Topic No. 4 Theme : Development of Water Resources and Infrastructure

PERCEPTION MANAGEMENT OF WATER RESOURCES PROJECTS : SOME LESSONS FOR ENGINEERS

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Abstract

In this era calling for 'Sustainable Development', developmental activities are subject to scrutiny not only by the stakeholders but practically by any human being on this earth. Experience has shown that even in absence of any convincing logic, water resources projects are always questioned on various grounds ranging from human rights to economic viability and from hydrology to social and environmental impacts. On one hand this has helped improve the project planning and implementation and thereby the benefits too, on the other many projects have had to suffer in terms of inordinate time and cost overrun apart from delayed benefits. In this backdrop, this paper highlights urgent need of perception management of water resources projects right from its conceptualization to avoid ill-directed controversies. The role and responsibility of media in this whole process are discussed by citing relevant examples. Attempt has been made to analyze some interesting cases like Bhakra-Nangal Project and Sardar Sarovar Project of India. It is underlined that it is as important to build the perception as building the project itself.

Bhakra-Nangal Project, a legendary icon of water resources development in the independent India, has been regarded as "the modern temple". This project, like a few others responsible for the "Green Revolution" in the country which have played a vital role in making the country self-sufficient for food, is not spared from criticism even after proven performance. Perceptions of the beneficiaries, other stakeholders and people about such projects have been historically positive and yet attempts to put such perceptions at stake are going on. The paper critically examines swirling debates spearheaded by environmentalists, water management experts, activists, bureaucrats, policy planners, and general public and tries to draw lessons to be learnt by engineers.

Sardar Sarovar Project, currently in its advanced stage of completion, is one of the largest water resources projects of the world. This has been the most studied project of the world and is an exemplary case of meeting the challenges. The project has been questioned on every count, be it human, social, economic, environmental and even political, and has always emerged as 'the life line' according to the people's perception. This paper presents the details of both, the 'pro' and 'anti' campaigns and their impacts on project implementation. Demonstrating how badly the project had to suffer in terms of delay in implementation and associated cost increase because of perception issues

despite its tremendous potential benefits and strong base of scientific planning, the paper emphasizes on the need to pay focused attention on perception management of ongoing or future projects.

The paper concludes that just creating awareness about the project features amongst the stakeholders is not enough if the project has to successfully meet the challenges from external forces; rather, perception building and its management as a product of data collection, monitoring and information science is the need of the hour. Institutional linkages and documentation of the project elements are identified as essential tools to serve the purpose.

Perception – Definition and Subjectivity

The simplest dictionary meaning of the term 'perception' is "one's view or interpretation of something". In the field of psychology, it is further elaborated as neurological process of observation and interpretation. Perception of any object is an outcome of a neurological process of acquiring and mentally interpreting information from the senses. In fact this process has been so integrated with human life that most of the time its existence goes unnoticed. Despite this fact, its significance has been a matter of experience since the pre-historical times and its role has been aptly acknowledged even by great thinkers. For example, Ralph Waldo Emerson (19th century transcendental philosopher) has said *"People only see what they are prepared to see."* Henry David Thoreau also said *"It's not what you look at that matters, it's what you see."* William Shakespeare, without using the term perception, has noticed its importance while saying *"There is nothing either good or bad, but thinking makes it so."* Albert Einstein has also noted that *"Reality is merely an illusion, albeit a very persistent one."*

Because human brain understands language of pictures and not of digits, subjective aspects like vision, view, perception, understanding, belief, etc. play a major role in constructing phenomenon called response. The response of any human being is mainly based on his perception. This process of building perception is inherently subjective in nature and that is precisely the reason why different individuals end up with different perceptions of a single object. While it is difficult to adjudge any given perception as right or wrong, it forms the basis of opinions amongst and across different groups of people. Therefore, in behavioral science, perception in specific conditions is considered as the most important aspect in analyzing behavior of an individual and of a group. Thus, perception is always relative and is judged with respect to the conditions or circumstances in which it is built. Subject, will and surrounding are the three inevitable parameters of perception.

