4 Water for food

Frank Rijsberman introduces the different forms of corruption that are prevalent in agriculture and irrigation, where water consumption is high and where food security is at stake. He documents how sophisticated systems of 'trickle-up' bribery divert resources from the sector and how large-scale users benefit from biased policies, offering a number of practical suggestions on how to make irrigation systems less vulnerable to corruption. Jean-Daniel Rinaudo further illustrates the interlocking incentive systems that underpin corruption in irrigation services in Pakistan. Sonny Africa shows how failing irrigation projects squander public money and deprive farmers of much needed water resources in the Philippines. In the final contribution to this section, Grit Martinez and Kathleen Shordt elaborate the role and responsibilities of donors in the fight against corruption in the water sector.

Water for food: corruption in irrigation systems

Frank R. Rijsberman[1]

Food for the world: why irrigation matters

The vast majority of the world's farmers still rely on rainfall to grow their crops. In some parts of the world almost all rain falls within such a short period of time that it is either impossible or very risky to try to farm on rainfall only. In large parts of South Asia's monsoon region, more than 90 per cent of the annual rainfall comes in less than 100 hours. The answer for millions of farmers over the millennia has been irrigation. Since pre-Roman times, communities in dry places from Iran to Morocco have built underground canal systems to channel water from the mountains to fertile, but dry, valley floors. Kings in Sri Lanka built ancient hydro-civilisations on cascades of small reservoirs or tanks.

Of all the water that humans take out of nature, some 70 per cent goes to irrigation – even more in countries with large irrigation sectors such as Australia, China, Egypt, India, Iran, Mexico, Turkey and Uzbekistan. Though only one-sixth of the world's farmed area is irrigated, these farms produce 40 per cent of the world's food. Food security fears have spawned massive investments in dams and irrigation canal systems in Asia, North America and Australia. While

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the world population more than tripled in the twentieth century, water use for human purposes grew sixfold, with the bulk of that water going to irrigation.

Irrigation, done well, is a critical factor in lifting poor farmers out of poverty.[2] Combined with high-yielding grain varieties and fertiliser, irrigation has also been key to preventing the famines predicted for Asia and pushing down world food prices to the lowest levels ever. Some of the world's most important cash crops, particularly cotton and sugar cane, also depend heavily on irrigation. But irrigation is not always done well.

- Farmers at the tail end of canals sometimes do not get their fair share of water because upstream farmers take out too much.
- Irrigation systems have been greatly delayed or built at grossly inflated costs.
- Often no more than 30–40 per cent of the water is actually used by the crops it was intended to help grow, the remainder leaking from canals, seeping into groundwater or running into drains.
- Silted-up canals, broken measuring devices and other problems require costly repairs.
- When farmers do not pay irrigation charges, systems do not have enough money for operation and maintenance.

The poor performance of irrigation systems has some major consequences. For the 70 per cent of all dollar-poor people who live in rural areas, agriculture is in most cases still the only way out of poverty. Not surprisingly, it is poor farmers, particularly those at the tail end of irrigation canals, who bear the brunt of irrigation failures. In addition, where irrigation systems have dominated government infrastructure investments in irrigation-dependent countries, poorly performing systems have an immediate impact on overall investment performance. And, as water scarcity is becoming a global crisis, the inefficient performance of the dominant water user – irrigation – is the gorilla in the room.

Assessing the risk of corruption in irrigation

In countries where agriculture matters most, overall control of corruption is judged to be particularly weak, presenting a challenging backdrop for tackling corruption in the sector.[3] Specific corruption risks in irrigation are driven by many factors.

- The availability of irrigation water depends directly on rainfall, and even in well-established irrigation systems this is uncertain by its very nature. Particularly in multi-reservoir systems with hydroelectric, irrigation and flood control functions, it is almost impossible for irrigators to assess water availability independently. Irrigation management agencies are not accustomed to sharing information that might make their systems more transparent to the user. With irrigation officials in firm control of information not accessible to irrigators, opportunities open up for rent-seeking and corruption.

2 I. Hussain, 'Pro-Poor Intervention Strategies in Irrigated Agriculture in Asia – Poverty in Irrigated Agriculture: Issues, Lessons, Options and Guidelines', Final Synthesis Report (Colombo: IWMI, 2005).

3 World Bank, *World Development Report 2008: Agriculture for Development* (Washington, DC: World Bank, 2007).

- Large irrigation systems require specialised maintenance, management and equipment negotiated through individual (one-off) contracts that are difficult to monitor and thereby susceptible to corruption.
- Large public subsidies for both construction and operation are generally provided to bureaucracies as budgets without a direct link to performance or output. This lack of accountability can foster corruption. As a solution, drought-prone Australia has begun 'benchmarking' irrigation system performance.[4]
- Irrigation as a profession is almost exclusively the domain of engineers, whether in system construction, management or research. Engineers tend to respond to low-performing systems with technical solutions. But addressing technical problems with purely technical solutions is unlikely to be successful if the corruption incentives of all stakeholders are not reduced. An irrigation engineer in South Asia once said that, because 'water management is 25 per cent water and 75 per cent people, you have to soothe people and you have not to displease politicians'.[5]

Forms of corruption in irrigation

A recent and promising approach to understanding corruption in irrigation is to look at it as the provision of a service that requires effective institutions and the alignment of stakeholder interests to function properly.[6] Addressing rent-seeking and corruption then becomes a matter of redesigning institutions in order to remove deficiencies and uncertainties in agreements among stakeholders while increasing transparency and incentives for compliance.

From such a perspective, the major entry points for corruption in surface or canal irrigation include the following.

