

# Designing sustainable settlements in the context of mega-projects: lessons learnt from the Mahaweli Architectural Unit, Sri Lanka (1983-1989)

Nirodha K M Dissanayake, Katharine Bartsch and Peter Scriver  
*University of Adelaide, Adelaide, Australia*  
*nirodha.dissanayake, katharine.bartsch, peter.scriver@adelaide.edu.au*

**Abstract:** This paper examines new towns constructed for the Mahaweli Development Project (MDP)—a mega project—which involved a comprehensive resettlement program in Sri Lanka. Only a handful of studies examine the new towns designed by the Mahaweli Architectural Unit (MAU), from the perspective of architecture and urban design. This paper analyses the design of these new towns with regard to the MDP resettlement goals articulated in socio-cultural assessment reports which made recommendations about physical planning principles. This critical analysis is informed by drawings and documents examined at the Mahaweli Archives, Colombo, and field work in Mahaweli towns. The paper argues that the MAU embraced the MDP initiative to build sustainable new towns, inspired by vernacular architecture, with a certain degree of success. However, with the advantage of hindsight, notable shortcomings are evident which can be attributed to an apparent disregard for the socio-cultural recommendations. Given the escalating number of large scale infrastructure projects in developing countries—which force displacement, resettlement and redistribution of people—this paper renews emphasis on the importance of sociological concerns as a key dimension of architectural interventions for sustainable development.

**Keywords:** Sustainable; urban design; vernacular; re-settlement.

## 1. Introduction

Major multi-purpose hydro-electric projects were a common development strategy during the mid to late 20th century. Known as mega projects, they made unprecedented impacts on the environmental, economic and socio-cultural conditions of their respective contexts. These expensive projects were built to cater for increasing demands for resources (water, food and power) and the targets were closely related to further goals to stimulate new industries, to develop rural settlements in regional areas and to generate exponential improvements in living standards (Scudder, 2005, 20). Large scale population displacement has been an unavoidable consequence of these initiatives (the World Commission on Dams, 2000, 102-104) and concomitant issues have often compromised the overall success in many

cases (the World Bank, 2004, 321-323). Sustainable resettlement—a major responsibility of planning authorities—is the key to the success of mega-projects (Roy, 1999, 20-22). One of these mega projects—the Mahaweli Development Project (MDP), initiated in the 1960s—is the most ambitious multi-purpose infrastructure project ever attempted in Sri Lanka. Under the MDP, a comprehensive resettlement programme was implemented in the Dry Zone (DZ), that is estimated to have affected approximately 1 million people (nearly 7% of the population in 1981), which consisted of re-settlers (compulsory and voluntary), and traditional inhabitants (Scudder, 2005, 135). These Mahaweli resettlements aimed to redistribute the population through rural infrastructure development. The settlements were socially engineered to redefine the rural territory and in turn have instigated a new paradigm of regional planning and urban design practice in Sri Lanka (Rajapakse, 2007, 220). This paper investigates the role of architects and planners in this process and considers potential lessons from the MDP in Sri Lanka.

With its commendable goals and long-term vision of reform (Mendis, 1973, 6-7), the MDP has received substantial scholarly attention, by individual scholars as well as sponsored studies, particularly in the discipline of economics. It has also been subject to much criticism, especially since the Accelerated Mahaweli Project (AMP), ushered in with a change of government economic policy, commenced (Karunatilake, 1988, 155-172; Ponnambalam, 1981, 155; Scudder, 2005, 138, 161). However, only a handful of studies focus on the architectural and urban design aspects of the resettlements. The Mahaweli Architectural Unit (MAU)—a government initiative under the AMP—has played an important role in designing and constructing Mahaweli towns and buildings (Rajapakse, 2007, 220-222). The MAU was unable to conduct a post-occupancy evaluation due to its abrupt cessation of works (Perera, 2016). Therefore, this paper aims to fill the gap in knowledge through an examination of the original MDP goals for creating sustainable settlements within the socio-cultural context and to critically analyse the MAU's contribution to the design of these settlements. The intent is to inform discussion about sustainable and effective architectural models with a view to future resettlement projects.