Even the general belief of 'Seeing is believing.' may not be always true. Figures 1(a), 1(b) and 1(c) represent interesting examples of optical illusion and demonstrate how the perception could be different from the reality. Herein the three inevitable parameters –

subject, will and surrounding playing their roles are best understood. In ancient Hindu philosophy, such illusive phenomenon related to perception is known as maya, which makes one feel presence of snake in a string and of string in a snake. It further states that the whole world is a product of maya and the one who wants to clasp the Reality has to break the bondage of maya, has to shatter illusion and go beyond all that is unreal. The final goal of human incarnation is to attain the absolute Truth, the Reality which is the true nature of soul as per Hindus.
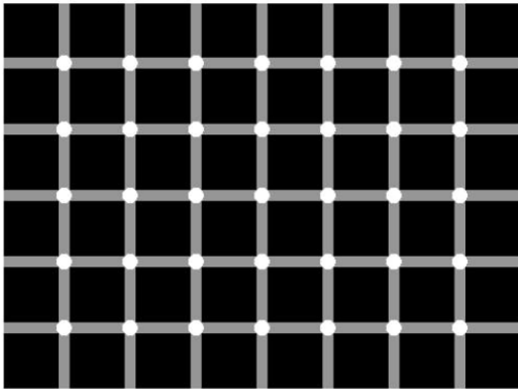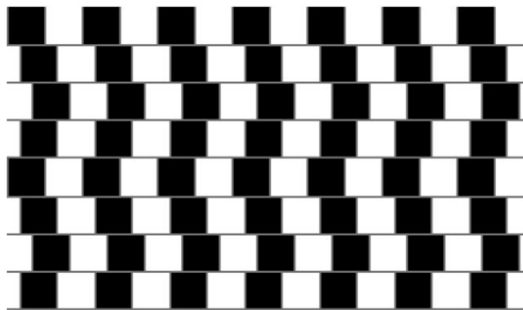

FIGURE 1(a) : Count the Black Dots!

FIGURE 1(b) : Are the Horizontal Lines Parallel or Sloping?

FIGURE 1(c) : Which Circle in the Middle is Larger?

Perception Change – Can it be Managed ?

Perception is not only subjective but it also changes with respect to view point, perspective, backdrop, personal liking and disliking and individual or collective thinking. There is a famous historical story about this. In India was a great young poet in ancient time. His father used to comment on his every poem, but mostly it was criticism that he used to offer. Gradually averse grew in the poet's mind due to his father's criticism on every poem. Once it happened that he was silently standing behind a tree beneath which his old parents were talking. The mother was asking the father as to why did he criticize each poem of their son though it was hailed by the scholars present in the court of the king. The father replied – "Because of showing faults in the poems, the son has become a perfect poet and that was the dream I saw while he started writing poems." All averse in the mind of the young poet evanesced soon and he fell at the feet of his father. Thus, the perception gets changed when the back of the mind is changed. Once this is accepted and realized, it is not difficult to appreciate that managing perception is possible to some extent. Concept of perception management might be appearing as a relatively new one from the management curricula point of view, but the ancient Indian scriptures have always regarded it as a necessity for human society. Managing perception is a science, but can also be viewed as an art. Timeliness of the perception management is seen playing a vital role in most of the cases.