(1) *Subsidy capture*. Public irrigation subsidies are usually justified on the grounds that irrigation supports national food security and farmers who are unable to pay market prices for water. For individual farmers or landowners, irrigation is attractive as long as their personal financial benefits outweigh the much lower subsidised costs they face. This leads to the temptation for farmers and their representatives and cronies to overestimate projected benefits, underestimate construction costs and lobby governments to pay for projects that do not necessarily deliver net benefits to society, but that deliver a major subsidy to landowners. Businesses that design, build and operate systems can also be tempted to

4 H. M. Malano and P. J. M. van Hofwegen, *Management of Irrigation and Drainage Systems: A Service Approach* (Rotterdam: Balkema Publishers, 1999).

5 R. Wade, 'The System of Administrative and Political Corruption: Canal Irrigation in South India', *Journal of Development Studies*, vol. 18, no. 3 (1982).

6 H. M. Malano and P. J. M. Hofwegen, 1999; J. Renger and B. Wolff, 'Rent Seeking in Irrigated Agriculture: Institutional Problem Areas in Operation and Maintenance', MAINTAIN Thematic Paper no. 9 (Eschborn: Deutsche Gesellschaft für Technische Zusammenarbeit [GTZ] 2000); W. Huppert *et al.*, 'Governing Maintenance Provision in Irrigation: A Guide to Institutionally Viable Maintenance Strategies', (Eschborn: GTZ, 2001); W. Huppert and B. Wolff, 'Principal–Agent Problems in Irrigation: Inviting Rentseeking and Corruption', *Quarterly Journal of International Agriculture*, vol. 41, no. 1/2 (2002). This last describes rent-seeking and corruption in irrigation as typical 'principal–agent' problems – as deficiencies in the contracts and agreements between the partners in an exchange relationship – that may well be in the interest of the most influential stakeholders in the system.

bribe key government officials. Policy capture is difficult to prove, but the existence of powerful, politically well-connected large-scale farmers who manage to secure the bulk of irrigation subsidies in many countries makes policy capture a plausible premise.[7]

(2) *Corruption in construction*. Procurement and tendering are particularly prone to corruption when products cannot be standardised, as is the case with constructing large-scale irrigation projects. Because every large dam is essentially a one-off product, cost estimates among competing contractors can vary greatly, offering the opportunity to include bribes in quotations with little risk of detection. As with all construction projects, corruption in irrigation can result in favoured contractors winning contracts, contractors not being held accountable for poor performance and inferior work, and contractors colluding to overcharge.[8]

(3) *Corruption in maintenance*. Though the amounts may be smaller and more standardised than new construction projects, irrigation maintenance tends to be much less stringently monitored. Some forms of maintenance, such as de-silting a canal, are extremely difficult to monitor, since the results can be literally 'under water'. So the corruption risks are in fact greater.[9] In addition, since maintenance funds are usually provided as part of an agency's annual budget cycle and are subject to the discretion of maintenance engineers, spending can be based on corruption opportunities rather than actual maintenance needs.

(4) *Corruption in operation*. Opportunities for corruption depend on how irrigation systems are organised. Irrigation researchers tend to recommend systems that have more opportunities for manipulations, in order to allocate water more precisely to where it is needed. At the same time, manipulation translates into corruption opportunities. Officials or ditch riders who operate gates can be bribed to open gates further or keep them open longer than intended. Systems with fixed structures can also be manipulated by widening ostensibly permanent outlets, though the 'evidence' of tampering remains visible to inspectors passing by. Some farmers may bribe officials in order to increase their water allocation. But they are also vulnerable to hold-up and extortion by the same officials, since they have a major stake in seeing the crop through. Water shortages caused by drought and other factors can motivate irrigation officials to extract side payments from farmers.

Fee collection is another entry point for corruption. When charges are based on the surface area irrigated, field-level officials can be tempted to charge for the full area but only record part of it in the official records. Because government records of irrigated areas tend not to be public, and the government does not have the capacity to audit collection officials on a large scale, such fraud can easily go undetected. And, when the government decides which areas can be irrigated through zoning processes, officials can be bribed to turn a blind eye to the illegal irrigation of land outside proper zones.[10]

Corruption is not confined to the field level. Enrichment from corruption can significantly boost incomes for local irrigation officials. Appointments to these lucrative jobs then become

7 See page 72.
8 H. Elshorst and D. O'Leary, 'Corruption in the Water Sector: Opportunities for Addressing a Pervasive Problem', presentation at World Water Week, Stockholm, August 2005.
9 R. Wade, 1982; W. Huppert *et al.*, 2001.
10 R. Wade, 1982.

coveted and themselves vulnerable to corruption. Higher-level officials sell jobs to the highest bidders, and appointees have little choice but to extract side payments from farmers in order to recoup their 'investments'. Patronage for irrigation jobs thereby perpetuates corruption and trickles up the administrative hierarchy.

Hidden harm: corruption in groundwater irrigation

In addition to the corruption risks associated with surface water and canal-based systems are those arising from groundwater irrigation. The private provision of well and groundwater irrigation has been fostered by the introduction of small, inexpensive diesel and electric water pumps, combined with subsidised electricity and diesel.

Since groundwater irrigation is financed largely by farmers and other private sector players, rather than the government, it tends to be underreported in government irrigation statistics. Regulation is also a great challenge, particularly in the case of India's estimated 20 million irrigation wells. And, while research on corruption in canal irrigation is scarce, even less has been published about corruption and rent-seeking in groundwater irrigation.[11]

To some extent, fuel and electricity subsidies to groundwater irrigators are comparable to construction and operation subsidies to canal irrigators. Strong farm lobbies react against any proposed changes in energy prices in irrigation-dependent countries, such as India.

Some argue that groundwater irrigation subsidies are more effective because water is delivered on demand and is fully under farmers' control.[12] The implications for equitable access and sustainability are grave, however. The groundwater irrigation boom is leading to rapidly falling groundwater levels and dwindling supplies for smaller farmers, who cannot compete in the pumping race. In Gujarat, India, groundwater levels in key aquifers have dropped from 10 metres to 150 metres below the surface within one generation. In many parts of India, China and Mexico, groundwater levels have dropped 20–40 metres.

