PREFACE

Irrigation and Drainage (I&D) sector in Uttar Pradesh had been in the forefront for more than a century and had been the vigour in transforming the 'India of Famines' to 'India with Food Security'. Unfortunately, this sector has not been getting the kind of growth attention and budgetary support which other sectors are getting. Productivity in agriculture sector, to which irrigation is the sub-sector, is not keeping pace with the rising population. Many reasons are attributed to sluggishness in the sector, though non availability of resources with the government is seen as the main retardant. Keeping in view the financial crunch, Public-Private-Partnership (PPP) can be seen as an opportunity for the private sector to finance, design, construct, operate and manage I&D sector projects / programmes. While private participation in other public sector programmes has been a tremendous success, their response in I&D sector had been largely apathetic. This is mainly due to socialistic rather than economic nature of the sector, where cost of water is more linked to its use rather than recovery of investments, which necessitated pumping of high level of subsidies into this sector in order to ensure much needed food security.

With the objective of facilitating private sector to show interest in I&D programmes, Governmnet of Uttar Pradesh formulated a three member Committee to explore the opportunities and modalities for PPP. The committee first looked into the causes of recent deceleration in the I&D sector and then tried to identify the areas where immediate attention is required. The PPP concept, nature of contractual framework, payment mechanism, monitoring and evaluation, risks and revenue sharing, present policies of the government, existing guidelines etc. were examined thereafter. International and national experiences of involving PPP in I&D sector were also looked into.

Water sector is now-a-days seen as an integrated multi-disciplinary sector; development and management of the sector is to be ensured in a coordinated manner with allied sectors and pooled efforts of line departments. Investments opportunities in I&D and allied sectors are also to be seen in the same perspective. This thinking would open up a number of opportunities where private sector would be interested in investing in a big way. For example, in case of new and continuing projects funds would flow in if developers are allowed some sweeteners elsewhere, but well within the preview of allied sector

development. In case of existing projects, where management is the key issue, involvement of beneficiaries at grass root level would be the best option. Investors could also be attracted in a big way, if they are allowed to develop highways on exiting embankments of main/branch canals, with a pre-condition to line and maintain these canals. Similarly, flood control and flood protection works can be developed if rights to develop the expressways are allowed on its embankments. Integrated area developments, agro-parks, contract farming are other innovative ideas, where direct private investment could be attracted. Manufacturers of micro-systems would be interested in promoting sprinkler/drip irrigation systems in a big way, if a little subsidy coupled with incentives and bank loans is allowed. Other areas identified include ground water harvesting, drainage of water logged areas, navigation of canals, fisheries, horticulture, flouriculture, micro-hydel development on canal falls etc., where water rights on unallocated/deemed water saved or sharing of benefits could be permitted.

Keeping in view the directive of the Government, a first concept paper on facilitating PPP is attempted. Through this paper a beginning has been made. Next step would be to carry forward the message and concretize the projects/programmes, where precise involvement of private partners would be required. Since, private sector would be interested only if all plans, documents, papers, policy frameworks, governmental subsidies and single window mechanism are intact. For this purpose, strengthening of departments and coordination of institutional mechanism would be required. It is believed that the report will generate tremendous interest among both public and private interests. Further ideas and suggestions not covered in the report would be welcome.

The committee would like to place on record their gratitude to the dedicated efforts put in by Shri A.S. Dhingra, former Commissioner, CAD, Ministry of Water Resources, and Government of India, who is presently working as Mathematical Modelling Expert, in SWaRA, in studying voluminous literature, suggesting innovative ideas and in preparing the manuscript of this paper in a record time. Without his dedicated efforts, this paper would not have been a reality.

V.K. Bansal

SWaRA Lucknow

Chief Engineer (Level-1)

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Public Private Partnership

in Irrigation and Drainage Sector in Uttar Pradesh

– A First Concept Paper

1. Prelude

Uttar Pradesh is a highly populated state with 16.62 crore habitats, about 30% of which live below poverty line. Population density in the state is 690 as against 325 in the country. State of Uttar Pradesh is endowed with abundant water, both surface and replenishable ground. In proportion to the geographical area of 7.3% of the country, the availability of water as a resource is around 20.8% and per capita availability of the water as a resource is around 1400 m^3 as against 1091 m^3 for India. Not all waters are exploitable. River Ganga along with its six major tributaries viz. Yamuna (including Bundelkhand rivers), Ramganga, Gomti, Ghaghra, Gandak and Sone drain the basin areas in U.P. In absence of appropriate storage sites in the state, majority of monsoon runoff flows down towards sea.

Agriculture and animal husbandry are the back bone of the people of the state and more than 79% population of the state is engaged in this sector. Along with natural fertile land and moisture sufficiency, state is also blessed with about 1000 mm of normal rainfall and lower level of evaporation rates. However, major source of irrigation is from tubewells (71.5%), canals (20.5%), dugwells (5.8%), tanks and jheels (1.1%) and others (1.1%). Majority of the economically exploitable surface water schemes in the state are either completed or nearing completion; however, small portion of surface water and major portion of ground water remains to be exploited. Gross sown area of the state is 25.5 Mha, while net sown area is 65.5% of it. Gross irrigated area on the other hand is 18.40 Mha and net irrigated area is 71.7% of it. Despite a rosy picture, the level of food grain productivity in the state is low when compared to prospering states in India having similar land and water and other means of development and management of services. Proportion of the net irrigation by ground water is 77%. Irrigation Potential created in the state is 32.33 Mha, out of which only 20.92 Mha (64.7%) could be utilized so far.

A number of major and medium irrigation projects could not be taken up in the past for want of funds. There are other projects lingering since many years for paucity of funds or statuary clearances. Many reasons can be attributed to the low level of productivity. Low lean season flows without storage backup, inefficient supplies, poor and deteriorated delivery system, low farm efficiencies, rising environmental concerns, deferred maintenance, poor drainage, lower water charges, extremely small size of land holdings, poverty status of farmers and unsustainable subsidies could be some of the reasons contributing to lower levels of productivity. Near absence of warabandi and inadequate control to ensure equitable supplies, deteriorating law and order situation in protecting canals from frequent cuttings have caused a general mistrust of bureaucracy and oppressiveness against the canal operators. There is a general feeling that a shift in delivering services directly managed by the department should now on be managed through service and management coordination through Public and Private Partnership (PPP). Many new and innovative ideas could emerge through PPP in Irrigation and Drainage (I&D) sector if with little effort government opens up in the right earnest to provide alternatives and share risks and responsibilities and become more accountable.

In order to attract private participation in Irrigation and Drainage sector, Government of Uttar Pradesh constituted a Committee under the Chairmanship of Shri V.K. Bansal, Chief Engineer (Level-1), State Water Resources Agency (SWaRA) with Shri Sabgan Ahmed, Chief Engineer (West/Advanced Planning) and Shri Devendra Mohan, Managing Director, UPPCL as Members. Copy of the Office Order No. U.O. 88/09-27-S-8 Dated 2nd June 2009 is at Annexure-I. In pursuance a 'First Concept Paper' has been attempted in SWaRA. The broad objective of this concept paper is thus to identify the appropriate opportunities and the enabling modalities/mechanisms for encouraging PPP in irrigation and drainage sector from the view point of the state government as well as private sector in Uttar Pradesh.

For the purpose of convenience, this paper has been divided into ten sections. Sections 1 to 5 deal with underlying principles and the concepts involved in implementing PPP projects, guidelines, policy framework, water charges and its fixation etc. Section 6 deals with the experiences and practices and policies in other parts of the world and in different states of India. Institutional and legal

framework in Uttar Pradesh for PPP is then described in Section 7. Sections 8 and 9 describe the proposed models of PPP in different sub-sectors of I&D sector in Uttar Pradesh, the concept of PPP as applicable in I&D sector, the opportunities that exist and the modalities that would be necessary for its effective implementation. Finally, the pre-requisites and the roadmap required for implementing PPP in the state is given in Section 10.

This paper has been prepared in a short time during which information on the extent of works required to be carried out in each of the 7 basins of the state could not be compiled. To this extent, this paper should be treated as a preliminary or a 'first concept paper'. Greater efforts would be required to update this paper based on actual level of works involved, policies of the state in this regard and expected responses of the private entrepreneurships wherever they would be interested. Similarly, a number of sub-sectors dealing with water, several local solutions that can facilitate PPP, possibilities of community efforts contracting with local governments might have been left out inadvertently. The purpose of this concept paper gets served if the ideas behind the PPP are best understood and can be exploited by those in public, private or community sectors for bringing reforms in the much needy irrigation and drainage sector.

2. **Public-Private-Partnership – the Concept and the Underlying Principles**

2.1 The PPP Concept

According to a Planning Commission document[(1)] PPP could be considered as an approach under which services are delivered by the private sector (non/for profit organizations) while the responsibility for providing the services rests with the government. The arrangement thus requires the government to either enter into a contract with the private partner or pay (reimburse) for the services. PPP thus differs from direct provision of services by governments namely (i) a partnership based on well articulated 'contract', (ii) a long term relationship between the public and private sector, and (iii) flexibility and responsiveness in decision making. It is argued that PPP leads to improvement in both 'efficiency' and 'effectiveness, in service delivery.

PPP on the other hand differs from 'privatization' in terms of (i) retention of full responsibility by the government, (ii) public sector retains the legal ownership of assets, (iii) nature and scope of service is contractually determined between two parties, and (iv) risks and rewards are shared between the government and the private sector. The potential benefits expected from PPP could be (i) cost effectiveness, (ii) higher productivity, (iii) accelerated delivery, (iv) clear customer focus, (v) enhanced social service, and (vi) recovery of user charges in harmony with local conditions.

A government may collaborate with the private developer/service provider as a buyer (funding agency), and/or a coordinator. The funding pattern and the collaboration between the two parties can take any of these forms, viz. (i) public funding with private service delivery and private management, (ii) public as well as private funding with private service delivery and private management, (iii) public as well as private funding with public/private service/delivery and public/private/joint management, and (iv) private funding with private service delivery and private management. The gain expected, nevertheless, is in the realm of 'efficiency' and 'effectiveness' in service delivery. PPP thus involves a long-term relationship between the public sector and the private sector binding the two through a 'contract'.

2.2 Contractual Framework

The relationship between the public sector and private sector could be of either buyer-seller type or donor-recipient type with some kind of precisely defined 'contract' binding on both parties. Projects/programmes under PPP, particularly in I&D sector could be classified into three types, viz. (i) service contract, (ii) O&M (management) contract and (iii) capital projects, with O&M contact.

2.3 Selection of Service Provider

Transparency in selection is an essential feature of PPP. Selection of service provider is normally done in three different ways. These are described as under:

2.3.1 Competitive Bidding

This involves well publicized and a well designed bid process to ascertain financial, technical and managerial capabilities of the service provider/developer. Either single round sealed bidding or multiple round open-outcry (ascending) bid auctions could be adopted. Appropriateness of the bid will depend upon nature of valuation that bidder places on concession, i.e. on the right to do the job.

Many a times, valuation of the project depends on factors well within bidder's control (building and road projects). These are known as 'private value items'. For these types of projects, single round auction is appropriate as bidder is not expected to learn from other bidders' revelation. Sealed bid is normally adopted as it is the least collusion path.

On the other hand in some other projects valuation does not depend just on the bidders' own assessment. Some other unknown factors could be anticipated, such as, size of market, collection of revenue, willingness-to-pay by beneficiaries and future behaviour of regulators. These are known as common value items. Concessions with common value characteristics are best awarded through multiple-round bids since this facilitates the process of value discovery by bidders, allowing bidders to observe and respond to quotations/prices as they emerge. Multiple-round bid can also be sealed, but there is always an opportunity to rebid after its opening. Many a times two stage process is adopted, viz. (i) technical (ii) financial. This helps in the bidders to get interests from their lenders, state support etc.

Final selection of service provider/developer depends upon on single or combination of the factors, such as (i) lowest capital cost of the project, (ii) lowest O&M cost, (iii) lowest bid in terms of present value of the user (beneficiaries) fees, (iv) highest equity premium, (v) highest upfront fee, (vi) highest revenue share to the government, and /or (vii) shortest concession period. Authorities have a choice to either accept or reject a sole bid. Where no bid is received, the project/programme would need to be re-modified. Alternatively, the selection is sometimes done through competitive negotiation with private sector participants.

2.3.2 Swiss Challenge Approach

This approach refers to *suo-moto* proposals being received from the private participant to the government. In this case private sector thus provides (i) all details regarding technical, financial and managerial capabilities, (ii) all details regarding expectations of the government support/concessions. Government may examine the proposals according to the declared policy of the priorities and then invite competitive counter proposals from others giving adequate notice. If some new proposals are received, the original proponent is given opportunity to modify its proposal. Finally the better of the two is awarded.

2.3.3 Competitive Negotiation

Competitive negotiation could be simple (direct) or complex (indirect) as a variant of the competitive biding. In simple negotiations government specifies the service objective and invites proposals through advertisement. The government then negotiates/finalizes the contract with selected bidders. The type of projects/programmes covered are: (i) social sector projects/programmes involving VOs/NGOs/Local Community, (ii) Projects involving proprietary technology/franchise, (iii) linkage project related to a mega project or a major activity, (iv) projects/programmes which failed to attract any response to a bidding process, and (v) *suo-moto* proposals from private participants.