Interpretation of Numbers while Managing Perception

Be it apparently convincing or not, concurrent existence of different perceptions by different persons can not be ruled out even after the best efforts to spread the right information. In typical democratic governance, consensus is not mandatory for all the decisions but the absolute majority is a must. Thus for the final decision to be in favor of any project, number of 'pro' perceptions has to be greater than that of 'anti'. However, perception management of that project is not over with realization of this. This can be better explained by an interesting example shown in Figure 2.
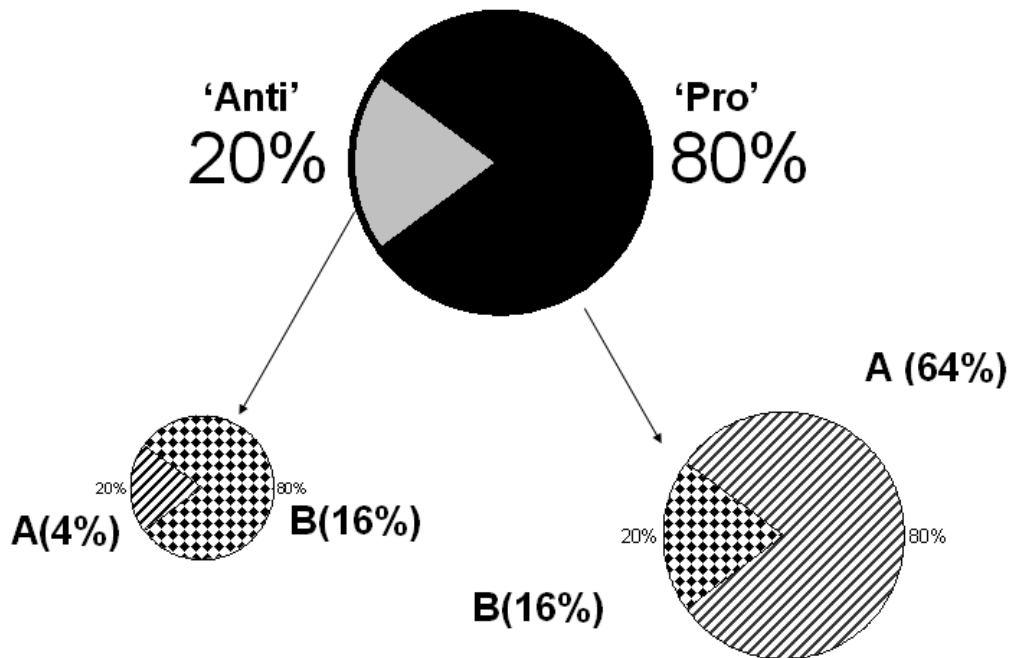
FIGURE – 2 : Which Feature is Objectionable – A or B?

As illustrated, opinion poll for a project registers 80% favorable or 'Pro' perceptions. While asked about the most objectionable feature of this project, 80% of the total 80% 'Pro' respondents (i.e. 64% net) mentions feature 'A' whereas remaining net 16% 'Pro' respondents mentions feature 'B'. Out of total 20% 'Anti' respondents, net 16% mentions feature 'B' as the most objectionable and net 4% mentions 'A'. Thus arithmetic number game shows that in all 68% considers feature 'A' to be the most objectionable and remaining 32% considers feature 'B'. This may prompt the decision maker to improve the feature 'A', if only one feature could be improved. However, from the Perception Management point of view improving feature 'B' could be more beneficial as it has the potential to turn 16% 'Anti' perceptions to 'Pro'.

Role of Perception Management in Water Resources Development

Having professed the need for sustainable development, human efforts and endeavors in the present era seem to be confronted with different perceptions of 'sustainability' itself (what is to be sustained, why, for how long and by what means ?). Under different umbrellas of human rights (ranging from 'Right to Development' to 'Right to Information') developmental activities are subject to scrutiny not only by the stockholders but practically by any human being on this earth. Experience has shown that even in absence of any convincing logic for it, water resources projects are always questioned on various grounds ranging from human rights to economic viability and from hydrology to social and environmental impacts. On one hand this has helped improve the project planning and implementation and thereby the benefits too, on the other many projects have had to suffer in terms of inordinate time and cost overrun apart from

delayed benefits. Even the projects with proven track records obviously qualifying them for 'pro' perceptions astonishingly have 'anti' perceptions which stun the authorities or engineers in charge. Learning from 'Prevention is better than Cure', focused attention needs to be paid to perception management right from the conceptualization stage. Mere curative or reactive efforts to combat misinformation campaign often fall short of what is actually called for. Importance of aggressive and sustained efforts to put the right things in the right perspective and that too at the right (most opportune) time can never be overemphasized. Existence of negative perceptions can be well understood and accepted if they owe to improper planning, lacunae in design and implementation or technical, environmental or economic flaws; rather, such 'constructive criticism' leaves lot of scope for improvement. But in some cases negative perception exists on account of political and/ or economic interests, inadequate documentation, deliberate misinformation campaign, presentation of half truths and distorted facts, lack of transparency or access to the real facts and absence of effective mechanism of perception management. In the following discussion these issues are discussed with two prominent case studies from India.

Bhakra – Icon of Indian Dams or Icon of Perception Challenges ?