As sustainability is put at risk, governments are attempting to regulate groundwater use by requiring a permit to drill a well. This opens up the risk that applicants can bribe officials. Sri Lanka and other countries have attempted to stimulate groundwater by subsidising 'agro-wells', large-diameter, brick- and concrete-lined wells that serve as both short-term storage reservoirs and groundwater extraction points. Even these practices are subject to corruption, however, depending on the design.

11 Exceptions are, for example, V. Narain, 'Towards a New Groundwater Institution for India', *Water Policy*, vol. 1, no. 3 (1998) and A. Prakash and V. Ballabh, 'A Win-some Lose-all Game! Social Differentiation and Politics of Groundwater Markets in North Gujarat', Institute of Rural Management, Anand, Working Paper no. 183, 2004.

12 T. Shah, 'Sustainable Groundwater Management', in M. Giordano *et al.* (eds.), *More Crop per Drop: Revisiting a Research Paradigm – Results and Synthesis of IWMI's Research 1996–2005* (London: International Water Association Publishing, 2006); T. Shah *et al.*, 'Sustaining Asia's Groundwater Boom: An Overview of Issues and Evidence', *Natural Resources Forum,* vol. 27, no. 2 (2003); T. Shah, *Groundwater Markets and Irrigation Development: Political Economy and Practical Policy* (Bombay: Oxford University Press, 1993).

In sum, less government involvement in the mainly privately organised and distributed system of groundwater irrigation means, on the surface at least, fewer opportunities for corruption than canal irrigation. The consequences of unchecked groundwater exploitation are grave, however, and regulation is largely absent because overtapping is almost impossible to police. Excessive groundwater use without consideration for sustainability and equity may not be corruption by the letter, but it is a failure of accountable water governance, with serious consequences for secure livelihoods and the environment.

What is the scale of corruption in irrigation?

Whether in the form of bribes, kickbacks, fraud, patronage or undue political influence, corruption in irrigation is a significant problem that disproportionately harms those without enough money or power to compete in this underground economy.

Irrigation subsidies: systematic policy capture

US 'pork barrel politics' for irrigation has been described as 'probably the best-known example of rent-seeking in the public expenditure domain'. Coalitions of farmers, their political representatives and the key irrigation agency, the US Bureau of Reclamation, have combined to expand the federal irrigation subsidy to cover 83 per cent of project costs. Moreover, while the subsidies were intended to support small, economically disadvantaged farmers, a study of eighteen projects showed that the largest 5 per cent of farmers (with 1,280 or more acres) collected a half of the subsidies, while the smallest 60 per cent (with 160 acres or less) received only 11 per cent.[13]

While much less has been written about this phenomenon in other countries, World Bank assessments of China, India, Bangladesh, Pakistan and Mexico show similar trends at work elsewhere. In Mexico the largest 20 per cent of farmers reap more than 70 per cent of irrigation subsidies.[14] In general, it is well documented that irrigation projects around the world recover only a fraction of their costs from farmers, frequently not even recovering operation and maintenance expenses, which are generally less than 10 per cent of the total investment,[15] and that a small number of powerful farmers benefit disproportionately.

Operations and maintenance: a common corruption tax

In the most detailed study on irrigation corruption to date, Robert Wade describes a comprehensive, well-entrenched system of corruption in South India's rice paddies, where irrigation officials *not* engaging in corrupt behaviour were the exception rather than the rule. Illicit payments generally assumed three forms. One is a flat rate of cash or grain paid to irrigation

13 R. Repetto, 'Skimming the Water: Rent-seeking and the Performance of Public Irrigation Systems', Research Report no. 4 (Washington, DC: World Resources Institute, 1986).

14 United Nations Development Programme (UNDP), *Human Development Report 2006. Beyond Scarcity: Power, Poverty and the Global Water Crisis* (New York: Palgrave Macmillan, 2006).

15 R. Repetto, 1986.

officials to ensure enough water for an entire growing season. The whole payment is made up front, with no chance for a rebate if crops fail due to lack of water. Payments are also made in return for more water in acute situations, for example when tail-end users run out of water at the end of the season. The third type is a 'gift' of grain after the harvest, which can be equal to three months' salary for an irrigation field staffer.[16]

Kickbacks and other forms of corruption were also documented in connection with obtaining jobs and favourable job transfers, awarding construction and rehabilitation contracts and obtaining out-of-zone irrigation. Informal but well-established rules determine how much is taken and who gets what. For each contract, for example, 8.5 per cent is kicked back to and shared by several officials. Collectively, all these payments funnel upwards through the political system to support political parties. In the process, the poor lose out to those who can afford bribes, disparities grow between top- and tail-enders, and production is discouraged by 'creating – often deliberately, to suit the interests of the corrupt – uncertainty about when, where and how much water will show up'.[17]

In Pakistan, similar research found that a quarter of the rural population is engaged in a hidden though well-known system of side payments to obtain irrigation water.[18] Here the corruption tax on farmers for obtaining more water than their entitlements was estimated at 2.5 per cent of their income per hectare.[19]

Construction: negotiating low quality

In addition to the minimum corruption tax on contracts, the system described in South India also includes 'savings on the ground' from contractors delivering fewer or lower-quality products and services than mandated by their contracts, and when engineers sign off on poor performance. Such haggling can bring the total rake-off to 25–50 per cent.[20] In India, the Comptroller and Auditor General estimated that, over a seven-year period, as much as 32 per cent of total payments in the state of Orissa under a programme to accelerate the completion

