Proposal to encode CHAKMA LETTER LHAA, DEPENDENT VOWEL SIGNS AA & EI for Chakma

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Chakma script was added to Unicode in version 6.1 (2012) on the basis of Michael Everson's proposal documents submitted in 2008 and 2009 (L2/08-133 & L2/09-187R). The present encoding for Chakma lacks three characters that are used by the Baarah Maatraa orthography for Chakma language. The present document addresses the gap in the Chakma encoding by proposing these signs as additions to the existing Chakma block (U+11100–U+1114F). The three characters are:

Glyph	Code	Character name
𑅄	11144	CHAKMA LETTER LHAA = fetfada lhaa
𑅅	11145	CHAKMA VOWEL SIGN AA = deil-dya aa
𑅆	11146	CHAKMA VOWEL SIGN EI = dvi adi gadei-dya ei

Michael Everson's original proposal was aware of the development of orthographies for Tanchangya language and anticipated the need for encoding additional characters. These signs are not being proposed in connection with Tachangya language. This document is not a statement regarding the completeness of the Chakma encoding for any other language or orthography other than Baarah Maatraa orthography for Chakma language. The characters proposed here, Chakma LETTER LHAA, VOWEL SIGNS AA & EI have also been used traditionally in regional Chakma orthographies and are not simply modern innovations.

The LETTER LHAA is used for the aspirated counterpart to LETTER LAA (figures 1, 2, 3 & 4). This sign is a CV akṣara that may combine with dependent vowel signs, for example:

𑅄 𑅄𑅆 𑅄𑄨 𑅄𑄪 𑅄𑄫 𑄃𑅄𑄤 𑄆𑄆𑅄𑄤 𑅄𑄬 𑅄𑄬𑅆 𑅄𑄭 𑅄𑄮 𑅄𑄯 𑅄𑄰 𑅄𑄳𑄃 𑅄𑄧 𑅄𑄰 𑅄𑄲 𑅄𑄳

It can also occur in conjunct consonant clusters, for example:

𑅄𑄳𑄠 (lhyaa)

� (llhaa)

The VOWEL SIGN AA 𑅅 is a dependent vowel sign used to mark an explicit long A vowel (see figure 4, 5, 6, 7, 8, 12, 13, 14 & 15) in some orthographies. It is related to the Myanmar sign TALL AA (U+102B). There is no corresponding independent form of this vowel.

The VOWEL SIGN EI 𑅆 is a dependent vowel sign used to mark an explicit long E vowel mix with I vowel (see figure 9, 10, 11, 12, 13, 14 & 15). It is derived from the CHAKMA LETTER E (U+11106) & I (U+11104). There is no corresponding independent form of this vowel.

Character Data

Character properties

In the format of UnicodeData.txt:

```
11144;CHAKMA LETTER LHAA;Lo;0;L;;;;;N;;;;;
11145;CHAKMA VOWEL SIGN AA; Mc;0;L;;;;;N;;;;;
11146;CHAKMA VOWEL SIGN EI; Mc;0;L;;;;;N;;;;;
```

Linebreaking

In the format of LineBreak.txt:

```
11144;AL    # Lo     [1] CHAKMA LETTER LHAA
11145..11146;CM   # Mc      [2] CHAKMA VOWEL SIGN AA..CHAKMA VOWEL SIGN EI
```

Syllabic categories

In the format of IndicSyllabicCategory.txt:

```
# Indic_Syllabic_Category=Consonant

11144; Consonant # Lo  [1] CHAKMA LETTER LHAA

# Indic_Syllabic_Category=Vowel_Dependent

11145..11146  ; Vowel_Dependent # Mc   [2] CHAKMA VOWEL SIGN AA..CHAKMA VOWEL SIGN EI
```

Positional categories

In the format of IndicPositionalCategory.txt:

```
# Indic_Positional_Category=Right

11145; Right # Mc      CHAKMA VOWEL SIGN AA

# Indic_Positional_Category=Right

11146; Right # Mc      CHAKMA VOWEL SIGN EI
```

Sorting

Sort values should be assigned to these characters so that the following sort order is achieved:

ပ (U+11126) < ၓ (U+11144) < ဘ (U+11103)

ပ (U+11134) < ◌ႅ (U+11145) < ◌ႆ (U+11146)

◌ႅ (U+11145) < ◌ႆ (U+11146) < ◌̆ (U+11100)

References

Everson, Michael, 2008 "Preliminary proposal for encoding the Chakma script in the UCS". N3428 L2/08-133.
http://www.unicode.org/L2/L2008/08133-n3428-chakma.pdf

Everson, Michael, 2009. "Proposal for encoding the Chakma script in the UCS". N3645R L2/09-187R.
http://www.unicode.org/L2/L2009/09187r-n3645r-chakma.pdf

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Add the three additional characters:

1. Chakma Consonant letter LHAA
 = fetfada lhaa
 = U+11144

2. Dependent Vowel Sign AA
 = deil-dya aa
 = U+11145

3. Dependent Vowel Sign EI
 = dvi adi gadei-dya ei
 = U+11146

Various signs

11100		CHAKMA SIGN CANDRABINDU
		= caanaphupudaa
11101		CHAKMA SIGN ANUSVARA
		= ekaphudaa
11102		CHAKMA SIGN VISARGA
		= dviphudaa

