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Government of India's (GoI) 15 year old Accelerated Irrigation Benefits Program (AIBP) has increasingly come under much-deserved criticism for all-round non-performance. To improve AIBP, critics have repeated the same tepid suggestions that had earlier fallen on deaf ears. We argue that AIBP needs to be taken back to the drawing board and redesigned based on Accelerated Power Development and Reform Program (APDRP) which encourages and supports states to undertake management reform, promote accountability, restructure incentives and, in general, improve all-round performance of power utilities. Giving this same medicine to public irrigation will accelerate irrigation benefits more than just funding more dams and canals that AIBP has done all along.

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**Accelerated Sectoral
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**What can Water Sector Learn
from Power Sector?**

**Tushaar Shah and
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ACCELERATED SECTORAL DEVELOPMENT PROGRAMS

WHAT CAN WATER SECTOR LEARN FROM POWER SECTOR?¹

Research highlight based on a paper with the same title²

ACCELERATED IRRIGATION BENEFITS PROGRAM

The Accelerated Irrigation Benefit Program, Government of India's flagship program to support states in public irrigation projects, has long been in need of reform. AIBP was designed as a programme to support, 'last mile projects', that is, projects which are nearly completed but whose full benefits can start flowing only after small, incremental investments are made (GoI 2004). Yet, the AIBP has been used mostly for funding new projects, such as Gujarat's Sardar Sarovar Project which has many miles to go before its irrigation benefits begin flowing. Only last month, the Jharkhand Chief Minister walked away with a multi-thousand crore³ AIBP bonanza from the Planning Commission for a brand new irrigation project on the Subarnarekha (Ojha 2011).

Right from its inception in 1996, AIBP has experienced a relentless mission-drift; and its key design principles have been emasculated by all its stake-holders - state governments, Government of India's Ministry of Water Resources (MoWR) and Central Water Commission (CWC), and, above all, the Planning Commission. It is a testimony to AIBP's abysmal performance that against nearly Rs. 43426 crores sanctioned under AIBP until December 2010 for completing "last mile projects" in surface irrigation as well as in rehabilitation and modernization of old ones, the new irrigation potential 'claimed' to be created has been less than 6 lakh⁴ ha (*ibid*) (GoI 2011). Moreover, much of this is paper potential and the actual area irrigated by all public irrigation projects in the country has declined during the AIBP years, as was confirmed by the mid-term review of the 11th Five Year Plan. Comparing land-use statistics (LUS) for India shows that between 1996-97 and 2002-03, the area under canal irrigation declined by 2.4 million ha (13.8 percent) (Janakarajan and Moench 2006). Irrigation planners find LUS data unreliable; but even the quinquennial Minor

Irrigation Census shows the same trend. The more money AIBP invests in irrigation, the less irrigation India gets. Public irrigation is anything but accelerated under AIBP.

Despite being a massive money guzzler, AIBP has not been subjected to a rigorous, independent evaluation. The Project Evaluation Organization of the Planning Commission (2010:iv) lauded AIBP for "spectacular increase in the irrigated area" but, thanks to the inability of states to generate resources, "not only the sustainability of government run irrigation system is in danger, but also its impact on water use efficiency and equity has been dwindling". More realistic appraisal is, however, provided by two performance audits of AIBP undertaken by the Comptroller and Auditor General (CAG) - in 2004 and 2010 - which have criticized the government for its total failure in AIBP (CAG 2004; CAG 2010). The 2004 CAG audit was more an audit of procedure than of performance, and it criticized AIBP for frequently modifying its guidelines - six times in ten years - to accommodate states' demands in the name of course corrections (CAG 2010:xii). The CAG recommended that after all these modifications, GoI should stick to the guidelines and follow them in letter and spirit. Several other criticisms followed: the bulk of AIBP funds were cornered by few states; projects were approved based on incomplete or shoddily prepared detailed project reports (DPRs); clearances needed from Highways, Railways, and other agencies were seldom obtained nor was requisite action taken to complete land acquisition or conduct soil surveys. Many AIBP projects got sanctioned even before ascertaining water availability. State governments often grabbed AIBP funds for projects which were already funded under other schemes. Even after AIBP funds were released to states, they were diverted to other uses. There were huge time and cost overruns. Many experts are calling it nothing short of a scam and states have treated

