

WATER PRICING POLICY REFORM IN IRRIGATION: FROM THEORY TO PRACTICE AND LESSONS LEARNT FOR VIETNAM

Truong Duc Toan¹

Abstract: *Water pricing has been recognised as an important policy instrument to combat challenges in the water sector to obtain the overall efficiency as well as the sustainability of its related services. Setting the price 'right' of water in irrigation is crucial. Promoting and implementing water pricing reforms in irrigation is very necessary in the current context of Vietnam. This paper reviews insights from the literature on new institutional economics, neoclassical economics and political sciences to reason for policy changes. The paper implies crucial lessons for Vietnam in regard to reform of its irrigation water pricing policy.*

Keywords: Water pricing; Irrigation; New institutional economics; Public policy

1. INTRODUCTION

Water pricing has been recognised as an important policy instrument to combat challenges in the water sector to obtain the overall efficiency as well as the sustainability of its related services. In developed countries, the most concern recently is embedded with how to efficiently allocate and uses of the resource associated with the issues of ecological protection. In developing countries, the issues of cost recovery, efficient and sustainable use of the resource as well as environmental protection are more concerned. Emerged issues in the countries, especially in irrigation include the deterioration of water infrastructure, exhausted exploitation of water sources, and water environment pollution from water use activities. Setting the price of water and its related policies is considered crucial.

In Vietnam, an economy in transition, the water charge or water fee imposed to farmers for irrigation was set at very low rate. However, recently the enactment of Law on Irrigation and Drainage (2017) approved by the Vietnamese National Assembly and taken effect from July 2018, the concept of irrigation prices is applied instead of water fees. Nevertheless, the application of the law, especially pursuing the concept of full

cost recovery in practice faces many challenges. How to reform irrigation water pricing policy and its related policies from current state to ideal state in Vietnam is a question for research.

This paper discusses theoretical issues regarding institutional change and its performance then purposes to draw a way for irrigation water pricing policy reform in Vietnam.

2. THEORETICAL CONTRIBUTIONS TO POLICY CHANGE RESEARCH

The literature on institutions, institutional changes, and policy changes has provided an important foundation in understanding and analysing economic activities in the current world, including public policies. In the field of water resource management, it helps to understand then solve problems facing the water sector. Regarding the issue of water pricing reforms, especially in case of developing countries, it is more crucial. This section reviews insights from the area of new institutional economics, neoclassical economics and political sciences that are considered as fundamental issues in formulating reforms, including irrigation water pricing policy. The review aims to link with current situation of the irrigation sector in Vietnam.

2.1. New institutional economics

The emergence of the sub-discipline of new institutional economics (NIEs), has led to a new

¹ *Thuyloi University*

stream of thought in which economists consider economic activities, including public policy. The stream of thought focuses on surrounding the concept ‘institutions’ that are embedded with organising, operating and changing of human activities. Understanding the concept may help to clarify crucial issues facing water sector.

The concept of ‘institution’ has been widely discussed in the literature. North (1990) defines institutions as the ‘rules of the game’, consisting of both formal legal rules and informal social norms that govern individual behaviour and structure social interactions. North (1990) insists that institutions exist to reduce the uncertainties involved in human interaction. Specific institutional constraints can motivate economic agents to adopt a particular behaviour conforming to the constraints. As part of institutions, a policy is a plan of action of which it determines and guides decisions and actions. Policies can be understood as political, management, financial, and administrative mechanisms arranged to reach explicit goals. They are instituted in order to avoid negative effects that have been noticed, or to seek positive benefits. North (1990, p 110) argues that ‘Third world countries are poor because the institutional constraints define a set of payoffs to political/economic activities that do not encourage productive activity’.

Two main aspects in the NIEs that highly influence the efficiency of policies and policy changes include property rights and transaction costs. North (1986) contends that the consideration of transaction costs in combination with property rights is crucial to different kinds of public policy. In case of water sector, Bromley (2000) emphasises that water pricing and management reforms need to be involved with the issues of property regimes where water users, water suppliers and regulators are embedded. These issues are briefly discussed below.

