

HISTORICAL EVALUATION OF AGRICULTURE SETTLEMENT SCHEMES IN SRI LANKA: DEVELOPMENT LESSONS

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1. INTRODUCTION

Agriculture Settlement Schemes have been the main agriculture development program implemented in the dry zone of Sri Lanka since the 1930s. Key objectives of settling people in the dry zone of the country under the Settlement Schemes at the early stage were to enhance country's food production, address the issue of land scarcity due to the high population pressure in the wet zone, eliminate the land issue among the poorest of the poor, protect peasant farmers, generate employment opportunities using unused land resource-based in the dry zone, resolve the potentially serious political problems resulting from the existing agrarian structure, upgrade the gross national product and accelerate economic growth (Farmer, 1952; Farmer, 1956; Dunham, 1982). Later, the added objectives to the settlement schemes were the generation of hydropower, promotion of industrial based, agro-based industries in particular, and promotion of export crops (Chandrasiri, 2010). The contribution of the Agricultural Settlement Schemes to the national economy is massive and could be viewed in different forms. According to the Department of Land Commissioner (2006), 1,166,762 people had been settled among various types of settlement schemes allocating 2,042,336 acres by 2006. As a result, the country was able to increase the paddy production from 604 mt in 1952 to 3,341 mt in 2006 contributing to strengthen the country's food security status (Department of Census and Statistical Department, 2014). By the 1970s, 35% of total paddy production was produced in the major irrigation schemes. Further, the settlement schemes had provided livelihood opportunities for a large number of land hunger families, particularly in the wet zone.

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The concept of agriculture settlement schemes in the dry zone of the country was first emerged during the colonial period, particularly due to food security requirement emerged after the World War I. The British recognized the importance of establishing the food security status of the country in order to support for the smooth functioning of the colonial activities of the country. Moreover, the increased population in the wet zone made pressure on the per capita food availability in the country and existing land in the wet zone. It made colonial attention over domestic agriculture in addition to plantation agriculture. Specifically, under the Crown Land Ordinance of 1840, the crown was given the authority to acquire any unused land and to grant, sell or lease such land to individuals or institutions (Law & Society Trust, 2015; Jayawardane, 1990). It led to rise of plantation economy in the wet zone limiting the land availability to local inhabitants. According to Madduma-Bandara (1990), the Crown Land Ordinance of 1840 led to convert 90% of total land extent of the country to Crown property. This later led for high population pressure over land increasing the number of land hunger people in the Wet Zone. In a colonial point of view, increased number of land hunger people in the wet zone can be viewed as a threat for colonial plantation agriculture sector centred in the wet zone. Thus, provision of settlement opportunities for land hunger people in the wet zone was recognized as a measure to address predicted threat to the colonial based plantation sector. On the other hand, since the decline of Polonnaruwa Kingdom, civilization was shifted respectively from Rajarata region to the South—West and Central parts of the country over the centuries beginning from the 13th century to the 18th century (Siriweera, 2001). As a result, the dry zone particularly the Rajarata region became a sparsely populated zone. Specifically, since the 15th century, the economy was being transformed into a Western demand-led agriculture product supply management system (Irangani & Prasanna, 2017). During the British colonial period, agriculture in the dry zone was largely neglected as their primary attention was to promote plantation agriculture.

The first agriculture colonization scheme of the country was established in Kalawewa under direct government intervention as an experimental project in 1891/92 and 26 families in Jaffna district were settled. The program did not materialize its expected outcomes due to the spread of diseases among the settlers and the poor desire of the settlers to cultivate. The Settlement Schemes that were established during the period of 1930s to 1980s contributed immensely to national economic development with quite inspiring experiences, but have done mistakes at different stages of the settlement schemes that the scholars should deeply study to provide development experience-based guidance to settlement planning in the agriculture regions of the country and developing nations at large (Zubair, 2005). These mistakes specifically relate to the settlement planning, administrative structures, land development ordinances, economies of scale and economic returns, etc. and as a result, a series of issues

emerged and persistently continued in these schemes. Informal land fragmentation, agrarian poverty, low income, out-migration, administrative issues have been mostly cited in the literature. The critical review on errors made in different stages of the settlement schemes is needed to broad the understanding of the planning and implementation of the settlement projects in the country and developing countries at large. To address this knowledge requirement, this historical review of agricultural Settlement Schemes in Sri Lanka attempts to critically review the existing knowledge to broad existing understanding on this topical subject.

