understanding of the needs and priorities of the city's inhabitants, for objectives that are vague and have more to do with power and prestige as opposed to social needs and priorities. The Coastal Road project (CRP) is classic example of such a process, a project that is likely to be counterproductive from the perspective of transport planning, wasteful from the perspective of financial resources, and disruptive from the perspective of the environment and social ecology.

In what follows, the CRP will be evaluated along the following lines:

(A) The aims and assumptions of the project

(B) Its claims of being a public good with "societal benefits"

(C) Opportunity costs of the project

(D) Iniquities inherent in the CRP

(E) Externalities, or the socio-economic and environmental impacts of the project

A) Aims and Assumptions

The CRP is justified as an attempt to decongest the city's traffic and improve mobility along the Western corridor. It is well understood that increased road space generates traffic, and that the best way to tackle congestion is to make private transport expensive and inconvenient. However, the project is based on a mindset that is aimed at promoting private automobile use. The CRP's proponents assume that car ownership in the city will grow at the rate of 2% for the next 20 years irrespective of policy interventions, and the fact that the MCGM can accept these assumptions with alacrity and without alarm is quite incredible. Mumbai cannot sustain car ownership beyond current levels, and arresting or even reversing the rapid growth of automobiles has to be the thrust of policy and planning. Already, the annual increase in car ownership is about 6.4% (up from 5.5 lakh private four wheelers in 2010 to 7.2 lakh in 2014) while public vehicles have increased only at 0.9% annually. The increase in fuel consumption has increased, as a result, by 12.4% annually, a dangerous trend in a rapidly warming planet.

The absence of a comprehensive parking policy is an enormous subsidy to private car owners. It is already scandalous that parking space in a city with some of the highest real estate prices is given away for almost nothing. If we assume 3 parking spaces per car and about 20% car ownership in the city by 2034, the city will require about 20,000 Hectares (Ha) of built up space only for cars, in

a city starved of land for homes, amenities and open spaces. A high density city like Mumbai requires steep parking charges to restrict car sale and use, provided the concern is efficient mobility rather than subsidizing motorists. A square meter of residential space in Mumbai may easily cost up to 50 times the same area of off-street parking space, making it a gift to car owners. This incentive encourages car use, in turn increasing traffic congestion and economic and social costs. Yet one hardly finds planners complaining about market distortions due to parking policy. You may struggle to find affordable housing in Mumbai, but you will definitely find nearly free parking. While cities around the world impose heavy parking charges to manage vehicle demand and generate millions in revenue each year, in Mumbai, on-street parking is given away as charity.

Transport planning ought to be concerned with the movement of people, not vehicles. The CRP is designed for moving vehicles, especially for privately owned vehicles. While the CRP in its most generous projections is estimated to move 300,000 persons per day, an improved bus system (with a BRTS on existing roads) can provide an additional 800,000 trips per day, while implementation of the MUTP III (two additional tracks on the suburban rail system) can increase passenger trips by 660,000. Other measures like carpooling can both reduce congestion as well as increase passenger trips by 100,000 persons. Apart from being easier to implement, and less polluting, these alternatives together will cost less than 60% of the CRP. What these numbers - provided by a non-profit think tank - suggest is that the coastal road is a terrible choice for moving people comfortably and efficiently.

In other words, the Rs. 12,000 crore transport infrastructure cannot be justified on grounds of transport efficiency.

B) Public Good or Private Amenity?

Mega projects in the city almost always create net benefits for some people and costs for others - and therefore have a heavy burden of proof to bear in terms of their overall benefit to society as a whole. The CRP has been argued as a public good - the Detailed Project Report (DPR) predicts that there will be "societal benefits" as it will reduce vehicle operating costs, travel times, accidents and environmental pollution.

This argument is highly misleading for two reasons. First, it fails to account for the externalities of the project, and does not consider and evaluate the negative consequences of the project which may be more significant than the gains. In the words of 19th-century French political economist Frederic Bastiat, "...it takes no account of that which is not seen." The CRP will result in the disruption of neighbourhoods and loss of livelihoods of coastal communities, it will result in an increase in pollution due to growth in traffic, it will impose costs on the city in terms of increased parking requirements, it will have incalculable local and larger environmental impacts, and so forth.

Secondly, the project will expend public resources to serve roughly 1% of the city's privileged residents. The CRP is, for that reason, not a public good - such as mass transit or social housing - but a transfer of wealth and subsidies to the rich. In other words, it is welfare for the wealthy.

The CRP has been justified in its earlier (2011) or Joint Technical Committee version ("JTC version") as well as the latest (2015) Detailed Project Report

version ("DPR version") as having other benefits such as the creation of "green open spaces," reduction of "health hazards" due to reduction in pollution as well as public transport benefits through the introduction of the BRTS. The problem, however, is that there are already quite a few natural open spaces along the coast that will be built over by the project, to be replaced with promenades and parks along the highway.

Furthermore, access to public spaces and proximity to residential areas are crucial to the functioning of waterfront recreational areas. An eight lane highway with uninhibited traffic is quite different from a marine drive or carter road where pedestrians can prevail over cars. The only way these new reclaimed promenades can be accessed will be through underpasses across 50-60 metres of road, making them highly unattractive. Already, the poor use of the promenade in Bandra Reclamation shows the ineffectiveness of such projects. Access to the sea that is now available to thousands of visitors will also be cut off due to a sea wall, providing fine views to motorists but a massive barrier to residents.

The BRTS has been thrown into silence public transport advocates. It is almost a joke - employment of a BRTS must aim at reducing car use and shifting people to buses for a quicker, cheaper and more sustainable mobility. A BRTS typically helps relieve congestion through modal shifts on existing arteries. Moreover, being on the edge of the city, the catchment area for the BRTS system on the CRP will be quite limited. The DPR version of the CRP also proposes multi-level car parking facilities with the naïve assumption that people will drive (with a good deal of suffering on the connectors) to the Road, park their cars and take a bus!

C) Opportunity Costs

Another important question that requires asking is what is the opportunity cost of this project? In other words, what has been foregone as a result of this choice to build a Rs. 12,000 crore road for motorists? The city is overwhelmingly in need of public spending for the improvement of living conditions (slum improvement), sanitation and drainage, basic services, public transport, healthcare and education, among others. All of these are opportunities lost, and all of these are ignored because they are redistributive measures. What is the cost of ignoring these choices? None of the reports justifying the projects make any such assessment. Only two alternatives are presented - build the CRP or do nothing. There are many good alternatives to facilitate the mobility of millions of commuters along the Western corridor that are more efficient, more economical and more sustainable. The CRP is not one of them.

Floods in 2005 resulted in the death of 546 people, but despite being ever more vulnerable to flooding, the new drainage system lies incomplete, under construction for almost 20 years. The CRP will increase the risk of floods due to massive reclamation of mangroves and wetlands, and hard construction along the coast. How much will it cost to not build the stormwater system?

According to the 2011 Census, 1.13 million households (42.6%) in Mumbai live in what a Government report termed "housing poverty," living in "unacceptable physical and social conditions." 72% of households in the city live in single room accommodations or without any exclusive room. Mumbai's primary health system is highly deficient with a requirement of at least

199 new health centres as per National Urban Health Mission (NUHM) norms. How much will it cost to not improve living conditions in the city and improve its health infrastructure?

D) Socio-spatial Inequities

The CRP cannot be financed by toll collections simply because it will have restricted use (being a car only project). Toll collections will barely pay for maintenance, lighting and security - notwithstanding the projections of the DPR. If tolls are increased to the Bandra Worli Sea-link levels (Rs. 10/km), usage will drop. This means that public money will finance the project. Why should millions of city dwellers spend their taxes on giving motorists a good ride around the city, while they suffer a congested and creaky public transport system?

And even if the project is financed based on the 'users pay' principle, the consequence is an exclusive, two-tier system where the privileged enjoy improved, but costly infrastructure while the poor have to make do with low quality facilities. This sort of development mechanism also serves to price the poor out, further shrinking the minuscule public realm in the city.

Ultimately, the real aims of the coastal road have to do with the interests and preferences of global and local investors, developers, wealthy home owners and middle class commuters. Net benefits of the project will be predictably picked up by lenders and financiers, for whom big infrastructure projects ensure public guarantees on investments; by car manufacturers, for whom road construction is an indirect subsidy and the city a potential market; by developers and real estate owners, for whom the highway represents increased real-estate values along the coast and in the suburbs to profit from; and by car owners, for whom it is a much desired device to leapfrog the "undesirable" parts of a complicated city.

E) Externalities

In addition to its narrowly targeted benefits and irrationally high public investment, the CRP will have incalculable social and environmental costs. These costs will be borne by others: the disruption of neighbourhoods and livelihoods of coastal communities as costs borne almost entirely by the poor, environmental impacts and pollution costs by current and future residents, the need for more parking facilities and infrastructure as costs to the city.

Livelihoods of more than 35,000 people depend on fishing, a large number of who inhabit the western coast of the city. The CRP will in some cases put an end to fishing activity. The entry and exit ramps to the northern tunnel between Moragaon and Khar Danda fishing villages lie on the beaches of these villages, indicating the ignorance and disregard for the habitats of the city's working poor. In addition to these direct impacts, fishing as a whole will be affected due to reclamation and construction.

The efforts to "beautify" and "landscape" the coast are an attempt transform the productive functions of the coast into leisure and recreational functions, to suit the lifestyle needs of middle and upper income groups, and render them unusable for the livelihood needs of coastal communities. As the city is re-organised for the tourism, leisure and entertainment sectors, productive uses and communities that depend on them are pushed out from the city core to be replaced by monumental waterfronts, recreation zones and tourist attractions.

Conclusion

One of the arguments used to justify the CRP is that it will help improve the "quality of life" in the city. Quality of life however is a function of the city's vibrant and inclusive public sphere, not an indication of private luxury or consumption. The artificial link between car ownership and quality of life is mistaken as well as dangerous, since apart from devouring land space for roads and parking, cars are also notorious for guzzling oil and warming the planet. Despite this, Mumbai's planners are looking for an urban transformation that will convert a dense city with high concentration of uses where 78% of non-walk trips are made on public transportation systems - one of the highest in the world - into a sprawling, energy hungry urban agglomeration infested with cars.

The tendency to pour big money and launch grand projects as solutions to problems that may require simpler and less spectacular interventions has often been detrimental to practical and inclusive urban development. The complex nature of the transport system requires a tentative and experimental approach, not massive rewiring.

- *Nitin Killawala*

The DPR of Rs 12000 crore for 35 km long Coastal road reveals 'how' and 'where' about this massive infrastructure project but silent on 'why' Coastal road?

It is a common knowledge that any capital intensive infrastructure project should be initiated with reviewing past experience and then take a reasoned stand for further action. The Eastern freeway is an identical project. It is the latest example of long and exclusive road between Chembur and Fort. It may have helped minuscule percentage of car owners residing near the entry/exit points but it has not made a dent at all in reducing traffic congestion on any of the arterial roads of the eastern suburb. Bandra-Worli sea link is no different to improvise chaotic traffic between Bandra and Worli. The intent of both these projects was to streamline traffic but that is the pretentious and flawed intent!

Moreover, any traffic oriented project must realise in time bound manner and government ought to prioritise its resources and cost benefits. These are the stand alone and highly complex engineering projects which once constructed would be stuck forever. The next generation will never forgive us!

The DPR mentions 'how and 'where' to construct the proposed Coastal road but not clarified 'why' such a huge capital cost intensive coastal road? Presuming that the intent of this project, as per news reports, is to de-congest traffic of the Western front of the city, we certainly need to validate such projects by (a) Present traffic conditions (b) Precedents in our city and (c) impact of the project.

a) Present Traffic Conditions:

- Widths of Right of way (ROW) of all the arterial roads are not optimized.
- Lack of traffic enforcement and leniency towards encroachers.
- Poor quality of road construction and contracting system.
- No regulation of owning number of cars by the citizens.
- Negligible charges, if not free, for Car park on roads, tolls, fines, etc.

- No priorities to upgrade any mode of Public Transport of its obsolescence and inefficiency.

b) Precedents in our city:

- FLYOVERS on WEH & EEH: These flyovers are constructed more than a decade ago, the traffic and chaos has actually increased on the flyovers manifold since then and today these major trunk routes have become mere holding space for cars at peak hours. They're no longer Highways!

- BWSL: A project estimated at about Rs. 300 crores has shot up to over Rs. 700 crores yet there is no significant reprieve for commuting in lesser time for point to point travel between suburbs and city & vis-a-versa. It has not even achieved 40% of its estimated ridership inspite of subsidised tolls.

- EASTERN FREEWAY: This viaduct is quite similar to Coastal road project. However, traffic woes on Eastern arterial roads of Mankhurd, Chembur, Sion, Ghatkopar, etc. has not seen any significant difference in reduction in traffic.

c) Impact of the project:

- The alignment does not consider possibilities of connecting any future land masses.

- The project is standalone without any integrity of existing Public Transport.

- The neighbourhoods of all the twelve interchange junctions shall be enormously clogged, similar to Bandra and Worli areas of BWSL.

- It would be yet another parallel road for North South connectivity where South Mumbai is constantly declining in its population (and therefore in number of cars) including commercial hub of Nariman Point.

- Only about 5% of Mumbai's population use private cars, therefore patronage of this huge infrastructure will not be benefited to even 1% of its car owning population in the western region.

- Approx. 12 km long sea wall is proposed to protect against harsh and heavy tidal waves from the sea, which shall destroy, apart from environmental degradation, the visual beauty of the sea at ground level or even from wherever recreational grounds are proposed.

Further, there is no consideration of most important issues raised in the DPR itself-

Page 10- "The number of people living in slums is estimated at 9 million ...that means about 62% of all Mumbaikars live in slums."

Needless to say there is no benefit to common citizens.

Page 142 - "Construction period is 30 months."

There is no break up of Timeline nor PERT chart justifying 30 months for 36 km long most complex engineering of Coastal road. This is very important because the Economic Viability is considered from the year 2018 onwards. In any case who is accountable and penalised if the time exceeds the Construction period?

Page 142- "Total Project Cost Rs. 112982.64 million" (say Rs 11,300 crores).

How this huge amount is raised and recovered? Who is accountable and penalised if the costs exceed the Project cost?

Page 154 - "From the financial analysis results it may be concluded that the Construction of the proposed Coastal road financially not viable on BOT basis."

What are the resources to subsidise when Government themselves accept non-viability of the project on BOT basis?

In view of the above, I strongly feel to scrap the Coastal road project in its entirety and humbly request the government to restrain from wasting such enormous amount of public money. Instead prioritise for several relevant infrastructure projects for the benefit of all the citizens (and not just minuscule percentage of car owners) as listed below:

- Long pending 22 km long Sewri/ Nhava Sheva Sea bridge which shall also revamp ongoing affordable housing sectors such as in Ulwe, Panvel, Dronagiri, etc.
- Construct underground Metro line 2, simultaneously with Metro line 3 so that most part of the city shall have advanced MRT at the earliest.
- Reconstruct all existing arterial roads on international quality/ specifications and abolish present Road construction politics.
- Identify dedicated Bus lanes and replace all of the BEST bus fleet with AC coaches.

Lastly, I think we should have personal interaction with the concerned officials in the authority to focus the petition further.

- *Ratan Batliboi*

The Tunnel Proposal: Alternative to Mumbai's Coastal Road Proposal

The proposed Mumbai Coastal Road has, at its crux, an idea that was first proposed as early as 1962, by Wilbur Smith Associates in what was called the Western Island Freeway - linking the predominantly residential suburbs of Bandra to the then new financial centre at Nariman Point. It is a proposal that has been revisited in various forms, until with the Bandra Worli Sea Link, Phase I of the idea connecting Bandra to Worli was completed in 2009. The coastal road proposal aims to complete the connection by adding coastal lines between Nariman Point to Worli and Bandra to Kandivli.

The change in the geographic distribution of economic and residential centres in Mumbai requires, first of all that we revisit the need for this connection. Mumbai's business districts are now being decentralised to the northern suburbs, like the Bandra Kurla complex, while South Mumbai has shown no growth in the recent past. Therefore, the expected increase in vehicular traffic has been overestimated on this route by assuming a constant rate of growth in the projections. However, assuming the need for this connection, the coastal road proposal still faces criticism. The problems with the current alignment of the coastal roads can broadly be categorised as follows:

1. The construction of the road through reclamations and its alignment disrupting ecosystems and existing public spaces makes

it environmentally and socially very disruptive.

