LOCAL LANGUAGE EVALUATION SURVEY - FINAL EVALUATION

FINAL REPORT

This document presents the Final Report on the Final Evaluation Survey of the Local Language Initiative (LLI) of ICTA. This Final Report is submitted by Management Frontiers (Pvt) Limited to the Head – Monitoring and Evaluation of Information and Communication Technology Agency (ICTA), Kirimandala Mawatha, Colombo 5.

Ref. Local Language Initiative Final Evaluation – ICTA/AFC/CQS/309/62

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12th December 2013

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Abbreviations

CEO	-	Chief Executive Officer
DOL	-	Department of Official Languages
FGDs	-	Focus Group Discussions
GoSL	-	Government of Sri Lanka
HR	-	Human Resources
ICT	-	Information and Communication Technology
ICTA	-	Information and Communication Technology Agency
ITES	-	IT Enabling Services
KEQs	-	Key Evaluation Questions
KIIs	-	Key Informant Interviews
LL	-	Local Language
LLC	-	Local Language Computing
LLI	-	Local Language Initiative
MFL	-	Management Frontiers (Pvt) Ltd
R&D	-	Research & Development
SBLL	-	Standard Based Local Languages
SLIIT	-	Sri Lanka Institute of Information Technology
SMEs	-	Small and Medium Enterprises
ToR	-	Terms of Reference
Unicode	-	Universal Encoding Standard
US	-	Unicode Standard
W&R	-	Wijesekera and Renganathan
QS	-	Questionnaire Survey

EXECUTIVE SUMMARY

Introduction

1. This Report presents the findings of the final outcome evaluation survey of Local Language Initiative (LLI) along with the recommendations and suggestions for improved implementation in the future.

The ICTA and LLI

2. The Government of Sri Lanka (GoSL) launched 'e-Sri Lanka', a national development initiative to promote: (i) the use of ICT to enhance growth, employment, and equity through affordable access to means of information and communication; (ii) access to and use of public information and services online by citizens and businesses; and (iii) competitiveness of the private sector, particularly of knowledge industries and SMEs.

3. To implement this ICTA Program and to achieve the expected outcomes, it has formulated the Local Language Initiative (LLI) with many other similar initiatives. The objective of this Program is to ensure that the benefits of ICT should be taken to people in Sri Lanka, most of whom, if given the choice would prefer to use ICT in Sinhala and Tamil. However, computing in local languages was a problem due to many reasons. As a remedy for this problem, ICTA has ensured adherence to the Universal encoding standard, Unicode as a way of addressing the disorder and anomaly caused by the use of numerous non-standard local language fonts. Unicode provides a unique number for every character, irrespective of the platform used, the program applied and the language used.

4. In relation to the objectives of the e-Sri Lanka Project discussed above, the LLI was designed to achieve six outcomes. They are: Increased level of awareness and usage (over 70%)of standard based local language in computing (awareness and usage of Unicode compliant Sinhala and Tamil fonts); Increased level of awareness of the benefits of local language initiative, Unicode standards, reasons for using or not using Unicode; Increased usage of standard keyboard layouts i.e. Wijesekera based for Sinhala and Renganathan

based for Tamil; Users would be able to develop Unicode compliant local language websites with content displayed correctly and there will be increased aesthetically correct local language characteristics and glyphs in documents and websites; Government and other Sinhala and Tamil websites are available; Bloggers should be able to develop blogs in Unicode as a matter of course; Ease of access with respect to local language standards based products (e.g. fonts, keyboard drivers); and convenient use of Unicode. It is expected that the effective achievement of these outcomes would provide increased contribution to the overall objectives of the ICTA.

5. To achieve the above outcomes, the LLI implemented many initiatives. They are: (i). Development of Sinhala and Tamil Sri Lanka Standards, SLS 1134 and SLS 1326; - the Sri Lanka standard Sinhala Character Code for Information Interchange, SLS 1134: 2004; and the Sri Lanka Standard Tamil Character Code for Information Interchange SLS 1326:2008 and (ii) Defining and standardizing, through SLSI, the sorting sequences (collation algorithm) for Sinhala and Tamil; (iii) Developing Unicode compliant Sinhala and Tamil fonts; (iv) Training font developers and ensuring development of stylized Unicode compliant local language fonts; (v) Deciding with stakeholder consultation, the keyboard layouts for Sinhala and Tamil, and standardizing the layouts through SLSI, (vi) promoting with the private sector, the development of physical trilingual keyboards; (vii) Developing keyboard drivers for using the standard keyboard layout; (viii) Making available user interfaces in Sinhala for Windows; (ix) Agreeing on with public consultation, the internationalized domain name, the top level domain name equivalent for .lk as .ලංකා (.lanka) and .**இலங்கை** (.ilangei); (x) Defining Sinhala and Tamil keypad layouts for mobile devices; and (xi) Defining Locale information for Sinhala and Tamil, Sri Lanka. The LLI has completed these initiatives during the past few years. Presently under LLI, Sinhala and Tamil Unicode publishing fonts are being developed to enable the use of Unicode Sinhala and Tamil in publishing. i.e. specifically in Adobe products.

The Approach, Methodology and Criteria

6. Three main instruments were used for the evaluation. They are: a. desk reviews and observations; b. questionnaire survey with those who compute in local languages (local language (LL) font users); and c. focus group discussions with specific interest groups of ICT / users of computers in local language including managerial level officials of both public and private sectors. The questionnaire survey and focus group discussions had an Island-wide coverage including Northern Province where there are many users of computers in Tamil Language. About 18% of the questionnaire survey sample represented users of Tamil language. Total sample framework is presented in Table 2. The study team also reviewed relevant websites, published reports and available literature, and held peer discussions with professional colleagues in the field. The objective of the evaluation is to assess the progress of achieving the desired results (Outcomes) in terms of relevance; effectiveness; efficiency; and sustainability.

Main Study Findings

7. The overall summary findings of the evaluation are as follows:

Overall Findings

i. The LLI has been able to achieve the following expected outcomes to a greater extent.

- Over 84% of users are aware of and over 72% use standard based local language computing: LLI of ICTA had a target of 70% of users being aware of and using standard based local language computing. The survey reveals that, as per the responses from all types of users, the awareness among the overall users is about 84% and use by overall users is about 72%, as at September 2013;
- Increased use of standards based local languages/Unicode compliant local language fonts and reduction in use of legacy fonts;

- Users are able to develop Unicode compliant local language websites with content displayed correctly;
- Users would come to a point at which using Unicode Sinhala and Tamil is the norm;
- The targeted users should be aware of the Unicode standard and benefits;
- Trilingual Government websites and other Sinhala and Tamil websites should be available;
- Bloggers should be able to develop blogs in Unicode as a matter of course; and
- It should be possible to access the necessary software such as keyboard drivers and install these easily and the users should be able to do this without assistance from IT personnel.

ii. There is inadequate understanding on standard based local language in computing/Unicode standards and Unicode compliant fonts among the officials of the private sector, Communication Centers, Schools and ICT venders;

iii. Printers and publishers do not have ability of using Unicode standard fonts freely due to incompatibilities with the printing and publishing related software (such as acrobat, page maker, CorelDraw, page-maker, illustrator etc.). This has created limitations in using the Unicode compliant local language font;

iv. Limited availability of Unicode compliant fonts and therefore the users are reluctant to move from the legacy fonts they are using at present. This has created a bottleneck with many users moving into the Unicode compliant fonts;

v. There is no system to provide technical support to the font developers. Many font designers are willing to design different fonts but they do not have capacity nor ability to source the required technical support to get it completed as a computer based font; and

vi. Many incorrect words and lettering exists in websites, even though they have been developed using Unicode compliant fonts.

Other achievements

- The Department of Official Languages (DOL) has been able to produce soft copies of 30 different glossaries covering many disciplines using the Unicode compliant local languages. This can be seen as a direct benefit of Unicode compliant local languages implemented by LLI;
- User satisfaction of Unicode standard applications is more than 82%;
- Unicode compliance in government sector organizations has exceeded over 90%;
- Over 90% usage of standard based local language keyboards;
- Over 88% usage of Unicode compliant fonts for web development; and
- Over 82% of users are able to access local language applications easily.

Important Observations

8. There are a number of significant observations made by the Evaluation and are presented below:

i. Main challenges and gaps as well as related suggestions for each of the user groups are as follows.

Individual Users: Even though individual users are aware of the Unicode standard based fonts, their knowledge on installing keyboard drivers and necessary software needs to be improved, understanding of the availability of such facilities needs to be improved. They also are concerned about font distortion that comes up when they share the document through different operating systems and availability of limited styles of fonts. They need to be addressed through awareness programs and through other initiatives.

Government sector officials: Among them, there is a reluctance to accept Unicode fonts and some are still using legacy fonts that they have been using for a long time. Technical knowledge in using and installing Unicode standard based software and keyboard drivers is low and they also find it difficult to work with Unicode standard fonts. They are aware that some of the older operating systems do not support Unicode compliant local language fonts but there is no possibility for them to change the operating system due to

financial constraints. These too need to be addressed through more awareness, training and support systems.

Schools: ICT facilities available are minimal in the rural areas and there is no compelling requirement to use Unicode as they are not connected to the internet. Most schools still manage with legacy fonts. Hence, awareness raising programs are proposed to be conducted targeting students and staff of schools.

Nenasala and Communication Centers: They also encounter difficulties due to unfamiliarity with the keyboard and inadequate knowledge in installing necessary keyboard drivers and other software. Their awareness too needs to be improved.

Font Developers: Developing a font is a joint effort of a person who is skilled in setting rules and a person who is skilled in drawing the glyphs. There are people having the designing skills (E.g. University students) but lack technical knowledge to develop them as computerized fonts. Even if they manage to obtain the required technical support there is no guarantee that the product can be marketed and compensated for the effort as there is very low demand for those fonts. It is proposed to investigate and assess the possibilities of providing technical assistance to the font designers by LLI.

Printers and Publishers: They encounter compatibility issues with Unicode compliant fonts and the software used for printing and publishing. Most of the printers and publishers do not accept documents typed in Unicode compliant fonts for publishing as they need to covert those fonts to printing compatible fonts. Also they fear that the speed of their typing staff will drop when changing to Unicode fonts. These issues too need to be addressed to further enhance the achievement of results by LLI.

Web-developers: They encounter problems as there is no portal for communication with the authorities to raise technical matters that arise when using Unicode standard based applications. Other concern they have is that the Unicode fonts are not available with many styles and also clarity (visibility) of the fonts get distorted in the websites of those who are using Windows XP operating system. It is proposed that LLI assess the possibility of having a portal as well as take initiatives to increase the availability of many more local language fonts.

Professionals: They face situations where certain characters do not appear while typing and it is difficult to resolve without technical support and it is suggest having a technical support unit at the ICTA.

ICT Venders: Many ICT vendors do not have adequate knowledge on Unicode standards and related products. Most of them still use legacy fonts and their understanding and knowledge need to be improved.

ii. Greater impact on Government Circular on use of Unicode compliant fonts – Many public sector organizations stated that they were informed about the implementation of Unicode standards through a Government Circular and they soon decided to follow it. The higher proportion of use of Unicode compliance LL fonts and websites in LL is evident from the public sector. Hence, it could be recommended that another round of circulation of the same so that those who have not adopted the new standard could be encouraged to change.

iii. Lack of variety of Unicode compliant LL fonts – Many users stated that there is no variety in Unicode compliant LL fonts. Most of the fonts are very similar and therefore users still tend to use the legacy fonts. It was also highlighted that the font developers are not interested in developing new fonts due to difficulties in cost recovery.

Lessons Learned

9. A number of lessons learnt are evident from the evaluation survey. They are:

i. Need for strong enabling environment to support use of Unicode compliant local language applications in the private sector.

ii. Intensifying the monitoring and evaluation mechanism at ICTA to assess the progress of the use of standard based local language applications in the government sector;

iii. Need to assess the performance of Nenasala operations specially the use of Unicode compliant standards based local language applications.

iv. Leadership and policy support for key ingredients for the promotion of LLI; and

v. Strong evidence to show that the Unicode standard and computing in local languages are receiving increased attention and are very likely to be sustained;

vi. Strong relevance of Unicode standards and the outputs produced by LLI for increased computing in local languages; and

vii. Leadership and policy support as well as use of lead agencies are key ingredients for the promotion of local language computing.

Recommendations

10. The following recommendations are presented for consideration of the LLI and ICTA. Most of these actions are in the form of advocacy, promotions, and support to the various target groups through ICTA's LLI as well as other initiatives. Many of the recommended actions below can be supported by ICTA and its initiatives through promotions, advocacy, as well as direct support through systematic and structured Training programs, information sharing, and providing direct technical support for the partners.

i. Advocate and promote holistic and strategic interventions to popularize use of standard based local language in computing/Unicode standards and Unicode compliant local language fonts;

ii. Promoting the development of new Unicode compliant local language fonts through provision of technical support;

iii. Address the difficulties and limitations faced by the printers and publishers in using Unicode compliant fonts

iv. Consider supporting use of standard based local language in computing/Unicode compliant local language fonts for government (schools etc.), non-governmental players and stakeholders, including the private sector and communities;

v. Improved focus on north and east provinces in relation to popularizing Unicode compliant Tamil fonts;

vi. Improved awareness on standard based local language in computing/Unicode Fonts among the users, particularly the ICT venders, School teachers and the youth;

vii. Addressing the limitations of use of Unicode compliant fonts such as (i) ability to use them with other applications, removal of limitations and restrictions on development of new Unicode compliant LL fonts, and (ii) easy access of LL standard products and other peripherals in rural areas;

viii. Promote Unicode Standards and Unicode compliant LL fonts in schools and rural areas through innovative initiatives such as Essay competitions though use of computers and Unicode fonts, providing fonts and keyboard drivers etc., through CDs etc.; and

ix. Initiatives to enhance ICT usage in local language such as online translation facilities, glossaries, attractive LL fonts, more publicity and awareness on ICT as well as Unicode standards and LL fonts.

Conclusion

11. The findings discussed above indicate that the LLI had been a success. As far as the key performance indicator of level of awareness and ability of using standard based local languages in computing are concerned, the LLI has been able to achieve a commendable level of performance as the evaluation reveals that 84% (2013) of users are aware about the standard based local languages and that 72% (2013) of the users use the standard based local languages in computing.

CHAPTER 1

1. INTRODUCTION

1.1 The Assignment

Management Frontiers (Private) Limited (MF), entered into an agreement with **Information and Communication Technology Agency (ICTA)** on 18th September 2013 to conduct the Final Evaluation of Local Language Initiatives programme. As specified in the Terms of Reference (TOR), Management Frontiers commenced the survey on the 2nd of October 2013 and have now completed the entire work of the survey. This Final Report presents evaluation survey findings, learning and recommendations for improved achievement of results by LLI as well as a similar initiative to be implemented in the future.

1.2 The e-Sri Lanka Program

The Government of Sri Lanka (GOSL) launched 'e-Sri Lanka', a national development initiative that aims to promote: (i) use of Information and Communication Technology (ICT) to enhance growth, employment, and equity through affordable access to means of information and communication; (ii) access to and use of public information and services online by citizens and businesses; and (iii) competitiveness of private sector, particularly of knowledge industries and Small and Medium Enterprises (SMEs).

These objectives of the e-Sri Lanka Development Project will be achieved by establishing an effective, citizen-centred and business friendly government; empowering of the rural poor, disadvantaged groups, women and youth through increased and affordable access to information and communication tools, developing leadership and skills in ICT, and creating employment in the ICT industry, ICT- enabled services and enhancing competitiveness of user industries and services. Under the multi-donor funded e-Sri Lanka Development Project, the following programmes are being implemented by ICTA:

1. ICT Policy, Leadership and Institutional Development program
2. ICT Human resource Development and Industry Promotion Program
3. Tele-centre Program
4. Re-engineering Government Program
5. E-society Program

1.3 The Local Language Initiative (LLI) of ICTA

The ICT Agency of Sri Lanka (ICTA) is promoting standards in the use of ICT in Sinhala and Tamil, and has been addressing issues relating to standard fonts and keyboards, standard sorting sequences etc. in Sinhala and Tamil. The objective of these interventions is to ensure that the benefits of ICT should be taken to majority of the population in Sri Lanka, most of whom would, if given a choice, prefer to use ICT in Sinhala or Tamil.

When there was no standardization, applications used their own fonts. Documents produced using one application could be accessed and used only through that application. Therefore, various legacy fonts had to be downloaded when accessing Sinhala and Tamil websites. Under this condition, the websites were displayed as indecipherable jargon. This was a major problem when trying to use a document created by another, produced using a different font or application. The font had to be sent to the recipient with the Sinhala document produced, unless one knew that the recipient already had the font. This made the use of Sinhala email impractical, and slowed the use of Sinhala on the web. Also Specific application such as web processing did not integrate with other applications and functions such as sorting in Sinhala and Tamil were not standardized among applications. There was no way in which Sinhala or Tamil content could be developed for the internet and there were no possibility to search the internet in Tamil or Sinhala and also for sorting.

The ICTA realized the importance of the above initiatives and agreed that this area should be taken over by ICTA and promoted as a priority. So, under the e Sri Lanka program, ICTA commenced the Local Language Initiative,(LLI) in July 2003 and many efforts had been made to introduce Sinhala and Tamil Language in computing.

In this initiative, “standardization” was identified as the solution for the disorder caused by the use of numerous non-standard solutions. The only available international standard for the language character set is *Unicode (Universal Encoding)* (Unicode standard -*Universal Encoding*-handles the entire world's script*”. Unicode provides a unique number for every character, no matter what the platform, no matter what the program, no matter what the language. Unicode*

includes provision for all the World's languages, including Sinhala and Tamil, among other indie languages. Modern computer systems support Unicode. The Sinhala code chart was included in version 3.3 of the Unicode standard.

As a result of LLI, it is now possible to type in Sinhala and Tamil, exchange information in Sinhala and Tamil using a computer and browse the web in Sinhala and Tamil. The content on websites in local languages are displayed as Sinhala and Tamil rather than being seen as undecipherable symbols. Therefore, there is no requirement to send fonts with e –mails or download fonts to view the websites.

The following activities have been implemented by the ICTA in partnership with key stakeholders such as the Sri Lanka Standards Institution (SLSI), the University of Colombo School of computing (UCSS) and the University of Moratuwa.

1. Development of Sinhala and Tamil Sri Lanka Standards, SLS 1134 and SLS 1326; The Sri Lanka standard Sinhala Character Code for Information Interchange, SLS 1134: 2004 and the Sri Lanka Standard Tamil Character Code for Information Interchange SLS 1326:2008
2. Developing the sorting sequences (collation algorithm) for Sinhala and Tamil
3. Developing Unicode compliant Sinhala and Tamil fonts
4. Training font developers and ensuring development of stylized Unicode compliant local language fonts
5. Defining the Sinhala and Tamil keyboard layouts and ensuring standardization through the Sri Lanka Standards Institution (SLSI)
6. Promoting, developing and popularizing standard-based local language keyboards and getting physical trilingual keyboards developed through the private sector
7. Developing keyboard drivers for using the standard keyboard layout
8. Made available user interface in Sinhala for Widows

9. Agreeing on the the internationalized domain name, the top level domain name equivalent for .lk as .ලංකා (.lanka) and .**இலங்கை** (.ilangei), through a Consultative process and following up on implementation in the Internet.
10. Defining Locale information for Sinhala and Tamil, Sri Lanka and uploading on to the relevant locale sections on the Unicode website, www.unicode.org.

Apart from the above activities there have been additional projects being implemented by ICTA which are still at the early stage to assess the extent of achievement of intended outcomes. The additional projects being implemented are:

1. Enabling Sinhala and Tamil in mobile operating System; entails defining a keypad layout for Sinhala and Tamil
2. Text to speech System for Sri Lanka Tamil and speech to Text system for Sri Lanka Tamil
3. Unicode Compliant Publishing in Sinhala and Tamil languages
4. Developing a Sri Lanka Tamil language corpus
5. Developing Translation Tools

1.3.1 Development of Sinhala and Tamil Sri Lanka Standard Character Code

ICTA developed the Sri Lanka Standard Sinhala Character Code for Information Interchange (SLS 1134:2004) and the Sri Lanka Tamil Character Code for Information Interchange, SLS (1326:2008), consistent with the Unicode standard; developed keyboard layouts and keying in sequences and sorting.