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²This paper is available on request from p.reghu@cgiar.org

³One crore = 10 million

⁴One lakh = 0.1 million

AIBP 'like a milking cow' (Nayar 2011). The chairman of the Public Accounts Committee (PAC) of the Parliament recently described AIBP as a 'complex web of irregularities' (Parsai 2011).

The CAG came down particularly hard on Central Water Commission and its lackadaisical implementation of AIBP. The 'action taken' report issued by MoWR in 2006 made usual noises about complying with CAG recommendations. However, a repeat performance audit of AIBP by the CAG in 2010 confirmed that nothing had changed; and AIBP was back to its business as usual mode. The 2010 CAG report repeated the same litany of AIBP ills; dilution in the focus and objectives of the program; more modifications in guidelines to suit specific demands; total lack of data to monitor AIBP impact; failure of beneficiary states to meet the basic reporting requirements; reporting by states of incomplete or even noncommissioned projects as complete ones; heavy time and cost over runs; cornering of AIBP funds by few states; massive diversion to non-AIBP projects.

Altogether then, the AIBP's performance so far has left a great deal to be desired. Rs. 44000 crores of additional support and 15 years later, AIBP has neither helped accelerate canal irrigation nor provided worthwhile benefits. What is worse, neither the Planning Commission nor the MoWR have any system to track what the AIBP is delivering by way of results. What is far worse is that neither seems to think there is need for credible monitoring of public investments in irrigation not only for outputs but also outcomes and impacts.

The CAG reports, the Planning Commission evaluation, PAC - all offer tepid suggestions for improving AIBP outcomes by tightening the implementation of the program and holding state governments accountable. What is needed, however, is a hard look at the program design and its underlying assumptions. This is best done by comparing AIBP with Accelerated Power Development and Reforms Program (APDRP), which has begun playing a sterling role in reforming India's power sector during the past decade.

ACCELERATED POWER SECTOR REFORMS PROGRAM

India's power sector has been in much the same morass as the public irrigation sector. Rapid economic growth has been driving relentless increases in demand for power and push for ever greater investments in generation. However,

without commensurate improvement in the management of utilities, more generation has meant only more losses, embroiling the power industry in an invidious political economy of corruption and populism. With aggregate technical and commercial (AT&C) losses - which include technical losses plus the gap between billing and collection - averaging 34 percent against China's 8 percent, India has the distinction of one of the most inefficient power systems in the world.

As Deepak Parekh once argued, "the power sector is a leaking bucket, with holes deliberately crafted and the leaks carefully collected as economic rents... The logical thing to do would be to fix the bucket rather than forever making exaggerated estimates of future demands for power" (Ramakrishnan 2001). The Accelerated Power Development Program (APDP) was launched in 2000 in much the same spirit as AIBP: to support investment in modernization of power infrastructure. But thanks to their openness to astute business leaders and public administrators such as Deepak Parekh, Nandan Nilekeni, P Abraham, Gurudas Kamath and others, power sector planners realized the futility of generating more power only to lose even more. APDP was criticized for being project-based and input-focused rather than being performance and outcome oriented (Parekh Committee 2002). The 10th Five Year Plan accordingly recrafted APDP into Accelerated Power Development and *Reform* Program as a financial support program designed to lower AT&C losses, improve financial and economic performance of the electricity sector, modernize transmission and distribution and improve customer service⁵. The underlying idea was to attack the entire range of problems besetting the power economy, especially of energy accounting and internal accountability. Agricultural power subsidies provided by state governments needed to be made transparent so that utilities can no longer pass off technical losses as agricultural power consumption. High establishment costs of utilities - at 30 percent of revenue realization - needed to be controlled. Asset management needed to be improved. Capacity building of utility staff needed to be undertaken in a campaign mode. All power dispatched needed to be metered, at least at the feeder level, to promote accountability through proper energy accounting and auditing. Above all, there was need to enhance performance orientation at all levels of the utilities functioning - generation, transmission and distribution.

