



COVER SHEET

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The case of the e-tuktuk¹

This paper presents the 'e-tuktuk' as an instance of innovative use of new mobile technology in the historical, social, political and cultural context of the Kothmale region of Sri Lanka. We argue that it is this particular context that allows the e-tuktuk to exist as a meaningful set of social behaviours *in this place*, and that the culturally significant and symbolic notion of reaching out to villages is of particular importance in this mobile example of technological diffusion. In doing so we will necessarily be simplifying the 'almost unbelievable complexity that is involved in virtually any link between human technological forms and human culture' (Pfaffenberger 1988:244). The main aim of this paper is to indicate some of that complexity in the case of the e-tuktuk, and the necessity of considering this involvedness in any scholarly exercise that attempts to understand a new (or old for that matter) technology as it is used and thus made meaningful².

The e-tuktuk (<http://www.etuktuk.net>) is a mobile information and communication centre located within a three wheeled auto rickshaw which is a favoured form of transport common throughout much of South and South East Asia. It is an outside broadcast unit for radio, and a mobile 'telecentre' containing a laptop, printer, phone, wireless internet connection, loudspeakers and multimedia projector. The e-tuktuk is connected to the internet via a CDMA WLL (code division multiple access, wireless local loop) handset. This fixed wireless service has proven popular in Sri Lanka due to relatively low call costs and high network coverage even in remote areas (see Proenza 2005). Roaming

the surrounding villages the e-tuktuk facilitates the activities of a 'community radio' station and delivers information and technology services (Venniyoor 2006). The unit can be used for narrowcasting of audio and media content, facilitating workshops and community events, acts as a mobile production studio and provides live-to-air radio link ups.



Prasanna in e-tuktuk, photograph by Ben Grubb

The e-tuktuk operates out of the Kothmale Community Multimedia Centre (CMC) located in the hills of Central Province, Sri Lanka, close to the Mahaweli Ganga which as we will see had a determining influence on the activities that led to the existence of the CMC as it is today. The e-tuktuk roams the villages that surround the CMC, itself located in a fairly remote settlement called Riverside, near the village of Mawathura. Alongside the e-tuktuk, the CMC encompasses the Kothmale Community Radio station and a computer and internet facility. The CMC is about a 45 minute bus ride from the two nearest towns of Gampola and Nawalapitiya. The area consists mainly of small villages, rice paddies and tea plantations with a significant employment source also being the Mahaweli Development Authority. The population in these parts are a complex ethnic mix, with the

vast majority being Sinhalese (mostly farmers and Government workers), and the largest minority being Tamil (mostly tea plantation workers).

In this paper we draw a strong analogy between the technology of supplemental water distribution in the form of Sri Lanka's large scale irrigation settlement schemes, and information and communication technologies in the form of the Kothmale CMC. Not only can they be seen as analogous, the irrigation schemes provide an important part of the context in which the ICT interventions occur, and indeed the reason for their existence - in this place, in this form - in the first place. However, with both concepts – the more equitable flow of water, and the 'free flow of information' (UNESCO 1980) - there are evident problems, and we can see that, in both cases, a 'generous principle' can be seen as having been used to advantage the few, to the detriment of the many³.

We start by exploring the origins of the Kothmale Community Multimedia Centre, the home of the e-tuktuk. It began in the early 1980s as a peculiarly Sri Lankan form of community radio and is linked to the Mahaweli Development Authority's (MDA) irrigation schemes, which are in turn part of massive rural development initiatives that span the past few decades, to generate and circulate valuable resources like water and power. The Mahaweli Development Project's major goal continues to be the resettlement of landless peasants on newly irrigated lands. Dams are built and water is diverted through canals to new agricultural settlements. This development scheme has a precedent in the (modern interpretations of) ancient Sinhala civilizations - ancient Sri Lankan kings legitimated their rule by constructing such irrigation works. The notion of rulers bringing water to the people can thus be seen as a modern day mode of political legitimation (Pfaffenberger 1988:247). We will demonstrate a link between the emergence of the Kothmale CMC and the irrigation schemes, which in turn provide a metaphor for the

flows of information and communication, which - despite efforts to address this (as with the flow of water) - remains starkly unequal. We will demonstrate that the e-tuktuk can be understood as one of the latest in a series of ICT innovations attempting to overcome some of the inequalities in terms of access and participation, and promoting a *two-way* communication and information flow.

