

# Water resource management in the dry zone of Sri Lanka

## Institutional roots under water?

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### Abstract

This paper discusses the water resource problems in the dry zone of Sri Lanka from an organisational perspective. The problems of water resource management can be analysed at 3 different levels of analysis: (a) at the level of water scarcity and water quality as such; (b) at the level of physical infrastructure of irrigation works and agrowells, tubewells and dugwells; and (c) at the level of organisation and management of irrigation and water supply. This research focuses on the third level of analysis: organisation and management of water resources.

In this paper I will argue that - due to conventional interpretations of highly popular concepts such as land tenure arrangements, gender, participation and equity - many policies, strategies, interventions and procedures are to a large extent standardised. At first view, even the more experimental projects, such as the experiments with regard to farmer companies, have not demonstrated a thorough understanding of the way in which those concepts are manifest at local level. Due to the prevailing explanations of those concepts, the sustainability of policies and interventions is only partial.

I will therefore argue that, by means of a more detailed study of currently existing and indigenous forms of water management paying attention to issues of land ownership and land tenure, gender, equity and participation, one can make those policies, strategies, interventions and procedures more tailored to the particular situation at local level. Similarly, one can improve achievement of particular objectives and subsequently enhance sustainability with a view to gender, participation and equity, and equally important, the acceptance from (different groups of) water users.

### 1. Problem description

From an organisational perspective, a distinction can be made with regard to organisational / management problems (a) at the village level, (b) at the level of interaction between village-based organisations / institutions and governmental organisations, and (c) at the level of interaction between farmer organisations and donor organisations related to rehabilitation interventions<sup>1</sup> and (d) at the policy level.

- a. *At village level*, one can observe problems related to (equal) access to and participation in decision making, to effectivity and legitimacy of decision-making, and to conflict management.
- b. *At the level of interaction between village-based organisations and governmental organisations* problems were found related to responsibilities for maintenance and small rehabilitation works and to conflict management, in terms of limited access to means for resolving conflicts
- c. Further, *at the level of interaction between farmer organisations and donor organisations* one can observe problems related to the implementation of water conservation and ecological sustainability through the cultivation of other field crops (OFCs). Further, problems were observed with regard to access to and benefits from project interventions.
- d. Finally, problems at the *policy level* are related to the large demand of water users for the allocation of water for different purposes, the distribution of responsibilities and mandates among a large number of organisations, and the lack of coherency in legislation, acts and ordinances with regard to water rights and water allocation.

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<sup>1</sup>A more detailed description of the problems can be found in:

Molen, I. van der; *The blessings of the rains: sustainable agriculture, self-sufficiency and different perspectives on water management in the dry zone of Sri Lanka*; paper for the CERES Seminar "Acts of Man or Nature", 22-24 October 1998 in Bergen, the Netherlands.

Considering the long history of irrigation works in Sri Lanka, many administrative and legal changes which took place during this century, and the organisational and managerial problems in relation to water resource management, the question arises to what extent indigenous forms of water resource management can contribute to sustainability of the water resource management system. The main research question is therefore:

*What are the conditions and circumstances required under which the integration of the indigenous forms of water resource management in relevant development practices actually can contribute to more sustainability of the water resource management system?*

In the process of data collection and analysis of the water resource management systems at local level, many of the indigenous and currently prevailing forms of water resource management proved to be strongly related to the concepts of land ownership and land tenure arrangements, gender, participation, and equity. In this way, those concepts proved to be key concepts in the explanation of the sustainability of (interventions in) the current water resource management system.

In section 2, I will briefly explain the methodology and techniques of data collection, which were used. Section 3 will focus on land ownership and tenure arrangements, section 4 on gender, section 5 on equity, and section 6 on participation. In section 7, I will elaborate on the difficulties in finding a balance between, on the one hand, objectives of gender equality in decision making, participation of the water users, and equity, and on the other hand, the objectives of efficiency of decision making and compliance with rules and decisions.

Finally, in section 8, I will make some recommendations for project staff and policy makers. Basic assumption is that a more in-depth understanding of the concepts discussed, can contribute to a more sustainable system of water resource management at local level and to more acceptance by all groups of water users. Similarly, dissemination of the knowledge regarding those concepts at local level can contribute to strategies and policies at provincial or national level. E.g. in the policies with regard to irrigation management transfer and in the discussion about the role of farmer companies, farmer organisations and other 'appropriate local organisations' which may hold water entitlements on behalf of their members.