2. THE SCUDDER AND COLSON'S FOUR STAGE MODEL OF SETTLEMENT

Based on the evidence in the settlement schemes, the Scudder (1981) categorised the settlement process into four stages – initial stage or recruitment stage, transition stage, potential development stage, and handing over or incorporation stage – which could be utilized as a base to understand or learn degree of sustainability of any settlement process or economic and social viability of the settlement process (see Figure 1).

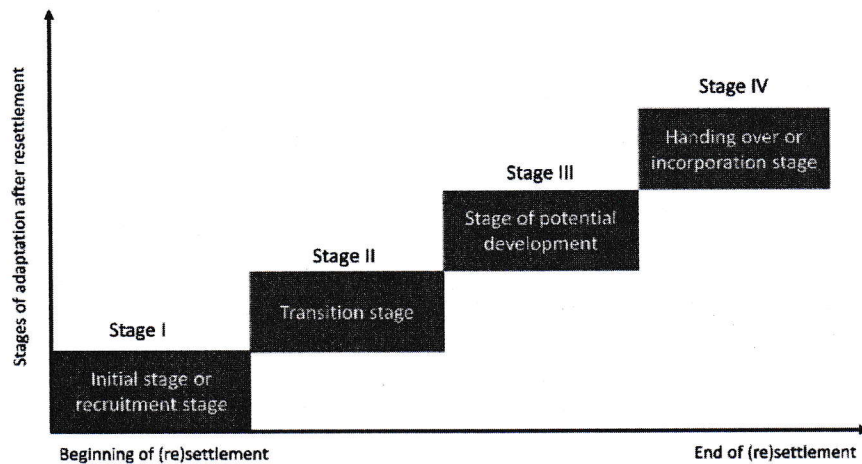


Figure 1: The Scudder four stage model of settlement

At the first stage – initial or recruitment stage – decisions with regard to planning and designing, infrastructure development and selection of settlers in the settlement process are taken mostly by the authorities – government or funding agencies – with specific development objectives. Any problem or mistakes occurred in this stage would adversely affect the later stage of the process.

In the second stage, transfer of chosen settlers to the settlement schemes occurs. These settlers are in a stressful situation with risk in future as they move to different contextual environment in terms of social, economic, environment, and cultural. They mostly are in a conservative stance at the early period of stage II. Settlers who are not aware of the situation and fail to adjust to the new conditions, drop out from the schemes. Specifically, prime purpose of the settlers in this stage is to maintain the activities at the subsistence level with transferring the skills and technical know-how which they gained being in the former location to the farming activities in the schemes. This situation also emphasizes the need of proper intervention mechanism to move the settlers from conservative stance to a dynamic environment, particularly in terms of minimization of risk in farming activities. This must be done carefully as it may lead for creation of paternalistic or increased dependency of settlers on authorities.

In the third stage, more social and economic development is expected with the shift from a conservative ideology to a more dynamic ideology. Movement of production practices from traditional subsistence setting to a more commercial settings could be observed. The potential development in the settlement schemes starts with the reach of self-sufficiency level of agriculture production because of no risk environment in terms of household food security and other economic activities. Thus, experiments and investments in the farming sector are taken place and improvement in farm productivity, move to cash crop systems and diversification of livelihood activities could be observed in the stage. The recognition of pre-basic characteristics of this stage by the authorities is important to facilitate for the self-reliance ideology emerged in this stage.

The last stage of the process – handing over or incorporation stage – is the stage of success of settlement scheme in case of long run and the period which the first generation ready to hand over the activities to the next generation of the settlement schemes to drive the system to next level of development.

3. COVERAGE OF THE REVIEW

Content analytical technique over historical literature classified at country level and global level were used for this review. In this connection, an extensive literature search was carried on the review subject. Specifically, literature related

to research subject available in the Hector Kobbekaduwa Agrarian Research and Training Institute, National Archives were accessed in addition to web search. Global level literature were accessed purely via web search. The key terminologies used in the primary search of the literature were Agriculture Colonization Schemes, Agriculture Settlement Scheme, and agriculture modernization and secondary stage agricultural issues and challenges were used as key term. In Sri Lankan context, as an inclusion criteria, studies and reports done up to 1980s were primarily used in order to make specific the focus on research subject.