1.3.2 Sri Lanka Sinhala Character Code for Information Interchange, SLS 1134 : 2004

The second revision of the Sinhala ICT Standard was standardized by the Sri Lanka Standards Institution in 2004 as the *Sri Lanka Sinhala Character Code for Information Interchange, SLS 1134:2004*. The International Organization for Standardization (ISO) included the Sinhala

Character Code for Information Interchange, in the standard *Information technology-Universal multiple-octet coded character set, SO/IEC 10646-1.*

This second revision of SLS 1134 provided coding of the set of Sinhala characters for use in ICT, specifications for the code sequences and keyboard sequences. It also provided a revised keyboard layout, based on the layout in the original version of this standard (i.e. Wijesekera typewriter keyboard). This revision retained compliance with ISO/IEC 10646-1. There are two collation sequences as dictionary collation sequence and simple collation sequences. Apart from these the following activities were also completed to enable using local languages in modern computer systems. Along with this, the dictionary collation sequence[1] and the simple collation sequence were also completed[2].

1.3.3 Sri Lanka Tamil Character Code for Information Interchange, SLS 1326:2008

ICTA in partnership with other organizations developed a document comprising encoding for Tamil characters, a keyboard layout and a collation sequence for Tamil. The Sri Lanka Standards Institution (SLSI) standardized this in September 2008, as the *Sri Lanka Tamil Character Code for Information Interchange*, SLS 1326:2008. The standard was launched on 24thNovember 2008. The standard comprises the following Character encoding and code sequences, based on Unicode Standards Version 5.1 and ISO/IEC 10646: 2003.

- **Tamil keyboard layout and keying-in sequences:** After many consultative meetings and analysis, it was decided to use the layout of *Renganathan* keyboard for Tamil character coding.
- **Tamil collation sequence:** The collation sequence which is Part 1 of SLS 1326:2008, was formulated for compiling dictionaries, other scholarly works, use in data processing and sorting lists of personal data and other information.

[1] The dictionary collation is the canonical collation order, and should be used when correct collation, based on the linguistic derivation of Sinhala, is required, e.g. for a dictionary. This is recommended for use in scholarly and academic activities.
[2] The simple collation is to be used for preparing lists of names, places, etc. and will produce identical results as the dictionary collation sequence when collating personal names, place names and other common data. This algorithm is both easier to implement, thus encouraging vendors to support Sinhala in their products, and produces a result which will not confuse a naive user, who is not aware of the subtleties of the language.

1.3.4 Developing Unicode Compliant Sinhala and Tamil fonts.

ICTA spearheaded the development of Unicode Sinhala and Tamil fonts and at the inception partnered with several organizations in getting a few Unicode compliant Sinhala and Tamil fonts developed.

The objective was to generate accurate Sinhala documents with the use of the full complement of characters facilitated in the standard, SLS 1134 and to propagate the use of aesthetically correct Sinhala character glyphs. It is also intended to discourage the continued use of legacy fonts that are not compliant with SLS 1134:2011.

ICTA developed a standard-based Sinhala font, Bhashitha (භාෂිත), in conformity with SLS 1134 for Level 2[3] font and Level 3[4] fonts. ICTA also developed a Tamil font "Sri Tamil" in conformity with the Sri Lanka Standard Tamil Character Code for Information Interchange, SLS 1326:2008.

There are other Unicode compliant Sinhala and Tamil fonts developed by ICTA and by stakeholders. They are:

Unicode Sinhala Fonts

1. Dinamina (Lakehouse font)
2. Iskoola Potha (Microsoft)
3. Bhashitha and Bhashitha Sans (ICTA font for Windows)
4. LBhashitha (ICTA font for Linux)
5. Sri Bhashitha – trilingual ICTA font. (Windows and Linux)
6. MalithiWeb (ICTA)
7. Sarasavi (University of Colombo)
8. LKLUG (Linux User Group font)
9. Thibus (Science Land (Pvt) Ltd.)
10. Puskola potha
11. Winnie
12. Winnie1
13. NYH

[3] Level 2 fonts are intended for general applications such as documents, books etc.
[4] Level 3 fonts are intended for advanced publications, especially for supporting Pali and Sanskrit text written in Sinhala script, and for historical documents.

14. Warna
15. SS Sulakna

Unicode Tamil Fonts

1. Latha Latha (Microsoft)
2. Sri Tamil (ICTA)
3. Science Land's Tamil Unicode fonts in Thibus package
4. Chemmozhi series

1.3.5 Training Program for Font Developers and ensuring development of stylized Unicode compliant local language fonts.

ICTA conducted font development training[5] in partnership with the University of Colombo-School of Computing (UCSC). Six Unicode compliant Sinhala fonts developed by the trainees, in different styles are available to use. The objective of training font developers was to provide a fonts development program targeted on developing and designing aesthetically correct standards-conformant fonts of good quality. A list of Sinhala Unicode fonts and Tamil fonts is presented in Annexure 15.

1.3.6 Promoting, developing and popularizing standard-based local language keyboards and getting physical trilingual keyboards developed

Other initiatives that LLI implemented were promoting the development of standards based keyboards and popularizing them. Keyboards were developed based on *Wijesekera* and *Renganathan* based keyboard settings for Sinhala and Tamil languages respectively. Computers supplied by the ICTA under its other initiatives had the standard local language keyboards and were installed with Unicode compliant fonts of local languages.

1.3.7 Developing Keyboard drivers for using the standard keyboard layouts

LLI-ICTA developed keyboard drivers as well and were developed for using the Standard Sinhala and Tamil keyboard layouts in Windows.

[5] The proceedings of the training were also recorded and published as a book "Guide to creating Sinhala and Tamil Unicode fonts

1.3.8 User interface in Sinhala for Widows and MS Office

In addition to above functionalities, user interfaces were also made available in Sinhala. Users now have the option of using either Sinhala or English interfaces. ICTA partnered with Microsoft in developing the interfaces for Windows. ICTA contracted with the University of Colombo School of Computing and Science Land for translating the words and phrases.

1.3.9 Internationalized Domain Names - top level domain in Sinhala & Tamil

The following IDN ccTLDs (country code Top Level Domains) for Sri Lanka were agreed on through a public consultative process

- The IDN top level domain for Sri Lanka in Sinhala would be .ලංකා (.lanka)
- The IDN top level domain for Sri Lanka in Tamil would be .**இலங்கை** (.ilangei)

These were announced at the inauguration of the eAsia Conference on 6th December 2009 and were also approved by the Internet Corporation for Assigned Names and Numbers (ICANN) in March 2010.

1.3.10 Locale information for Sinhala and Tamil, Sri Lanka

A locale which is a string identifier that refers to linguistic and cultural preferences with regard to a language, script and country etc. is necessary for companies to localize their software and to adapt the software to the conventions of different languages such as date formats, time formats, time zones, currency values, collation sequence, sorting order, separating digits in sets of either threes or twos in currency values etc.

ICTA has updated the Sinhala section in the Common Locale Data Repository (CLDR) in the Unicode website. ICTA also requested a locale for Tami_Sri Lanka which has been given. Both Sinhala and Tamil locales in the CLDR have been updated.

1.3.11 Enabling Sinhala and Tamil in mobile operating systems

This is an application intended to inculcate schoolchildren into using ICT and promote digital skills by enabling Sinhala (with Bhashitha) and Tamil (with Sri Tamil) keypad input in mobiles by enabling Sinhala and Tamil soft keypad input in mobiles in accordance to the ICTA keypad

layouts and keying in mechanism. A Sinhala/Tamil educational application to be used in Androids and iOS targeted to primary school children has been developed.

Though it is possible to email this application to computers in Sinhala and Tamil, keypad application for enabling Sinhala and Tamil in mobiles has to be developed and uploaded on to the Apple and Android app stores.

1.3.12 Text to Speech system for Sri Lanka Tamil and Speech to Text system for Sri Lanka Tamil

The project entails developing a text-to-speech system and a speech-to-text system for Sri Lanka Tamil. These would be especially useful for the visually impaired. Implementation of this project will enable speech recognition and synthesis for Sri Lanka Tamil.

1.3.13 Unicode compliant publishing in Sinhala and Tamil

This project is being implemented at present to ensure that Unicode Sinhala and Tamil can be used in publishing so that a key impediment in using Unicode Sinhala and Tamil is alleviated. Sinhala and Tamil fonts that render correctly on publishing software are being developed. The ICTA font glyphs (shapes) of the ICTA fonts Bhashitha and Sri Tamil are being used. The font rules are also being developed for publishing applications.

1.3.14 Developing a Sri Lanka Tamil language corpus[6]

Three major categories for the Tamil corpus identified are: newspapers, creative writing and technical writing and data are being collected. For the parallel Sinhala Tamil corpora, different sources for collecting data have also been identified and data are being collected. After development, it will also be necessary to ascertain a way in which the Tamil Language Corpus could be recognized as a national corpus, (such as the British National Corpus at

[6] A language corpus is a structured set of "real world" texts which provide evidence of how language is really used. Corpora are used in lexicography, in linguistics, in projects related to languages such as translation dictionaries, in teaching, natural language processing, spell checkers and grammar checkers etc., and in the study of languages. Parallel Sinhala-English corpora will also be developed.

http://www.natcorp.ox.ac.uk/) together with the Sinhala Language Corpus which has already been developed by UCSC.

1.3.15 Developing Translation Tools

The project entails firstly developing a Translation Memory (a linguistic database in which previous translations are stored as source language and target language pairs) which continually grows and "learns" from the translations. There are a few benefits of using this tool. It will speed up localization processes as the same text need not be translated twice, ensure consistency and thus reduces costs, and will also ensure better quality of the output. The more it is used, the more it will be "trained". Implementation will enable translations between Sinhala and Tamil as well.

1.4 Desired Results (Outcomes) of the Local Language Initiative (LLI)

By implementing the above activities, the Local Language Initiative as one of the key program areas of e-Sri Lanka project of ICTA intended to achieve the following important results.

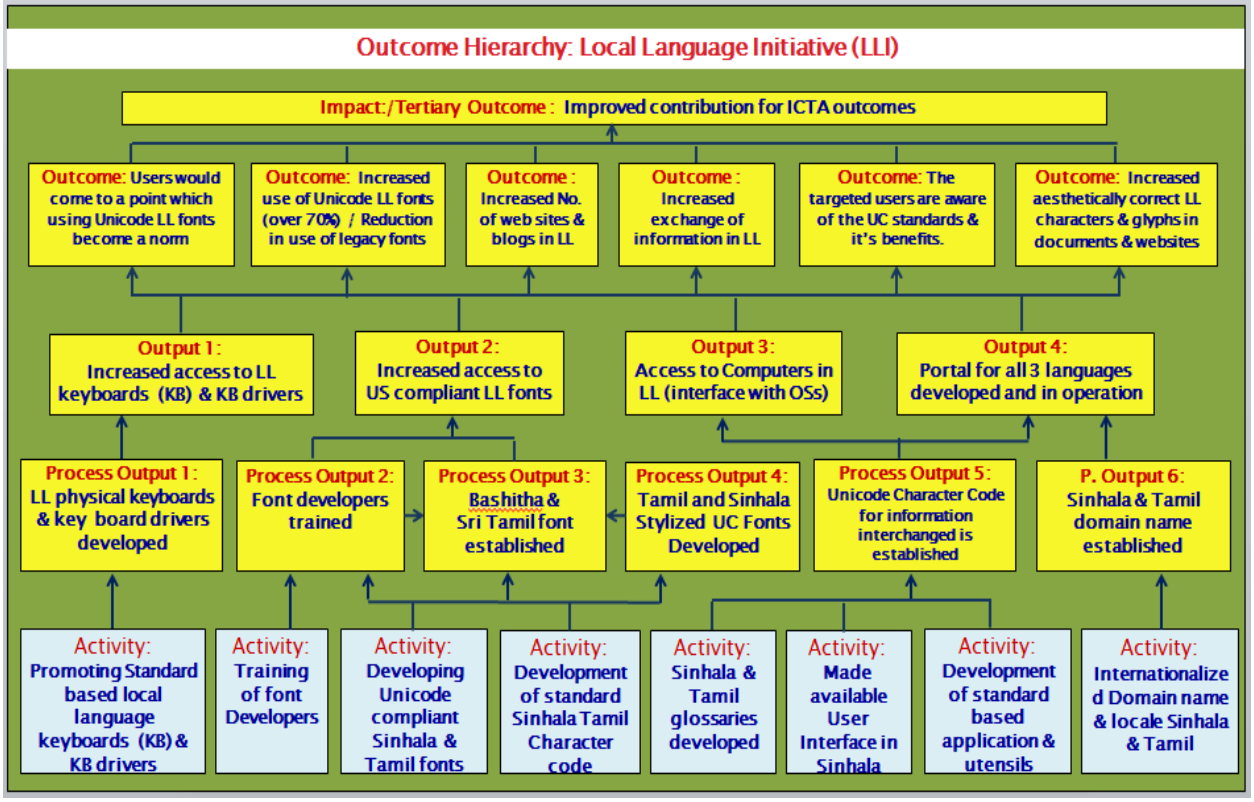
i. The users would come to a point at which using Unicode Sinhala and Tamil becomes the norm;
ii. The targeted users should be aware of the Unicode standard and benefits;
iii. Users would be able to develop Unicode compliant local language websites with content displayed correctly;
iv. Government and other Sinhala and Tamil websites should be available;
v. Bloggers should be able to develop blogs in Unicode as a matter of course; and
vi. It should be possible to access the necessary software such as keyboard drivers and install these easily and the users should be able to do this without assistance from IT personnel.

The Evaluation would also expect to help clarify underlying factors affecting the situation, highlight unintended consequences (positive and negative), recommend actions to improve performance in future Programming and highlight the lessons learned.

1.5 The LLI Outcome Hierarchy

The logical consequences of the project activities, processes, outputs, outcomes and the higher level impact of LLI of ICTA have been depicted in a outcome hierarchy model and is presented below.

Figure 1: Outcome Hierarchy of Local Language Initiatives (LLI)



1.6 Objective of the Evaluation

The main objective of the evaluation is to assess the progress of achieving the intended results of the Local Language Initiative of ICTA. The evaluation is expected to assess the achievement of the following results.

i. The level of awareness and usage of standard based local language in computing (awareness and usage of Unicode compliant Sinhala and Tamil fonts);

ii. The level of awareness of the benefits of local language initiative; Unicode standards, reasons for using or not using Unicode;

iii. Usage of standard keyboard layouts – viz Wijesekera based for Sinhala and Renganathan based for Tamil;

iv. Users will be able to develop Unicode compliant local language websites with content displayed correctly and there will be an increase in aesthetically correct local language characteristics and glyphs in documents and websites ;

v. Government and other Sinhala and Tamil websites are available;

vi. Bloggers should be able to develop blogs in Unicode as a matter of course;

vii. Ease of access with respect to local language standards based products (e.g. fonts, keyboard drivers); and convenient of use of Unicode; and

1.7 The Structure of the Final Report

This Report presents the findings of the evaluation based on its scope and using the methodology adopted by Management Frontiers and suggestions and recommendations for better implementation in the future. The structure of the report is as follows:

Chapter 1 - Introduction: A description of ICTA programs, Local Language Initiative (LLI), evaluation framework and theoretical foundation.

Chapter 2 - Methodology followed in the evaluation: A description of the evaluation methodology.

Chapter 3 - Evaluation Findings: An in-depth analysis of the situation with regard to the achievement of expected outcomes by the Program.

Chapter 4 - Conclusion - Lessons learned suggestions and recommendations: This chapter includes the key findings (including best practice and lessons learned), suggestions to improve the implementation mechanism and recommendations for future action.

Annexures - Annexures include the list of companies included in the sample, guidelines used for Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) and Terms of Reference (ToR) etc.

CHAPTER 2

2. THE SCOPE OF EVALUATION AND METHODOLOGY

2.1 Scope of Evaluation

The purpose of this assignment is to undertake a comprehensive outcome evaluation survey is expected to identify necessary variables, gather relevant and appropriate data, and generate a comprehensive analysis report on the progress of achieving the outcome of the Local Language Initiatives as well as clarifying underlining factors that affect the situation, highlight unintended consequences (positive and negative), present recommendations to improve performance in future programming, and document lessons learned.

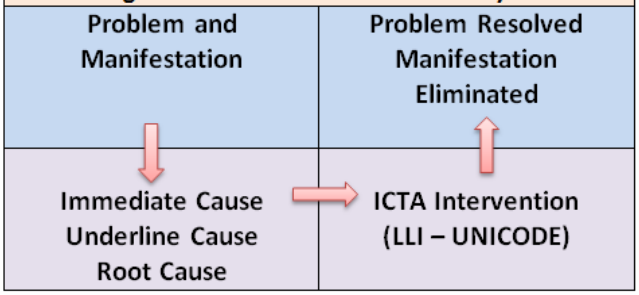
This evaluation specifically focused on the following:

i. ***Outcome analysis*** - What and how much progress has been made towards the achievement of the desired results (outcomes); including contributing factors and constraints;
ii. ***Output analysis*** - the relevance of and progress made in terms of the LLI outputs;
iii. ***Output-outcome link*** - What contribution LLI has made/is making towards the achievement of the outcome; and,
iv. ***Future intervention strategies and issues*** - Most important forward-looking recommendations on future Programing strategies towards achieving better results.

2.2 The Evaluation Approach and Methodology

This final outcome evaluation survey adopted the innovative model, the logical model to assess the progress of achieving the intended results of the Local Language Initiative. This comprehensive logical model (See Figure 2) which starts from the analysis of root causes,

Figure 2: Problem and Outcome Analysis



underline causes and immediate causes and linkages has been formulated by the consultants and the tools used to assess outcome and relevance, effectiveness, efficiency and sustainability of Local Language Initiative towards achieving of expected outcome.

The Outcome Hierarchy presented above illustrating the broad picture of logical consequences of the activities, process output, outcome and impact at the higher level was also formulated for this survey and used in the outcome analysis.

In addition to the outcome analysis discussed above, the evaluation also examined the areas of challenge, obstacles and new approaches and activities to be recommended for improved results in the future interventions. That examination includes:

- Issues and problems in application of Unicode which need to be addressed for effective achievement of results;
- Existing interventions in partnership with stakeholders;
- Additional resources that are required and new or other interventions needed in the future;
- New strategies in achieving the desired results; and
- Priority issues that LLI could focus on in the short-term.

2.3 Overall Survey Framework, Methods and Techniques of Data Collection

The evaluation survey framework consists four components; the Logic Model, Evaluation Design, Implementation Plan and Data Analysis and Reporting. However, all steps of these four components are not listed as separate activities but are merged together to formulate a meaningful methodology of work, explaining the entire process of outcome evaluation exercise.

The evaluation study adopted the mixed approach of data collection methods which consists both qualitative and quantitative techniques. This included a questionnaire survey, Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). Telephone interviews were used in the cases where personal meeting was not possible. Most of the FGDs, KIIs and telephone

interviews were conducted by the consultants while the structured questionnaires were administered by trained enumerators. Detailed survey questionnaires and guidelines on FGDs and KIIs were developed at the time of planning and finalization of data collection tools and agreed with ICTA program team before implementing the survey activities. Appropriate set of variables as well as indicators in line with program's outcome hierarchy were also identified and agreed with ICTA before commencing data collection.

1. ***Questionnaire Survey (QS)*** – The questionnaire was administered to collect data from the users of computers and users of Unicode compliant fonts, on their awareness about Unicode compliant fonts, use of local languages in computing and benefits accrued upon introduction of Unicode compliant fonts. The detailed survey questionnaire is presented as Annexure 16.
2. ***Key Informant Interviews (KIIs)*** – The relevant officials of the selected institutions and organizations were met personally and the required data was collected from them using KII guidelines developed for the evaluation.
3. ***Focus Group Discussions*** – Focus Group discussions (FGDs) were also held with groups of officials or representatives from the organizations, institutions and societies such as schools and universities, using FGD guidelines developed for the evaluation.
4. ***Telephone Interviews*** - Where necessary, and when visits were not possible, telephone interviews were held to support the needed data collection as a supplementary method.
5. ***Literature survey*** – Referring and studying the project literature provided by the ICTA program team and the available project document in Local Language Initiative-ICTA website were also undertaken.

2.4. Selection of Survey Sample

A representative random sample from all main categories of the program beneficiaries and the other stakeholders of the Local Language initiative was selected for the survey. The stratified random sample and the sample size were finalized in consultation with ICTA program team.