## **2. Methodology and data collection**

The research strategy is based on a combination of literature study, multi-site case study at the field, historical records and ethnography. The choice for this research strategy is based upon the type of questions (descriptive, explanatory and exploratory), and its focus on contemporary processes and processes in the past. Data collection took place during two periods until now: the start of maha season 1997 (September – December '97) and during the yala season of 1998 (April – August '98) and was conducted in three case study areas in Anuradhapura district (Nallamudawa; Padikkaramaduwa; and Walpola).

### *2.1 Data Collection*

Data collection techniques used in those areas were:

- a. Documentation, such as the minutes of meetings, administrative documents, studies, legislation, acts and ordinances evaluations, articles, etc.
- b. Archival reports, such as organisational records, maps, graphs, meteorological data, GIS maps, statistics from surveys already performed; historical information with regard to the particular tanks.
- c. interviews, including semi-structured interviews and in-depth interviews, and structured interviews (community profiles, tank profiles)
- d. direct observation and participatory observation (participatory observation was done by joining women in agricultural activities (e.g. transplanting onions); in collecting water; in the bathing 'ritual' and in shramadana (cleaning the bund by removing all the weeds and bushes)
- e. PRA techniques, such as participatory mapping and drawing of trend lines; transect walks, group discussion.

## 2.2 Perspective

The problems are analysed from an actor (water user and farmer) perspective at the village-level<sup>2</sup>, and concentrates not only on those *actors*, but also on the interaction between those actors and organisational *structures* and the *processes* taking place on this level. Similarly, this actor perspective at village level is also taken as departing point in the analysis of the impact of the economic, socio-cultural, political and judicial contexts on the water resource management system (actors, structures and processes).

## 2.3 Selection and characteristics of the case study area

Data collection has been conducted in part of the dry zone of Sri Lanka, in the Anuradhapura district. This district is characterised by relative low annual rainfall, and a large amount of small and medium-scale water reservoirs, the tanks. It must be emphasised that the management arrangements on organisational level are closely related to the physical and geographical characteristics of the irrigation systems and the cultivation patterns in this area, and can only partly be generalised to irrigation systems with other physical and geographical characteristics. Those characteristics are:

- small-scale irrigation systems (tanks with a command area smaller than 200 acres) in the dry zone
- dominated by paddy cultivation and chena cultivation,
- being part of a cascade, and
- receiving water only from rainfall and runoff from the catchment area.

## 3. Land ownership and land tenure arrangements

Land ownership and land tenure arrangements occupy a central position when looking at water resource management, for it determines not only which plots are eligible for receiving water during droughts, but it is also strongly related to the concepts which will be discussed in the subsequent sections: gender, equity and participation. In other words: it sets the scene.

### 3.1 Spatial dimensions of land distribution and cultivation

The lands that were used for cultivation in the case study areas can be divided in purana wela, akkara wela, highland, chena fields and home gardens.

The lands irrigated by water from the tanks can be divided in lands under purana wela, and under akkara wela. The original settlers of the villagers often used the command area that is referred to as '*purana wela*'. This is the part under the tank, which is usually located close to the tank bund and which is most easy to irrigate due to its location and geological characteristics. At present, the command area of most tanks has expanded and consists of both '*purana wela*' and '*akkara wela*', which is the area situated next to or under purana wela. Although akkara wela (or even purana wela) cannot be cultivated each season due to a shortage of water, it does fulfil the increased demand for paddy lands in the command area of the tank. In the case study areas, both purana wela and akkara wela were mainly used for paddy cultivation<sup>3</sup>. In practice, water from the (minor) tanks is allocated to paddy lands in purana wela and akkara wela only.

*Highlands* are those lands close to the tank, but which are not located in the command area of the tank. These highlands can be used for paddy cultivation if rainfall is sufficient, or when provided by other sources of water (agrowells, runoff, drainage water).

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<sup>2</sup> When talking about the "*village level*", I actually refer to the local level geographically demarcated by the boundaries of the command areas of those tanks for which the farmer organisation is responsible. One could also argue to call it the "level of the Farmer Organisation", but this is likely to cause more confusion by referring to actors instead of geographically boundaries.

<sup>3</sup> In one of the case study areas an exception could be observed. Other field crops (OFCs) were cultivated under the system of bethma and rotational distribution in purana wela during yala season 1998. The farmers explained that this situation was quite rare. Usually, the water level in the tanks was not sufficient for cultivation at all during the yala season.