In case of complex negotiations, government negotiates through a 'master contractor/mother NGO'. In this case contracts of public services are contracted out of the master contractor where he deals with sub-contractors/franchisees. Government reviews the work of master contractor through its monitors (officials) through site visits and responses from beneficiaries. Master contractor may monitor the programme of sub contractors through beneficiaries selected randomly, based on questionnaire/interviews. This kind of contract normally suits forest programmes, wild life protection or may also suit implementation of PIM in command areas where massive capacity building of farmers and functionaries would be necessary. The advantages of master contract are: (i) administrative convenience of government, (ii) funds could be raised through other public and private sources, (iii) decisions can be taken quickly, and (iv) training programmes can be organized for sub-

contractors/service providers/vendors by the master contractor. The disadvantage is that such contracts are less transparent than competitive bidding and thus in such cases, public audit should be done.

2.4 Payment Mechanism

Payments to the private sector could be either in the form of (i) contractual payments, or (ii) grant-in-aid and/or (iii) right to levy user charges for the assets created/leased-in. Contractual payments could be advance payment, progress payment, final payment, annuities and guarantees for receivables. Both contractor and government share the risk of running the project. Grant-in-aid could be block grant, capital grant, matching grant, institutional support. Lease agreements license allows the concessionaire to recover the cost of construction/O&M through levying user charges. In these agreements, the assets revert to the government after the expiry of the contract, therefore a clause of condition of assets before handing over is introduced.

2.5 Monitoring and Evaluation

Monitoring of performance is necessary and needs to be linked with payments. While measurement of efficiency entails comparing unit cost of providing service, the effectiveness of the measurement involves comparing the performance with desired outcome. Monitoring can be done by (i) government departments authorized to do so on a standard scale, (ii) independent agencies/regulators also based on standard scale, (iii) by the department or independent agencies, based on feedback simply pass/fail, (iv) by the departments/independent agencies based on feedback received from beneficiaries. Third party monitoring is advantageous as it is hazel free and minimizes government control. Third party selection for monitoring could be jointly decided by the government/developers. Third party involvement could be further supplemented with provision for adjudication by the judiciary.

2.6 Risk and Revenue Sharing

PPP involves sharing of risk and reward between partners. The risks could be: (i) construction/implementation risk (delay in project clearance, contractor

default, environmental damage), (ii) market risk (insufficient demand, impartial user levies/charges), (iii) finance risk (inflation, changes in interest rates, increase in taxes, changes in exchange rates), (iv) O&M Risk (termination of contract, technology risk, labour), and (v) legal risk (changes in law, changes in title/lease, insolvency of developer/service provider, changes in security structure. It is desirable that generic risk should be identified before finalizing the contract. The assurance of government to share risk with private partner is the key confidence building measure. On the other hand if the actual output/returns exceed those contemplated at the start of the project, the wind fall is also to be shared.

2.7 Local Governments and PPP

Many a times, local government do consider partnership with private sector because (i) there are opportunities to foster economic development, (ii) speedy implementation of the services, (iii) users preference towards private sector, (iv) opportunity for innovation, (v) opportunity of competition through private partners, (vi) opportunity to recover cost or user charges through private partner etc.

2.8 Voluntary Organizations

Voluntary organizations in India are non-profitable organizations registered under the Societies Registration Act, Indian Trust Act, Religious and Charitable Societies, nonprofit companies registered under Companies Act. WUAs registered under the PIM Act fall under this category. These also include Self Help Groups (SHGs) and Community based Organizations (CBOs). Usually these organizations receive funds through user collections, grants, donations and other recognized modes. It is often noticed that these organizations have only a brief existence before they begin receiving government funds and often they are founded only after they receive assurances of a grant award. Advantages of VOs are: (i) they are mostly disadvantageous groups and thus can uplift their own system in their own way and better than outsiders, (ii) staff is normally more motivated, (iii) are more successful in motivating peoples support, (iv) more flexible in decision making. Disadvantages of VOs are: (a) government may

want to shift to this form of PPP which may be more expensive, (b) these organizations may soon become profit organizations, (iii) undermine the accountability of the government to the citizens, (v) loose autonomy and independence as they cannot go against their sponsors/donors.

3. Policy Framework, Guiding Principles and General Modalities for PPP

3.1 Provisions in National/State Water Policy

Both National as well as State Water Policies encourage Private Sector participation. SWP quotes:

…." *Private sector participation should be encouraged in the various aspects of planning, development and management of the water resources projects for diverse uses, wherever feasible. Private sector participation may help in introducing innovative ideas, generating financial resources and introducing corporate management in improving service efficiency and accountability to users. Depending upon the specific situations, various combinations of private sector participation, in building, owning, operating, leasing and transferring of water resources facilities may be considered."….*

3.2 Policies of Governmnet of India

Hon'ble Shri P. Chidambram, former Finance Minister in an address delivered at Stanford University in 2006 [(2)], mentioned that challenges in agriculture sector are to increase public investment in agriculture, especially irrigation; to enhance productivity of farming, especially in paddy, wheat, pulses and oilseeds; to adopt genetic sciences to the needs of Indian agriculture; and to promote private investment, including investment by the corporate sector, in pre-farming and post- harvest activities in a manner that will not affect the sacred relationship between the tiller and the land.

3.3 GoI PPP Portal

Through the site *http//www.pppinindia.com*, Government of India, Ministry of Economic Affairs has aimed at providing central point of access to PPP Programmes in India. Access to the other states' Programmes can be had through links provided on this site.

3.4 Efforts of Ministry of Water Resources in Promoting PPP in I&D Sector

The subject matter of PPPs in water sector is not new and had been considered by a number of committees, working groups in the past, some of which are:

3.4.1 Rangayya Naidu Committee

Ministry of Water Resources constituted a 'High Level Committee' under Shri P.V. Rangayya Naidu in July 1995, the then Union Minister of State for Water Resources to examine the feasibility of private sector participation in irrigation and multi-purpose projects. The Committee recommended introduction of the concept on a pilot basis for select projects.

3.4.2 NCIWRD

The issue of private sector participation was also examined by the National Commission for Integrated Water Resources Development (NCIWRD) Plan set up by the Ministry of Water Resources in 1996. The National Commission has referred to the recommendations of the High Level Committee and has expressed the view that private sector participation would be forthcoming only if private sector is confident of getting adequate return from users of water. It has further expressed that private sector is engaged in a major way in the exploitation of ground water, but not in irrigation project. The National Commission has also expressed that private sector participation would, of course, be practicable in projects mainly intended for supply for industrial use and urban water supply and for these components in other major projects.

3.4.3 Planning Commission

The Planning Commission in November 2000 also set up a Working Group on "Private Sector and Beneficiaries Participation for the formulation of Tenth Five

Year Plan (2002-2007)". The Working Group submitted its report in August 2001 and suggested that the pilot project could be identified in each State during the Tenth Five Year Plan and criteria for selection of such pilot projects etc. would have to be worked out. Planning Commission again constituted a working group on PPP in different sectors. This group finally came out with suitable guidelines on involvement of private sector by various ministries for formulation of PPP proposals in infra structure sector as well as social sector to attract external investments.

3.4.4 Group of Experts on Public-Private Partnership in Water Resources Management

A Group of Experts headed by the Additional Secretary, Ministry of Water Resources was constituted in November 2003 to examine the various issues relating to Public-Private Partnership in Water Resources Management. The Group of Ministers deliberated upon various issues relating to Public-Private Partnership in Water Resources Management and suggested guidelines, areas of implementation and incentives for PPP in irrigation sector. Annexure-II lists these details.

4. Water Rate and its Fixation in the State

The water rate is a charge levied for supply of water from a public or a private system and aims to ensure regulated use of water within the reach and resources of the users. Second Irrigation Commission (1972) emphasized the role, importance and necessity of levying water charges in return for water supplied to the users and its adequacy in meeting O&M costs for ensuring equitable distribution and its efficient use on the principle that the user should pay for the basic agriculture input like water and the general tax payer should not be called up on to bear the burden of agriculture.

Dr. Vaidyanathan Committee (1991) has recommended for enhancement of Water Rates to cover O&M cost and interest on capital cost with depreciation. A Committee of officials, subsequently appointed by the Govt.

of India to look into the recommendation of Dr. Vaidyanathan Committee have suggested that irrigation charges be raised in a phased manner over a period of five years taking into account inflation also to cover full O&M costs.

National Water Policy (2002) provides for a pragmatic approach for levying water charges in return for the water supplied to the users. It quotes:

…..“*need to ensure that the water charges for various uses should be fixed in such a way that they cover at least the Maintenance and Operation charges of providing the service initially and a part of the Capital Costs subsequently. The rates should be linked directly to the quality of service provided. The subsidy on Water Rates to the disadvantaged and poorer sections of the society should be well targeted and transparent.”….*

With a view to encourage the States to revise the water charges, the Government of India under Accelerated Irrigation Benefit Programme (AIBP) suggested that those of the reforming states who agree to revise their water rates so as to recover full O&M cost are entitled to get favourable ratio of Central Loan Assistance (CLA). States namely Madhya Pradesh, Maharashtra, Rajasthan, Orissa and Gujarat have agreed to reform their water rates. Governments of Maharashtra and Gujarat have already enhanced water rates for cash crops like sugarcane, cotton, banana etc. considering this to be commercial commodities.

Water rates in Uttar Pradesh were last revised on 18th September, 1995. Even at that time these were not sufficient to meet the salaries of the maintenance staff and O&M expenses of various conveyance systems. Water rates varied from crop to crop as well as different canal systems with highest of Rs. 474/ha for sugarcane under flow irrigation, in schedule I and II group of canals, and lowest of Rs. 17/ha for green manure in schedule IV canals. Annexure-III gives details of water rates presently prevailing in the state.

Water rates in Uttar Pradesh need revision, especially if water is to be treated as an economic good and private investments are to be encouraged. The UPWaMReC constituted in the State is expected to consider the issue of revision of rates. This authority would suggest a rationalized water rate structure which is imperative in the present economic scenario while keeping the paying capacity of the beneficiaries in view. Differential water rates may have to be levied using holding size as a proxy variable for the economic capacity of the payers. Additionally, as the revision in water rates may not be possible every year, some provision for taking care of inflation has also to be built up in the system.

4.1 Fixing Norms for Establishment Component in O&M of Irrigation Projects

O&M expenses in principle include: (i) the salaries of all personnel who manage the systems and regulate the release of water through the distribution network right upto the outlet, the staff engaged in the control of water distribution on the field, taking crop measurements, and billing and keeping water accounts, (ii) allowable overheads, and (iii) outlays on normal repairs and maintenance of the conveyance system facilities in the case of lift irrigation, the costs of energy and maintenance of pumping equipment. Operation and maintenance (O&M) expenditure constitutes one of the principal elements of the recurring costs of irrigation systems, the other being depreciation and the interest on capital investment.

The Twelfth Finance Commission [(3)] has adopted the norm of Rs. 600/- per hectare for the maintenance of the utilized potential and Rs. 300/- per hectare for unutilized potential (base year 2004-05) in the case of Major & Medium irrigation projects as suggested by the Ministry of Water Resources considering the cost differentials for maintenance. In the Hill States, an additional provision of 30% was made. In case of Minor irrigation projects, the Tweleveth Finance Commission adopted a norm of Rs.300/- per hectare for the utilized potential with a 30% step up for the Hill States and Hill areas as was suggested by the

Ministry of Water Resources. Based on these norms, the projected O&M expenditure for the state is given in Table 1 given below.

Table – 1 Maintenance Expenditure (Rs/ha) provided for Major, Medium and Minor Irrigation for the State of Uttar Pradesh

Sector	2005-06	2006-07	2007-08	2008-09	2009-10	Total 2005-10
Major & Medium	432.14	453.75	476.43	500.26	525.27	2387.85
Minor	544.31	571.52	600.10	630.10	661.61	3007.64

Source: Report of the 12th Finance Commission (2004), Government of India.

As may be seen Water rates in the states are far below the O&M rates suggested by 12th Finance Commission.

In a recent study done in Jaunpur Branch of Sharda Sahayak System, it was revealed that major expenses in O&M are required for operational costs, which involve mainly salaries and are more or less stationary. Table 2 gives head-wise details of such expenses.

Table-2 Head wise expenses for Operation and Maintenance for Jaunpur Branch System in Sharda Sahayak Canal System

Head	Expenses (Rs./ha)	Percent Expenses
Maintenance	272.00	28.5
Operation	751.60	47.2
Management	453.06	17.0
Vehicle	108.00	6.8
Others	6.71	0.5

Total	1591.37	100.0

Source: UPWSRP, Atlas for Jaunpur Branch sub-system [4].

As is evident, expenses on O&M are on higher side when compared to 12th Finance Commission allocations for the state. On the other hand revenue generated in the state has been on much lower side when compared to actual expenditure on O&M. Table-3 given below shows the actual revenue generated in the state in last 8 years.

Table-3 Details of Expenditure versus Revenue Generated in Canal Systems in Uttar Pradesh

Year	***Annual Expenditure on O&M (/ha)***	***Annual Revenue Generated (Rs./ha)***	***Net shortfall (Rs./ha)***
2000-01	1523.96	582.03	941.93
2001-02	1550.97	797.25	753.72
2002-03	2520.20	560.90	1959.30
2003-04	2055.47	855.19	1200.28
2004-05	3176.53	710.94	2465.59
2005-06	3558.07	855.43	2702.64
2006-07	5161.08	1085.78	4075.30
2007-08	6755.89	1380.16	5575.71
2008-09 (Estimated)	8004.24	1147.28	6856.96

Source: Budget Document (2009-10), Sinchai Vibagh, GoUP.