16 R. Wade, 1982.

17 M. Lipton. 'Approaches to Rural Poverty Alleviation in Developing Asia: Role of Water Resources', plenary address at the IWMI Regional Workshop and Policy Roundtable 'Pro-poor Intervention Strategies in Irrigated Agriculture in Asia', Colombo, August 2004; R. Wade, 1982. The system Wade describes for South India is still in effect: see P. P. Mollinga, 'On the Waterfront: Water Distribution, Technology and Agrarian Changes in a South Indian Canal Irrigation System' (Wageningen, Netherlands: Wageningen University, 1998). A similar system in Pakistan is described in M. U. Hassan, 'Maintenance in Pakistani Irrigation and Drainage Systems', MAINTAIN Country Paper no. 2 (Eschborn: GTZ, 1999). A detailed account of corruption in the water supply and sanitation sector in South Asia that confirms Wade's perspective in general terms is in J. Davis, 'Corruption in Public Service Delivery: Experience from South Asia's Water and Sanitation Sector', *World Development*, vol. 32, no. 1 (2004).

18 J.-D. Rinaudo, 'Corruption and Water Allocation: The Case of Public Irrigation in Pakistan', *Water Policy*, vol. 4, no. 5 (2002).

19 J.-P. Azam and J.-D. Rinaudo, 'Encroached Entitlements: Corruption and Appropriation of Irrigation Water in Southern Punjab (Pakistan)', Working Paper no. 252 (Toulouse: Institut d'Économie Industrielle, 2004); and see article starting on page 77.

20 R. Wade, 1982.

of irrigation projects should be characterised as excess or undue payments to contractors, as well as extra, unauthorised and wasteful expenditures. The audit stopped short of pointing the finger directly at corruption, however.[21]

Revenue fraud: massive underreporting

The size of the corruption gap in fee collection due to the underreporting of irrigated areas is difficult to assess, but indications suggest that it is enormous. When responsibility for irrigation management in the Indian state of Andra Pradesh moved from irrigation officials to groups of water users, the officially recorded irrigated area almost quadrupled from 1996 to 1998. Though improved management by users may have fuelled some of this rapid increase, the more likely explanation is that the area was already irrigated but omitted from revenue records by irrigation officials.[22]

Irrigation positions: large-scale enrichment attracts many greedy hands

Corruption gains from irrigation have been found to dwarf officials' above-board incomes. In Pakistan, they were estimated at five to eight times regular salaries, and in India up to ten times.[23] The prospect of such massive enrichments means that corruption did not stop there. In India, these lucrative posts were found to be traded on a well-entrenched market for job transfers. In this de facto trickle-up system, bribes are distributed to other officers and politicians with authority over transfers.

The bottom line is that corruption in irrigation is as rampant as it is elaborate, creating a large-scale shadow economy reaching up from the fields into the higher echelons of irrigation bureaucracies. And this corruption is not limited to South Asia. It has also been documented in Mexico[24] and Central Asia.[25]

The consequences: ineffective, inequitable irrigation

Though they can be seen as victims of corruption, farmers are often willing partners – as long as officials extract usual payments and live up to their (corrupt) promises. From this

21 H. Upadhyaya, 'Accelerated Corruption, a Trickle of Irrigation', *India Together*, 29 January 2005.
22 W. Huppert, 'Water Management in the "Moral Hazard Trap": The Example of Irrigation', presentation at World Water Week, Stockholm, August 2005.
23 R. Wade, 1982; J.-D. Rinaudo *et al.*, 'Distributing Water or Rents? Examples from a Public Irrigation System in Pakistan', *Canadian Journal of Development Studies*, vol. 21, no. 1 (2000).
24 W. H. Kloezen, 'Accounting for Water: Institutional Viability and Impacts of Market-oriented Irrigation Interventions in Central Mexico' (Wageningen, Netherlands: Wageningen University and Research, 2002); E. Rap, 'The Success of a Policy Model: Irrigation Management Transfer in Mexico' (Wageningen, Netherlands: Wageningen University and Research, 2004).
25 K. Wegerich, ' "Illicit" Water: Un-accounted, but Paid for. Observations on Rent-seeking as Causes of Drainage Floods in the Lower Amu Darya Basin', Irrigation and Water Engineering Group, (Wageningen, Netherlands: Wageningen University and Research, 2006).

perspective, the system of side payments could even be seen as a form of performance-based remuneration. And the economic impact of corruption on farmers in South India is relatively small, at about 5 per cent of their annual profit.[26]

Irrigation systems do suffer at the hands of corruption, however. Bribes are high when uncertainty is high. And, while irrigation departments are supposed to ensure reliable supply, opportunities to extract revenue increase when supplies are uncertain. Similarly, while maintenance engineers are supposed to ensure that canals are well maintained, the maximum revenue can be extracted from poor maintenance, as this necessitates frequent 'works' to restore performance – each presenting opportunities for side payments. Widespread corruption in construction to cover up low-quality work also contributes to poorly functioning irrigation systems and more uncertain water flows.

When irrigation water becomes scarce, corrupted allocation means that the last in line lose out. A system meant to distribute water equitably morphs into a water funnel for the rich, who can bribe their way to the front of the queue. Two case studies in Pakistan and India showed that small farmers at the tail end of irrigation systems received a fraction of the water flowing to their top-end counterparts. And small tail-end farmers in Pakistan reported that corruption and unaffordable legal costs prevented them from challenging illegal appropriations.[27]

Fixing the flow: what can be done

Fighting corruption in irrigation means strategically restructuring incentive systems rather than piecemeal, out-of-the box reforms.

For policy capture, remedies are tied to broader reforms of political participation and empowering marginalised groups to engage in the political process. The more widespread use of diagnostics that help expose inequities implicit in water subsidies may be a useful sector-specific contribution to this endeavour.

With regard to groundwater overuse, policing is next to impossible. But indirect measures, such as higher prices for electricity and fuel that power pumps, may shift the calculations of large users towards more responsible use while doing little harm to smaller users, who cannot afford large pumps in the first place. Such measures can be expected to be deeply unpopular, however, and hark back to the problem of policy capture, which also besets irrigation subsidies.