Independent researchers argue that the MAU towns have not progressed to their anticipated potential (Rajapakse, 2007, 230-232; Udumulla, 1999/2000, 45). Observations in the field visits support this argument. Thus, the present research project stems from the hypothesis that, despite the many admirable goals of the MDP and the positive impact on the economic development of Sri Lanka, the present day settlements, created as a part of the AMP, do not meet the stipulated goals, particularly those of the MAU. Forty years after the inception of the MDP, this hypothesis is tested through a critical examination of archival materials documenting the implementation of the mega-project, and field work in Mahaweli towns that has sought to observe and reflect on the outcomes. The research was primarily archival based; the primary and secondary archival materials were sourced from the Archives of the Mahaweli Authority of Sri Lanka (MASL), in which the original Master Plans, Proposals and Recommendations and the relatively few drawings that are still preserved were critically examined. This comparative analysis is also informed by a critical review of the retrospective writings by the key MAU architects, Nihal Perera and Ulrik Plesner. Perera was also interviewed in order to better understand the MAU's design approach, its operation within the MDP, and its contribution to the Mahaweli towns (2016). Through this combination of methods, the project has sought to cross-examine the original concept and policies of the MDP, in relation to resettlement, settlers' socio-cultural wellbeing and the urban design of new settlements. To assess the success of the MAU's design approach as a strategy to achieve the goals of the MDP, the research has examined, in particular, the experience and design philosophy of the design team (led by the Sri Lankan architect, Perera, and his Danish counterpart, Plesner), their critical response to the design principles of the initial Mahaweli towns implemented

previously, and the architectural language of the dwellings. The realization of the original MDP settlement goals through the design and construction of the MAU towns is discussed critically. The paper concludes with a critical reflection on the lessons that can be learnt to achieve sustainable and integrated development within the mega-dam context in relation to urban design and planning.

The following section of this paper explores the conceptual framework, with emphasis on the sociological recommendations, for the MDP settlements. This is followed by an investigation of the formation of the MAU and the principles adopted for designing 'unique' Mahaweli towns and buildings. The next section evaluates the towns and buildings designed by the MAU in the light of a comparative analysis with the original sociological recommendations of the MDP. The outcomes of the MAU are subsequently identified as a very important phase in the context of Sri Lankan urban design. Finally, the retrospective architectural lessons that can be learnt from the MDP are discussed.

## **2. Mahaweli settlements: a conceptual framework**

### **2.1. MDP impact assessments**

Sustainable development and improved standards of living are the key objectives of resettlement related to large infrastructure projects. These economic objectives are inextricable from social and environmental concerns. In theory, then, careful plans coupled with initiatives to attract new services and industries, strengthened by adequate funds and the institutional capacity to empower re-settlers, to restore resiliency and encourage independence are imperative measures for a 'win-win scenario', in which resettled communities can become project beneficiaries (Scudder, 2005, 20, 43, 87). However, there are many barriers to success, including complicated planning, legal, administrative and management processes and vagaries of political agendas and policies. Moreover, re-settlers have diverse backgrounds which can lead to conflict. Recognition of these issues in relation to the broader agendas of economic reform has led to the emergence of Environmental and Social Impact Assessments (EIAs and SIAs). These are increasingly common, if not mandatory, evaluation processes in the current global mega-project context that assign equal importance to the environmental and social costs of economic growth and change, with the primary goal of attaining integrated economic and socio-cultural development that is both sustainable and equitable, with minimal adverse consequences for the environment (Vanclay, 2000, 2).