India has got over 4000 large dams already completed and about 450 more are under construction. In last couple of decades, there has been a swirling debate going on about the effectiveness of these dams in making the country independent for its drinking water and food demands in spite of its continued population implosion. The Bhakra-Nangal multipurpose project is among the earliest river valley development schemes undertaken by Independent India (www.bhakra.nic.in). The project was conceived long before India became a free nation and preliminary works had commenced in 1946. The project was reoriented and phased soon after Independence. The work resumed in 1948 and the scheme was completed in successive stages by the early 1970s. The main objectives of the Bhakra-Nangal Project, as stated in the project report (which formed the basis for its approval), were irrigation and hydropower development. The incidental and indirect benefits were listed as immunity from famines and prosperity for the agricultural community, increase in the production of food grains/ cash crops, flood control, industrial development, reclamation of state waste land and refugee rehabilitation.

PLATE – 1 : View of Bhakra Dam

This project is responsible with a few others for the "Green Revolution" in the country, which have played a vital role in making the country self-sufficient for food. In Punjab, the food grain production went up from 3.389 million tons in 1965-66 to 17.221 million

tons in 1985-86 and 25.197 million tons in 1999-2000. In Haryana, in the same period, food grains production increased from 1.985 million tons to 8.147 million tons and finally stood at 13.065 million tons.

Bhakra is not being spared from criticism even after proven performance since 1954. Perceptions of the beneficiaries, other stakeholders and people about such projects have been historically positive and yet attempts to put such perceptions at stake are going on. For example, 'Unravelling Bhakra : Assessing the Temple of Resurgent India', brought out by Manthan Adhyayan Kendra, Badwani, Madhya Pradesh, in April, 2005, criticized this project on every count. After three years of study, the perception emerged was - 'Bhakra dam and project to be a most ordinary project, an ordinary dam much like any other large dam - with all its flaws and blemishes' (Dharmadhikary, 2005). And still the perception of many who regard Bhakra as savior for India (a country depending heavily on imported PL-480 wheet at the time of independence), remains unchanged. For example, the critique on 'Unravelling Bhakra' by Centre for Policy Research laments in these words – "Clearly, the anti-dam lobby was highly worried about the icon-like status achieved and sustained over these years by the Bhakra project, and the overwhelmingly beneficial picture about the project embedded in the public mind. It was even more concerned that the success of the project, if not challenged, might lead to public support for similar large dam projects elsewhere. The detractors of large dams wanted to destroy the "Icon called Bhakra". So the iconoclasts were encouraged and supported to attack it in every conceivable way." In this tug of war between two extreme perceptions both sides have been using or misusing the quotes of Mr. Jawaharlal Nehru, the first Prime Minister of India, like 'disease of gigantism' and 'new temple of resurgent India and symbol of India's progress' and– spoken at different points of time (November 17, 1958 and October 22, 1963) and in altogether different context. Even Mr. Ayodhya Nath Khosla, senior designer of Bhakra and eminent engineer known as 'the Father of Bhakra' was portrayed as – "a well-known Indian engineer used to proclaim off and on that he was going to build the highest dam in the world, suggesting implicitly a new yardstick for measuring national greatness -– the height of a dam and the millions of cubic yards of concrete poured. Yet such flamboyance used to flatter many egos and invited surprisingly few frowns. That many engineers in India, if left to themselves, like to build monuments to themselves regardless of the time and cost involved is commonplace in history." (Sen, 1974) The comment itself speaks about the conflicting perceptions prevailing in the top level of water resources professionals of the country in 1940s and 50s.

More than 350 thousand visitors who come to have glimpse of this 740 feet high Bhakra Dam every year, perceive it as an Engineering Monument - the highest dam in Asia and second in the world. Perception also prevails that Bhakra has exceeded its benefit estimates. According to another perception, it is a technical university, which produced a highly trained band of 300 engineers and 13000 skilled workers and technicians during the course of its construction (Sharma, 2006). Despite all these, there also exists a perception according to which "India's water resources establishment, including the politicians, has used the Bhakra project to silence those who raised questions about the need for large dams." (Thakkar, 2005) Prof. Asit K. Biswas, winner of the Stockholm Water Prize for the year 2006, has analyzed the benefits and costs of three large water

projects — Bhakra Nangal in India, Aswan Dam in Egypt and Ataturk Dam in Turkey and his perception is that the benefits these dams have brought to the region are simply "fantastic". According to this perception, by bringing prosperity to the region, they have advanced the cause of peace and security (Biswas, 2006). Another impact assessment study on Bhakra Dam aiming at analyzing impacts of water on growth concludes that economic gains from investment in development of water resources are not iniquitous and the economic benefits flowing there from are shared by all sections of the society including people living in the urban areas and the distribution of these benefits are such which do not leave the poor out (Malik, 2008).