Property rights

Land and water embedded with the land are two main factors that property rights may influence the development of the irrigated agriculture sector. The concept of property rights

defined by Commons (1968) is as an enforceable authority to undertake particular actions in a specific domain. Meanwhile, Challen (2000) considers property rights as ‘a subset of institutions concerned with regulating behaviour and social interactions with respect to objects of value’ and they determine the ‘rights and duties’ associated with ownership of an object. The rights lead to a reduction in the uncertainty of interactions between parties with respect to the ‘objects of value’.

Scholars in the field of institutional economics pay much attention to the importance of property right regime for economic development. North (1990) insists that insecure property rights result in technologies that employ little fixed capital, tend to be small-scale, and do not entail long term agreements. The role of property rights in economic activity has been clearly demonstrated by Shotton (2000). In particular, he analyses the relationship between property rights and the level of production, productivity and production growth in economies. It is indicated that a high level of production and productivity goes hand-in-hand with extensive, well-defined and well-enforced property rights. Otherwise, if property rights are poor or missing, the economic activity is severely depressed.

Transaction costs

Relating to policy design and policy changes, transaction costs have been importantly recognised by researchers and policy makers. McCann (2013) and Marshall (2013) share the definition that transaction costs are the costs of the resources used to (i) define, establish, maintain, use and change institutions and organisations, and (ii) define the problems that these institutions and organisations are intended to solve”. In terms of water pricing reform, Dinar and Saleth (2005) define that transaction costs include the costs of creating the legal, policy and organisation conditions for the operation of proposed pricing system as well as the costs incurred by time loss and political risks.

Since the seminal work of Williamson (1979), transaction costs have been playing an important

role in determining economic structures and their performance. The existence of transaction costs influences the structure of institutions, including policy and the choices individuals make. In the consideration of policy design and policy choice, transaction costs need to be taken into account to increase the efficiency and sustainability of policies (McCann, 2013, McCann et al., 2005). McCann (2013) emphasises that physical, biological, and technical factors also influence transaction costs and then the choice of policy instrument.

2.2. Political sciences

Political forces may play a key role in the process of policy making and policy choices. Srinivansan (2009) asserts that in most developing countries, politics often influence the continuance, distribution, geographic expansion and eventual termination of a policy. Meanwhile, Perry (2001) contends that in developing countries, agricultural sector is often politically sensitive, and sometimes even dominant. Pearce (2003) insists that since politicians intervene in water pricing, the upshot is rarely one of protecting the poor but of actually placing them at further disadvantages.

Some additional issues should be aware to the political economy of water pricing in developing countries, including the problems of rent-seeking and corruption. Since rent seeking involves behaviour by interest groups to attract economic rents from government intervention, relatively small interest groups can lobby government to achieve preferential policy treatment which cannot be occurred in a competitive market. Bezemer and Headey (2008, p. 1346) state that “wherever governments are involved in the economy there are dangers of rent seeking and corruption, and state interference has indeed often hindered rather than helped agricultural development”. Dinar (2000) emphasises that interest groups often try to influence the decision making process so that final result best serves their interests and powerful political groups may slow, divert, or even stop a desirable reform. Imposing institutional structure or policies which prevent the problem of rent seeking should promote economic efficiency and ease moral hazard problems.

Overwhelmingly, the economic literature shows many problems as a consequence of low prices for irrigation water and water related policies witnessed in irrigation in many countries, including Vietnam. Therefore, promoting and implementing policy reforms relating to water and its issues is crucial. Clearly identifying impediments as well as motivations to reforming policies is a prerequisite condition for solving problem.

3. KEY ‘BLOCKS’ AND ‘DRIVERS’ TO REFORMING WATER PRICES

In the context of the water sector in Vietnam, particularly in irrigation, promoting water pricing policy from current situation to one the price reflecting the cost and to the ideal situation confronts with major impediments. Some key ‘blocks’ are discussed below including the issues of land titles and incentives, water rights and management, and awareness and motivations on water uses.