A number of comprehensive assessment reports were prepared for the MDP. Several of these were directly related to resettlement and, in turn, urban design. The main sociological reports examined in this paper (herewith referred to as the 'Mahaweli Reports'), provide a sound understanding about the nature of the resettlement process as it unfolded in Sri Lanka. The reports stressed that the settlements were to be 'designed for people'. Thus, they described the overall goals of the settlements including sociological concerns relating to the aspirations of the re-settlers, basic standards of the settlements, detailed physical plans and proposals for services, and 'good' design principles to guide the development of new settlements. They were comprehensive for their time, but are inadequate and incomplete compared to present day standards for this type of project. Therefore, developing a strong theoretical framework on this basis was challenging. As such, the Mahaweli Reports have been used in this study as a benchmark for analysis.

## 2.2. Traditional Sri Lankan settlements and the MDP model

The rural development instigated as part of the new MDP resettlement schemes represented a distinct change from the socio-cultural structure of traditional villages. The most important socio-cultural impact was the transformation of small isolated traditional village communities into production oriented colonisation schemes (TAMS, 1980, 12). In this type of setting, small townships play an indispensable role, as anywhere, as commercial, social, and recreational hubs. They create wealth and provide alternative modes of employment to balance the farming economy and opportunities for future generations, such as vocational training. They are fundamental for regional economic growth (King, 1984, 9-11). Such towns in the rural context provide a higher quality of living, disseminate innovations, and more importantly they represent a modern way of life for the rural inhabitants (Sogreah, 1972, 7). Thus, in relation to rural development, the Mahaweli towns were crucial elements in the overall success of the MDP.

The physical planning model for the Mahaweli settlements was largely based on Central Place Theory (CPT) which was gradually developed and fine-tuned in the consecutive Mahaweli reports. This settlement framework represents territories divided into a hierarchical order of service centres. It consists of 'Blocks', the smallest unit, of 100-125 households, 'Hamlets' comprise a couple of blocks, 'Village Centres' group 4-5 hamlets, 'Area Centres' serve a couple of village centres and 'Townships' cover 2-4 area centres. Townships are the primary service centres and the major unit that reconfigured the underdeveloped Sri Lankan rural interior into an urban landscape. A system consisted of several townships and the MDP area was divided into several systems (Jayewardena, 1988, 34; Rajapakse, 2007, 222; Perera, 2010, 153) (Figure 1).

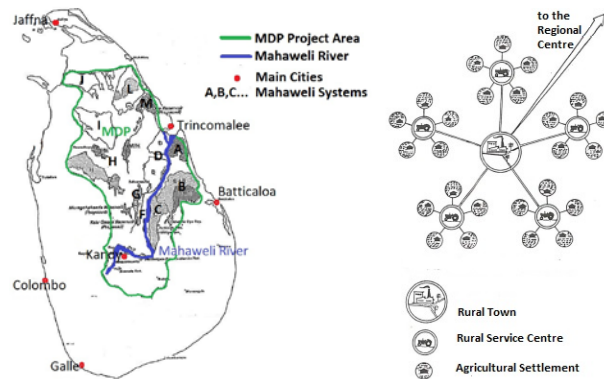


Figure 1: The 'Systems' (A, B, C...) of the Mahaweli Development Project (source: MASL Archives) and schematic model of the Mahaweli settlements based on the CPT. (source: Jayewardena 1988, 35)

## 3. Mahaweli Architectural Unit (MAU): an architectural venture in MDP

Resettlement in the sparsely populated DZ, based on irrigation projects, began in the latter part of the British colonial regime (1815-1948). These endeavours carried a cultural significance—restoration of the 'lost' glory of the DZ—which was vigorously promoted after Independence (1948). The MDP continued to champion this significance and it was aligned with the increasingly popular nationalist vision whereby the DZ was celebrated as the home for a 'Sinhala' civilization which thrived for over a millennia before

the 12th Century due to the advanced cascade irrigation systems which relied primarily on the Mahaweli River (Hennayake, 2006, Moore, 1996, 325-356; 108-110, Sorenson, 1996, 70-73). This ‘colonization’ of the DZ, then, was state-sponsored through agricultural, irrigation and land policies (Sanderatne, 2004, 196-207).