*Chena fields* are encroached state lands, used for slash and burn cultivation, and sometimes with the characteristic of shifting cultivation. The crops which are grown in these chena fields are described as other field crops such as vegetables, pulses, or spices, and to a small extent fruits. Those fields can be located at quite a distance from the homes, and are not in the command area of the tanks. Due to the growing scarcity of lands available for chena cultivation (due to an increase of population), the shifting nature of chena cultivation has diminished considerably over the past 50 years. Some people have built agrowells in the close neighbourhood of their chena fields and are thereby in a far more favourable position for cultivation during both the yala and maha season than others.

Finally, *home gardens* or *homesteads* are those plots with ownership or leasehold certificates situated around the houses. Those gardens can be used for cultivation of paddy (rainfed or with water from agrowell); OFCs and fruits.

The most important food supply for home consumption and marketing is located in both the command area of the tank (paddy), and chena fields (OFCs). Especially land ownership or leasehold of paddy lands in the command area proves to be crucial for constructs of participation and equity, as will be argued in sections 4, 5 and 6.

### 3.2 *Legal forms of land ownership in the case study areas*

The relation between land and water rights is explained in Agrarian Service Act of 1979. In addition to public lands (Crown Lands), there are different forms of land ownership:

1. Freehold ownership ('siinakker'): this includes a certificate for the landowner, and freehold lands can be sold and distributed among children as people wish.
2. Freehold ownership under pimbure: the total area in purana wela is called pimbure, because it is registered with one certificate only, stating each plot and name of the farmer. On the basis of the certificate, which is kept in the District Secretariat, people can ask for a separate freehold certificate for their part and then they are able to sell.
3. 99 years of leasehold ownership ('badu'), usually in Akkarawela. Legally these plots are leased, and cannot be sold, but in reality they are being sold. The name will then be changed in the certificate and registration. Some members of the Provincial Councils as well as members of the 'Samate Committee' (Peace Board) have the legal authority to act as a 'judge', acknowledging this change.
4. District Land Officer's Permit: 99 years of leasehold in other area than Purana wela and Akkara wela; There are statements in the DLO regulations about the transference of an annual permit in DLO permit, when someone fulfils all regulations.
5. Annual Permit: for home gardens only further away from the house. These permits are issued by the Divisional Secretary and should be renewed every year. In one of the case study areas, it was mentioned that the people who used to have annual permit now have a DLO certificate under the Land Development Ordinance. If someone with a DLO permit cultivates his part on a regular basis (every year), a special procedure can be followed under the Jayabumi campaign to transfer the DLO permit to freehold ownership;
6. Chena lands: encroached public lands, not registered, practised widely in all villages

The legal form of land ownership is, in the view of farmers, important from 3 different angles:

- a. First of all, when looking at the different legal forms of land ownership, the legal insecurity of cultivating state lands (either in forest reserves or Crown Lands) proved to be relevant for the cultivation of highlands or newly developed land in the command area of the tank. In response to this, some projects tried to enhance land consolidation, the transfer of those lands to the actual cultivators by the provision of certificates or permit.

- b. Unlike highlands and newly developed lands, the illegal character of chena cultivation is not considered to be problematic. Although this form of cultivation takes place on encroached state owned lands, only a few rare cases were found where governmental authorities filed a case against a cultivator or where he / she was fined for this encroachment. In the case study areas (Anuradhapura district) there were no reliable data on the exact areas and quantity of encroached lands for chena cultivation. The figures available are estimates.
- c. Thirdly, the legal form of land ownership proved to be important in view of the stretch of time of land ownership. In some of the case study areas, long term (99 years) ownership or leasehold provides more 'rights' to participate in decision making than short term tenure or leasehold (DLO and annual permits). Additionally, the type of ownership is closely related to the spatial dimensions, as can be seen from the overview above.
- d. Finally, different procedures apply for the sale, purchase, registration and inheritance of land when looking at the various forms of ownership. This is especially relevant in the division of land ownership among men and women (sons and daughters) and in sharing arrangements.

### 3.3 *Traditional practices of land distribution and sharing*

A number of practices can be distinguished in response to scarcity of resources, being the scarcity of land and the opportunity to get a fair share of yield from the land, scarcity of water, scarcity of financial, and scarcity of human resources. *Thattumaru* and *kattimaru* are practices to distribute the right to cultivation of land among a small group of shareholders, thereby keeping the plot as entity within the group or family. *Bethma* is a response to scarcity of water, whereas traditional and more modern forms of *ande-tenancy* are practised in response to the scarcity of financial and human resources.