3.1. Land titles and incentives

The review on some aspects of the NIEs has emphasised the importance of property rights to provide incentives to invest in to maximise the productivity of the land uses. In the current context, it includes both land for agricultural production and water embedded with the land. Property rights regarding land and irrigation water play an important role and shape the basic incentive structure for activities relating to land uses as well as for agricultural production. However, property regimes relating to land and water, and how property rights should be defined and implemented in practice in case of Vietnam are questionable.

In Vietnam, the Government enacted its first Land Law in 1993 and made major amendments in 2003 and 2013. But, many limitations are still to be clarified for changes to promote the development of agricultural production, for example, regulations on ownership and land accumulation for larger scale of production. The current Law on Land regulates that the land is belong to all people under the ownership representative by the state. Individuals have rights

to use the land based on use right certificates for different purposes. Time-limit of agricultural land of 50 years and with a possibility of renewal afterwards may not provide enough incentives for users to invest in land to increase the productivity of land use. Experiences from developed countries, such as the US, Australia, show that most farms are family-owned and invested through many generations. A long-life and secured property right to land is a necessary condition for households to invest in, including for irrigation. For this reason, private ownership or longer-term use rights of agricultural land is a very necessary condition.

From the NIEs, it is also clear that clear regulations on the assignment of transferable titles are important to create opportunities for transfer of the rights to larger scale of production as well as to most profitable uses of land. In addition, it needs to clarify with clear regulations of compensation mechanism regarding cases that the government withdraws the rights from its land users for other public purposes. All these issues are considered as important factors in promoting a market-driven management mechanism.

3.2. Institutional establishment for water resources

At present, as regulated in Law on Water Resources, water resource is under the united management by the State. At system level, including for irrigation, water is considered as common pool property. Water in different forms, surface or underground, and for different purposes such as domestic uses, irrigation, industrial uses, etc. are not entitled to any individuals. The allocation and distribution of water sources are responsible to government agencies, meanwhile, such form of management is often influenced by top-down distribution with non or little reflection from water users. This has limited the ability of quick responses from water use considerations and then reduced the efficiency of water resource allocation and uses. The problem becomes worsen when Vietnam is predicted facing with stress and severe water stress in the dry season in many basins by 2030 (2030 Water Resources Group, 2017).

Literature on water property right shows that with application of tradable water entitlements, the matter of allocation, social and environmental issues can be solved. In this context, Norton (2004) insists that the use of water right market not only brings the efficiency of water allocation better than command and control regime but also has its potential to achieve the best in terms of environmental protection. The application of water right system can also create opportunities for poor people and then help the people.

3.3. Awareness and motivations towards water uses

The concept of public and private good in irrigation in Vietnam has not been clear. In the past, agricultural land was in collectively property rights and farmers only worked on farm with agricultural production cooperatives. Since the form of collective production cooperatives was collapsed, farmers have their own rights to decide what they should do with their land. The fact indicated that the role of owners' decision making is crucial to increase the efficiency of agricultural production.

Creating legal basis for farmers to accumulate for agricultural land is important to expand the scale of production and encourage investment, including in technology and infrastructure. The small scale of agricultural production resulting from separated land use right allocation constrains the development of the agricultural sector, including irrigation. This is considered as one of current major issues leading to low economy of scale as well as creating high transaction costs in agricultural production.

Some reasons are explained for the fragment of agricultural land and a trend of movement of rural people to the urban areas given in Dang and Nguyen (2011), include: 1) the high density of rural population in associated with increased growth and weak absorption of employments from industrial/urban areas; 2) the level-off point of view of land with a slogan "every rural person has his piece of land for agricultural production"; 3) farmers do off-farm jobs but land becomes a property of risk insurance; 4) rural households do

not have ability of finance, skills, information and social relationship to accumulate land; 5) low profits from agricultural production do not attract private investors to accumulate land.

3.4. Key drivers to irrigation water pricing policy reforms

First, the recent economic growth pressure as well as government budget constraints in Vietnam have provided pressure to policy makers to consider possible changes to free production forces and pursue market-driven policies to push growth for the economy. A call for major changes in policy in many areas has been arisen. For example, the issues of more secure rights regime regulated in the land law, the requirement of higher effective operation of state management system in the area of resource management. On 10 June 2013, the Vietnamese government has issued Decision No. 899/TTg approving the Scheme on restructuring of the agricultural sector towards improving additional values and sustainable development. The decision emphasises that the State encourages and attract private investment in the agricultural sector and gradually moving from public services to private and social organised organisations.