The MDP, the culmination of these projects, was convened in 1963. Like mega-projects worldwide, the MDP was funded by western capital and operated with western expertise (Gunatillake, 1999, 196). In the process of implementing the AMP (1977), the formation of the MAU (1982), by a ‘ministerial decision’ under the umbrella of the MASL (1980), was a timely intervention which enabled the new town construction (with appropriate expertise) to match the engineering works (Plesner, 2010, 376). Moreover, this unit comprising primarily architects was a response to the recommendation of the TAMS report to align the settlements with the “human side of planning” (TAMS, 1980, 25). As Perera argues, the planning approach of the pre-MAU planning body was engineering-dominated and relied extensively on physical data without adequate consideration of the socio-cultural conditions and the ways these could be addressed through architecture and urban design (Perera, 2016). Plesner, an influential figure in post-colonial Sri Lankan architectural practice, who “co-developed a hybrid architecture (with Geoffrey Bawa),” referred to as a “critical vernacular” style by Perera, was appointed as the Consultant Architect, while Perera was appointed as the Chief Architect-Planner of the MAU (2010, 159). This combination of local and foreign expertise was a complementary strength (Perera, 2010, 158-160).

The buildings designed by the MAU differed significantly from the pre-MAU designs. The MAU employed a large number of small scale village contractors and purchased equipment locally in order to strengthen the local economy, as well as to give them ownership through participation (Plesner, 1986, 86). In keeping with this sense of agency, the design of buildings in the vernacular style was compatible with the technical skills of local carpenters and builders. Given these considerations, the MAU aimed to develop simple and rational low-cost buildings and self-help housing types. Rammed earth techniques were developed to a technically satisfactory state and applied to the design of schools and health centres, as well as houses, with the intent to establish better building practices for towns to develop on their own, one of the key dimensions of sustainable settlements (Figure 2).

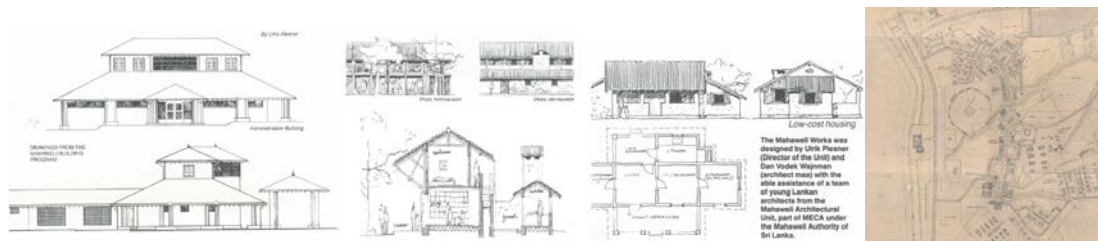


Figure 2: Examples of MAU building designs: administrative building, shop-house and model low-cost core house for farmers (source: Plesner, 1986, 86-87) and the MAU design for the Dehiattakandiya Township. (source: MASL archives)

The vernacular language, nurtured by both the Portuguese and the Dutch, and which mitigated the Sri Lankan hot and humid tropical climate, is prominent not only in these Mahaweli towns, but it is an important trend in the Sri Lankan built environment, embraced in particular, by wealthy, educated, elite

families. Mahaweli buildings expressed the traditional ‘spirit of the place’ and they were arranged around internal courtyards as in the case of the ancient mansions; they are further characterised by pitched roofs with low eaves providing cool shade; colonnades covering wide, deep, open verandas, as in buildings in southern Sri Lanka where colonial influences were prominent; long vistas, as in Buddhist Temples; trellis windows, enabling cross-ventilation whilst affording privacy and security as in the Moorish houses in Colombo and useful and beautiful details including integrated sleeping and seating platforms evident in old traders’ houses in Jaffna (Plesner, 2010, 195-197).