*Thattumaru* refers to rights to cultivate a piece of paddy land in a sharing arrangement "among two or more persons in annual rotation. Instead of physically dividing the land, the persons with cultivation rights (henceforth shareholders) take turns to cultivate the land each year. [...] The purpose behind the adoption of this principle is [...] to prevent the sub-division of plots into units which are inconveniently small"<sup>4</sup>.

*Kattimaru* refers to the sub-division of land "at the death (or retirement) of its owner, but each heir inherits, instead of permanent ownership rights to a particular plot, the right to cultivate in turn each of the plots into which the 'estate' has been divided. [...] The logic behind this principle is that of equalisation of chances of good or bad harvests in an environment where the relative value of different fields varies from year to year according to such factors as soil quality, water supply and the incidence of attacks of wild animals and pests"<sup>5</sup>.

*Ande tenancy* refers to a practice where someone cultivates a plot of land belonging to someone else. The owner pays for the initial expenses, such as seed paddy, fertilisers, pesticides and weedicides and tractor charges. In return, succeeding the harvest, the yield is divided among the owner and tenant. This form of *ande tenancy* is mainly applied when the landowner is not able, for some reason or another, to cultivate the plot him or herself during a particular season (lack of human resources due to other duties and activities, sickness, pregnancy or young children to be taken care of). A slightly different version of *ande-tenancy* is further applied by salesmen (*muduladi*'s) in response to the lack of financial resources of farmers to pay the initial expenses before cultivation. In such a case the farmer might be able to obtain money for these expenses or the fertilisers, pesticides etc. directly from the *muduladi* and start cultivation on his/her own plot. The expenses paid for by the *muduladi* will be deducted from the yield, and given back to the *muduladi*, the remaining of the yield will be divided by two, of which one half goes to the farmer, and the other half to the *muduladi*.

<sup>4</sup> See: Moore, M.P. and G. Wickremasinghe; *Thattumaru – Kattimaru systems of land tenure*; Research Study Series No. 26, July 1978; Agrarian Research and Training Institute, Colombo, p. 2-3

<sup>5</sup> *ibid.*

*Bethma* refers to the temporary redistribution of plots of land among the shareholders (being the paddy landowners) in part of the command area of the tank, when insufficient water is available for cultivation of the entire command area, or for cultivation of the entire purana wela. This might be practised in combination with rotational distribution and for the cultivation of either paddy or OFCs.

Whereas only *ande-tenancy* is still frequently applied and *bethma* only very rarely (depending on the water level in the tank), *Thattumaru* and *kattimaru* practices have almost disappeared in the case study areas. Some of the respondents indicated to expect a revival of those practices because of the fast reduction in the size of lands which can be attributed to the distribution of lands among the children. The traditional water resource management system, which used to be based on the leadership of the *vel vidane* will be discussed in section 7. Further, *attam* and *shramadana* are equally important, but are not elaborated here because these practices are not directly related to sharing arrangements of land.

#### 4. Gender<sup>6</sup>

Farming activities include cleaning the plots and the small field bunds, ploughing, construction of small bunds if required, levelling, sowing, applying fertiliser, spraying of pesticides and weedicides, weeding, applying water and releasing water, threshing, cutting or plucking and winnowing. In the 3 case study areas, men are involved in all activities, whereas women are involved in all activities except for ploughing and usually threshing. There are four different types of farming: paddy cultivation, chena cultivation, and highland cultivation and home garden cultivation. A number of changes took place over the past 50 years in relation to the participation of women in cultivation. Those are:

1. Women participate more in paddy cultivation;
2. Women participate more in chena cultivation;
3. Women participate more as hire labourers.

Those changes have been induced by *physical characteristics* of the landscape, such as more open space instead of jungle (safety and accessibility), by *social changes*, such as the gradual disappearance of *attam*, less objections by women themselves and the wish to be more involved in cultivation or by *economic motives*, such as the higher level of income required or wished for; and the higher degree of efficiency through joint participation. Because women are now more involved in paddy and chena cultivation, their participation in applying water to the fields has increased as well, and their knowledge about the timing of applying water within a cultivation season is quite high.

Due to the higher degree of participation of women as hire labourer and in chena and paddy cultivation, they contribute more to the household in terms of income and food supply. From the first findings, it seems that the role of women in decision making and their bargaining power on household level has increased, by the expansion of their activities in cultivation (especially when looking at their say in expenditure decisions)<sup>7</sup>. Given the high participation rate of women in cultivation and their interests in the decisions for the management and use of water resources, it is necessary to identify their position in access to resources (especially land), and their participation in decision making on supra-household level (farmer organisation).

