Proposed Delta Tunnel Project

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**Abstract**

The Delta Tunnel project is expected to have a detrimental impact on the flora and fauna and the general ecosystem when it is fully implemented. In spite of this fact, it is clear that the project means significant gains for over half million people who stand to gain from the clean and good quality water that is as a result of the Delta Project, to improve their general livelihood. However, to truly improve the quality of the water, to make it drinkable, and fishable by increasing the marine life it is important that the estuary is also protected with an aim of protecting the ecosystem through the BDCP project, alongside the DWR project.

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(*Abbreviations used in the Report*)

*A&E*  - architectural and engineering

*BDCP* - Bay Delta Conservation Plan

*DWR* - Department of Water Resources

*EIR* - Environmental Impact Report

*EIS* - Environmental Impact Statement

*NEPA* - National Environmental Policy Act

*URS* - URS Corporation

**Background information**

For the past many decades, South California has been experiencing water problems where this part of the countries rely on exported water other religions thus making it unreliable. The water issue has been the main issue of concerned among the state officials where different projects to mitigate the problem have been initiated by the state government in collaboration with Department of Water Resources (DWR). The current project that is about to get into design and construction phase is Delta Tunnel Project. The project entails building to mega tunnels with an aim of diverting water from Sacramento River. The project would supply south California with water for decades according to California governor and DWR. The project has faced a lot of opposition from different parties where farmers, fishermen, business people and members of the communities have sued the state government of California together with DWR claiming that the project is against the law. Their allegations claim that the project will destroy indigenous species around the delta and Sacramento River; the project will also lead to fish reduction thus affecting fishermen who depend on the river for their livelihood, the project, in addition, will also cause economic constraint since it will require more than $15 billion. Despite their efforts, the project has been implemented and it is now getting into design and construction phase but the challengers still believe they can stop the construction of this project. The objective of the paper is to analyze the proposed project and come up with different perspectives as far as both sides involved are concerned (Cheung et al, 2009 pg. 290-302).

**Implementation of Delta Tunnels**

In 2006, the California water fix project also known as WaterFix was introduced with an aim of solving water reliability and environmental safety concerns allied to pumping water in the delta. The state of California, federal entities, DWR and local water agencies joined hands and initiated the project. WaterFix was termed as the best alternative in solving the water problem in the state. The four stakeholders started the implementation journey where they came up with a pan and the plan included building two tunnels more than 35 miles long that would divert enough water from the river to the southern part of the California. The plan required engineers with a high level of professionalism. DRW hired URS as the contractors where they were given the managerial and contractor role since URS is a group of high profiled contractors. However, DRW doubted URS managerial capabilities and thus they hired a new group known as Hallmark to provide program managerial services. The two groups were expected to work together and implement the plan. The stakeholders agreed that the project would not be funded by taxpayers but rather it would be funded by revenue bond. These revenue bonds would be created by the beneficiaries of the project and it also meant that the project would require no voters or legislative approval. The implementation of the project was highly criticized by many individuals and this led to the involvement of the Bureau of the state audit. The audit was carried out and the project was found to have various faults. To start with, the budget of the project increased, the hiring of the Hallmark group was against the law and stakeholders involved should work more on the project before initiating the design and construction phase.

The Delta project has not highlighted a lot on the environmental plan of the project other than making water reliable to users in the state. However, the project set apart $8 billion for ecosystem management. The project stakeholders did not make it clear how the $8 billion would lead to ecosystem management after the completion of the project. The main criticism of the project has been on its environmental impact. Different parties have presented their arguments on the effect of the project on the water habitat in the river. They are arguing that the project will lead to the addition of indigenous fish in the river and it will also affect other species. On top of that, the project will reduce water supply in the river complicating lives of individuals in the area (Cook, 2015 pg. 865-885). On the side of the stakeholders, the project failed to involve all the stakeholders in making their decision. To begin with, local people were ignored in making this decision. Sacramento River is part of local people natural resource and it is their asset and thus there were supposed to be involved. On the other hand, fishermen and farmers in their area were also left out despite the fact that they are the direct users of Sacramento River. In this case, the project ignored key importance parties who could have highly influenced the decision to initiate delta project.

On the side of water rights, they were also violated by DWR and the state agencies that took part in the implementation of the Delta project. According to water right, no one should privatize any public water. In this case, DRW act of building tunnels using Sacramento River without the consent of the community that benefits from the river was an act of privatization and thus it was against the law. Still, on rights of water, there is riparian right which gives people a right to use water in a reasonable way. Draining river Sacramento is not part of one way of using water reasonable thus making it clear that DRW and its stakeholders made a big mistake with the introduction of Delta project.