We will see how both the irrigation schemes and the communication schemes can be linked to notions of Sri Lanka as a 'nation of villages' (Brow 1996), to the idea that one needs to reach out to villagers (with water, power, information and communication). We can see that the early appearance in Sri Lanka of its own form of 'community radio' that was both mobile and participatory, is as much in line with Sinhala nationalism as it is with international ideas about what constitutes community radio (Lewis and Booth 1989; Malik 2007; Price-Davies and Tacchi 2001) or citizens' media (Rodriguez 2001). We will compare problems encountered with irrigation schemes, with those of the Kothmale CMC, and look at how the CMC attempts to address these through its encouragement of the e-tuktuk and other initiatives.

The emergence of 'community radio' in Sri Lanka

During the past few decades the island nation of Sri Lanka has undertaken a large scale development programme centred on developing its irrigation capabilities with a major goal of resettling landless peasants on newly irrigated lands in its Dry Zone. In the process, many people have been relocated and large dam and hydroelectric projects undertaken. It was in an attempt to ease relocation problems that the first community radio initiatives were begun under the auspices of the Sri Lankan Broadcasting Corporation (SLBC), through an idea suggested and supported by UNESCO and

DANIDA. The current Controller of Kothmale Community Radio, Mr Sunil Wijesinghe, was a key player in this, and he describes what 'community radio' looked like back then:

It was not a station but a community radio mobile service. They used to go to certain areas (villages) as a team and record programmes each being for about half an hour – three programmes for a week – and give those programmes to [regional SLBC radio services].

There were three of these teams, with each team made up of two producers, an operational assistant, a technical assistant and a labourer,

The two producers and the labourer, with their driver, go to an area on a Tuesday and they stay until Friday and do research first and some recordings. [They research] how the villagers live; what their problems are; how the radio can help them; the talents of the people [local issues and entertainment].

The second week the whole team goes back to the village and sets up a mobile studio in the village... they live with [the villagers] and move with the villagers... Before sending it to the radio ... they first ... produce the programmes in the village itself and broadcast it to the villagers (on loudspeakers) and request comments ... so they can see if there's anything wrong, if the villagers think something should be changed, they're always open to change.

(Interview 26th March 2002)

The SLBC funded the staff of this radio initiative, and UNESCO provided the equipment. It was, according to Sunil, UNESCO who suggested this type of programme be called 'community radio'. Dedicated to engaging with villagers, with provision of (generously) adequate time and resources, this can be considered an appropriate name. It does not mean, however, that the broadcasters were free to air anything that the villagers (or they) wanted. They worked and still work within a system that requires the SLBC to be supportive of Government. The SLBC is an institution established by an Act of Parliament. The Chairman is appointed by the Media Minister. In theory this appointment is not political, in reality it almost always is. Section 5 of Act No 37 of 1966 (The SLBC Act) states 'In the exercise of its functions and powers under this Act, the Corporation shall comply with the general policy of the government with respect to broadcasting and shall comply with any general or special directions given by the Minister, pursuant to the policy of the government in relation thereto'. While topics of relocation were the main preoccupation of and motivation for this radio initiative, it would not have been appropriate to air anything critical of Government policies or schemes. This is an interesting example of State legislated denial of the free flow of communication, which UNESCO's McBride report would call 'abusive legislation'. At the same time, to some extent it went beyond usual broadcasting modes of operation and actually engaged with people in the production of programmes, and as the McBride report also states, 'In order to be really free, information flows have to be two-way, not simply in one direction' (UNESCO 1980:142).

The Mahaweli Development Authority's (MDA) irrigation project required the relocation of significant numbers of people and whole communities. The project aimed to develop the irrigation capabilities of the Mahaweli Ganga, the country's longest river. The Mahaweli Project is one of a number of development schemes (as well as the ongoing civil war)

that has caused the displacement of hundreds of thousands of people in Sri Lanka in recent decades, impacting also on the lives of those who already lived in the resettlement areas. The radio was intended to help with the relocation process, helping people get used to their new situations by sharing experiences and disseminating important information. The MDA is a Government Authority, and it has its own Government Minister. Successive Governments have seen it as important to ensure the MDA projects are a success, and the SLBC also played its role:

All the Government institutions contributed towards the success of the Mahaweli project at that period of time. Everyone wanted it to be successful, so all the institutions gave the maximum support that they could give to this project.

