

The Impact of Institutions on Resource Utilization in Rural Agriculture: The Experience of Sri Lanka

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Abstract

In the 60 years since the Second World War ended scholars, policy makers, and international development institutions have paid increasing attention to the complex relationship between institutions and economic performance in developing countries. As noted North (1990: 61), it takes resources to transform inputs of land, labor, and capital into the output of goods and services and that transformation is a function not only of the technology employed, but of institutions as well. In this respect, together with the technology employed, institutions affect the performance of agricultural activities by their effect on the transaction and transformation (production) costs that make up total costs. Therefore, in order to understand the causes of agricultural underperformance in developing countries, it is necessary to reexamine the role of institutions in agricultural development, their links, constraints and the effect of their changes. The present study attempts to examine the impact of selected formal and informal institutions on resource utilization, with special reference to land utilization and water resource management, in the rural agricultural sector in Sri Lanka.

I. Introduction

In the years since World War II, with the institutionalist movement continuing to be an important part of the development of economic thought, many researchers have emphasized that institutions play a significant role in agricultural development. For example, Ruttan (1975: 94) has clearly stated that:

"In the past, technical constraints on agricultural production have generally represented a more serious barrier to agricultural and rural development in poor countries than have institutional constraints. As some of the technical constraints have been removed, institutional constraints have emerged as increasingly significant barriers to the realization of higher levels of productivity in rural areas."

Together with the technology employed, institutions affect the performance of agricultural activities by their effect on the transaction and transformation (production) costs that make up total costs. The costliness of information is the key to the costs of transacting, which consist of the costs of measuring the valuable attributes of what is being exchanged and the costs of protecting rights and policing and enforcing agreements (North, 1990: 27). As neoclassical economists assumed, if information is perfect so that transaction through the

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market are costless and agency contracts between farmers and government agencies are faithfully enforced, the appropriate mix of market and state provide an adequate basis for the developing agricultural sector to alleviate rural poverty (Hayami & Godo, 2005:310). In developing countries, however, information is imperfect, and the degree of imperfection is comparatively larger in the rural agricultural sector, resulting in high transaction costs. According to theoretical arguments, institutions together with the technology employed determine those transaction costs. Moreover, it takes resources to transform inputs of land, labor, and capital into the output of goods and services and that transformation is a function not only of the technology employed, but of institutions as well. Therefore, it is assumed that total agricultural production not only depends on economic factors like capital, land, labor, and water but also the quality of both formal and informal institutions.

The term "institutions" means different things to different people. In a narrow interpretation, institutions can be thought of as the formal rules of the game that shape individual incentives and constraints. In a broader interpretation, institutions also include unwritten informal codes of conduct and constraints such as norms of behavior and conventions of a society. In this respect, institutions are generally classified into two major groups: formal and informal institutions. However, for this study institutions will be defined as "a set of formal and informal rules of conduct that facilitate coordination or govern relationships between individuals or groups". By adopting this definition, this study identifies *formal institutions* as the rules that are designed externally and imposed on society by an external authority (state) and *informal institutions* as the rules that evolve within a society mainly based on the needs of the society.

The performance of the agricultural sector in Sri Lanka in recent years has been quite unsatisfactory with the deceleration in the growth rate of agricultural output. Even though the non-agricultural sector in Sri Lanka has been recording an impressive performance, particularly since the end of internal war in May, 2009, there are apprehensions that a high growth rate in the non-agriculture sector alone would not help Sri Lanka to realize a high overall growth rate if agriculture continues to remain in a low growth trap. Despite substantial decline in the share of the agricultural sector in the economy's total output, the country has not witnessed similar decline in the share of population working in agriculture or dependent on agriculture for livelihood. During the sixty years since independence², the share of agriculture in the total workforce of the country has merely declined from 53 percent in 1950 to 33 percent in 2009. The most severe issue is that this 33 percent of labour force engaged in the agricultural sector contributed only 12 percent to GDP (Central Bank, 2010). This large and persistent gap between agriculture's share of GDP and employment suggests the poor of the country are largely concentrated in the rural agricultural sector.

The causes of this agricultural underperformance are complex and varied. The costs of production have been increasing while the levels of agricultural productivity lag behind the potential levels. High production costs and low productivity levels, in turn, have been caused by inadequate or/and inefficient formal institutions such as inappropriate policies, weak government administration etc. For example, a case study which was done in India by

² Sri Lanka got independence from British rulers in 1948.

Chopra and Duraiapph (2009; 268) found that badly designed land tenure reforms (inappropriate policies) caused many individuals or families to adopt unsustainable farming activities that inadvertently caused a further drop in their land productivity. The drop in land productivity in turn forced many of the poor farmers to lose access to the economic facilities they needed to improve their land quality and adopt sustainable management practices. Moreover, economists as well as other social scientists have realized that the behavior and transformation of formal institutions is also a function of informal institutional factors. For example, Southworth and Johnston (1967) notice that neither the technology nor the economics of industrial societies can be simply transferred to developing countries whose traditional cultures have been little touched by the ideas of modern sciences or of modern large scale economic organizations. Therefore, in order to overcome the obstacles facing rural farmers in developing countries, it is necessary to reexamine the role of institutions in agricultural development, their links, constraints and the effect of their changes.