Tackling the webs of corruption in canal irrigation requires institutional reform. By far the most common solution to break the hold that irrigation engineers have over operation and maintenance has been transferring irrigation management from the government to groups of farmers, known as water user associations (WUAs). Known as irrigation management transfer (IMT) or participatory irrigation management (PIM), this strategy has gradually become conventional wisdom for World Bank projects that address irrigation system reform. Guidelines

26 R. Wade, 1982.
27 UNDP, 2006.

for the process have been established.[28] All the same, IMT and PIM do not usually address the issue of corruption directly, and few studies exist to demonstrate their impact.[29]

Establishing water user associations is considered a useful tool for addressing corruption.[30] Bundling small, marginalised voices into a collective, formally recognised user group is intended as a step towards empowerment and better protection against extortion and corruption.

Many challenges remain, however. First, corruption may move upstream from the negotiation between farmer and official to the relationship between user association and management agency.[31] Second, technical complexity often requires user associations to hire a skilled manager or engineer. This professional is then in a position to exploit this information advantage. Third, internal WUA governance standards are often low and performance criteria unclear, giving chairpersons discretion to abuse their position for personal gain. Finally, marginalised farmers are in danger of remaining marginalised participants in WUAs. In practice, a group of bundled farmers often contains one or more large farmers who naturally become chairpersons and office-holders, and who use the association to confirm their grip on power.[32]

A number of remedies can help address these problems.

- *Stronger internal governance*. Mandatory rules, including provisions for gender-sensitive participation and auditing procedures for associations, can ensure that farmers have some form of redress and control over association executives to stop corrupt practices.
- *Rotating tasks*. In traditional irrigation systems in the Andes, different management tasks are fulfilled by different age groups within the community. This ensures that, over time, everyone becomes familiar with all tasks in the system and prevents one person from gaining specialised knowledge, thereby preventing the asymmetrical information status that leads to corruption risks.[33]
- *Re-tendering outsourced services at regular intervals*. For irrigation systems that use private service provision, re-tendering every ten years provides some leverage to punish corrupt, low-quality work. Such a system is used in France, but private provision of irrigation services remains relatively rare on a global scale.
- *A transparency offensive*. This can help prevent corrupt practices and reduce various information inequalities that breed corruption. Related measures include strengthening

28 D. L. Vermillion and J. A. Sagardoy, 'Transfer of Irrigation Management Services: Guidelines', Irrigation and Drainage Paper no. 58 (Rome: Food and Agriculture Organization [FAO], 1999).

29 The example cited in W. Huppert, 2005, in Andra Pradesh is extremely interesting but cannot be extrapolated easily to larger scales.

30 K. W. Easter and Y. Liu, 'Cost Recovery and Water Pricing for Irrigation and Drainage Projects', Agriculture and Rural Development Discussion Paper no. 26 (Washington, DC: World Bank, 2004).

31 J.-D. Rinaudo, 2002.

32 B. van Koppen *et al*., 'Poverty Dimensions of Irrigation Management Transfer in Large-scale Canal Irrigation in Andra Pradesh and Gujarat, India', Research Report no. 61 (Colombo: IWMI, 2002); K. Wegerich, 'Why Blue Prints on Accountability of Water User Associations Do not Work: Illustrations from South Kazakhstan', presentation at fourth Asian Regional Conference and tenth International Seminar on Participatory Irrigation Management, Tehran, May 2007.

33 W. Huppert and K. Urban, 'Analysing Service Provision: Instruments for Development Cooperation Illustrated by Examples of Irrigation', Publication Series no. 263 (Eschborn: GTZ, 1998).

right-to-information provisions and mandatory disclosure of records related to construction, maintenance and management. Performance can be made transparent and comparable by establishing criteria for irrigation performance and publicly benchmarking different irrigation systems.

- *Social audits for collective oversight*. In Andhra Pradesh, the rural employment guarantee scheme of 2006 provides an auditing platform to collectively identify corruption in irrigation works. At a recent district-level meeting attended by more than 1,500 irrigation canal and other public works labourers, village-level social audits unearthed a steady stream of corrupt practices, including payments to deceased villagers, falsified payment lists and side payments to officials. The presiding official took corrective action on the spot and initiated formal inquiries.[34]
- *Standardisation*. Irrigation system design, equipment and services should be standardised to the greatest extent possible, in order to stimulate a market for irrigation products and services and to monitor value for money more easily.

For irrigation, the challenge of curbing corruption rests on the same pillars as in other sectors: increasing transparency, providing publicly available information, establishing stronger accountability for delivering irrigation water services and providing support for marginalised irrigation users to avail themselves of these instruments. A review of more than 300 irrigation projects in fifty countries underscores the fact that better performance requires maximum involvement by farmers in all stages of system development and management, from the beginning.[35]

The key stakeholder to kick-start reform is the government. Donor agencies can play a role by incorporating these recommendations in their projects, but their importance is relatively small, as the sector is dominated by national government investments and budgets.

34 Meeting attended by the author.

35 A. Inocencio *et al.*, 'Costs and Performance of Irrigation Projects: A Comparison of Sub-Saharan Africa and Other Developing Regions', Research Report no. 109 (Colombo: IWMI, 2007).

Power, bribery and fairness in Pakistan's canal irrigation systems

Jean-Daniel Rinaudo[1]

As in much of South Asia, the public canal irrigation systems in Pakistan distribute water to farmers through rationing procedures inherited from the British administration. Despite the efforts of government and international financial agencies, water resources development has not kept pace with the mounting demand caused by population growth and the water-intensive techniques promoted by the Green Revolution.