So the Government was instructing the SLBC to use radio to assist them?

Yes. Especially the Mahaweli Minister, the late Mr Gamini Dissanayake. He wanted to do this project properly. Therefore he asked the SLBC, yes, you'd better give your guidance to do this project successfully.

(Interview with Mr Sunil Wijesinghe 26 March 2002)

This then can be seen as the way that 'community radio' emerged in Sri Lanka, through the State Broadcaster, in an effort to aid in the large scale relocation of people, and contribute to a range of socio-economic initiatives to develop the area.

The Mahaweli Project is seen by some as an attempt to combine rural socio-economic development and the political incorporation of the peasantry within a project of Sri

Lankan nation-building based on the provision of a valued resource – water – and an ambition to promote the key virtues of prosperity and justice:

The Sri Lankan project planners envisioned communities of sturdy, independent, yeoman farmers who possess secure land tenure. Thus protected from exploitation and poverty, such farmers would naturally regard their protector, the state, with affection and loyalty.

(Pfaffenberger 1988: 246)

Brow (1996) argues that this constitutes a specifically Sinhala Buddhist nationalism and identity, dominated by an image of a just or virtuous social order (*dharmistha samajaya*) with the village community at its core:

In many of its most prominent representations the Sinhala nation was itself imagined as a nation of villages, and the village community was even located at its moral core.

(Brow 1996: 23)

The village community is clearly important to Sri Lankan identity. In our fieldwork in 2002 it was evident that the majority of the young people that we talked to felt that the village was an important and central site of Sri Lankan identity. They talked of gaining an education and qualifications with the express intention of returning to their villages and working for their improvement. In practice of course many young people who gain an education and skills will seek to move away from rural areas. Nevertheless, this expressed desire demonstrates the strong sense of the importance of villages and the ideal of village communities in the Sri Lankan sensibility (at least in this largely rural

region of Sri Lanka). This starts to explain why an innovation like the e-tuktuk would appeal in this context, and how it can be understood as heralding a return to the earlier mobile communication project that Sunil describes above, reaching out to and spending time with villagers, for their own improvement.

Innovation, expansion, compromise

Following the initial four years of the 'mobile unit' that constituted the first form of community radio in Sri Lanka in the early 1980s, a more traditional radio station model started to emerge. The Mahaweli Community Radio was established as a fixed community radio station in Peradeniya on the outskirts of Kandy, broadcasting through its own transmitter for one hour a day, during week days only. Three teams continued to operate 'mobile units' attached to established SLBC radio stations. But the formula for creating programmes based on spending time with villagers, researching their needs, making programmes in the village and getting villagers to participate in the creation of that content slowed down and eventually stopped altogether. Mobile units would spend just short times in villages, and programmes would be edited back at the studio.

Mahaweli Community Radio was not itself located in a village, but this was to change in 1986 when Girandurukotte community radio was established, followed in 1987 by Mahalluppallama in North Central Province, at the invitation of the Mahaweli Development Authority who have a strong presence there. Broadcasts increased to three hours a day, 5-8pm in the evenings.

In 1989 another community radio station was established, this would later become Kothmale Community Radio. By this time there were three community radio stations along the Mahaweli River. Kothmale Community Radio (KCR) was officially given its

name and a large Mahaweli Authority estate bungalow from which to operate on February 27th 1991 – which is also recognised as ‘Mahaweli Day’. Since then broadcast hours have increased to 9 hours a day at weekdays and 14 ½ hours a day at weekends.

In 1999, with support from UNESCO, Sri Lanka Telecom, the Institute of Computer Technology at the University of Colombo, and the SLBC the Kothmale Internet Project was established. Three computers were set up in a room for public access, and another placed in the KCR studio. Kothmale Community Radio had become the Kothmale Community Multimedia Centre (CMC), a pilot for UNESCO who have since aided in the development of many more CMCs in Asia and Africa⁴.