4. ERRORS AND ERROR-BASED ISSUES OF THE SETTLEMENT SCHEMES

4.1 Errors in settlement planning

It is evident that many issues have been later aroused in the Settlement Schemes due to the issues related to settlement planning at the early stage. Until the 1950s, the objective of dry zone settlement schemes was to settle the people as rate much as without undertaking a proper feasibility analysis on economic, social and physical conditions. Thus, most of the settlement schemes later became economically unviable and socially destructive as no sufficient attention was made on production maximization and the rest of the related economic activities that support settlers to derive sufficient income, and created specific social issues due to heterogeneity characteristics of the settlers. Specifically, settlers were mostly from the outside the area of the schemes, these settlers behaved according to their norms and values and thus, there were mismatch between own villages and outside settlers. Thus, distributional inequality has emerged as a critical issue in the settlement schemes. Specifically, techniques of pre-investment and farm budgetary analysis have been poorly applied and selection of settlers for the schemes was not sufficiently undertaken by considering different social factors such as cast, region, age, education, and experience in farming etc... at the early stage of settlement schemes.

Specifically, a comprehensive integrated approach in settlement planning was not practiced. Different components of the settlement scheme such as irrigation, land, cooperative networks, agriculture marketing, etc. have been designed by different government agencies and departments. By taking into account this issue, the government established the Settlement Planning and Development Board in 1969 with the representation of the offices of relevant departments in order to make uniformity in settlement planning. Later it was reconstituted as Land Use and Settlement Planning Authority. However, some reports have indicated the difficulty in achieving uniformity in the settlement policy even under the Settlement Planning and Development Board (Stanbury, 1988).

Problems related to physical planning were largely noted in the literature. In the 1940s and 1950s, the influence of political authority was critical to the settlement process and thus, people were settled at a rate high than the planning. Specifically, soil type analysis before locating the farming systems, irrigation planning to high-lands of the schemes, and the technological needs of large farms were not properly taken into consideration in settlement planning. Specifically, Farmer (1957) reported the importance of providing irrigation facilities to high land via introducing lift irrigation system. In 1956, steps were taken to provide irrigation facilities to the high-lands of the settlement schemes through lift irrigation systems. For instance, lift-irrigation systems were introduced to the *Rajanganaya* Settlement Schemes in the 1970s.

According to Stanbury (1988), review on land settlement planning issues in irrigation management revealed two types of spatial planning on homestead allotments in the settlement schemes namely ribbon pattern and cluster approaches. At the early settlement schemes, settlement planners had applied ribbon pattern in homestead allotments as it supports settlers to access farm land easily. However, it was recognized issues in this approach, particularly in enhancing the economic, social, and cultural status of community in the settlement as it constrained the social and organizational integration, and effective and efficient use of irrigation resources. As a result, settlement planners had inclined to apply the cluster approach aiming to improve the social integration of settled families.