The MAU designed and built mainly two types of town buildings, shop-houses and administrative buildings. These “linear system of buildings”, concentrated along streets and squares are open on two sides to allow cross-ventilation in response to mitigate the hot-humid conditions (Rajapakse, 2007, 228). They could be adapted with new ceilings, windows or special equipment, and connected to nearby buildings with a covered walkway (Plesner, 1986, 86). Shops were built with an upper floor for living or storing goods. This “shop house typology ... built wall to wall” along the main road is a very common element in rural Sri Lankan towns (Rajapakse, 2007, 227). Perera claims, the MAU just built the shells, allowing the owners to customise their interior (2010, 164), and in particular, the provision of sidewalks was intended to create opportunities for individual expression whilst breaking the monotony that might result from repeated building types (Perera, 2010, 166). Rajapakse rightly observes that the “covered walkway in the shop house is a key element in tying the buildings within a common theme” (2007, 229).

The MAU built 12 new towns between 1983 and 1989. The MAU work encompassed a vast scale from territorial considerations through to small buildings within the townships (Rajapakse, 2007, 222). The scope of the MAU included, planning new towns and settlements, design and construction of individual buildings, environmental planning and landscaping (Plesner, 86; Jayewardene, 34). Plesner envisioned the Mahaweli towns as recreations of “traditional qualities in new circumstances”, solving the typical problems such as “traffic, parking, shanty development and unknown future growth” (Plesner, 2010, 384). The MAU employed a “people centred” design approach, to generate an “adaptable plan” or a “loose-fit design”, to construct “good towns” that were intended to respond positively to the climate and the culture. The towns are characterised by a “by-pass concept”, and incorporated “Sri Lankan sensibilities” such as “compact and mixed-use cores”. There are plenty of open public spaces. A unique identity was achieved through the “vernacular style” buildings, which used local materials and expertise, and a simple colour code (Perera, 2010, 160-166), thus giving them their special ‘Mahaweli Town’ characteristics. They responded to the natural environment through the protection of existing trees and the planting of new trees, with the intent to furnish the towns with ‘character’ and to provide ‘shade’. The towns were created for the present rather than for the future and were expected to provide a framework for future development. (Perera, 2010, 168). The MAU’s towns were planned (Figure 2), unlike typical Sri Lankan towns, and they employed a vernacular architectural language, unlike the pre-MAU towns. In doing so, the design of the Mahaweli new towns precipitated a new paradigm of regional planning and urban design in Sri Lanka.

#### **4. Mahaweli buildings and new towns: performance in retrospect**

Many interesting features of the townships can still be observed. The covered walkway is functional and humanises the scale of the street and the shop houses, materialising the ‘people centred approach’ advocated by the architects. These transitional spaces also create opportunities for social interaction. However, given the time that has passed since the towns were originally built, it is possible to observe the successes and shortcomings of these unprecedented urban experiments. The key architects

themselves were critical about the MAU towns in hindsight (Perera, 2010, 143, 166; Plesner, 2010, 411). The by-pass concept or loop road of the MAU towns has had positive and negative results. While providing safety within the town centre, the distance from the main arterial road has hindered the growth of the town. Meanwhile, unauthorized and temporary commercial structures are flourishing along the main roads or at transit nodes in the MAU towns. It was also observed that the prime places in the MAU towns are underused or completely unused. Thus, the towns are empty in contrast to crowded, lively and busy typical towns. Traditional building 'types' and spaces were not integrated in productive ways. A key example of this is the incorporation of the traditional ambalama or rest house. It does not function like a wayside stop. It is too distant from the main circulation routes. Moreover, the centrally planned market squares are not being used, a planning feature which does not match the tendency for people to gather at a specific place of business activity. Not least, the buildings which are inspired by vernacular architecture, which maintain continuity with the past, do not seem to be appreciated by the new settlers who have built modern structures and amenities when the opportunity to do so has arisen (Figure 3).