In this respect, this paper mainly aims to examine the impact of selected formal and informal institutions on resource utilization, with special reference to land utilization and water resource management, in rural agricultural sector in Sri Lanka. First it attempts to explore the theories and empirical evidence concretely on the relations between institutions, transaction costs and resource utilization in the agricultural sector. Then the study focuses on some selected formal (agricultural development policies and government administration) and informal (community leadership, mutual trust, and farmers' attitudes) institutions, and their impact on the transaction costs of the resource utilization, mainly the land utilization and water resource management, in the study area.

II. Institutions, Transaction Cost, and Resource Utilization: An Overview of Theories and Evidence

Increasingly, economists as well as other social scientists have realized that economic theories cannot explain people's real world without paying considerable attention to the role of institutions under the situation of positive transaction costs. Thus, Institutional Economists have created a new approach to fill the gap between reality and conventional economics while explaining that any kind of human society depends on two sets of institutions, i.e. formal and informal. It is true that institutions were never totally excluded from consideration by classical or neoclassical economists. For example, institutions played a role in the work of "orthodox" theorists such as Adam Smith, J.S. Mill, and Alfred Marshall, though not a central one. However, in New Institutional Economic (NIE) literature³,

³ In institutional literature, significant differences have been identified between the **old institutional approach** associated with the names of Veblen and Commons and the **new approach** developed by institutional economists such as Ronald Coase, Oliver Williamson and Douglass North. Redek & Susjan (2005: 996) have found two major differences in these two approaches: the old institutional economics rejects the hypothesis of a rational economic player in favor of one that places economic behavior in its cultural context (see Neale 1987 and Hodgson 2000). For new institutionalists mankind is still a rational chooser, but more focus is given to the role of institutions. Economists have taken these two different approaches to understanding institutions as they attempt to understand which institutions are relevant for growth and development.

institutions are defined in a broader sense, linking various different measures of institutional quality to development outcomes from various angles and disciplines.

Veblen (1898: 376), the first social scientist who attempted to develop a theory of economic and institutional evolution stresses that "economics is a process and institutions do shape this process". It means institutions affect the behavior of economic agents and thus affect economic performance. Nabli and Nugent (1989, 1335) explain three types of characteristics which can be considered basic to the concept of an institution. The first characteristic is that it is important to consider configurations of rules rather than single rules separately. The second characteristic of institutions is their ability to govern the relations among individuals and groups. The third characteristic is their predictability. Pointing out the above characteristics, Nabli and Nugent define institutions as a set of constraints which governs the behavioral relations among individuals or groups. In this respect, agricultural development policies are institutions because they provide sets of rules and regulations which govern the relationship among all the individuals and groups that are mainly engaged in agricultural activities. Likewise, agricultural administration, be they at national level, provincial level, district level or grass-roots level, are institutions because they embody rules and regulations which govern their operation. Similarly, community leadership evolved within the society, mutual trust both among the members of the community and between members and nonmembers, and various types of farmers' attitudes which are governed by cultural rules and codes of conducts are institutions in so far as they, too, can constrain the relationships between different individuals and/or groups.

According to the institutional economics, real-world decision makers will always function inefficiently relative to the hypothetical decision makers of neoclassical theory. The argument of the major cause for this inefficiency is based on the idea that transactions are costly. Mainstream economic theory assumes that the direction of resources is dependent directly on the "price mechanism" and the normal economic system works itself being coordinated by the price mechanism. However, Coase (1937) in his "The Nature of the Firm" explained for the first time that there is a "cost of using the price mechanism" (*that is, transaction costs*) and the most obvious cost (transaction costs) is the cost of "organizing" production through the price mechanism. The ideas generated by Coase gave major impetus to the development of the concept of transaction costs in the field of the New Institutional Economics. However, with the development of the concept of transaction costs, many scholars tend to use this theory to explain a number of different human behaviors while explaining various types of transaction costs which can be obvious in day-to-day economic activities.

Many scholars and researchers have revealed that the category of transaction costs mainly includes those of information, bargaining and negotiation, monitoring/supervision, coordination, verification and certification, and the enforcing of contracts (Bardhan, 1989; Hobbs, 1997; Furubotn & Richter, 2000; Gabre-Madhin & Eleni, 2001; Badstue, 2004). However, institutional economics theory identifies the major cause for any type of the above transaction costs is the weak institutional environment. For example, if there is no trust (informal institution) between farmers and traders/buyers, it may be a major obstacle, particularly for farmers to obtain the correct information. As a result, farmers have to use time and resources to secure correct information or otherwise, lack of information and

information asymmetry leads to inefficient resource allocation for agricultural activities. According to Chiles & McMackin (1986: 88), when there is a high level of trust between two parties, contract costs are lower because it is not necessary to include all kinds of costly safeguards. In the agricultural sector, if there is a trustworthy relationship between farmers and wage-laborers, it is no longer necessary to check every time whether they are really doing what they promised to do (reduce the monitoring transaction costs). At the same time, in the process of enforcing the contracts, government can facilitate farmers to reduce the enforcing transaction costs any stage of the agricultural value chain. For example, if government legally protects the tenant farmers through proper land reform policies (formal institution), it supports reducing the enforcing of the transaction costs of the tenant farmers.