Based on the intended outcomes of the LLI and related indicators of intended outcomes discussed above, the evaluation identified twelve major categories of beneficiary groups to collect data and information and is as follows.

Table 1: Summary of Beneficiary Sample and Evaluation Focus

No.	Sample Category	Definition	Evaluation Focus
1.	Users of computers in local languages	Group of individual users who use local Languages in computing	a. Whether or not they are using Unicode compliant fonts b. Whether or not they are aware of the type of fonts that are being used by them c. Whether they are aware of the benefits of using Unicode compliant fonts
2.	Managerial level staff of public and private sectors	Managerial level staffs who have the decision making power as to what type of systems, programs, fonts and computers to be used by the staff in the organization.	a. Level of awareness on the Unicode fonts b. Level of usage of Unicode compliant fonts c. Awareness on Organizational benefits and challenges in use of Unicode compliant fonts and computers
3.	Font developers	The group professionals who develop local language fonts	a. Whether they continue to develop legacy fonts b. Whether they are willing to continuously develop Unicode complaint fonts and the level of demand for such products at present c. Whether they encourage and assist the users to use Unicode compliant fonts d. Extent of them using Unicode complaint fonts
4.	Schools and Universities	The group that uses ICT for academic purposes both teaching and learning	a. Whether or not they use Unicode compliant fonts b. Whether or not they are aware of the type of fonts that are being used by them c. Whether or not they are aware of the benefits of using Unicode compliant fonts d. Extent of use of legacy fonts
5.	Nenasla and Communication Centers	Nenasala - The tele-centers established under the assistance of ICTA in different areas of the country and provide ICT services to the users in the area Communication Centers- Commercialized computers ICT centers that provide ICT services to customers	a. Level of awareness on Unicode compliant fonts b. Level of usage of Unicode complaint fonts at the centers c. Whether or not they are aware of benefits of using Unicode compliant fonts d. Whether they encourage their customers to use Unicode fonts in computing.
6.	Professionals	The group who use computers in local languages in their professional work.	a. Level of awareness on Unicode compliant fonts, b. Whether they are aware of the type of fonts that are being used by them, and c. Whether they are aware of the benefits of using Unicode compliant fonts.

No.	Sample Category	Definition	Evaluation Focus
7.	ICT Venders	The group who sells computers, accessories and other peripherals for computer users	a. Whether or not the customers are requesting Unicode fonts to be installed or buy the machines with operating systems which facilitate use of Unicode fonts b. Whether or not they are aware of the Unicode fonts and its benefits c. Whether they are encouraging their customers to use Unicode fonts in computing d. Extent of use of legacy fonts
8.	Web developers	The group who developed websites including pages in local languages	a. Level of usage of Unicode fonts b. Level of awareness on the benefits of using Unicode compliant fonts c. Whether there is an increase in development of websites in local languages in the recent past (3 – 4 years).
9.	e-content developers in local languages	The group who have been able to develop local content in web with the support of ICTA	a. Level of usage of Unicode fonts in developing e-contents b. Level of understanding of benefits of using Unicode compliant fonts (e-content is possible due to Unicode compliant fonts) c. Whether there is an increase in e-content development in the recent past.
10.	Printers and publishers	The group who produce printed version of books, papers and various publications etc.	a. Level of use of Unicode fonts by printers and publishers b. Level of awareness of benefits as well as challenges of using Unicode fonts in printing and publishing c. Gaps and challenges in using Unicode compliant fonts in printing and publishing d. Potentiality for future activities
11.	Bloggers	The group who writes blogs in local languages	a. Level of usage of Unicode fonts b. Level of awareness on the benefits of using Unicode compliant fonts c. Whether there is an increase in development of websites in local languages in the recent past (3 – 4 years).
12.	Local language keyboard manufacturers	The companies that manufactures local language keyboards	a. Level of usage of original keyboards made to support Unicode standards b. Level of demand for such keyboards c. Potential demand for such keyboards in the future.

2.5 The Sample Framework

The sample size for each category was decided and agreed with ICTA considering the volume of work involved, affordability in terms of cost and the duration in which survey need to be

completed. The following survey sample framework was agreed with ICTA program team based on the said criteria have been completed.

Table 2: The Sample Framework

No	Sample category	Sample size Proposed	Sample Completed	Geographical Coverage	Language
1	Individual users (Sinhala and Tamil fonts (public and private sector)	100	109	Colombo – 33 Outstation - 76	Sinhala - 89 Tamil - 20
2	Managerial and general staff in Government and Private sector organization	30	34	Colombo 14 Outstations: 20	Sinhala - 29 Tamil - 5
3	Nenasala and communication Centers	20	34	Badulla, Matara, Kandy, Hambantota, Nuwara Eliya, Jaffna	Sinhala - 27 Tamil - 7
4	Schools and Universities	14	15	Colombo, Kandy, Matara, Jaffna, Hambantota, Nuwara Eliya, Badulla	Sinhala - 12 Tamil - 3
5	Professionals E.g. Trainers, lawyers, writers, journalists	10	10	Colombo	Sinhala - 7 Tamil - 3
6	Computer and software vendors	10	13	Colombo, Kandy, Galle, Jaffna, Hambantota, Nuwara Eliya, Badulla	Sinhala - 10 Tamil - 3
7	Font developers	5	5	Contact list from ICTA, mainly in Colombo	Sinhala - 4 Tamil - 1
8	E-society/content developers	5	5	Randomly from ICTA list, mainly in Colombo	Sinhala - 5
9	Web Developers	5	7	Randomly, mainly in Colombo	Sinhala - 7
10	Bloggers	5	5	Randomly, mainly in Colombo	Sinhala - 5
11	Printers and publishers	5	6	Randomly, mainly in Colombo	Sinhala - 5 Tamil - 1
12	Local language keyboard manufacturers	3	4	Randomly, mainly in Colombo	Sinhala & Tamil - 4

2.6 Survey Quality Assurance

Necessary action and arrangements that are required for assuring quality of the survey was made by the consultants at each stage of the survey process. The survey was well planned with the

participation of well experience consultants who have expertise in planning, conducting such a comprehensive survey.

Group of qualified and experienced enumerators was carefully selected for the field survey to administrate the structured questionnaire. They were trained and tools were pilot tested before undertaking the field survey. The issues and problems faced by the enumerators were duly attended and supported by the consultants on a continuous basis. The consultants conducted the KIIs, FGDs and telephone interviews.

Accuracy and the reliability of the data and information collected by the enumerators were continuously checked and reviewed by the consultants. Database and the process of data tabulation were also monitored and supervised by the consultants.

Records of the interview too were reviewed by the consultants and defects were corrected before data synthesis was commenced. Synthesis was also shared among the team of consultants before they were entered into the final report. Regular team meetings were held to discuss the progress, challenges and to identify necessary remedial actions to ensure the smooth implementation of survey.

2.7 Limitations of the Evaluation

Generally, the evaluation progressed well at each step of the planning, implementation and reporting phases. The cooperation from the officials, local language group and other partners (web developers, font developers, e-content developers, bloggers, schools and universities etc.) was good though there were challenges in a few cases where it was quite difficult to take appointments for interviews, especially from the managerial level staff as they had tight schedules.

With regard to application developers, our attempts to find application developers who have developed applications to be used in local languages were not successful and therefore, we have excluded that category from the survey sample.

CHAPTER 3

3. EVALUATION FINDINGS

3.1 Introduction

This chapter presents the findings of the outcome evaluation survey for Local Language Initiative of ICTA. The findings of the evaluation have been presented in line with the desired outcomes of the project which has been detailed out in the Terms of Reference (TOR) agreed with the Information and Communication Technology Agency (ICTA).

As elaborated in the section the methodology (Chapter 2) of the report, this evaluation survey has been conducted focusing on twelve categories of target groups which were identified as the beneficiaries and stakeholders of the Local language initiative. The extent of the achievement of the outcomes of the LLI has been presented against each category under the headings of the key outcomes. For ease of reference of the report, the findings have been presented in summery format as presented below.

Table 3: Summary of findings on Achievement of Outcomes of LLI

No.	Outcome	Evaluation Findings
1	The level of awareness and usage of standard based local language in computing (awareness and usage of Unicode compliant Sinhala and Tamil fonts);	The evaluation revealed that 84% of users (both language) aware of the standard based local language computing and 72% of users use standard based local language in computing. More details are presented in paragraph 3.2.1.
2	The level of awareness of the benefits of local language initiative; Unicode standards, reasons for using or not using Unicode	In terms of awareness of benefits of use of standard local language for computing, LLI imitative and other related matters, it was found that there is awareness among more than 90% of local language users. Please refer paragraph 3.2.2.
3	Usage of standard keyboard layouts i.e. Wijesekera based for Sinhala and Renganathan based for Tamil	The evaluation finds that more than 90% are using the standard keyboard layouts. Paragraph 3.2.3 presents more details on the same.

No.	Outcome	Evaluation Findings
4	Users would be able to develop Unicode compliant local language websites with content displayed correctly and there will be increased aesthetically correct local language characteristics and glyphs in documents and websites.	The survey revealed that about 86% of websites developers are using standard based local languages for developing the websites. The review of local language websites and response from users shows that there is significant increase in aesthetically correctness in local language characteristics and glyphs in websites and documents. It was also found that there are still about 10% of websites carrying aesthetically incorrect/inappropriate local language characteristics and glyphs. Analysis of survey findings and observations on these is presented in paragraph 3.2.4.
5	Government and other Sinhala and Tamil websites are available	The Evaluation reveals that there is steady increase in trilingual websites. There were about 30 local language websites in 2011 which has increased to about 175 by October 2013. Detailed analysis is presented in paragraph 3.2.5.
6	Bloggers should be able to develop blogs in Unicode as a matter of course	It was found that all bloggers develop blogs in Unicode as a matter of course and use of local languages for blogs are increasing rapidly. Paragraph 3.2.6 presents a detailed analysis.
7	Ease of access with respect to local language standards based products (e.g. fonts, keyboard drivers); and convenient of use of Unicode.	The evaluation finds that the access to fonts, keyboards and keyboard drivers etc. to facilitate use of standard local languages for computing is easy and the users do not face difficulties in accessing them. Detailed analysis is presented in paragraph 3.2.7.

3.2 Analysis of Achievement of Outcomes of LLI

The detailed analysis of the evaluation findings have been presented below under each outcome of the LLI project.

3.2.1 Outcome 1: 72% of users are aware of and use standard based local language computing

One of the key outcomes indicated in the results framework of the Local Language Initiative is that the users would come to a point at which using Unicode compliant fonts become the norm. In this regard a target of 70% of users using standard based local language computing was set to be achieved by 2013". It was expected that all the users who compute in local language would use Unicode compliant local language fonts as a normal course, without having to request, advise or be guided by another. Further it is expected that using Unicode should be natural that all users would use Unicode compliant local language fonts in the long-run.

The evaluation focused following two aspects to determine the outcome;

i. Whether users are aware of the standard based local language computing, and
ii. Whether the users are using standard based local language computing.

The findings by the survey on these two aspects are presented below.

3.2.1.1 The level of awareness of Standard based Local Language Computing

The level of user awareness of the Standard based local languages have been identified as one of the main indicators to assess this outcome of the LLI project. The analysis given below presents the level of awareness of Standard based local languages among each of the user categories and the overall awareness level. The overall awareness has also been presented for both the local languages.

Table 4: Level of Awareness on Standard Based Local Language Computing

No.	User Category	Awareness	
		Yes %	Total Population
1	Awareness of Standard based local languages by users (Sinhala)	89%	200
2	Awareness of Standard based local languages by users (Tamil)	60%	43
	Total awareness of Standard based local languages (Both languages)/***Overall awareness***	**84%**	**243**
1	Aware of Unicode Standard fonts (Sinhala) - Individual users	76%	89
2	Aware of Unicode Standard fonts (Tamil) - Individual users	65%	20
	Total awareness of Standard based local languages (Both languages) - Individual users	**74%**	**109**
3	Managerial Staff	91%	34
4	Universities and Schools	87%	15
5	Nenasala Centers	89%	19
6	Communication Centers	67%	15
7	Professionals	90%	10
8	Web Developers	100%	7
9	Bloggers	100%	5
10	Printers and Publishers	83%	6
11	e-societies	100%	5
12	ICT Venders	92%	13
13	Font Developers	100%	5

As revealed by the above Table, a significant portion of users are aware of the Standard based local language computing. On an overall basis, there is 84% of users are aware about the Standard based local language computing (both Sinhala and Tamil languages). The analysis also highlights that about 89% of Sinhala language users and 60% of Tamil language users are aware of Unicode standard local language computing. Overall, the levels of awareness among all the categories are high, except in the case of communication centers and Tamil individual users. The awareness among these two categories is slightly lower compared to others and recorded awareness levels are 67% and 60%, respectively. Some of the users such as content developers

(e-Society), bloggers, font developers and web developers are fully aware of Unicode standard based local language computing, mostly due to the ICT knowledge that they possess and their engagement in the ICT field.

3.2.1.2 Usage of Standard Based local Language

The usage of the standard based local languages was also evaluated during the survey in order to assess the extent of the usage of standard based local language by the various groups of users. The level of usage, types of Unicode fonts use, comparison of awareness and the usage of standard based local languages are presented below.

Table 5: Level of Usage of Standard Based Local Language Computing

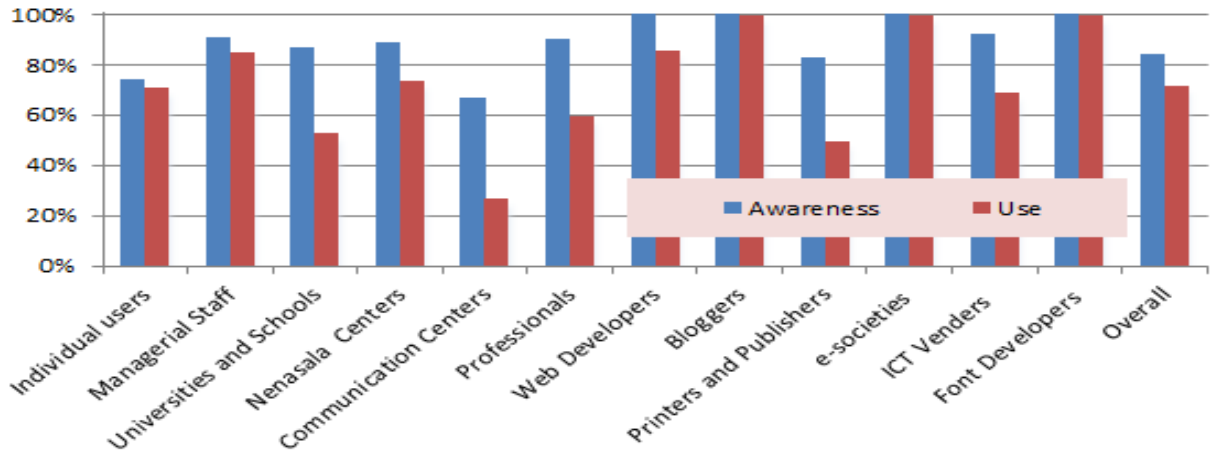
No	Category	Analysis	
		Yes %	**Total**
01	Usage of Standard based local languages by users (Sinhala)	78%	200
02	Usage of Standard based local languages by users (Tamil)	44%	43
	Total usage of users of Standard based local languages (Both languages)	**72%**	**243**
01	Usage of Unicode Standard fonts (Sinhala) - Individual user	72%	89
02	Usage of Unicode Standard fonts (Tamil) - Individual user	65%	20
	Total usage of Standard based local languages Individual user	**71%**	**109**
03	Managerial Staff	85%	34
04	Universities and Schools	53%	15
05	Nenasala Centers	74%	19
06	Communication Centers	27%	15
07	Professionals	60%	10
08	Web Developers	86%	7
09	Bloggers	100%	5
10	Printers and Publishers	50%	6
11	e-societies	100%	5
12	ICT Venders	69%	13
13	Font Developers	100%	5

The above analysis indicates that 72% of the users are currently using standard based local languages. About 78% and 44 % of users use Unicode standard fonts in Sinhala and Tamil languages respectively. There has been a significant increase in usage of standard based local languages when compared to the usage level in the year 2011. The outcome evaluation carried out in the year 2011 revealed that only 54% of the users use standard based local languages for computing. The number of users has increased by 18% from the level of usage in 2011. This can be identified as a significant achievement by the LLI.

The major contributing factor for the overall increase in use of standard based local language computing is the increase in use by the individual users. Compared to the levels of usage in 2011, the usage of standard based Sinhala and Tamil languages in computing by the individual users have increased significantly by 16% and 19% respectively by 2013. The above analysis reveals that there are three user categories, Communication centers, Schools, ICT venders who have lower level of use of standard based local language computing.

Even though, there are 84% users who are aware about Unicode standard fonts, only 72% out of them are using Unicode fonts. It also revealed that about 6% of users do not use Unicode standard font even though they are aware of the Unicode standard font. The following graph indicates the variation among the users on the awareness and use of local language computing.

Figure 3: Awareness and usage of Standard Based Local Language Computing



Box 1: The Parliament of Sri Lanka – A Leader in Use of Unicode Compliant Fonts for LLC

The parliament is the apex of all representative bodies, and is the sovereign legislature in the country. Its purpose is to exercise effective supervision through its procedures ensuring the effective functioning of the Government. The e-parliament project was implemented as one of the pilot projects sponsored by the ICTA which supported to make the services of Parliament more efficient and effective using Information and Communication Technology.

In this context, the parliament of Sri Lanka needs to comply with the trilingual policy in all core parliamentary and administrative functions and ensure the transparency and accessibility of information to all Sri Lankans.

The survey team met Mr. Mahesh Perera, Director IT of the Parliament to gather information on implementation of trilingual policy in Parliament affairs under e-parliament project as well as about the results in implementing LLI at the Parliament.

Mr. Perera stated that "The parliament needs to disseminate information quickly and also should adopt trilingual policy. Processing documents promptly and disseminating information fast using ICT was a challenge with legacy fonts. So, we decided to adopt Unicode standards for local language computing. It made us easier to access, process and disseminate information including the Hansard, to the public on a timely manner. Sharing documents among various departments of the parliament and other stakeholders such as the Government Printer, various ministries and the offices of Members of Parliament (MPs), through the internet was also a major problem that we encountered. It was cumbersome to word-process large volume of documents in different fonts for different users. As a result, there was a long delay in producing the Hansard. However, adopting the Unicode Standards fonts and Unicode standards, we have been able to streamline all these processes. We now process all our documents such as Hansard, Newsletters, Bills, Acts of Parliament, Press releases and other publications in all three languages using Unicode standard fonts. We mostly use "Iskolapotha" and "Latha" fonts. MPs also can input corrections with regard to their speeches in Hansard electronically at present".

"We also maintain the Parliament web-site (http://වෙබ්.පාර්ලිමේන්තුව.ලංකා) trilingual, using Unicode standards. We have been awarded as the "Best Government website" Sinhala and Tamil for many years in the past. We at the parliament too encountered many challenges at the initial stages of implementing e-Parliament project and the LLI. The officers were not familiar with the Unicode standard keyboard hence reduced processing speed as well as reduced the accuracy of documents. These were however addressed through training and awareness programs and technical guidance".

"There are many benefits from adoption of Unicode Standards at the Parliament. We have been able to streamline the process of production of documents, dissemination and sharing of information electronically through internet (e-mails, intranet, internet and the web-site), improve the speed and efficiency in processing documents and publications, maintenance of accuracy of documents and save financial resources which could have otherwise been spent on paper and printing. This is actually a substantial achievement by the Parliament, ICTA and the Government of Sri Lanka"

The levels of awareness and usage of standard based local language computing by each category of users is discussed below.

Individual users

With regard to individual users, about 74% users are aware of Unicode standard fonts while 26% of users have little understanding of the Standard based local languages even though they use computer local languages.

In the year 2011, only 56% of users were using standard based Sinhala language and 46% of users were using standard based Tamil language for computing. This has improved significantly by 16% and 19% respectively during the past two years. On overall basis, the usage by individual users has increased to 71% by 2013.