Figure 3: Abandoned Ambalama: Girandurukotte, unplanned commercial activities: Digana and new shop building in a row of shop-houses: Dehiattakandiya. (photos: author 14-16.6.2015)

The outcomes and the conclusions of the research can be outlined as follows. It is evident that the MAU attempted to create cohesive physical environments and functional towns, while maintaining a simple and rational scale and style in the built entities which integrated well with the natural environment. At the same time, the design of the new towns created a distinctive Mahaweli identity. However, it is not entirely clear how the designs for the new towns addressed the recommendations presented in the Mahaweli Reports (such as the FAO Survey, the Sogreah or the Hunting Feasibility Reports) which offered substantial guidelines for the detailed physical planning of the Mahaweli settlements, including the Mahaweli towns. In these reports, particular emphasis is placed on the 'modern' point of view of the re-settlers and their progressive aspirations. It would seem that the re-settlers did not embrace the critical vernacular approach to the design of the new towns. While the same Mahaweli Reports placed emphasis on the importance of local leadership channels, it is not clear how these were embraced in the structure of the settlements and such channels might have been better understood through the engagement of a rural sociologist; consultation opportunities that could and should have been provided by the MDP given the emphasis placed on socio-cultural concerns raised prior to the appointment of the MAU. Without these mechanisms in place, the new towns lack vitality, or a lively character. They have not precipitated growth – the primary purpose of the proposed towns in the rural context – and they have not promoted economic and social development, or provided opportunities for youth, or for ethnic integration. However, it is acknowledged here that external factors and systemic faults may also have had a significant impact on the present state of the Mahaweli towns,

such as, lack of economic development, low population growth, poor transport and poor maintenance; inherent problems in a developing country; as well as long-term ethnic conflict that could not have been anticipated to the degree that it affected Sri Lanka.

## 5. MAU within the Sri Lankan architectural discourse

Plesner's pioneering work was significant in the revival of traditional architecture. Similarly, the MAU work led by Plesner was significant in the urban design discourse in Sri Lanka. The concept of the MAU was "radically new in Mahaweli" and the MAU created towns with "a unique physical identity and character, new to this previously rural area" that aimed to serve the community and promote growth at an appropriate rural scale (Perera, 2010, 161). Towns created by the MAU can be considered significant in the discourse about urbanism and development in Sri Lanka, not only in terms of what was expected as an outcome, but as a paradigm of post-independence spatial planning and design in which the state, through population redistribution and master planning formulated development projects that resulted in structural transformations in environmental, ecological, socio-cultural, economic and design context for a new urbanism.

Mahaweli towns and buildings have shifted perceptions, positively and negatively, about the role of architecture in development projects in Sri Lanka, both within the planning community and by the general public. It is evident that some aspirations were not met, showing the mismatch between the design and the context. For example, continuity of tradition was not always valued by the "pluralistic" inhabitants with 'modern' and 'progressive' views, or within the changing socio-cultural context of the traditional villages (Barnabas, 1967, 67). Thus the sentimentality attached to traditional architecture was not embraced by rural people as it was by the elite in urban areas. Moreover, as anticipated by the MAU architects, utilizing the MAU towns as a 'framework' for future development did not happen and the present state of the Mahaweli towns are the result of administrative, planning and design negligence. However, the MAU towns did influence the Sri Lankan urban design discourse to a certain degree. Some of the main MAU concepts were directly adopted in contemporary urban design. For example, even though the by-pass concept had specific drawbacks in the Mahaweli context, it was adopted in the recent designs for Kegalle and Mawanella.

In any case, these Mahaweli towns are the outcomes of an intensive regional scale architectural experiment by the MAU architects, who tried to create good towns with sensible and sustainable building designs. As such, they are the pioneering products of a revival of traditional vernacular architecture on a large scale. They are key examples of a different urban design perspective in Sri Lanka with positive lessons. The MAU, as the author of the Mahaweli towns, formed a foundation based on its 'people centred approach' to facilitate a noteworthy epoch of the Mahaweli scheme. Not least, by drawing on a glorious and energetic past the MAU played a significant role in the architectural and urban design discourse of Sri Lanka with their emphasis on the specificity of place in social, environmental and architectural terms.