Moreover, an efficient community leadership, appointed by the government authority or by the community, can play a significant role in various ways in order to allocate the available scarce resources in an efficient way, while reducing the transaction costs of their community members through providing reliable information that may be related to input and output markers, government policies, or resource management decisions such as water resource management decisions, land utilization, and property rights. Furthermore, some scholars (Mojarradi, Zamani & Zarafshani, 2008; Lichtenberg & Zimmerman, 1999; Pratab & Ponnusami, 2006; Ngowi, 2003) found that there is a significant relationship between farmers' attitudes and agricultural activities such as use of pesticides, livestock farming, sustainable agriculture, land-use policy changes, agriculture-related environmental pollution and crop insurance. The intensity of these attitudes would vary depending on their operating environment (Ganpat & Bholasingh, 1999: 33). In brief, the presence of a favorable institutional environment can reduce any kind of transaction costs in the agricultural value chain, and it would help to get the optimal use of resource allocation and hence high productivity.

III. Methodology of the Study

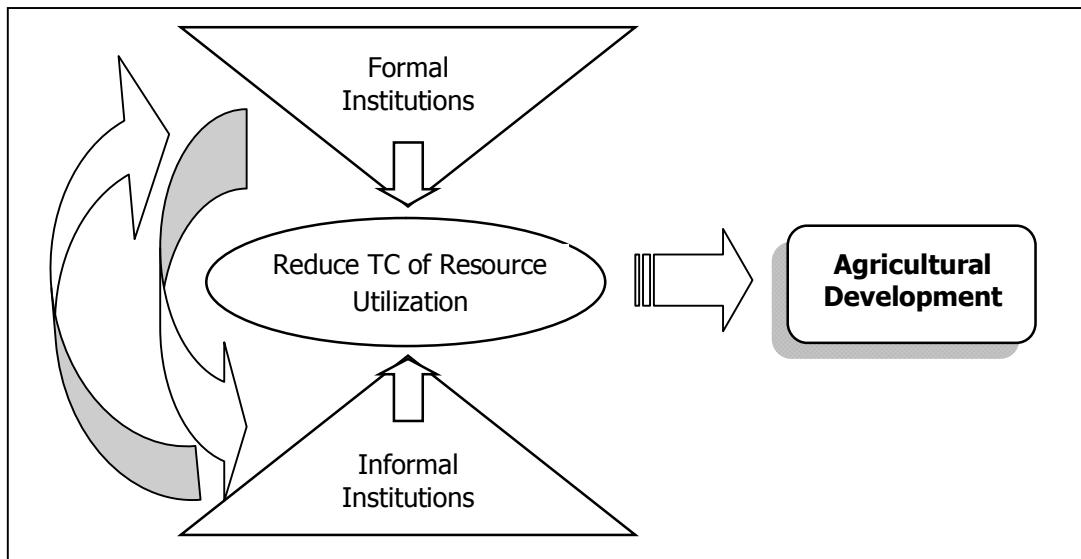
Conceptual Framework

This study has hypothesized that the agricultural development of the country can be achieved by focusing on the institutional outcome of the reduction of any kind of transaction costs that engage in the resource utilization of the agricultural value chain. Figure 1 demonstrates the structure of the model.

According to Figure 1, the final outcome of the conceptual framework, i.e. agricultural development, is considered to be the result of the behavior of individuals within both the formal and informal institutional context. The formal institutions are mainly formed by the government to intervene in its agricultural development activities while facilitating its top-down administrative activities. The informal institutions are identified as an intangible resource of the farmers' community itself which has an influence, directly or indirectly, on farmers' decisions of resource utilization. Although there are various formal and informal institutional factors which can influence the agricultural development in any country, this study mainly focuses on two main formal institutions, i.e. agricultural development policies and the administrative structure that is responsible for those policies implementation, and three main informal institutions: mutual trust, farmers' attitudes and community leadership.

In order to understand the possible role of both formal and informal institutions in agricultural development in any country, it is important to examine how these institutions can reduce the higher transaction costs (institutional outcome) that engage in the process of farmer decision making on the utilization of their scarce resources. If the above formal and informal institutions support positively reducing the higher transaction costs of resource utilization, the study assumes that it would help to get the optimum use of resources and hence high productivity. High productivity will increase farmers' income in the short-term and if it continues without fail, it would be possible to develop the agricultural sector in the long-term. However, this study is limited to analyzing the impact of institutions on land utilization and water resource management, and it will not attempt to discuss the short-term or long-term benefits of institutional outcome in detail. Furthermore, the study will not attempt to measure transaction costs directly.

Figure 1: Conceptual Framework



Data Collection:

The analysis of the hypothesis that was explained under the above conceptual framework is mainly based on the primary data collected from a field survey conducted in Sri Lanka during the period October to November 2011. For the field survey, three villages from different districts in Sri Lanka, namely Weewalawewa (Matale District), Welgala (Kurunegala District), and Maha Kekirawa (Anuradhapura District) were selected for the study area (see the appendix). In the survey, 1005 households were selected using random sampling for the interviews which represented the above three villages (Table 1).