⁵To be precise, APDP objectives were: a) Renovation and modernisation, life extension, upgrading of old thermal and hydel-plants; and b) Upgradation & strengthening of sub-transmission and distribution network (below 33kV or 66kV) including energy accounting and metering in the distribution circles (Parekh Committee 2002:3). A succinct description of the evolution of APDP into APDRP is provided in Abraham Committee Report (2006:1-3); also see http://203.193.148.117/apdrp/projects/about_apdrp.htm accessed on April 17, 2011

While AIBP ignored irrigation management reform and kept funding brick, mortar and earthwork, APDRP tried to catch the bull by the horn by offering financial support in two streams: an Investment Stream was to support the development of 'demonstration projects'; the Incentive Stream was to provide a 'substantial reward' for states that were willing to go beyond 'demonstration projects' and undertake enterprise wide reform for performance improvements and AT&C reduction (Parekh Committee 2002:9). 2001 was taken as the benchmark year and APDRP was to offer 50 percent of the reduction achieved in cash loss over 2001 as an outright grant to the Utility.

APDRP's impacts during the 10th Five Year Plan were, at best, modest. Most APDRP projects were sanctioned during 2002 and 2003. Almost all got delayed for no good reason. Project formulation, management and monitoring left a great deal to be desired. Diverting APDRP's funds for routine operation and maintenance by utilities was rampant. As a result, few state utilities achieved significant reduction in cash losses or in AT&C losses. APDRP allocations remained under-utilized. Tenth Five Year Plan provided Rs. 20000 crores for investment in modernization and another Rs. 20000 crores towards incentive for cash loss reduction. However, all of Rs. 6000 crores were released on new investments; and only 8 states earned a total of Rs. 1500 crores by way of incentive for reducing the cash losses. At the national level, average AT&C losses declined by all of 4 percent - from 36.8 percent in 2001-02 to 33.8 percent in 2004-05.

Unlike the insular AIBP, APDRP was subjected to several independent evaluations by TERI, SBI Capitals, Tata Consultancy Services, Indian Institute of Management at Ahmedabad and Administrative Staff College of India at Hyderabad. Many of the recommendations from these evaluations were accepted. Based on these evaluations, the Abraham Task Force recommended reformulating APDRP as R-APDRP (restructured APDRP) during the 11th Five Year Plan with modified guidelines with three key objectives to be achieved over a defined timeframe:

- [1] to reduce AT&C losses promoting transparency and accountability over 1-3 years;
- [2] to improve operational efficiency and customer service excellence over 3-5 years; and
- [3] to create a smart grid with a self billing system that adopts all generation and storage options, and supports energy flow across distributed geographies (Abraham Committee 2006:3).

R-APDRP made major strides in creating the conditions necessary to reward successful reform in utilities against 'agreed reform milestones' rather than expenditure

statement (Abraham Committee 2006:33-34; Bhattacharya and Patel 2007:51-52). The program has aggressively promoted extensive use of information technology and information technology enabled services (ITES) among power utilities with remarkable impact on information flow and transparency. It has begun to release funds directly to utilities, instead of state governments, to reduce delays in disbursement. Funding is provided for independent assessment of performance against agreed milestones. Project plans are now required to have pre-defined timeframe for completion. Project implementation on turn key basis is encouraged. Above all, there is greater accent on accountability through focused monitoring of progress along key performance parameters, especially in urban areas with high customer density where the scope for reducing AT&C losses is the maximum. The Abraham Committee (2006:9) noted, "That AT&C losses have been brought below 20 percent in 212 APDRP towns in the country, of which 169 towns have brought AT&C losses below 15 percent" and "The overall commercial loss of the Utilities reduced from Rs. 29331 crores during 2001-02 to Rs. 22129 crores during 2004-05."

