

Local Language Computing Standards: Status and Current Work for Dzongkha

**Tenzin Dendup
Department of Information Technology,
Bhutan**

Monday, 12th January, 2009

Presentation Outline

- Dzongkha – Background
- Dzongkha Computing – History
- Dzongkha Computing Standardization
- Future work



Dzongkha - Background

- National Language of Bhutan
 - Only Bhutanese language with written script
 - Sino-Tibetan / Tibeto-Burman Language, related to Tibetan
 - Native tongue of eight western districts of Bhutan
 - 0.13 million first language speakers
 - 0.6 million total speakers
-
-

Dzongkha Computing - History

- Use of computers started in late 1980s
 - Initiated developing Dzongkha computing applications in Windows95, Windows98 and Mac in 1990s
 - Systems developed with help from external experts
 - Problems with legacy systems:
 - Non-standard systems
 - Not inter-operable
-
-

Dzongkha Computing Standardization

- Standardization Bodies:
 - Dzongkha Development Commission (DDC)
 - Department of IT (DIT)
 - Standardization aspects:
 - Character set and encoding
 - Fonts
 - Keyboard layout
 - Locale
 - Collation
 - ICT terminologies for localization
-
-

Standards – Character Set and Encoding

- Dzongkha uses same script/character set as Tibetan
 - Unlike Tibetan
 - Dzongkha has both uppercase and lower case writing system
 - Differs in vocabulary
 - Unicode block 0F00 – 0FFF accepted as standard for encoding Dzongkha text
-
-

Standards – Fonts

- Open Type fonts developed by DDC and other individuals
 - Microsoft Platform
 - Fonts usable
 - Fonts for Dzongkha not shipped officially
 - Linux Platform
 - Fonts usable
 - Fonts for Dzongkha shipped officially in Linux Distros like Debian, Ubuntu etc
-
-

Standards – Keyboard Layout

- Nationally standardized keyboard layout developed
- Work done by DDC and DIT
- Used in both Microsoft and Linux platform



Standards – Locale

- Standardized locale for Dzongkha for Bhutan (dz_BT) created
 - Dzongkha included as distinct language in ISO with language code “dz”
 - Dzongkha Locale definition included in CLDR
 - Microsoft platform
 - Dzongkha locale not included in MS OSes
 - Linux platform
 - Complete locale support
 - Locale implemented in GNU C Library
 - Locale added to OpenOffice
-
-

Standards – Collation

- Microsoft platform:
 - Collation / sorting not supported in MS Office
- Linux platform
 - Collation rules implemented on Linux platform
 - collation/sorting of Dzongkha supported in OpenOffice

Standards – ICT Terminologies

- Microsoft platform:
 - Currently no localization effort for Microsoft Operating systems and applications
- Linux platform
 - Standard terminologies created for localization of Gnome, OpenOffice etc
 - “Dzongkha Computer Terms” published by PAN

Future Works

- Add more locale information in CLDR
- Localization of Microsoft products
- Design and Develop Dzongkha spell checker
- Implementation of collation rules for Dzongkha in MySql



Thank You for Your Attention