Table 1: Size of the Sample

Name of the Village	Actual Number of Households	Coverage of Households in the Survey	Percentage of Coverage
1.Weewalawewa (Matale District)	495	338	68
2.Welgala (Kurunegala District)	327	264	81
3.Maha Kekirawa (Anuradhapura District)	534	403	75
Total	1356	1005	74

Source: GS Reports in each Village and Sample Survey

IV. Impact of Formal Institutions on the Transaction Cost of Resource Utilization: The Experience of the Study Area

(a) Land Policy, Policy Implementation and Transaction Cost of Land Utilization

Since independence in 1948, particularly after 1971, successive governments in Sri Lanka made some changes for land alienation policies introduced by the British colonial period while adding new land reform laws and regulations. However, issuing grants⁴ for the lands alienated under the Land Development Ordinance (LDO) of 1935 commenced in 1982 under the Land Development Act (amendment) of 1981. Land grants were variously titled 'Swarnaboomi' (1982-1994), 'Jayaboomi' (1995-2002), 'Isuruboomi' (2002-2004), and back to 'Jayaboomi' since 2005. It is important to note that though 'Swarnaboomi' grants were prepared with a survey map, 'Jayaboomi' grants were not. Moreover, land grant title was introduced in 1994 and was applied to both LDO based irrigated settlements as well as land alienated under the Land Reform Laws of 1972 and 1975. Furthermore, the Registration of Title Act No. 21 of 1998 was enacted with the objective of providing titles to land parcels. However, there have been numerous difficulties in implementing the legislation because of the absence of appropriate provisions towards conflict resolution during the process of land titling, denial of registration in case of co-ownership which is widely prevalent and culturally acceptable in the country, lack of clarity in handling subsequent transactions relating to lands for which titles are issued, absence of consensus on the issue of Second Class titles, etc. In addition, the Land Ownership Bill was suggested by the World Bank to give freehold titles to the allottees of the alienated state lands and this led to much controversy as some were of the view that it would create more negative impacts on the poor.

At present, however, roughly 1.4 million hectares of the 2.25 million hectares of agricultural land in the country are government owned, and out of those, approximately 1

⁴ Grant is a permanent document which confers tenure close to that of a freehold title subject to several conditions that transfers require prior permission, prohibition of fragmentation and subdivision, inheritance restrictions, etc.

million hectares have been distributed over the last seventy years for private household use through a series of land distribution programs (World Bank, 2008). Moreover, successive post-colonial governments attempted to solve the problems related to land utilization, particularly among the Second and Third generation through implementing various rules and regulations. However, the implementation of land distribution programs as well as land utilization rules and regulations are hampered by the fact that the administration and management of land in Sri Lanka is handled by more than 39 operational laws and a number of government institutions. At the national level, three Ministries⁵ and the Executive President have responsibilities regarding the subject of land and land development. The Ministry of Land and Land Development that has primary responsibility for land and land development, has three departments and two other divisions⁶ for the implementation of its policies. Moreover, nine Provincial Councils have posts of Provincial Land Commissioner for the implementation of Provincial Councils' responsibilities regarding land and land development. On the other hand, the responsibilities regarding the subject of land are implemented through Divisional Secretaries, Colonial Officers, and *Grama Niladaris* (Village Officers) who are officials of the Ministry of Home Affairs. Therefore, while implementing government land policies, the Divisional Secretaries have power to intervene in the land matters such as holding the *land Kachcheri*⁷, selecting suitable allottees and granting the land permits, recommending land for alienation etc. At the village level, the Colony Officer and *Grama Niladari* (Village Officer) are entrusted with the functions regarding the State lands under the supervision of the Divisional Secretary. However, many people criticize the current land administration system while critical of the lack of coordination among those institutions leading to overlapping of authority and contradictory decisions and policies. In other words these settlements are not traditional villages, but bureaucratically controlled entities. They in turn are a part and parcel of the highly centralized state. In this way the creation of a new peasantry is managed through a high degree of central control.

As witnessed by the data in Table 2, about two-thirds of the respondents in Weewalawewa, one-fifth in Maha Kekirawa, and one-fourth in Welgala utilize lands without a proper property right. Although almost all of them have applied for land deeds, farmers claimed that they have to face a long delay to get a permanent land title. Moreover, it could be observed from the field survey that some farmers in the study area have applied more than two times for a permanent land deed. Although the regulations for administration of the lands exist on paper, in reality, the bureaucratic process in the formal institutions on the ground is convoluted and haphazardly enforced, often lacking in transparency, and not well understood by either administrators, or permit holders and grantees. Furthermore, since

⁵ Ministry of Land & Land Development, Ministry of Public Administration & Home Affairs, and Ministry of Defense, Public Security, Law & Order (Department of Government Printing, 2007; Damayanthi & Nanayakkara, 2008: 76-77).