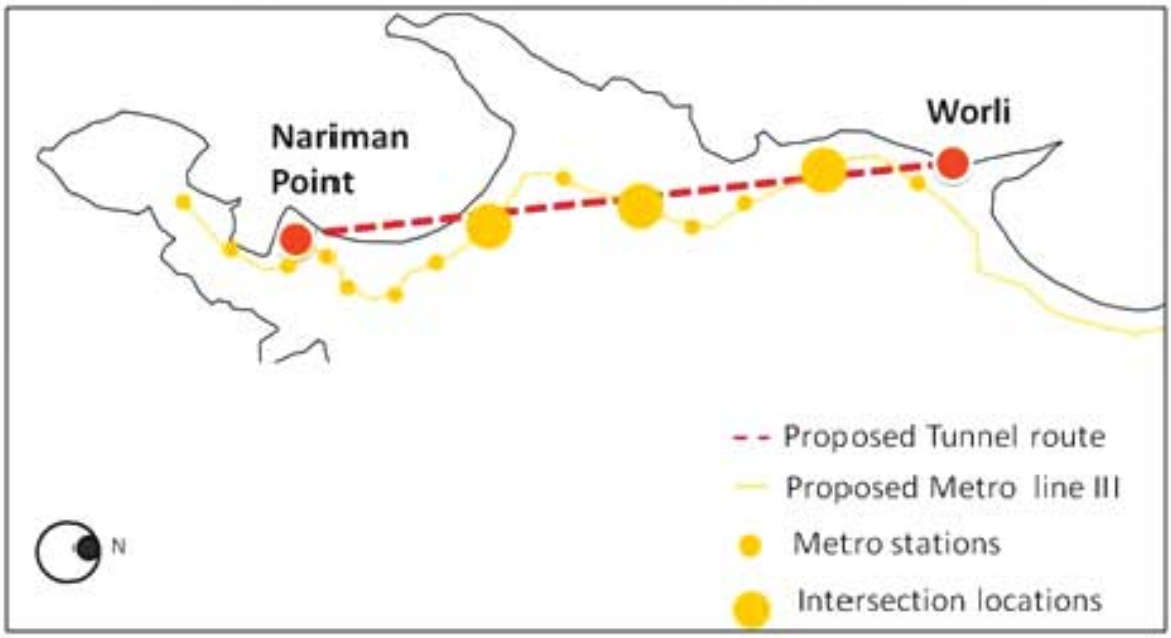
2. The proposed coastal road is not inclusive as it will cater to a small percentage of commuters, and will encourage car ownership and ridership.

   Our intention is to propose an alternative, practical, sustainable & economic solution for the Worli to Nariman Point traffic route, which will circumvent the problems posed by the proposed coastal road, as an underground tunnel which will be the shortest method of making this connection.

   In comparison to a required length of at least 13.2 kilometres for an elevated road and 11.7 kilometres for a coastal at grade road, the tunnel would span the distance in a length of just 9 kilometres. Assuming the projected 20000 trips per day, the impact of a shorter distance will be experienced in savings in trip times and a massive reduction in the overall carbon emissions. In addition to the long term benefits, an underground tunnel is largely non-intrusive during its construction phase and during its operations, and would be integrated into the existing road network through appropriate entry and exit points.

   To implement this project, we propose the use of a Tunnel Boring Machine (TBM), which can carry out both the boring and reinforcement of the tunnel at speeds varying from 10 to 20 days per kilometre, which is much faster than existing technology for constructing at grade roads. Additionally, by virtue of being constructed at depths of up to 30 meters underground, we would maximise land utilisation and minimise impact of existing built or natural environments. The technical feasibility of such a project has already been proven on a number of occasions both internationally and in Mumbai itself. Mumbai metro line 3, like Delhi metro will also be laid underground using the same technology which has been proven to be safe, durable and state of the art.

   With respect to the impact of the coastal road in creating inclusivity and accessibility for the city, the fact is that 92% of Mumbaikars travel by public transport and non-motorised modes of transport, a sector that will not be catered to effectively with the current proposal. The tunnel on the other hand can be designed as a multi-modal connection which accommodates separate lanes of public transport like the Metro or Bus Rapid Transport lines. This would provide a mechanism by which private transport could contribute towards the development of public transport systems. Alternately, the alignment of the tunnel can also be co-ordinated with the Metro line 3 to create intermodal hubs.



Benefits of the Tunnel Proposals in a summary:
Reduced trip length
Reduced trip time
Non-intrusive construction technology
Integration with rapid public transport services
Increased Driving Comfort
Ideal solution for point to point transit
Minimised environmental impact
Reduced aesthetic
Reduced noise pollution
Achieves traffic relief on city roads
Minimal land acquisition
Minimal land reclamation
Comparatively higher lifespan
Reduced maintenance costs
Maximised safety
Traffic segregation
Possibility of phase wise construction
Possibility of phase wise operation
Added advantage of integrating and managing utilities

Integrated transportation corridors seem to be an answer to Mumbai's mass public transportation needs and the tunnel offers an inclusive and non-intrusive solution.

● *Mumbai Heritage Conservation Committee*

Suggestions/Objections for Hearing on the Proposed Draft Detailed Project Report of 'Coastal Road Project'

We are submitting herewith our observations and suggestions/objections, from heritage as well as general point of view, on the proposed 'Coastal Road' project initiated by the MCGM.

1. The proposed Coastal road encircles many heritage sites especially the seaward Forts. The Coastal Road on the seaward side of Forts would change the typology of these Forts and therefore the Coastal Roads would have to be planned in such a way as to retain the character of these Forts and also other heritage sites located along it.

2. [19]A recent transport study shows that around 60% of the everyday trips in Mumbai are made by walking, 20% by trains, 9.2% by bus, over 8.4% by rickshaws and a mere 2.4% of daily trips are made by cars and two wheelers. More than half of these are surely along the eastern and central parts of Mumbai. So perhaps less than 1% of the daily trips might explore the benefit of the WCR. So is this massive investment for the exclusive benefit of that tiny handful? Or are there sideshows going on we know nothing about? Including of course the promise of future builders' profits.

3. The project is inefficient as it fails to new land to the city. What the city needs instead is rapid transit projects that extend its support systems into as yet untouched areas, and that add new land to the city, on which to locate new homes and new jobs. This is the only way we can hope to have affordable housing for the millions who currently live in slums.

4. [20]The DPR does refer to (i) Metro (ii) Bus Rapid Transport System. However, it does not articulate any detail of these systems including how connectivity or intermodal transfer would be achieved. Either system can be considered for the Proposed Coastal Road through a detailed proposal of such a system has to be an integral and non-negotiable part of the DPR.

5. [21]Transport studies indicate that the phenomenon of multimodal trips is very high in Mumbai. Panning of connectivity further North and East West with each node functioning as a multi-modal transport hub would be critical for effective functioning of such a project.

6. Furthermore as there is a rapid growth northwards of the city especially in Mira Bhayander and Vasai Virar, sub regions, the MRT system (including the coastal road, should be built) should extend upto Virar instead of abruptly ending at Kandivali. Given the inhuman crowding experienced in the local trains, this system would benefit more than

[19] Ref "Profiling Transportation Scenario" Comprehensive Transportation Study for Mumbai Metropolitan Region or TRANSFORM, Main Report Vol I, Mumbai Metropolitan Region Authority (MMRDA), July 2008, Pg. 4-11

[20] "Bus Rapid Transit, Reclamation", Draft Detailed Project Report (DPR) Executive Summary, STUP Consultants Pvt. Ltd., Ernst and Young, February 2015, Pg. 71-75 and Pg 41-48.

[21] "Profiling Transportation Scenario" Comprehensive Transportation Study for Mumbai Metropolitan Region or TRANSFORM, Main Report Vol I, Mumbai Metropolitan Region Authority (MMRDA), July 2008, Pg. 4-11.

1.6 million residents of these areas in addition to Mumbai residents. As a consequence, this system would substantially relieve pressure on Western Railways, which is the need of the hour.

7. Experience shows that by moving the population from private to public modes of transport (which is efficient for almost all citizens), existing roads and walkways can suffice Mumbai's current commutation needs. This in turn enhances the highly prioritized pedestrian ease.

8. [22]World over cities are either removing highways or refraining from constructing new highways in their midst. For e.g. The Big Dig project in Boston (The Central Artery), has proved highly effective as it got rid of expressways by employing an underground system for connectivity. The reason for this was that the expressway created a divide between the downtown area and the waterfront, and also, as the expressway did not provide an effective solution to the man problem of traffic congestion. The project was made available 15 acres Greenway consisting of landscaped gardens, promenades, plazas, fountains, etc. to its citizens. This not only has positive social implications but also enhances the quality of life of its citizens.

9. This should give us reason to pause and think carefully, if constructing extensive highways is the best solution to Mumbai's commutation needs. However, if the Government is fully convinced about this system, it needs to look at the coastal road as a public transportation solution for Mumbaikars. This would provide the much needed Mass Rapid Transport (MRT) alignment corridor on the western waterfront of Mumbai.

10. [23]Most of the cloverleaf road junctions and nodes on Coastal road are placed over environmentally sensitive mangroves and mudflats. The DPR does not detail or specify methodology of construction which would allow the mangrove areas to be preserved and conserved. In addition to mangrove forests preservation, a detailed methodology to protect and conserve environmental assets such as beaches should be an integral part of the DPR and execution process. Special care must be taken at all times especially during construction to ensure tidal water reaches the mangrove forests and mudflats, without which these assets will perish and disappear. There needs to be detailed area specific assessment of issues to make recommendations pertaining to the area.

11. [24]Long and short term understanding, analysis and remediation of effects of reclamation including its impact on sewage outfalls and lagoons, storm water drain outfalls and network as well as natural water systems should be incorporated and provided for in DPR. Necessary maintenance and remedial implementation measures and project costs need to be included.

12. The scheme presented shows extensive green areas, both between the road and the existing edge of the land and at the places where new

[22] https://en.wikipedia.org/wiki/Big_Dig

[23 & 24] "Bus Rapid Transit, Reclamation", Draft Detailed Project Report (DPR) Executive Summary, STUP Consultants Pvt. Ltd., Ernst and Young, February 2015, Pg. 49-61.

offshore geometric intersections are laid out to connect with feeder roads. Experience shows that such green areas will not remain green for very long. One does not need to look beyond what has happened to the already minimal green areas in the city to know what the fate of these new green areas will be.

13. [25]The DPR does identify culturally significant assets of the city such as heritage sites, forts, gaothans and fishing villages; however, it does not recommend any tangible enablers to support any process for their conservation. Care must be taken to minimize effect on the livelihoods of the fishing communities as well as suggest a rehabilitation process for inclusion of those affected. These processes should include fish/net drying yards, boat repairs and ancillary facilities.

14. Investment attracts investment. Infrastructure investment inevitable attracts population and further investment by way of property development. The temptation to build new residential blocks and hotels with a great and unobstructed sea view will be impossible to resist. Any new land created other than the traffic carriageway, through any construction means or reclamation as part of this project, must be strictly reserved as a public Open Space. This land should be deemed as "Unbuildable" and such a reservation needs to be provided in perpetuity. These areas shall be strictly developed as parks, playgrounds, promenades and gardens with a possibility of having separate tracks for cyclists and pedestrians along the length on the coastal road. Clear statutory provision for these Public Open Spaces shall be made before initiating any execution work of this project.

15. The DPR includes several essential key words such as climate change, rising sea levels, sustainability, etc. however it does not further translate these issues into tangible actionable result/proposals for dealing with these issues. These keywords seem to remain and reflect as a form of tokenism in DPR.

16. The coastal road needs to be articulated with forward looking plans of the city such as regional development plans so as to study how the design functions with the proposed reservations. Not articulating the coastal road in any future plan makes it impossible to study, evaluate and predict the long-term impacts of such a proposal.

17. As an important recommendation it would be extremely beneficial, if the southern point of coastal road should it be built connects to the southern point of the Central/Harbour Railway at CST, connecting to the CST-Panvel corridor. This can be made possible via an underground connection so as to create a seamless circular route which would connect western and eastern waterfront of Mumbai. This would vastly improve intracity and intercity mobility in Mumbai.

18. Every infrastructure project in the city should be looked at keeping the following in mind:

a. Its long-term impact on the development of

[25] "Bus Rapid Transit, Reclamation", Draft Detailed Project Report (DPR) Executive Summary, STUP Consultants Pvt. Ltd., Ernst and Young, February 2015, Pg. 41-48.

the city

b. The numbers of people who benefit from it

c. The income class of the people who benefit

d. Its priority in the list of city projects

e. Its cost and how it can be funded

None of these seem to have been considered by the Government of Maharashtra while approving the WCR.

19. To put it plainly, the outstanding merit of the Western Coastal Road seems to be that it is a high value project, and therefore much loved by our political decision makers. It also has the virtue of not opening up more land, thus marinating land scarcity and its consequent high value. That it does nothing for 99% of Mumbai citizens. As long as people can be fooled into believing it is all for their benefit.

It is requested to take all the aforesaid suggestions into consideration. The MHCC may be called for a hearing in the matter for discussing the issues.

- *Gulmohar Area Societies Welfare Group*

Coastal Road, Mumbai, Suggestions and Objections

A significant mishap:

Mumbai a City on the water will be trapped by a coastal highway as per the DPR.

Major deviations in the DPR from the plans proposed by the Coastal road committee are highly damaging and therefore unacceptable. The DPR plans that have now been put-up for public response, ignores the varying coastal conditions, be they beaches, mangroves, creeks, significant rock beds popular promenades in Bandra bandstand and Carter road and the many Koli villages along the coast.

Proposal to build a tunnel under the sea, not far from the iconic and popular Juhu beach may lead to beach erosion, for which no relevant studies-deep sea survey, bathymetry study, modelling to understand the changes in tidal patterns and their impact on the coast etc., have been carried out to support such an idea. Moreover, the entrance and exit ramps to the tunnel at both ends, covering close to a kilometre length on each end, will require massive sea wall construction, thus permanently destroying large parts of Juhu and Versova beaches and mangroves on the northern side in particular. On the southern side the ramp will adversely affect the beach and Koli villages in Khar Danda and Juhu. Also, these constructions will be gigantic in scale cutting out the views to the sea and the relationship of the area with the water. There is imminent danger of beach erosion in the entire length due to the construction at both ends. In the committee report it has been suggested to build this tunnel in-land, far away from the coastal edge and the beach in Juhu, making it so much simpler in its construction with least environmental damage.

Again another unnecessary tunnel is proposed in the sea from Nariman Point tip to the Priyadarshini park. This is silly in planning terms as people in South Mumbai areas will not be able to access the coastal road to travel to the Northern parts of the city. Also on exiting at Nariman Point from the tunnel, they will be caught in traffic jams and have to travel unidirectionally to get to different areas of South Mumbai.

Also, the DPR ignores three existing major roads from being utilised by integrating them into the coastal road plan as was proposed in the committee report. The Marine drive, Haji Ali bay road and the Worli sea face road, were considered as being parts of the coastal road plan by the committee, thus utilising significant resources. The DPR adds substantially to the cost of the coastal road by building an under-sea tunnel between Marine drive and Malabar hill (4.30 kms additional tunnel length as compared to the committee plan), constructing a parallel road and interchanges in the Haji Ali bay and a parallel road along the Worli sea face. These increase the reclamation component substantially.

In Malad area, a large mangrove belt along the Malad creek has been taken over for a landfill road along with major construction of a stilted road in the creek, as proposed in the DPR. In the committee report, the road in the Malad area was proposed to be a road over the existing road behind Mindspace, thus protecting the creek as well as the mangroves along its edges.

In short, the DPR is insensitive to the rich varying conditions along the coast and the fisherfolks livelihood. This plan is a wasteful approach in construction and financial terms, besides greater damage to the environment. The committee report was evolved by a diverse group of people with a very detailed survey on the ground of the existing realities, thus minimising reclamation (6 kms as opposed to 12 kms in the DPR), destruction of mangroves and obstruction to creeks. It avoids Juhu beach and the existing Koli villages from being adversely affected. It respects the popular promenades built by the residents in Bandstand and Carter road and proposes the coastal road to be on stilts in the sea, built away from the coastal edge. Also, Carter road has large mangrove areas and Bandstand has iconic black basalt monolithic rock formations, which were protected in one of its plan alternatives for the area. These rich treasures have been ignored in the DPR as it proposes a uniform landfill road along the edge in both places of Bandra.