Thus O&M expenses are not commensurate with revenue generated and upward revision of water rates are inevitable, if PPP is to be encouraged.

5. Is Water an Economic good?

The underlying principle of PPP is to consider water as an economic good or a social good; arguments and opinions vary. According to John Briscoe (1996) [5], the real challenge in irrigation economics is of harmonizing three economic measures of water use: (i) the use cost – incurred by the user in obtaining and applying water to crops, (ii) marginal value productivity of water in irrigation use, and (iii) the opportunity cost, that is the value of irrigation water in the next best use. Where use cost is low on the margin, farmers will have no incentives to improve productivity; distortions caused will be more serious where water is denied to other high value uses while farmers carry on intensive water use to irrigate low-value water-intensive crops.

Does a raising irrigation water rate generate incentives for the farmers for raising productivity? Tusar Shah *Et.el* [5] suggests that 'water pricing' debate is heading towards that the use cost of water (or effective water price) is unlikely to significantly shape farmer behaviour in gravity irrigation system and thus is a blunt tool in irrigation demand management. This mode of thinking has an overwhelming impact on shaping the ongoing global debate on making water an economic good. Higher water use cost definitely achieves water use efficiency but threaten livelihoods and food security of millions of agrarian poor. Interest generated by PPP as service provider/developer would certainly depend upon the water rates and the level of recovery they anticipate, Governments have to come forward with a straight cut policy in this regard. Water Regulatory authorities have an important role to play on this issue.

6. International and National Experiences

6.1 PPP Workshop on I&D in Cairo, Egypt [6]

A workshop on 'PPPs in the I&D Sector in Egypt' was organized in September 2005, which provides interesting global experience. The objective of the workshop coincides with the objective of this concept paper. The objective was: (i) what are the opportunities in which PPP bring an added value?, (ii) what is the global experience?, (iii) what are the modalities of PPP, most relevant to the Egyptian context?, (iv) how can partnership between the two sectors be

encouraged?, (v) what are the functions and responsibilities that should be maintained by the government, and (vi) what are the priority steps required for building an enabling environment for PPP in the water sector, particularly I&D?

The workshop concentrated on two types of PPPs, viz. (i) PPPs in O&M and development of irrigation and drainage system, and (ii) PPPs in integrated area development where investments in water infrastructure is a central factor. Many of the areas in which Private partners took interest were: (i) improving market chains, (ii) integrated area development, (iii) private sector extension (pre-sowing), (iv) solid waste management, (v) agro-parks, and (vi) developing fisheries and animal husbandry. The global experience was first discussed, some of which are described below.

6.1.1. Global Experience

There are several examples of PPPs involved in O&M and investment in irrigation and drainage sector globally. Majority of the cases related to power supply, water supply and sanitation, though there were some cases with O&M of irrigation and drainage projects. Most of the times the type of contract adopted is that of public contract, where a private sector service provider is paid a fixed amount by the public party. The other type of the contract is public service contract in the form of lease, concession, BOT etc. In this case the private party is remunerated on the basis of operation results. In most of the cases, farmers are organized in group associations. In such a case the professional third party, who could play the role of bringing sustainability to service delivery functions, could be a professionalized water users association, a private company or a combination of the two.

One successful example is from France [(6)]. CACG, a private company, entered into a service contract of the concession type for providing services to the WUAs in 1951 to fulfill a public mission of rural development through hydraulic works. The services of the CACG were paid through operational subsidies, through a

long term lease. By 1982, the subsidies were removed, in a gradual manner, to reduce costs and reduce risks in order to shift to full cost recovery from WUAs. The CACG was successful in achieving equitable water allocation, full cost recovery and transparency through water user participation in decision making. In addition, CACG has successfully established as a service provider to WUAs in areas of irrigation improvement through BOT including maintenance. CACG serves 51000 ha of irrigated land and domestic services to about 2 lakh inhabitants. The success of the model is mainly attributed to the fact that the river is quite capable of delivering the demands.

Another example worth study could be of Guerdana project from Morocco [(6)]. The case relates to about 670 farmers growing citrus in an area of 10000 ha irrigated from ground water which became a serious threat due to over draft. One option with the Government was to adopt conventional approach through which government would pre-finance the construction costs and recover 40% cost in next 20 years, provide O&M through subsidies mainly because the recovery rates were very low. In such an event the operation would be by the state – with lower level of performance, continuance of reliance on subsidy and perennial under –funding. An alternate approach considered was that farmers organize themselves as an association, takeover O&M and finance the project by taking 60% bank loan. Total fee coming to US$ 5000/ha appeared too expensive. As a third option, a PPP model was adopted. Private operator was invited to bring 43% costs, with government support of 28% and remaining as a bank loan by farmers. Government allowed current fee at par with ground water charges. Risk component (of short supplies) in the project covered under the project was to be provided by government whenever water deficit exceeded beyond 22.75%. Service providers were responsible for the project design, guaranteed good service quality and minimal environmental impact. The project could be finalized at one sixth of the second option. The PPP in any case was the best option. The project supported an economy of US$ 300 million and employing 250000 persons. Persistent threatening on account of loss of agriculture due to over draft was arrested through surface water flow channels. The success of the project was, however, attributed to government guarantee to water shortages. Many of the areas in lower reaches of canal commands of various projects, wherever water supplies could be improved, can be considered

through a similar approach. However, revised water charges, willingness of the farmers/WUAs to enter into a contract and assurance of the government on supplies could only bring in sustainability into the system.

6.1.2 PPP in Integrated Area Development

A case study from Netherland suggested sub-urban development in an integrated manner. Some 20000 ha was developed for leisure, water management, horticulture, and housing. The initiative was taken by private property developers. Out of total cost of 180 million Euros, some 40% was recouped from income from real estate. Figure 1 given below describes the concept.

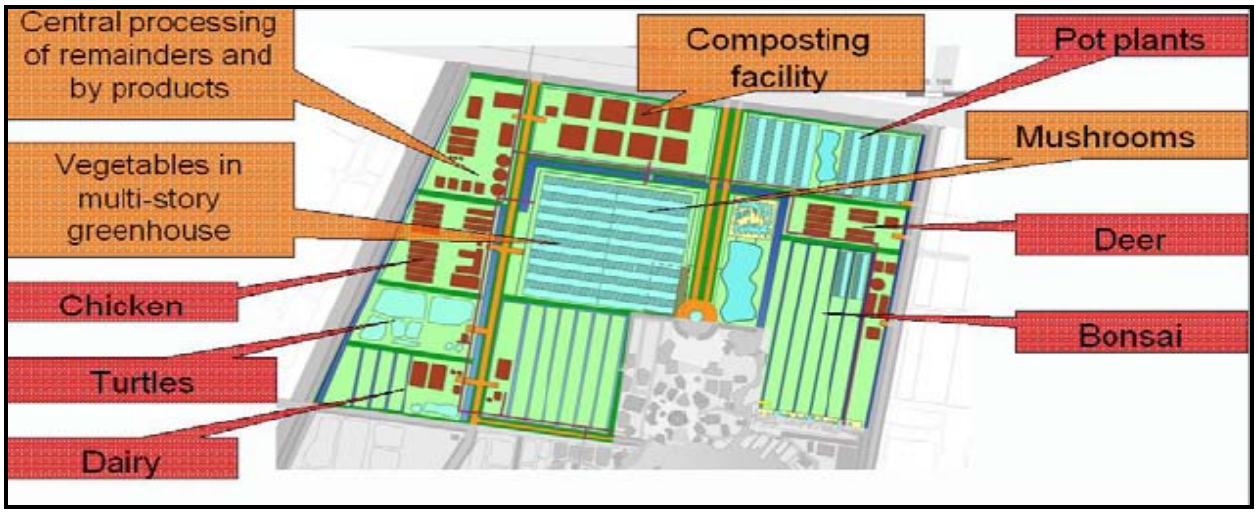
Figure – 1 Showing Concept of Integrated Area Development

Source [6]

In yet another example, the terrain of development was done for Horticulture Park by a private company on the basis of a plan approved by local authorities at a cost of US$ 180 Million. The idea is to develop agro-parks, which are different from cluster of industrial activities. Almost everywhere the industrial-agriculture production came into being closer to cities. The idea of multi-

purpose agro-parks is that they reduce pollution, allow the re-use of waste and by-products. Such parks can be best designed for development of water harvesting structures and reusing the ground water during lean season. These parks can be the best examples for eco-friendly development. Such agro-parks are under development in Iran, China and Netherlands. These agro-parks can be jointly planned, processed by PPP efforts. Figure 2 given below describes the concept of agro-parks.

Figure – 2 Showing Concept of Agro-park



Source [6]

The procedure outlined for development of agro-parks could be as follows:

(i) From initial innovative idea to building broad support from opinion leaders to final decision and implementation, the business partners should become clear followed by a start up agreement, joint declaration, of intention and PPP contract.

(ii) Private parties may be developers, investors, bankers, contractors. Public parties can be central/state governments, local governments, departments, water boards. WUAs can easily develop such parks in a

cooperative mode while getting supplies in a societal mode for chak-wise parks. Members of WUAs can become share holders, seek profit as well as provide labour for their own enterprise.

(iii) PPP should concentrate on core activities and be in line with specific requirements of the area. Different interests should organize into one voice.

[A vast area in the canal commands of various systems has become defunct due to urbanization, yet another set of areas are lying unutilized in Uttar Pradesh. Development of multipurpose agro-parks in association with PPPs for a long lease basis or outright sale basis could be examined. The revenue generated from such parks from income generated or outright sale should only be used in promoting water/agriculture sector in a most scientific way.]

6.1.3 Recommendations of the Cairo Workshop

The workshop highlighted deep interest shown by both government and private sectors and concluded with a note that there is an ample scope of involvement of PPPs in O&M and development of I&D infrastructure and in areas in integrated area development where government funds (and perhaps not of farmers/WUAs) form the central factor. The opportunities identified were improving market chains, area development, infrastructure development through BOT, orchard rehabilitation, private sector extension services, solid waste management, agro-parks, developing fisheries and livestock. There was positive interest of investors in their role of developers as well as service providers. Joint strategies of formulation of proposals by the two sectors were welcome and could be intensified through mutual interests, discussions and frequent meetings. However the critical issues from private sector point of view were: (i) land allocation should be tightly regulated and long term leases should be brought in to bring sustainability, (ii) development of finance mechanisms for private parties in PPPs, (iii) importance of increased coordination among various government agencies as the sector is multi-disciplined, (iv) comprehensive approach to a single window for dealing with government instead of multiple government institutions, and (v) easy accessibility to survey reports,

background studies etc. On the other hand, government's point of view was: (a) concerns on need for enabling frame work, (b) relevant legislation on participation, and (c) cost recovery for which a policy initiative of the government would be necessary.

6.2 PPP in Infrastructure Sectors other than I&D

Global trends in PPP in energy, telecom and transport sectors are encouraging, while water and sewerage sector has been able to attract investment at a very low level. Investments in I&D sector are practically null, though some efforts are being made by various states in India in encouraging private entrepreneurships. Table-4 given below describes the sector-wise distribution of investment limits in infrastructure development projects with PPP in South-Asia and rest of the world [(7)].

Table-4 Sector wise Distribution of Investment Commitments in Infrastructure Development Projects with PPP in South-Asia and Rest of the World (1990-2008)

Region/Period	***Energy***	***Telecom***	***Transport***	***Water supply and Sewerage***
South Asia				
1990-95	77	18	5	0
1996-00	53	39	8	0
2001-06	17	64	18	0
Rest of World				
1990-95	33	39	22	6
1996-00	33	45	16	7
2001-06	24	57	17	3

Source: Gridlines, no. 30, March 2008

6.3 Experiences of other Indian States

6.3.1 Experience in Maharashtra

Government of Maharashtra (GoMah) has initiated a number of programs in reforming irrigation sector, some of which include:

a) *MWRR Act (2005)* - Maharashtra Water Resources Regulatory Commission was constituted under the Maharashtra Water Resources Regulatory Act in 2005 to regulate water resources in Maharashtra and facilitate and ensure judicious, equitable and sustainable management, allocation and utilization of water resources, fix the water rates for agriculture, industrial, drinking and other purposes and matters connected thereto or incidental thereto.

b) *Maharashtra PIM Act -2005* – The PIM Act *inter-alia* provides for formation of WUAs at minor level and equitable supplies to be ensured only to WUAs as per allocations already fixed with appropriate adjustments for shortages. The Act also has scope for promotion of (i) introduction of drip and sprinkler system for optimizing the use of water, (ii) developing farm ponds and community projects for exploiting ground water, (iii) procurement and distribution of seeds, fertilizers and pesticides, (iv) procurement and renting of agricultural implements, (v) marketing and processing agricultural produce from command area, and (vi) supplementary business like dairy and fisheries. This Act thus has perfect provisions for WUAs to become partners with local governments for the interest of their association.

c) *Privatization Policy in Maharashtra* – GoMah has established a number of basin specific Irrigation Development Corporations to undertake new projects, complete continuing projects and supply water on large scale for irrigation. One such organization is Krishna Valley Development Corporation (KVDC). To overcome obstacles, GoMah has decided to transfer the continuing irrigation projects to private sector on BOT basis, a copy of the order is at Annexure-IV.

d) Majority of the efforts made in Maharashtra in facilitating PPPs in water sector relate to water supply and sewerage where local governments are vowing private investors to develop and provide services for distribution of water supply and collect water charges on the pattern of reforms in electricity boards. However, there had not been any appreciable efforts in the irrigation sector so far except capacity building and delineation of WUAs through NGOs.

e) After formulation of the MWRRA in 2005, first ever effort to facilitate Private investment in infra-structure development in major irrigation was completion of Nera-Deoghar project which has been completed to about 95% but canal systems, development of CAD works etc has not been started. GoMah issued policy directives and directed the KVDC to throw open control of this project to the private sector. KVDC advertised inviting expressions of interest from private investors allowing them to inter-alia decide on water charges and collect the same from WUAs. Inadvertently, there had been no reference to the provisions of MWRRA which were violated in this case. On a petition filed by an NGO to MWRR Commission against the advertisement calling 'Expression of Interest', the Commission directed the KVDC to withdraw the advertisement within 15 days as it violated the provisions of the Regulatory Act. KVDC is yet to take a decision on the same. Lesson learnt is that a thorough study of the problem and soundness of the proposal has to be ensured before inviting private sector participation; hurry will not succeed.