Managerial level users

It is satisfactory that the managerial level staff, who have the power of decision making and influencing others in organizations, have a good understanding on Unicode Standards as well as local language computing. They record a higher level of awareness of 91% which represents an increase by 6% in level of awareness compared to findings of the last LLI outcome evaluation survey[7]. As per the findings of the previous outcome evaluation the level of awareness among the managerial level staff was around 85%. As there have been many activities and awareness raising campaigns conducted by the ICTA targeting government and private organizations, the level of understanding of the managerial staff has further improved. With the introduction of e-Government policy, most government institutions adopted Standard based local languages for computing and ICT based activities. There were about 14 IT policy initiatives undertaken by the government in mid-2010 to improve the awareness and use of standard based local languages in the government sector. These initiatives have significantly contributed towards the improvement in awareness and use of Standard based local languages, particularly in the government sector.

[7] The LLI Outcome Evaluation Survey Report - 2011

Usage of standard based local languages at the managerial level is also records higher level of 85%. It indicates that there is a positive trend towards encouraging and promoting Unicode standard fonts within the organizations and the institutions. With the adoption of circular issued by the President's Office in Sri Lanka to establish standard based local language applications in the government sector institutions, the managerial level staff in organizations has started using standard based local languages for computing. Further, majority of the managerial level staff of the government organization are supposed to play the role of CIOs (Chief Innovative Officers) which was promoted by ICTA under the e-government program. It appears that these factors have directly influenced in increasing the use of standard based local languages in organizations as well as among the individual users.

Box 2: "*Dinamina*" Newspaper, The Lake House
An Intervention led many professionals adopting Unicode for LLC

The Lake House is the pioneer in print media in Sri Lanka and there are many daily newspapers and other periodicals published by them in all three languages of Sinhala, Tamil and English. *Dinamina* is one of the most popular Sinhala daily newspaper published by them. This is also published as an e-newspaper and attracts millions of readers from all over the World. There are over 600 professionals working for *Dinamina* as reporters and writers to this newspaper. The Lake House adopted Unicode Standard local languages in computing for a few years now and therefore the Survey team met Mr. Nalin Dilruksha, the Editor of *Dinamina* to gather insights of this initiative.

Mr. Nalin Dilruksha stated that "the Dinamina newspaper has about 600 reporters providing news and other articles on a daily basis. It was a very cumbersome process of reading and editing them as they were sending their articles electronically in many different fonts (legacy fonts). Sharing of documents in a common database was therefore a huge challenge. Lake House had to maintain a depository of various fonts to open and read them. After editing, these had to be transferred to another font which is unique and print software compatible. There were many regional reporters sent their reports in hardcopies. These articles had to be reproduced which created a lot of

additional work. Editing of articles electronically was difficult as they were many different fonts. Editing of articles in hard copies was also difficult and used a lot of paper. Lake House has not been able to control the verity of fonts used but had to accommodate them by simply collecting the font from the sender, if it is a new font. Working with an extensive variety of legacy fonts was therefore a serious encounter that Lake House had before implementing Unicode compliant fonts at Lake House and by *Dinamina* newspaper".

He also stated that "the *Dinamina* newspaper adopted Unicode Standards and Unicode complaint fonts. All internal processes such as receiving, editing and converting them into the printable mode were done based Unicode standards. All writers and reporters of the newspaper are required to use Unicode compliant fonts. This benefited immensely as we were been able to eliminate all the problems and difficulties experienced at the time of using legacy fonts. Use of Unicode standard has also resulted in increasing the efficiency, effectiveness and accuracy of reporting, ease of editing and publication of e-newspaper which could be accessed by any person from any part of the World. A new Unicode compliant font *"Dinamina"* too was developed by Lake House under the assistance of LLI of ICTA. Lake House also provided training on using Unicode standard based fonts to the regional reporters. At present, over 75% of regional reporters send their reports electronically and they are compiling documents using Unicode compliant font, *"Iskolaptha"*. Dinamina e-newspaper uses the "*Iskolapotha"* font while print version uses its own *Dinamina* font. Due to the LLI initiative of ICTA and steps taken by the Lake House to adopt the Unicode System, more than 600 professionals attached to *Dinamina* newspaper are now using Unicode compliant fonts for local language computing. Overall, due to many other benefits such as ease of communication and improved efficiency in operation at *Dinamina*, the investment on implementing Unicode compliant fonts was one of the best investments by the Lake House".

E-content developers, font developers and bloggers

It was observed that the e-content developers and bloggers have more awareness and usage (100%) of Unicode standard based applications and local languages in computing. In order to accomplish their tasks and meet customer demands, they should have a sound knowledge in standard based local language computing as well as many other areas in the ICT field. The font developers too should have a good technical knowledge in ICT including standard based local language computing.

All the content developers, bloggers and font developers are using Unicode fonts as a matter of norm in computing in local languages. The font developers would obviously use the Unicode fonts that are developed by them or other fonts in developing the websites.

Box 3: "Jathaka Katha" - Content Development in Local Language in action

Development of content in local language is one of key outcomes of the LLI of ICTA. At present, there are many people develop contents in local languages in Sri Lanka. One such content developer is "Jathaka Katha". The survey team met Rev. Ellawela Vijithananda Thero of Innovative (Pvt) Ltd who develops "Jathaka Katha", to gather insight of this initiative.

Rev. Ellawla Vijithananda stated that "the *Jathaka Katha* is one of the successful local content developments supported under the e-SDI .The website www.jathakakatha.org contains all the 550 *Jathaka Katha* in Sinhala language. This e-content development in Sinhala language is a remarkable religion and cultural achievement where the religion and the information technology have been able deliver such a Nobel piece of religious work for the society. This content has received a remarkable response. This is evident from the feedback that we receive from readers. The site records an increasing number of visits by readers on a daily basis. Especially, Sri Lankans who are living in foreign countries visit the site very often and have benefited immensely. It was also evident that the parents are advocating and encouraging their children to read and learn from *Jathaka Katha* in Sinhala language so that both the knowledge about the religion as well as the language competency could be enhanced.

"Before Unicode became popular and widely used, this content was developed on various legacy fonts. As such the user had to download the font before logging on to site. Many readers did not have the facilities to download fonts and therefore use of Jathaka Katha was difficult and was not popular. Now with the Unicode standard fonts, web browsing in local language and logging on to the sites in local language is easy and convenient. Therefore, reading the *Jathaka Katha* and enjoying the benefits. Achievement of these results was possible as the Unicode standard fonts and the other facilities to computing in local language have been made available by LLI of ICTA. The contribution that was made by establishing Unicode standard based local languages in computing is commendable. At the initial stage, the relevant content developers encountered many technical problems in relation to the accuracy and correct display of the content and in sharing information on different operating systems. Most of these difficulties are now addressed and it is easier for the readers to access the documents in local languages at present".

(*Jathaka Katha* – Life stories of Load Buddha's former births)

Web-developers

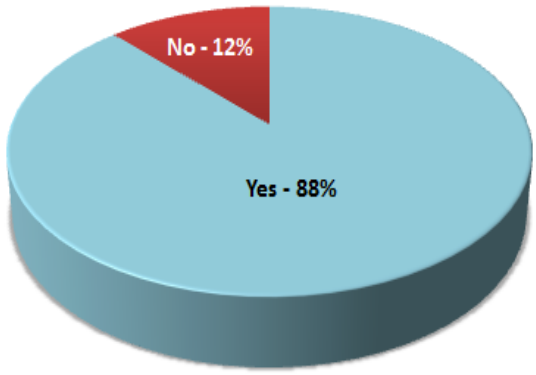
The level of awareness and use of standard based local language computing by the web-developers are 100% and 86%, respectively. It was expected that web developers would use and would be aware of the benefits of Unicode compliant local language computing as it is essential for them to function as web-developers. The level of awareness and use of local language computing by web-developers is tabulated below.

Table 6: Extent of awareness and use of Unicode compliant fonts by web-developers

No.	User Category	Yes	No	Extent
1	Aware of Unicode compliant fonts	7	-	100%
2	Use of Unicode compliant fonts for developments	6	1	86%

It was revealed that all web developers are aware of standard based local language computing and its benefits, but only about 88% of them stated that they are actually using Unicode complaint fonts to develop websites in local languages. Most of the web developers who are using Unicode Fonts for web development expressed that the use of Unicode standards have increased the confidence of the web-developers as the use of standard based local language computing as well as browsing of local language websites are on the increase. Unicode compliant fonts are widely available and are used by many at present. Therefore, there is no necessity to upload various fonts to view the websites. Therefore, users will not have difficulties in viewing websites developed in local languages. Furthermore, accurate use of Sinhala/ Tamil languages for presenting the content is considered as a key benefit of using Unicode Fonts in web-development.

Figure 4: Use of Unicode Compliant Fonts for Web Development



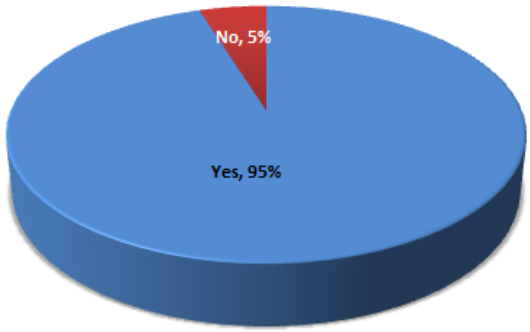
It was also examined whether the standard local language fonts have been used in web development. The evaluation examined 108 websites of government institutions and found that 88% of them have used standard based local language fonts whereas the rest (12%) have used legacy fonts.

14% of web developers managed with legacy fonts as they have got demands from various customers to use those fonts. The legacy fonts were used for content writing and those fonts were uploaded in the web for the use to download whenever necessary to access to the websites.

Use of Unicode Standard Fonts in Government websites

It was expected that the web developers use Unicode compliant local language fonts in development of government websites. It was revealed that about 95% of the websites were developed using the Unicode compliant local language fonts and only 5% websites contained legacy fonts. This can be considered as a major achievement of the local language initiative.

Figure 5: Use of Unicode compliant fonts in Government websites

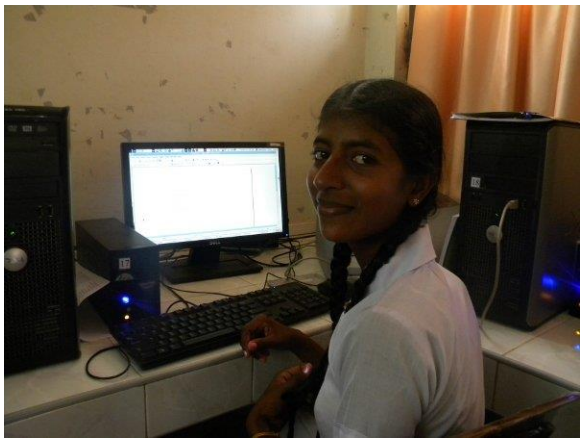


Different types of Unicode standard fonts have been used by the developers. An analysis of use of the different Unicode standard fonts is given below.

Table 7: Usage of Types of Standard Based Local Language Fonts

Name of the Font	No. of responses	Usage %
Iskolapotha	133	72%
Thibus	32	17%
Dinamina	4	2%
Madura	8	4%
Latha	8	4%

Based on the above, majority of the users are using " *Iskolapotha*" font due to the reasons such as attractiveness and suitability for websites while 18% use Thibus package and rest of the users use other Unicode fonts such as *Dinamina, Madura* and *Latha.*



Schools and Universities

There is awareness on Unicode Standard local language computing among 87% in schools and universities, though some of the Schools have limitations in accessing ICT facilities and infrastructure. The awareness which was reported in the year 2011 as per the evaluation report Local Language initiatives was 68% and there is a significant improvement of 19% among these two groups during the past two years. This too was due to the initiatives taken by the government and ICTA to improve the awareness in local language computing among the local community, schools and universities.

Usage of Unicode standard font at the school and universities remain at 53% even with the difficulties and inadequate ICT facilities particularly in schools. The situation of the universities is quite different compared to the schools as there is high demand for the use of English language rather than the Local Languages.

Nenasala Centers

The Nenasala centers established with the assistance of ICTA records a level of awareness of about 89%. This could be considered satisfactory as most of the Nenasala Centers are located in rural areas where computing in local languages is still getting popular. The Nenasala operators are supposed to use Unicode font at all times unless there is no special request made by customers to use legacy fonts

in computing as their preference. Some of the Nenasala operators have been trained and are well aware of many applications. However this group too records an improvement of 19% in the level of awareness compared to that reported by the LLI Outcome Evaluation Survey in 2011.

ICT Venders

The usage of standard based local languages by ICT Venders were also slightly below average by 3% as there are request from customers to load legacy fonts in to their machines at the time of purchase. It was observed that the vendors maintain a font collection which includes Unicode fonts as well as Legacy fonts and more than 50% of the vendors load those fonts to the machines irrespective of the customer request. Further, only 33% of the Tamil ICT venders install Unicode fonts in to the machines. These factors were resulted in slight low usage of standard based local languages by ICT Venders.

Communication Centers

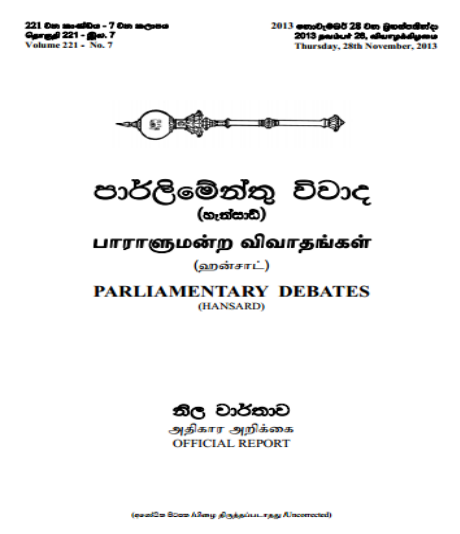
As per the responses from the communication centers, there are many customers who are demanding for stylish fonts for type setting purposes and therefore request legacy fonts. In addition to that typists in communication centers are more familiar with the legacy fonts as they have been using those fonts for a long period of time and are reluctant to change.

Printers, Publishers and Professionals

The awareness among the printers and professionals has also increased over the past two years. The awareness at present among the printers and professionals on Standard based local language computing are 83% and 90% respectively. The awareness among the professionals such as lawyers, accountants, editors, auditors, journalists and translators has significantly improved. It was revealed that most printers and publishers are aware of Unicode standard local language computing though they still use other legacy fonts due to some practical issues in terms of working with some of the printing and publishing related applications such as Page-maker, CorelDraw and the Publisher.

60% of the professionals which mainly includes editors, publishers, and journalist use Unicode standard fonts and they most use local languages for computing. The other categories of professionals such as doctors, engineers, accountants and lawyers use English as the primary communication language apart from the local languages use for reading purposes. The evaluation reveals that editors, publishers and journalist only use Unicode standard fonts for computing and submitting their reports to the printers and publishers.

Box 4: The Government Printer – Seeks Unicode Compatibility with Printing Software



The key source of government information, Gazettes, Bills, Acts, Hansard, Government and Semi Government Tenders and Public Administration Circulars are printed at the Government Printing Department and are available in the intranet of the Government Printer.

The team met Mr. Dharshana Nonis, System Administration Division, to assess the extent of use of Unicode compliant fonts and standard based keyboards in local language computing at the Government Printer. He stated that the Government Printer uses Unicode Standard fonts as well as legacy fonts for local language computing, at present. "Unicode fonts are only used for publishing Hansard which we receive in soft version from the Parliament and minor changes are effected by us using Unicode Standard fonts, before printing. For all other document preparation, we use non-Unicode fonts including Keyman which has been developed in-house".

"We use Adobe Pagemaker and Illustrator for the purpose of designing and printing of publications. However, Unicode Standard fonts are not compatible with this type of printing related software. This is one the reasons for us not been able to use Unicode Standard fonts in processing the documents for printing. There are other reasons such as non-familiarity with Unicode Standard fonts and Standard based key-boards (compared to legacy fonts) and fear of losing speed in computing by the staff if Unicode Standard fonts are used. However, there is a general understating among the staff that we need to start using Unicode Standard fonts in our entire document processing, as soon as possible. Some of the challenges such as fear of and familiarity by staff could be addressed through training, guidance and technical support. We are also of the view that complete adoption of Unicode Standard Fonts by the Government Printer going to be an advantage in the long-run. However, most of our local language computing at present is not on Unicode compliant fonts. This is the change we need to bring to the organization in the near future".

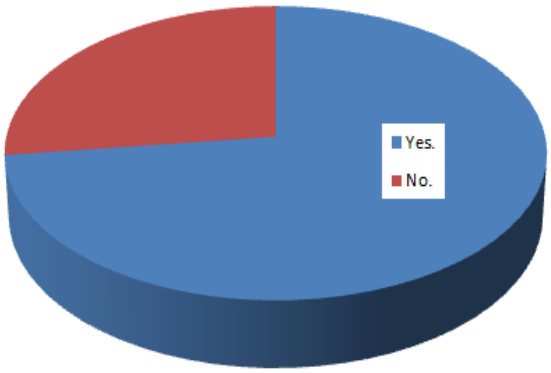
3.2.2 Outcome 2: The level of awareness of the benefits of local language initiative; Unicode standards, reasons for using or not using Unicode

Awareness and understanding of the users on the benefits of the standard based local languages for computing and use of Unicode compliant fonts have been analyzed and it was revealed that more than 90% of users are aware of the benefits of standard based local language in computing. The following Table presents the detailed findings gathered based on the responses by users in relation to various benefits of standard based local language in computing.

Table 8: Benefits of using Unicode compliant fonts/Standard based local language computing

No.	Description	No. of responses	%
A	Easy/ ability to communicate with others and gather information	75	36%
B	Managed to access internet in our language	45	21%
C	Operate our own web in our own language	29	14%
D	Did not face any difficulty with existing fonts	4	2%
E	Accurate use of Sinhala / Tamil languages in documentation improved	41	20%
F	No additional benefits	15	7%

Figure 6: Responses on benefits in accessing and browsing e-mail and internet in local languages



About 36% of the users stated that the Unicode standard fonts were used to communicate with others and share information. Majority of the users representing the individual users and managerial staff category confirmed that it is now easy to communicate internally in the organization as well as with others outside the organization, as most of the users have Unicode compliant fonts and there is no need to share the local language fonts. Further, 21% of the users stated that accessing internet in local language was easy as most of the government websites and other websites have been developed

using Unicode compliant fonts. It was revealed that about 14% of the users operate their own websites in Unicode compliant fonts. They stated that it is easy to maintain websites using Unicode Standard fonts. Evaluation also revealed that 22% of users are aware of the benefits of accessing internet in their own language. 30% of the managerial staff is in the view that the Unicode standards fonts provide accuracy of Sinhala and Tamil languages in presenting content in the websites and was able to improve the accuracy of the documentation.

It was also revealed that 73% of users agree that Unicode compliant fonts have facilitated them in accessing and browsing the web, using the internet, communicating via e-mail in their own language. There are about 27% of users who do not consider that Unicode compliant fonts are actually making any difference in browsing the internet and e-mailing etc. This group may represent the users who mostly use and work in English language.

In addition to internet browsing and e-mailing etc., the users have identified many other benefits from local language computing. In this regard, 28% of users stated that web browsing in local languages have supported in increasing their knowledge and sharing knowledge etc. (download articles etc.) while another 27% of the users have stated that there are benefits such as being able to read magazines, newspapers and articles in their own language. There are about 21% of users stated that they have been able to obtain information about various institutions and organization in their own language. The on-line transaction, communication and ability of using accurate language are also been mentioned as some of the benefits. An analysis of benefits identified by the users is given in the Table below.

Table 9: Type of benefits of browsing web in Local Language

Benefit identified by Users	No. of responses	Response %
Increase knowledge on subjects of interest/ Download articles etc.	61	28%
Read newspapers / Magazines / Books which are local language	60	27%
Obtain information about various institutions / organizations	46	21%
On-line transacting	5	2%
E-mail communication is faster, reliable and convenient	14	6%
Can communicate in Local Language with my friends and others (sending / receiving)	20	9%

Benefit identified by Users	No. of responses	Response %
Can communicate with many at once	3	1%
Helps using the language accurately	6	3%
Can broad-base the use of ICT in the non-urban areas	4	2%

The evaluations also assessed the extent of the user satisfaction on how far the Unicode standard fonts have been able meet their requirements. This was assessed in relation to the accuracy, appearance, easy use and etc. of the fonts.

More than 82% of the users are satisfied with the Unicode standard fonts and stated that Unicode standard fonts do meet their requirements. There are about 18% of users who have lower level of satisfaction in this regard. This may be due to lack of awareness on Unicode standards, Unicode compliant fonts and lack of technical knowledge on handling the keyboards and downloading necessary software to facilitate local language computing.