A uniform eight lane coastal highway as being proposed in the DPR all along the costal edge will turn Mumbai from being a city on the water to a city trapped by a coastal highway, severing people's relationship with the sea. Such a significant change in the geography of the city is highly damaging and demeaning to the city on the water, therefore unacceptable.

BMC should reconsider the DPR plan and review the committee report and the plans therein instead along with modifications based on our suggestions, and put them to public knowledge and response before proceeding further. It is also necessary to know as to how a consultant appointed for preparing a DPR has prepared a new plan with significant and sizeable changes. Who has provided the brief for it to the consultant or accepted such changes and under whose sanctions? This is also an important question in public interest in-order to understand the arbitrariness in decision making for such projects.

We agree with the alternative solutions suggested by the Mumbai Environmental Social Network (MESN). If these alternatives are pursued, then there will not be any need for building the type of coastal road that the DPR proposed.

Our alternative is only valid if these other fundamental alternatives as suggested by the MESN is not pursued in its entirety.

In our submission, we have proposed a

comprehensive third alternative. This is our suggestion based on a set of key principles and guidelines for the planning of an efficient road network and traffic improvement plan.

Our suggested proposal - A third alternative

Key planning and design principles for Road Networking & Traffic Improvement:

1. Minimise land filling and adverse impact on the present coastal character

2. Avoid land filling in creeks, water-courses and mangrove areas

3. Maintain existing sea views and vistas

4. Avoid adverse impact on existing promenades and seafront public spaces

5. Integrate and Utilise existing coastal roads

6. Improve the internal efficiency of existing roads in coastal precincts and inner-connect them to be a part of the proposal along with interchanges.

7. Avoid sea side tunnels, particularly close to beaches.

8. Protect monolithic and contiguous black basalt rock beds and avoid blasting them.

9. Protect heritage precincts

10. Avoid disturbing Koli villages, drying yards and their access to the sea

11. Minimise long straight roads in-order to check high vehicular speeds.

12. Restrict to 2+2 lanes along with 2nd shoulders on both sides, to avoid building a coastal highway of 4+4 lanes.

Segment A

Nariman Point to Priyadarshini park-

1. Coastal road Committee plan: Tunnel under full length of Marine Drive. Intermediate access to the tunnel provided at Marine lines near the gymkhanas.

2. DPR plan: Undersea tunnel. No access except at two ends at Nariman Point and Priyadarshini park. Will not decongest inner-city areas since it bars large number of people to disperse or enter at intermediate location.

3. Our suggestion: Tunnel under Marine drive only from Gymkhanas area upto Priyadarshini park. Provides accessibility to and from more areas and integrates existing Marine drive road for better efficiency and utilisation of existing resources. Also, avoid building a road along the Nariman point south side waterfront not only to avoid disturbing the bay but also the koli village.

Segment B

Priyadarshini park upto Haji Ali bay-

1. Coastal road Committee plan: Landfilled road in the profile of the existing coastline to minimize landfilling.

2. DPR: Straight landfilled road with larger areas of land filling to make gardens.

3. Our suggestion: Committee plan is preferred as this avoids unnecessary landfilling. Also, speed checks are possible when roads are meandering. Moreover, these waterfronts are presently inaccessible to the public

Segment C

Haji Ali Bay-

1. Coastal road Committee Plan: Parallel road to the existing Haji Ali road by landfilling into the bay area. Smaller and efficient interchanges are

provided at both ends, not protruding into the bay. A separate sea bridge is provided upto the Baroda Palace corner.

2. DPR: Detached bridge in the sea with large landfilling and interchange. This volume of construction will visually and physically fill-up the bay area and significantly mar the presence of the Haji Ali dargah.

3. Our suggestion: The existing 3 + 3 lane Haji ali road should be integrated into the coastal road plan, and additional landfilling should be avoided. Such a plan will also respect the presence of the Haji Ali dargah and the stunning sea views and sunsets. Interchanges without landfilling can be built at both ends of the Haji Ali road to achieve interconnection.

Segment D

Worli Sea face from Baroda Palace to Sea Link-

1. Coastal road Committee plan: Landfilled road all along the worli sea face upto the sea link with intermediate interchange at Worli dairy.

2. DPR: Landfilled road all along the worli sea face with large land filled interchange at mouth of the Sea link.

3. Our suggestion: Land filling from Baroda palace only upto Worli Dairy interchange is suggested. Further, integration of the existing Worli sea face road into the coastal road plan is suggested thus, avoiding landfilling in the sea.

Segment E

Bandra Worli Sea Link and Bandra Fort-

1. Coastal road Committee plan: Uses existing sea link and Landfilled road around the Bandra fort tip.

2. DPR: Uses existing sea link and landfilled road around the Bandra fort tip.

3. Our suggestion: To protect and preserve the heritage structure of Bandra Fort and the significant basement bed-rock structure along the sea edge, landfilling should be avoided and a stilted road instead be built around Bandra Fort.

Segment F

Bandra bandstand and Chimbai beach-

1. Coastal road Committee plan: Landfilled road along Bandstand and sea bridge across the Chimbai bay. The sea bridge allows sea access to the fishing boats of Chimbai village.

2. DPR: Landfilled road along Bandstand and sea bridge across the Chimbai bay.

3. Our suggestion: Both the DPR and committee plan ignores the presence of ancient basalt rock formations in the Bandstand area. Also they destroy the existing people built promenade and turns the neighbourhood to face an 8 lane highway. Instead a Stilted road/bridge further in the sea area from the promenade, is suggested across Bandstand and Chimbai areas to preserve the basalt rock formations and the existing promenade and the neighbourhood road. An interchange to Hill road is also suggested for effective dispersal.

Segment G

Carter road and Khar danda area-

1. Coastal road Committee plan: Stilted road to avoid destruction of mangroves at Carter road. Stilted road over the Khar danda creek mouth area. Ramp to enter the inland tunnel is provided on land with an interchange for dispersal on both sides of khar danda with no landfilling. An interchange is provided at Otters club and Khar Danda.

2. DPR: Stilted road to avoid mangroves destruction. Further, large landfilled area to

accommodate ramp to enter the undersea tunnel.

3. Our suggestion: Committee plan is preferred.

Segment H

Juhu-

1. Coastal road Committee plan: Inland tunnel under large parts of Juhu and Juhu airport. This avoids destruction of Juhu beach and utilizes existing road near Ritumbara college at the exit. Also stilted road is proposed at the exit near the Versova beach to minimise destruction of mangroves. This plan proposes additional interchanges at both ends of the Tunnel as compared to the DPR plan.

2. DPR: Tunnel under sea along Juhu beach. Landfilled ramp at Juhu nullah mouth, destroying existing mangroves and beach area. No interchanges are provided from Carter road to Versova, which restricts the whole Juhu area residents from accessing the road.

3. Our suggestion: Committee plan as is preferred utilising the open area opposite the Ruthambara College in the north of Juhu. The open area is adequate for the tunnel exit and entry as well as for the ramp required to connect the bridge to further north to Versova area. The committee had issued necessary orders - through the MC to SRA & DP in this regard and to not allow any other project here.

Segment I

Versova to Mindspace-

1. Coastal road Committee plan: Elevated road over an existing road is proposed in Versova further leading to a triangular interchange connecting to Madh and further north to Millat nagar. Both these legs are stilted roads over mangroves. Behind Millat nagar a surface road is proposed over already landfilled area.

2. DPR: DPR plan follows the Committee plan.

3. Our suggestion: Committee plan is preferred. We also suggest that the stilted road towards Madh island be avoided as it does not cater to a significantly large population there.

Segment J

Mindspace to Kandivali-

1. Coastal road Committee plan: All along Mindspace in malad upto Kandivali junction, a stilted road along the existing road and over the creek is proposed with a final interchange and exit at Kandivali New Link Road. This road shall be stilted to avoid blocking creek and nullah courses.
2. DPR: Landfilled road over mangroves and bridges over creeks is proposed. Large areas of mangroves shall be destroyed due to this road construction. A bridge is proposed at the last leg of road before reaching the Kandivali interchange.

3. Our suggestion: An elevated road over the existing Mindspace back road is suggested to avoid construction in the creek course or mangroves area. As the existing road behind Mindspace end towards the north end, the coastal road may continue by connecting it to the two existing east-west roads. Thereafter, it is proposed by us to continue as an existing link road, upto Kandivali interchange point. This is to completely avoid any interference with the Malad creek and the various water-courses and the rich mangroves in the area.

Interchanges

1. Coastal road Committee plan: Suggests 18 interchanges along the 36 km. Stretch.

2. DPR: Suggests only 12 interchanges with limited access to a lot of population living in the inner

city areas and Juhu.

3. Our suggestion: 18 interchanges are suggested to increase the usability and efficiency of the road network and its integration with existing roads. Also the coastal road is proposed as a continuous 2 + 2 lane road along with 2 meters wide shoulders in order to not only restrict high speeding, but also to have smooth and easy merger with the various neighbourhood roads that area generally 2 + 2 lanes. 2+2 lane coastal road will have smooth transition with city roads for dispersal. This will prevent bottlenecks.

- *Shweta Wagh*

Environmental and Social Impacts of the Coastal Road Project on the Western shoreline of the city

The Coastal Road is a 34-kilometre highway planned along the Western Coast of Mumbai. This presentation attempts to point out the impacts of the proposed road on the city as observed through a satellite image overlay and analysis of the proposed alignment of the road.

The western coastline of Mumbai still retains its natural edge that consists of natural geomorphic formations and diverse coastal ecosystems. These include rocky and sandy beaches, bays and headlands, estuaries and coastal wetlands. The 34.56 km long project that proposes reclaim land, build stilted roads and construct undersea tunnels will deal enormous impacts on this delicate ecology and natural features of the shoreline.

Out of the total length, 11.61 kms is proposed by the DPR as a reclaimed road, the total area of reclamation being 168.08 hectares. As one of the largest proposed reclamation due to a single project, it will offset the coastline considerably along large stretches of the coast, smoothening out the natural formations of the coast for the free flow of traffic.

The impacts will be of two kinds:

A] Local impacts at specific locations along the coastline

B] General impacts at several locations or all along the coast.

A] Local Impacts on specific areas along the coast:

Following is a description of the precise alignment of the proposed Coast Road and the local impacts it will have in specific areas of the city.

1. The stretch between Nariman point and Haji Ali Bay

The road begins near Nariman point, passes through an undersea tunnel which cuts across the Chowpatty bay, then trough another tunnel passing below Malabar Hill and emerges at the northern end of Priyadarshini Park. The road will then form a reclaimed edge along the waterfront along Nepean Sea Road, Breach Candy and Mahalaxmi. It will result in the reclamation of existing rocky beaches and marine habitats along this entire stretch.

The reclaimed road is also proposed to function as a massive sea wall, cutting off the city - physically and symbolically - from the sea. Existing sea facing areas, built structures, waterfronts, beaches and monuments (such as the Mahalaxmi temple) will no longer have visual and physical access to the sea due to the construction of the eight lane highway with an elevation of about 3.5mts above

the high tide line.

Connectors to the Coastal road from Breach Candy are likely to cause severe traffic congestion in the area. For example, one of the connectors is proposed over an existing road which is quite narrow. There are also two heritage buildings situated along this road. It will therefore be impossible to widen this road to increase its capacity to handle traffic and this will eventually result in a bottleneck at this junction.

An eight lane wide road on stilts in proposed in Haji Ali Bay. The construction of a tangle of flyovers and connectors proposed within Haji Ali Bay will not only substantially reduce the size of the bay but also obstruct and partially block the view of famous Haji Ali Dargah from the existing road along the seafront. Besides this pilgrims and visitors will have to cross an underpass below the Coastal road flyover in order to reach it.

2. The stretch between Worli and Bandra Bandstand

The road is a landfilled road from Worli up to the Bandra Worli sealink. It then joins the existing sea link which connects to Bandra reclamation. From Bandra reclamation a reclaimed road is proposed along the waterfront around the headland at Bandra upto Bandstand promenade.

Bandra Fort is an archaeologically significant site and a protected monument. It is also an important local landmark and a popular public space which provides unhindered views of the sea. The 3.5 m high seawall will cut of this historic site from the sea and the existing view of the sea will be replaced by a view of the elevated highway.

Natural rocky beaches such as those around Bandra fort and Bandstand are also active public spaces in the city, providing direct and uninhibited access to the sea. These are intensively used, and thousands of people from different parts of the city visit every day. These beaches will be replaced by a large reclaimed concretized expanse.

The new open spaces created by reclaiming land from the sea will be inland and cut off from the sea by a 3.5m high eight lane highway. Concretized beaches and waterfronts will replace existing natural beaches which are vibrant public spaces. This would imply the loss of public access to the coastline.

Access to public spaces and proximity to residential areas are crucial to the functioning of waterfront recreational areas. An eight lane highway with uninhibited traffic is quite different from a Marine Drive or Carter road where pedestrians can prevail over cars. The only way these new reclaimed promenades can be accessed will be through underground tunnels or underpasses, across 50-60 metres of road, making them highly un-attractive. Already, the poor use of the promenade in Bandra Reclamation which has poor access from surrounding residential neighbourhoods shows the ineffectiveness of such projects.

According to the EIA report for the Coastal Road Project, the "road level is planned in such a way that it will not impact aesthetic and sea side view of commuters", implying that the project is designed keeping the aesthetic needs of the commuters as opposed to the residents or pedestrians in mind.

The EIA report for the Coastal Road project fails to list out significant monuments such as the Bandra Fort that lie along its route. It quite ironically

proposes a "memory garden" along the stretch adjacent to the fort- perhaps a reference to the beach that will remain only in the city's collective memory.

3. The stretch between Chimbai Koliwada and Khar Danda

The road is then a road on stilts in the sea adjacent to Chimbai beach and Carter Road but it is quite close to the shoreline and will obstruct the present view of the sea. Two connectors to the coastal road have been proposed from Carter Road: One passes through an area designated for primary activities which is a fish drying area used by Kolis residing in the Chimbai fishing village. The second passes over a dense patch of mangroves just adjacent to the Carter road promenade.

The two connectors will result in perpetual traffic congestion on Carter road and in the rest of Bandra. Mumbai has not evolved as a car centric city, and the coastal road will impact existing settlements or neighbourhoods and historic urban fabrics in the city. It will increase pressure on existing roads, and require widening (as the MCGM's Proposed Land Use Plan(PLU) proposes) of roads through residential neighbourhoods and urban villages substantially altering their physical character.

Widening of existing roads and new roads have been proposed through several Gaothans and Koliwadas in Mumbai's draft development plan (DP 2014-2034). A new road for example has been proposed on the sea- ward side of Chimbai fishing village, which will eventually connect to the coastal road. This road will cut off access to the coastal commons and boat parking areas on Chimbai beach which are presently used by the community.

4. The stretch between Khar Danda and Juhu Moragaon

The road is then an undersea tunnel along which runs along the coastline from Khar Danda fishing village upto the northern edge of Juhu beach. Here it ramps up to become a road on stilts over the mouth of Juhu Nala (estuary) and the stretch of mangroves in Versova.

Reclamation, excavation and cut and cover construction for the ramp leading to the undersea tunnel in front of Khar Danda Fishing village will cut off existing fish drying areas and coastal commons from the sea. There is also the threat that these reclaimed areas between the fish drying areas and the road will eventually be appropriated for leisure and recreational activities which will replace fishing and ancillary livelihood related activities.

Heavy construction and excavation of beaches would also be required for the cut and cover entry points and sea wall along the ramp at the northern end of Juhu beach right in front of Juhu Moragaon fishing village. The road then ramps up to a stilt road passing over an area reserved for primary activities for Juhu Moragaon fishing village. This will result in the loss of habitat, destruction of beach space presently used for fishing and ancillary activities and loss of access to the sea.

The road on stilts then passes over the mouth of Juhu nala/estuary which will constrict the mouth of the creek. Heavy construction activity at the mouth of the estuary is likely to cause flooding in the fishing village and surrounding low lying areas.

5. The stretch between Juhu Moragaon Koliwada and Versova Koliwada

The road on stilts then passes over mangroves in Versova. Several connectors and ramps and a new park which have been proposed over the mangroves and will impact this natural ecosystem.

The next stretch is a stilt road which passes over the Nana Nani Park in Seven Bungalows. This is a popular public space especially for morning and evening walkers in the neighbourhood. The eight lane highway over the park will not only displace existing activities but also result in the destruction of existing trees and green cover. It is likely that this public space will eventually be converted into either a dump yard or a carpark.