6.3.2 Experiences in Other States

Other states viz. Andhra Pradesh, Assam, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttrakhand and West Bengal have constituted respective PPP cells, drafted PPP policy and assessed business opportunities. Majority of the sectors covered in these States are Transport, Roads, Information Technology, Communications, Bio Technology, Industry, Economic Zones and other infrastructure development. While considerable progress of PPP in water supply and sewerage sector is reported, developments in irrigation sector are reported only in case of capacity building of WUAs through NGOs/Experts efforts. Details on policies, opportunities and modalities in other sectors in respect of these states are given in the GoI portal mentioned in section 3.3.

Fourteen States including Uttar Pradesh have so far enacted respective PIM Acts. State Water Regulatory Acts have been passed only in the States of Maharashtra and Uttar Pradesh.

While involvement of PPP in irrigation sector is limited, there are quite a few successful examples of package projects in the water supply, sewerage and contract farming areas. Some of the typical examples of Water Supply projects are:

i. Water Supply and sewerage Project Tiruppur, Coimbatore (2002) [8] - this project was the first ever attempt in India for index-based user charges and direct cost recovery for urban environment. There had been serious flaws in its implementation, which, perhaps were not foreseen. One such drawback was not taking into account the pollution load from the knitwear industries. Other drawback was to reduce free taps in slums without taking into account alternatives, thus depriving a large population from domestic supplies.

ii. Visakhapatnam Industrial Water Supply (VIWSP) Project (2003-04) [9] is the second initiative of Andhra Pradesh Industrial Infrastructure Corporation Limited (APIIC) to supply bulk water to a combination of green field developing industrial and economic zones on the pattern of special economic zones (SEZ). This project is supposed to supply water to Pharma city, Gangavaram port and additional 206 MLD to Visakhapatnam Steel Plant, Simhadri Power Plant of NTPC and Visakhapatnam Municipal Corporation. This project was a first of its kind mega project in water sector developed through PPP on commercial basis. The positive features of the project were that it involved stakeholders including consumers throughout. The project was a successful approach of detailed program and its implementation, integrated industrial, domestic and incidental irrigation demands of project influential area and was an innovative financial packaging.

iii. Suez-Degremont Water Treatment Plant, Sonia Vihar, New Delhi which is to supply 635 MLD of water from Tehri dam through Upper Ganga canal upto Muradnagar and then through giant pipes to Delhi. This project is reportedly denied a number of irrigation users getting supplies from Upper Ganga canal.

On the other hand, some of the typical examples of 'Contract Farming' without/with the help of governments are:

i. Jain Irrigation System Limited (JISL) [10] has developed first class Onion dehydration plant in Jalgaon, which is a 100% export oriented. The company entered into contract farming to ensure assured supply of onion bulbs, enhance its productivity. The seeds of high yielding varieties are supplied by the Company which are sown and transplanted by the farmers in their own fields. Company also provides R&D and offers assured buy back as a complete package. Farmers are to assure optimum availability of water for optimum production. Involvement of government in this case is minimal.

ii. Tropicana Project of Government of Punjab [11] is yet another successful example of diversification from vicious rice-wheat cycle which has lowered ground water tables beyond recovery. Only alternative was more economical horticulture development with improved varieties of Kinnoo. Since Government of Punjab was not having enough processing units nor did they have enough varieties, it was decided to invite Tropicana of Pepsi Food to bring in new varieties and have PPP. In 2002 an agreement was signed with Tropicana where it was decided to increase cultivation of citrus from 50000 ha to 200000 ha. Tropicana flew in best varieties of citrus from Spain, America and South Africa. The experiment involved building up of green houses, R&D, experimentation on numerous combinations of field trials etc. and involved capital expenditure. Obviously this was not possible through private sector alone as interests of thousands of farmers were involved. As a result multi-processing plants are already coming up. This is one of the success story wherein capital investment in land and infrastructure was offered by the state and O&M and other technical support including international experts were provided by the private sector. In turn all three partners gained from the project. The project also helped in arresting ground water downfall.

7. Institutional and Legal Framework in I&D Sector in Uttar Pradesh

Uttar Pradesh is one of the poor states in India with per capita income of Rs. 14685 in the year 2006-07. Agriculture is the back bone of the economy where

2/3rd of the state population is engaged either directly or indirectly in this sector and contributes to about 31% to the state economy. There is stagnation in the production levels and the level of productivity is low when compared to the progressing states of India. Intensities of irrigation are also lower. Majority of the farmers are engaged in vicious rice-wheat cycle and diversification is lagging for which there are limited opportunities in economic sense. The constraints are (i) limited back-up storage, (ii) limited physical capital including irrigation, (iii) limited access to use of inputs and financial services, (iv) low technology base, (v) small and fragmented holdings, (vi) lack of effective local institutions and value chains for input delivery and output marketing, (vii) limited access to research and non transfer of research from lab to field, and (vii) non-assurance of supplies. Lower level of utilization of irrigation potential is often attributed to: (a) deteriorated canal systems due to chronic insufficient maintenance, (b) lack of sufficient system operation due to broken/stolen control structures, lack of accountability of operators to farmers, all leading to high water loss through seepage, theft, corruption, (c) lack of field channels and micro level farm systems, near absence of warabandi and (d) lack of farmers' involvement in equitable distribution and O&M. Input deliveries, agriculture support services and output marketing services in the absence of coordination among UPID, CAD, MI, Tube-well, agriculture and other departments further limit productivity.

Large scale irrigation networks created in the post independence period in Uttar Pradesh suffer from various chronic problems, some of which are extensive salinity/alkalinity, water logging, deferred maintenance and management. A number of projects have become obsolete or are running at very low efficiencies. Renovation and rehabilitation requires huge amounts of money and the budget allocation to this sector are dismissibly low. There is a visible shift in use of water from agriculture sector to domestic and industrial sector due to growing urban-rural population ratios and economic disparities. Industrial sector demand is likely to increase in the coming years and allocation to this sector despite priorities of agricultural sector in state water policy cannot be ignored. Within agriculture sector, there is uncontrolled shift towards water guzzling crops like sugarcane, mentha, and cotton. Large scale investments in

industrial sector demand inter-sector allocation and coordination of water use. This is going to put tremendous pressure to the ailing rural economy.

7.1 Institutional Framework

Key public institutes associated with irrigated agriculture viz, UPID, Departments of Agriculture, Horticulture, Fisheries, Animal Husbandry, Jal Nigams, Local governments, CADAs at district and lower levels. Essentially all these agencies/departments are capable of providing requisite technical knowhow, but they lack in (i) finance, (ii) incentives and capacity to implement irrigated agriculture through participatory processes. There is a need for better coordination among line departments, local government institutions and WUAs in delivering support services and forming organizational linkages. There is a dire need of rehabilitation of funds for reviving systems to design state and better O&M. There is a need for greater accountability towards the service recipients. Many of the ongoing projects are lingering on slow pace due to paucity of funds. Many new systems in pipeline need bottle openers. All these need resources and thus in the present circumstances, involvement of PPP seems inevitable.

7.2 Legal Framework

7.2.1 UP PIM Act – 2009

Promulgated in 2009, the Participatory Irrigation Management Act provides formulation of WUAs to manage and maintain the irrigation system transferred to them under the Act and given in its charge, with the objective to promote and secure equitable, efficient and timely water distribution, encourage practices for scientific and economic use of water, promote conjunctive use, encourage intensified and diversified agricultural production and promote environment and ecology. WUAs are proposed at Kolaba (outlet), minor,

distributary, branch and project (apex) level. In addition to defined functions of respective associations, WUAs at Kolaba level shall construct and maintain water courses and field channels and distribute water among members in an equitable manner, WUAs at minor and/or distributary level shall carry out special maintenance and repairs of irrigation system as well as carry out annual maintenance and repairs of the irrigation system before each season, branch level association shall advice lower level WUAs regarding annual maintenance and recovery of previous water charges, apex level association shall look after all aspects related to water management within project area. Funding for annual maintenance of each level of WUAs (including one time initial repairs) is expected from government grants, share of recovered water user charges, income from properties and assets in the area of operation of respective WUA, donations, interests and deposits, borrowings, fee and services etc.

Since there is no scope of involvement of any external agency (private or government) to repair the respective canal (except say after approval of the WUA), role of private sector in maintaining the distributary and lower level system appears to be remote. The ideal situation would be that the distributary and/or minor level WUAs professionalize to take up these jobs under monitoring of the government and higher level associations. The success of Paliganj society on Paliganj distributary in Sone Canal in Bihar is one such example where it is demonstrated that nobody can repair the systems better than the farmers themselves. The efforts of this society are so laudable that Dr. APJ Abdul Kalam, the Hon'ble former President of India personally went to see the works of the society. Government of Bihar has amended the Irrigation Act to introduce the PIM in the State on the pattern of the efforts of this society. Role of PPPs for repair and maintenance of lower level systems could thus be restricted to capacity building of WUAs, through companies/NGOs/Experts that can assist the WUAs in all possible defined functions or even those outside the field of WUAs.

7.2.2 UPWaMReC Act -2008

The functions of the Regulatory Commission formulated under the Uttar Pradesh Water Management and Regulatory Commission Act (2008) *inter-alia* include (i) determination of the allocation and distribution of entitlements for various category of users, (ii) lay down criteria for modification of the entitlements for storage, diversions etc., (iii) withdraw entitlements in respect of polluters, (iv) review entitlements, register and monitor bulk water entitlements, (v) fix and regulate water tariff system and charges for the use of water after due consideration to all costs etc., (vi) review /revise the tariff/water charges periodically, (v) fix cess in case of owners benefitted from the flood protection and drainage works etc.

Each proposal of implementing PPP should be cleared by UPWaMReC before implementation as it concerns allocation and utilization of waters. Use of additional deemed water which becomes available should be decided in consultation with the government and the regulatory commission.

7.3 Level of Funds Requirements and Availability

MoWR provides funds for various programmes/ schemes viz. (i) part central grant under AIBP for continuing and modernization projects, (ii) central grant for flood management projects, (iii) matching grant under command area development and water management, (iv) funds under NREGA for repairs and rehabilitation of tanks/ponds/ MI schemes, various water harvesting schemes etc. Other Central Ministries like MoRD, MoA&C, and MoUD etc. provide grants/loans for various schemes within their jurisdiction. Central funds may not be sufficient to meet the overall cost of new, continuing, modernization, rehabilitation and the service projects. Therefore, role of PPPs would thus be to ensure additional requirement of funds for different purposes. Before attracting private sector, surety of funds from central sources, which also have limitations on release has to be guaranteed. 100% investments by private sector cannot be guaranteed. There may not be sufficient interest from private sector if the portion of flow of funds committed from government side is not ensured.

Governments of Maharashtra, Gujarat, MP, AP and Karnataka have constituted state /basin level authorities for raising additional funds either from banks or from public through public issues. Private sector investments would definitely entail agreed portion of the assured funds from government side.

8. Proposed Model of PPP in I&D Sector in Uttar Pradesh

Proposed model of PPP in I&D sector in Uttar Pradesh will depend upon whether it is an (i) infrastructure project, or (ii) a service providing programme, or (iii) a combination of both, or (iv) exclusive area development/reclamation project. The modalities of the investments in each sector shall depend upon (i) level of responsibilities by the two partners and the stakeholders, (ii) level of sharing funds by the two partners, (iii) type of assignments and nature of contract, time of lease etc., and (iv) level of mutual trust among partners. The respective concepts outlined in section 2 are relevant for each of these projects.

The irrigation projects generally require heavy capital investments. Irrigation projects have limited scope of revenue generation as irrigation rates are not even adequate to meet the O&M costs as explained in the preceding sections. Under these circumstances, I&D projects hardly become profitable for private investors as these projects do not provide opportunity to private players to come forward on BOT basis. Flood and drainage projects hardly have element of revenue generation because there is no taxation on flood and drainage relief to the people. However, there is some hope in case of power projects where there is some scope of sharing electricity rights. However, there are hardly any new or continuing hydro schemes in Uttar Pradesh as sites for storages have gone to Uttrakhand.

To make these projects worthwhile for private investments, following models could be considered.

(i) Taking up projects by private entrepreneurs with the provision of viability gap funding by the government,

(ii) Provision of stimulus for execution of projects by private investors, and

(iii) Combination of the two.