Figure 7: User Satisfaction on the Unicode Compliant Fonts

Reasons for using the Unicode standard fonts were also evaluated in the survey and the following responses were identified.

Table 10: Reasons for using Unicode standard fonts

No.	Description of benefit / response	No. of responses	%
A	Easy to communicate and share documents with others	79	51%
B	It was easy due to my familiarity with the keyboard	32	21%
C	Organization decided to use Unicode Compliant Fonts	22	14%
D	The Company / ICT vender provided with the computer and therefore I am using it.	7	5%

E	No need to share fonts with other users	14	9%

As per the Table above, 35% of the Unicode users are using them due to ease of access, communication and sharing documents with others. Another 30% of them find it easy due to their familiarity with the keyboard. About 14% of users use Unicode as their organization has decided to use Unicode standards. Further 9% of the users stated that they do not share the documents or communicate with others, so it does not make any difference. 5% of the users have Unicode fonts already installed in the machine when they bought it/provided by the company, hence they are using the Unicode fonts.

Reasons for not using Unicode standard fonts by users (of legacy fonts) were also analyzed which is presented below.

Table 11: Responses on reason for not using Unicode standard fonts

No.	Description of the response	No. of responses	%
A	Do not know that there are such fonts available	5	25%
B	Knew, but working with a new font is difficult for us	7	35%
C	Knew, but there is no reason for us to change, as it is used only for word processing	5	25%
D	Did not face any difficulty with existing fonts	2	10%
E	Did not like the shape of Unicode compliant fonts	1	5%

As indicated above, 25% of the users are not aware that the Unicode standard fonts are available, 35% of users did not want to change as the new fonts are difficult for them to use, 25% of the users only use the computer for word processing and do not know the benefits of using Unicode fonts, 10% of the users did not face any difficulty with current fonts and therefore continued to use them while another 5% of users did not like the shapes of the available Unicode Sinhala and Tamil fonts and therefore did not want to change.

Overall, the evaluation findings reveal that about 90% of the users who use Unicode standard fonts are aware of the benefits of Unicode standard fonts.

3.2.3 Outcome 3: Increased usage of standard keyboard layouts - viz the standard Wijesekera based layout for Sinhala and the standard Renganathan based layout for Tamil

Promoting, developing and popularizing standard-based local language keyboards and getting physical trilingual keyboards developed was one of the key initiatives implemented under the local Language Initiatives. As per the Sri Lanka Standard Sinhala Character Code for Information Interchange & Sri Lanka Standard Tamil Character Code for Information Interchange (SLS 1334 2004 and SLS 1326-2008 respectively) it was decided to use the layout of *Wijesekera* and *Renganathan* based keyboard settings for Sinhala and Tamil languages. Usage of standard based keyboard layout was assessed by the survey to ensure the achievement of expected results (Outcomes). This section presents the evaluation findings on use of standard based Keyboards layout for local language computing.

There are no standard based keyboard manufactures for local languages in Sri Lanka. However, the importers place orders to manufacture local language keyboards in other countries (mainly China) under the importers brand names and distribute them in Sri Lanka. They get the keyboards printed in trilingual. The survey sample for this category was selected from the group of these keyboard importers.

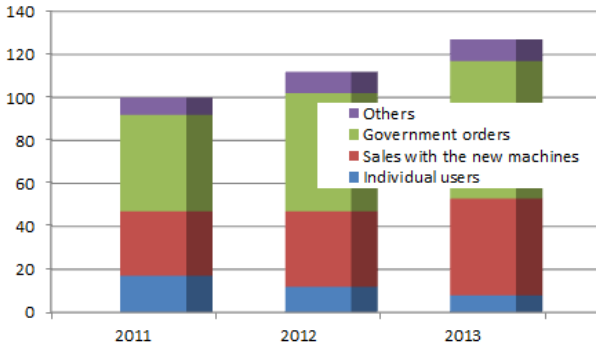
The analysis revealed that there is an average demand of about 1000 units per quarter for each of the importers. There quantity is increasing as the normal computers are supplied with a standard keyboards printed with English letters only.

All trilingual key-boards sold in Sri Lanka are manufactured on LL standards (Wijesekera and Renganthan) layout. None of the keyboard venders sell keyboards in any other formats. Since the standard formats have been introduced, the venders are of the view that they need to follow the standard guidelines for manufacturing keyboards.

There is a moderate demand for Trilingual keyboards at present. Most of the bulk orders are from the government organizations and they generally order Trilingual keyboards. Some of the orders number more than 1,000 keyboards at a time.

The following graph shows the volume of demand for Trilingual keyboards at present.

Figure 8: Composition and Growth in demand for LL Keyboards



It was revealed that the present demand for LL keyboards is increasing at about 10% per annum. The major share of the demand comes from Government orders and the next biggest share is with sale of new computers to individuals and institutions. Others are individual users who buy for replacement etc. Other category refers to the ICT service providers and computer servicing people etc.

There is no strong demand for Trilingual keyboards by individual computer users at present. Generally, the buyers do not come with an intention to buy Trilingual keyboards. However, based on the sellers recommendation users tend to buy Trilingual keyboards. The orders for Trilingual keyboards are received from individual computer users who are residing in Southern, Northern and Eastern provinces in Sri Lanka.

The survey result shows that 50% of the venders have experienced the growing demand for Trilingual keyboard and they are of the view that there is continuing demand for Trilingual keyboards. They have expressed that its venders ability to increase the sale by making the users aware and guiding them at the point of sale.

There are about 10% of individual users, managerial staff and bloggers who use different types of software available on the internet. 10% of bloggers have found various ways rather than using standard keyboards to type local language. The software “Real Time Unicode Convertor” developed by the UCSC (University of Colombo School of Computer Science), is very common with the users who are not familiar with the physical keyboard. Some of the printers, university

students and professionals are using the Unicode convertor developed by the UCSC. These convertors provide facilities for the legacy font users to convert their whole text in to Unicode compliant fonts without depending on the keyboard and not knowing about the standard of the keyboard.

The following table presents the details on the use of Standard based keyboard layout. The evaluation findings reveals that there are about 92% of individual users of standard local language for computing use standard based LL keyboards.

Table 12: Use of Standard Base LL keyboards by the Users

No.	User Group	% Use of Standard local language for computing	% Use of standard based LL keyboards	Remarks
1	Individual users	72	66	92% (72% x 66%) of the users of standard based LL for computing use the standard based keyboards for computing. Some have been bought with the computers and some separately. 8% of the users use virtual keyboards and keyboard formats download for various websites.
2	Users at Managerial levels	82	74	90% (82% x 74%) of users of standard based LL for computing use the standard based keyboards for computing. Some have been bought with the computers and some separately. 10% of the users use virtual keyboards and the keyboard formats download for various websites.
3	Professionals	60	60	All those who use standard based LL for computing use the standard based keyboards for computing. Some have been bought with the computers and some separately.
4	Web-developers	86	86	All those who use standard based LL for computing use the standard based keyboards for computing. Some have been bought with the computers and some separately.
5	Nenasala and communication centers	53	53	All those who use standard based LL for computing use the standard based keyboards for computing. Some have bought it with the computers and some separately.
6	Schools and Universities	53	53	All those who use standard based LL for computing use the standard based keyboards for computing. Some have bought it with the computers and some separately.
7	Bloggers	100	90	Of the 5 bloggers interviewed, one uses virtual keyboards for developing the contents. The rest of the bloggers use standard based LL keyboards.

The above analysis reveals that the use of standard based keyboards layout has very high (almost 90%) co-relation with the use of standard local languages for computing. Only a few use non-standard keyboard formats for typing, as they are used to the English keyboards since they are using English language for majority of the times. However, it could be concluded that the use of standard based LL keyboards have increased, continues to increase and there will be no demand for keyboards in other formats in the future. However, some of the users would use virtual keyboards for local languages in computing due to convenience of use for them.

3.2.4 Outcome 4: Users would be able to develop Unicode compliant local language websites with content displayed correctly and increased aesthetically correct local language characteristics and glyphs in documents and websites.

Unicode compliant fronts expected that the aesthetic accuracy of local language character glyphs in the websites would improve. The study collected data from two sources to assess whether there is an increased use and display of aesthetically correct local language character glyphs in documents as well as in websites. They are:

a. Key Informant Interviews – Data relating to the use of aesthetically correct local language character glyphs in the documents were collected through KIIs.
b. Review of Websites - Use of aesthetically correct local language character glyphs in the websites have been assessed by reviewing the local language websites.

A review was undertaken by the consultant to assess the accuracy and the correct display on the language characters and glyphs in the documents and as well as the web.

The review covered 30 websites to assess the accuracy of local language character glyphs in websites. The analysis done based on the findings of the review is presented in **Table 14** below.

Table 13: Review of Websites in Local Languages on the use of aesthetically correct local language character glyphs in websites

	Use of aesthetically correct local language character glyphs in:	Level of appropriate use		
		Appropriate use	Minor mistakes	Major mistakes
1	Websites in Sinhala language (20)	14	5	1
2	Websites in Tamil language (10)	4	4	2
3	Total (both Sinhala and Tamil languages)	18	9	3

As per the above it reveals that only 18 (60%) sites were found with appropriate display and use of aesthetically correct local language character glyphs. About 70% of the Sinhala websites have used aesthetically correct local language character glyphs. Minor mistakes were found in 17% of Sinhala websites while 5% of the websites found with major mistakes. About 60% of Tamils websites were found with mistakes of which 20% are serious mistakes.

Figure 9: Use of Aesthetically correct character glyphs in Websites

One Sinhala website could not be viewed properly as its content has been developed on a legacy font. It was also noted that some of the contents are in English language and not in local language. About 30% of websites had minor mistakes. These websites present contents in both English and local languages. Further, there were websites with incorrect letters, glyphs and characters. However, 90% of them have been able to use aesthetically correct local language character glyphs in their websites (a few websites with minor mistakes). Therefore, it could be concluded that this outcome of LLI had been achieved to a greater extent.

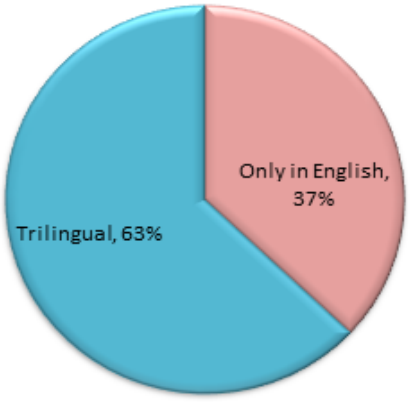
3.2.5 Outcome 5: Government and other Sinhala and Tamil websites are available.

The Unicode standard has provided all the essential facilities that are required for the web developers to develop website on their own language for any purpose. Since the Unicode standard fonts facilitate this process of developing and browsing of websites in local languages and maintaining correct display of content on the web, it was expected that the availability of websites in local languages would increase. Therefore, the survey has assessed the availability of government websites and other Sinhala and Tamil websites in order to assess the above outcome.

As per the policies and procedures for ICT usage in the government – (e-government policy) all the government organizations are required to maintain trilingual website registered under the "gov.lk" domain as one of the major communication tools to provide information and to enhance service delivery. Currently there are 778 government websites hosted under the domain of gov.lk

All organizations in the government sector have benefited by the inputs provided under the Local Language Initiative. It provided facilities to use standard based local language in computing. Through there are many contributory factors for the availability of website in the government organizations, the intervention of Local Language Initiatives has been considered as one of the decisive factors for the increased availability of websites in local languages.

Figure 10: Availability of content in Local Language in Government websites



The evaluation reviewed randomly selected 172 websites from over 850 government websites registered under "gov.lk" domain and the "priu.gov.lk" domain (the official website of the data and information unit of the presidential secretariat).

An analysis of whether or not local language content was available in those websites is presented in the following graph.

It was revealed that 63% of the government websites that have content trilingual while 37% of the government websites are developed and maintained only in English. The organizations which have trilingual websites are mainly Government Ministries and Departments. Many Provincial Councils, Public Companies and Statutory Bodies do not have trilingual websites. Further the following Table shows the trend in the availability of local language websites during the past three years.

Table 14: Development of new Government and other local language websites

	Description	No. of websites examined	Year of Establishment		
			2011	2012	2013
1	Estimated number of websites established annually (This is only based on websites examined by the Evaluation from about 850 websites)	172	18 (10%)	34 (20%)	63 (37%)
2	Increase in No. of websites		6 (50%)	16 (89%)	29 (85%)

The above analysis reveals that there is a significant increase in the number of websites registered over the last three year period. There was an increase in both 2012 (89%) and 2013 (85%). However, most number of websites has been developed in 2013 (37% of the reviewed websites).

The survey also assessed the availability of websites owned by different user categories. This information was gathered from questionnaires and KIIs. The Table below presents the availability of local language websites by users.

Table 15: Local language websites owned by different user groups

	User group	Available website	Not available	Total
1	Users having their own websites	42%	58%	243
2	User having Local language websites	55%	45%	102
3	Individual Users having their own websites	13%	87%	109
4	Managerial staff having their own websites	65%	35%	34
5	Schools and universities having their own websites	20%	80%	15
6	ICT vendors having their own websites	0%	100%	13
7	Nenasala operators and Communication having their own websites Centers	15%	85%	34
8	Professionals having their own websites	20%	80%	10
9	Printers having their own websites	0%	100%	6
10	Web developers having their own websites	0%	100%	7
11	Font developers having their own websites	0%	100%	5
12	e-Content developers having their own websites	100%	0%	5
13	Bloggers having their own websites	100%	0%	5

The above analysis revealed that 42% of users have their own websites, of which 55% of users maintain websites in local languages. The highest number of websites is maintained by the managerial staff as most of them have websites for their institutions (mostly government organizations) which include contents in local languages as well. All the bloggers and e-content developers too have their websites in local languages. Though there is a visible growth in local language websites after the implementation of Unicode standard, the contributing factor for the increase had been the websites hosted by the public sector.

The web developers indicated that there is a growing demand for websites in local languages from the public sector but negligible demand from the private sector. However, the capacity of developers in developing websites in local languages has also increased due to on the job training and more exposure for them at work.

Hence, it could be concluded that the above outcome had only partially achieved by LLI. However, the increased growth in the number of local language websites hosted during the past four years is another positive outcome that has been achieved by the Program.

3.2.6 Outcome 6: Bloggers should be able to develop blogs in Unicode as a matter of course

Being able to make blogs in local language is another outcome expected by LLI. There are many blogs in local language on the web at present compared to the number about two years ago. It is estimated over 100 in Sinhala language whereas Tamil blogs in Sri Lanka are few. The Evaluation had discussions with local language bloggers (sample) and reviewed a few sites. The findings and observations of the discussions and review of sites are presented below.

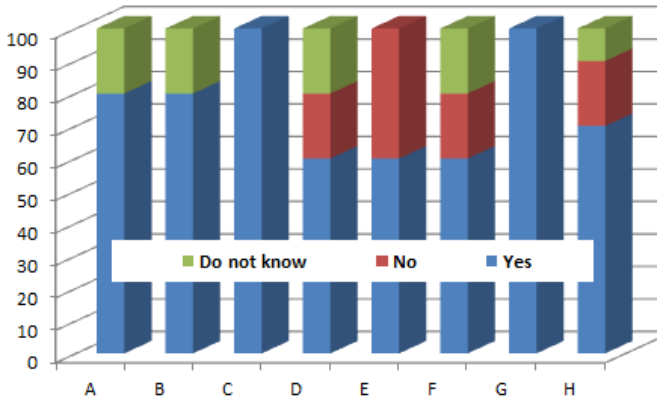
Table 16: Perception of Bloggers on Unicode Standards and Standard Based Local Languages

	Criteria	Yes	No	Do not know
A	Placing blogs in local language is possible due to the Unicode standards and standard based local languages/ LLI initiative	80%	-	20%
B	Bloggers have a good understanding on Unicode standards and standard based local languages	80%	-	20%
	Placing blogs in local language is increasing compared to past (2010/11)	100%	-	-
D	Blogs are increasingly used for exchange of information/ Information in LL on web has increased	60%	20%	20%
E	All use standard keyboards for updating blogs	60%	40%	-

	Criteria	Yes	No	Do not know
F	Blogs in Tamil language is low compared to that of Sinhala language	60%	20%	20%
G	It was easy access the LL fonts and peripherals	100%		
H	There are no problems still exists in placing blogs in LL	70%	20%	10%

As expected by Local Language Initiative, the blogs in local languages have increased rapidly. Many blogs are placed for information sharing but similar amount of blogs are there for mere communication without much substance. It appears that the blogs have contributed to creating a "Blog Culture" that has emerged in the society. Some of the blogs are well focused and discuss subject related matters and some of them provide a broader platform for the writers as well as for the readers to have open dialogue to share their experiences on a particular subject area. Similarly there are some gossip blogs which too have increased rapidly. Most of the bloggers (80%) stated that blogs are possible due to LL initiative of ICTA while another stated that it may have been possible even without LL initiative. Most of the bloggers (80%) have a good understanding on Unicode standard and standard based local language in computing. They also stated that there are not many blogs in Tamil language compered to Sinhala language. Most of the blogs are not in a single local language but there are other language writing as well. However, blogging is becoming more popular and the number of people who visit and place blogs are also increasing.

Figure 11: Bloggers Responses on Use of LL in blogging



40% of bloggers stated that they do not want to have a physical keyboard or specific knowledge and skill in using standard local language keyboard to write blogs. Most of them are using virtual

keyboards those were developed by different institutions and persons. The Singlish method (Typing the Sinhala word in English letters and getting the appropriate Sinhala word in the convertor format instead of the English letters) is used by some of the bloggers using "Real Time Convertor "developed by the UCSC (University of Colombo Scholl of Computer Science) also many people use Google IME (Input Method Editor) as well.

Bloggers also stated that Unicode local languages are not appropriately working in certain operating systems such as "Apple Mac" and "Android". They also expressed their views on this and stated that these need to be addressed along with the problem of not being able to use Unicode local language with some programs/software such as CorelDraw, Publisher and Acrobat etc. However, based on these facts such as increase blogs in local languages and the fact it is growing at rapid pace, it could be concluded that this outcome had been achieved by LLI to a greater extent.

3.2.7 Outcome 7: Ease of access with respect to local language standards based products (e.g. fonts, keyboard drivers); and convenient of use of Unicode.

Ease of access with respect to local language standards based products (e.g. fonts, keyboard drivers) and convenient use of Unicode is one of the outcomes expected by LLI. Easy access to local language standards based products helps to increase the awareness and the usage of local languages. With a view of increasing the awareness and usage of standard based local language products, ICTA has uploaded standard based local language products in its website and in various other websites. The extent of access to standard based local language products by users has been analyzed in this section.

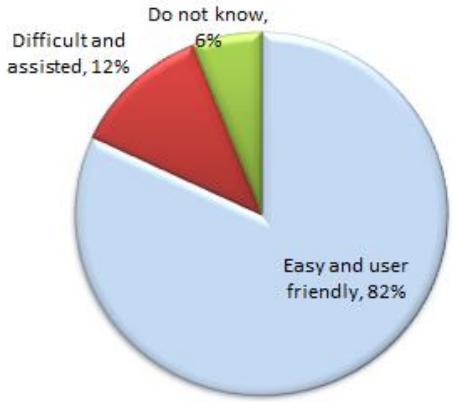
The Table below presents the ease of access to local language standards based products by the users.