The highway on stilts will pass very close to existing residential buildings and will disturb the view and privacy of these apartments, besides substantially increasing levels of air and noise pollution in this peaceful residential neighbourhood.

6. Connection of Madh Island to the mainland at Versova

The road then passes through the mangrove creek adjacent to the Versova fishing village. Here it bifurcates into two branches, just south of Versova lagoons. One branch is directed northwards towards the Malad and Kandivali through the Malad Creek. The second branch is shown to cross the Malad creek, just north of Versova fishing village where it ends abruptly at the Madh Jetty.

The existing road from Madh Jetty to Marvey is proposed to be widened to 27mts (wider than the width of the proposed coastal road). Though this road is not being referred to as the coastal road, all the traffic from the coastal road will directly feed into it. Many roads in the Madh island area are proposed to be widened and new roads have also been proposed in the area in MCGM's draft development plan.

The project has already triggered speculative development in the ecologically sensitive areas of Madh, Marve and Manori that the coastal road will eventually connect. These areas already have numerous natural areas, urban villages and their commons, and were protected as No Development Zones in earlier development plans. In the draft DP 2014-2034, these areas have been proposed to be opened up for residential and commercial development.

7. The stretch between Versova fishing village and Charkhop.

Between Versova and Charkhop, the road is partly a surface road, partly a landfilled road and partly a road on stilts which passes through the Malad Creek and mangroves and CRZ I areas adjoining Versova, Lokhandwala complex and Oshiwara.

A land filled road has been proposed in the middle of Malad creek for a considerable part of its length. It is feared that the constriction of the creek will reduce the area available for flushing and the water will remain in the channel for a longer time. The pillars/stilts and landfilled road planned within Malad creek will hamper the currents during low tide and could result in flooding in upstream areas.

The road on stilts in middle of Malad creek crosses the Malad Marve road and connects to the Link road in Kandivli. Link road is already a very congested road and the proposed connector

to the coastal road is likely to further exacerbate the traffic congestion in the area.

B] General impacts along the western coastline:

Reclamation will replace almost all of Mumbai's remaining rocky beaches which include long stretches along Nepean sea road, Breach Candy, Mahalaxmi headland, Worli seafront, Bandra headland and Bandra Bandstand. Reclamation of these areas will irreversibly alter the natural erosion and deposition along the beaches that have over time formed the complex geomorphological features that sustain diverse ecological habitats.

The EIA report and DPR for the Coastal Road mentions that the "Committee has found that the proposed reclamation of an average width of about 100 metres does not cause any impact on the tidal movements and no adverse effects to the coastline are envisaged." But past experience and alternative views from experts and scientists suggest that the opposite may be true, and tidal variation is likely to have severe impacts at several places along the coastline.

For instance, it has been reported that reclamation for the Bandra Worli sea link resulted in severe erosion of sand from sandy beaches along the coastline such as the waterfront at Dadar which eventually led to the disappearance of the Dadar Chowpatty beach. Reclamation will reduce the areas in the natural bays, and the volume of water displaced is likely to lead to the erosion in the northern sections of the city which include popular public beaches such as Juhu and Versova.

The areas reclaimed along the coast between the road and the existing edge are proposed to be 91 hectares of public open spaces which include promenades, landscape theme parks etc. The problem, however, is that these open spaces are being created by effacing existing ones including natural beaches that work much better. The present coastline consists of a whole range and variety of open spaces, each distinctive for the kind of experience it offers to residents and citizens.

The EIA report claims that there will be no impacts on natural drainage patterns as ample culverts have been provided along the entire length. But large scale reclamation and conversion of natural areas into concretized hard-paved areas creates an impervious terrain that is likely to impact the natural drainage patterns in the city. Furthermore, due to an inadequate solid waste management system, culverts and storm water drains tend to get clogged in Mumbai, and are incapable of adequately flushing out water.

The project will require reclamation of 27 Hectares of mangrove land, and will impact irreversibly more areas due to construction activity. The stretch of road between Juhu and Malad will pass through the Malad creek and over mangroves near Versova fishing village, and this area will be severely affected. Mangroves and coastal wetlands serve important ecological functions (such as breeding areas for coastal fauna) and provide important ecological services. They act as natural sponges and play a crucial role in flood prevention, and it is incredible how the DPR disregards this fact.

Ironically, the EIA report for the coastal road project itself acknowledges that "mangroves maintain the integrity of Mumbai's shoreline" and provide "a vital service to the city of Mumbai." The report even goes on to state that flooding in Mumbai was a result of a "systematic destruction of mangroves in the city" and "demonstrated the consequence of tampering with the ecology of

fragile ecosystems" as a result of "depriving Mumbai of its natural flood-and silt trap." It also mentions that "had Mumbai's Mithi river and Mahim creek mangroves not been destroyed, "fewer people would have died and the property damage would have been dramatically less."

Severe flooding is anticipated in upstream areas of creeks in which large scale construction is proposed especially areas such as Goregaon, Malad and Charkhop. Indiscriminate construction of landfilled roads and stilt roads in mangrove areas and at the mouth of estuaries will further exacerbate this problem.

The EIA reports enumerates in detail the different kinds of environmental impacts likely during the construction and operational phases of the project. The impacts listed are extremely serious, though the mitigation measures the report suggests are trivial at best.

The EIA report states that to compensate for the loss of Mangroves, "mangrove species shall be established on either side of the road to be constructed. "It is surprising how the EIA consultants assume that complex eco-systems that have evolved over time can be replaced and recreated by simple replanting of a few selected specimens of such a system; or that such measures can compensate for the substantial loss of their present ecological and bio-diversity value.

The EIA report mentions that changes in microclimate change due to road construction will be temporary as afforestation will restore this in 3-4 years. But despite afforestation, if it happens, the heat island effect and changes in microclimate will result due to a heavily concretized coastline. Incredibly, despite its own projections of car traffic, the EIA report claims that there will be negligible changes in macroclimate due to the road.

The EIA report mentions that noise levels at Haji Ali, Nariman Point, Mahalaxmi Temple, Carter road, Rizvi College, Poddar Hospital, Versova and Lokhandwala Complex, are already exceeding the limits prescribed under Environment Protection Act (Regulation & Control) rules 2000. It is obvious that noise levels will increase further during and after the construction of the coastal road.

Conclusion:

The rationale for the Coastal Road project needs to be re-examined vis a vis its social ecological and economic impacts. There is an intricate and delicate relationship between the physical and social systems which constitute the social-ecology of the coast. The Coastal Road project will have enormous consequences on the physical environment as well as the socio-cultural fabric of the city. The proposed road will affect neighborhoods and communities all along the coastline and has been conceived of without sufficient public engagement or participation. It will not only significantly alter the historic coastline and public realm of the city but will also increase disparities by undermining the rights of marginalized and vulnerable communities. While it provides benefits to a small percentage of the population, it will also put a drain on the public resources of the city which need to instead be directed towards more pertinent and urgent issues such as health, sanitation, housing, and comprehensive transport planning for an inclusive public transport system. In light of the serious consequences of this which have been

enumerated earlier in this deposition, it is evident the project clearly goes against public interest and should therefore be reconsidered in its entirety.

3. TRANSPORT

● *Ashok Datar, Sonali Kelkar*

(Civil Engineer and Urban Planner)

Executive Summary of our Objections on Economic & Traffic Grounds for Coastal Road Detailed Project Report

Detailed Project Report (DPR) not Clear, Explicit and Consistent in Projecting Traffic Volume and Toll Basis

The DPR doesn't provide clear and consistent projections of traffic volume, toll rates and amount. Giving exponential and mechanistic projections of traffic, toll amounts and economic benefits for a period upto 2043 is not appropriate. In a rapidly changing world, a linear projection of growth in traffic at 5% pa is wrong. To justify such a huge investment on such a weak basis is not right.

It is important that such DPR should provide clear maps of connectors, show their space and existing traffic conditions. It should be clear in stating the assumptions and working of traffic on sea link and existing roads as well as explain/ reconcile the toll rates, amounts and the no. of vehicles paying this toll. It should take into account DPR projections and what happened at BW sea link & eastern freeway.

There are better alternatives that simply "do nothing"

The DPR considers "do nothing" as the only alternative which ignores several superior possibilities. We believe that serious alternative(s) in the form of MUTP III, BRTS on WEH, JVLR and SCLR with a number of innovations are quite possible. A simple multi lane high speed car centric solution is quite old fashioned and when it involves walling of large part of coast, it increases the risk of flooding in the city.

Use investment per passenger trip as a basic parameter for choosing an alternative

The estimated cost of Rs. 12000 crores to cater to 120,000 car trips/day (equal to 200,000 passengers) in 2022 and progressively higher over 20 more years. It works out to Rs. 650,000 / passenger trip. For metro I, it is Rs 160,000, for Metro III (with a volume of 14 lakh trips/day) it works out to Rs 150,000. And the alternatives we have suggested of 20 more trains/hr. on w rly (& with conversion of I to AC class) provides 680,000 incremental trips a day with an investment of Rs. 4581 Cr. (investment/trip- Rs 68578 only- 1/9th of coastal rd.!) And BRTS using 600 buses indicated in annexure of the DPR but on WEH, SCLR and JVLR would provide 9 lakh incremental trips at an investment of Rs. 1600 Cr (only Rs. 17563/trip!). This should be the basic parameter to evaluate economic viability.

Why such a superficial treatment to public transport in the scheme of things?

The DPR identifies the merits of BRTS as a concept and even suggests 600 bi articulated buses but while making traffic estimates, it indicates that due to the negligible volume of other traffic, only cars are considered while estimating and planning for the traffic using the coastal rd. Thus the buses and other vehicles are relegated to using primarily

the existing road network. Thus an eyewash!

Fuel saving should be in comparison with alternatives not considered and not just "do nothing"

Primary benefit identified by DPR is fuel saving for cars due to getting higher mileage thanks to speedy and non-congested driving conditions. It identifies the fuel yield for cars at 17 km/litre instead of 12 km. due to the coastal rd. But energy cost of a passenger trip in a car is Rs. 3 whereas the suburban trains cost Rs. 0.20 / passenger km and metro may cost somewhat higher. Ordinary buses would cost about a rupee but BRTS will cost somewhere near Rs. 0.25 to 0.30 per passenger km. Hence such alternatives are hugely cost, energy and emission efficient as compared to coastal rd. which encourages more people to use cars rather than migrate to public transport options. Typically, the energy consumption equals the emissions and hence we wonder whether there is any economic benefit (or rather a huge cost) for coastal rd. as compared to the public transport alternatives!)

Time saving benefits are mostly irrelevant and hugely overstated

Coastal road must be the biggest and most expensive road project in India. It involves an expenditure of Rs. 342 Cr /km equal to metro but carry very small number of motorists. Its economic benefits calculated at Rs. 522 Cr for the base year of 2022 are calculated only on the basis of fuel and time saving. The time saving has become irrelevant for cars as they would be otherwise parked! Passengers in a car in 21st century use phones, internet etc. and hence their time has no opportunity benefits! On the other hand, the DPR doesn't consider the rail and bus based alternatives (offering comforts, speed, frequency for all incl. motorists) which save a lot of fuel and emissions and hence there are opportunity costs but the DPR is naïve on this score.

Let us get our priorities right

A mega project like coastal rd. enables everybody to forget about the basic hygiene of the way we build and use roads, traffic discipline and management, consistent ignorance of violations/ trivialization of safety, sanctity of traffic rules and parking regulation (to reduce the huge and unseen subsidy to private vehicles! Several mediocre cities in the world do better than our world class aspiring Mumbai on such issues. if by building such iconic but wasteful engineering marvels will make our city world class, it is an illusion. Let us focus on governance as the first parameter for choosing a project or initiating a process.

What is the forward path?

We must get real and focus on traffic calming, genuine hi tech, hi governance public transport accompanied by private vehicle restraint measures such as fair pricing for parking etc. rather than perpetuating car centric vision of the few and for the few! If at all, the project has to be implemented for any reasons, it should be restricted to 2+2 lanes, eliminate tunnels in front of Marine Drive, Juhu, avoid filling at Haji Ali, raise toll for cars and exempt buses. In any case, we must improve the avg. capacity utilization of cars/taxies (from 1.5 seats to 2.5) and for buses increase the avg. speed by 15% thru providing exclusive lanes and other measures, equip them with next bus arrival info system, and achieve at least 45 lakh trips/day

and improve road marking, lane discipline , intelligent and sensible use of spaces under all flyovers, substantial improvement in parking discipline and fees , material increase in fees and a substantial improvement in compliance of rules as well as meaningful restraints on additional personal vehicles before the completion of modified and reduced sea link.

- *Shashank Rao*

Deposition

Executive Summary of our Objections on Econo

- Our government is never keen to give preference to public transport. Other countries prioritize public transport- buses or even autorickshaws.
- No public transport (buses) to ply on coastal road.
- This will lead to major congestion at the entry and exit, as well as at the destination.
- Priority should be given to public transport, on the main route of the Coastal Road.
- At the exits of the Coastal Road, there should be autorickshaw/taxi stands. So people can use buses on the road, alight and then use rickshaws or taxis.
- This would discourage people from using private vehicles.
- This would, thus, further the actual purpose of the Coastal Road better.

- *Binoy Mascarenhas*

Assessing the impact of proposed coastal road on public space access in Mumbai

The Maharashtra government's proposed coastal road project in Mumbai will severely cripple many existing public spaces by cutting off their interaction with the sea. On the other hand, the government has proposed the development of 91 hectares of new open spaces as part of this project. What is likely to be the net impact on public space in Mumbai?

Earlier this year, the Government of Maharashtra released for public hearing, the Detailed Project Report of its ambitious Rs 12,000 crore project to build an urban freeway along the western coastline of Mumbai. This 34 km corridor will run from Nariman Point in the south, right up to Kandivali in the north-west of Mumbai. A little over half this length is proposed to be built along reclaimed land, (the remaining length consisting of tunnels and sea-bridges). A total of 160 hectares of land will be reclaimed for this purpose.

It is heartening to note that the government has earmarked 91 hectares of the proposed land reclamation for open spaces. If planned well, these areas have the potential to become vibrant public spaces for space-starved Mumbai. This is especially important for the suburbs of Mumbai, where accessible open space per capita is significantly lower than in South Mumbai. However, if the planning of these open spaces is done in an ad-hoc manner, then they are at risk of disuse, decay and eventual encroachment by slums or other unwarranted uses. In order for these open spaces to become vibrant, thriving and safe public spaces, it is absolutely essential to think through their access and interaction with adjacent neighbourhoods. This becomes even more crucial in the context of Mumbai's coastal road, given that these open spaces will abut an 8-lane freeway,

that will pose severe constraints on the public's access to these spaces.

The suburb of Bandra throws up some interesting case-studies on the likely impact of the coastal road, in its current form, on the public space potential of the city. Bandra is famous for its Bandstand promenade and Carter Road promenade, both about 1 km long public spaces built along the sea-coast. These promenades include of a series of gardens, amphitheatres, walking tracks and lookout points. They run parallel to local neighbourhood streets, and shares a porous access with these streets along their entire length. These streets connect directly to local neighbourhoods in Bandra, offering good vehicular and pedestrian connectivity. As a result, the Bandstand and Carter Road promenades are lively and vibrant public spaces that attract thousands of visitors every day. It is used by people as a place for exercise, social interaction, community events or just as an escape to enjoy some quiet time accompanied by an amazing sea-view. It is popular both with residents of Bandra, as well as with people from all across the city, and is one of the iconic locations in the western suburbs.

In close proximity to the Bandstand Promenade is a 1.2 km long promenade in Bandra Reclamation, abutting the 8 lane highway that connects that Bandra-Worli Sea-Link to the Western Express Highway. In design, the setup of this promenade resembles the public spaces proposed along the coastal road, which will also abut an 8 lane highway. Like the Bandstand and Carter Road promenades, the Reclamation Promenade also has an array of walking tracks, gardens and amphitheatres; is directly adjacent to the sea, and is in close proximity to local neighbourhoods. However, there is one crucial difference. While the Bandstand and Carter Road promenades share a porous access with local streets along their entire length, the Reclamation Promenade has just 2 points of public access along its 1.2 km length, provided through underpasses going below the elevated highway. Of these accesses, one is completely blocked by slum encroachments, leaving only one access usable by the general public. This second access is also in poor condition, due to inadequate lighting, decay and debris strewn along the underpass. Moreover, in order to reach this underpass, one has to cross a busy approach road to the highway, which has continuous movement of fast-moving traffic in both directions.