Evidently the first option will involve heavy investments by the government which may not be possible because even the annual budgetary requirements for I&D sector envisaged in the 11th Five Year Plan are not possible to be allocated by the state government due to limited resources. Therefore, viability gap funding for I&D sector projects will not be immediately possible. Second option of providing stimulus for execution of projects by private investors sounds realistic. The stimulus could be in the shape of development of permanent waste-lands in the command of I&D projects for diversified land use in different sectors at the cost of developers, construction of high speed roads on both the banks of canals and realization of toll, giving fisheries rights, allowing sharing of non-allocated waters by the concessionaire for industrial purposes. As far the water distribution and realization of revenue is concerned the existing Acts prohibit the concept of private parties and it may be left to the government and WUAs under the PIM Act. Projects related to providing services, such as distribution of water, O&M of conveyance system and capacity building of WUAs/farmers/functionaries are also not productive unless huge subsidies are planned for the purpose. Rightfully, such service projects should be handled by NGOs/WUAs who have complete interests in the services.

To identify profitable proposals from the point of view of private investors, it would be desirable that a PPP cell be created in UPID. This cell should invite expression of interest from various private developers/service providers and examine its suitability. After getting the detailed designs done, statuary clearances and approvals of all bodies, an Expert High Level Team should examine the proposals and approve them. Each of these proposals then should be cleared by the cabinet before execution.

Specific areas where private investment opportunities could exist are examined in the succeeding sections.

8.1 New and Continuing Irrigation Projects

There are number of irrigation projects under different stages of planning and also quite a few of which have been sanctioned and waiting to take off due to requirement of funds. Pump canals and Bulk Suppliers also fall in this category. Some of such projects can be sub-divided into two parts viz., construction of headworks and distribution system upto branches and the second part being construction of distributaries, minors and field channels (guls). The former part can be proposed under PPP model and the latter one by the state so that the provisions of PIM Act are not conflicted. The incentive in such project could be one or combination of following:

a) Development rights on waste land falling in the command of the project can be extended to the private partners as a stimulator. The land could be acquired by the government and the cost of land should be borne by the developer. The development rights could preferably be limited to social projects, which, e.g., will make use of increased agriculture production, upliftment of social status of the command population, education oriented projects, animal husbandry programmes, agro-parks/agro-based industrial projects coupled with contract farming involving employment of local population and housing projects for lower income groups/ economically weaker sections of the society.
b) Sharing of unallocated water available, if any, from the projects and allowing its commercial/industrial use by the developers.
c) Giving fishing rights in the reservoirs, ponds and canals.
d) Allowing use of hydel power generation potential or cost adjustment on that account, if feasible.
e) Construction of high speed roads on banks of canals wherever feasible and realization of toll during the concession period.

f) Navigation through canal system in the feasible reaches.
g) Development of water sport/ amusement parks.

In case of ongoing projects, the feasibility of private investment in ongoing irrigation projects could be ascertained after identifying the separable part of the project. In such identifiable part of the project the incentives as enumerated above could be used to facilitate private investment.

Sound proposals coupled with statuary clearances would be the pre-conditions for attracting private sector. On water allocation and water tariff opinion of the regulatory authority would be required. All proposals must ensure completion upto micro level command area development, training and capacity building of farmers/functionaries, alternatively if the project is split into two parts, both parts of development should be run consecutively.

Large tracts of land are saline and have become permanently water logged due to excessive irrigation/seepage or other reasons. Title of land-use in case of some of the areas which have become permanently in-fertile and cannot be used for irrigation again, can be changed to other permissible purposes mentioned above. Builders/private developers should be encouraged to submit proposals for development of these lands on BOT basis. Land could be acquired and be transferred on lease/outright sale to developers, who in turn can suggest some concessions in terms of alternative efforts by the developers for construction/maintenance of new projects. Money generated from these schemes should essentially be pumped back into irrigation sector in development activities, improving O&M and/or bringing efficiencies into the systems. Long term lease contracts should be encouraged.

8.2 Completed projects

Completed projects, where O&M, in-equity in distribution, in-efficiencies, non-conservation and environmental and ecological concerns exist in services, attract service type contracts. Modalities include two possibilities;

a) Engage private contractors/ professional NGOs to invest with a short and/or long term lease, repair and rehabilitate the conveyance system, levy water charges as agreed, provide capacity building of WUAs, and ensure sustainability. Experience worldwide suggests that such contracts cannot be without profit motive. In such situations, private partner does not have right to alter water allocations as well as adjust water tariff, as these responsibilities are entrusted to the regulatory authority. Also role of WUAs and other stakeholders gets jeopardized through a private operator and violates the respective PIM Act. Without such commitments, the private investments become non-lucrative. The only examples are where large companies with well established agro-based industrial setup get interested in capacity building of farmers as well as ensuring pre-sowing and post harvesting services in their own interest of lifting produce, provided assurance comes from the government on water availability. Tropicana project in Punjab is a typical example [11].

   Sugar lobby in Maharashtra have been quite interested in developing the farms for attracting better quality produce. They have gone to the extent that they got many of the sugarcane command areas reclaimed from water logging. Some of the sugar-industrialists have gone to the extent in developing drip irrigation in collaboration with WUAs. Same is the situation in case cotton and other cash crops.

   Uttar Pradesh is the largest state in sugar cane production. However, the area under sugar cane is reducing perhaps due to large scale water logging and reduced yields; the crops are no more economic in some of the regions. Here, in this case, private developers can come forward at industries cost to (i) introduce drip system of irrigation, (ii) reclaim soils from water logging, (iii) providing best possible seeds, fertilizers, and other extension services, and (iv) ensure ready markets and other post-harvest services.

Rationalization of water rates at two levels for such crops, one for crops without drip and other for crops on drip can certainly help the industry in promoting sugar cane production in the state. Higher rates of productivity in Maharashtra, Karnataka, Tamilnadu, despite higher levels of water rates for sugar cane suggest higher levels of conservation of water. Such model can work for different cash crops as well.

Yet another case is huge mango and other horticulture belts in Uttar Pradesh. Mango belt is provided with huge quantities of water during lean season but without assured dependability. Revenue collected in such a case is limited and is not assured. Essentially, shifting mango areas on drip can save huge water and improve dependabilities during Zaid, giving boost to vegetable industry. Associations of mango producers can come out with proposals as to how the O&M can be ensured through their efforts, how interests of other small and marginal farmers whose fields lie in mango commands can be guaranteed and how best accounting of areas under cultivation, water supplied and water used can be ensured and how best revenue can be generated and assured. Regulatory authorities have a major role to play in these types of lease contracts.

b) As already explained, there is no provision of NGOs other than WUAs themselves who are *inter-alia* empowered by PIM Act to carry out O&M activities on the canal. Alternative to the above option would be to professionalize some NGOs/experts who could be appointed for capacity building of farmers. The WUAs within their own jurisdiction have the best interests who can be more effective in bringing upto distributary level systems back to design shapes and even mobilizing voluntary labour, much needed for the purpose. This exercise could be a part of their capacity building programmes. Experiences gained in Andhra Pradesh and Madhya Pradesh have demonstrated that experts and retire officials are more dedicated to take up these activities on per diem basis rather than engaging NGOs. NGOs have a tendency to soon shift to profit motives without raising their manpower and thus end-up in non completion of commitments.

Funding for such programmes should be initially partly through subsidy and partly from water charges collected from farmers. Subsequently, it should be left to farmers associations to maintain these canals. GIS mapping, ensuring on-farm works, extension services, assessment of water availability, proper scheduling and implementation of warabandi has to be ensured.

8.3 Lining of Canals in case of Existing Projects

Irrigation projects are constructed with high capital investment and as such seepage loss from canals is not desirable. In order to save water from seepage, canal lining is the only option. Canal linings improve conveyance efficiencies to near 90%. However, lining of all important canals of Uttar Pradesh would require heavy capital investment of the order of Rs. 60000 Crores. In a meeting held under the Chairmanship of Additional Cabinet Secretary held on 11th May, 2009, an important decision relating to lining of canals was taken. A copy of the decisions taken is placed as Annexure–V to this paper.

Lining of canals would *inter-alia* create an additional irrigation potential of about 24 lakh ha. Creation of additional irrigation potential through canal lining shall have definite advantages such as (i) very low gestation period for the project, (ii) no additional land acquisition and displacement of population, (iii) no adverse environmental impacts, and (iv) easy construction.

The canal lining can be done in a phased manner giving priority to the areas inherited with water logging problems and leaving aside the areas, where water table is deep. Canal lining is to be restricted to areas where seepage loss exceed the conjunctive use requirements; otherwise irrigation potential gained from canal lining could countermine the irrigation potential lost on account of deprivation of replenishment of ground water.

The incentives in case of lining projects could also be similar to those mentioned in case of new/continuing irrigation projects. Following additional incentives could also be considered:

i. The waterlogged/marshy areas along canals after being identified, canal lining be done and developers may be allowed to develop ponds/lakes in a part of such area.

ii. Construction of Roads on both banks of the canals – the banks of the main canals and branches can be used to develop high speed roads providing connectivity to large areas in the state. The potential of connecting roads is about 4000 Km. on main canals and about 7000 Km. on branch canals. The roads can be constructed on BOT basis after carrying out traffic surveys. The viability gap, if any, can be bridged by incentives mentioned in case of new/continuing projects.

8.4 Development of Areas Surrounding Dams/reservoirs

Most of the dams and reservoirs have large areas in vicinity in possession of Irrigation Department. This area can be developed for different purposes viz. Agro-parks, Flouriculture development, Recreation, Amusement parks, Water Sports and other allied industries. The reservoirs could also be used for pisciculture development. These opportunities can provide opportunities for private investments on revenue sharing basis.

8.5 Micro-hydel Schemes on Canal falls

A number of opportunities exist on main/branch canals where falls or a group of falls exist. Micro-hydel projects can be planned at the toe of canal falls. Such schemes have been undertaken by Micro-hydel Corporation and NEDA but full

potential is yet to be utilized. The hydro-electric generation potential of different canal systems can be harnessed by private investors on revenue sharing basis.

8.6 Flood Control Projects

The geographical area of Uttar Pradesh is 240 lakh ha and approximately 73.06 lakh ha is affected from recurring flood year after year, out of which about 58.2 lakh ha can be protected by construction of flood control works. However, till date only 15.79 lakh ha has been provided protection from flood, which is only 26.89% as compared to national average of 54%. The balance area of about 32 lakh ha could not be protected due to paucity of funds. The length of providing marginal embankments required for providing flood protection to the balance area is about 4700 Kms for which investments of the order of Rs. 7500 Crores would be required at present cost. The resources of the state are limited. In the present day context, the embankments not only provide flood protection, but also can be effectively used for communication purposes. Therefore, there is ample opportunity for private investments for such multi-purpose embankments. Such PPP project costing upto Rs. 40000 Crores is already underway along the left bank of river Ganga from district Budaun to Ballia. Possibility of construction of such embankments cum highway along major rivers of Uttar Pradesh is depicted in Table 5 given below.

Table-5 showing Approximate Lengths of Embankments cum Highways on Different Rivers of Uttar Pradesh

River	*Kms.*	*River*	*Kms.*	*River*	*Kms.*
Yamuna	300	Rapti	900	Saryu	100
Ram Ganga	350	Chambal	100	Burhi Rapti	200
Betwa	180	Gomti	600	Sai	400
Sarda	350	Rohin	250	Hindon	300
Ghaghra	500	Ami	250	Total	4700

Considering average cost of multi-purpose embankments as Rs. 25 Crores per Km., total potential to provide investments in the flood sector would be about Rs. 120000 Crores apart from Rs. 40000 Crores already proposed on Ganga Expressway.

8.7 Riverfront Development

Often rivers get polluted due to industrial and domestic waste being discharged into them, which rises beyond the self cleansing capacity of the river with increase in population. River flow during lean season dips due to increased pumping in adjoining rural areas, increased withdrawal of water for domestic and industrial needs and increased building activities in urban areas resulting into declining ground water replenishment from the rivers. Encroachment on the river bed further adds to additional solid waste entering into the rivers. While rivers require some minimum discharge to safely flush out the environmental pollutants, often this is not available due to withdrawals in upstream areas. River Gomti is typically facing these problems within the city of Lucknow, where some steps have been taken to ban certain industries which have been polluting the river in the past. Also efforts are on to develop STPs to divert city's sewerage during lean season to reduce its BOD level. These steps, though not sufficient, are likely to bring some relief in improving its DO which, in turn, would improve flora-fauna within the reach. Flood plain zoning coupled with certain minimum measures such as redesigning the embankments, providing shelters, and beautifying these through citizens' participation can help in maintaining the same as well as prevent the river from getting it polluted again. Many of the industrial giants can come forward and take care of a portion each of the river for development of its front. In turn, they may need certain advertising/ recreation rights, which can be granted. Such experiments have been tried in Hyderabad, Delhi and many other cities in landscaping the road-sides and parks. Interest shown by the citizens associations in cleaning river Gomti during 2008-09 is a typical example and should be made a permanent feature. Such efforts can definitely arrest encroachment of flood plains.