Table 17: Ability of users to access necessary software supporting use of Unicode compliant LL fonts and drivers

No.	Description	No. of respondents	%
1	**Individual users (Questionnaire Survey)**		
1.1	It was already loaded/ preloaded, so there was no need to download	62	80.5
1.2	Downloaded	15	19.5
	i. It was easy and user friendly (80%)	12	15.6
	ii. It was difficult and assisted (0%)	-	-
	iii. No response / do not know (20%)	3	3.9
	Total (Individual users – Questionnaire Survey)	**77**	**100**
2	**Managerial Staff**		
2.1	It was already loaded/ preloaded, so there was no need to download	12	41
2.2	Downloaded	17	59
	i. It was easy and user friendly (65%)	11	38
	ii. It was difficult and assisted (12%)	2	7
	iii. No response / do not know (23%)	4	14
	Total	**29**	**100**
3	**Schools & Universities**		
3.1	It was already loaded/ preloaded, so there was no need to download	-	-
3.2	Downloaded	8	100
	i. It was easy and user friendly (62.5%)	5	62.5
	ii. It was difficult and assisted (25%)	2	25
	iii. No response / do not know (12.5%)	1	12.5
	Total	**8**	**100**
4	**Professionals**		
4.1	It was already loaded/ preloaded, so there was no need to download	-	-
4.2	Downloaded	6	100
	i. It was easy and user friendly (83%)	5	83
	ii. It was difficult and assisted (0%)	-	-
	iii. No response / do not know (17%)	1	17
	Total	**6**	**100**
5	**ICT Venders**		
5.1	It was already loaded/ preloaded, so there was no need to download	-	-
5.2	Downloaded	**9**	**100**
	i. It was easy and user friendly (72%)	7	72
	ii. It was difficult and assisted (14%)	1	14
	iii. No response / do not know (14%)	1	14
	Total	**9**	
	Other users		
6	Nenasala Operators - Downloaded, no difficulties faced	14	100
7	Communication Centers - Downloaded, no difficulties faced	4	100
8	Web developers and Bloggers – Downloaded, no difficulties faced	11	100

Based on the above, 20% of the individual users have downloaded the local language applications from the internet, of which 82% have been able to down load it easily, found that it was easy to download and was user friendly.

Figure 12: Ease of Access (downloading) to Local Language Fonts



About 59% of managerial staff downloaded the fonts and drivers and 12% had faced difficulties in downloading the fonts and drivers. Nenasala Operators, Communication Centers, Web developers and Bloggers had been able to download the drivers easily and stated that the process had been user friendly. As such it could be concluded that it is possible to access the necessary software such as keyboard drivers and install these easily and the users are able to do this without having to ask assistance from IT personnel.

More than 72% of the ICT venders and professionals were able to download the fonts and drivers easily. There had been issues with schools in downloading the Unicode applications mostly due to limited accesses to internet in the schools.

Overall, 82% of the users have been able to download the Unicode fonts and drivers successfully and only 6% of the users faced some difficulties in downloading the Unicode fonts and drivers. Accordingly, it could be concluded that the outcome of installing Unicode applications on their own without having to ask for assistance from others had been achieved to a satisfactory level.

3.3 Overall Evaluation Observations

The overall evaluation observations in the context of evaluation criteria are presented below:

Relevance

In order to achieve the objectives of the Local Language Initiative, it has implemented ten different activities. They are: (i) Development of Sinhala and Tamil Sri Lanka Standards, SLS

1134 and SLS 1326 - The Sri Lanka standard Sinhala Character Code for Information Interchange, SLS 1134: 2004; (ii) The Sri Lanka Standard Tamil Character Code for Information Interchange SLS 1326:2008 (iii) developing and implementation of sorting sequences (collation algorithm) in popular database systems; (iv) Developing Unicode compliant Sinhala and Tamil fonts; (v) Training font developers and ensuring development of stylized Unicode compliant local language fonts; (vi)Promoting, developing and popularizing standard-based local language keyboards and getting physical trilingual keyboards developed; (vii) Developing keyboard drivers for using the standard keyboard layout; (viii) Made available user interface in Sinhala for Widows and Linux; (ix) The internationalized domain name, the top level domain name equivalent for .lk had been agreed as .ලංකා (.lanka) and .**இலங்கை** (.ilangei); and (x) Locale information for Sinhala and Tamil, Sri Lanka.

As shown in the Outcome Hierarchy presented above (Figure 1), the activities, process outputs, outputs of LLI are appropriately and logically linked towards the achieving of intended outcomes addressing the needs and problems of beneficiaries. More than 90% of respondents stated that the activities such as training of font developers, getting the standards developed for local languages and implementing it, development of Unicode compliant fonts etc. are very pertinent activities to popularize computing in local language by average computer user. It was further stated that without these activities being undertaken, there is no possibility of producing outputs such as Unicode compliant fonts, Uniform keyboards etc. and achieving the LLI outcomes. Therefore, in relation to achievement of the intended outcomes of LLI, the evaluation finds that the all above activities that have been implemented are extremely relevant and appropriate.

Effectiveness and efficiency

The LLI had seven intended outcomes. From these, LLI has been able to achieve six outcomes by end 2013 while the other outcome being partially achieved. As per the findings of this survey, over 84% of users are aware of the standard based local language and 72% of users use the Unicode standards in computing in local languages. Most of the users are aware of benefits of

Unicode Standard fonts and there are many government organization maintaining their websites in local languages as well. To achieve these, LLI has implemented many activities. However, except for training of font developers and awareness programs on the Unicode standards and Unicode compliant LL fonts, all other initiatives implemented in the past are one-off activities and no necessity to be repeated. Hence there will no additional resources required for these activities for continued operationalization of the same. The findings of the evaluation also revealed that the outputs produced by the LLI have a strong relationship and causal link to its desired outcomes. These indicate that the Local Language Initiative has been able to complete the activities efficiently and achieve intended results in an efficient and effective manner.

Sustainability

The evaluation reveals that the LLI has been able to achieve most of its intended outcomes. Most of the results are contributing to make many advances in relation to the use and development of ICT (Information and communication Technology) in Sri Lanka.

There are about 28 fonts available for users and these fonts are been used for various purposes. Many users groups such as individuals, government organizations, content developers, web developers, university students, blogger and professionals are using Unicode compliant fonts and using local languages for computing. They also feel that it is easy to access the necessary devices fonts from the web as well and not required to ask for assistance. The standard keyboard layouts initiated under LLI are used by the majority of users. Availability of the local language websites as well as blogs is increasing continuously. In order to keep this progressive momentum and further achievement of results of LLI, there is no necessity to have substantial resource allocations in the future. It appears from the survey findings that the achievement of results and popularization of local language computing in Sri Lanka would continue without much intervention by LLI in the future. Therefore the activities and the desired outcomes of LLI are sustainable in the near future.

CHAPTER 4

4. CONCLUSIONS

4.1 Introduction

This chapter presents the main findings, lessons learned, suggestions and recommendations identified based on the outcome evaluation and observations.

4.2 Main Findings

The summary of findings of the evaluation is presented below:

Overall Findings

i. The LLI has been able to achieve the following expected outcomes to a greater extent.
   - Over 84% of users are aware of and about 72% of users use standard based local language computing: LLI of ICTA had a target of 70% of users are aware of and use standard based local language computing. The survey reveals that, as per the responses from all types of users, there is awareness among the overall users of is about 84% and the overall users is about 72%, as of September 2013;
   - Increased use of standard based local languages/Unicode compliant local language fonts and reduction in use of legacy fonts;
   - Users are able to develop Unicode compliant local language websites with content displayed correctly;
   - Users will come to a point at which using Unicode Sinhala and Tamil becomes the norm;
   - The targeted users should be aware of the Unicode standard and benefits;
   - Users will be able to develop Unicode compliant local language websites with content displayed correctly;

- Government and other Sinhala and Tamil websites should be available;
- Bloggers should be able to develop blogs in Unicode as a matter of course; and
- It should be possible to access the necessary software such as keyboard drivers and install these easily and the users should be able to do this without assistance from IT personnel.

ii. There is inadequate understanding on standard based local language in computing/Unicode standards and Unicode compliant fonts among the officials of the private sector, Communication Centers, Schools and ICT venders;

iii. Printers and publishers do not have the ability to use Unicode standard fonts freely due to incompatibilities with the printing and publishing related software (such as acrobat, Page-Maker, CorelDraw, Illustrator etc.). This has created limitations in using the Unicode compliant local language font;

iv. Limited availability of Unicode compliant fonts and therefore the users are reluctant to move from the fonts that they are using at present. This has created a bottleneck in many users moving into the Unicode compliant fonts.

v. There is no system of providing technical support to the font developers. Many font writers are willing to design deferent fonts but they do not have the capacity nor the ability to source the required technical support to get it completed as a computer based font.

vi. There are many incorrect words and lettering found in websites, even though they have been developed using Unicode compliant fonts.

Other achievements

- The Department of Official Languages (DOL) has been able to formulate soft copies of 30 different glossaries covering many disciplines using the Unicode compliant local languages. This can be seen a direct benefit of Unicode compliant local languages implemented by LLI;
- User satisfaction of the use of Unicode standard applications are more than 82%;
- Unicode compliance in government sector organization has exceeded is over 90%;

- Over 90% usage of standard based local language keyboards;
- Over 88% of usage of Unicode compliant fonts for web development; and
- Over 82% of the users able to access local language applications easily.

4.3 Other Observations

The significant observations made by the Evaluation and are presented below:

i. Main challenges and gaps as well as related suggestions for each of the user groups are tabulated below.

User Category	Challenges/gaps	Comments and suggestions
Individual users	1. Even though individual users are aware of the Unicode standard based fonts, their knowledge on installing keyboard drivers and necessary software to the computers needs to be improved. 2. Knowledge and understanding of the availability of such facilities and services are also very low and they are not aware that there is an ICTA web from which all the Unicode fonts and software can be downloaded. 3. Users complain about the problems they face with the font distortion that comes up when they share the document through different operating systems. 4. Users are not satisfied on meeting all their needs by Unicode fonts. For example – for presentation purposes users prefer stylish fonts having different shapes and designs.	1. Need more awareness raising programs to be conducted on Unicode standard local language fonts through electronic and print media. 2. The awareness raising program has to be more focused on technical aspects of the Unicode standard based products. 3. Help desk support or information centers to be established to obtain technical assistance and guidance when required. 4. Increase variety of Unicode compliant stylish fonts.
Government sector	1. Reluctance among the staff to accept Unicode fonts is one of the key challenges. Therefore, some of the government offices still use legacy fonts which that they have used for a	1. Proposed publishing a manual/hand book on Unicode standard local language and distribute among the organizations/

User Category	Challenges/gaps	Comments and suggestions
	long time. 2. Technical knowledge in using and installing Unicode standard based software and key drivers is low among the government officers. Therefore, they find it difficult to work with Unicode standard fonts and unable to handle the documents which have been produced in Unicode standard fonts. This has become a reason for the staff to be discouraged to use Unicode standard fonts. 3. They are aware that some of the operating systems do not support smooth functioning of Unicode Sinhala and Tamil but there are no possibilities for them to change the operating system due to financial constraints. 4. Familiarity with standard keyboard has become an issue in the government offices. Only limited numbers of staff in the organization are familiar with the Standard based local language keyboards.	institutions. 2. Unicode complaints fonts have to come with the operating system rather than installing them later from websites. 3. More training and awareness raising programs need to be conducted focusing government staff 4. Government organizations should strictly adhere to Unicode standard local language fonts.
Universities and schools	ICT facilities available are minimal in rural areas and there is no compelling requirement to use Unicode as they are not connected to the internet. Most schools still manage with legacy fonts.	Awareness raising programs need to be conducted targeting students and staff of schools.
Nenasala and Communication Centers	Difficulties encountered due to unfamiliarity with the keyboard and inadequate knowledge in installing necessary keyboard drivers and other software.	Need more awareness raising programs to be conducted addressing these issues.
Font Developers	1. There are persons who have the skill and knowledge of developing fonts based on Unicode standard rules.	1. Technical support for the groups who have skills in developing fonts (Glyphs).

User Category	Challenges/gaps	Comments and suggestions
	However, there is very low demand for those fonts. 2. Developing a font is a joint effort of a person who has the skill of setting rules and a person with the skill of drawing the glyphs. There are persons having the designing skills but they do not possess technical knowledge. As an example the Faculty of Visual and Performing Art is continuing to develop fonts (as assignments) but they face difficulty in getting necessary technical support to develop them as computerized fonts. Even if they manage to obtain the required technical support there is no guarantee that they are marketed and compensated for the effort.	2. Provide initial support for font development facilities and support.
Printers and Publishers	2. There are compatibility issues with Unicode compliant fonts and the software used for printing and publishing. Most of the printers and publishers do not accept documents typed in Unicode compliant fonts for publishing as they need to covert those fonts to printing compatible fonts. One of the examples highlighted by a printing organization was that the Unicode fonts are not compatible with Adobe Publisher/Pagemaker software. 3. Most of the Unicode fonts cannot be used for graphic design purposes as there are no Stylish fonts available. 4. Since the typing speed is critical in the printing and publishing industry, users fear that the speed of their typing staff will drop after adapting to Unicode fonts. This fear is mainly due to lack of training among the users relating to Unicode fonts.	1. Organizations are looking for technical support from relevant authorities to overcome the compatibility issues and to introduce a mechanism for using Unicode compliant fonts for printing and publishing purposes. 2. Stylish Unicode fonts which are suitable for graphic design need to be introduced. 3. Users are keen to receive trainings on Unicode standard applications and to be aware of the main features of the applications before using them.

User Category	Challenges/gaps	Comments and suggestions
Web Developers	1. There is no portal for communication with the authorities to raise technical matters that arise when using Unicode standard based applications. 2. There are no updates received from the authorities relating to latest developments of the products. 3. Unicode fonts are not available with many styles and also clarity (visibility) of the fonts get distorted in the websites those who are using Windows XP operating system.	1. Need to have a portal to communicate issues and get them resolved. 2. Require stylish fonts with different shapes and designs. 3. Existing fonts should be further developed to resolve compatibility issues. 4. Need to provide research and training facilities to freelance web developers.
Professionals	There are situations where certain characters not appearing while typing and it is difficult to resolve without technical support.	They are in need of technical support unit to communicate and get the issues resolved, whenever they have difficulties.
ICT Venders	Many ICT vendors do not have adequate knowledge on Unicode standards and related products. Most of them still use legacy fonts.	Awareness raising programs need to be conducted targeting students and staff of schools.

ii. Greater impact on Government Circular on use of Unicode compliant fonts – Many public sector organizations stated that they were informed about the implementation of Unicode standards through a Government Circular and they soon decided to follow it. The higher proportion of use of Unicode compliance LL fonts and websites in LL is evident from the public sector. Hence, it could be recommended that another round of circulation of the same so that those who have not adopted the new standard could be encouraged to change.

iii. Training of LL font developers – As revealed in the previous study as well, training of font developers had been a major contributory initiative by LLI in achieving the outcomes discussed above. However, it was stated by many respondents that the limited

Unicode compliant fonts are available therefore there is less choice in different shapes of fonts are major factors for users to continue with legacy fonts. Continued support for font developers could therefore be an important initiative by LLI, in popularizing the use of Unicode compliant LL fonts. The font developer should also be provided with technological assistance for them to be able to develop more Unicode compliant fonts.

iv. Lack of variety of Unicode compliant LL fonts – Many users stated that there is no variety in Unicode compliant LL fonts. Most of the fonts are very similar and therefore users still tend to use the legacy fonts. It was also highlighted that font developers are not interested in developing new fonts due to difficulties in cost recovery.

4.4 Lessons Learned

There are number of lessons learned from LLI that are identified by the evaluation survey. They are:

i. Need for strong enabling environment to support use of Unicode compliant local language applications in the private sector.
ii. Intensifying the monitoring and evaluation mechanism at ICTA to assess the progress of the use of standard based local language applications in the government sector;
iii. Need to assess the performance of Nenasala operations specially the use of Unicode compliant standard based local language applications.
iv. Leadership and policy support for key ingredients for the promotion of LLI; and
v. Strong evidence to show that the Unicode standard and computing in local languages are getting increasing attention and very likely to be sustained;
vi. Strong relevance of Unicode standards and the outputs produced by LLI for increased computing in local languages;
vii. Leadership and policy support as well as use of lead agencies are key ingredients for the promotion of local language computing; and
viii. Strong evidence to show that the Unicode standard and computing in local languages are getting more attention and be sustained in the long-run.

4.5 Recommendations

The following recommendations are presented for consideration of the LLI and ICTA. Most of these actions are in the form of advocacy, promotions, and support to the various target groups through ICTA's LLI as well as other initiatives. Many of the recommended actions below can be supported by the ICTA and its initiatives through promotions, advocacy, as well as direct support through systematic and structured Training programs, information sharing, and providing direct technical support for the partners.

The suggested actions and recommendations are:

i. Advocate and promote holistic and strategic interventions to popularize use of standard based local language in computing/Unicode standards and Unicode compliant local language fonts;
ii. Promoting the development of new Unicode compliant local language fonts through provision of technical support;
iii. Address the difficulties and limitations faced by the printers and publishers in using Unicode compliant fonts
iv. Consider supporting use of standard based local language in computing/Unicode compliant local language fonts for government (schools etc.), non-governmental players and stakeholders, including the private sector and communities;
v. Improved focus on north and east provinces in relation to popularizing Unicode compliant Tamil fonts;
vi. Improved awareness on standard based local language in computing/Unicode Fonts among the users, particularly the ICT venders, School teachers and the youth;
vii. Addressing the limitations of use of Unicode compliant fonts such as (i) ability of using them with other applications, removal of limitations and restrictions on development of new Unicode compliant LL fonts, and (iii) easy access of LL standard products and other peripherals in rural areas;

viii. Promote Unicode Standards and Unicode compliant LL fonts in schools and rural areas through innovative initiatives such as Essay competitions though use of computers and Unicode fonts, providing fonts and keyboard drivers etc., through CDs etc.; and

ix. Initiatives to enhance ICT usage in local language such as online translation facilities, glossaries, ability to have e-mail addresses and domain names in LL, attractive LL fonts, more publicity and awareness on ICT as well as Unicode standards and LL fonts.

4.6 Conclusion

The findings discussed above indicate that the LLI had been a success. As far as the key performance indicator of level of awareness and ability of using standard based local languages is concerned, the LLI has been able to achieve a commendable level of performance as the evaluation reveals that 84% (2013) of the users are aware about standard based local language computing and 72% (2013) of users use the standard based local languages in computing.