As a result, the Reclamation Promenade is grossly underused, with no more than a handful of visitors every day. Despite its close proximity to local neighbourhoods, its poor access, on account of the adjacent highway, significantly limits accessibility for the local populace. Thus, despite having comparable open spaces, sea-view and activity areas as the Bandstand and Carter Road promenades, the Reclamation Promenade doesn't attract even a fraction of the number of visitors. Since the general public have stayed away from the Reclamation Promenade, it has become a haven for anti-social elements, such as eve-teasers, drug addicts, muggers and the like. Ironically, the proposed alignment of the coastal road will run in front of the Bandstand and Carter Road promenades thus potentially destroying the only two vibrant public spaces in this suburb.

A study of the proposed coastal road's Detailed Project Report shows that not enough attention has been given to the functionality and access of

its proposed open spaces. Apart from earmarking 91 hectares of land Reclamation as green open spaces, there is little detail provided on the planning and design of these spaces, including their interaction with local neighbourhoods. Not enough detail is provided about the access points for these spaces, which will be presumably provided through underpasses below the coastal road, similar to the Reclamation highway. However, no details are provided on the location, frequency and design of these accesses. If provided for in a similar manner as with the Reclamation Promenade, then these spaces are prone to a similar fate of decay and disuse.

Furthermore, most of the earmarked 91 hectares of open space includes large tracts of land reclamation that will fall between the highway and the original coastline. Since these spaces are located on the landward side of the coastal road, they will not enjoy a sea-view. In fact, the coastal road, which will be built along a raised mound, will act as a continuous wall separating these public spaces, and indeed the rest of the city, from its access and interaction with the sea. If these spaces are not properly planned, then they will fail to become vibrant, self-sustaining public spaces. The Bandra Reclamation highway again provides a good case-study on how such spaces are prone to neglect and encroachment. Like with the proposed coastal road project, the Bandra Reclamation project involved the creation of large open public grounds on the landward side of the coastal highway. Today, a large section of these public grounds have been encroached by slum settlements. This is a telling warning of what could happen to the proposed open spaces along the coastal road, if there is no sound planning on their interaction and access with local neighbourhoods.

Unfortunately, the government hasn't given enough thought on the planning and design of these public spaces. Given the extent of detailing that is provided in the Detailed Project Report, one is tempted to draw the conclusion that the proposal to develop 91 hectares of open spaces is merely a gimmick to placate environmentalists and to stifle opposition for this project. The coastal road, in its current avatar, will destroy or severely cripple the interaction with the sea for many existing public spaces. For example, Mahalaxmi Temple, Haji Ali road, Worli Sea-Face promenade, Bandstand fort, Bandstand promenade, Jogger's Park, Carter Road promenade are just some of the public spaces that will lose their direct access to the sea. One hopes that the proposed new open spaces will be worthy replacements. But given the cursory attention provided to their planning in the Detailed Project Road, this seems like wishful thinking.

● *Sudhir Badami*

Humanistic and Futuristic Approach to Mumbai Coastal Road Project

Any project conceived for improvement of facilities to citizens must be for the benefit of the maximum number of persons with money spent most efficiently. Also it must not be such as to be the cause of impediment during disaster management or be itself the cause for the creation of disaster. It should by far be for disaster mitigation.

It is also known to mankind that to lead a comfortable life, we need to use electricity or energy as such so that the work is done by machine and the produce is consumed by us humans.

Innovativeness and inventiveness of humans enable this to happen. However, depending upon consumption rate, we are inviting natural disasters in the form of global warming and climate change (GW & CC). Energy generation by burning fossil fuel also leads to local air pollution besides GW & CC. Therefore, manufacturing industry has to be located away from dense human habitation, which means commuting to such workplaces become necessity. While we can manage to keep polluting industries away, we end up with burning fossil fuel for commuting. There is much commuting taking place for work related travel, shopping, entertainment and recreation and several more. As we increase our commuting within the urban set up, another adverse effect comes into reckoning and that is noise pollution. To get respite from noise emanated by commuting, we need to put ourselves in enclosed homes else suffer health repercussions. Alternately, provide open public spaces where ambient noise levels are low.

GW & CC does not restrict itself to changed pattern of precipitations but quite likely increased precipitation as well as rise in sea water levels all over due to melting of snows and icebergs at the poles and the mountains and the Himalayas. What does it mean to coastal cities like Mumbai? Storm water drainage will become more acute with spurts of very heavy downpours unable to cope up with. It becomes necessary to resort to use of pumps to drain it out as sea water levels become higher than the existing drain levels and their slopes.

How does rise in highest sea level quantify? It is estimated that in the next hundred years the sea level is likely to rise by as much as one meter. This would mean considerable land in current use in the city will get submerged and the highest high tides and high waves during strong winds will surely inundate a lot of current assets and cause considerable hardship to living humans, their livelihoods and general wellbeing unless some remedial measures are taken.

It is in this perspective that the Coastal Road Project of Mumbai needs to be viewed and not merely as a facility for commuting by personal motorcars.

There is much truth in what former mayor of Bogota, Enrique Penalises statement "People may be harried by shortage of water supply and interrupted electricity supply and inadequacy of other civic amenities but their degree of happiness is immeasurable when they are provided with easily accessible, safe and quiet open public places"

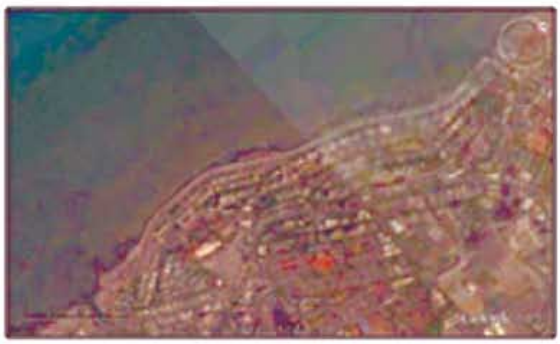
Small houses may just be affordable to many by providing shelter but quality of life improves significantly when lady of the house is able to take her child to such safe haven and also the very senior citizens and those who are infirm are able to move about safely. Such places are stress relievers.

In a city like Mumbai, although there are many Recreation and Play Grounds and Gardens, though inadequate to the population, rarely do we find open public spaces such as the Marine Drive, the Gateway of India, the Haji Ali (Hornby Villard) or the Worli Sea Face. In reality, only a place like the Gateway of India has practically no traffic in the immediate vicinity. Beaches of Juhu or walkways at Khar do exist but all these are overcrowded to provide the relaxation they are to provide. Accessibility is an issue as large section of Mumbai population is unable to reach these places or return home from these places without

undergoing a stressful commute; even walking is not pleasurable as walking spaces if provided are full of impediments.

Chowpatty beach is large in area but does not have long stretch. Closer to the shore, traffic noise becomes insignificant. During the low tides, a band of sand becomes accessible almost the full stretch of Marine Drive and walking on this, one can hear nothing but the waves. This stretch can be expected to be submerged with the rise in sea water.

Chowpatty and Marine Drive Waterfront



Khar to Juhu - Versova

Hornby Villard (Haji Ali)

High Tide during Monsoon Accompanied by winds and tall waves.

Then of course the issue of commuting comes into picture, the very reason for the Coastal Road Project as has been talked about by the "men of vision and men of action". Coastal Road came about because the Sea Link would have been probably more than twice of the proposed Rs 12,000 Cr Coastal Road. It is a question of priority, where do we allocate how much fund and when do we execute those projects. It is important to understand the current scenario. The latest study is of CTS-2008 (Comprehensive Transport Study) carried out by MMRDA (Mumbai Metropolitan Region Development Authority). Prior to this, keeping aside the proportion of population using the walking mode of commuting, 88% used public transport, 5% used Intermediate Public Transport and 7% used personal motorized two wheelers (MTWs) and motorcars. It is estimated that the figure of 88% has come down to 78% while the proportion has increased significantly towards use of personal motorized vehicles. The CTS-2008 includes the walking and cycling modes, which are 44% and 3.1% while Motorcar users are barely 2.8% and the users of motorized two wheelers (MTWs), is somewhere 8% to 9%. Current proportions may have increased to at most 4% for motorcars and say 12% for MTWs respectively.

What is the result on the roads is for all road users to see and feel. The roads without exception are getting congested during peak period, journey time increasing considerably, noise due to honking and engine exhaust numbing our senses and air getting polluted, despite added flyovers at various junctions. Peak period vehicular movement on arterial roads including the highways is barely 12 to 15 kmph.

What is the solution that comes first to our minds? Provide more road space for vehicles to ply on, provide more flyovers too - this is like providing sugar to a diabetic.

Let us move away briefly from the road transport and visit the Suburban Railway System, which carries 75 lakh commuters daily. Peak periods of about three and a half hours twice in a day carries about 3,60,000 persons per hour in the peak direction. With the current status of MUTP (Mumbai Urban Transport Project) of converting 9 coach trains to 12 coaches, power supply changed from DC to AC and improving signalling system the capacity has been augmented to 1,80,000 PPH. If at the turn of the century the number of rail commuters was 60 lakhs, it is 75 lakhs now, clear 25% increase. Capacity too has increased and therefore the expected coach congestion has remained more or less the same. No doubt the new coaches are better designed for ventilation and light yet the annual fatality figure on the suburban railway system continues to be above 3,600. What Mumbai needs is additional 1,80,000 PPH capacity of the Public Transport. Where is such a high capacity system going to come from?

Metro Rail has been conceived to provide that. However Metro Rail, when fully commissioned, will provide a capacity of 72,000 PPH south of

Andheri and additional 36,000 PPH between Andheri and Dahisar. Going by the time taken to construct the 11 km of Versova-Andheri-Ghatkopar line which was 8 years, the remaining 135 km of Metro Rail Master Plan should take about 100 years. Learning and innovativeness from the first Metro Line may at most reduce this period to 70 years and greater optimism than 50 years would simply mean we are fooling ourselves. Even then, the needed capacity is 1,80,000 PPH while Metro will provide only 1,08,000 PPH north of Andheri and only 72,000 PPH south of Andheri. The Monorail has to be overlooked as it is not going to provide more than 8,000 PPH. Options of providing this kind of additional capacity by suburban railway is next to impossible with practically no land available for new tracks and we cannot be serious if we think of providing rail over rail; can we risk crippling the only lifeline during construction, besides adding to the road congestion on approach roads?

What then is the answer? Is there no solution to Mumbai's mobility problem?

One answer is to provide increased frequency of Metro Rail, meaning that increase the rolling stock. What was proposed to be Rs 19,525 Cr Project in 2004, with same configuration the cost will be nearly Rs One Lakh Crore today and if it is to be fully underground, the cost will be closer to Rs Two Lakh Crore. Of course, it is another matter that the MMRDA figures are consistent in its underestimates.

Another possible solution is to increase the road space significantly as has been conceived through the Coastal Road Project.

Let us examine it to see if it will in fact provide for the needed capacity. But before doing that it will be well to see the through-puts on per lane of Cars and Buses.

By running articulated buses of capacity of 175 passengers at 12 seconds frequency, Bogota, Columbia has achieved a throughput of 45,000 pphpd (persons per hour per direction). A bi-articulated bus with 250 passenger capacity at 20 seconds frequency also provides this capacity. This means if four routes are taken up to provide 45,000 pphpd or five routes of 36,000 pphpd or six routes of 30,000 pphpd or any combination thereof, it will be possible to achieve the much needed 1,80,000 PPH overall capacity. The system, called the Bus Rapid Transit System (BRTS) will require overtaking lanes on some routes and at some bus stops. It will also require appropriately designed feeder bus or transport system. In comparison, a motorized personal vehicles lane will carry not more than 1,500 pphpd. To achieve a capacity of 1,80,000 PPH only by personal motorized vehicles, 120 lanes will be required, practically impossible possibility.

Let us look at the proposed Coastal Road very broadly. Yes, it is said that it will address the sea level rise due to GW & CC. I am sure to keep the costs low, compromise would be made in this regard. It is said that more land will be reclaimed to provide open spaces. If I recall correctly, the Ministry of Environment, Forest and Climate Change (MoEFCC) had given clearance to the project such that it does not use it for commercial exploitation of the land reclaimed. I believe that the MoEFCC has erred here. Commercial exploitation is a necessity in creating the much needed open public spaces all along the Coastal Road and provide for its maintenance and upkeep, including the protection wall against sea level rise. There is an opportunity to provide such a space

which could enable large number of people to get close to the nature similar to the way they do at Marine Drive, Hornby Villard and Worli Seaface. The proposed Coastal Road has to be similar to these in that the open public space must be directly facing the sea, but differing from it by having a single row of not more than 6 storey buildings and then the Coastal Road. The six storey buildings acting like noise buffer to the open space. To a very small extent we have the example of the Amarsons Garden and the Harish Mahindra Children's Park at Breach Candy on Bhulabhai Desai Road (Warden Road).

There also must have adequate accessibility by public transport to the coastal road to enable this open space enjoyed by as many as possible. These are the critical design elements of the coastal road project. Operating BRTS or even Metro Line should not be in discourse at all as these do not cater to adequate number of people residing or working along the Coastal Road. However, operating buses on the Coastal Road is a necessity but to say that it will facilitate significant mobility to people will be delving in falsehood.

In Conclusion:

- The 33 km Mumbai Coastal Road cannot be viewed as a facility to reduce road congestion in Mumbai.
- Primarily it must be viewed as providing universally accessible open public space devoid of noises from traffic and other social activities.
- It must also in parallel, be viewed as providing protection against Sea Level rises due to Global Warming and Climate Changes.
- To achieve mobility needs of Mumbai, as explained, there seems no option but to provide four to six north-south corridors of BRT and some east-west connectors plus the needed feeder services in the system, making a holistic Bus Rapid Transit System. Providing BRTS does not mean road congestions during peak periods will cease to exist. It simply means that the necessary additional public transport capacities will be made available at the shortest time and lowest costs in comparison to other options. This will facilitate personal motorized vehicles users to take to public transport.
- Issues of displacements of fisher folks can be tackled by modernizing the fishing villages while providing protection against sea water level rise. The traditional methods cannot continue as the land available with fisher folks will in fact begin to shrink and much of their activities will get curtailed with sea water level rise.
- Mangrove protection is important as fish lay

eggs herein and the initial growth of fish takes place in that ecosystem.

Prioritizing Infrastructure Development:

1. Plan out Four to Six North-South plus four East-West BRT corridors plus feeder services catering to these and forming a comprehensive System called Bus Rapid Transit System or the BRTS. Fulfilling the needs of Pedestrian and Non-Motorized Vehicles shall be integral to the BRTS. The BRTS Project must be worked for completion in 8 years including feasibility study and execution. The North-South Corridors shall have a capacity of 1,80,000 PPH at least.

2. Other transport projects may proceed as they are proceeding currently, however care shall be taken to ensure that finance to BRTS Project shall not get affected due to these transportation projects.

3. Plan out the Coastal Road Project keeping the viewpoint of creating protection wall or levies against rise in sea levels due to Global Warming and Climate Change. While doing so, ensure providing large areas as accessible open public spaces, creating a row of medium rise (6 stories) commercially exploitable buildings for residences and commercial use, modernize the facilities for fisher folks and protect mangroves, the breeding waters of fish and marine lives.

4. No project shall be given priority over BRTS since BRTS is the only option that can in the shortest period and significantly lowest costs provide the much needed mobility in Mumbai and address the annual fatality figure of 3,600 persons on the currently super crush loaded suburban

4.FISHING COMMUNITY

● *Dinkar Mahadev Kandel, Kiran Koli, Bhanudas, Rajesh Mangela*

I. Deposition- Dinkar Mahadev Tandel (Mahim Koliwada)

Organisation - Maharashtra Machhimar Kruthi Samiti & Maikavathi Society (founded in 1979)

Owns two boats (medium size) but only one functional. Medium size boats goes up to 12 nautical miles and small ones up to 6 nautical miles. Per fishing trip costs initial investment Rs 15,000 minimum (excluding the food charges for the workers). But nature of returns is uncertain.

Views on Coast Road:

The area that the Coast Road will cover has the maximum number of fishes.

1.Small and big fishing boats can't enter or leave. The proposed road will disturb the jetty.

2. Breeding grounds of fish will be destroyed as mangroves will be cut for reclamation.

He says that issues raised by them are not given importance. There is no scheme, plan which gives importance to their benefits. Government has not contacted them on the issue of the Coast Road and they will oppose it.