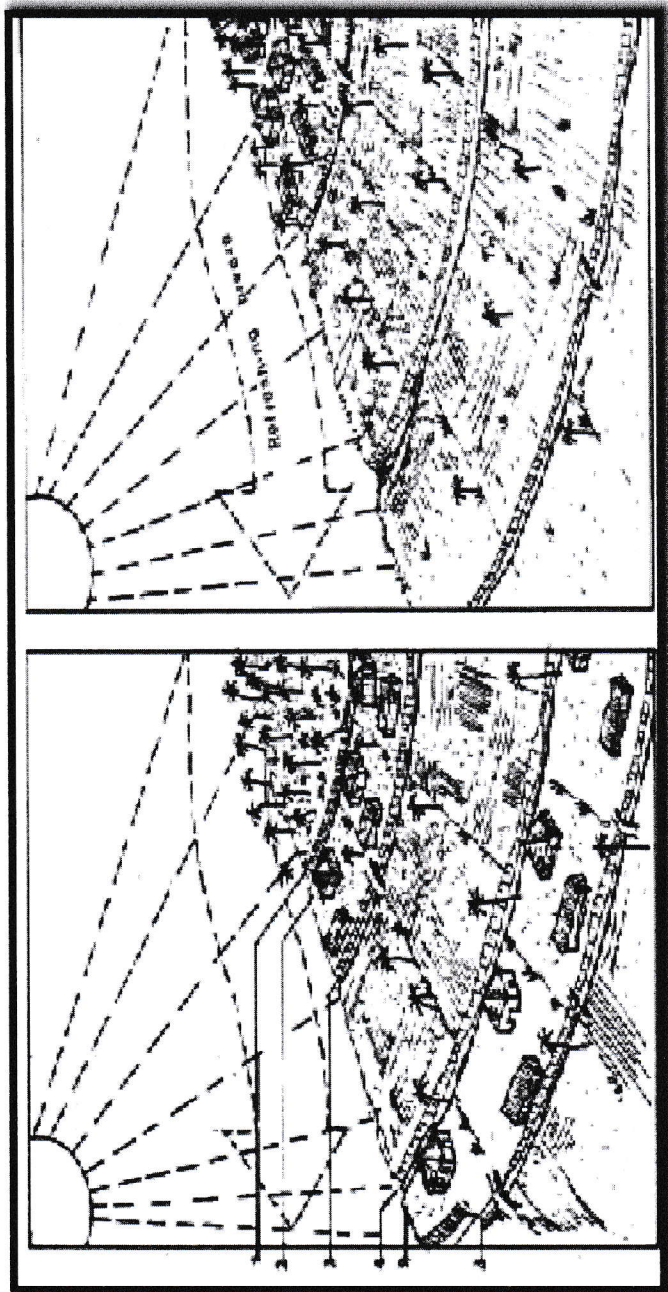


Figure 2: Ribbon pattern approach in homestead allotments in settlement schemes

Figure 3: Cluster pattern approach in homestead allotments in settlement schemes

Legend: 1. Main Water Canal; 2. Road; 3. Distribution Water Canal; 4. Drainage Canal
 Source: Weitz et al. (1971) as quoted by Stanbury (1988)

Size of the lands (Mud-land and Up-land) given to the settlers have not been decided with proper analysis over the scale of economies. Later, it was realized that less productivity and efficiency of the farming system were due to resource management difficulties in the settlement schemes due to the holding size. For instance, at the early stage of the Settlement Schemes, each settler has been given 10 acres of mud-land and 5 acres of up-land for farming without the base on scientific analysis of scale of economies or capability level of the settler in managing farm activities. Due to the experienced resource management problems in the settlements coupled with land scarcity, by the 1960s to 70s, land size allocated to the settlers was reduced up to 2.5 to 3 acres of mud-land and 0.5 to 1 acre of upland.

Moreover, livelihood opportunities for second and third generations of the settlement schemes have not been adequately considered at the settlement planning stage. There had been some considerations over agro-based industrialization in the agriculture region and thereby increase the value-added to the farmer product and generate off-farm employment opportunities for the people in the agriculture regions. However, an adequate industrialization process has not been taken place in the settlement regions. It has later resulted in higher demand for allocated land in the settlement schemes due to the population pressure resulting in informal land fragmentation, out-migration and youth unemployment in the schemes.

In order to address the emerged concerns with regard to the settlement planning, the Land Use and Settlement Planning Authority made certain criteria for introducing new settlement schemes and proposed to approve the new settlement schemes based on a comprehensive evaluation of those criteria. The derived criteria were;

- Design and present a comprehensive and realistic settlement plan which was based on physical, agronomic, social and economic surveys' findings.
- Present a financial feasibility analysis in order to assure that the proposed settlement scheme could derive reasonable return over initial investment and sufficient income to the settlers.
- Present details of the fund – for the capital and recurrent expenditures) availability to complete the proposed settlement
- Present the competency of staff to guide and train the new settlers
- Present the implementation stages moving towards the objectives of the settlement

4.2 Errors in the administrative mechanism

The administrative mechanism introduced to the major settlement schemes were the rigid and weighty system of management. The main functions of this mechanism were to supervise the settlers in each scheme and protect the government's investment. Specifically, this mechanism has resulted to create a paternalistic attitude to the settlers and constrained to emerge potential colonies.

The specific feature of the administrative staff of the major settlement scheme was that most of the staff members did not have basic knowledge or training on agriculture activities and agriculture related management matters. Thus, their administrative decisions were not mostly supportive to the development of these settlement schemes or move to the next development stage which mostly important to address the needs of second and third generations of the settlers. It further resulted to suppress the indigenous nature of the leadership in the farming system and thereby emerge individualistic thinking pattern among the settlers with regard to farming and other matters.