⁶ Department of Land Commissioner, Department of Land Settlement, Department of Survey General, Land Use Planning Division, and Institute of Surveying & Mapping (Department of Government Printing, 2007; Damayanthi & Nanayakkara, 2008: 76-77).

⁷ '*Land Kachchery*' means a meeting held in the prescribed manner for the purpose of alienating state land.

there are significant delays and transaction costs of approvals, people are forced to spend a lot of time dealing with particular officers and occasionally is subject to the pressure of bribes. Therefore, it is obvious that the inefficient function of the formal land institutions has increased the transaction costs of obtaining proper legal land rights.

Table 2: Distribution of Landed Property by the Availability of Property Rights in the Study Area

Availability of Property Rights	Percentage of Total Households		
	Weewalawewa	Welgala	Maha Kekirawa
With Deed	37.3	79.9	75.4
Without Deed	62.7	20.1	26.4
Total	100.0	100.0	100.0

Source: A sample survey conducted by the Author in 2011

Absence of secured land rights undermines prospects for agricultural development, as it reduces incentives for investments in improving their farm lands. Moreover, most of the farmers in the study area explained that if there is a proper legal document to prove the land ownership, such a document can be used as a security when they borrow money from formal financial sources like banks. Otherwise, farmers may have to find guarantors to apply for bank loans. Finding guarantors is an additional transaction cost for poor farmers, particularly because of the high level of uncertainty about the repayment capacity of agricultural loans. Moreover, when the transaction cost of finding guarantors is high, farmers tend to fulfill the required financial capital by borrowing money from the informal sources with high interest rates. If they cannot access either formal or informal credit sources, they may attempt to utilize resources in accordance with their own money. Therefore, the absence of secured land rights can affect underutilization of available land resources.

(b) Irrigation Policy, Policy Implementation and Transaction Cost of Water Resource Utilization

According to the survey findings, the majority of the farmers in the study area applied mainly major and minor irrigation sources to fulfill their water requirement for cultivation practices in *yala*⁸ 2011. Since Maha Kekirawa belongs to the Mahaweli-fed area, the majority of the farmers in this village use Mahaweli water for their cultivation practices. Moreover, it seems that the majority of the vegetable farmers in Weewalawewa and Welgala villages

⁸ In Sri Lanka, there are two major cultivation seasons associated with two monsoons and they are known as *maha* season and *yala* season. *Maha* season is the main season associated with North-east monsoons effective during September – April in the following year. *Yala* season is the secondary season which is associated with South-west monsoons effective during the period between May and September.

receive water from minor irrigations and agro wells. However, it is obvious from the data that the majority of the farmers in the study villages utilize irrigated water to cultivate either paddy or vegetables.

Traditionally, the farmers in Sri Lanka themselves have been fully responsible for water resource management and irrigation maintenance by applying conventional traditional rules and practices. The customary laws practiced in ancient times were revived by the British rulers and were given official recognition through the Irrigation Ordinance. However, since the expansion of irrigation facilities since political independence in 1948, government authorities, mainly the Department of Irrigation and Mahaweli Authority, became the responsible formal institutions for irrigation management and maintenance. Accordingly, major irrigation schemes in the study area are controlled by the above two institutions while minor schemes come under the Provincial Irrigation Departments (PIDs) and the Agrarian Development Centers. However, promoting farmer organizations, later governments introduced a new mechanism of maintenance incorporating traditional and modern forms of management practice.

Table 3: The Function of Irrigation Institutions on Water Resource Utilization

Function	As a % of Farmers who Utilized Irrigated Water		
	Weewalawewa	Welgala	Maha Kekirawa
(a) <u>Water Supply</u>			
1. Did you consult any person/government officer on water availability?			
<i>Yes</i>	59.3	76.6	86.1
<i>No</i>	40.7	23.4	13.9
(b) <u>Water Disputes</u>			
1. Do you have any problem regarding irrigated water?			
<i>Yes</i>	59.9	40.6	47.3
<i>No</i>	40.1	59.4	52.7
2. Have you consulted any person/government officials ?			
<i>Yes</i>	41.6	32.0	51.1
<i>No</i>	58.4	68.0	48.9
3. Whom did you consult?			
<i>Agricultural Research & Production Assistant</i>	45.0	57.8	30.7
<i>Irrigation/Mahaweli Officer</i>	25.2	20.6	54.7
<i>Grama Niladari</i>	9.8	7.0	4.0
<i>Water Master (Jalapalaka)</i>	20.0	14.6	10.6
4. How is the progress?			
<i>Good</i>	41.0	12.1	34.0
<i>Bad</i>	59.0	87.9	66.0

Source: Same as Table 2.

However, the data in Table 3 reveals a large number of farmers in non-Mahaweli fed villages (about 41 per cent in Weewalawewa village and about 23 per cent in Welgala) do not consult any government officer regarding water supply and management. Since the water requirement vary according to the type of crop, particularly in *yala* season, the

information on the availability of water in those reservoirs and the dates of water issues is vital for farmers when selecting the seed variety to be cultivated during the season. However, most of the farmers claimed that irrigation/Mahaweli officials/Water Masters change the dates of water issues in the cultivation calendar without any prior notice. Therefore, some farmers who cultivate vegetables in their paddy fields pump water using their water pumps and then, in the same day or in the next day, they got to know that water is issued. Moreover, some farmers said that they do not know the exact dates of water issues and they often visit the field to observe whether water is issued or not. This type of uncertainty between farmers and irrigation officials leads to additional transaction costs for farmers.