II. Deposition - Kiran Koli

Organisation- Madh Co-operative Fisherman Society.

Kiran Koli is a fisherman from Madh Koliwada (Madh Island). He explained that earlier during peak seasons they made, on an average of Rs 5,000per trip, however during other seasons they

ran into losses. But for the last two years, their income has drastically decreased and most of the fisherfolk are running into a loss. Previously, fish around the coastline were high and they had to travel a maximum of 12 miles. But now because of the pollution and other factors, they have to travel further.

Views on Coast Road:

1. 1. Government of Maharashtra has published a Detailed Project Report running into around 1,200 pages in English, giving details of the proposed coast road. Koli says that most fisherfolk do not understand English and so it is almost impossible for most of them to understand the nitty-gritty of the coast project and object on it. He also said that in this document only one line has been written which states that the government "will think of giving fish drying place to the fishermen" in the proposed land which will be reclaimed from the sea.
2. The proposed road will disturb boat landings.
3. It will damage the mangroves which is the breeding place for fish.
4. This costly project will benefit only for 7% people who use motorised transport to commute to work.
5. Those with small fishing boats will face greater problems as the coast road constructed will be around their fishing area.

Further, during the fisherfolk meet before the BMC election, Uddhav Thackeray had stated that without the permission of the fisherfolk no coast road would be constructed. However, permission for coast road has been sanctioned without approval of the fishermen. Around 10,000 people reside in Madh koliwada area, out of which 95% depend on fishing & related businesses. Further specified that more 30,000 people are dependent on fishing including transport services, selling of fish etc. Previously, the organisation had demanded many things which has been accepted to some extent, however, now the government pays no attention to the needs of the fisherfolk.

III. Deposition - Bhanudas (Khar- Danda Area)

Organisation - Danda Koli Mashewari Vyashayak Sahakari Maryadit

Bhanudas stated that they had send objection regarding the coast road to the BMC when the coast road project was sanctioned. There are 12,000 people staying in Khar- Danda, out of which 90% people are dependent on fishing. They did not have much understanding on coast road, and they stated they have no issues with coast road but they must get something in return, specifically housing. They stated that for repairing boats, they do not have any facility and they do it on their own. For this they have to carry the boat onto land and the coast road will make this difficult. No person from government has come to discuss with them about coast road. They had send mails protesting against coast road but no response.

IV. Deposition - Rajesh Mangela [Mora Village (Juhu)]

In Mora Village, around 1000 people stay out of which 80% depend on fishing. He strongly stated that people are switching to other occupations because of the policies of the government. In

total 5 - 10 lakh people will be affected due to coast road project in Mumbai. All this plan of coast road is to remove the community from the coast area so that builders can take over. In 2005 around 165 houses in Mora village were demolished in retaliation for fighting against the government. He specified that coast road is going through their fish drying yards and around 80% use traditional fishing i.e. manual fishing, which are going to be largely affected because of the coast road project.

- *Shweta Wagh*

Impacts of the Coastal Road on Mumbai's Koliwadas

Executive summary

Mumbai is home to more than 35,000 people who depend directly on fishing and related activities. Inhabiting some of the oldest settlements in the city, its fisher-folk live in urban villages that are remarkably compact and lively neighbourhoods, providing homes and work to tens of thousands of families. Around 15 such urban villages lie on the western coast of the city, an edge that has still remained fairly undisturbed in a city that is almost entirely reclaimed from the sea. It is for this reason that the occupation of fishing is still thriving on the western edge of Mumbai.

The lives and livelihood of the fishing community in Mumbai is closely tied to the use of lands along the coastline, and the health and diversity of the western coastal ecology. As an occupation, fishing activity involves the intensive use of beaches, creeks and estuaries, intertidal areas, and lands within and around the villages, areas that constitute their coastal commons. The coastal ecology consisting of rocky beaches, mangroves, wetlands, provide the ecological habitat and breeding grounds for aquatic fauna, on which the occupation depends. It is this intricate and delicate relationship between the physical and social systems that makes the existence of fishing possible. Therefore, any intervention along the coastline that threatens to overturn this balance must be carefully evaluated for its short, medium and long term impacts on the lives and livelihoods of coastal fishing communities.

The plans, projections and proposals that constitute the Coastal Road Project (CRP) will have irreversible impacts on the occupation of fishing, and on the future of the working poor that have inhabited the coast for centuries. These impacts during construction, after construction and in the long term will alter not only the city's transport system, but also its social and cultural fabric. A project that is designed to serve less than 2% of the most privileged in the city at the expense of the whole has nothing to offer to its earliest inhabitants except loss of livelihoods, restriction of independence and eventual displacement.

Impacts of the Coastal Road on Mumbai's Koliwadas

A brief socio-ecological assessment of consequences of the proposed project on coastal ecosystems, habitats and livelihoods.

Fishing villages in Mumbai are historic urban settlements which are home to the city's earliest inhabitants and comprise mainly of the Kolis and also other communities indigenous to this region. The scope and extent of fishing activity in Mumbai has been enumerated in the Census of Marine Fishermen (2003) which mentions the presence

of 23 active fishing villages and about 37,695 people who are dependent on fishing and related activities for their livelihoods. Today these fishing villages are urban neighbourhoods which not only provide for housing needs of coastal communities but are also conducive to primary activities and traditional livelihoods. These settlements are usually characterized by proximity to the sea or creek (which makes them either marine or estuarine fishing villages), a dense low rise urban fabric, a range of community spaces, and more significantly the coastal commons. The commons are large expanses open space used for fishing and related ancillary activities. Social relations within the Koliwadas are based to a large extent on commoning or the self- management of shared resources by the community.

Despite intensive urbanization, the western coastline of Mumbai still retains much of its natural edge which presently comprises of diverse natural features such as beaches, bays and headlands, estuaries and coastal wetlands. The 34.56 km long coastal road project which proposes to reclaim land, build stilted roads and construct underwater tunnels will deal enormous impacts on this delicate ecology. Any alteration of the coastal ecosystem threatens to sever or disrupt organic ties of these fishing villages to the coast, decimate the livelihoods of local communities' dependent on coastal resources and affect their ability to live and flourish as they have done for hundreds of years. Infrastructure projects such as the Coastal road that are aimed at addressing the mobility needs of the middle and upper classes have been conceived and planned without any consultation with the coastal communities, despite the fact that the greatest burden of the cost of these projects will be borne by them, while they will derive almost no benefit from these so called 'public' infrastructure projects.

Any new project of such an enormous scale and proportion that is likely to impact the habitat or livelihoods of the city's fishing community needs to be very carefully evaluated, and a detailed, independent socio-economic impact assessment needs to be undertaken to evaluate the potential consequences of the project on the community. No such comprehensive social-ecological and economic impact assessment has been undertaken so far. In many ways, as the attached documents and my presentation will illustrate, the wellbeing and the livelihood of the fishing community is intricately connected with the health and diversity of the delicate coastal ecology of the western coast of the city.

The Coast Road Project (CRP) will have three kinds of impacts on the coastal fishing community: (1) direct impacts, (2) indirect short-medium term impacts, (3) long term impacts.

(1) Direct short-term impacts

Areas used for primary activities and a range of other ancillary activities of coastal communities include fish drying, docking or parking of boats, mending of nets, and so on, constitute the coastal commons. These activities are undertaken on lands adjoining or within the proximity of the villages including rocky or sandy beaches, open spaces, or vacant lands. These often require foreshore facilities and are located on the seaward side of these settlements. Since the CRP will result in the loss of direct access to the sea or a loss of areas used for livelihood related activity, it will have immediate short term impacts on the fishing community. Quite a few koliwadas in the city have already lost

their traditional livelihoods due to land reclamation and disconnection from the sea, an example being the Sion village on the North-eastern tip of the Island City. The CRP now endangers several villages on the western shoreline of Mumbai.

Impacts of construction of ramps to the underwater tunnels

The construction of the Coastal Road will have a directly impact and will almost entirely wipe out fishing related livelihoods in villages such as Khar Danda (where an under-sea tunnel begins) and Juhu Moragaon (where it emerges). The entry and exit to the northern under-sea tunnel of the coastal road that begins and ends outside fishing villages will require cut and cover entry points - that will involve building of massive retention structures and seawalls on the seaward side of these villages, heavy construction, excavation and the permanent destruction of beaches. The scale and nature of construction will have a huge footprint, on and around these sites. This will directly impact these fishing villages by suspending their access to the sea, and irreversible damage to their livelihood.

Appropriation of coastal commons and loss of access to the sea

The CRP proposes reclamation and the construction of a 3.5 metre-high sea wall at several places along the shoreline which will form a barrier cutting off the city from the sea. Such reclamation has been proposed on the seaward edge of the coastal commons and fish drying areas near Khar Danda village. The space between the existing shore and the highway will be reclaimed from the sea to make green open spaces and new promenades. This will end up permanently cordoning off these areas from the sea. There have been efforts recently and in the past to create promenades and gardens on lands that are used as commons by the fishing community with the pretext of "beautification" or the creation of "public spaces", and it is likely therefore that these areas might be eventually appropriated for leisure and recreational activities for upper income groups.

Loss of fish drying areas due to alignment of road/ connectors

In some places the feeder roads which connect the coastal road pass directly over areas which have been demarcated in the Development Plan for primary activities related to fishing. The road will pass directly over the common areas of Juhu Moragaon and Chimbai fishing villages, and such construction of stilted roads over areas traditionally used for fish drying would render this activity impossible. This proposed alignment of the road and its connectors also goes against The Coastal Regulation Zone (CRZ) 2011 notification which mandates that these areas be demarcated and designated as CRZ III and managed as per Integrated Coastal Zone Management (ICZMP) plans prepared to safeguard coastal ecology and livelihoods.

Permanent impact of construction activity on the livelihoods

The Environmental Impact Assessment (EIA) report concedes that preparatory activities for the construction of the road will "change the land use pattern of the project influence area for a temporary period" due to use of existing access roads, construction of new ones, construction of quarters, storage go-downs, stockyards, etc. Though the temporary nature of these impacts are emphasized by the EIA, it is likely that the

intensive and prolonged construction period will permanently displace or affect livelihood related activity which will then be difficult to restore or revive.

(2) Indirect medium-term impacts

In addition to direct, short-term consequences for coastal communities, the CRP will have serious indirect impacts on the habitat and livelihoods, the effects of which will be felt not immediately but gradually.

Loss of coastal resources, habitats and fish-breeding areas.

The CRP will require reclamation of 27 hectares of mangrove land, and will impact irreversibly more areas due to construction activity. It is feared that though the alignment of the road directly impacts only two of the fishing villages, its impacts on the coastal wetlands, which are ecological habitats and breeding grounds of aquatic fauna, it will undermine fishing activity as a whole. Mangroves being ecologically sensitive areas have been classified as CRZ I. The CRP in addition to being a CRZ violation (which is now being made irrelevant) this also goes against the 2005 High Court ruling that specifies that no construction on or around mangrove land is permitted.

Beach Erosion: loss of foreshore areas for ancillary activities

Reclamation during the construction of the Bandra Worli Sea Link, resulted in the severe erosion of the Dadar Chowpatty beach. It is expected that large scale reclamation in the southern part of the city will result in erosion of beaches along the coastline, particularly the northern end of Juhu beach. This would mean the loss of not just precious public space for the city but also the loss of beach space and foreshore areas used by the fishing community.

Flooding/Water-logging in low lying, areas and fishing villages:

Interestingly, the EIA report for the coastal road project itself acknowledges that flooding in Mumbai was a result of a "systematic destruction of mangroves in the city" and mentions that "had Mumbai's Mithi river and Mahim creek mangroves not been destroyed, fewer people would have died and the property damage would have been dramatically less." Despite this admission, the CRP proposes construction of landfilled roads and stilt roads in mangrove areas and within estuaries. Construction leading to the constriction and choking up of creeks and estuaries will result in low lying coastal communities including fishing villages becoming more susceptible to natural disasters such as flooding. This was observed in the case of Juhu Moragaon fishing village, where construction of concretized embankments along the edge of estuary as part of the BRIMSTOWAD [The Brihanmumbai Stormwater Disposal System] project planned to overhaul Mumbai's drainage system, had led to the diversion of water and flooding in the fishing village.

Proposed Roads and road widening through urban villages

Mumbai has not evolved as a car-centric city, and over time the coastal road will impact existing settlements and historic urban fabrics that have not been planned for vehicular traffic. The road will increase pressure on existing roads, which would then require widening of roads through residential neighbourhoods and urban villages

altering their physical character. Earlier this year residents of urban villages across the city had opposed the proposed road widening and new roads in many Gaothans and Koliwadas in MCGM's Proposed Land Use plan. For example, the residents of Chimbai fishing village are opposed to the proposed DP road on the seaward edge of their village which will cut off the village from the beach and sea.

(3) Indirect Long-term impacts

The CRP will also have long-term impacts, that will alter the lives of the coastal communities for the worse, forever. These will be:

The Impacts of Speculative Development on local communities

The Coastal road project has already triggered speculative development in the environmentally sensitive areas of Madh, Marve and Manori, which the coastal road will connect directly to the mainland. These areas which are the few remaining green lungs of the city already have numerous natural areas, urban villages and commons, and were protected as No Development Zones in the 1991 development plan but are now being opened up for development.

Climate Change Impacts and Vulnerabilities of Coastal Communities

Long term impacts such as climate change will be compounded by drastic transformation of the coastline due to infrastructure projects like the coastal road and the resulting urbanization and land-cover change. The EIA report mentions that changes in microclimate due to road construction will be temporary as afforestation will restore this in 3-4 years. But despite afforestation, if it happens, the heat island effect and changes in microclimate will result due to a heavily concretized coastline. Incredibly, despite its own projections of car traffic, the EIA report claims that there will be negligible changes in microclimate due to the road.

Some of the perceived threats due to climate change in the region of Mumbai include sea level rise, erosion of coastal land, and an exacerbation of natural hazards such as flooding in low lying coastal areas, increase in sea temperatures and changes in productivity of aquatic ecosystems. Impacts due to climate change would involve the loss of beach-space and coastal commons, loss of resources and livelihoods, flooding of settlements, further deterioration in living and health conditions, and eventually displacement. The coastal road will increase the risk of climate impact and will end up making coastal communities even more vulnerable to climate related hazards.

The CRP EIA and Inefficacy of proposed mitigation measures:

The EIA report enumerates in detail the different kinds of environmental impacts likely during the construction and operational phases of the CRP. The impacts listed are extremely serious, though the mitigation measures the report suggests are trivial at best. The EIA report states that to compensate for the loss of Mangroves, "mangrove species shall be established on either side of the road to be constructed." It is surprising how the EIA consultants assume that complex ecosystems that have evolved over time can be replaced and recreated by simple replanting of a few selected specimens; or that such afforestation measures can compensate for the substantial loss of their present ecological and biodiversity value.

Undermining Existing Environmental Regulations and Deprivation of the Right to life and livelihood:

The MoEFCC has exempted the project from the CRZ regulations, that were meant to safeguard environmental systems and livelihoods. What is shocking is that this is being done for a project that is hardly in the larger public interest. The project will cater at best to not more than 2 percent of the population of the city, and the open spaces it claims to provide will destroy existing public spaces including natural beaches that are more inclusive work much better. The 3.5 meter sea wall will also create a physical and symbolic barrier between the city and the sea, making it inaccessible to many including the fishermen. This is a project that is built to serve the exclusive needs of a small number of privileged citizens

As a crucial part of the city's built and living heritage, provisions should be made to protect and conserve its historic urban fishing villages as productive working class neighbourhoods in the city which are places of habitation and work. Instead, by undermining regulations that safeguard their basic right to life and livelihood these communities are being made even more vulnerable development pressures and they are faced with threat of extinction. The Bandra Worli Sea Link Project is a precedent which demonstrates how reclamation and destruction of coastal resources in the past has led to the degradation of habitats, with the fishing community being denied access to the sea, common lands and resources, with a resulting loss of incomes and deprivation in Worli Koliwada. The CRP will have similar implications but this time the consequences will be even more severe and far reaching as it will affect fishing communities all along the western shoreline. Conscious of the threats to their livelihoods and villages the fishing community has unanimously voted to oppose the Coastal Road project.