Second, the Land Law (2013) provides greater incentive for households /investors to invest in irrigated agricultural production although an ownership regime would create the best economic incentives. In addition, the law also provides good signals for households or individuals to accumulate agricultural land for production to increase the economics of scale and then the productivity of land use.

Third, the Law on Irrigation and Drainage provides a new opportunity to the irrigation sector. Its breakthrough is the move from water fees policy to the mechanism of water service prices (Nguyen Trung Dung, 2017). The full recovery cost regime is the strongest political will that the government commits to pursue market-oriented approach in its economic development activities (Doan The Loi & Le Thu Phuong, 2019).

Fourth, the 2030 Water Resources Group (2017) shows an increasing demand for water uses

in Vietnam with a prediction of double consumption by 2030. It also indicates that the impact of climate change is causing unusual variations of the flow and water shortage is predicted to occur more seriously in many regions. To respond to these issues, reforms to the current irrigation water pricing policy are urgent.

Last but not least, the government has issued Decree No. 126/2017/ND-CP on the transfer of state-owned enterprises and limited liability one member companies with 100% of state capital into joint-stock companies. Although the process of privatising state-owned companies has been promoted and progressed for more than a decade, at this stage it shows stronger commitments of the government to push the work further. Full or part liquidation of Irrigation Management Companies (IMCs) is necessary to promote the application of pricing mechanism as regulated in relevant legal documents of the government.

In short, the discussions above show good signals for reforms in the water sector in spite of many challenges. In order to pursuit the opportunity, the process and the way that Vietnamese water sector needs to promote to reach an ideal state of its irrigation water pricing policy in the future.

4. PROCESSES AND THE WAY FORWARD

Some scholars in the field are skeptical about water reforms in developing countries and they suppose that an institutional reform or policy changes could induce high transaction cost and low pay off (Ballabh, 2008). However, experiences from the literature also show that some developing countries have been very successful in their water sector reforms and gains are remarkable, for example, in Chile (Hearne & Donoso, 2005). To achieve the success of irrigation water pricing reform in Vietnam, the following framework and its conditions are crucial.

4.1. Sequencing

In order to deploy the irrigation water pricing mechanism that reflects its cost in Vietnam, a number of key elements of sequencing framework for policy reform are suggested as follows.

1) Modify the status of IMCs. Privatisation of the current state-owned IMCs is necessary to create clear demand and supply relationships in the market for the sector. This is also suggested by the World Bank to Vietnam in its proposed strategy for the sector reform (World Bank, 2017). However, water infrastructure systems are with multi-purposes, of which, public proportion should be provided as the government's responsibility and water from the systems served for irrigation and other purposes needs to be clear as private goods.

2) Amend related laws and regulations to define clearer rights of resources such as land and water resources to ensure that investments in these areas should generate benefits to the investors. An enhancement or further extension of land rights would aim to strengthen agricultural investment with larger scales to increase the efficiency of irrigated agricultural production.

It is noted that the process of policy change may be complicated and costly. Many factors that influence the process, including characteristics of the water sector, need to be carefully taken into account. Supporting policies or packaging, in combination with the sequencing, are also crucial for success.

4.2. Packaging

Several key types of supporting policies in associated with the implementation of water pricing reform in irrigation are important, including:

1) Infrastructure investment policy: Current irrigation and drainage schemes need to be more invested to upgrade, repair, replace, and complete to ensure their designed capacity as well as to meet requirements of new management system. This process is to support to the transfer of irrigation infrastructure schemes to private organisations. Experiences from some countries show that many state-owned irrigation schemes became commercialised, after being transformed into government-owned corporations. In other cases irrigation assets were transferred to users to own and operate (Saleh & Dinar, 2004).