8.8 PPP in Irrigated Agriculture

Irrigation sector should not be treated in isolation as it comprises of an agriculture value chain [(11).] Outcome of reforming irrigation sector will not be complete unless agriculture sector is simultaneously reformed. Agriculture had never been treated as a commercial activity in the past. Though agriculture occupies 24% of GDP and 63% (2/3rd) of the country's population is engaged in it, this sector was left to survive on its own. On the other hand share of direct public investment in agriculture sector in GDP is only 1.6% and considering allied sectors such as roads and infrastructure all together, it is not exceeding 5% in 1980-81. Today direct and indirect investments are around 2.5% of GDP though the GDP is rising at 6-8% every year. In wheat sub-sector, India is the number one producer in the world, in fruits and vegetables, we are number two. Yet productivities are less than half of the world average, Production is stagnating at less than 2% growth, which otherwise should have been 4-5%. According to Hon'ble Prime Minister (October 2006 Address), there are four areas of deficits that affect agriculture sector, viz. (i) investment deficit – both public and private investments in deficit are steadily going down for last 30 years; (ii) infra-structure deficit – rural roads, irrigation facilities, warehousing, cold-storage chains, agro-processing industries are not up to the standards; (iii) credit deficit – more than 42% still do not have access to the bank loans, and (iv) lack of technical know-how; we still do not have appropriate technology levels to keep productivity at world standards level. According to National Commission on Farmers, a farmer gets only 30-40% of the value of his produce, mainly because free access to the market does not exist, market fee and cess are too high. Steadily decreasing public investments in agriculture sector has been the root cause of diminishing private investments as the former induces the later. Expected growth of GDP should be around 10% if this sector is to survive.

The areas where public investments should be targeted should be those inducing growth. The areas where the future investments should be targeted are infrastructure which includes intensification, inputs, marketing, roads,

irrigation (including efficient management) and research and extension. There is a need for single window for spreading technical know-how. Agriculture 'haats', 'Agriculture call centers', 'e-choupals' and 'sms' services are excellent ideas. Since not much public money is forth coming, there is a fit case to attract private investments. The area where private investments should be targeted could be those which increase productivity, particularly in agri-infrastructure, irrigation development, irrigation management, rural roads, wholesale Mandis, R&D, post harvest logistics, marketing and retail. 'Tropicana' of Pepsi foods in Punjab, Safal experiment in Bangalore by NDDB, ITC's 'e-choupals' are some of the best examples where private investments are forth coming. These may not be enough. Agri-sector is to move from 'we grow what we can' to 'contract farming' where farmers/WUAs enter into a contract for producing say after five years. For this it is essential that policy frame work in agri-sector is totally revived for the agro-value chain i.e., for pre-sowing inputs including irrigation and post harvesting means. Interests of small and marginal farmers should be the main concern of public and private investments. Components of the value added chain in agro-sector are presented in the Table 6 given below.

Table-6 Value Added Chain in Agri-sector

Agri-Inputs>	***Production>***	***Procurement Storage>***	***Commodity Trading>***	***Processing>***	***Retailing and Distribution***
Seed Fertilizer Agro-chemicals Farm equipment Irrigation Finance Knowledge	Farming Animal Husbandry Allied Activities	Output Purchase Ware Housing Logistics	Trading Futures	Cleaning Grading Value added products Product differentiation Packing	Distribution centers Retail stores

Source [12]

To modernize agriculture sector, it would be necessary to understand which component of the value added chain is weak, how sensitive it is to the overall outcome of the production and productivity and where opportunities exist for PPP. Unavailability of quality inputs, spurious seeds, ill-informed use of fertilizers and pesticides, un-informed purchase decisions, lack of farm machinery, poor water use efficiencies, cumbersome bank procedures, lack of awareness and adaptation on scientific farm practices and low yield across crops are some of pre-sowing (input) concerns. On the other hand, lack of desired market access, infrastructure, information, transparency, high wastages, malpractices, market surplus and glut, lack of storage, grading, processing and logistic facilities, lack of regulatory controls and absence of large players are some of the post harvesting (output) concerns.

PPP can play a major role in transforming agriculture sector. There may be a set of areas where private service providers/NGOs/WUAs can play a major role. These could be, seed growers associations/corporations, fertilizer association outlets and information centers. Participatory approach is to bring in much needed efficiencies and conservation in water use. Infrastructure creation and market access, transportation cooperatives, farm machinery cooperatives, risk management, firm credit and agro-insurance, could be yet another set of areas where PPP experiment could be properly planned and tried. Institutional coordination, policy changes, attraction towards financing institutions can only built inductive environment for attracting private investments where ever possible. Agro-industries can play a major role in transforming agriculture sector without which irrigation sector cannot show targeted outcomes.

8.9 Integrated Area Development/Agro Parks

A large tract of canal lands are lying unused in different parts of Uttar Pradesh. At present many of these lands are un-productive. These lands can be easily brought under the category of Integrated Area Development/Agro-parks or exclusively agro-parks development. Many of the builders/ agro-industrialists would be interested in these, opportunities, modalities, and type of contracts is

already described in Section 6. These parks could be the ideal places for development of housing, coupled with development of parks for horticulture, flouriculture, fisheries, livestock, poultry, and amusement & leisure. These parks could also be the ideal set up for water harvesting and controlled conjunctive use in a planned manner in areas where surplus water is available during flood season and could be best used for developing ponds and wet lands within such parks.

8.10 Fisheries

At present Fisheries department is managing development of pisciculture in a large number of reservoirs and wetlands on nominal cost sharing basis with UPID/other departments. It would be a good idea to develop this sector into a cooperative sector like 'Parag' under a brand name 'Parag-fish' or 'UP-fish'. This sector can easily get appropriate bank loans for funding. Alternatively, this sector should be thrown open to private sector. This sector needs much awaited boost as it increases benefits per hectare on use of water and thus increases water productivity in economic sense.

In case of small and marginal farmers, WUAs/SHGs and also WSHGs can be encouraged to develop small farm ponds within chak/village lands where capacity building and bank loans can promote fisheries and raise income of farmers. Ready markets can be ensured by cooperatives who can provide not only know-how but also lift the produce and market it as well. Small farm ponds would also be helpful in raising soil moisture as well as help harvesting of much needed ground water. Farm ponds can be designed to reduce seepage and evaporation losses for which know-how now exists. These farm-ponds can help in providing much needed water harvesting on a large scale.

8.11 Ground Water Harvesting

Preliminary modeling studies in SWaRA has indicated that there are some pockets on river reaches where sufficient water is available during monsoon season in Ghaghra basin but does not have appropriate dependability to plan for use as non-monsoon flows are not adequate. Schemes to harvest such waters through underground dams coupled with planned conjunctive use in the adjoining areas can be planned. Feasibility of such schemes should be examined. Private sector can be asked to develop such waters and use the same along with allocation rights as this water is not yet allocated. This idea can be discussed/piloted with private groups to assess their views. As an incentive, industrial plots for development can be provided away from cities (to safeguard environment) for development of irrigation and allied sectors or social sectors.

8.12 New and Existing Minor Irrigation Schemes / Revival of Ponds

Not many opportunities exist in development/ rehabilitation of these structures through private participation as majority of these benefit local population. Therefore, it would be desirable to make use of efforts of WUAs, panchayat, local governments. Modalities similar to those explained in section 8.2 could be adopted for these schemes. Maximum use of funds under NREGA should be used for these efforts.

8.13 Capitalizing on Water logging

Regional ICAR centers at Patna and Bhubaneswar have demonstrated how ponds for fishing dug out within water logged areas can be developed by raising some of portion of the farm by using the earth dug out of these ponds and raising average plot height thereby increasing root zone depth above water table. While farm ponds can be used for rearing fish, piggeries etc, raised plot can be used growing paddy, vegetables, horticulture etc. Necessary soil moisture is provided by the water accumulated in the farm pit. This technique not only saves water but also increases cost of produce per hectare use of

water. NGOs and WUAs should be trained to promote these techniques in areas where soils have already gone un-productive due to water logging.

Yet, there may be certain low lying areas and irrigation lands within commands or along the canals, where seepage has damaged the soils to the extent that these cannot be used for agriculture produce. Land use title can be changed for these lands and the same can be made available to private developers as a stimulator in exchange for development/services elsewhere as outlined in Section 8.1.

8.14 Drip/Sprinkler Irrigation

After introduction of the Centrally Sponsored Scheme on 'Micro-Irrigation – Drip and Sprinkler' by MoA&C, wherein farmers, developers, bank and State Agriculture Department collaborate in assisting the farmers to gain know-how on micro irrigation, obtain loans, install the equipment, get trained for three to four years, introducing drip and sprinkler has become easy and well within reach of farmers through coordinated efforts of governments, banks, farmers and private promoters of the equipment. GoI provides subsidies on these schemes which are directly transferred to small and marginal farmers. Governmnet of Rajasthan has been piloting on introduction of micro irrigation in canal command of Narmada project. These ideas can be translated into reality on which many of the micro-irrigation manufacturers and land developers would be interested.

8.15 Tube-well Expansion Programme

Ground water potential has not yet been exploited fully in the state. Potential exists in many of the areas where additional ground water can be used either in isolation or conjunctively with canal water. As allocation on this water is not yet

done, water rights for this sector can be allowed to the private developers for bulk use for any purpose in safe zones after linking with appropriate amount of harvesting, scope for which exists in many basins.

This sector can be opened up in conjunction with development of micro-irrigation where central subsidies can be pumped in. Alternatively, agro-giants can promote these schemes through 'Contract farming' with interests in lifting quality produce. Details of the scheme can be worked out jointly by agriculture sector and Tube well department.

8.16 Navigation on Canals

Navigation potential exists in some of the main canals and in some reaches of the rivers, where one/two way traffic can be developed. Such tracts can be identified and their feasibility determined if navigation sector is to be thrown open to private sector for development.

9. Present Initiative in PACT

Uttar Pradesh Water Sector Restructuring Project in its pilot phase is being implemented in Sai-Gomti sub-basin of Ghagra-Gomti basin which include the PPP activities as well. With piloting water service provision and maintenance including such alternative models as (i) a distributaries level corporate entity, (ii) a self-sustaining operational entity at the distributaries level comprising an unbundled UPID sub-entity servicing the farmer organizations, (iii) leasing the management of the water service at the distributaries level to a private sector enterprise which would operate and maintain the system in partnership with the WUAs, with monitoring by the UPID, and (iv) entrusting the management of water service to federated WUAs starting from outlet and progressing to distributaries level commands.

The Government of Uttar Pradesh has expressed its interest in bringing large Indian companies from the private sector in integrated agriculture operations. Considering this a pilot PPP model has been initiated in the command area of Sarda Sahayak Khand 28 Haidergarh of Barabanki district in collaboration with Haidergarh Chini (sugar) Mills (HCM). Accordingly, MOU has been signed in between the PACT and HCM to take up demonstrations on improved package of practices of sugar cane cultivation. Through this intervention the project is supporting with required inputs and the HCM with technical knowhow and capacity building of the farmers to motivate and mobilize the farmers of the command area to grow sugarcane with higher yields which will augment their income ultimately. This model is being tested for its usefulness as well as its sustainability. The ultimate aim is to enable the HCM to maintain and manage the canal command area synchronizing with their area of operation.

10. PPP in I&D Sector – Some Pre-Requisites

In view of the foregoing, it is evident that a number of opportunities exist in the irrigation and drainage sector, where private investments could be encouraged in partnership with public sector. However, certain indispensable pre-requisites would be required if PPP is to succeed in I&D sector. These could be:

(i) Create a cell on PPP in UPID to look into all facets of PPP in I&D and allied sectors. This cell would be required to: (a) identify specific areas where such opportunities exist on ground: (b) enlist all such opportunities and work out details, devise frame work/modalities for each opportunity, work out cost details; (c) prepare draft policy framework wherever it is required. If necessary, draft amendments to any of the existing Acts, particularly the 'North India Canal and Drainage Act' with respect to changes in the title of properties of the irrigation departments should be

proposed. This cell should come out with a second concept paper on 'facilitating' PPP in not only I&D sector but also in allied sectors, giving details of each and every opportunity along with modalities. This can be done in coordination with other departments. Second concept paper should be prepared within a time frame of, say, six months.

(ii) Thereafter, a workshop be organized on 'Attracting PPP in I&D and allied sectors' to discuss opportunities and modalities discussed in the first and second concept paper, invite views of various departments, NGOs, prominent developers/service providers, WUAs central/state ministries and other stakeholders. The workshop should also discuss policy and institutional framework/setup required for inviting PPP in I&D and allied sectors. Recommendations of the workshop should be used in reviewing the policy/Acts/Guidelines and in concretizing the proposals for implementation by the PPP cell. Respective departments should be advised suitably to frame proposals for approval of the appropriate authority/ies.

(iii) Empower UPID and WALMI to respectively prepare acceptable designs as per criteria already in force and ensure capacity building. Confidence building of these organizations would also be necessary.

(iv) Constitute and empower UPWaMReC on priority.

(v) Approve Policy Initiative for PPP for Infrastructure and social setup.

(vi) Prepare guidelines and rules for Implementation of PPP at ground level.

(vii) Develop policy on water rates, O&M, salary aspects for maintenance staff and water rates recovery. Regulatory authority could provide guidance.

(viii) Formulate a 'State Level Approval Committee' to study project-wise issues involved in PPP, extent of the programme, fund requirements, and suggest ways and means for opportunities and modalities, draft guidelines and policy framework and draft rules for O&M, Water Charges, Cost Recovery and getting them passed. This should be done under the guidance of UPWaMReC. This Committee should also provide necessary mechanism for technical, financial and administrative approval mechanism and ensure necessary monitoring and evaluation mechanism during and post execution of the project.

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Annexure-II

Ministry of Water Resources Guidelines, Areas of Implementation And Incentives for PPPs in Water Sector

1. *Guidelines for Implementation of WR Projects by PPP*

(a) State Water Regulatory Authority (SWRA) should be established in those States where Public-Private-Partnership is to be taken up. The SWRA should be a statutory authority/quasi-judicial authority, headed by a retired judge of the Supreme Court/ High Court and should include representatives of all concerned Governmental Organizations dealing with water resources and Stakeholders including those from Water Users' Association (WUA)/ Local Body/ Gram Panchayat to ensure transparency.