Traditionally the farming community in Sri Lanka had its own means for conflict resolution traditional authority or a forum of veteran farmers such as the *Gamsabhawa* (village court) who were able to resolve conflicts within the community. Although the government has proposed in the Agrarian Development Act, No. 46 of 2000 to establish one Agrarian Tribunal per administrative district, it has not been implemented yet. Increased government intervention has also resulted in diminishing the accepted norms and traditional leadership roles that regulate use of community resources like irrigated water. Although the government has made efforts to resuscitate the traditional system by allowing farmers to elect their own farmer representative like Water Master/*Jalapalaka* and Canal Leaders, the survey found (Table 3) that the majority of the farmers in the study villages consulted regional level government officials like the irrigation officer, Mahaweli officer and Agricultural Research & Production Assistant (APRA). It means that the traditional leadership roles are now being increasingly taken over by the lower rungs of the state bureaucracy, thus incorporating the village with the outside. Today the villagers have to take their conflicts to persons (like APRA, Irrigation officer/Mahaweli officer, *Grama Niladari*) and institutions (to which those officials belong) outside the community, as the latter has become opened to the outside through a process of incorporation into the national system. As a result, criminal offences for example are dealt with by the police located in urban centers while agricultural or irrigation-related conflicts are taken to district or divisional-level officers.

Since there is no authority with legal power within their own community have to visit the outside government authorities to find solutions for the disputes over water utilization, and it will be an additional transaction cost for peasant farmers. Even though farmers visit several times those formal institutions, the majority of the farmers claimed that officials do not take actions to solve the problem at the initial stage while letting the problem becomes more complicated. According to the survey findings (Table 3), more than 60 per cent of the farmers who had consulted the officials and visited their institutions said that they cannot be satisfied with the progress of those institutions. It seems that most of those officials are inefficient mainly due to the lack of their knowledge about the real problem in the field. Although a few officials visit the field once or twice, farmers said that such visits are not sufficient for them to understand the real problem. On the other hand, officials blame the farmers for not providing the correct information related to their water disputes. Moreover, it could be understood from the field survey that farmers who have a political relationship with regional level politicians influence government officials' work. However, the actions of politically powerful farmers and the absence of a trustworthy relationship between farmers

and irrigation officials will further increase farmers' transaction costs of obtaining irrigated water.

V. Impact of Informal Institutions on the Transaction Cost of Resource Utilization: The Experience of the Study Area

(a) Mutual Trust and the Transaction Cost of Tenant-Farming

The pattern of paddy land utilization in the study villages is characterized by complex systems varying from single ownership to multiple ownerships. Apart from the owner-farm system, *ande*⁹ (share-cropping), *badu* (renting), and *ukas*¹⁰ (the land mortgage system), the common land tenancy systems, are widespread practices in this area. This tenure system remains around one-thirds in the Weewalawewa and Maha Kekirawa. However it remains at a slightly low level in Welgala compared to the other two villages. Renting out land on *ande*, *badda*, or *ukas* often takes place due to financial difficulties within households or due to the non availability of family labor to work on the farm. In addition, some villagers who are engaged in non-farm work like government and private sector employees prefer to allow the land to be rented by farmers on an *ande* basis.

Table 4: Mutual Trust and Tenorial Pattern of Land Utilization

	Percentage of Total No. of Households		
	Weewalawewa	Welgala	Maha Kekirawa
<u>Tenorial Pattern</u>			
<i>Own Land</i>	69.5	87.8	68.7
<i>Taken on Ande/Badda/Ukas</i>	23.1	8.4	24.1
<i>Given on Ande/Badda/Ukas</i>	7.4	3.8	7.2
<u>Any written agreement with land lender/borrower</u>			
<i>Yes</i>	20.6	16.1	8.1
<i>No</i>	79.4	83.9	91.9
<u>Any problem with land lender/borrower</u>			
<i>Yes</i>	12.7	22.6	10.6
<i>No</i>	87.3	77.6	89.4

Source: Same as Table 2.

Under any of the above tenancy systems, the availability of land for farming and security of tenure are mainly dependent on the **trustworthy relationship** between landlord and tenant. In selecting a tenant, the landlord usually gives priority to his blood relatives as well

⁹ Ownership is recognized as *ande* when the operator cultivates a holding owned by another party subject to the conditions agreed upon mutually between the operator and the land owner. At present, the owner has a right to obtain 1/4 of the harvest, and the tenant has to bear all the expenses of cultivation.