The idea was that in a rural area such as the one served by KCR, where there were few opportunities to access computers and the internet, indeed few telephone connections and low levels of television ownership, most households had access to a radio. While people could access the computers and the internet in person only if they could travel to the Centre, all might benefit from access via the radio. Radio formats were developed that drew content from the internet, inviting listeners to request information and send in questions that the producers and presenters would search the internet to answer. A flagship programme format called ‘Radio Browsing’ was developed that epitomises this idea of the convergence of the internet as a source of information and the radio as a mechanism for distribution⁵.

Jeffrey James refers to the Kothmale CMC as an interesting exercise in both technological blending (2005), and the use of intermediaries (2004). By intermediaries, James refers to both people and media – so in the case of the Kothmale CMC it is both the radio presenter (the person) who mediates between the information gathered from

the world wide web, and the radio itself as the medium that delivers that information to a large number of people. Bruce Girard also strongly advocates using the medium of radio to access the power of new ICTs and the internet (Girard 2003).

KCR and Kothmale CMC activities can be seen as attempting to use appropriate media to connect to otherwise unconnected people and communities in this rural region of Sri Lanka, and to interact with them. Connecting villages is a theme also evident in the Mahaweli Project to which it is inextricably linked. The flow of information and communication to those without can thus be likened to the flow of water to dry zones that the Mahaweli Project attempted. But neither of these 'connecting' initiatives has been without its problems. Dam and irrigation projects cause classic cases of involuntary relocation, which in turn cause huge social hardship. The World Bank, the largest funding institution for Dam projects in developing countries (it has funded projects supporting the Mahaweli Development Authority), recognises this and has established a set of guidelines for resettlement. However, these are rarely followed and many problems emerge (Horowitz 1991). This is true with the Mahaweli resettlements, despite the many schemes set up by the MDA to ease the hardships of relocation and to irrigate new settlements.

A return to participatory programming

One of the main problems with water supply in the type of 'gravity-flow' system employed in Sri Lanka is that the pressure and volume is always greatest at the 'top end' of the system (Pfaffenberger 1988). Modern irrigation systems lack the sustainability of earlier systems such as those of ancient Sri Lanka (Zubair 2005). Complex systems of rights to irrigation water that discouraged top end water wastage operated to ensure

equitable flow. But these have been lost in the new settlements and omitted from the design of the Mahaweli irrigation schemes (Pfaffenberger 1988: 246). Socio-economic differentiation has emerged as 'top-enders' use more water than they need, and 'tail-enders' receive insufficient or no water. This results in top-enders tending to become wealthy and tail-enders poor, losing their land to *mudalalis* or moneylenders and land speculators. The problem according to Pfaffenberger is that irrigation technology is not simply a matter of 'things' but 'a *system of human social behaviours*, characterized by the ascription – or the non-ascription – of rights to water' (1988: 246). But water-allocation procedures and rights have not been built into the design of the technology in the Mahaweli Project.

While it was hoped community radio would ease some of the problems and help the Mahaweli Project succeed by reaching out to villages and remote settlements and engaging people into development schemes, Kothmale CMC also experiences often debilitating problems. Just as with the flow of water, 'It is generally conceded that the concept of "free flow" [of information and communication], has, in practice, increased the advantages of those who possess greater communication resources' so that it is claimed that 'the "free flow" doctrine has often been used as an economic and/or ideological tool by the communication rich to the detriment of those less well endowed' (UNESCO 1980:141).

For example: problems of connectivity regularly occur - sometimes the internet is not available for months at a time as the SLBC wrangle over who should pay the bill; the radio station has been broadcasting in mono for years due to the lack of a stereo link to the transmitter; they have to limit the amount of work they do in outside broadcasts as the SLBC restricts the mileage of their van that transports them to villages; they have

had to strip parts from their outside broadcasting unit to replace broken equipment in their main broadcast studio. Working as a part of the bureaucracy of the SLBC is not easy:

SLBC controlled all KCR finances down to the lowest level of detail, siphoning off all revenue (including income from computer classes and even web design). Every item of equipment purchase had to be agreed with SLBC; there were strict limits laid down for staff payments, monthly allowable mileage in their use of the station van; any changes in advertising rate card had to be agreed by SLBC (which often took months) making commercial negotiations impossible. SLBC and their technicians union had strict and inflexible regulations concerning all equipment and staffing by technicians.