##### 4.1 Gender and land ownership

Although sons and daughters have equal legal rights to inheritance, in reality, most lands are registered on the names of the men, instead of the women. Further, land ownership of women is especially land ownership of home gardens, rather than paddy lands (with the exception of women in *diga* marriages and widows). The main reason for the limited land ownership by women is the fact that most marriages are *diga*

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<sup>6</sup> More detailed information on gender and water management can be found in 2 papers, written on behalf of the IIMI / IWMI: (i) Molen, I. van der; *Gender and the flow of water: gender considerations in water resource management; 2 case studies*; internal paper IIMI; Colombo, December 1997; and (ii) Molen, I. van der; *Gender and the continuous flow of water: gender and water management; 3 case studies*; draft; IWMI, Colombo; August 1998.

<sup>7</sup> Although of course, other factors such as the higher level of education can also be expected to play a significant role

marriages, in which case sons (living in with his parents) are more likely to inherit than daughters (living in with her parents in law). There are some subtle practices further obstructing land ownership by women:

- a. Registration of land ownership on the name of the head of the family in case of land consolidation<sup>8</sup>;
- b. transfer of land ownership to the husband after marriage for reasons of representation and mobility;
- c. formal obstructions to divide leasehold among children;
- d. the sequence of rights to inherit leasehold lands (wife, eldest son, then second eldest child (either son or daughter); if there is no son, the second right goes to the eldest daughter, etc);
- e. the requirement of permission by other right holders if the legal owner wants to surpass the first right-holder to inheritance and pass it on to another family member 'lower in rank'.

#### 4.2 *Gender and membership of farmer organisations*

Although there are no formal limitations for women to apply for membership of the Farmer Organisations, in all villages it was found that, in reality, membership by women can be found mainly amongst widows or women in a bina marriage. In one of the villages, one of the criteria for membership used to be ownership of paddy land under one of the three tanks, a major constraint for female membership. Although this criteria was lifted in 1996, it has not yet resulted in a high participation of women in the FO since then. Further, 2 sets of criteria were used: one general set of criteria according to which women have as much opportunity to become a member as men, and one set of criteria with some small differences applying to women, putting them in a disadvantaged position as (potential) members of the FO.

A more positive situation could be observed in another village, where minor tank rehabilitation projects proved to have a positive effect on female membership of and participation in the farmer organisation. For the purpose of providing every villager with the opportunity to participate in the implementation of the project (and thereby earning food packages or income during a drought period of several years), the opportunity was offered to non-members to apply for temporary membership. The only criteria used for this form of membership, was being resident of the village. The impact of this was considerable: not only the total number of members of the FO increased significantly, but at present (2 years later), there is still a significantly higher number of women being member of the Farmer Organisation than before those interventions (WFP and FFHCB).

#### 4.3 *Gender and opportunities to become an office bearer in the farmer organisation*

Similarly, some observations could be made with regard to the opportunity of women to become an office bearer in the farmer organisation. Formally, there is no restriction for women to become an office bearer of the FO. Nonetheless, in reality, only men have the chance of becoming yaya representative, vel vidane, or office bearer, such as chairman, secretary or treasurer. The main reason mentioned for this is the limited mobility of women. Besides this reason, a number of 'silent' criteria were identified, which obstruct the opportunities for women to obtain a position in the FO, such as:

- experience in leadership functions;
- the ability to sacrifice a lot of time;
- ownership of paddy lands (preferably);
- the 'capability' to deal with government officers and represent others, and
- the ability to speak in public.

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<sup>8</sup> One example of this is a case of 'successful' land consolidation, whereby land is automatically registered on the name of the head of the household (the man), thereby denying women not only of:

1. land ownership, but also of
2. membership of the farmer organisation and thereby
3. participation in supra-household decision making for cultivation and irrigation;
4. access to benefits from the farmer organisation; and
5. participation in future project activities implemented in co-operation with the farmer organisation

Although women are in many cases perfectly able of dealing with government officers and in some cases also have proven their capabilities in speaking in public, it is not considered as appropriate for women to do so, and therefore applied as criteria or reason as why not to select women. As stated by a female Grama Nilidhari:

“Usually, ladies in official functions are rejected or condemned by their society. Even when women go to the kanna meeting it is because someone of the family has to attend the meeting.”