Summary of Depositions of the Fisherfolk Community

- On 22nd September, 2015, depositions were taken of fisherfolk from prime areas where the proposed coast road is to pass through. Following are the various issues raised by the fisherfolk regarding the proposed road:
- The area that the Coast Road will cover has the maximum number of fish.
- Small and big boats cannot enter or exit. The road will interfere with landing of boats.
- Fishermen with small fishing boats will have greater problem as the coastal road constructed will be around their fishing area.
- Breeding grounds of fish will be destroyed as Mangroves will be cut for reclamation. Reclamation will affect the tidal flow of water. Afforestation of mangroves is promised by the government which is not complied with.
- Letter dated 22.08.2015 by the Maharashtra Machhimar Kruti Samiti to the Ministry of Environment objecting and suggesting the draft amendment of the CRZ notification which states that the coastal states are under the process of demarcation of CRZ zones as per the 2011 notification. Such reclassification can jeopardise the availability of coastal space for fishing and such traditional communities.
- It is not feasible to construct the coast road because this will also destroy the tivara forests (mangrove forests).

- This costly project will benefit only 7% people using motorised transport to commute, while taking away the livelihood of thousands of people dependent on fisheries.
- Government of Maharashtra had published a document of around 1200 pages in English, giving details of the proposed coast road and invited the comments and objections to the proposed road. In the said document only one line has been written about the issues of fisherfolk. It states that the government "will think of giving fish drying place to the fishermen" in the proposed land which will be reclaimed from the sea. Most of the fisherfolk are not proficient in English and so were unable to read the document and understand the nitty gritty of the proposed project.
- In the above document, they have not mentioned the amount of destruction caused to environment due to air and noise pollution because of this project.
- The government did not take the fisherfolk community into confidence before announcing this project, in spite of the fact that it will be directly affecting them.
- The important rules of Coastal Zone Management Programme were ignored and further that the latest development plan makes the construction of coast road illegal.
- So most of the organisations of the fisherfolk will oppose the coast road project.
- The fisherfolk objected to the fact that the land on which Coast road is planned to be built is shown as vacant land, in spite of the fact that the fisherfolk have been residing on and using the land for generations and have customary right over the land.
- The fisherfolk have objected to the construction of the coast road and hence submitted a resolution agreed by all the fishing community on 11th July 2015.

5. ENVIRONMENT

- *Conservation Action Trust*

Objections to the Proposed Coastal Road Project

The process of inviting suggestions and objections for the Coastal Road project has been vitiated because of the following factors -

- It is illegal as per the existing CRZ Notification of 2011
- It is illegal as per the existing Coastal Zone Management Plan
- It is illegal as per the existing Development Plan
- The fact that the Chief Minister of Maharashtra and the Minister of State for Environment, Forests & Climate Change have already announced the clearance of this project makes this entire exercise of inviting suggestions and objections an exercise in futility.

Without prejudice to the above, we have the following objections -

- A whooping 11,000 crore rupees of money is being spent on a project that will be utilized by a tiny percentage of Mumbai's car owning population (since two wheelers will not be allowed to use this road).

- It will destroy the natural features of our coastline, especially the mangroves, the mud flats, the rocky and sandy beaches, etc.
- The destruction of mangroves along the west coast of Mumbai will rob the city of its natural protection against cyclones and tsunamis and will make the city flood prone.
- The financial cost of environmental destruction has not been included in the project plan.
- CRZ notification for afforestation requires 5 times the number of mangroves that are being destroyed to be planted by the project proponent. In this case, only three times the number of mangroves being destructed will be planted.
- In any case, transplantation of mangroves will not help replace the invaluable ecosystem that exists along our coast. There is no space available within Mumbai to transplant five times the number of mangroves to compensate for the mangroves that will be destroyed.
- It will alter the course of existing rivers and creeks. This could lead to alteration of Low Tide Line and High Tide Line subsequently as we know the MoEF & CC has a track record for relaxing and diluting its own laws and regulations.
- The tunnels would also alter the existing geomorphology and cause disturbance to and destruction to the existing open spaces.
- The fill material required for reclamation will lead to destruction of our hills and forests. Transportation of the fill material will lead to traffic jams and road deaths.
- This project will lead to increased flooding of the city and suburbs during the monsoons.
- It will alter the existing geomorphology and the hydrological pattern which would cause grave repercussions in the form of erosions, inundations or water logging. (Glaring example of which is Bandra Worli Sea Link, which has led to erosion of the Mahim and Shivaji Park beaches).
- Livelihood of fishermen and fishing communities will be threatened due to this project. It will impact the koli wadas, the fish drying areas, the boat parking areas impacting the fishermen economically and socially. Rehabilitation and Resettlement of the fishermen communities has been ignored in the project plan
- The coastal road will be passing from the front of Bandra fort. Bandra fort is one of the important historical and archaeological place in Mumbai. Once the coastal road is constructed the unhindered view of sea will be replaced by a view of the freeway.
- It will also be passing from the front of religious places like Mahalaxmi temple, Haji Ali bay. Reclamation around Mahalaxmi temple will cut off the historic site from the sea.
- The project is said to create 91 hectares of green spaces, but that would be done by destroying already existing green and open spaces
- The coastal road will bring an additional influx of cars into South Mumbai, which already struggles for parking space, inducing more traffic congestions.
- It will cut off the city from the sea and will destroy public access to the natural waterfront areas.

- This road will not be viable for public transport as past experience with sea links and expressways has shown. The project encourages motorized transport which will create more air and noise pollution instead of focusing on improving public transport facilities in the city
- The peak handling capacity of the Bandra-Worli Sea-link per day is around 85,000 cars. Currently it is handling only around 37,500 cars which is a gross miscalculation and same may happen in case of the coastal road if toll is levied for travel on this road.
- The project envisages to free up city's highly congested road, but owing to the high toll rates, the coastal road might only be used by the economically strong upper strata of the city.
- Alternatively, if toll rates are controlled and are affordable then it would lead to congestion of the coastal road as well and then the issue of decongesting traffic would arise again. This can be substantiated by the fact that the flyovers all over the city were built to ease the traffic congestion, however the state of affairs is quite contrary and evident to everyone
- It will mar the aesthetics of the west coast of Mumbai and ruin the sea view.

Objections and Suggestions to the Amendments dated 25th June, 2015

CONSERVATION ACTION TRUST

5, Sahakar Bhavan, 1st Floor, LBS Road,
Narayan Nagar, Ghatkopar (W),
Mumbai - 400086
Work: 022 - 25122422

24th August 2015

The Secretary

Ministry of Environment, Forests & Climate Change

Indira Paryavaran Bhavan

Jor Bagh Road, Aliganj

New Delhi- 110003

Subject: Objections and suggestions to the draft amendment dated 25th June 2015, to the CRZ Notification, 2011

Dear Sir,

This is with reference to the draft notification no. S.O.1741 (E) dated 25th June 2015 issued by the Ministry of Environment, Forests & Climate Change for amending the CRZ Notification, 6th January 2011. We hereby object the proposed amendment and say that this amendment, if granted would defeat entire purpose of the CRZ Notification 2011.

The following amendments are suggested

3. Prohibited activities within CRZ- The following are declared as prohibited activities within the CRZ, -

(iv) Land reclamation, bunding or disturbing the natural course of seawater except those, -

(a) required for setting up, construction or modernisation or expansion of foreshore facilities like ports, harbours, jetties, wharves, quays, slipways, bridges, sealink, road on stilts, and such as meant for defence and security purpose and for other facilities that are essential for activities permissible under the notification;

with

(a) required for setting up, construction or modernisation or expansion of foreshore facilities like ports, harbours, jetties, wharves, quays, slipways, bridges, sealink, road on

stilt, road on reclaimed surface without affecting tidal flow of water, and such as meant for defence and security purpose and for other facilities that are essential for activities permissible under the notification:

Provided that such roads shall not be taken as authorised road for permitting development on landward side of such roads till existing High Tide Line.";

We object to this amendment for the following reasons -

- We say that this amendment will increase already prevalent reclamation in the coastal area and pressurise the limited natural resources.
- There are already numerous instances of illegal reclamation which would get legalised if this amendment is allowed
- Furthermore, the reclamation will undoubtedly disturb the tidal flow and alter the coastal geomorphology which would lead to erosion and tidal inundation
- The proposed amendment would alter natural shoreline which would destroy the natural barriers like mangroves that would save the citizens from a multitude of natural disasters like tsunamis, sea level rise, storm surges, etc.
- This amendment fails to specify that there should not be any reclamation in eco-sensitive areas such as mangroves, corals, sand dunes, mudflats, etc., which are granted status for conservation and are protected under the CRZ Notification 2011
- Reclamation should not be permitted in CRZ I A category since these are ecologically sensitive and geomorphological features which play role in maintaining the integrity of coast
- This amendment does not only frustrate the entire purpose of CRZ Notification 2011 but also will be in violation and contradiction to the Indian Forest Act, 1927, Forest Conservation Act, 1980, Supreme Court orders in Writ Petition 202/95 filed by TN Godavarman Thirumulpad versus Union of India and others, High Court order dated 6th October 2005 in PIL 87 of 2006, amongst others

The following para has been proposed to be added under para 4

4. Regulation of permissible activities in CRZ area- The following activities shall be regulated except those prohibited in para 3 above, -

"(g) construction of road by way of reclamation in Coastal Regulation Zone area shall be only in exceptional cases, to be recommended by the Coastal Zone Management Authority and approved by the Ministry of Environment, Forest and Climate Change; and in case the construction of such road is passing through mangroves or likely to damage the mangroves, three times the number of mangroves destroyed or cut during the construction process shall be replanted"

This amendment cannot be allowed for following reasons -

- It will lead to reclamation and thus destruction of coastal areas and resources like mudflats, sand dunes, mangroves, corals, creeks, etc. which are conserved and protected under the CRZ Notification 2011
- It will also impact the livelihood and habitats of the fisherfolk who have been inhabiting the coastal areas. This would again defeat the purpose of CRZ Notification 2011

- There is no clarification on what could be the exceptional cases and this could be eventually used liberally for any project and not only roads
- Furthermore, mangroves cannot be replanted. Moreover, there is not enough place for plantation of mangroves. Also, it is important to plant mangroves in the same area/vicinity from where they have been removed so as to maintain the ecology and geomorphology of the area
- Mangroves form an ecosystem by itself, thus destroying mangroves would amount to also destroying the fishes, birds and other life forms which are dependent on mangroves and their habitats.
- This would also impact the livelihood of fisherfolk who are dependent on such ecosystems for their fish catch. Thus destroying mangroves will lead to social and economic impacts too
- Mangroves also help in accretion of soil, if destroyed would accelerate the erosion which would lead to changes in shoreline
- Mangroves also protect the coast and its inhabitants against the impacts of storm surges and events like tsunami too. Indian coastline has already experienced such disaster and we should not be doing any further damage which would put at risk our citizens and the resources
- Moreover, this will further dilute the CRZ Notification 2011 *as it mentions that three times the number of mangroves destroyed or cut during the construction process shall be replanted* versus "Five times the number of mangroves destroyed/cut during the construction process shall be replanted" as stated in the CRZ Notification 2011.

Without prejudice, I say that it is apparent that this amendment is to accommodate project of Coastal road in Mumbai and would open way for many other projects which would destroy the coastal areas.

Overall, it is apparent that the proposed amendment to the notification will not only destroy the existing coastal ecosystem but will also trivialize the objective of the CRZ Notification 2011 which is to "ensure livelihood security to the fisher communities and other local communities, living in the coastal areas, to conserve and protect coastal stretches, its unique environment and its marine area and to promote development through sustainable manner based on scientific principles taking into account the dangers of natural hazards in the coastal areas, sea level rise due to global warming"

We request you to take the above objections into consideration and not to dilute the existing regulation.

- *Stalin Dayanand*

The shoreline of Mumbai is under severe threat. Studies done by various departments and evidence on the ground clearly indicate this fact. Between 1970 and 2012, almost 113 sqkm of land was added to the city.

This has not come free. The beaches of Mumbai have begun to shrink and have become unsafe/ inadequate for citizens who seek some leisure in the only open spaces that can accommodate large number of people. Reclamation though illegal under the CRZ notification and Wetland Rules 2010, was carried out and it continues even today. Starting from Colaba to Gorai, vast areas of intertidal zones were reclaimed and this in turn has

forced the land mass in other areas to be under increased pressure from the tides. Every passing year during the monsoon, one can witness increased ingress of seawater into the city. Areas like Dadar Shivaji Park, J P road at Versova are best examples of how the sea is invading Mumbai. We have personally taken videos of this event and we can share it as evidence here. The CRZ notification which was meant to protect the coastline has been reduced to a joke. 25 amendments have been carried out to help constructions on the coastline. Finally, in 2011, notification categorically mentioned that no more amendments would be allowed yet we have two more amendments one for the Shivaji Memorial and one for the coastal road. Having a law and twisting it repeatedly is equivalent to not having it at all. Despite the highest court of the land ordering its implementations, successive Governments have scuttled and twisted it to suit fancy development schemes that involve spending of vast amounts of public money and this proposed Coastal road is the best example of such a case.

Prominent reclamations in recent time (official ones) are reclamation at Mahim Bay for the Bandra-Worli Sea Link - beach sands at Dadar have been lost and a wide 50 metre-long coastline existing a decade ago has been reduced to three metres. Subsequent to the reclamation for the sea link, houses on the shorelines (buildings) have seen water enter the flats on the ground floor. Residents claim that less than a decade ago, they had a big beach outside their buildings but today the few meters of available sand can be walked upon only during low tide and the entire beach goes underwater.

Forcible diversion of the Mithi river channel is presently running below the Mumbai International airport runway. The authorities reclaimed large parts of the channel and forced it to flow under the runways. They also reduced the width of the channel to 20-30 metre causing floods substantially upstream. Coupled with this was the reclamation of the floodplains of the river by MMRDA for construction of buildings.

The beaches of Mumbai in Girgaum, Juhu. Versova, Mahim, Dadar, Madh, etc. are shrinking. Increased siltation of the creeks has narrowed or reduced the carrying capacity of the creeks by which the process of natural fast draining of flood waters has been affected. The concretisation of the lands in the city has prevented water percolation into the soil and this has resulted in the increase in the quantity of water. This in turn has added to the problem of waterlogging in the city. In such a situation when the inland flooding is a major cause of concern, it would be rash and reckless to indulge in offshore reclamation. The city will come under attack both from inland waters and insurgent tide water.

It is basic common sense that water when displaced from one location will make its way to the nearest available location with increased intensity. In such a scenario, it would be a monumental folly to reclaim land for roads and other projects. Reclamation if done scientifically and properly is a costly process. Reclamation of marine areas has to be done using dredged sand which again is a costly and polluting exercise. Plus, it needs scientific studies spread over three or four seasons to demonstrate the actual effects of reclamation on the tide patterns and force.

The costs of reclaiming sand off shore and bringing it back to the base are heavy. What is generally done is do it with dredged sand and then

dump all kinds of material to reclaim the marine areas. The best example is the reclamation of Uran Wetlands and the Victoria Dock. Even today all kinds of material are dumped in Uran which was Maharashtra's single largest coastal wetland. Permissions were given for using sand dredged in Karanja at an estimated cost of Rs. 380 crores. What was done was that the debris from BPT buildings and structures, was dumped into the sea and land created. The last free luxury the Mumbai citizen has is the fresh air that blows from the sea in the daytime. To imagine that it would carry carbon monoxide and other pollutants from the vehicles using the coastal road is terrible and violates our primary right to a pollution free environment. There cannot be any environment clearance that can be granted to this project on this count alone.

Mangrove areas will witness increased submergence due to the additional pressure of water inland and this could harm the habitat of migratory and resident birds feeding in these areas. Fishermen stand to lose their access to the sea and also will be cut off from direct proximity to the sea which is a basic requirement for their survival.

We cannot afford to pollute our coastline and engage in activities that will erode our beaches. There are cheaper alternatives to easing the problem of transport in the city. The coastal road is a needless adventure that threatens the very concept of shoreline conservation. At a time when the State run BEST services are incurring losses due to reduced passenger load, it is absolutely the need of the hour to improve the service, make it more comfortable and affordable. This exercise would reduce the load on the roads and would improve the traffic situation at a much lower cost.

● *Sumaira Abdulali*

Suggestions/Objections to the proposed Coastal Road Mumbai

We place on record our objections to the coastal road in its entirety due to its severe environmental impacts on the city of Mumbai and its surroundings. In view of the large volume of material placed on the MCGM website and scarcity of time for careful scrutiny, we request an extension of the time limit for final objections/suggestions. We also request a personal hearing before any finalization of the proposed Coastal Road.