Moreover, SLBC was not only overly controlling, bureaucratically moribund and unresponsive; it was also perpetually in a state of crisis and confusion, with a bewildering profusion of rumours, plans and personnel changes both within SLBC and its governing ministry. It gave the project insufficient resources and autonomy with which to make itself sustainable and potentially independent, yet at the same time it constantly destabilized it with threats of closure.

(Slater, Tacchi and Lewis 2002:29)

In this context, Kothmale CMC struggles to keep going. While one problem with irrigation schemes may be said to be that the Government paid attention to the allocation of land and not to the rights to water, a problem with Kothmale CMC might be said to be that while there has been support in providing technology, it takes an awful lot of effort to keep things going, especially in reaching out to small and remote villages, especially

when technical and bureaucratic issues drain resources. While the early days of the mobile radio unit achieved high levels of interaction with villagers, and broadcast their voices across the region, this level of interaction and participation has been rare in the intervening years, until recently.

The main aim of the e-tuktuk is to take new technologies to the villages, to be able to demonstrate what can be done using new technologies and provide an access point for people who may not be able to come to the Centre. It is, in effect, a mobile community multimedia centre (CMC). Kothmale CMC have recently made a four month plan for the deployment of the e-tuktuk. The Kothmale CMC researcher⁶, Kosala, had visited a nearby Tamil community to find out if they listened to KCR and what kinds of issues they faced. He went with Pavitheran, KCR's Tamil radio producer. They found a community of 30 old tea estate line houses, in very poor condition. These houses used to belong to a private tea estate that owned this land around here, and the families worked on that estate. In the late 1970s the MDA bought the land and relocated many families. But these families were left behind, without a secure employment source, and with no one to take care of their houses, or protect their rights. Few of the houses have electricity, and many of them are in very poor repair, with damaged roofs. But one of the biggest problems they face is, ironically, water. Not irrigation water for land – they have no land. They struggle to gain access to enough water for drinking and household uses. There is one water tank to be shared among all of them, and it is open and dirty.

While Kosala made research notes, Pavitheran took recordings of local people explaining their circumstances. Together Kosala and Pavitheran visited the community a few more times and worked to develop both a radio programme and a short film made

with still images and a voiceover incorporating the voices of the community themselves (the film can be viewed at <http://www.youtube.com/watch?v=SK-YRGCPksM>).

They used the e-tuktuk's facilities to make these media texts, and to play them to the community and get their feedback. They then visited other communities, screening the short film using the e-tuktuk's projector and generated interest among villagers to make their own short films about issues that were specific to each community. Pavitheran made a 25 minute radio programme that was broadcast on KCR, and he circulated both the radio programme and the short film to various groups including the local Lion's Club, who in response offered to help to purchase a new water tank for this community.

Inspired by the local impact of this use of the e-tuktuk, Kosala, Pavitheran and Sunil (the KCR Controller) worked with all staff to adopt this participatory approach and use of the e-tuktuk into future programming. Each radio producer has been allocated an area of programming - youth, women, health, Tamil communities, agriculture, and so on. They will each concentrate on one or two villages and visit these many times in the e-tuktuk, making radio programmes with and for the villagers. They will use these visits to demonstrate and explore the capabilities and the services that the e-tuktuk can provide. Here we can see a new technology equivalent of the earlier mobile radio units emerging. It is an interesting return to and further development of the earlier idea and concept of what 'community media' might mean in Sri Lanka.

Conclusion

In his exploration of the Mahaweli irrigation schemes Pfaffenberger demonstrates that it is a technology's 'social and mythic dimensions' (1988: 249) that make it what it is. To use technology is to 'express a social vision' and 'engage ourselves in a form of life' (*ibid.*). He argues that attention was paid to land instead of to the processes and rights of

access to water, and consequently water has not flowed equitably. Traditional, indigenous strategies to balance and make the flow equal were lost in the relocation process along with the sense of community that the whole enterprise is built upon. The technology was privileged over the social as the Government provided the channels but was not prepared to invest in making sure the water was equitably distributed.