The audit report showed that there were some errors that occurred where the cost increased and also there were a lot of delays. This problem could have been solved through the use of critical chain project management concept (CCPM). CCPM tools mainly help when it comes to task planning where they help in minimizing the resources and also time taking to complete each task. These tools are aimed more on schedules since management of schedules are directly linked with cost and time spent. These tools apply the concept of a buffer which helps in adding extra time which gives project managers a chance to adjust their project without affecting the normal process. DRW could have used these tools because they could have eliminated delays and cost accumulation.

**NSPE Code of Ethics**

Much of existing studies and data that relate to the Department of Water Resource is far and large positive but in this respect, we shall focus on the myriad of shortcomings that are faced by the institution in the rendering of its service. This is a crucial attempt to try and bring to light some of the underlying issues that by far and large have been tested in subsequent research methods. Following a publication of the environmental report that was published in the year 2013, DWR reported receiving an overwhelming number of comments. The comments were concerned with the level of uncertainty that abounds from the long-term repercussions on the habitat accruing to the effects of climate change. The issue of habitat restoration in terms of fish population was a crucial aspect as there were major challenges as to how caution was to be taken in attempting to carry out restoration in the number of fish population that had been affected by the project's activities. It was suggested that DWR should instead obtain a short-term contract to operate as opposed to a long-term 50-year contract that the BDCP was seeking. Other suggestions as to the operation of the DWR suggested the given conveyance facilities should be partitioned from the habitat restoration efforts of the BDCP. In order to address this stalemate, the two bodies analyzed various alternatives that were presented to them, these were seeking for short-term permits and in turn, only include a limited scale of habitat restoration. They identified some of this alternative as Water Fix which was deemed as a preferred option to the BDCP. In the spirit of public participation, DWR and Reclamation made a publication in 2016 that indicated that some of the concerns raised were corrected. The body nonetheless, pointed out that it will progress forward with WaterFix planning initiative this is inclusive of the permitting and regulatory efforts. In the month of July 2017, DWR issued a notice projecting that the project would have a tantamount effect on the environment, in this respect an EIR had been set up to carry out monitoring of the activities in the habitat. This has been a crucial effort to try and restore the ecosystem and at the same time ensure that the residents receive a sufficient flow of water in their homes (Fort et al, 2012 pg. 456-486).

The unexpected intricacies of the project that has been initiated in different phases have implicated significant cost issues in terms of financing and taking care of the cost insofar as the project is concerned. The cost and the timeline for preparing the DWR alongside the BDCP increased over time due to the unexpected complexity of the project. It was also noted that the cost incurred in evaluation and implementation of the plan for BDCP and the given alternatives were on the increase. This included alternatives such as the WaterFix project. In the month of June, the year 2006, we saw a steering committee discussed the finance scheme of the project, the committee proposed a 13-million-dollar budget, that was allocated in the implementation of the BDCP, this, in the end, included the cost of facilitating the project but it omitted cost of public outreach. According to the laid down documentation, it was seen that the improvements BDCP was making, was carried out with a high level of stakeholder inclusion that was not similar to other conservation initiatives that were earlier laid out.

**NSPE Code, CCPM principles in change Efforts**

There were external efforts which were aimed at changing the course. CCPM as with the concept of lean thinking calls to action in the enabling the level of flow and the continuous enhancement of the process instead of the sub-optimization which is more often than not associated with the listed economic models. CCPM under the stewardship of TOC has been suggested as an alternative to address the various levels of weakness (Fort, 2012).

It has also tried the prohibition of competitive bidding and opinions as well as guidelines which interpret its scope. Theory in the process of production has called into question the cost models; this is the realization of the different levels of variations and complexities that have put forth in the market delivery system which has resulted in strategic choices that have not demonstrated significant dominance in the market scenario. The cumulative capacity of the listed model did come up and eventually led to the theoretical model that touches on flow and continuous improvement. It was seen that project management is a distinct aspect of the operation of management; it was also listed in a similar flow and a given continuous enhancement which may appear to be implicated in the process that is different in the means of implementing the given principles. It was observed that the same principles that were listed were applied to the project with a mandate of applying these principles (Fort et al., 456-486).

Project implementation is a varying field of thought insofar as operation management is concerned; it was observed that all that was different was the means of applying the listed principles. The same tenets are similarly being implemented to the project management scheme of scope. The implementation is happening through a lean construction and CCPM, however, there is a need for scholars to contribute to this element to make it a more robust and active while working with an industry.