## 6. Lessons learnt from the MAU

The inspiration that can be drawn from the MAU in the global mega dam context particularly related to architectural design, is not yet recognised nor sufficiently acknowledged. The MDP is not explicitly an architectural project; or an urban design project (Rajapakse, 2007, 220). Nevertheless, for the first time in post-colonial Sri Lanka, urban design and landscape design were considered as integral parts of a resettlement project, and great value was placed on the transformative possibilities of architecture by



the Mahaweli authorities. The formation of a state sponsored but largely autonomous unit, the MAU, comprising architects dedicated to the design of entirely new settlements, was rare in the Sri Lankan urban design context, and unprecedented in the context of mega dams. This distinguishes the unit considered in relation to other resettlement projects of a similar scale, even worldwide. The design philosophy of the MAU, which advocated a people centre approach and the application of a critical vernacular architectural language should be applauded. However, it is evident from this research that the project, comprising the design of 12 new towns in a vast territory forever changed by a mega-infrastructure project, and which displaced hundreds of thousands of people (often against their will), would have benefitted from more rigorous sociological expertise to address the socio-cultural concerns anticipated in the Mahaweli Reports. This sociological expertise was understandably beyond the professional expertise of the MAU. Furthermore, it raises questions about the responsibilities of the MDP in resourcing the MAU and enabling a rigorous process of sociological analysis to best inform the design process given the complexity of the settlers' ethnic diversity, their progressive needs and aspirations, and the sheer number of people involved in the exercise. Hence, the research re-emphasises the importance of sociological considerations in sustainable architectural ventures.

Furthermore, a critical understanding and analysis of the preconditions and structures adopted by the MAU, highlighted the need for constantly evolving new paradigms and practices to accommodate, support or reject change. The MAU fits within the modernist paradigm where the major social and physical structural changes reflect the political ideology of the time. Planning sponsored a new way of living by establishing rationalized, formal principles in space and functions that forced people to live, work and recreate in a predetermined way. The project bears all the hallmarks of a top down, rational and formal approach (Rajapakse 2007, 220), typical of such projects. Most importantly, the research points out the dearth of scholarship of this type of architectural project at the ground level and the need for critical evaluation of the post occupancy sustainability of the settlements, from the point of view of the very occupants, which should necessarily inform similar architectural interventions in the future. The outcomes of the planning principles adopted and the applicability of them in the MDP, can be used to better understand the paradigms, as well as the necessary consultation processes, that architects and designers could take in projects of a similar nature in the future.

Unprecedented numbers of people today are forced to relocate not only due to mega-projects, but for a host of issues including civil conflict, war, and the looming effects of climate change. Creation of sustainable resettlements is of utmost importance and urgency. Where there is an opportunity for design thinking and planning to make a difference, one of the most important questions to ask is whether, according to De Wet, settlers have 'actually upgraded their lives relative to their original setting?' (1995, 1-2). Resettlement is a process of evolution; the entire process takes at least two generations (Sorenson, 1996, 4). Therefore this research on the towns of the MDP – a 'mature' project with more than 40 years of history and spanning at least three consecutive generations – teaches a lesson; that major new planning and design efforts necessarily demand sociological expertise to address the complexities of human needs and may fail to address the fundamental needs of the re-settlers for whom such new settlements are built, and on whom they depend to be sustainable, not just in economic or environmental terms, but in inherently complex social terms.

## **Acknowledgements**

I would like to thank Dr. Nihal Perera, Ball State University, USA, for the opportunity to discuss this project (the interview which was approved by the University of Adelaide Human Research Ethics

Committee, Approval H-2015-055, was conducted on 23 April, 2016). I am indebted to the helpful staff at the Mahaweli Authority of Sri Lanka who provided assistance during my field work in June 2015.