Thus the Bhakra-Nangal Project, the Icon of Indian irrigation and hydropower infrastructure has virtually become an Icon of perception challenges, leaving ample scope for the water resources developers, engineers and managers to draw lessons from.
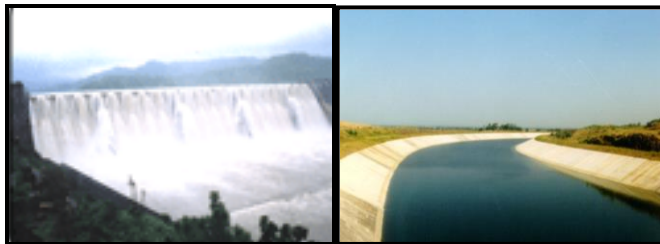
Sardar Sarovar Project : A Myth or Marvel?

PLATE - 2 : View of Sardar Sarovar Dam and its Main Canal

One of the most studied and debated projects of the world, Sardar Sarovar Project (www.sardarsarovardam.org) is a multi-purpose, multi-state project to annually harness 11.7 BCM water of Narmada river and transfer it to the drought prone regions through a vast canal network of about 75,000 km length. This Project was described as one of the eight 'Modern Wonders Abuilding' by TIME magazine (January 24, 1994).

The project currently in advanced stage of implementation is designed to provide drinking water to 135 urban centers and more than 9,000 villages of Gujarat state and irrigate 1.9 million hectare of land besides generating eco-friendly hydropower with an installed capacity of 1450 MW. Flood control, fisheries, tourism development, employment generation etc. are further benefits. Benefits of this project also include huge saving of electricity which is otherwise consumed for lifting groundwater from depleting aquifers. Harnessing the inter-linkages of water and energy, this project is also well posed to contribute in combating Global Warming by environmental enrichment.

Born out of a decade long deliberations by the Narmada Water Dispute Tribunal constituted under the Inter-State Water Dispute Act of 1956, this project has been at the core of debates on sustainable development in general and large water resources projects in particular. The Tribunal award of 1979 which followed due examination of technical, social, economic and environmental aspects, is a landmark award so far as sharing the inter-state river water is concerned. This award which is beyond any review till 45 years,

is also known for its meticulous dealing with all associated issues including Rehabilitation and Resettlement of the affected people and cost sharing of various components. Allocation of water to even a non-co-riparian neighboring state of Rajasthan is also one of the salient features of this award. This Project is also one of the first major water resources projects of the country implementation of which followed environmental clearance from the Government of India.

Perceptions about this project have been checkered. In spite of several attempts of debunking, the project enjoys persistent positive perception across various cross-sections ranging from the Government of India to the State Governments of the party states to the people, beneficiaries and so on. On the other hand negative perceptions, though very few, also show their strong presence by opposing this project tooth and nail. Both positive and negative perceptions have been so strong that it has led to outburst on several counts in the forms of legal battles, agitations, open debates and what not. Issues on which the battle has been going on unabated are also complex, ranging from the benefit-cost ratio and IRR to the human rights of those displaced; submergence of forest to overall environmental impacts; from hydrology and availability of water to water logging in the command area; from reservoir induced seismicity to equitable distribution of water and from technical alternatives to innovative financing of this endeavor. Collision of perceptions has affected this project the most and its aggression even resulted into a legal battle in the Apex court of the country which in turn resulted into halting of dam construction for about four and a half years. It would be interesting to note here that even amongst the learned judges of the Supreme Court bench, different perceptions about the project surfaced. While giving the judgment based on the majority (October 18, 2000), the court directed that "Every endeavor shall be made to see that the project is completed as expeditiously as possible." Perceptions about this judgment are also obvious; many welcomed it as 'triumph of Gujarat' and 'end of thirst' whereas others criticized it as 'biased'. Problems of perception gave a rise to an unprecedented battle in the print and electronic media – a battle never seen in the history of water resources development. Protest on the giant Millennium Wheel on the bank of the Thames river, attempt by Green Party to raise the issue of Sardar Sarovar Project in European Parliament, Chief Minister of Gujarat State going on fast and wide spread public demonstrations against screening of a film acted by an opponent of the project are just a few examples to give an idea of the dimension of perception conflicts.

