

Water Resources, Floods and Sand mining in Tapti at Surat

*A compilation of Prof. M.D. Desai's works –
Papers, Reports, Lectures and related Media Reviews (1971 - 2008)*

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By:

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PREFACE

The contribution of R & D encompasses wide fields of civil engineering. They are Geo-technology, Foundation, Rock mechanics, Ground engineering, Earth dams, Rigid – Flexible pavements, Environment aspects, Disaster Management- of flood, mining, water resources - availability, conservation and harvesting and retrofitting for seismic activity etc.

The 50 years of contributions have been principally, practically, oriented to serve the need of the society. As professor of Applied mechanics the approach to R. & D, Consultancy services provided opportunities to “observe, analyzed, destroy misconcepts and reconstruct new concept” approach. The works, in form of lectures to summer school, winter schools, papers to seminars, workshops, conferences, journals and reports are scattered, unlinked. The compilation of such works on theme – Water Resources, Floods and Sand mining at Surat, was conceived by P.G. Students of S.V.N.I.T. The problems and predictions over years, feedback with time tested success or failures, will fill academic vacuum of case studies that too related to Surat. It aims at;

- a) Challenging misconceptions such as dredging only method to control floods.
- b) Introduce concept of loss to downstream of Ukai / benefit to power sector ratio of flood water in wider national economics of today to evolve flood moderation.
- c) Evolve non political, active pressure block (like Citizens Council etc.) to activate administrators Civil / Disaster management / Government machinery through Public participation &
- d) Avail media - TV for creating awareness amongst citizens & NGOs about warning system for floods.

Many documents, papers published – unpublished, lectures delivered, consultancy reports are reproduced date wise. Its failure and validation as viewed through media is added to give feedback of society. The theme, technology evolved have been appropriate, economical, time constrained and evolved by continuous performance studies.

I am sure, this work will be useful to students, consultants & researchers to derive problems & new solutions. As individual - NGO, I have a social responsibility to educate masses having poor knowhow or misguiding hearsay or motivated information. The Professionals, Rotarians, Managers, Administrators, associated with problems, were educated by lectures and media publications. Media reactions are also part of this compilation. Having been associated with Public Interest Litigation (PIL)

of i) 1970 of a farmer Shankerbhai Patel – 1969, ii) 1999 – by Dr. K.K. Desai & Associates, iii) 2007 - Surat Citizens Council, iv) 2007 - Dr. M.D. Desai & Ravin Tailor at Govt. of Guj., Pur Honarat Panch, inquiry commission, I felt a strong need to educate sufferers - citizens to get better results.

A pressure block forum like Surat Citizens Council, Chamber of Commerce, local TV channel have been quite co-operative to provide facilities. The compilation shows a Unique approach to flood evaluating loss / benefit ratio for Ukai Project & Flood prone Surat district needed to be explained to decision makers. 2007, 2008 saw some impact of trend of filling above rule level to keeping Ukai level below rule level.

Similarly mining of sand in Tapti was disastrous for city, water works, bridges, river fronts, banks & structures (weir). This R & D studies brought a ban on sand mining in city region of Tapti. Conservation projects like Ballon dam, integrated district plan to cover,

- (a) Coastal protection for rise of tide by 2050 due to snow melting.
- (b) Disaster in gas filled Hazira Zone - escape route to safety.
- (c) Providing large lakes as detention reservoirs in Kharland with a spillway to store, recharge & provide source of water from floods.
- (d) Develop a larger city map for drainage, harvesting, sewerage disposal, communication, river front designed as spillway with net of drains to detention reservoirs. This will reduce afflux u/s of Sardar Patel Bridge.
- (e) Over a decade recharge the aquifer with flood water to retard the salinity & provide green belt with reclaimed land.

Finally I wish to thank one and all who have assisted in this task, particularly Ravin Tailor and P.G. students 2008 in Soil Mechanics and Foundation Engineering of Dept. of Applied Mechanics, S.V.N.I.T., Surat.

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Surat

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