Thus whereas women are highly involved in cultivation, and have the primary responsibility in collecting water for domestic purposes, they are to a high extent excluded from the participation in decision making with regard to water resources, which primarily takes place within the farmer organisation. Many of the aspects and ‘silent’ criteria and customs go back to the social relations and the traditional customs and system of water resource management.

Nonetheless, those social relations and the water resource management system have been subject to many changes over time, and at present, women contribute considerably to cultivation and application of water to the fields. Therefore, it is necessary to reflect on ways to increase their access to decision making in the water resource management system. Gender-based activities in projects should be far more inventive than training in improved techniques of home gardening, watering techniques for the home gardens, and ‘cooking lessons’ to enhance the nutritional values of meals.

Two projects were mentioned to demonstrate how indirectly, through the creation of the opportunity of temporary membership of the farmer organisation, the participation of women can be increased, even though it might have not been the conscious intention of the project formulators.

## 5. Participation

The case studies, which were conducted with the purpose to identify indigenous forms of water management, revealed also the differences in participation between different groups of villagers. Participation is explained in terms of:

- Participation in the farmer organisation or similar organisations as member
- Participation in the farmer organisation or similar organisations as office bearer
- Participation in the meetings of the farmer organisation
- Participation in meetings of donor organisations
- Participation in implementation of project intervention

The opportunities for participation were reflected in:

1. Criteria for membership: whereas paddy land ownership used to be one of the criteria in the past, at present most farmer organisations apply just two criteria: (a) land ownership / cultivation of lands as tenant or labourer or (b) being resident of the village. Many respondents assumed however that only landowners or cultivators could apply for membership, even though although it is not strictly applied anymore in formal terms.
2. Criteria to become an office bearer of the organisation range from: (a) being a male, active, honest and literate descendent from one of the original settler-families, with freehold or ancestral paddy land ownership under purana wela, and residence in the command area (most rigid) to (b) being a male member of the farmer organisation with leasehold ownership of paddy lands (either akkara wela or purana wela) and residence in the command area. In general, and tenants or cultivators of highlands or chena lands, women (even though they own paddy lands) and non-residents are not considered for positions as office bearers in the farmer organisation.



3. Procedures for the appointment or selection of committee members of the farmer organisation: The criteria used for the appointment or selection of farmer committee members are less rigid but also less transparent. In many cases the personal preferences of office bearers or other members of the committee are more important than particular characteristics of the nominee.
4. Time and place of meetings were especially relevant for women to decide whether or not to participate. Meetings held in the late afternoon and early evening were usually not attended by women, who used to take care of the children, to prepare meals or to perform other domestic tasks during those hours.
5. The opportunity and right to express one's opinion during the meetings: this proved to be strongly related to the gender of participants, but sometimes also to the type of land ownership (no freehold or leasehold paddy lands in the command area of the tank).
6. Procedures for discussion and decision-making preceding, during, and succeeding the meetings. The procedures for discussion and decision-making at the kanna meetings were rather standardised and pre-discussed by the office bearers and the committee. Likewise, decisions regarding water allocation, rotational distribution, individual requests, conflict management, and the co-operation with other organisations were usually not discussed during those meetings, but equally important in looking at the opportunities for participation.
7. Opportunities to obtain information about decisions taken by the organisation, which is especially important in terms of the opportunities to protest or to influence the processes of decision-making at a later stage.
8. Finally, criteria for participation in the meetings and interventions of donor organisations are often related to being resident of the village and membership of the farmer organisation. Eventhough the last criteria might not be a formal criterion, many projects use the farmer organisation and its shareholders list as institutional infrastructure for the collection of information, the distribution of benefits, for communication with the farmers or for implementation of the physical works.

This overview demonstrates that (paddy) land ownership in combination with membership of the farmer organisation provides the best opportunities for participation in decision making and management of water resources.

## 6. Equity

The farmers indicated to prefer some degree of equity in participation in and benefits from the system, but one should understand this per definition as the degree of influence in relation to the quantity of land. Equity can be understood from 4 other perspectives as well:

- Equity between villagers and 'outsiders'; this is especially relevant in equal access to information about obtaining benefits from participation in particular activities
- Equity between landowners under purana wela and landowners under akkara wela. In some cases land ownership under purana wela was found to be a 'silent' criteria to become the chairman of the FO.
- Equity between paddy landowners, paddy cultivators (tenants) & owners of home gardens/ highlands for membership of and benefits from the FO. Additionally, it is relevant in obtaining benefits from those donor project organisations, which use the institutional infrastructure of the farmer organisation.
- Equity between men and women in access to land ownership and positions in the farmer organisation.