Even R-APDRP has not performed to expectation during the 11th Five Year Plan. AT&C losses declined only at a rate of 1.6 percent/year against a target of 9 percent/year. However, it is beginning to have its imprint on the gradual process of turn around in India's power economy. R-APDRP impact is clearly visible in new initiatives designed to modernize and professionalize power distribution business. Completion of metering of over 96 percent feeders under R-APDRP has created the foundation for improved energy accounting and auditing and begun to create a culture of efficiency and accountability (Abraham Committee 2006). Some states turned each feeder into a profit center in charge of a feeder manager to improve customer service as well as collection. All these have been further aided by computerization of operations and installation of online systems which are the backbone of APDRP projects. R-APDRP has also placed emphasis and resources on capacity building of utility staff. Strong incentives for reducing AT&C losses and improving customer service by enhancing efficiency has complimented very well with the capacity building investments.

Full impacts of R-APDRP will be clear only after several years; and even then it will be hard to isolate R-APDRP impacts from several other reform initiatives such as the Electricity Regulatory Commissions Act 1998 and the Electricity Act 2003. However, there are indications that the reform process of the power business has begun at least in several large states with substantial power economies. 13 states have corporatized their SEBs and

unbundled generation, transmission and distribution. 20 states have created independent electricity regulators. Computerization of billing, 100 percent metering at the feeder level, installation of capacitors at all levels are now widely accepted measures for reducing AT&C losses. States like Orissa and Delhi have experimented with privatizing distribution; and some distribution companies (DISCOMs) are even experimenting with 11 KV feeders as profit centers. Energy accounting, billing and revenue management are improving in many utilities. Approval of APDRP projects to be implemented on turn key basis through pre-qualified contractors has improved the quality and speed of project implementation. A strong emphasis is evident in utilities on effective management information system to improve the operation and management of distribution system and to expedite decision making. R-APDRP has encouraged the Utilities to use India's leading info-tech companies - such as Infosys, TCS, Wipro and others to build modern Management Information Systems as also to support organization-wide change management programs.

WHAT CAN AIBP LEARN FROM R-APDRP?

Both AIBP as well as APDRP were originally created as *additional* resource support programs from the Center to state governments, besides pre-existing channels of resource transfer - to help state governments to tackle new and emerging challenges facing water and power sector respectively at accelerated pace. AIBP kept funding new projects, and never pushed badly needed irrigation reforms. APDRP also supported new investments, but improving utilities' efficiency and performance has remained its key focus. AIBP suffered a relentless mission-drift by frequent changes in its guidelines. APDRP too changed its design; but each design change - from APDP to APDRP to R-APDRP - strengthened its mission to reduce AT&C losses and improve utility performance⁶. AIBP always funded only capital investments; APDRP has turned to incentivizing and rewarding improvements in operational efficiency, managerial transparency and accountability within utilities. Since incentives are paid against achievement of agreed performance benchmarks, there is need to measure performance in a credible, verifiable manner. As a result, power utilities today generate massive amounts of information for use in planning and management. Although 10 states claimed incentives worth over Rs. 10000 crore during the 10th Plan, independent third party evaluation of performance against agreed reform milestones ensured that only Rs. 1500 crore of incentives qualified.

Irrigation departments, in contrast, are more opaque than ever; more importantly, they collect little useful information that can help monitoring or decision making. Neither CWC nor the Planning Commission can provide detailed and accurate account of what have been the outputs, outcomes and impacts of AIBP investments because state governments provide them no information on it⁷.