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In response to growing scarcity, more farmers are engaging in informal negotiations and extra-legal transactions with irrigation agency officials to obtain water beyond their legal quotas. Usually, a small group of farmers favourably located in the upper reaches of the irrigation system receive extra water at the expense of their downstream counterparts. The system of legal water quotas is generally no longer enforced.

Research conducted in southern and central Punjab between 1995 and 1999 reveals that farmers use political influence to win favour with irrigation officials.[2] Farmers ask local elected politicians to pressure irrigation staffers. In turn, politicians receive political support from these farmers to stay in office. And irrigation officials benefit from promotions and favourable posting.[3] In such a system, everyone wins, apart from the water losers.

Local case studies show about one-fourth of the region's rural population is engaged in this complex system of administrative and political corruption. In one area, a few large farmers were found taking water from nine outlets worth R3,300 (US$55) per hectare annually, while downstreamers spread across forty outlets were losing R600 (US$10) per hectare.[4] The rural elite are not the only beneficiaries of this system. Sharecroppers as well as small- and medium-sized capitalist farmers able to organise collective action also profit. Such arrangements are hardly clandestine. Payments and relationships, which link many types of farmers from different social circles, are common knowledge. Functioning for decades now, this interlocking incentive system is considered by many a well-established 'working rule'.

Equity, though, is often sacrificed. Farmers who take extra water generally use it for water-gulping crops such as rice, sugarcane and high-yield cotton. Meanwhile, downstreamers can hardly produce the minimum amount of staple food and cash crops needed to survive. Downstreamers become fourfold losers. They pay water fees whether or not they get water. They pay bribes to get their rightful quota. Their productivity suffers due to erratic water supplies. And they pay more to support the irrigation system than those who use their influence to avoid paying fees.[5] Corruption also undermines incentives to improve the system – for example, de-silting and reducing flow variability – as this would reduce the power of irrigation officials and influential farmers.

2 J.-D. Rinaudo *et al*., 'Distributing Water or Rents? Examples from a Public Irrigation System in Pakistan', *Canadian Journal of Development Studies*, vol. 21, no. 1 (2000); J.-D. Rinaudo, 'Corruption and Water Allocation: The Case of Public Irrigation in Pakistan', *Water Policy*, vol. 4, no. 5 (2002); D. Mustafa, 'To Each According to His Power? Participation, Access and Vulnerability in Irrigation and Flood Management in Pakistan', *Environment and Planning D: Society and Space*, vol. 20, no. 6 (2002).

3 Similar studies conducted in the Indian subcontinent describe the same dynamics. See R. Wade, 'The System of Administrative and Political Corruption: Canal Irrigation in South India', *Journal of Development Studies*, vol. 18, no. 3 (1982).

4 United Nations Development Programme (UNDP), *Human Development Report 2006. Beyond Scarcity: Power, Poverty and the Global Water Crisis* (New York: Palgrave Macmillan, 2006).

5 M. Ahmad, 'Water Pricing and Markets in the Near East: Policy Issues and Options', *Water Policy*, vol. 2, no. 3 (2000); J.-D. Rinaudo and Z. Tahir, 'The Political Economy of Institutional Reforms in Pakistan's Irrigation Sector', in P. Koundouri *et al*. (eds.), *The Economics of Water Management in Developing Countries* (Cheltenham: Edward Elgar, 2003); World Water Assessment Programme, United Nation's Educational, Scientific and Cultural Organization (UNESCO), *Water: A Shared Responsibility. The United Nations World Water Development Report no. 2* (New York: UN, 2006).

Reform will not come easily. Implementing top-down anti-corruption measures would probably be ineffective at restoring equity in canal irrigation systems. Pakistan set up a system of 'oversight' in the 1960s and 1970s, but this only created a new layer of officials to be bribed.

A better strategy would be to facilitate countervailing actions by those who would lose from perpetuating the corrupt system. For example, the transparency of hydraulic systems could be improved, enabling farmers to detect irregularities in water apportioning among distribution canals. Reliable data on discharge entering the main canal and its distribution canals would be collected and made available to all water users' federations through a 'control panel'.

In 2006 and 2007 the province of Punjab developed a computerised information system that records daily discharges, supplies related information to the public and allows the online registration of complaints.[6] The project was publicised through the mass media with slogans such as 'Computers are guarding water distributions'. Without the concerted involvement of civil society groups, however, this system will probably not lead to significant improvement, as suggested by the numerous complaints for water theft still formulated in 2007 on the Provincial Irrigation Department website.

6 See irrigation.punjab.gov.pk/introduction.aspx.

Questionable irrigation deals ignore plight of Filipino farmers

Sonny Africa[1]

In a country where hand tools, peasant brawn and water buffalo are still the norm, land inequities and traditional farming methods in the Philippines are keeping farm productivity and income low. A third of Filipinos work on farms and more than a half of the population live in rural areas. Yet, despite the economic and social importance of agriculture and rural life, nearly three-fourths of poor families live in rural areas and only 30 per cent of the country's farmland is irrigated.[2]

Hoping to deliver more water and prosperity to the nation's farmers and rural poor, the government's National Irrigation Administration (NIA) has embarked on major irrigation initiatives in recent years. One such effort is the massive Casecnan Multipurpose Irrigation and Power Project in the 'Rice Bowl' area of Nueva Ecija in Central Luzon. The project has two components: a P31 billion (US$675 million) build-operate-transfer hydroelectric dam and a

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2 National Statistics Office, '2000 Family Income and Expenditure Survey' (Republic of the Philippines: National Statistics Office: 2001); National Statistics Office, '2002 Scenario of the Agriculture Sector in the Philippines', Special Release no. 144, 15 March 2005.

P6.8 billion (US$152 million) irrigation system.[3] Construction of the dam began in 1995 and was completed in 2001, but the irrigation project is another story.