2) Policies relating to agricultural land: Land

policies that ensure to provide incentives are crucial to promote economic activities in the area. In this aspect, the government may need to have policies towards land possessiveness to reduce land speculation demands where land is not used for production. However, policies to encourage land accumulation for agricultural production are needed.

3) Financial policies: The government needs to provide priority and provides preferential treatments on taxes as well as other policies for private sector to join in irrigation management and operation activities.

The progress of water policy reform also requires the coordination of different stakeholders during the process of reform.

4.3. Promoting a market-oriented approach to water sector

Vietnam has been making its progress in market-oriented economic development. The government has had its plans and commitments to further promote such kind of approach to integrate with the trend of the world. However, markets in the irrigation sector are rare.

Markets in the water sector may need to be pursued to promote price mechanism. Institutional arrangements for water markets are often considered at high level of reforms. Create markets for exchange of both land and water with a clear-defined institutional framework for its operation as well as initial support policies and problems of cheating, infringements and violence of laws/rules need to be made clear to resolve. Market development for agricultural products also needs initial support for creating supply chains between farmers and supermarket systems in major cities.

To achieve an ideal state of irrigation water pricing policy, efficient markets are crucial. The experience from water markets from various countries show that there are critical conditions to fostering water markets and one is to legalise a water rights system for water reallocation to occur (Takahiro et al., 2018). In case of developing water markets as an approach to facilitate water price policy, assignment of tradable property

rights may increase the control of these groups over water resources.

5. CONCLUDING REMARKS

The paper reviewed and discussed some important aspects from the literature relating to policy changes with a reflection to the case of water pricing in irrigation. It is emphasised that the theoretical issues provide a clear foundation for making policy changes. However, the evolution or the process of the changes may require many necessary adjustments to achieve final objectives of the

policy. Dinar (2000) insists that the design of implementation of pricing reforms is a complicated process and theoretical foundation alone may not ensure the success of the reforms since various factors such as institutional settings, physical conditions, implementation approaches, and status of the reforms. Policy reforms in irrigation in Vietnam are expected to face many challenges relating to ideology, transaction costs, interest group behaviour, and path dependency, but gains from the changes will be worthwhile.

REFERENCES

- 2030 Water Resources Group (2017). *Viet Nam: Hydro-Economic Framework for Assessing Water Sector Challenges*. Report, 113 Pages.
- Ballabh, V (ed.) (2008). *Governance of Water: Institutional Alternatives and Political Economy*, SAGE Publications, New Delhi, India.
- Bezemer, D & Headey, D (2008). *'Agriculture, Development, and Urban Bias'*. World Development, vol. 36, no. 8, pp. 1342-1364.
- Bromley, DW (2000). *'Property Regimes and Pricing Regimes in Water Resource Management'*, in A Dinar (ed.), *The Political Economy of Water Pricing Reforms*. Oxford University Press, New York, pp. 29-48.
- Challen, R (2000). *Institutions, Transaction Costs and Environmental Policy: Institutional Reform for Water Resources*, Edward Elgar, Cheltenham.
- Commons, JR (1968). *Legal Foundations of Capitalism*, University of Wisconsin Press, Wisconsin.
- Dang, KS & Nguyen, DAT (2011). *Land Policy for Development in Vietnam: Opportunity or Challenge? (Vietnamese)*, Ipsard, Hanoi.
- Dinar, A (2000). *'The Political Economy of Water Pricing Reforms'*, in A Dinar (ed.), *The Political Economy of Water Pricing Reforms*. Oxford University Press, New York.
- Dinar, A & Saleth, RM (2005). *'Issues in Water Pricing Reforms: From Getting Correct Prices to Setting Appropriate Institutions'*, in H Folmer & T Tietenberg (eds), *The International Yearbook of Environmental and Resource Economics 2005/2006: A Survey of Current Issues*. Edward Elgar, Cheltenham, UK.
- Doan The Loi & Le Thu Phuong (2019). *'Scientific Basis on Pricing of Water Products and Services'*. Journal of Water Resources Science and Technology, vol. 59, no. (01/2019), pp. 8-23.
- Hearne, R & Donoso, G (2005). *'Water Institutional Reforms in Chile'*. Water Policy, vol. 7, no. 1, pp. 53-69.
- Marshall, GR (2013). *'Transaction Costs, Collective Action and Adaptation in Managing Complex Social-ecological Systems'*. Ecological Economics, vol. 88, pp. 185-194.
- McCann, L (2013). *'Transaction Costs and Environmental Policy Design'*. Ecological Economics, vol. 88, pp. 253-262.
- McCann, L, Colby, B, Easter, KW, Kasterine, A & Kuperan, KV (2005). *'Transaction Cost Measurement for Evaluating Environmental Policies'*. Ecological Economics, vol. 52, no. 4, pp. 527-542.