From either side vigorous attempts have been made to manage the perception in their preferred way. This ultimately has resulted into numerous publications dealing with various facets of this project, some of which contributed in continuous improvement of the project features. Both, consistencies and inconsistencies of perception have been recorded. Some repulsive writings helped in improving general public awareness on certain issues. An interesting example of such rebuttal is a series initiated with 'The Greater Common Good' (written by a Booker Prize winner), and followed with 'Going Wrong with Figures in a Big Dam Way', 'A Poetic License', 'In which Mr. Bhalla gets his Sums Wrong', 'The Greater Common Good II' and 'The Greatest Common Good'. State of the art technology has been used so extensively in making and breaking the perception that on an average any popular website search engine easily gives you 100,000

results ! Amidst the cross-currents of information and misinformation, the work of this project is going on unabated and though delayed benefits have started flowing in.

Lessons for the Engineers

Many lessons can be drawn by engineers from the two cases discussed above, most important of which are as follows:

- Perception management is as important as managing the project itself and hence a systematic structured mechanism needs to be evolved to meet this objective.
- Engineers are better equipped than anybody else to take up this additional responsibility on their shoulder as they have the in-depth knowledge of the project.
- Technical issues are definitely important but are not the only ones and therefore the umbrella of technical competence shall be expanded to include skills required for perception management.
- Effective communication is the key to successful perception management. This is an art to be learned and developed.
- All engineers associated with the project shall share the same vision. Their internal and external dialogues also matter.
- Proper documentation of project progress is a must - right from the beginning and the same shall be transparently made available to those interested.
- All possible efforts to disseminate the right information about the project in the right perspective shall be made. Typically this may include regular updating of an effective website, periodical publications of books, booklets, pamphlets, newsletters, articles etc.
- Extra care shall be taken while projecting the significance of the project. For example, there is nothing wrong in the very famous punch-line of 'Sardar Sarovar Project – Lifeline of Gujarat', but it falls short in conveying its real contribution which is of national scale.
- Time is vitally important factor for the perception management strategies to succeed. Focused attention on perception management is necessary right from the conceptualization stage.
- Irrespective of whether the negative perception belongs to a stakeholder or any external person, it may have its own effects and hence shall not be ignored.
- Constructive suggestions shall be identified from the critiques and duly considered for the possible improvement of project features.
- Professional relationships shall be developed and maintained with other institutions and individuals working in the same field. Active membership with various inter-national and national associations in the related fields can help.
- Every care shall be taken to ensure that any pro-active or re-active action does not criticize other water resources projects (One has to be careful while presenting comparison).
- State of the art technology shall be advantageously used to monitor print and electronic media reports about the project related aspects. For example, continuous building up of a database classifying such reports appearing in day to

day media with a query based search facility can serve as a useful tool. Response management can also be made faster and effective this way.

- Advertisement is not a luxury from perception management point of view. Sponsoring and participating in mega events – conferences, seminars, workshops, etc. also help. Live telecast of informed debates, blogs on the web, online response to frequently asked questions (FAQs) etc. are also useful means.
- While responding to the attempts to portray negative perceptions, following points shall be kept in mind.
    - A glass which is half full is half empty. Others' view points shall also be respected.
    - Truth prevails and absolute truth prevails absolutely. Hence if the facts are on your side, deafening silence or underplay does not help in long run.
    - 'Agree, when you don't disagree' shall be the strategy.
    - Efficacy of any response/ rebuttal depends heavily on the response time.
    - Defense on one front shall not invite attack on other.
    - Alternatives proposed by the opponents shall be carefully examined and given due consideration.
- Think-tank of the project shall continue research on the actual role of the project. To drive this point, role of Sardar Sarovar Project in combating global warming or in earning carbon credits can be considered – the additional benefits which were not explicitly included in the Project report.

Conclusions

In this century, development of new water resources projects is going to be constrained – the main reason not being paucity of funds to meet the huge capital cost but perhaps the perception issues. Managing perception of a water resources project was never so demanding before, is a fact to be acknowledged as alarm even for the existing projects. A systematic mechanism for perception management (both – proactive and reactive) is the need of the hour and any resources allocated for this shall not be viewed as additional burden as it helps in avoiding time and cost overrun and thereby serve the cause of the society in a much better way.

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