The project was designed to extend irrigation to 53,000 hectares of rice land and rehabilitate systems for an additional 55,100 hectares in the coming decades.[4] Originally scheduled to come online in 2004, the irrigation system is now scheduled for completion in December 2008.[5] As of June 2007 irrigation for only 62,000 hectares has been built or rehabilitated, and the NIA acknowledges that these areas might not necessarily have water yet.[6] Farmers report that canals have been built but remain unused.[7]

Beyond these problems are oddities with the public–private partnership itself. The NIA agreed to pay the contractor, a subsidiary of a US multinational corporation, a guaranteed fee for twenty years whether or not any water is actually delivered or any farmland is actually irrigated. The NIA paid P14.3 billion (US$318.5 million) from 2002 to 2006 for 3.6 billion cubic metres of water,[8] even though most of it never reached farmland because irrigation facilities from the dam had not been built. In order to make these payments, the NIA had to borrow money from the national Treasury.[9]

The project has been rife with anomalies from the outset. An initial government evaluation said the project was not financially viable and would not be able to deliver as much water as promised.[10] And the original agreement was not previously approved by the appropriate government agency.[11] Yet the project was pushed through in the 1990s by then President Fidel Ramos,[12] who reportedly was a close friend of an executive at the contractor's US mother company and a fellow West Point alumnus. Ramos has explicitly denied even knowing the man, however.[13]

3 NIA briefing kit on Casecnan Multipurpose Irrigation and Power Project, 31 March 2007.
4 Statement by former Secretary of Agriculture Roberto Sebastian before Senate Committees on Accountability of Public Officers and Investigations (Blue Ribbon) and on Energy, Fifth Joint Public Hearing, 23 May 2003; and from Department of Agriculture, Casecnan Multi-purpose Irrigation and Power Project details.
5 NIA briefing kit.
6 Cited in a letter dated 8 June 2007 from the officer-in-charge of the Casecnan Project in the NIA, in response to a 29 May 2007 request for implementation data; statement in a fact sheet on implementation status as of April 2007 provided by the assistant administrator for PDI of the NIA, in response to a 23 May 2007 request for implementation data.
7 Interview with author, 2 June 2007.
8 CE Casecnan Water and Energy Company, Inc., annual reports for the calendar years ended 31 December 2002 to 2006, FORM 10-K, Securities and Exchange Commission, Washington, DC.
9 Department of Budget and Management, income statements of the NIA in the Budget of Expenditures and Sources of Financing, various years.
10 Inter-agency Committee, Final Report, Annex on Casecnan Project.
11 The Republic Act 7718 or the Amended BOT Law was approved in May 1994 and its implementing rules and regulations took effect in August 1994. Nevertheless, while the Amended Casecnan Project Agreement between the NIA and CE Casecnan was executed on 13 November 1994, the NIA did not submit the project to the ICC until January 1995, and ICC, Cabinet Committee approval of the project in principle and subject to conditions was made only on 5 May 1995. (Chronology as reported to Senate Committees on Accountability of Public Officers and Investigations [Blue Ribbon] and on Energy, First Joint Public Hearing, 8 August 2002).
12 Reported to Senate Committees on Accountability of Public Officers and Investigations (Blue Ribbon) and on Energy, First Joint Public Hearing, 8 August 2002.
13 L. Rimban and S. Samonte-Pesayco, 'Trail of Power Mess Leads to Ramos', Philippine Center for Investigative Journalism, 5–8 August 2002.

If water ever begins flowing through canals and onto their rice fields, many small farmers in Nueva Ecija will be unaware that they are using some of the most expensive water in the country – subsidised by the national Treasury.

Though much smaller than Casecnan, an irrigation project in Talibon in the island province of Bohol is also drenched in controversy. Located 740 kilometres south-east of Nueva Ecija, the Talibon Small Reservoir Irrigation Project is at least delivering some water to farmers. But the 1,000-hectare project remains unfinished, despite an initial completion date of 1999.

Even after the provincial irrigation officer declared the project unviable, construction bids were solicited in 1995. Submitted by a private contractor, the lowest bid was disregarded allegedly because the firm was not qualified and due to lobbying by a local lawmaker.[14] The NIA's own Provincial Irrigation Office then took over the project itself.[15]

An investigative mission by a local anti-corruption group found that, although P165 million (US$2.9 million) had been spent by 2005, there was no sign of a reservoir, dam or an irrigation system.[16] The only progress was some excavations, a row of piping, a bridge-like structure, an office building and abandoned construction equipment. Another inquiry found prima facie evidence that NIA officials had committed construction infractions.[17] A new budget of P280 million (US$5.1 million) was proposed – more than double the private contractor's original low bid.[18]

Small farmers are losing in three ways. They contributed labour towards the construction. They 'voluntarily donated' land and relinquished plants – without compensation – to make way for canals and roads. And they still have not much irrigation to speak of. One farmer commented: 'The dam promised to us to help increase the productivity of our land became just a *damgo* [dream].'

Formal investigations have been launched into both projects. The Senate conducted an investigation about Casecnan in 2002 but its conclusions have not been released. An ombudsman filed a case against local NIA officials in connection with the Talibon project in 2004, but this remains stalled – as does a parliamentary investigation initiated in 2006.[19]

14 *Philippine Daily Inquirer*, 20 November 2004.
15 Letter request from Administrator Orlando V. Soriano of the NIA dated 8 January 1998.
16 Panabugkos Kontra K-4 (Panabugkos sa Katawhang Bol-Anon Kontra Kagutom, Kalisod, Korupsyon, Krisis), Investigative Mission Report, 8–9 February 2005.
17 NIA, memorandum dated 6 December 2004 for the NIA administrator from the NIA assistant administrator for project development and implementation on the 'Fact-finding Investigation Report Conducted for Alleged Anomalies in the Construction of Talibon DAM SRIP Project'.
18 Panabugkos Kontra K-4, 2005.
19 House of Representatives, 'Resolution Directing the Appropriate Committee of the House of Representatives to Conduct an Investigation, in Aid of Legislation, on the Reported Irregularities and Anomaly in the Construction of Talibon Small Reservoir Irrigation Project in Talibon, Bohol', House Resolution no. 584, First Regular Session, Thirteenth Congress, Republic of the Philippines.