One of the prime features of the city of Mumbai is its beautiful western coastline with mangroves, sandy beaches and rocky outcrops. Through citizens' efforts partnering with Government, some beaches including Chowpatty and Juhu Beach have been preserved and beautified, while Mahim Beach, Chimbai, Dadar Beach among others are used for recreational and cultural activities including during important festivals such as the Ganpati Festival.

Fishing communities rely on some of these beaches for livelihood activities. Promenades such as the Carter Road Promenade and Band Stand Promenade in Bandra have been beautified due to years of sustained citizens' efforts and are used daily by thousands of people. The natural rocky portions beyond the promenades also form important recreational open spaces. These promenades take advantage of natural features like mangroves and rocky outcrops.

The draft Development Plan of Mumbai, which is currently in the process of review and finalisation states:

"4. Natural Areas zone - A zone of Natural Areas is proposed with an objective to conserve existing

ecologically sensitive areas like the forest, lakes, rivers, streams, ponds, mangroves and coastal wetlands. These would help retain city's ecology and biodiversity".

The coastal road, approximately 35 kilometres long and consisting of 11,605 metres reclaimed areas, bridges and elevated roads along the western sea-coast will adversely impact the entire natural scenic beauty of the city of Mumbai and destroy its natural topography including mangroves, rocky outcrops and beaches.

It will also cut off convenient access to the sea for all citizens. Two underground tunnels are proposed, the access points to which destroy a large stretch of sandy beach used for recreational and livelihood purposes. Entire fishing villages will also face destruction and require relocation. Other beaches awaiting beautification and cleanliness efforts from the Government will instead be destroyed by the alignment of the proposed Coastal Road, as will existing promenades.

Large scale land reclamation will adversely impact marine ecology and tidal movement. A clear contradiction within the Project Report is evident as, although the CSIR-NIO report, in section 10.10 states that there will be no damage caused by reclamation, it goes on to list some of the damage caused and hurdles to completion of the project including environmental laws such as the CRZ and court orders protecting fragile environments including mangroves etc.

"The Committee has found that the proposed reclamation in an average width of about 100 m does not cause any impact on the tidal movements and no adverse effects to the coastline are envisaged".

The report then contradicts itself by stating:

***"Bridge on sea:** Disturbance to aquatic habitats*

***Stilt road:** Stilt road is permissible in CRZ but would cause a visual obstruction to the view of the sea and in Mumbai, coastal roads on stilts, is not an environment-friendly and feasible option, where large scale development has already taken place in the neighbourhood.*

The coastal road also involves land reclamation in mangroves which are considered as reserve forests in Maharashtra and crossing creek that are ecologically sensitive. ....

It is evident that the damage caused by reclamation would be far more extensive than the damage caused by stilts or a bridge, which involves a lesser amount of interference with the natural ecosystem than filling of the entire surface for reclamation which would eliminate the entire natural ecosystem and block the flow of seawater completely.

Even while recommending dilution of environment laws for construction of the coastal road, the Project Report lists some of the serious environmental challenges facing Mumbai, caused by damage to the environment in the course of development:

"The worst affected area in Mumbai is the entire western front excepting Carter Road where the mangroves have grown and have also registered an increase in height in the last 10 years. This has been possible due to the participation of citizen forums fighting individually. In India, a legal protection is afforded to this ecosystem by way of legislation in the form of Coastal Regulation Zone Notification. Recently Mumbai High Court has ordered freeze on destruction of mangrove forests in Maharashtra and has banned construction within 50 metres of them. The court has also directed to notify mangrove areas as protected forests."

"Greater Mumbai's environmental health is affected by increasing air pollution (caused by vehicular pollution and

construction) and water pollution (caused by inadequacies in the sewerage system) while its coastal location makes the city vulnerable to flooding and landslides especially during the monsoons. ***Mumbai's development has historically been brought about by altering the natural environment through reclamation, quarrying of hills for construction material, covering and narrowing of drains, clearing mangroves and altering river courses."***

The coastal road project involves further damage to every serious environmental issue listed above including water pollution, air pollution by vehicular pollution and construction, water pollution and blockages to natural drainage systems and consequent risk to flooding, additional reclamation, quarrying of hills/ illegal sand mining for construction materials, air pollution due to the direction of the sea wind blowing towards land during certain seasons, etc.

The coastal road will completely block natural drainage of water into the sea and will rely on manmade drainage systems. Similar manmade systems have been identified as a major contributing factor to flooding all over the city every monsoon. It is apparent that flooding in a wide area has been considerably worsened after reclamation of the Bandra-Kurla Complex, the Bandra Reclamation and construction of the Bandra Worli Sea Link. The Government has been unable to control extensive flooding through man made drainage systems in spite of their best efforts.

The coastal road will increase air pollution as additional traffic is placed in an area where natural wind patterns carry pollutants into the city during some seasons. Mumbai is already among the most polluted cities in the world and the health of its citizens' demands that all efforts be made towards reducing air pollution, not creating additional sources in locations which will worsen the problem for the entire city.

The effects of air pollution from the coastal road will contaminate the food chain as vehicular emissions will sediment directly onto the seawater next to it. Lead and other contaminants will consequently find their way into the food chain and impact the health of Mumbai's coastal population dependent on fishing produce.

Noise pollution will be increased in the coastal area due to additional vehicular traffic and noise mitigation measures such as noise barriers will visually block the sea to ordinary residents of the city.

Destruction of mangroves and natural features will adversely affect marine life, particularly inter tidal marine life and migratory birds which depend on this habitat. Since the shallow waters of the coast will be eliminated and deep water will be immediately adjacent to the land mass, all life contained in shallow water will be eliminated. Although the plan proposes planting of additional mangroves to compensate for those destroyed, no suitable site for plantation is identified. The deep water which would border the proposed coastal road would not support mangroves which grow only in mudflats. Most other areas along the coast are either unsuitable for mangrove plantation or already contain mangroves but are under threat from destruction due to other causes, primarily related to other development projects.

During earlier reclamations of Mumbai such as the Backbay Reclamation, adverse effects were felt almost immediately on coastal land in Versova, where land started to erode and sea walls had to be built, at huge cost to residents of Versova. Areas such as Alibag are already suffering the effects of changed tide patterns due to reclamation

projects elsewhere and are losing valuable land adjacent to the sea, making construction of seawalls imperative. Such adverse effects on the coastline north and south of Mumbai have not been adequately studied. Reclamation in Mumbai has the potential to adversely impact the entire western coastline of India due to changes in tidal patterns and it is against the public interest to consider granting environmental clearances to this project when crucial hydrological surveys are not complete.

We strongly object to the coastal road as a project against the public interest and recommend that the possibility of constructing a road to carry through traffic, Metro and BRTS systems may be considered along the eastern side of Mumbai (which is heavily Industrialised and marked as a Transport Zone in the DPR). Such alignment would have minimal impact on the mainly residential and already densely populated Western sea front and would open up the possibility of easier connections to the mainland. East-West connectors already form part of the draft DPR and would be necessary whether the main traffic flows along the east side or the west side.

We request additional time for further objections to be filed, and a personal hearing before finalization of the coastal road project.

● *Dr. A.G. Untawale*

Proposed Coastal Road along the West Coast of Mumbai, Maharashtra

1. Marine coastal environment is very dynamic, highly productive and rich in Biodiversity.
2. The deforestation, reclamation and development of the coastal, estuarine and erstwhile seven islands was initiated by the Britishers way back in 1670. The process still continues after independence till today.
3. We have exploited the coastline and the Arabian Sea to the maximum limit by adding pollution factor. Now the biological productivity is on decline and the water pollution has become harmful.
4. There have been incidences of flood (Mithi River), inundations (ever monsoon) and coastal erosion at various places.
5. Most of the govt. agencies, municipal authorities and builders have deforested/ reclaimed mangrove forests which were the lungs of ever-growing Mumbai population. This ecosystem traps the sediments from water.
6. Ever growing Mumbai is demanding many more things. Now it is going to be the smart city with several new facilities and developments at the cost of environment - marine, coastal and also estuarine. However, there seems to be no provision of ENVIRONMENTAL COST anywhere in the project. This should be added and used at/for proper places.
7. Mangrove Ecosystem is a very productive ecosystem which is known as breeding, feeding and nursery grounds. Surprisingly there is no provision for conservation (Preservation), compensatory plantation of mangroves, along with nursery. This needs proper study, planning and monitory allotment. There is a special Mangrove cell in Govt. of Maharashtra which would help in this matter.

Even if these basics factors are kept in mind, it would help the project.

Only spending billions of rupees should not be our objective.

The expenditure should be justified and helpful for coastal road environment.

Tribunal Members

1. Justice (Retd.) Hosbet Suresh

He is a former judge of the Bombay High Court who has led a number of commissions that investigated violations of human rights. He has investigated Kaveri Riots in Banglore, Bombay Riots of 1992 and 1993, the massive slum clearance drive in Mumbai with the purpose of preserving Sanjay Gandhi National Park, Public food distribution system in Mumbai. He was also a part of an Indian People's Tribunal (IPT) fact-finding team that went to Gujarat in March and April 2002 following the communal riots triggered by the Godhra train attack and the head of the Jury of the Tribunal organised by The HRLN and ANHAD which investigated the human rights violations in the Kashmir Valley.

2. V. Subramanyan

Mr. Subramanya has an M.Tech in Applied Geology and Ph.D. in Applied Geomorphology and is a retired Professor of Geology from IIT Bombay working specifically on Environmental and Engineering Geologist. 'Coastal forms and processes' has been his research subject for a long time. He was a member of the Expert Committee of the BMC on its Disaster Management Plan for Mumbai.

3. Meenakshi Menon

She is one of the founders & Managing Trustee of Vanashakti environmental NGO which aims to conserve the forests, wetlands and wildlife corridors and habitats, create awareness about environmental topics, protect and revive rivers and prevent opencast mining in the areas that are well-endowed with biodiversity. She is an expert in the field of Media and Communications.

4. Sunil Shanbag

Sunil Shanbag is a theatre director and producer based in Mumbai. His theatre work is known for its strong sense of social context and cultural rootedness and has often reflected on issues inspired by the city of Mumbai. His work explores themes of history, politics, ethnomusicology, and art. He is also a National award winning documentary film maker.

5. D. M. Sukthankar

Mr. Sukthankar was an officer of the Indian Administrative Service, from 1956 till 1990 working extensively with the Government of Maharashtra and Union of India. He is recognised as having specialised knowledge of, and practical experience of dealing with issues relating to urban planning, development and administration. He has also been associated with the Housing sector for a number of years. After his retirement in 1990, he has been closely associated with the voluntary sector and is currently the Chairman of the Board of Trustees of AGNI (Action for Good Governance and Networking in India, an NGO.

6. Ramchandra K. Patil

He is the President of Maharashtra Macchimar Kruti Samittee a state level fisher's organisation. He is an executive member of World Forum of Fisher People, a global federation of fishers organisation and he has been the Chairperson and General secretary of National Fishworkers Forum, India. He was born and brought up in fishing family of Vadarai village of Palghar district and studied upto final year of diploma in architecture. He was an active fisherman and has experience of over 18 years of fishing experience in deep

sea area of Ratnagiri to Okha (West Coast of India). He advocated for small scale fisher's issues throughout his life by organising fishers and representing them. He has been a member of an expert committee set up by fisheries department of government of Maharashtra from time to time. He is constantly representing small scale fishers' issues by participating in national, international level forums and workshops. As recognition of his work and dedication he has received several awards.

7. Jamsheed Kanga

Mr. Kanga has been Senior Corporate Advisor of Tata Housing Development Co. Limited since April 1997. He serves as a Trustee Director of IDFC Asset Management Company Limited and as a Consultant to Forbes Gokak Limited. As an IAS Officer he served as Municipal Commissioner, Bombay Municipal Corporation, and in various departments of the Government of India including the Atomic Energy and Commerce Ministries apart from serving as Managing Director of various PSUs such as Export Credit Guarantee Corporation of India and Maharashtra State Agro Industries Development Corporation. He has completed his Masters in Public Administration from Harvard University. He is an expert in issues related to governance.

8. Gerson da Cunha

Gerson da Cunha is the Convenor of AGNI, a trustee of NAGAR and was also the first He is the CEO of Bombay First, which are all NGOs focusing on good governance. He has also been associated with other NGOs such as CRY and Akanksha. He has served for about a decade with UNICEF. Mr. da Cunha served as an adviser to various Ministries in the government of India, such as Civil Aviation and Tourism, Information and Broadcasting, and Health and Family Welfare, at various times. Over the course of his career, he has worked in journalism, advertisement, marketing along with being an actor, author and social worker.

9. D.T. Joseph

Mr. D.T. Joseph, a retired IAS officer, formerly served as Secretary to the Urban Development Ministry of the Government of India. Mr. D. T. Joseph is a Director of Shreyas Shipping and Logistics Ltd., Mundra Port and Special Economic Zone Ltd., Ocean Sparkle Ltd., West Asia Maritime Ltd., Shreyas Relay Systems Ltd. and Dedicated Freight Corridor Corporation of India Ltd. He holds Masters degrees in English Literature and Economics from the University of Madras and University of Manchester, respectively.

10. B.C. Khatua

Mr. B C Khatua, a retired IAS officer, is currently the Director of the Mumbai Transformation Support Unit. The MTSU is an initiative that facilitates the process of Mumbai's transformation, through an advisory, co-coordination and monitoring role in the projects undertaken by city agencies. His terms as Chairman of the Forward Markets Commission, the Principal Secretary of Water Supply and Sanitation Department of Government of Maharashtra and as Textiles Commissioner of the Government of India have been recognized as periods of great reform in those sectors.

11. Shirish Patel

He is the founder of Shirish Patel and Associates, a company that provides civil engineering and structural consultancy services. He was one of the

three authors that planned New Bombay and was the Chief Planner for the new city. Mr.Patel is the founder director of Housing Development Finance Corporation. He is also a member of the Mumbai Heritage Conservation Committee, and a governor on the board of the Mumbai Metropolitan Region Heritage Conservation Society.

12. Shabana Azmi

Shabana Azmi, a Bollywood actress, is a Goodwill Ambassador of the United Nations Population Fund (UNPFA), and a member of a member of the National Integration Council, National AIDS Commission of India. Among her sphere of work are groups like slum dwellers, displaced Kashmiri migrants, earthquake victims and people affected by 1993 Mumbai riots as well as Indian Muslims fighting after the 9/11 attacks. She was also a nominated member of the Rajya Sabha for a term of 6 years.

13. Major General Sudhir Jatar

A retired army officer, he is the President of the Nagrik Chetna Manch. The Manch is a pressure group that aims to bring about transparent and efficient governance. The Manch has played a proactive role in finalising the note on a transport policy and mobility plan for the Pune Metropolitan Region. Major General Sudhir Jatar has also served as an Independent Director in various companies including Videocon Industries Ltd.

14. Ajit Ranade

He is a co-founder and trustee at the Association for Democratic Reforms, an NGO that aims for governmental and electoral reforms. It is known for its election watches, that hope to improve transparency in elections. Ajit Ranade is the Chief Economist of the Aditya Birla Group and a Director on the Board of Hindalco Almex Aerospace Limited. He has served on various committees of the Reserve Bank of India and is a member of the National Executive Committee of FICCI and Economic Policy Council of CII. He is a member of the Board of Governors of the of Indian Institute of Technology, Bombay. Apart from being an author of three books including Maharashtra's EGS: Regional Patterns, Scope for Reforms and Replication, he is a columnist with several leading dailies, among them being the Economic Times and Business Standard.

15. Nikhil Wagle

Nikhil Wagle is a noted journalist and television anchor who has served as editor-in-chief of prominent newsgroups like IBN Lokmat and Dinank. He also founded newspapers and magazines such as Mahanagar through his publishing group Akshar Prakashan. His fearless and honest reporting on controversial issues has attracted the ire of political parties, most famously the Shiv Sena.

16. Rakesh Kumar

Dr. Kumar is the Chief Scientist at National Environmental Engineering Research Institute, Mumbai. Dr. Rakesh Kumar received M.Tech in Environment Science and Engineering from IIT, Mumbai and PhD from Nagpur University. He has been coordinating a multiple R&D and environment improvement initiatives with USEPA since the year 2003. He has been working on climate change mitigation technology development. Dr. Rakesh Kumar has about 25 years of experience in the field of environmental science and has received several awards for his work.

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