CWC and Planning Commission have then proved unable to get state governments to work as effective and accountable partners in implementing AIBP. APDRP had much the same problem when management reform in DISCOMs was anchored by public sector National Thermal Power Corporation (NTPC), Power Grid Corporation of India Limited (PGCIL) and a clutch of other public sector organizations acting as Advisors-cum-Consultants to DISCOMs. APDRP changed that by involving India's private IT giants in supporting DISCOM reform. AIBP relies only on CWC, itself over-stretched and in dire need of capacity building, to support state irrigation departments, and monitor and evaluate AIBP projects. This insularity of the water bureaucracy ensured that AIBP never got whetted by big minds from industry, commerce and public administration from whom the APDRP benefitted from time to time. Table 1 places in bold relief the stark contrast in the conceptualization and implementation of APDRP and AIBP.

WAY FORWARD

The experience with APDRP offers a strong basis for reform of AIBP. In particular, six lessons of APDRP should be useful in recasting the AIBP into Accelerated Irrigation *Reforms* Program (AIRP) which may help India to make the crucial and much-delayed transition from irrigation *development* mode to irrigation *management* mode:

i. Reward Reform: GoI should focus on a new-look AIRP on encouraging and supporting state governments to introduce wide-ranging reforms in the management of public irrigation systems by offering significant financial incentives for achievement of agreed reform milestones.

ii. Non-Lapsable AIRP fund: AIBP's project-focus is unsuitable for catalyzing reform. Deep reforms may take place over several years; state governments may not take AIRP seriously unless GoI shows long-term commitment to reform by creating a non-lapsable AIRP fund.

iii. Reward systems for reforms at different levels: There is wide variation across states in their irrigation reform

⁶While AIBP has released funds even when conditionalities were flagrantly violated, APDRP was strict from the start. Under APDRP, Punjab and Delhi were not sanctioned funds because they did not adhere to terms of MoU with the Ministry of Power (Parekh Committee 2002).

⁷The CWC commissions studies of new irrigation potential by remote sensing data. But these can hardly show AIBP impact because satellite data cannot distinguish canal irrigated areas from groundwater irrigated areas that dominate Indian agriculture.

Table 1 Contrasting the design of APDRP with that of AIBP

	R-APDRP	AIBP
Core objective	Reducing AT&C losses by reforming management of utilities and modernizing distribution infrastructure	Support for more construction primarily of last-mile projects to speed up irrigation benefits
Program driver	Outputs and outcomes against agreed performance benchmarks ascertained by third party evaluation	Expenditure driven program, without any feedback by beneficiaries on how the money was spent and to what effect
Nature of central support	50 percent for investment and 50 percent for outcome-linked incentives	All for construction
Outcome monitoring	Strong, with large third party input	None at all; even figures of potential created are widely suspect.
Accent on capacity building	Strong, with involvement of leading private sector ITES and other players	None at all; no attempt to reform the insular, construction-driven culture of irrigation departments and to improve management skills
Basis for changes in design and guidelines	Independent evaluations of program results and high-level committees such as those chaired by M.S. Ahluwalia, Nandan Nilekani, Gurudas Kamat, Deepak Parekh, P. Abraham.*	Political haggling between state leaders and Planning Commission. Hardly any evaluation, leave alone independent evaluation; MoWR/ CWC attitude towards monitoring and evaluation of AIBP defensive more than forward-looking.
Monitoring and evaluation of performance against agreed milestones	Strong; extensive use of ITES, independent and reputed external agencies, strong support for data generation on outcomes	Non-existent; projects sanctioned based on incomplete, shoddy DPRs; state governments furnish little data on status of AIBP projects; CWC does not have enough capacity for regular and continuous inspection and monitoring nor does it get third-party evaluations done.
Source of technical expertise and new ideas	R-APDRP involved leading research and consulting organizations for working with the program as well as state utilities	No effort to introduce new ideas and external expertise; between them, CWC, MoWR and Planning Commission performed all roles of approving projects, inspecting progress, monitoring and evaluating outcomes.