Thus, an original settler with only a small plot of land might enjoy more 'silent' rights (e.g. the chance in becoming an office bearer with its privileges), than a later settler, or someone who married into the village with a larger plot of land. This (lack of) equity is visible when looking at participation in decision-making and access to benefits of the farmer organisation or donor organisations such as access to loans, fertilisers, pesticides, distribution of plants, participation in training opportunities, etc. The equity between 'original' villagers and 'outsiders'

## 7. Authority and respected leadership versus standard democratic procedures

When looking at the institutional structures for decision making with regard to cultivation and irrigation, one of the most frequent complaints by the farmers was the lack of authority, resulting in limited effectivity and efficiency of the organisation and management of the water resource. This complaint was expressed when comparing the system of farmer organisations with the traditional system of the vel vidane.

- a. The farmer organisation is characterised by a more or less standard organisational structure, standardised procedures and formal requirements, a pre-formulated agenda for discussions during cultivation (kanna) meetings, and frequent elections. Participation in decision-making takes place only during the meetings of the FO. On an informal level, decision making is also based on ad hoc discussions with individual members at any time.
- b. The vel vidane system on the other hand, was based on respect, experience and authority, compliance with decisions and rules, but also characterised by limited transparency and standardisation of the decision-making<sup>9</sup> procedures. Further, the access to participation in decision making was restricted to male paddy landowners only. Participation in decision-making took mainly place at two moments: either preceding the kanna meetings in consultation of the farmers by the vel vidane, or during the kanna meetings. Further, similar to the situation applying under the system with farmer organisations, on an informal level, decision making was also based on ad hoc discussions with individual farmers at any time

Although the characteristics of the farmer organisation seem to provide more opportunities to participation and equity in decision making, one should be aware that the vel vidane system was widely practised in a period that the number of families in a village was still very low (sometimes only 4 families), whereas every family had paddy lands in the command area of the tank. Additionally, in those periods, the participation of women in cultivation was still limited.

Considering those changes, and the observations made with regard to gender, participation and equity, the challenge is therefore to develop measures for stimulation of long-term leadership, enhancement of legitimacy, enhancement of respect, and stimulation of authority. This can however only be effective in combination with enhanced participation, equity, transparency and accountability. Additionally, in those areas where the vel vidane is still in function, project staff and policy makers should carefully consider the advantages of maintaining this system and to facilitate changes in view of land tenure arrangements, gender, participation and equity where desirable.

## 7. Recommendations for project, policy makers and future research

Based on the previous observations, a number of recommendations can be made.

1. First and above all, it is important to put more efforts into the identification and research of particular situations at local level with regard to land ownership and traditional forms of water resource management, gender, participation and equity. In paying attention to social dimensions, spatial dimensions, and changes over time, special attention is required to identify customs, and silent 'rules' or 'criteria', which have an impact on the system, as demonstrated in this paper.
2. Further it is important to review and rethink current and new policies in terms of institutional structures and mechanisms, and their impact on land tenure arrangements, gender, participation, equity and decision making at local level.
3. Finally, in the design and formulation of concrete project interventions, flexibility and creativity should be the key words. By formulating interventions, which are tailored to a specific situation, sustainability can be enhanced. This however requires implementation of the first recommendation: more efforts into the identification and research of a particular situation at local level.

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<sup>9</sup> The tasks of the vel vidane have changed over time, and are now more limited to operation & maintenance and less to decision making. This change was especially visible for those tanks where both the FO and a vel vidane or yaya representative were responsible.

### **Sharing arrangements for cultivation**

4. The still existing knowledge about traditional forms of cultivation and irrigation (sharing arrangements and temporary redistribution of lands) demonstrate a potential for local solutions in response to scarcity of resources. The actual application of bethma in 2 of the case study areas in the yala season of 1998 shows that a very infrequent occurrence of those practices does not necessarily mean that they have been abandoned. Depending on the situation, such practices prove to re-emerge at local level. Not acknowledging this, or lack of awareness might result in contradictory policies and interventions, taking away this flexibility at local level.

### **Gender**

5. It is necessary to reflect on ways to increase the access of women to decision making in the water resource management system. This would require reflection on the rules and regulations applying for land ownership, and ways to bend the 'silent' obstacles for obtaining or inheritance of land, land consolidation procedures, acknowledgement of the position of women as 'head of the household' and creating bank accounts with access restricted to women only, temporary membership opportunities of farmer organisations, representation opportunities in the meetings, stimulation (or obligation) of female members in the farmer organisation committee and in peace boards at local level as footboard for the acceptance of women as office bearers, and stimulation of the education level of women<sup>10</sup>.