Annexures

Annexure 1: Summary of completion of questionnaire Survey on Users of local languages for computing

Planned coverage and area	Sample population	Present status	Responsible officer / Enumerator
Colombo			
Colombo	Sinhala & Tamil – 25	Fully completed (30 Completed)	W. I. C Senaka
Kandy			
Kandy	Sinhala – 8	Fully completed	T M S Gunasekera
Galle			
Galle	Sinhala – 7	Fully completed	D. M. S. N. Madusanka
Hambantota			
Hambantota	Sinhala – 6	Fully completed	D M S N Madusanka
Ratnapura			
Ratnapura	Sinhala – 6	Fully completed	Jayantha Rohana
Kegalle			
Kegalle	Sinhala – 6	Fully completed	Jayantha Rohana
Nuwara Eliya			
Nuwara Eliya	Sinhala & Tamil – 8	Fully completed	Sanjeewa Disabandara
Matara			
Matara	Sinhala – 6	Fully completed	D M S N Madusanka
Jaffna			
Jaffna	Tamil – 8	Fully completed	K Janakaraj
Moneragala			
Moneragala	Sinhala – 6	Fully completed	Sanjeewa Disabandara
Anuradhapura			
Anuradhapura	Sinhala – 8	Fully completed	T M S Gunasekera
Badulla			
Badulla	Sinhala – 6	Fully completed	Sanjeewa Disabandara
Total	**100**	**Completed - 109**	

Annexure 2: Managerial Staff of the organizations (Survey Tool – KII)

Planned coverage and area	Sample population	Institution Covered	Responsible officer / Enumerator
Colombo			
Colombo and Western Province	Public – 12	1. Mr. H P Munasinghe Aratchchi, System Analyst, Sri Lanka Samurdhi Authority, Colombo. 2. Ms. Iresha Udayangani, Head – IT Branch, Dept. of Persons Registration, Cololmbo 5. 3. Mr. L R D Silva, Programme Analyst, Central Environmental Authority, Battaramulla. 4. K P Weerasinghe, Manager – Data Processing, Registrar of Companies, Colombo. 5. Mr. Mr .L. A Kaluhapu Arachhi, Divisional Secretary , Piliyandala 6. Mrs. K.H.S. Irangani, Secretary, Wattala Pradeshiyasaba 7. Mr. Maduka Bandara, Assistant Commissioner (IT), Dept. of Motor Traffic, Colombo 5. 8. Mr Nikarilkanth, Assistant Secretary- Ministry of Resettlement, Colombo 3. 9. Mr G.M. Niel Gunadasa, Director IT, Ministry of Education 10. Mr. Mahesh Perera, Director IT, The Parliament, Sir Jayawardenapura. 11. Mr. Pradeep Gunawardana, Deputy Controller, Department of Immigration and Emigration, Colombo 10. 12. Ms. Dammika Rupasinghe, Systems Analysts, Department of External Resources, Colombo 1. 13. Ms. T.T Upulmalee, Senior Assistant secretary - IT, Ministry of Public Administration & Home Affairs, Colombo 7.	W I C Senake Mala Ratnaweera & P.M.K Abeykoon
Kandy			
Kandy & Central Province	Public – 6	1. Ms. H K S Dilhani, Municipal Secretary, Municipal Council, Kandy 2. G. P S P Premathilake, Public Management Assistant and Network Administrator, District Secretariat, Kandy. 3. Mr. Charith Perera, Management Assistant, Provincial Council - Central Province, , Kandy	T M S Gunasekera

Planned coverage and area	Sample population	Institution Covered	Responsible officer / Enumerator
		4. S M Haleem, Information Technology Officer, Chief Secretariat Office, Kandy 5. Pathmasiri Kulasinghe, District Secretariat, Auradhapura 6. H V Lebunahewa, Management Assistant, North-Central Provincial Council, Anuradhapura	
Galle			
Galle and Southern Province	Public – 6	1. K P Sirira Chaminda, ICT Officer (Grade II), District Secretariat, Hambantota 2. K S V Ramyakanthi, Computer Instructor, Sri Lanka Vocational Training Authority. Mirrigjavila, Hambantota. 3. J A P Kapila Jayasuriya, IT Head, Municipal Council, Hambantota 4. N H Charitha Gayani, Computer Programmer, Secretarial Office, Galle. 5. Salama Mohomed, TCT Assistant, District Secretariat, Galle 6. T P L Guruge, Senior Instructor, Sri Lanka Vocational Training Authority, Galle.	D. M. S. N. Madusanka
Jaffna			
Jaffna & Northern Province	Public – 4	1. Mr. Ravi Sankarappillai, DDMCU, Jaffna Kachcheri, Jaffna 2. Mr. S Balraja, Vavunia Katchcheri, Vavunia. 3. Mr. Julan Pushpaharan, MC, Jaffana 4. Mr. A Jayakannar, Katchcheri Mulativu, Mulativu.	K Janagarajh
Badulla			
Badulla and Uva Province	Public – 4	1. A A Vidura Sampath, Assistant Secretary, District Secretarial , Nuwara Eliya 2. P G Sunil Abeykoon, Municipal Commissioner, Urban Council, Nuwara Eiliya, 3. Dayananda Ratnayake, Divisional Secretary, Divisional Secretariat, Monaragala. 4. H M Nirishan, Zone Educational Director, Zone Education Office, Monaragala 5. M D C Sampath, Divisional Manager, Plywood Corporation, Monaragala	Sanjeewa Disabandara
Total	**Sample – 30**	**Completed 34**	

Annexure 3: Professionals

	Proposed sample population	Actual Coverage	Responsible Officer
1	Nalin Dilruksha, Editor Dinamina, The Lake House, Colombo 2	Covered	Mala Ratnaweera & H A Premaratne
2	S. Thillainathan, Editor Thinakaran/ Thinakaran Vaaramanjari, The Lake House, Colombo 2	Covered	
3	T. Jayakumar, Chairman J K Document and Translation Services, Hulftsdrop Street, Colombo 12	Covered	
4	Mrs. Chandra Perera, Attorney-at-law, Notary Public, Commissioner of Oaths, Lawyers Office Complex, St. Sebastian Hill, Colombo 12	Covered	
5	Yamuna Perera , Commissioner, Department of Child Development & Probation	Covered	Mala Ratnaweera
6	Mr. Ranjana Henaka Arachchi, Henaka Arachchi & Company, Chartered Accountant, Gampaha	Covered	P.M.K Abeykoon
7	Mr. Dissanayake, Dissanayake & Company, Chartered Accountants,	Covered	P.M.K Abeykoon
8	Mr. R Prabhagan, Journalist, Veerakesari News Papaper	Covered	H A Premaratne
9	Mr. Mahendra Aluthgedara, Journalist, Dinamina News Papaper	Covered	P.M.K Abeykoon
10	Mr. Ravi, Managing Director, Business Outsourcing Services.	Covered	P.M.K Abeykoon
	Total: Proposed – 10 **Completed – 10**		

Annexure 4: Local Language Font Developers

	Proposed sample population	Actual Coverage	Responsible Officer
1	Mr. Winee Hettigoda, Faculty of Visual Arts, Uni. of Colombo, Colombo	Completed	Mala Ratnaweera & P C K Abeykoon
2	Mr. Rohan Mahamudali, Director Science Land (Pvt) Ltd	Completed	Mala Ratnaweera
3	Mr. Asanka Chamara Uyanage, Tharu Creations Graphics,	Completed	Mala Ratnaweera
4	Mr. E D Premasiri	Completed	Mala Ratnaweera
5	Ms. Dinesha Ediriweera, Lake House	Completed	Mala Ratnaweera
	Total: **Planned – 5 and Completed 5**		

Annexure 5: ICT Venders

Planned coverage and area	No. of Centers proposed for the Sample	Institutions Covered	Responsible officer
Western Province	2	• Vihanga Technologies, Malabe • Vienas Technologies, Borella.	W I C Senake
Uva Province	3	• Cybrain Information System Badulla – Town • City Computer Nuwara Eliya Town • Gi Tec Nuwara Eliya Town	D M S Disa Bandara
Central Province	3	• Metropolitan Computers (Pvt) Ltd Kandy – Peradeniya • Tech Information Solution (Pvt) Ltd, Kandy • Digi Tech Computer (Pvt) Ltd, Anuradhapura	T M S Gunasekera
Southern Province	4	• Sell –X Computer Galle Town • South Net, Galle Town • The Computer Home Hambantota – Debarawewa • Horizon Computer, Hambantota	D M S N Madusanka
Northern Province	1	• Nothern PC Park Jaffna	K Janagarajh
Total	**Planned – 10**	**Completed – 13**	

Annexure 6: Nenasala Centers

Planned coverage and area	No. of Nenasala proposed for the Sample	Institutions Covered	Responsible officer
Colombo & Gampaha	2	• Sri Dheerananda Nenasala, Gampaha • Pullatalam Nenasala, Puttalum	L M J Rohana
Ratnapura & Balangoda	2	• Balangoda Nenasala, Balangoda • Nenasala New Lanka Tech, Nivithigala	L M J Rohana
Kandy & Central Province	5	• Buwanekabahu Nenasala, Gampola • Public Library, Nenasala, Anuradhapura • Theldeniya Nenasala, Theldeniya • Rikillagaskada Nenasala, Rikillagaskada • Hatton Nenasala, Hatton	T M S Gunasekera
Galle and Southern Province	5	• Asiri ICTA Centre Nenasala, Tissamaharamaya • Electro Nenasala, Ambalangoda • Nenasala, Danketiya, Tangalle • Matara Nenasala, Matara • Weligama Nenasala, Weligama	D. M. S. Nirmal Madusanka
Badulla and Moneragala	4	• Nenasala Wellawaya • Nenasala Badulla • Senerath Paranawithara Nenansala • Uva Nenasala	Disa Bandara
Nuwara Eilya	1	• Nenasala Nuwara Eliya	Disa Bandara
Jaffna	2	• "Ariyavalayam" Nenasala, Jaffna Kachcheri • Thinneveli Nenasala, Thinneveli	K Janagarajh
Total: Planned – 20 Covered – 21			

Annexure 7: Communication Centers

Planned coverage and area	No. of Centers proposed for the Sample	Institutions Covered	Responsible officer
Colombo	2	• Nil Ru Art Work, Battaramulla • Hope Internet Café, Colombo	W I C Senaka
Kandy	1	• Nethka Printers, Communication Centre, Kandy	T M S Gunasekera
Nuwara Eliya	1	• Damith Communication, NE	Disa Bandara
Jaffna & Vavuniya	4	• Softview Centre, Jaffna • Nile Marketing Pvt Ltd, Vavuniya • Kavisaya Printers, Vavuniya • Royal Netcafe, Tharmmus Kohila, Mulativu	K Janagarajh
Anuradhapura	1	• Cool Light Communication, Anuradhapura	T M S Gunasekera
Matara	2	• Surendra Graphics, Matara • Diltharu Communication, Galle	D M S N Madusanka
Badulla	1	• Mayuri Communication, Badulla	Disa Bandara
Moneragala	1	• Asnaka Communication, Moneragala	Disa Bandara
Ratnapura & Kegalle	2	• Phone Arcade, Balangoda • Reliance Communication, Kegalle	M L J Rohana
Total	**Planned - 15**	**Completed – 15**	

Annexure 8: Schools and Universities (Survey Tool – KII)

Planned coverage and area	Proposed Sample Population	Institutions Covered	Responsible officer
Colombo	Schools – 3 University -1	• Santhawarunge Balika Vidyalaya • St Lucia College • Anula College, Nugegoda • University of Sri Jayawardenapura	P C K Abeykoon W I C Senaka M L J Rohana
Kandy	Schools – 2 University – 1	• Mahanama College • St. Sylvester's College, Kandy • University of Peradeniya	T.M.S Gunasekara
Matara	University – 1	• University of Ruhuna	D M S N Madusanka
Hambantota	Schools – 2	• Debarawewa Central College • St. Mary's College	D M S N Madusanka
Jaffna	Schools – 1 University – 2	• SN/ Jone's College • University of Vavniya • University of Jaffna	K Janagarajh
Nuwara Eliya	Schools – 2	• Yahapath Edera Girls School • St. Zaviers College	Disa Bandara
Total	**Planned - Schools – 10, Universities - 5** **Covered - Schools – 10, Universities – 5**		

Annexure 9: Web Developers

	Proposed sample population	Actual Coverage	Responsible Officer
1	Mr. Anjana Gunathilaka – edesigners (Pvt) Ltd	Completed	P M K Abeykoon
2	Mr. Ranjith Gunawardena – RG Web Design Lanka	Completed	P M K Abeykoon
3	Mr. Kushan Rathnayake – Sha Web Design	Completed	P M K Abeykoon
4	Mr. Udara Ranasingha, COO, Maya Creations (Pvt) Limited	Completed	P M K Abeykoon
5	Mr. R.M Vidura Nissantha, Net Starter (Pvt) Limited	Completed	P M K Abeykoon
6	Xited (Pvt) Ltd	Completed	P C K Abeykoon
7	Ruwan kumara De silva – Freelance Web Developer	Completed	P M K Abeykoon
	Total: **Planned – 5 and Completed 7**		

Annexure 10: E-Societies and content developers

	Proposed sample population	Actual Coverage	Responsible Officer
1	Rev. Ellawela Vijithananda Thero -Innovative (Pvt) Ltd *(Jathaka Katha)*	Completed	Mala Ratnaweera
2	Mr Dimitri Fernando - Enigma (Pvt) Ltd	Completed	Mala Ratnaweera
3	Mr . Hasitha - Felide & Practical action	Completed	Mala Ratnaweera
4	Mr Shanake Fernando - S & C System Integrators (Pvt) Ltd	Completed	Mala Ratnaweera
5	Dr. Sanath Jayasena - Uni Consultancy Services	Completed	Mala Ratnaweera
	Total: **Planned – 5 and Completed 5**		

Annexure 11: Key-board Manufacturers

	Proposed sample population	Actual Coverage	Responsible Officer
1	Sala Enterprices, Jagath Vidiyaratne, Manager Sales, No.203, Castle Street, Colombo 8.	Completed	P M K Abeykoon
2	ABC Computers (Pvt) Limited, Mr. Imran Lareef, Manager sales.	Completed	P M K Abeykoon
3	Lapro Technologies (Pvt) Limited, Ms. Dilani Perera, Executive Director.	Completed	P M K Abeykoon
4	Thakral One, Mr. Ruwan Karunaratne, Head of Services, Galle Road, Colombo 06	Completed	P M K Abeykoon
	Total: **Planned – 4 and Completed 4**		

Annexure 12: Bloggers

	Proposed sample population	Actual Coverage	Responsible Officer
1	Dasun Sameera	Completed	P C K Abeykoon
2	Malintha Samarakoon	Completed	P C K Abeykoon
3	Mr - Subash - Avidda paya	Completed	Mala Ratnaweera
4	Naleen Dilruksha -Samakayawata	Completed	Mala Ratnaweera
5	Mr. Nishantha Kamaladasa	Completed	Mala Ratnaweera
	Total: **Planned – 5 and Completed 6**		

Annexure 13: Printers and Publishers

	Proposed sample population	Actual Coverage	Responsible Officer
1	Tharangi Printers, Colombo. (Ms Subashi)	Completed	P C K Abeykoon
2	Samayawardana Printers, Colombo.	Completed	P C K Abeykoon
3	Sithma Printers, Colombo	Completed	P C K Abeykoon
4	Printel (Pvt) Limited (Mr. Dinesh Kulathunga – MD)	Completed	Mala Ratnaweera & H A Premaratne
5	Wijeya Publications	Completed	Mala Ratnaweera & H A Premaratne
6	Government Printer, Colombo 8. (Mr. Dharshana Nonis, System Administration Division)	Completed	H A Premaratne P M K Abeykoon
	Total: **Planned – 5 and Completed 6**		

Annexure 14: List of Enumerators

List of Enumerators Used for the Final Outcome Evaluation Survey for Local Languages Initiatives (LLI)

Name of the Enumerator	Geographical area assigned	ID No.	Address and Tel. No.	Educational / Prof: Qualifications
1. Mr. W. I. Senaka	Colombo	771131883 V	32/2, Owitigama, Meegoda 077-6310124	BA, (Special) University of Colombo, 2006
2. Mr. S M Weerasinghe	Colombo	893462791 V	Bellagewatta, Madu Welivitiya, North Kahaduwa. 077-2701282	BA, (Special), University of Colombo, 2011
3. Mr. Sanjeewa Disabandara	Badulla, Nuwaraeliya Monaragala	771590640 V	Dambagahapitiya, Kuruwitenna, Badulla. 071-8314312	BA, (Special) Economics, University of Colombo, 2006
4. Mr. T M S Gunasekera	Anuradhapura Kandy	861543935 V	Jayamadu, Guruwela, Angunukolapelessa. 078-5113500	BA, (Special) University of Colombo, 2010
5. Mr. L. Jayantha Rohana	Ratnapura Kegalle	870040067 V	Villambiya, Madelgama, Kahawatta. 078-6090559	BA, (Special) University of Colombo, 2010
6. Mr. D. M. S. Nirmal Madusanka	Galle Matara Hambantota	893514325 V	Polhena, Ketapola, Elpitiya. 078-3893466	BA, (Special) Final Year, University of Colombo.
7. Mr. K Janagarajh	Jaffna	893294619 V	No. 171, Ambankulam, Kilinochchi. 077-3939820	BSc. (Bus: Mgt.) (Special) University of Sri Jayewardenepura, Final Year

Annexure 15: Sinhala and Tamil Fonts developed under assistance of LLI-ICTA

Stylized Sinhala Unicode fonts

Stylized Sinhala Unicode fonts	Name of the Font Developers
1. Puskola Potha font	Ms. Nirmali Kaushalya Allahendra
2. NYH font	Mr. Nirmala Handapangoda
3. Warna	Mr. Warna Somarathna
4. SS-SuLakna	Mr. Sushiksitha Sasirichandra De Silva
5. winnie.	Mr. Winnie Hettigoda
6. winnie1.	Mr. Winnie Hettigoda

Stylized Tamil Unicode fonts for Windows and Linux and Mac:

Stylized Unicode Tamil fonts	Operating System
1.ChemmozhiParanar	Windows, Linux
2.ChemmozhiThendral	Windows, Linux
3.ChemmozhiThenee	Windows, Linux
4.ChemmozhiVaigai	Windows, Linux
5.ChemmozhiTimes	Windows, Linux
6.ChemmozhiComic	Windows, Linux
7.Mac_ChemmozhiComic	Mac
8.Mac_ChemmozhiThendral	Mac
9.Mac_ChemmozhiThenee	Mac
10.Mac_ChemmozhiVaigai	Mac
11.Mac_ChemmozhiTimes	Mac
12.Mac_ChemmozhiParanar	Mac

Annexure 16: Questionnaires and Guidelines for KIIs and FGDs

For Individual users - Sinhala and Tamil

(Note: Sections I and II will be used for those who use Unicode compliant fonts and the Sections I and III will be used for those who use Unicode non-compliant fonts)

Section I

Personal Information of respondents

1. Name of the User	
2.Contact Detail e mail- Telephone	
3. Name of the institution/organization.	
4.Province & District:	

Detail of Use age of Computing

1 . Language used by the respondent: (Please √ the relevant box.)

1. Sinhala ☐ 2.Tamil ☐ 3. English ☐

2. What are you using the Computer for?

a. Typing	S	T	E	b. Sharing documents	S	T	E
c. Web browsing	S	T	E	d. E-mailing	S	T	E
e. Maint: websites	S	T	E	f. Web designing	S	T	E
g. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
j. Other	S	T	E	k. Spread sheet	S	T	E

3. What is operating system you are now using for computing?

1. Windows XP 2. Windows Vista 3.Windows 7 4.Linux Distribution 5. Mac

4. What are the office applications you are now using?

1. MSOffice 2003 2. MS Office 2007 3.MS office 2010 4.Open Office 5. Mac App:

5. If it is Sinhala / Tamil, what are names of the Fonts you are presently using?

   1. ..... 2. ..... 3. .....

6. How long are you using these Fonts for?

   1. Less than one year 2. One to three years. 3. More than 3 years

7 Are you familiar with any other Sinhala/Tamil Fonts for computing?

   1. Yes ☐ 2. No ☐

   If yes, what are they? (Please name the Fonts)

   1. ..... 2. ..... 3. .....

8 If you are local languages for web-browsing, what are the purposes of web-browsing?

   1. Increase my knowledge on subjects which I am interested in/Download articles etc.
   2. Read newspapers / Magazines / Books
   3. Obtain information about various institutions / organizations
   4. On-line transacting
   5. Other ……..
   6. Other ……..

9. Do you think it is beneficial to use local languages for computing?

   1. Yes ☐ 2. No ☐

10. If yes, what are those benefits?

   1. Increase my knowledge on subjects which I am interested in/Download articles etc.
   2. Read newspapers / Magazines / Books which are local language
   3. Obtain information about various institutions / organizations
   4. On-line transacting
   5. E-mail communication is faster, reliable and convenient
   6. I can communicate in Local Language with my friends and others (sending / receiving)
   7. I can communicate with many at once

8. Helps using the language accurately
9. Can broad-base the use of ICT in the non-urban areas
10. Response from the recipient can also be quicker
11. Low cost…….
12. Other ……

If the respondent uses Unicode non-compliant fonts please move to section III

Section II

11. Are you aware that that there are Unicode compliant fonts available for Sinhala and Tamil languages too? (e.g. where there is no need to send font with your documents as in the case of English language)

1. Yes ☐ 2. No ☐

12. Is it with the understanding that you decided to use the font that you described above? (if the font described above is Unicode compliant)

1. Yes ☐ 2. No ☐

13. If No, (to 12 above) then why did you choose to use the font you described above? (if the font described above is Unicode compliant)

i. The font came with the computer
ii. The company / Organization bought it
iii. Computer maintenance company / IT section has installed it
iv. One of my friends installed it
v. I do not know

14. If yes (12 and 13 above) How did you come to know about Unicode compliant local language fonts?

(Please √ the suitable statement)

i. Through ICTA awareness program
ii From another friend

iii. When attended to a training program
iv. After perusing the standards fonts in the computer
v. Bought from the market / Vender told us
vi. Through the Circular issued by the Govt.

15. If Yes, (12 and 13 above) why you decided to use Unicode Compliant local language font?
i. Easy to use as I am familiar with the keyboard
ii. Easy to communicate and share documents with others
iii. Other fonts ware not available in the market
iv. It came with the computer I am using
v. Company / organization decided what to use
vi. After participating at the ICTA awareness programs
vii. I do not know

16. Did you face any difficulties after changing to Unicode compliant fonts?
1. Yes ☐ 2. No ☐

17. If yes, what are they?
i. It was difficult for me learn and use the new font
ii. My key-board / typing speed was reduced
iii. I did not know how to use it
iv. The cost of the font / Keyboard driver was high (Additional cost)
We could not use the soft copies of our old documents
v I did not like the shape of the font

18. Do you know the advantages of using standard Unicode Fonts for computing documents?
1. Yes ☐ 2. No ☐

19. What are the advantages/ benefits you are enjoying after changing to fonts compliant with Unicode?

i. No additional benefits
ii. Easy / ability to communicate with others
iii. We managed to access internet in our language
iv. We operate our own web in our own language
v. We did not face any difficulty with existing fonts
vi. Accurate use of Sinhala / Tamil languages in documentation improved
vii. Other …….