- Nguyen Trung Dung (2017). *'Pricing of Water Products and Services based on the Principle of Cost Recovery - Some Opinions toward Implementing the Law of Irrigation and Drainage'*. Journal of Water Resources and Environmental Engineering, vol. 52, no. (12/2017), pp. 17-25.
- North, DC (1986). *'The New Institutional Economics'*. Institutional and Theoretical Economics, vol. 142, no. 1, pp. 230-237.
- North, DC (1990). *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, Cambridge.
- Norton, RD (2004). *Agricultural Development Policy: Concepts and Experiences*, John Wiley & Sons, Chichester.
- Pearce, D (2003). *'Environmentally Harmful Subsidies: Barriers to Sustainable Development'*, in OECD (ed.), *Environmentally Harmful Subsidies: Policy Issues and Challenges*. OECD Publishing, Paris.
- Perry, C (2001). *'Water at any Price? Issues and Options in Charging for Irrigation Water'*. Irrigation and Drainage, vol. 50, no. 1, Mar, pp. 1-7.
- Saleth, RM & Dinar, A (2004). *The Institutional Economics of Water: A Cross-country Analysis of Institutions and Performance*, Edward Elgar, Cheltenham.
- Shotton, R 2000, *'Use of Property Rights in Fisheries Management'*, Proceedings of, Proceedings of the Fish Rights Conference. Fremantle, Western Australia, 11-19 November 1999.
- Srinivasan, S (2009). *'Subsidy Policy and the Enlargement of Choice'*. Renewable and Sustainable Energy Reviews, vol. 13, no. 9, pp. 2728-2733.
- Takahiro, E, Kaoru, K, Sayaka, Y & Shinjiro, K (2018). *'Are water markets globally applicable?'*. Environmental Research Letters, vol. 13, no. 3, p. 034032.
- Williamson, OE (1979). *'Transaction-cost Economics: The Governance of Contractual Relations'*. Law and Economics, vol. 22, no. 2, pp. 233-261.
- World Bank (2017). *Vietnam Irrigation and Drainage Sector Strategy: Proposed Strategy for Sector Reform*. The World Bank East Asia and Pacific Region. 164 pages.

Tóm tắt:

ĐỔI MỚI CHÍNH SÁCH GIÁ NƯỚC TƯỚI: TỪ LÝ LUẬN ĐẾN THỰC TIỄN VÀ BÀI HỌC KINH NGHIỆM CHO VIỆT NAM

Giá nước được xem là một công cụ chính sách quan trọng để giải quyết những thách thức trong ngành nước nhằm mang lại hiệu quả cũng như đảm bảo sự bền vững của các dịch vụ có liên quan. Thiết lập giá 'đúng' mang tính quyết định. Việc thúc đẩy và thực hiện đổi mới chính sách giá nước tưới trong bối cảnh hiện nay ở Việt Nam là rất cần thiết. Bài báo này tổng lược những kinh nghiệm trên thế giới trên các khía cạnh về kinh tế thể chế mới, kinh tế học tân cổ điển và khoa học chính trị để lập luận cho những thay đổi về chính sách. Bài báo hàm ý những bài học quan trọng cho Việt Nam trong quá trình đổi mới chính sách giá nước thuộc lĩnh vực thủy lợi.

Từ khóa: Xác lập giá nước; Tưới; Kinh tế thể chế mới; Chính sách công

Ngày nhận bài: 24/11/2020

Ngày chấp nhận đăng: 28/12/2020