(b) The contract document for a PPP venture should be approved by SWRA before it is awarded. Since SWRA will have representative's stakeholder/ WUA, prior approval will also ensure transparency and acceptability of the PPP ideologies.

(c) Component wise PPP should initially be attempted in canal/water conductor and distribution system. Headwork, where the private sector operator (PSO) gains control of water at source, may be kept outside PPP for time being, till some experience is gained on regulatory mechanism for PPP ventures.

(d) To begin with PPP management contract may be considered as the first preferred option; lease contract as the second preference option and BOT as the third preference option. Different PPP options & their features and their implications are given at Enclosure-I and II respectively. Wherever feasible, the participation of Water Users' Association (WUA)/ Local Body/ Gram Panchayat may also be considered.

(e) Before a project is posed for PPP, the primary objective (finance or technology or management) should be clearly identified. All further decisions would flow from this primary objective.

The most beneficial PPP option should be identified to achieve the stated objectives and further planning should be done accordingly. Obtaining benefits from the PPP depends on identifying the strengths and weaknesses of each of the PPP options and matching those with project requirements.

2. *Areas for implementation*

(a) Working Group on private sector and beneficiaries participation for Tenth Five year plan had divided the projects into three categories; viz. (i) investment ranging from Rs.50 to 200 crore (ii) investment ranging from Rs.200 to Rs.500 crore and (iii) investment more than Rs.500 crore. The private sector participation for the projects of category (iii) is unlikely to materialize and therefore may not be worth contemplating at this stage. However, it would be desirable to introduce the concept on a 'Pilot' basis for selected category (iii) projects that do not have problems of inter-State issues, security etc. The projects of category (i) are recommended to be taken up for private sector participation. In case of category (ii), the private sector investment can be invited in following distinct components of the projects for which separate schemes shall have to be formulated.

These could be schemes for:

- Participation in construction and O&M of main and secondary canals or conveyance system.
- Participation in construction and maintenance of distribution system below the minor distributaries of designated capacity.
- Participation in remodeling and renovating of existing projects.
- Participation in development of tourism and pisciculture.

Participation in construction and O&M of Headwork is not recommended at this stage.

(b) Since CAD programme is in operation with Governmental efforts through Water Users Association (WUA) on the principle of Participatory Irrigation Management (PIM), the responsibility of private sector investor may end at bulk supply of water to WUA and the latter can take up further work.

(c) At the time of awarding the project for private sector participation, a detailed interaction between the Government side, the private entrepreneurs and other stakeholders should take place with a view to take into consideration of the overall development of water resources plans and ensure safety of structures. Based on detailed interaction MOUs should be signed between the Government side and the private entrepreneurs.

3. Incentives for Private Sector Participation

(a) Some incentives will have to be given to the private sector. These could be in the form of tax holidays, floating tax-free revenue bonds/loans at concessional rates including moratorium on repayment etc.

(b) Incentives to private investors in development of pisciculture limited use of water of the reservoir for development of horticulture, floriculture etc. by the investor, water sports, navigation in reservoir areas, development of tourism etc. should be considered to attract private sector participation. However, the SWRA will ensure that water allocation for different uses is not disturbed due to over-withdrawal of water earmarked as concession and the primary objective of the project is not jeopardized.

(c) Primary and secondary benefit from the projects should be identified. Benefits required to be retained by the State Govt. Deptt. and the benefits to be given to the private investors should be clearly defined.

4. Major Clearances required, both Statutory & Non-statutory, and Clearing Authorities

Considering the multi-dimensional nature of water resources projects all existing statutory and non-statutory clearances will be strictly adhered to. The list of statutory and non-statutory clearances is enclosed at Enclosure-III

5. Procedures for Clearances of Projects to be taken up by the Private Sector

Stepwise procedures for clearances of projects received from the State Governments to be taken up by the private sector are as under:

(a) The concerned State Government, in the initial stage will first submit Preliminary Project Report (PPR) in Central Water Commission (CWC).

The PPR will cover survey and investigations including Geological investigation, seismic investigation, Foundation investigation construction, Material Survey, Hydrological and Meteorological Investigations, etc, international/Inter-state aspects, hydrology, drinking water requirements, irrigation planning, planning for other intended benefits, brief environmental and ecological aspects, social concerns, intended benefits etc which are required to establish soundness of the basic planning of Project Proposal. Applicable check-list shall also be attached to ensure that all the desired information are contained.

(b) The PPR shall be quickly scrutinized and clarifications/compliance of observations shall be attended promptly by the State Government. Once the report is found acceptable, the CWC shall convey 'In Principle' consent for preparation of Detailed Project Report.

(c) Thereafter, the developer shall prepare Detailed Project Report (DPR) with up-to-date cost as per CWC guidelines and relevant BIS codes complying CWC comments/observations, if any during PPR Stage. It must be ensured that DPR has been prepared after detailed surveys and investigations and it contains duly completed check-list, salient features and all relevant details as well as maps, annexure, comprehensive up-to-date estimates as per CWC guidelines.

(d) Simultaneously they will also process and obtain necessary clearances of the Ministry of Environment & Forests in respect of Environment Impact Assessment (EIA) & Environmental Management Plan (EMP) and Forest area being diverted, Ministry of Tribal Affairs (in case Tribal Population is diverted) and other concerned Ministries as per actual. The submission and clearance of EIA & EMP, R&R Plans, etc and forest clearance shall be governed by the prevailing norms and regulations of the related ministries.

(e) The State Government shall ensure that all necessary actions are taken to obtain clearance from the above mentioned ministries well in time after due appraisal and DPR is submitted along with these clearances.

(f) The 'In Principle' consent of CWC for DPR preparation of a project shall have a validity period of 3 years failing which the 'In Principle' consent will suo-moto lapse.

(g) The DPR thus prepared will be examined in CWC in consultation with other central agencies, if required. During techno-economic appraisal, the compliance to observations will be required to be submitted by a responsible and professionally qualified person authorized by the Developer.

(h) All projects in the Ganga, Brahmaputra and Indus Basins would also be examined from International angle in the Ministry of Water Resources.

(i) The final estimate shall be based on finalized designs and details of civil and hydraulic structures and economic analysis will be carried out by the developer in consultation with the State Government and CWC adopting standard/accepted procedures in line with the recommendations of Nitin Desai Report.

(j) Once techno-economic viability of the Project Proposal is found established by CWC, a comprehensive note and check-list, duly finalized by Project Appraisal Organization (PAO), CWC shall be circulated among Members of the Advisory Committee of MoWR for consideration and clearance of such project proposals.

(k) On the basis of recommendations in Technical Advisory Committee (TAC) note, the Advisory Committee of MOWR will take decision on the techno-economic viability of the Project Proposal.

6. *Structure of Water Charges and its Collection*

(a) The state Water Regulatory Authority as recommended under para 1 would also (i) regulate the Water Rates and suggest optimal Water Structure adequate to cover up for recurring O&M costs and interest on Capital; (ii) keep a balance and uniformity in the Water Rates fixed in the neighboring States, and (iii) monitor the revenue realization.

(b) The Water Rates should be so fixed as to ensure full recovery of recurring O&M costs initially and a part of the capital cost subsequently. Nevertheless, the paying capacity of the payers can not be ignored all together. Differential Water Rates may, therefore, be adopted as per the holding size of the cultivator.

(c) The revision of the Water Rates to achieve full Cost Recovery may be done in a phased manner, providing for a full O&M cost recovery in a period of five years and recovery of a part of the capital cost thereafter.

(d) The Water Rates should be assessed and revised periodically at least once in a five year period coinciding with the first year of each five year plan.

(e) The SWRA may also while fixing up Water Rates should take in to consideration the prevailing Water Rates in neighboring states, crop water requirement and seasonal availability of water from rains and agricultural support price.

(f) The Government at present is involved in collection of water charges directly from the users. However, in view of Participatory Irrigation Management (PIM) approach being advocated and gradually to be adopted and Water User Associations (WUA) having been formed, it may be desirable to involve WUA's in water distribution and collection of water charges.

Enclosure-I

Different PPP Options and their Features

PPP Option →	*Service Contract*	*Management Contract*	*Lease Contract*	*Greenfield (i.e., BOT) Contract*	*Concession Contract*	*Full Divestiture*
Financing investments	Public sector	Public sector	Public sector	Private sector	Private sector	Private sector
Financing working capital	Public sector	Public sector	Private sector	Private sector	Private sector	Private sector
Contractual relation with retail customers	Public sector	Private sector (on behalf of the public sector)	Private sector	Public sector	Private sector	Private sector
Private sector responsibility and autonomy	Low	Low	Low	Medium to High	High	High
Need for private capital	Low	Low	Low to Medium	High	High	High
Financial risk for private sector	Low	Low	Low	High	High	High
Duration of contract / license (years)	1-2	3-5	5-10	20-30	20-30	License indefinite, provision to withdraw or revoke
Ownership	Public sector	Public sector	Public sector	Private then public sector	Private then public sector	Private sector
Management	Mainly public sector	Private sector	Private sector	Private sector	Private sector	Private sector
Setting tariffs	Public sector	Public sector	Contract and regulator	Public sector	Contract and regulator	Regulator
Collecting tariffs	Public sector	Private sector	Private sector	Public sector	Private sector	Private sector
Main objectives of Private Sector Participation	Improve operating efficiency	Improve technical efficiency	Improve technical efficiency	Mobilize private capital and / or expertise	Mobilize private capital and expertise	Mobilize private capital and expertise

Enclosure-II

Implications of PPP Options

Service Contract	Promotes competition in area of contract. If the contract fails, risk is relatively low. Contracts of short duration - if contract runs in to problems, can easily re-tender. Easy / simple contractual form. Potential starting point for private sector participation. Can increase utility's focus on core business. Potential for efficiency gains in the area covered by contract.
Management Contract	Can improve service. Reduced risks to government and contractor. Potential first step to concession contract. Potential for setting performance standards with incentives to achieve standards. Scope to introduce private sector management skills. Limited commercial risks. Can revert to in-house management or contract may be re-tendered if problems arise. Potential for utility to bring in competition.
Lease Contract	Can increase efficiency of asset management. Reduced government risk of not collecting adequate tariffs. Proportion of management responsibility and commercial risk transferred. Incentives for contractor to minimize costs, provide reliable services and maximize revenue collection.
BOT. Also called Greenfield Contract	Takes over management of operations from the government. Relieves government of need to fund investments. Full responsibility for operations, capital raising and investment goes to private sector. Potentially large improvements in operating efficiency. Full private sector incentives across utility. Attractive to private financial institutions.
Concession Contract	A fast option for improving system assets. Full responsibility for operations, capital raising and investment goes to private sector. Potentially large improvements in operating efficiency of system assets. Full private sector incentives. Attractive to private financial institutions. Mobilizes private finance for new investments. Addresses funding shortfall.
Full Divestiture	A fast option for improving system assets. Full responsibility for operations, capital raising and investment goes to private sector. Potentially large improvements in operating efficiency. Full private sector incentives. Attractive to private financial institutions. Mobilizes private finance for new investments. Addresses any funding shortfall. Could be successful where there is good track record of private sector ownership. Private water company would have clear incentives to achieve full cost recovery

Enclosure-III

Statutory Clearances

Sl. No.	Item	Clearing Authorities	Remarks
(i)	Water availability	State Government, CWC	Interaction between State Govt.'s Department and CWC required for inter State rivers.
(ii)	Inter-state matters International aspects	CWC CWC & MoWR	For Interstate Rivers. For International Rivers.
(iii)	SEB clearances	SEB, State Government	For Multipurpose Project where Hydro Power Generation is involved under section 44 of E/S 1948 Act.
(iv)	Forest clearance	State Govt., MoE&F (GOI)	Coordination with State Forest Deptt. and MOE&F (GOI) (regarding Forest Conservation Act).
(v)	Environmental clearance	-- do --	--do--
(vi)	Rehabilitation & resettlement of displaced families by land acquisition	State Govt., MoTA, MoD (Defence)*, Ministry of Coal*, ETC.	
(vii)	Administrative/ State finance department concurrence	State Government	
(viii)	Registration of Company	Registrar of Companies	Under Indian Companies Act, 1956.
(x)	Techno-economic clearance/ concurrence by Advisory Committee of MoWR on Irrigation, Flood Control & Multipurpose projects after examination by CWC/CEA/GSI in respect of (i) Design aspects (Including safety aspects and adherence to relevant BIS codes and GOI guidelines issued from time to time) (ii) Reasonable-ness of the scheme (iii) Site location for optimum harnessing/ utilization of water. (iv) Cost estimates & financial forecast (v) Geological investigations	Advisory Committee of MoWR	Applicable for the projects proposed on Inter-state Rivers in accordance with 'Guidelines for submission, Appraisal and Clearance of Irrigation and Multipurpose Projects-2002'.

*Wherever applicable

Enclosure - III Contd.