¹⁰ *Ukas* is the Sri Lankan term for mortgage. Under this system, the person to whom property is mortgaged can enjoy the benefit of the land until the mortgagor releases his land.

as to close friends who assist in his agricultural and non-agricultural activities. For example, when the land is rented out to other farmers on an *ande* basis, Land owners are not ready to lend their lands to any one without mutual understanding of the tenant, because they are always very keen on the possibility of collecting the owner's share from the tenant. In principle, the tenant's rights mainly depend on the nature of the trustworthy relationship between him and the land owner. As shown in Table 4, most tenant-farming agreements in the village community are basically based on word of mouth rather than on written documents. Even though they do not keep a written agreement, the data reveal that the majority of the farmers in the study area have not faced any problems with their land partner. Therefore, the success of this system highly depends on the mutual trust between the land owner and the tenant, and such practices are important in reducing the transaction costs of both parties engaged in tenant-farming. However, it is also important to note that formal institutions related to the present land-tenure system do not function sufficiently to protect the landlord-tenant relationship. It means that the present system helps the landlord rather than tenant farmer. This is mainly because tenants are not much interested in following the government Land Act introduced in 1958 to protect tenant's rights. This means that the landlord can change land share as well as land tenure according to his own benefit. This negatively affects the certainty of the tenants' future.

Moreover, according to the land rules and regulations, the land allottees, particularly in Mahaweli area in Maha Kekirawa villages, cannot partition their irrigated paddy fields. They can nominate only one heir to whom the ownership of the irrigated land can be transferred. Therefore, legally partitioned land lots cannot be seen in the area but the lots are "informally fragmented" for cultivation. Therefore, trust between the inheritor and the other children of the 2nd and 3rd generation is very important since they have to cultivate the shared land without legal right.

(b) Mutual Trust, Community Leadership, and Farmers' Attitude towards Water Resource Management

Saving of water and its efficient use has been an important objective of irrigation water management in Sri Lanka. Although water is fundamentally a scarce resource particularly in *yala* season in Sri Lanka, its supply can be, in effect, expanded if it is used more efficiently with less loss of water into drainage canals. In this respect, the powerful Farmer Organization (FO) can reduce losses as well as various types of transaction costs engaged in water resource management activities through cooperative actions among their members in order to get more water to their field. It could be observed from the field survey that water management activities function in Maha Kekirawa village which belongs to the Mahaweli H-fed area better than in the other two non-Mahaweli villages. Even though there had been two farmer organizations in Maha Kekirawa village until the end of the 1990s, one farmer organization for each distributor canal was established by the MASL mainly in order to implement the Bulk Water Allocation (BWA) system. Under the BWA system, the quantity of water to be issued for a particular distributor canal and consequently for a particular user for the cultivation practices in a given season is fixed before commencement of the season. Water measuring devices have been fixed at key points in the canals and Water Masters

have been appointed for each Distributary Canal Farmer Organization (DCFO). Therefore, once the water is released to the sub-canals, the farmer organizations including the Water Master, the Canal Leader and all the water users in each canal have the responsibility to allocate the available water. The available supply was rotated in turn among all eligible water users, rather than being distributed simultaneously to everyone in small amounts. With a single, faster-flowing stream of water going to each field in turn, there was much less loss of water than if many smaller, slower flows were diffused through the command area. The BWA system has also freed up farmers' time because otherwise they had to remain almost continuously in their fields, spreading their meager supply of water and guarding it against theft by others. Before then, during the intermittent and irregular periods of water distribution, they had to spend nights in their fields to ensure that they received the fractional share that they were entitled to (or to appropriate water from others less vigilant than themselves). Therefore, one of the benefits that farmers in the Maha Kekirawa village first reported from being cooperative in a farmers' network that was established under the BWA system was that they can spend their nights at home. In brief, farmer organizations in each distributor canal are seen as making water users' participation in water management activities more effective than if farmers were to attempt such activities on an individual basis.

Table 5: Farmers' Attitude towards Water Resource Management

Type of Attitude	Percentage of Farmers who Utilized Irrigated Water		
	Weewala wewa	Welgala	Maha Kekirawa
(a) <u>Farmers' views on the establishment of FOs for water management</u>			
<i>Success</i>	53.8	52.2	69.1
<i>Not much success</i>	31.3	39.9	24.7
<i>Not success at all</i>	10.8	5.9	4.3
<i>No idea</i>	4.1	2.0	1.9
(b) <u>Farmers' knowledge on funding sources for free water</u>			
<i>Government</i>	48.8	55.8	49.1
<i>People's tax money</i>	22.1	39.9	46.6
<i>Foreign Aid</i>	1.2	-	1.6
<i>No Idea</i>	27.9	4.3	2.7
(c) <u>Farmers' attitude towards charges</u>			
<i>Water should be free of charge</i>	64.2	58.9	69.7
<i>Reasonable charge is OK</i>	27.9	31.2	25.2
<i>No idea</i>	6.9	9.9	5.1
(d) <u>Who will be finally affected by the free irrigated water policy</u>			
<i>Government</i>	15.0	25.3	29.8
<i>All people</i>	30.4	23.3	30.8
<i>Farmers</i>	33.3	35.6	23.6
<i>No idea</i>	21.3	15.8	15.8

Source: Same as Table 2.