### **Participation and equity**

6. Since most farmer organisations exclude part of the population (most women, tenants and hire labourers, chena cultivators, non-cultivators) either in decision making or in the benefits provided through the farmer organisation, it would be recommendable that project staff and policy makers identify different (preferably existing) organisational structures and the opportunities for adjustment of the access to farmer organisations in such a way, that for the purpose of the projects, a minimum of people is excluded from participation and access to benefits of the project or policies.

### **Measures for enhancement of authority, respect and legitimacy**

7. To stimulate long-term leadership and respect for the chairman of the farmer organisation, procedures for election should contain the possibility of long-term leadership (no maximum period); but one can also think of support in terms of training; acknowledgement of his/her potential role as mediator between villagers and governmental organisations.
8. More opportunities for membership, participation and equal access to benefits by different groups will increase the legitimacy of decision-making of the farmer organisation among all groups. This includes 'outsiders', families without paddy land ownership, and female cultivators. This requires more in-depth knowledge about the customs and 'silent' criteria applying for membership and office bearers.
9. Procedures to limit the possibilities for corruption, political influences and personal gains can – if effective - be expected to contribute to the respect for the chairman / yaya representative or vel vidane. To do so, clear procedures are required, facilitating the replacement of those office bearers whose functioning is criticised by members, and providing members with more facilities to put forward their complaints to a different organisation than the farmer organisation itself. Further, the criteria for distribution of benefits should be transparent to all members, and office bearers should be held accountable for the distribution of those benefits, e.g. in the kanna meetings.
10. The authority of the farmer organisation can be enhanced by more strict and equal enforcement of the rules and fines as decided upon in the kanna meetings after the first efforts for mediation have proven unsuccessful. Further, policy makers should consider providing farmer organisations with procedures to provide a small group with the authority to take decisions against the will of a few individual farmers in periods of droughts, if those decisions serve the common interest.

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<sup>10</sup> first findings showed a correlation between the level of education of women as compared to the level of education of their husband and the occurrence of bina marriages. However the sample was too small to make a scientifically sound statement on this.

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## List of abbreviations

|      |  |
|------|--|
| DO   | Divisional Officer   |
| FO   | Farmer Organisation  |
| IIMI | International Irrigation Management Organisation                     |
| IWMI | International Water Management Organisation (formerly known as IIMI) |
| OFC  | Other field crop   |

## Glossary

|                     |   |
|---------------------|---|
| Ande tenants        | tenants who cultivate a plot of land belonging to someone else. The owner pays for the initial expenses, such as seed paddy, fertilisers, pesticides and weedicides and tractor charges. In return, succeeding the harvest, the yield is divided among the owner and tenant. A slightly different version of ande-tenancy is further applied by salesmen (muduladi's) for poor farmers: if a farmer has not enough money to pay the initial expenses, he can obtain money for these expenses from the muduladi and start cultivation on his/her own plot. The expenses paid for by the muduladi will be deducted from the yield, and given back to the Muduladi, the remaining of the yield will be divided by two, of which one half goes to the farmer, and the other half to the Muduladi. |
| Attam               | reciprocal exchange of labour without financial rewards, usually performed in small groups  |
| Bethma              | temporary redistribution of paddy lands under the tank, during droughts or dry seasons, usually providing each landowner with a fixed and small quantity of land to cultivate during that season  |
| Chena cultivation   | slash and burn cultivation, sometimes also shifting cultivation   |
| Kanna meeting       | meeting of all farmers / members of the farmer organisation at the start of the cultivation season for formulation of the cultivation calendar, crops, water distribution, duties, tasks and fines, etc.  |
| Kattimaru           | rotational distribution of lands  |
| Maha season         | wet season  |
| Shramadana          | voluntary or (more often) obligatory joint activities for the maintenance of common goods, applied for cleaning of roads, bunds and temples.  |
| T(h)attumaru        | rotational distribution of lands  |
| Vel vidane          | traditional irrigation headman on village level   |
| Wewa                | tank / water reservoir for irrigation purposes  |
| Yala season         | dry season  |
| Yaya                | paddy field   |
| Yaya representative | similar to the vel vidane, but in practice mainly operational tasks, less decision-making tasks; often functioning in addition to the farmer organisation   |