Non-Statutory Clearances

(i)	Exploring the possibility of conjunctive use of surface and ground water	CGWB/CGWA	
(ii)	Suggesting proper cropping pattern	Ministry of Agriculture	
(iii)	Land availability for infrastructure facilities	State Govt.	
(iv)	Financing aspect of the project	Department of Economics affairs, Financial institution	
(v)	Watershed development	State Government/ SGWB/ CGWB	
(vi)	Drinking water provision	State Government/ Ministry of Urban Development/ Ministry of Rural Development	

Annexure –III

Irrigation Rates in Uttar Pradesh

U.P. Govt. Sinchai (4) Anubhag No. 2874/95-27-Si-4-2 Rate-92 Lucknow 18-9-1995

NAME OF CROPS	SCHEDULE-I Rate : Rs. / Hectare		SCHEDULE-II Rate : Rs. / Hectare		SCHEDULE-III Rate : Rs. / Hectare		SCHEDULE-IV Rate : Rs. / Hectare	
	Flow Irrig.	Lift Irrig.	Flow Irrig.	Lift Irrig.	Flow Irrig.	Lift Irrig.	Flow Irrig.	Lift Irrig.
Sugarcane	474.00	237.00	474.00	237.00	237.00	119.00	99.00	49.00
Paddy	287.00	143.00	-	-	128.00	64.00	40.00	20.00
Paddy Excluding & broadcast paddy on doon canals	-	-	173.00	86.00	-	-	-	-
Vegetables, Garden (per paddy) water net/paddy	287.00	143.00	173.00	86.00	128.00	64.00	40.00	20.00
Potato	356.00	178.00	356.00	178.00	237.00	119.00	99.00	49.00
Tobacco	306.00	153.00	212.00	106.00	114.00	57.00	-	-
Wheat Barley and crops mixed with Barley or wheat	287.00	143.00	173.00	86.00	128.00	64.00	-	-
Cotton	114.00	57.00	59.00	30.00	40.00	20.00	35.00	17.00
Fodder Crop	99.00	49.00	40.00	20.00	30.00	15.00	35.00	17.00
Green Manure	69.00	35.00	30.00	15.00	30.00	15.00	35.00	17.00
Broadcast Paddy on Doon broadcasts Paddy on doon canals	-	-	114.00	57.00	-	-	-	-
Tea Garden and orchards on doon conct.	-	-	212.00	106.00	-	-	-	-
Other crops of Rabi	212.00	106.00	114.00	57.00	69.00	35.00	40.00	20.00

Other crops of Kharif	173.00	86.00	99.00	49.00	69.00	35.00	40.00	20.00

Name of Canal Systems:

Schedule- I Canals: (1) Upper Ganga Canal, (2) Lower Ganga Canal , (3) Eastern Yamuna Canal , (4) Madhya Ganga Canal , (5) Eastern Ganga Canal , (7) Agra Canal , (8) Sarda Canal , (9) Sarda Sahayak Canal , (11) Gandak Canal , and (12) All such pump canals on which permanent pump houses have been constructed and those pump canals which augment water in above (1) to (9) systems.

Schedule- II Canals: (1) Doon Canal, (2) Ramganga Canal, (3) Afzalgarh Canal, (4) Tumaria Canal, (5) Pili Canal (Lalitpur), (6) Betwa Canal, (7) Urmil Dam Canal, (8) Maudaha Dam Canal, (9) Balmiki Canal (Ohan Dam), (10) Ken Canal (Paddy Only), (11) Gursarai Canal, (12) Bhander Cana , (13) Jamini Canal (Jamini Dam-13 Other crops of Kharif, Lalitpur), (14) Banganga Canal , (15) Ghagra Canal, (16) Rohini Canal , (17) Danda Canal, (18) Belan Canal, (19) Gularia Canal, (20) Rest pump canals except pump canals of schedule-I, (21) Bhagwanpur Reservoir (Gonda), (23) Kalluwala Bundhi (Bijnor), (24) Jamalpur Tal, (Lalitpur), (25) Buchera Tal, (Lalitpur)

Schedule- III Canals: (1) Bijnor Canals, (2) Rampur Canals (Only Kosi, Behalia, Ghungha and Ganganan Canals), (3) Rohilkhand Canal except those canals mentioned in Schedule-IV, (4) Lalitpur Canal, Lalitpur , (5) Dhasan Canal (6) Pahuj and Garmau Canals, (7) Barwar Canal, (8) Arjun Canal, (9) Kabrai Canal, (10) Ranipur Canal (Saptar Dam), (11) Ken Canal (Except Paddy), (12) Koolari Canal , (13) Barwa Canal, (14) Kamal Khera and Pindari Canal (Ghandrawl Dam), (15) Dhori Canal, (16) Garai and Jirgo Canals, (17) Karmnasa and Ghaghar Canals, (18) Nikoya Canal, (20) Patharwa Cana, (21) Benugangi Canal, (23) Sukhra Tal Canal, (24) Sipawari Canal, (25) All other canals fed by rivers, tanks, reservoirs and lakes except those specifically mentioned in Schedules-I, II, III and IV, (26) Varanasi: Himaya Bundhi, Bhoka Bandhi, (27) Hamirpur: Majhgawan Reservoir, (28) Agra: Jagner Bundhi (29) Mirzapur: Beeder Reservoir, Damohan Reservoir, Rajkhor Reservoir, Barwatola Reservoir, Pipradih Reservoir, Khatauli Reservoir, Madwa Reservoir, Semri Margadha Reservoir, Kota Reservoir, Phulwar Reservoir, Badwadih Reservoir, Sukhri Dudhi Reservoir, Dharti Dolwa Reservoir (Zamindari works taken over by Irrigation Department), (30) Basti: Sagar Reservoir (Shevpati Sagar),

Siswa Reservoir, Betwa Reservoir, Majhauli Reservoir, Mekra Nala System, Bajha Reservoir, Kosi Jheel Reservoir (Moti Sagar Reservoir), Mali Reservoir, Masi Reservoir, Semra Reservoir, Marathi Reservoir, (31) Gonda : Kohargaddi Reservoir, Basehwa Reservoir, Ganeshpur Reservoir, (32) Bahraich , Motipur, Reservoir, (33) Gorakhpur : Srinagar Tal Cadal System, (34) Jhansi : Sanwaha Tank , (35) Lalitpur: Melani Ludhiara Tal, Bar Tal, Dhawa Tal, Gundorapur Tal, (36) Lalitpur: Arjun Kheria Tal, Samoghar Tal, Karila Tal, Parari Tal, Jhakhaura Tal, Gitauli Tal, Pura Kalan Tal, Bunt Tal, Bijroutha Tal, Gajera Tal, Kalapahar Tal, Kailwara Tal, Kakrai Tal, Bijakhet Tal, Binaka Mati Tank, (37) Jhansi: Pahalgaon Tank, Niao Tal, Sar Tal, Nihona Tal, Barwapur Tal, Manpur Tal, Rampura Manhanpur Tal, Baghaura Tal, Murari Tal Gangoni Tal, Sagoli Tal, Sarol Bisanpura Tal, Sekhrs Dhawa Tal, Palra Tal, Ghurat Tal, Katera Tal, Phutera Tal, Kachneo Jheel, Magarpur Jheel, Arjar Tal, Itaura Bundhi, Dora Bundhi, Pandawaha Bundhi, Gursarai Bundhi, Bhandarwara Bundhi No. 1, Bhandarwara Bundhi No. 2, Bhandara Bundhi, Bakhara Bundhi, Marha Bundhi , and (38) All lakes Reservoirs and tanks excepting those specifically mentioned in Schedule-II.

Schedule- IV Canals: (1) Rohilkhand Canal not fed by Sarda Canal or Reservoir, (2) Rampur Canal except Kosi, Bahalia, Ghungha and Gangan Canals, (3) All Gravity Canals in hilly and Tarai region except : Doon Canals, Canal Systems controlled by Komaun Water Rules, Specifically mentioned canals system in schedule I, II, III & IV, (4) Bundhies in districts Allahabad, Varanasi, Mirzapur, Jhansi, Lalitpur, Hamirpur, Jalaun and Banda except those specifically mentioned in Schedule - II and III

Annexure-IV

Privatization Policy: Approval for the Irrigation Projects on BOT Basis

Government of Maharashtra,

Irrigation Department

Government Resolution No BOT 702/ (425/02)/MP-1

Dated 15th July 2003

Introduction:

The Government of Maharashtra had established various Irrigation Development Corporations to undertake projects, and to complete them and supply water on large scale for irrigation. However, due to the shortage of funds at present, many projects are in the state of incompletion. To overcome this, it was under consideration of the Government to transfer these projects to private sector on the basis of Build, Operate and Transfer (BOT). Accordingly a proposal was submitted to the Cabinet for transfer of Irrigation Projects on BOT basis. The cabinet has approved the proposal and has taken following decision.

2. Government Resolution:

A) Incomplete irrigation projects under control of Irrigation Department as well as under Irrigation Corporations are now to be completed with participation from the private entrepreneurs/contractors on BOT basis as per conditions stated in the attached Enclosure.

B) Viability of such projects should be decided as per prevailing standards and be sent to the Government for approval.

C) The Entrepreneurs/contractors who are going to invest in such projects, expect to get them returns on their investment in construction as well as maintenance and operation during the stipulated period. After completion of the period, the projects will be transferred to the Irrigation Department. Such condition is assumed as part of this policy.

D) As per clause in 'B", tenders will be invited for completion of the projects from private Entrepreneurs and contractors after ascertaining their capability as per prevailing procedure. At the end of the tender process, selected entrepreneurs/contractors will enter into an agreement and transfer and re-transfer the project as per clauses attached to such agreement and as approved by the Government.

3. This Government Resolution shall come into effect immediately.

4. This Government Resolution is issued after approval of the Cabinet and with the concurrence of the Finance Department obtained vide their informal reference No. Pr. Secretary (Finance)/5568, dated 31.12.200.

By order and in the name of the Governor of Maharashtra,

(S. V. Deshpande)

Deputy Secretary to Government)

Enclosure to the (G.R. No. BOT/702/(425/02)MP-1, dated 15.07.2003)

Above Resolution is accepted by the Government on the following conditions/process/ principles

1.0 Process of Privatization

1. The private Entrepreneur shall complete the Irrigation Project with his own investment and recover the said investment through water charges, fisheries, tourism. After recovery of investment, the said projects shall be transferred to the Irrigation Department of the Government after stipulated period of time.

2. Viability of the project shall be checked before taking up the project for privatization as per prevailing rules/principles.

3. The plans and estimates shall be prepared on behalf of Government/Entrepreneur.

4. Environment Certificate shall be obtained by the government before the start of such project.

5. The work of the project shall be undertaken where rehabilitation is not required as per conditions.

6. The work of land acquisition is presently done through Government department. Acquisition of land for the above project also will be done by Govt.

7. It is proposed that the capability of the Entrepreneur shall be checked as per prevailing rules.

2.0 Risk of the Entrepreneur:

1. Availability of the water under project shall be based on the principles and data available with the Irrigation Department i.e. the rain fall, flood study, yield of the dam etc. However, the right to changes is granted to the Entrepreneur in case the water yield is not as per the estimates.

2. Water charges shall be levied as per prevailing rates to the beneficiaries of the project and the water users' organizations. Increase in the water levy can only be done after discussion with beneficiaries and shall be limited to 10%. The provision for this will be included in the tender documents.

3. In case permission is granted to any new upstream project, the statistical data pertaining to it shall be included in the documentation, and its prevailing use shall be kept unchanged.

4. Proportion and use of water shall continue as per prevailing mode and convention. In case any changes are to be made in the future, they will be decided by discussing the same.

5. No concession shall be given to the Entrepreneur in the events such as earthquake, fire, flood, violent storm etc.

6. No concession shall be extended to the entrepreneur for taxation purposes.

7. No economic concession shall be granted to the entrepreneur even in the case of failure of availability of water as per the project estimates.

3.0 Concessions to Entrepreneur:

1. An amendment is proposed in the law to give right to recover water tax to the Entrepreneur. Accordingly, the contractor will be awarded rights to recover water tax.

2. Royalty should not be charged to the Entrepreneur/Coop. Institutions on the use of material removed from the land. This right is granted with a view that the ultimate owner of the project is the Government itself.

3. All rights regarding fisheries and tourism in respect of such project will remain with Entrepreneur.

4. The land acquired by Govt. for the construction of project will be given on lease with nominal fee to the Entrepreneur on long term basis and he will be allowed to take economic benefits from the project land.

5. Adequate provision will be made in the tender documents for the loss, which the entrepreneur may incur on the investment made by him by calamities that are beyond his control.

4.0 Commercial Aspects

1. It is proposed to amend the law to give powers to the entrepreneur to recover the water tax. Accordingly the same powers will be given to Entrepreneur/Coop. institutions.

2. Lease of the land acquired for project will depend on investment made by Entrepreneur and if the entrepreneur fails to recover returns properly, period of lease will be extended and for that purpose and provision will be made in the tender documents.

5.0 Specifications

1. Indian/International Standard specifications will be followed for the construction of the projects. Generally the Entrepreneur shall use the prevailing standards for construction of such projects. Responsibility of the security of the project shall remain with the Entrepreneur.

6.0 Concession in the taxes:

1. Concessions decided by the Central /State Government from time to time shall be applicable to the Entrepreneur. Similarly, sales tax applicable to Govt. work on confessional rate shall be applied to the entrepreneur.

2. Royalty on the material from the mines used by entrepreneur at time of the project work shall be exempted as the Government is the ultimate owner of the project, and such facility shall be given to the entrepreneur as incentive.

3. Service Tax shall not be applicable to such Entrepreneur.

4. Concession in the octroi and municipal taxes shall be given to the entrepreneur

5. If the entrepreneur needs to import some machinery/ies for this work, excise duty shall be waived off on such machineries.

Annexure-V

Annexure-I

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