*The various reports by experts and expert committees on power sector reforms are as follows: Planning Commission 2001; Prabhu 2001; Parekh Committee 2002; Kamat Committee 2006; Abraham Committee 2006; Dutta 2009.

orientation with states like Maharashtra and Andhra Pradesh in the forefront and many others trailing behind. An expert group, drawn from wide spectrum of expertise in industry, commerce, public administration besides water management, needs to develop and recommend realistic mechanisms for identifying reform milestones and incentivizing irrigation reform at several levels.

iv. Stem Mission-drift: Once agreed reform milestones are established, AIRP must strictly adhere to them; incentives must be paid based on independent third party appraisal of successful reform adoption; a standing committee of experts should accept or reject claims for reform incentives.

v. Expertise in ITES and organizational change: Public irrigation systems woefully lack systems of collecting and analysing information that provides feedback to their managers on areas and opportunities for performance

improvement. Irrigation agencies should be encouraged and resourced to use quality expertise for building systems as well as their own capacities. Support for such assistance has been one of the key inputs of APDRP in power-sector reform; it can do the same magic with irrigation reform too.

vi. Capacity Building of Irrigation Agencies: This critical task has been left so far to captive institutions of irrigation departments such as Water and Land Management Institutes (WALMIs) with limited capacities themselves. If irrigation reform is to succeed, much more attention and resources need to be devoted to capacity building of agency staff under AIRP.

Key to effective design of AIRP is item [iii] in the above list. The first level reform could be defined in terms of a set of basic conditionalities in the MoU with states, such as: whether the state government has constituted an

independent and functioning water regulator, whether it has imposed a non-trivial irrigation fee and achieved a minimum collection record; whether it has achieved some minimum ratio of irrigation potential utilized (IPU) as a percent of potential created (IPC); and so on. But higher level reform would require a simple criterion of sectoral performance that is easy to understand, measure and monitor, and is universally applicable. In APDRP, the key aim was to reduce AT&C losses which readily translated into 'cash loss reduction' of a DISCOM as a simple, measurable criterion for incentive payment. In irrigation, devising a simple, measurable performance criterion may be a challenge, especially given lack of credible data. Irrigation fee collection per 10000 cubic meters of storage (or water managed) might capture several dimensions of performance of public irrigation. Another criterion, of much recent concern in MoWR, is the ratio of potential utilized to potential created. What is the most appropriate irrigation equivalent of APDRP's 'cash loss reduction'

needs to be carefully identified. Best results of the reform might come when such a criterion is used to incentivize water management at the distributary level and below, as has been done to great effect on many Chinese systems (Shah et al. 2004).

The public irrigation infrastructure that India has already developed over 200 years can deliver much more accelerated irrigation benefit if only it were better maintained. But, as the World Bank estimated in 2005, maintaining existing infrastructure would cost Rs. 17000 crores/year (Briscoe and Malik 2006) against the actual maintenance spent today of less than Rs. 1000 crores (Central Water Commission 2010)⁸. By creating incentives and accountability, and by providing irrigation departments resources to maintain and manage the infrastructure already created rather than building new projects, AIRP can bring about the much needed transformation in Indian irrigation.

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⁸Central Water Commission (2010) figure 1.2 (p.5) shows that Working Expenditure on major and medium systems in the country in 2006-7 was around Rs. 9000 crore. The pie chart 1.4 on page 6 shows that maintenance and repair expenditure was around or less than 10 percent of total working expenditure on major and medium irrigation systems.



About the IWMI-Tata Program and Water Policy Highlights

The IWMI-Tata Water Policy Program (ITP) was launched in 2000 as a co-equal partnership between the International Water Management Institute (IWMI), Colombo and Sir Ratan Tata Trust (SRTT), Mumbai. The program presents new perspectives and practical solutions derived from the wealth of research done in India on water resource management. Its objective is to help policy makers at the central, state and local levels address their water challenges – in areas such as sustainable groundwater management, water scarcity, and rural poverty – by translating research findings into practical policy recommendations. Through this program, IWMI collaborates with a range of partners across India to identify, analyze and document relevant water-management approaches and current practices. These practices are assessed and synthesized for maximum policy impact in the series on Water Policy Highlights and IWMI-Tata Comments.

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