However, it is also important to note that the success of farmers' cooperation in water resource management is highly dependent on the characteristics of the Water Masters, Canal Leaders and the trustworthy relationship among the farmers and between local leaders and farmers. Although the MASL introduced the same water management strategy to all the distributary canals in Maha Kekirawa village, it could be observed from the survey that water management activities in some canals are still inefficient mainly due to the informal institutional barriers such as inefficiency of the community leaders, lack of trust among the farmers and between leaders and farmers, and farmers' negative attitude towards cooperative behavior. Moreover, following the same concept introduced by MASL, Distributary Canal Farmer Organizations (DCFOs) have been established even in Weewalawewa and Welgala villages which belong to the non-Mahaweli area. However, none of the DCFOs in those villages was involved in bulk water allocation activities at the time of the field survey. It was revealed from the field survey that there is a canal leader for each distributary canal like in Maha Kekirawa village, but there is only one Water Master for the whole village to manage the delivery of water in the main canal. However, regarding water resource management, it could be observed that the majority of the farmers in Weewalawewa and Welgala villages still prefer to use the available scarce water on an individual basis rather than it being distributed under any kind of rotational system. It is important to note that participation by individuals in local networks makes it easier for any group to reach collective decisions and implement collective action. However, still, it is unable to get the maximum farmer participation and contribution for meetings and other related activities organized by their canal farmer organizations. The farmers' judgment on the government policy of establishing FOs for water management remains that the function of the FOs is not as great a success as the government expected. The following three factors have been identified as major consequences of this problem: first, the present FOs have been created by the government authorities in order to implement government policies giving less attention to farmers' voice and their traditional leadership; second, Absence of cohesion among the leaders/office bearers of the FOs; and third, Political influences.

It was also observed from the survey that the majority of the farmers think that irrigated water is a non-economic good and hence they may believe that it is not necessary to have a collective action to manage the available water resources. According to Table 5, though 40 per cent of the farmers in Welgala and 47 per cent in Maha Kekirawa said that people's tax money is used for the provision of irrigated water, the general view of nearly half of the farmers in the study area reveals that the government bears the costs of irrigated water. It is also important to note that about 28 per cent of the farmers in Weewalawewa have no idea about the funding source for the free supply of irrigated water. It means that the government authorities have not educated these farmers regarding the costs of irrigated water. Hence the majority of the farmers still believe that water must remain as a non-economic good and, therefore, their attitudes toward the irrigated water is that it should be free of charge. The main reason not only for the less attention of the farmers on water resource management but also their negative attitudes towards charging for irrigated water can be viewed as their poor knowledge about the ultimate results of such welfare policies. Moreover, the lack of trust among farmers, between farmers and leaders of the DCFOs, and

between farmers and grassroots level government officials also can be viewed as one of the main barriers for farmers' collective action.

VI. Concluding Remarks

The most of the scholars who studied on agricultural sector in developing countries have embraced and discarded a number of different explanations for agricultural underdevelopment. Many of these studies emphasized similar causes for stagnation of the agricultural sector in these countries. However, institutionalists generally conduct analysis quite different from those normally undertaken by mainstream economists while considering a much broader and deeper set of variables. The core idea of institutional economics is that institutions matter for economic performance. As emphasized North (1990: 61), it takes resources to transform inputs of land, labor, and capital into the output of goods and services and that transformation is a function not only of the technology employed, but of institutions as well. Therefore, in order to overcome the obstacles facing rural farmers in developing countries, it is necessary to reexamine the role of institutions in the agricultural development, their links, constraints and the effect of their changes.

The study has found that many farmers in the survey villages had to bear various types of transaction costs as an additional cost to the total production cost in the process of their resource utilization mainly due to the absence of favorable support from their formal and informal institutions. For example, though government land policy, rules and regulations exist on paper, in reality, the bureaucratic process on the ground has a long delay while increasing the transaction costs of obtaining proper legal land rights. The absence of secured land rights has also added an additional transaction cost of finding guarantors when farmers borrow money from formal financial sources. Moreover, the success of the land tenure system is also highly dependent on the trustworthy relationship between land-owners and tenant farmers since most of them rely on verbal agreements.

Since independence with the expansion of irrigation facilities, the traditional community leadership roles that regulate use of community resources like irrigated water are now being increasingly taken over by the lower rungs of the state bureaucracy, thus incorporating the village with the outside. Such institutional changes have caused farmers to take their disputes over water utilization to persons and institutions outside the community and it will be an additional transaction cost for rural farmers. Moreover, it was identified from the survey that most farmers consider irrigated water as a free good, such a negative attitude towards irrigated water has led farmers to think that water resource management is not their responsibility. Even though the concept of bulk water allocation introduced by the formal institutional structure in Mahaweli area in Maha Kekirawa has favorably supported efficient water resource management, to some extent, with the cooperative behavior of the sub-canal farmers, the expected results have been limited by some informal institutional barriers like farmers' negative attitude towards water resource management and the absence of a trustworthy relationship among the parties involved in water resource management. It was also observed that though several attempts had been made in non-Mahaweli villages to follow up the same bulk water allocation system or similar strategy, the system still does not work properly in those villages mainly due to not only the lack of

favorable support from their formal institutional structure but also the unfavorable support from their informal institutional factors.

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Appendix: Map of the Study Area in Sri Lanka