Moreover, there was no centralized management system over the agriculture settlement schemes and different government departments – irrigation, agriculture, land commissioner's department, Mahawelli Development Authority, etc... - had the authority to handle the related matters in the schemes. Thus, the decision-making process over settlement scheme related matters was not effective and supportive for the development.

By taking into account these administrative relative matters, in the 1970s and 1980s, the government took initiations to transfer some responsibilities of the administrative staff to the elected people organizations, later to the farmer organizations. This later resulted to improve the farmers' participation in administrative matters and take the farming level experience into policy making process.

Overuse of irrigation water at the beginning of season was also reported (Abeygunawardhane, 1992). This has led to water shortage during the latter part of the season. This has weaken the economic returns of most of settlement schemes in due to less cultivation and thereby failure of the settlement schemes.

4.3 Problems related to Economic returns

At the early stage of Settlement Schemes, the primary objective was to get land developed settling people as rate much as at any financial cost. It did not take adequately into account the economic returns or viability of settlement schemes. This could be viewed at different stages.

First, at the selection of settlers in the early stage of settlement, authorities have not adequately focused the people who have experience in farming or interest in doing farming or the ability to derive maximum economics production. This was later realized as a factor which hinders the economic returns of settlement schemes and thereby growth retarding factor. As a result, perception with regard to settlement schemes at the policy making level was redefined that settlement schemes should be established as growth demonstrating centres of the economy. By the 1960s, new settlement schemes were established focusing the youth and educated people and adequate training on agriculture activities was given. By conducting an evaluation over 12 economically successful youth settlement schemes, Land Commissioner Department (1972) reported that youth earnings were much more than the expected. It further noted the correct selection of settlers as determinants of the success of settlement schemes. It was revealed that these experienced and educated settlers come up with innovative ideas contributing to modernize their farming technically and economically.

Second, at the early state of the settlements, the economically feasible or manageable land size was not determined through a scientific analysis when the land was given to the settlers. Economically feasible size of land would change scheme to scheme based on various factors such as climatic conditions, weather patterns, soil conditions and farmer to farmer based on their resource management capability, financial capital strength and farming experiences. Until the 1950s, in some settlement schemes, each settler has been given 10 acres of Mud-land and 5 acres of upland. Later it was realized that most farmers could not manage such a large scale of holdings. It was later reduced up-to 5 and later 2.5 acres of mud-lands and 1 acre of up-lands, respectively. However, some reports were highlighted that land-size of 2.5 acres of mud-land was not sufficient scale to derive adequate farming income to the settlers. Thus, by 1970s, new approaches were proposed the farming systems in the settlement schemes such as cooperate or collective approach, new technologies for intensive farming, cash crops to the farming in the schemes.

Third, it was recommended to introduce irrigation planning to up-land of the settlement schemes in order to promote short-, mid- and long-term cultivations among the farmers (Farmer, 1957). It was expected to make economic stability among the settlers in the schemes and derive sufficient income for settlers particularly in the off-season. For instance, the lift-irrigation system was introduced to the *Rajanganaya* Settlement Scheme in the 1970s. It could be recognized as one of the most successful settlement schemes in the agriculture colonization history. Specifically, farmers in the scheme were able to access the export market in 1980s. Most of the farmers in the *Rajanganaya* Scheme today grow vegetables specifically in the off-season.

Fourth, the modernization of farming systems in the settlement schemes was brought into attention since the 1960s due to the less economic returns. This was mainly due to issues in the planning stage of the settlement schemes. Specifically, the productivity and efficiency of the farming system were the matters later concerned. Thus, the importance of the role of effective extension network, marketing cooperatives, agriculture credit provisions and participation of farmers in the administration and policy-making levels were recognized in order to enhance the productivity and efficiency of the farming in the settlement schemes. Particularly, lack of formal sector agriculture credit provisions for the farming activities is still the matter in the Agriculture Settlement Schemes even though it was recognized as a barrier to enhancing the productivity and efficiency of farming activities since the 1960s. This is evident from the biggest role of informal money lenders in the agriculture credit market. Specifically, the highest number of suicide cases were reported in the agriculture colonization schemes during 1980s and 1990s. For instance, in 1989 the highest number of suicide cases reported in *Matale, Hambantota, Anuradhapura, Badulla, Monaragala* and *Rathnapura*, the agriculture based district, were due to the drink of agro-chemicals (Dhamayanthi, 2008).