Sealing water aid against corruption: donor interventions, donor responsibilities

Grit Martinez and Kathleen Shordt[1]

Over the past ten years the recognition of corruption as a major obstacle to development programming has led many donors – bilateral, multilateral and international organisations – to come up with a range of policies, codes and regulations in response to the problem. At the same time, governments and donors have committed themselves to many international agreements and principles, initially focusing on preventing corruption in specific transactions and donor-supported projects. New corruption-fighting strategies related to development assistance are embodied in several international conventions, including the Paris Declaration on Aid Effectiveness (2005), the OECD Principles for Donor Action in Anti-corruption (2006), the Asian Development Bank (ADB)/OECD Anti-corruption Initiative for Asia and the Pacific (2003) and the EU Anti-corruption Policy and Ten Principles for Candidate Countries (2005).

The Paris Declaration and the OECD Principles shift the paradigm away from donor-driven policies towards placing donors in a role that supports developing countries' own efforts to deal with corruption, while fostering a partnership of mutual accountability. These conventions give greater emphasis to the overall enabling environment of development, recognising that donors' practices and internal policies can stimulate or limit corruption within programmes and within countries more generally.

All this matters for corruption in the water sector. Between 2001 and 2005 donor commitments for water and sanitation alone doubled, reaching almost US$6 billion in 2005.[2] But the reach of donor policies and government agreements still does not extend to the lives of people. In part this results from a lack of sector specificity, in that generic corruption-fighting agreements and tools have not yet been tailored to the water sector's specific features or applied at a scale large enough to make a difference.

What are the next steps? Donors can strengthen their own commitment to accountability, build anti-corruption measures more systematically into their water sector programming and harmonise their activities to close loopholes for corruption.

Towards mutual accountability

More transparency is an important step to enhanced donor accountability. Many project-related documents are not made available in a timely and accessible manner to enable

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2 See OECD Development Co-operation Directorate, www.oecd.org/dac/stats.

effective input and oversight by civil society. Stronger sanctions against corrupt staff and contractors can also help. The World Bank has taken a leading role in debarment, levying sanctions against contractors in prestigious water projects, such as the Lesotho Highlands case.[3] Many donors have followed suit, but more coordination of investigation and debarment standards is required, as well as strict sanctions by all donors against their own employees when they are implicated in corrupt activities.

Internal incentive systems still distract from a focus on aid effectiveness, which is essential for accountable water aid. Within donor agencies, performance incentives are often not directly related to project outcomes but, rather, to the number of programmes or volume of funding they process. A commitment to mutual accountability as proclaimed by the Paris Declaration has yet to be put into practice. A progress report on the declaration lamented that by 2006 fewer than a half of the twenty-nine countries surveyed had implemented mechanisms for mutual assessment of progress, and it recommended that donors develop credible monitoring mechanisms.[4]

One promising approach for all donors is output-based aid. Unlike many forms of traditional assistance, output-based aid links payments to the delivery of specified services or outputs. It is being used, for example, to extend water service in Paraguay, where small-scale providers (*aguateros*) are connecting rural and small towns to networks with the help of residents themselves, and in Cambodia, where pilot projects in four towns have identified 3,000 of the poorest households for water service.[5]

Programming against corruption

Donors can use a variety of tools and strategies to tackle corruption in the typical cycle of the development of water services. These tools include transparency in tendering and procurement, audits, independent multi-stakeholder oversight, codes of conduct, anti-corruption agreements and staff training. To address the corruption risk of substandard execution, useful mechanisms include time-bound warranties in implementation and maintenance contracts, sustainability clauses that require partners to submit a monitoring protocol after project implementation, public fault reporting systems and functionality checks on service uptime and water quality.[6]

Coordination of activities to close down opportunities for corruption

In 2007 the European Commission, one of the top donors in the water sector, emphasised the urgent need for a more effective division of labour in development programming. As of 2007

3 See article starting on page 18.
4 OECD, '2006 Survey on Monitoring the Paris Declaration: Overview of the Results' (Paris: OECD, 2007).
5 World Bank, 'Output-based Aid: Supporting Infrastructure Delivery through Explicit and Performance-based Subsidies', Global Partnership on Output-Based Aid Working Paper no. 4 (Washington, DC: World Bank, 2005).
6 Grit Martinez, Kathleen Shordt and WIN, 'The Contribution of Netherlands' Development Assistance to Risk Assessment and Mitigation of Corruption in the Water, Sanitation and Hygiene (WASH) Sector', presentation at workshop for the Dutch Foreign Affairs Ministry, The Hague, February 2007.

recipient countries have to deal with an average of 350 donor missions per year.[7] And they often end up with more than 100 donor-installed parallel project implementation units that function outside their bureaucracies,[8] draining scarce management time and talent from the public sector and complicating the budgetary tracking of received funds. This all makes accountable management of aid flows more difficult.

Donor fragmentation also provides opportunities for 'donor arbitrage'. When donor commitments to anti-corruption programming vary, corrupt recipients can pick and choose the funds that provide the best opportunities for personal enrichment. This highlights the need not only to harmonise anti-corruption strategies within the donor community, but also to bring on board more strongly the new crop of increasingly influential donors, such as private foundations and bilateral donors from emerging economies such as China.

7 European Commission, 'EU Code of Conduct on Division of Labour in Development Policy', communication from the Commission to the Council and the European Parliament, COM (2007) 72 final, 2007.
8 OECD, 2007.