**Were the requirements of the law met?**

It was seen that the organization and decisive structures of the BDCP presented another challenge when it came to faster completion of the planned initiative. The time of carrying out the plan was largely extended and this is because of the extended red-tape among the BDCP consultants. The steering committee, for instance, is constituted of a number of members who are representative of the government as well as the federal body. This high number of involvement makes it hard for hastened decision making by the body and this eventually slows down the implementation of a number of given amendments by the BDCP. This phenomenon has been cited as a drastic departure from what was once customary whereby a consultation team of experts was tasked with carrying out given plans and element that had been endorsed by a single advisory committee (Staley et al, 2009 pg. 232-263).

The cost of implementing the BDCP shot up when DWR was included in the project. This meant they were in direct consultation with the team that was tasked with preparing the BDCP. This cost of implementation raised to a sharp 60 million US dollars. The DWR and Reclamation issued a draft BDCP for public review in 2013, it pointed that the contract has been adjusted a number of times which in turn increased the level of cost for the entire project to a total of 20 million Us dollars. This is because of the unexpected complexity of the project. Another amendment to the project was similarly carried out in 2013 which further set back the taxpayer a total of 10.4 million dollars. The evaluation of these proposed amendments to the project plan indicated that there was the need for additional funds and time because of these specific changes were seen in the BDCP draft drafted. This permitted room for alternative approaches to be considered in the project. So far, it has been estimated that the DWR has spent a total of 260 million US dollars in order to evaluate and then commence plans for alternative conveyance locations and habitat protecting initiatives, inclusive of the BDCP and perhaps WaterFIX. In the end, DWR subsequently re-evaluated its reach and technical aspects in the conveyance and conservation program. Which resultantly led to a steep rise in the cost of implementation (Time, 2016 pg. 505-510)

It was also observed that the DWR did not really follow the law put forth by the state when it sought to replace the initial program manager in the carrying out of the conveyance and conservation program. It was seen that the DWR did not essentially value the initial contract in regards to the new program manager that had been installed; it also did not ensure that it received a fair and proper pricing for one of the contractors from Hallmark. It was seen that although the DWR previously used a resilient evaluation process that accepted as in line with the prerogative set in place by both a letter and a general spirit of the contractual guidelines in the selection of a new manager, it further employed a new model to select a program manager that replaced the incumbent program manager and it was seen that the new techniques employed did not necessarily follow the laid down procedure and protocol. The state law proposed that in the selection of an architectural or structural engineer the basis of contracting should be based on competence and professional skill. The process seeks to obtain the highest qualified individual for the job and we see that this was not necessarily applied by the DWR in their recruitment process. DWR used a competitive procedure in the engagement of consultants in order to provide a program management scheme and an engineering support initiative this was stipulated by the state in the laid down in its contractual obligation required to be followed by a contracting company. DWR followed the laid down stipulations in the hiring of URS as an ideal company to support operation by the firm in carrying out of conservation and the ultimate conveyance of the program group effort. The company contracted would, in turn, conduct an internal audit as to which individuals would best be qualified to serves as project managers (Yang, 2008 pg. 817-835).

The DWR has been attested to best take some given conditions so as to better make preparation for the steps a needed transition of the WaterFix step in the design and implementation phase. In this respect, it was duly noted that the DWR had not fully implemented and completed either an economic and financial obligation to carry out demonstration and the financial propensity of the project. It was also noted that the DWR had not, in essence, implemented a structural design and the commencement phase of the WaterFix. It was seen that it had not maintained important program management documentation for the WaterFix.

Despite the suggestion that the policy by DWR states that an economic evaluation is a crucial aspect of the planning and implementation process, it was seen that the program for Water Fix had not yet been implemented, although it had in part re-evaluated an incomplete economic analysis draft in the year 2016. DWR had not yet completed a complete financial evaluation for Water Fix yet, the financial analysis gave credence with some pertinent issues on the project, which is listed in the text box question. In the year 2013, the DWR initiated a contract with the consulting company Public Finance via Hallmark, this was to ensure the implementation of a task order that was to see a completion of the financial analysis project. The scope of the mandated task of the intended project was aimed at ensuring that the organization was in a position to undertake and ensure deliverables that were concerned with the general objectives of the firm. Insofar, as the task was concerned it was worth noting that the task acknowledged that the deliverable services would, in turn, require a collective assessment approach by the DWR, the Reclamation and the larger state and federal contractors alike, with the consultants by and large providing the necessary support for the project in the long run. As of the year 2017, the month of July, DWR had not demonstrated that remunerated the public Finance Management for its part in the program. According to DWR managers, no final decision on the cost allocation was settled upon by the two parties and that no financing had occurred between the two parties because talks were still ongoing between the involved parties.

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