With the Kothmale efforts in communication similar difficulties and inequalities have been apparent, many of which we do not have the space to explore here⁷. Often debilitated by difficulties in maintaining equipment, or acting autonomously from the SLBC, nevertheless the Kothmale CMC has over the years tried a few innovative ways to bring information and communication technologies into the reach of the excluded. The early mobile radio units provided a mechanism for participation in media content never before attempted by the SLBC, in an effort to connect to villagers. The emergence from then of the fixed community media stations, located in villages, was followed by the establishment of the Kothmale CMC, using radio to give people access to the benefits of newer technologies in the form of the information available via the internet. In this way, the e-tuktuk is the latest in a series of innovations that Kothmale have embraced that aim to connect to the villages. This has been achieved within a bureaucratically and legislatively restricting environment.

All of this of course has to be understood in the context of the Mahaweli Project, and that in turn needs to be understood in the context of modern interpretations of the older irrigation schemes of the ancient Sri Lankan Kingdoms. Taking centre stage in all of this is the somewhat idealized notion of the village and the village community. The e-tuktuk then can thus be understood, in context, as a highly meaningful set of social, cultural,

political and symbolic behaviours that have clear modern and ancient historical precedent.

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¹ This paper is informed by research undertaken since 2002 across three distinct research projects. In 2002 the Department for International Development (UK Government) funded a study of the Kothmale Community Radio and Internet Project in order to develop a new methodology for the evaluation of ICT for development initiatives. That work was undertaken by Don Slater and Peter Lewis of the London School of Economics and Jo Tacchi (reported in Slater, Tacchi and Lewis 2002). It led to the development of Ethnographic Action Research (Tacchi, Slater and Hearn 2003). Since March 2006 the Kothmale CMC has been part of Tacchi's large ARC Linkage (LP0561848) project *Finding a Voice: Making Technological Change Socially Effective and Culturally Empowering* with partners UNESCO, UNDP and the University of Adelaide. Ben Grubb initiated the e-tuktuk project in 2005 with funding from the MJF Charitable Foundation, Pan Asia ICT R&D grants scheme and UNESCO. He is currently undertaking an evaluation of the project as part of his Masters by Research at the Institute of Creative Industries, QUT. We thank the peer reviewers for their comments on the earlier draft of this paper.

² Kothmale's e-tuktuk is a pilot, and we are not claiming that it cannot be used effectively elsewhere – rather, our point is that it will be made meaningful in different ways, in different places and/or times. For example, in Southern Sri Lanka there are plans to utilise an e-tuktuk in lieu of a fixed radio studio as Sri Lankan legislation does not allow for (non SLBC) community radio licences. It is likely to be used, in part, to advocate for such legislation and to publicise and garner support from villagers. In this paper we cite Pfaffenberger (1988) to make the link between technology and society because of his work on the technologies of irrigation in Sri Lanka – we extend his arguments to the technologies of communication. We could have reinforced the link by referring to recent work on mobile media such as Horst and Miller's (2006) ethnography of mobile phones and low-income Jamaicans that demonstrates their role in the 'link-up' that constitutes a thoroughly Jamaican pattern of use of mobile phones or Goggins (2006) work on the cultural aspects of mobile phones, including the power structures and relationships that shape 'cell phone culture'. Other communications technologies also fit into certain patterns of connectedness. This is the case

for technologies in general, which is a point strongly made by Pfaffenberger, as is powerfully illustrated in the now classic work of MacKenzie and Wajcman (1985).

³ International debates on communication and the New World Information and Communication Order in the 1970s and 1980s debated the concept of ‘free flow of information’ with the UNESCO McBride report of 1980 acknowledging the implicit flaws in the ‘free flow’ concept which it named a ‘generous principle’ (1980:143).

⁴ see www.unesco.org/webworld/cmc

⁵ This format is today widely used in CMCs across Asia and in Africa, and has been adopted into other media including a ‘TV Browsing’ version.

⁶ The Finding a Voice project (see note 1) consists of a network of 15 CMCs or ICT centres across South and South East Asia. In each centre a local person – in this case Kosala who has been volunteering and working at Kothmale CMC since the late 1990s – is trained in ethnographic action research (Tacchi, Slater and Hearn 2003). Kosala is supported in his research by Joann Fildes at the University of Adelaide. The Finding a Voice project has two main aims: 1. to help CMCs use research to improve their local effectiveness; and, 2. to explore ways to promote participatory local content creation in each CMC.

⁷ see Slater, Tacchi and Lewis 2002 for a fuller analysis