20. What are the problems you have experienced in computing with the Font that you previously used? (Please √ the suitable statements)
i. It is not a standard Font use by everybody in computing
ii. Not many of those who compute documents use the same Font.
iii To send the soft copy of any document, it is necessary to send the Font as well.
iv. Those who receive the document can only read it but not make any changes
v. Very difficult to interact (on line communication, Web, replying & responses etc.)
vi. No problems experienced

21. What action did you take to overcome these problems and difficulties? (Please √ the suitable statement)
i. Did not take any action
ii I collected almost all the fonts of my local language
iii. Always sent the font when I e-mail my documents
iv. Continued with the difficulties
v. I did not know what to do
vi No need to take any action

22. Are you trained to use Wijesekera / Renganathan Keyboard?
1. Yes ☐ 2. No ☐

23 How did you get used to work with the present Font?
1. By practice / Trained by the Font supplier 2. Following a training program

24. Are you happy on working with Wijesekera / Renganathan Keyboards?

1. Yes ☐ 2. No ☐

25. If NO., what are the reasons? (Please √ the suitable statement)

i. I am used to other keyboards

ii Difficult to find the keyboards (Physical)

iii. Difficult to find the keyboard drivers

iii. Frequent change of keyboards affecting my performance

iv. Other …….. ……

v. Other ……

26 Was the Keyboard driver already loaded in to the computer when bought or user had to down load it?

1. Already loaded ☐ 2. User down loaded from the net ☐

27. If marked 2 above, then, was it easier for you to down load it?

1. Easy ☐ 2. Difficult ☐

28. Is it essential for you to have a physical LL keyboard or not?

1. Yes ☐ 2. No ☐

29. Are there standard Sinhala Fonts in the computer package you use?

1. Yes ☐ 2. No ☐

30. If YES, are you using that package for computing documents?

1. Yes ☐ 2. No ☐ 3. Some times ☐

31. If No, why you are not using? Give reasons.

i. Easy to use the previous font as I am familiar with it

ii. No keyboard driver bought yet

iii. Both are same, so I did not change it to the Microsoft fonts

iv. Microsoft fonts cannot be sent along with the documents

v. All my previous documents are in the previous fonts, hence difficult to change

vi. Nobody told me to change to the new font

vii. I do not know

32. To what extent the new Unicode compliant fonts met your needs and expectations?

Very low	1	2	3	4	5	Very high

33. What are the shortcomings of Unicode compliant fonts you observed?

i. No shortcomings

ii. Not many such fonts available

iii. Difficult to use

iv. High or additional cost

v. Other ……..

vi. Other ……..

34. Do you have any recommendations to improve the usage of Unicode compliant fonts?

……

35. Would you recommend Unicode compliant fonts to your friends/colleagues in other organizations?

1. Yes ☐ 2. No ☐ 3. Not sure ☐

36. Is it necessary for you to have Sinhalla/Tamil interface to use the computer in local language? Do you use Local language interface?

……

……

Section III

37. Are you aware that you are using Unicode non-compliant font?

    1. Yes ☐ 2. No ☐

38. If yes, what are the reasons for continuing with Unicode non–compliant fonts?

    i. I do not know that there are such fonts available
    ii. I knew, but the investment is high
    iii. I knew, but working with new font is difficult for us
    iv. I knew, but there is no reason for us change, as we use it only for word processing
    v. We did not face any difficulty with existing fonts
    vi. We did not like the shape of Unicode compliant fonts

39. Do you experience any problems in using the font you have?

    i. No problems experienced
    ii. Difficult to transmit to the others
    iii. No difficulties as we send the font as well
    iv. No difficulties as we use the computer for internal document preparation only
    v. Other …….
    vi. Other …….

40. Is the Sinhala/Tamil Font you use now is consistent with the same keyboards?

    1. Yes ☐ 2. No ☐

41. If you are not using it now, are you willing to use the Unicode compliant fonts?

    1. Yes ☐ 2. No ☐

42 Do you know the advantages of using standard Unicode Fonts for computing documents?

    1. Yes ☐ 2. No ☐

43. Have you attended any of the ICTA awareness programs on Unicode compliant fonts?

    1. Yes ☐ 2. No ☐

44. Are you trained to use Wijesekera / Renganathan Keyboard?

1. Yes ☐ 2. No ☐

45. Are you using Wijesekera / Renganathan Keyboard?

1. Yes ☐ 2. No ☐ 3. I do not know what I am using ☐

46. How did you get used to work with the present Font?

1. By practice / Trained by the Font supplier 2. Following a training program

Name of the Enumerator -.....

Date -.....

Signature - ….....

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

GUIDELINES FOR KIIs ON USE OF LOCAL LANGUAGES IN COMPUTING

Guideline for KIIs - Managerial Staff of Organizations

Name	
Designation	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. Language used by the respondent: (Please √ the relevant box.)

   1. Sinhala ☐ 2.Tamil ☐ 3. English ☐

2. What are the uses of the ICT in your organization and in which language?

a. Type setting	S	T	E	e. Sharing documents	S	T	E
b. Web browsing	S	T	E	f. E-mailing	S	T	E
c. Maint: websites	S	T	E	g. Web designing	S	T	E
d. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

3. As your experience, how required and important to have facilities to use of local language in computing / ICT.
4. If your organization use local languages in above instance what are the name of the fonts that they are presently using?
5. Does your organization have a website? In what language this web site is being updated? Who updates it?
6. Do your staff of the organization use the web & emails in local languages and if yes what

are those instances?

7. If not, do you like to establish a web site in Sinhala / Tamil language and allow your staff to update the website?
8. What factors would you consider in purchasing the software, if you use local languages?
9. Is it possible and easy to access the necessary software such as keyboard drivers, and install these easily?
10. Do you know about Unicode compliant local language fonts?
11. Are you aware of the benefits of Unicode / Unicode compliant fonts? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)
12. Have you started using fonts compliant with Unicode?
13. If the organization is not using Unicode, why you did not change to Unicode compliant fonts as yet?
14. The reasons for changing into Unicode Compliant local language Fonts?
15. Do you know the involvement of ICTA in formalizing Unicode for Sinhala and Tamil?
16. What are difficulties you faced in changing into the Unicode compliant fonts?
17. Have you / organization encountered any difficulties in working with Unicode compliant fonts.
18. What are the difficulties the organization encountered in working with Unicode non-compliant fonts?
19. What are the suggestions and recommendations to ICTA for improving the use of Unicode compliant local fonts?
20. What is operating system you are now using for computing?

    1. Windows XP 2. Windows Vista 3.Windows 7 4.Linux Distribution 5. Mac

21. What are the office applications you are now using?

    1. MSOffice 2003 2. MS Office 2007 3. MS office 2010 4. Open Office 5. Mac App:

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

Guideline for KIIs - Professionals

Name	
Designation	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. Language used by the respondent: (Please √ the relevant box.)

   1. Sinhala ☐ 2.Tamil ☐ 3. English ☐

2. What are the uses of the ICT by you?

   (Internet / Web / Documentation / Reporting / Data storage and processing etc.)

3. Any of the above in local language

c. Type setting	S	T	E	g. Sharing documents	S	T	E
d. Web browsing	S	T	E	h. E-mailing	S	T	E
c. Maint: websites	S	T	E	g. Web designing	S	T	E
d. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

1. What the advantages of use of local language in computing / ICT
2. Do you have a website? In what language this web site is being updated? Who updates it? Is it in local language / Multi-lingual?
3. If not, do you like to establish a web site in Sinhala / Tamil language?
4. What factors would you consider in purchasing the software, if you use local languages?
5. When you try to install / use local language related software and tools, you were able to

do so without having to ask assistance from IT personnel?

6. Do you know about Unicode compliant local language fonts?
7. Have you started using fonts compliant with Unicode?
8. The reasons for changing into Unicorn Compliant local language Fonts?
9. What are the benefits / advantages of using Unicode compliant fonts? Are you aware of the benefits of Unicode / Unicode compliant fonts? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)
10. Do you know the involvement of ICTA in formalizing Unicode for Sinhala and Tamil?
11. If you are not using Unicode, why you did not change to Unicode compliant fonts as yet?
12. What are difficulties you faced in changing into the Unicode compliant fonts?
13. Were there any difficulties for shifting into the Unicode system?
14. According to your understanding, are there additional costs to be incurred in shifting into the Unicode system?
15. Are you aware that the difficulties faced by using the present Font could be avoided with the Unicode system?
16. What are the difficulties the organization encountered in working with Unicode non-compliant fonts?
17. Have you encountered any difficulties in working with Unicode compliant fonts?
18. You were been able to join / enter into dialogue (Bloggers etc.) in the local language?
19. Are you aware of the ICTA developed SLS standardized Unicode system to use for computing?
20. What are the suggestions and recommendations to ICTA for improving the use of local languages in ICT?

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

Guideline for KIIs – Font developers

Name	
Designation	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. Are you interested in development of Unicode compliant Sinhala / Tamil Fonts or Keyboard Drivers or both?
2. How many Sinhala / Tamil Fonts, Unicode compliant or otherwise, you have developed and who uses those fonts?
3. How useful them for the users?
4. Do you have a registry of those computer users of Fonts developed by you or your organization?
5. Do you accept the rules and guidelines introduced through the ICTA Font Bhashitha?
6. Would you generally take the SLS certification on use of LLs (SLS 1134 / SLS 1136)
7. If you have other views please explain and give reasons for your different view.
8. What are main constraints / problems you face in developing the Fonts or Keyboard kits?
9. What type of assistance you expect from the ICTA to address those problems?
10. Do you foresee any problems in developing Sinhala / Tamil Fonts using Unicode?
11. Could you address the issue of storage requirement while using Unicode system?
12. What other factors you want to highlight in developing and promoting Sinhala / Tamil Unicode Fonts?
13. What are the benefits of using LL? (e.g. LL websites, correct LL fonts and glyphs, accurate

use etc.)

14. Have you established your own website? In what language this web site is being updated?
15. Do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?
16. Do you browse the internet in your local language?
17. Was it beneficial for you to be able to browse in the internet in local language?
18. What are the other uses of the ICT by you?(Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)
19. Any of the above used in local language

e. Type setting	S	T	E	i. Sharing documents	S	T	E
f. Web browsing	S	T	E	j. E-mailing	S	T	E
c. Maint: websites	S	T	E	g. Web designing	S	T	E
d. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

20. What are the suggestions and recommendations to ICTA for improving the use of local languages in ICT?

Guideline for KIIs – Application Developers

Name	
Designation	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. Do you develop applications to be used in local languages?
2. How is the volume of such developments

   Sinhala ……. % Tamil ……%, English ….. %
3. What are the fonts you normally use in applications in LL?

   ……. . ……. …….. …….
4. Do you accept the rules and guidelines introduced through the ICTA Font Bhashitha?
5. If you have other views please explain and give reasons for your different view.
6. What are main constraints / problems you face in developing applications in LLs?
7. Would you generally take the SLS certification on use of LLs (SLS 1134 / SLS 1136)
8. What type of assistance you expect from the ICTA to address those problems?
9. Do you foresee any problems in developing applications in Sinhala / Tamil languages?
10. What other factors you want to highlight in developing and promoting applications in Sinhala / Tamil languages?
11. Have you established your own website?
12. In what language this web site is being updated?
13. What are the benefits of using LL? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)
14. If you do not have a website, do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?
15. Do you browse the internet in your local language?
16. Was it beneficial for you to be able to browse in the internet in local language?

17. What are the other uses of the ICT by you? (Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)
18. Any of the above used in local language

g. Type setting	S	T	E	k. Sharing documents	S	T	E
h. Web browsing	S	T	E	l. E-mailing	S	T	E
c. Maint: websites	S	T	E	g. Web designing	S	T	E
d. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

19. What are the suggestions and recommendations to ICTA for improving the use of local languages in ICT?

Name	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. What are the local language fonts that are in demand?

a. Unicode compliant Sinhala / Tamil Fonts

b. Keyboard Drivers or both?

c. Unicode non-compliant fonts and the demand for same?

2. What are the Sinhala and Tamil fonts that you recommend for us to use?

Sinhala …….

Tamil …….

3. If there is still a demand for Unicode non-compliant products, what are the reasons for that?

4. What types of customers normally ask for these non-compliant products? (Public, Private, rural etc.)

5. What do you normally load, when you sell computers? (Unicode compliant / Non-compliant)

6. What are the benefits of using LL? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)

7. Are all computers sold at present include Unicode compliant fonts / or not? What type operating systems do you promote/sell?

8. Have you established your own website? In what language this web site is being updated?

9. Was it beneficial for you to have your web site in local language / and how?

10. Do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?

11. Do you browse the internet in your local language?
12. Was it beneficial for you to be able to browse in the internet in local language?
13. What are the other uses of the ICT by you? (Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)
14. Any of the above used in local language

a. Type setting	S	T	E	b. Sharing documents	S	T	E
c. Web browsing	S	T	E	d. E-mailing	S	T	E
e. Mainte: websites	S	T	E	f. Web designing	S	T	E
g. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

Guideline for KIIs – Nenasala / Communication Center Operators

Name of the Nanasala/Communication center	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. How long this Nenasala / Communication Centre is in operation? / When was it started?
2. How was the growth in customers during the past three – four years?
3. For what type of services they generally come? (Photocopy …. % / Telephone …% / Computer services .. % Other …. %)
4. What are the most common computer services sought by the customers? (Type setting….%, Internet ….%, Printing…..%, e-mailing….%, Other……%)
5. What are the languages they use most/ (Sinhala….%, Tamil….%, English ….%, Other …..%)
6. Do you have local languages loaded into the computers?
7. What are the fonts you have selected to be loaded?
8. What were the criteria in selecting them?
9. Do you aware of Unicode compliant and non-compliant fonts?
10. If you still use Unicode non-compliant products, what are the reasons for that?
11. Do the customers normally ask for these non-compliant products? (Public, Private, rural etc.) / or they ask for compliant products (Fonts / Keyboards etc.)?
12. Do you do training as well?
13. What type of training?
14. Does it include awareness about the Unicode compliant products and use of Unicode compliant products (Fonts, use of web/internet in local language, type setting in

local languages etc.)

15. What areas of training are in most demand? (Use of computers in English / Sinhala / Tamil etc.)

16. What are the benefits of using LL? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)

17. Have you established your own website? In what language this web site is being updated?

18. Was it beneficial for you to have your web site in local language / and how?

19. Do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?

20. Do you browse the internet in your local language?

21. Was it beneficial for you to be able to browse in the internet in local language?

22. What are the other uses of the ICT by you? (Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)

23. Any of the above used in local language

a. Type setting	S	T	E	b. Sharing documents	S	T	E
e. Web browsing	S	T	E	f. E-mailing	S	T	E
e. Mainte: websites	S	T	E	f. Web designing	S	T	E
g. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

Guideline for KIIs – Web developers

Name	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. For how long you have been developing websites?
2. What are the main languages in which you develop websites?
3. What is the normal composition of languages of the websites? (English …%, Sinhala …% and Tamil ….%)
4. Has there been a change in the composition in the recent past (after introducing Unicode and been able use Sinhala and Tamil fonts)?
5. Do you have adequate fonts (Tamil / Sinhala) for you to be able to use in different thematic designs you make for websites?
6. What kind of responses you received form the users on the web that you developed in Local Language?
7. What are main constraints / problems you face in developing the websites in local languages?
8. Do you foresee any problems in developing Sinhala / Tamil Fonts using Unicode?
9. What other factors you want to highlight in developing and promoting Sinhala / Tamil websites in local languages?
10. What type of assistance you expect from the ICTA to address those problems?
11. Have you established your own website? In what language this web site is being updated?
12. If not, do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?
13. Do you browse the internet in your local language?

14. Was it beneficial for you to be able to browse in the internet in local language?
15. What are the other uses of the ICT by you? (Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)
16. Any of the above used in local language

a. Type setting	S	T	E	b. Sharing documents	S	T	E
c. Web browsing	S	T	E	d. E-mailing	S	T	E
e. Maint: websites	S	T	E	f. Web designing	S	T	E
g. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

17. If you have other views please explain and give reasons for your different view.
18. What are the benefits of using LL? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)
19. What are the suggestions and recommendations to ICTA for improving the use of local languages in ICT?

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

Guideline for KIIs – e-Society (Content Development)

Name	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. How long these services being in operation? / When was it started?
2. How was the growth in customers during the past three – four years?
3. What are the languages you use most/ (Sinhala.%, Tamil.%, English ….%, Other..%)
4. Do you have local languages loaded into the computers?
5. What are the fonts you have selected to be loaded?
6. What were the criteria in selecting them?
7. Do you aware of Unicode compliant and non-compliant fonts?
8. If you still use Unicode non-compliant products, what are the reasons for that?
9. What are the other uses of the ICT by you? (Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)
10. Any of the above used in local language?

a. Type setting	S	T	E	b. Sharing documents	S	T	E
g. Web browsing	S	T	E	h. E-mailing	S	T	E
e. Mainte: websites	S	T	E	f. Web designing	S	T	E
g. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

11. Have you established your own website? In what language this web site is being updated?
12. Was it beneficial for you to have your web site in local language / and how?
13. Do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?

14. Do you browse the internet in your local language?
15. Was it beneficial to be able to browse in the internet in local language?
16. Do you aware of the benefits in using the computers in local languages? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

Guideline for KIIs – Key-Board Manufacturers

Name	
Organization /Institution	
Contact detail – e mail - Telephone	
Province and District	

1. Do you manufacture LL keyboards?
2. What are languages? (Sinhala / Tamil / Both)
3. How is the volume of orders you get?

   Large Medium Small
4. Is the volume growing or not?

   Growing Not growing / Static Declining
5. You develop keyboards based on Wijesekera and Renganthan format?

   Yes, Only W&R. Many (W&R and other)
6. Would you generally take the SLS certification on use of LLs (SLS 1134 / SLS 1136)
7. If you have other views on use of LL, please explain your views.
8. What are main constraints / problems you face in manufacturing LL keyboards?
9. What type of assistance you expect from the ICTA to address those problems?
10. What other factors you want to highlight in developing and promoting use of Sinhala / Tamil languages?
11. Have you established your own website? In what language this web site is being updated?
12. Do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?
13. Do you browse the internet in your local language?
14. Was it beneficial for you to be able to browse in the internet in local language?
15. What are the other uses of the ICT by you? (Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)

16. Any of the above used in local language.

i. Type setting	S	T	E	m. Sharing documents	S	T	E
j. Web browsing	S	T	E	n. E-mailing	S	T	E
c. Maint: websites	S	T	E	g. Web designing	S	T	E
d. Audio listening / Video viewing	S	T	E	h. Skype chatting (type chatting)	S	T	E
i. Other	S	T	E	J. ……..	S	T	E

17. What are the suggestions and recommendations to ICTA for improving the use of local languages in ICT?

OUTCOME EVALUATION FOR LOCAL LANGUAGES INITIATIVE OF ICTA

Guideline for FGD – Schools and Universities

Note- Name list of the participants should be attached with the contact detail

1. What do think of using ICT in local language?
2. Do you think it is important and required?
3. As you think, what are the benefits in using the computers in local languages? (e.g. LL websites, correct LL fonts and glyphs, accurate use etc.)
4. Does the School / Universities have a computer lab with adequate Facilities?
5. How satisfy with the facility? (No of computers / connectivity and usage)
6. Do you have local languages loaded into the computers?
7. What are the languages the students use most/ (Sinhala….%, Tamil….%, English ….%, Other …..%)
8. What are the languages the teaching staff use most / (Sinhala….%, Tamil….%, English ….%, Other …..%)
9. What are the fonts that have been selected to be loaded? (Sinhala …… and Tamil…..)
10. What were the criteria in selecting them?
11. Do you aware of Unicode compliant and non-compliant fonts?
12. If you still use Unicode non-compliant products, what are the reasons for that?
13. What are the other uses of the ICT by the school / University? (Internet / Own Web / Documentation / Reporting / Data storage and processing etc.)
14. If not, do you like to establish a web site in Sinhala / Tamil language and allow Sinhala / Tamil users to browse it?
15. Any suggestions for further improvement.

Annexure 17: LLI Evaluation – Terms of References

Terms of Reference (ToR)