4.4 Issues in the land legislation

By the 1930s, there was a contentious discussion over domestic food production due to the increasing population in the wet zone. It was recognized that farmers underutilize farming resources. The Land Development Ordinance of 1935 was enacted in order to facilitate the government settlement schemes alienating Crown Land to the landless people. Under this ordinance, the land was allocated for the people considering landlessness and social needs. Thus, it reflected the increasing concern for food production and protect the rights of peasant farmers. The ordinance has established regulatory provisions with limitations preventing transfer, mortgage, sale or sub-division of holdings.

The colonial criticism over this matter was that certain provisions that limit transfer, mortgage and sale or sub-division of holdings do not promote the free market conditions and economic individualism which need to promote efficient farmers. Another objective of giving fixed quantity of land is to maintain the equity among the settled farmers in the schemes (Abeygunawardhane, 1992). According to Tambias (1958), the conditions – colonists cannot lease, mortgage or sell his land, and holding must pass one successor only – are contrary to the local customs and adversely affect the economic process of the farming systems. Due to the first condition, *Ande* and sharecropping systems were spread in the settlement schemes making the farming less efficient. This argument was raised because some farmers in the settlement schemes were not active and some were in a position to become large scale farmers while some in a position to sell their part of holdings due to incapability in managing the holdings. Another argument

is that this restriction leads to informal credit market activities in the settlement schemes which is still visible matter in the schemes.

Further, the ordinance restricts the land fragmentation in the inheritance process. The economic rationality of this provision is the scale of economies. Also, non-impose of such restriction would result in small farmers becoming smaller and poorer and few larger farmers become richer. It would later wide the economic and social inequality in the settlement schemes even though all settlers were in a similar condition at the early stage. However, lack of off-farm employment opportunities for the second and third generations of the settlement schemes made pressure on the existing landholding of settlers leading to information land fragmentations and transactions in the schemes. Informality in land ownership leads to deteriorate the return of investment in long-term and to create farm management issues at the farm level (Chandrasiri, 2010).

5. CONCLUDING REMARKS

This study aimed to review the existing knowledge on critical errors made in the establishing and implementing stages of the agriculture settlement schemes in Sri Lanka. The review undertook under four areas of subject – errors in settlement planning, errors in the administrative mechanism, problems related to economic returns and issues in the land legislation.

First, the study identified non-undertaken of feasibility analysis on social, economic and physical conditions of schemes before settling the people, non-acknowledgement of heterogeneity characteristics of the settlers at the initial stages of settlement planning, lack of integration among key institutions involved in settlement planning, non-designing of irrigation planning to the uplands of the settlement schemes, non-assessment of scale of land holdings and inadequate attention to employment opportunities for second and third generation of the schemes at the settlement designing stages as core issues which later results for multiple issues in the agriculture settlement schemes in Sri Lanka.

Second, the study identified issues related to administrative mechanism established in the settlement schemes. Specifically, it was a weighty system of management and has resulted to create a paternalistic attitude to the settlers and constrain the emergence of new potential colonies. There were no centralized management system which could support to the development of schemes and enhance efficiency and productivity of the farming system. Lack of knowledge of administrative staff with regard to agriculture matters was recognized as major issue in the administrative mechanism.

Third review revealed the problems related to less economic return of the settlement schemes. Lack of farming experience in settled families, non-determination of economically feasible and manageable land size for farmers, failure in designing irrigation facilities for upland in the settlement schemes, and lack of institutional support to the farming were recognized as a major concerns related to less economic returns of the settlement schemes. Severity of this issues was reflected by the increased number of suicide cases in the 1980s in the agriculture settlement schemes.

Fourth, the study found specific issues related to the Land Development Ordinance of 1935. Specifically, literature provide different views over regulatory provisions with limitations preventing transfer, mortgage, sale or sub-division of holdings. However, these provisions has resulted for informal land fragmentation, indebtedness among the farmers, spread of informal credit market activities in the market and farm management issues in the scheme. The review results further presumed a wider spread of economic and social inequality in the settlement schemes if imposed restriction over land were removed.

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