## References

- Barnabas, A.P. (1968) *Sociological Aspects of Mahaweli Ganga Project*, Food and Agriculture Organization of United Nations and Irrigation Department of Ceylon, Colombo.
- De Wet, C.J. (1995) *Moving Together, Drifting Apart: Betterment Planning and Villagisation in a South African Homeland*, Witwatersrand University Press Publications, Johannesburg.
- Gunatillake, G. (1999) Development Policy regimes in Lakshman, W.D. and Tisdell, C.A. (eds.), *Facets of Development of Sri Lanka since Independence*, The University of Queensland, Brisbane.
- Hennayake, N. (2006) *Culture, Politics and Development in Postcolonial Sri Lanka*, Lexington Books, Lanham MD.
- Jayewardena, S. (1988) Mahaweli Development Programme, Sri Lanka, *Mimar 28: Architecture in Development*, Concept Media Ltd., Singapore.
- Karunatilake, H.N.S. (1988) *the Accelerated Mahaweli Programme and its Impact*, 1st Ed., Centre for Demographic and Socio-Economic Studies, Colombo.
- King, L.J. (1984) *Central Place Theory*, Sage Publications, Beverly Hills.
- Mendis, M.W.J.G. (1973) the Planning Implication of the Mahaweli Development Project in Sri Lanka, M.Sc. diss., University of Strathclyde.
- Moore, M. (1992) the Ideological History of Sri Lankan Peasantry, in Brow, J. and Weeramunda, J. (eds.), *Agrarian Change in Sri Lanka*, Sage Publications, New Delhi.
- Perera, N. (2010) When Planning Ideas Land: Mahaweli's People Centred Approach in Healey, P. and Upton, R. (eds.), *Crossing Borders: International Exchange and Planning Practices*, Routledge, London.
- Plesner, U. (2010) *Insitu*, Aristo, Hong Kong.
- Plesner, U. (1986) the Mahaweli Buildings in *Living Architecture*, No. 5, 84-88.
- Ponnambalam, S. (1981) *Dependent Capitalism in Crisis, Sri Lanka Economy, 1948-1980*, Zed Press, London.
- Rajapakse, A. (2007) Analysis of the Mahaweli Towns of Digana and Karalliyadda- Sri Lanka, *the Emerging South Asian Urban Design Practices and Paradigms*, the Centre for Housing Planning and Building, Colombo.
- Roy, A. (1999) *the greater common good*, India Book Distributor, Bombay.
- Sanderatne, N. (2004) Agricultural Development: Controversial Issues, in Kelegama, S. (ed.), *Economic Policy in Sri Lanka: Issues and Debates*, Sage Publications, New Delhi.
- Scudder, T. (2005) *the Future of Large Dams*, Earthscan Publications, London.
- Sorensen, B.R. (1996) *Relocated Lives: Displacement and Resettlement within the Mahaweli Project, Sri Lanka*, VU University Press, Amsterdam.
- Sogreah report. (1972) *Mahaweli Ganga Development Project I: Feasibility Study for Stage II: Volume VII-Settlement Planning and Development*, Mahaweli Development Board of Sri Lanka and Sogreah, Grenoble, France.
- TAMS report. (1980) *Environmental Assessment: Accelerated Mahaweli Development Program: Section L*, TAMS, New York.
- The World Bank. (2004) *involuntary resettlement sourcebook: planning and implementation in development projects*, The International Bank for Reconstruction and Development/ the World Bank, Washington DC.
- The World Commission on Dams. (2000) *Dams and development: a new framework for decision making: the report of the World Commission on Dams*, Earthscan Publications, London.
- Udumulla, T. (1999/2000) Dehiattakandiya: Sri Lankan Experience of Developing a New Town, *SLA Journal*, 102(1), 42-45.
- Vanclay, F. (2000) Social Impact Assessment: Environmental and Social Impact Assessment for Large Dams, a contributing paper prepared for *Thematic Review V.2*, World Commission on Dams, Cape Town.