Independent vowels

11103	ͻ	CHAKMA LETTER AA
		= pichapujhaa aa
11104		CHAKMA LETTER I
		= delabhaangagaa i
11105	੨	CHAKMA LETTER U
		= bacacu u
11106		CHAKMA LETTER E
		= lejaubaa e

Consonants

11107	ന	CHAKMA LETTER KAA
		= cucyaangyaa kaa
11108	൭	CHAKMA LETTER KHAA
		= grajaangyaa khaa
11109	Ω	CHAKMA LETTER GAA
		= caandyaa gaa
1110A	൰	CHAKMA LETTER GHAA
		= tinaddaalyaa ghaa
1110B	Ɛ	CHAKMA LETTER NGAA
		= cilaama ngaa
1110C	ꝺ	CHAKMA LETTER CAA
		= dvibhalyaa caa
1110D	൹	CHAKMA LETTER CHAA
		= majaraa chaa
1110E	൭	CHAKMA LETTER JAA
		= dvipadalaa jaa
1110F	ꝺ	CHAKMA LETTER JHAA
		= uraauraa jhaa
11110	൞	CHAKMA LETTER NYAA
		= silaacyaa nyaa
11111	Ŀ	CHAKMA LETTER TTAA
		= dviyaadaat ttaa
11112	Ɫ	CHAKMA LETTER TTHAA
		= phudaadviyaat tthaa
11113	੨	CHAKMA LETTER DDAA
		= aadudaangaat ddaa
11114	൯	CHAKMA LETTER DDHAA
		= lejabharaat ddhaa
11115	੨	CHAKMA LETTER NNAA
		= pettttuyaa nnaa
11116	ന	CHAKMA LETTER TAA
		= ghangadaat taa
11117	൸	CHAKMA LETTER THAA
		= jagadaat thaa
11118	ͻ	CHAKMA LETTER DAA
		= dolaniit daa
11119	൭	CHAKMA LETTER DHAA
		= talamuyaat dhaa
1111A	൭	CHAKMA LETTER NAA
		= phaarabaanyaa naa
1111B	౮	CHAKMA LETTER PAA
		= paalyaa paa
1111C	൭	CHAKMA LETTER PHAA
		= ubaraphudaa phaa
1111D	౮	CHAKMA LETTER BAA
		= ubaramuyaa baa

1111E	൭	CHAKMA LETTER BHAA
		= ciraddaalyaa bhaa
1111F	൰	CHAKMA LETTER MAA
		= bugatpadalaa maa
11120	ω	CHAKMA LETTER YYAA
		= cimayyaa yyaa
11121	൭	CHAKMA LETTER YAA
		= jilyaa yaa
11122	൭	CHAKMA LETTER RAA
		= dvidaayyaa raa
11123	൱	CHAKMA LETTER LAA
		= talamuyaa laa
11124	○	CHAKMA LETTER WAA
		= bajhonyaa waa
11125	൮	CHAKMA LETTER SAA
		= bhudibukyaa saa
11126	൜	CHAKMA LETTER HAA
		= ubaramuyaa haa

Dependent vowel signs

11127		CHAKMA VOWEL SIGN A
		= ubaratulyaa a
11128		CHAKMA VOWEL SIGN I
		= bahryaa i
11129		CHAKMA VOWEL SIGN II
		= baaniiphadaa ii
1112A		CHAKMA VOWEL SIGN U
		= ekattaana u
1112B		CHAKMA VOWEL SIGN UU
		= dvittaana uu
1112C		CHAKMA VOWEL SIGN E
		= ekaara e
1112D		CHAKMA VOWEL SIGN AI
		= delabhaanga ai
1112E		CHAKMA VOWEL SIGN O
		= okaara o
		≡ 11131 ੦ 11127
1112F		CHAKMA VOWEL SIGN AU
		= aukaara au
		≡ 11132 ੦ 11127
11130		CHAKMA VOWEL SIGN OI
		= oikaara oi
11131		CHAKMA O MARK
11132		CHAKMA AU MARK

Various signs

11133		CHAKMA VIRAMA
		• used to form conjuncts
		→ 1039 myanmar sign virama
11134		CHAKMA MAAYYAA
		• killer
		→ 103A myanmar sign asat

Digits

11136	○	CHAKMA DIGIT ZERO
11137	୪	CHAKMA DIGIT ONE
11138	੨	CHAKMA DIGIT TWO
11139	੭	CHAKMA DIGIT THREE
1113A	ℓ	CHAKMA DIGIT FOUR
1113B	੨	CHAKMA DIGIT FIVE
1113C	૨	CHAKMA DIGIT SIX
1113D	੧	CHAKMA DIGIT SEVEN
1113E	୫	CHAKMA DIGIT EIGHT
1113F	൭	CHAKMA DIGIT NINE

11144	൭	CHAKMA LETTER LHAA
		= fetfada lhaa
11145		CHAKMA VOWEL SIGN AA
		= deil-dya aa
11146		CHAKMA VOWEL SIGN EI
		= dvi adi gadei-dya ei

Fig-1

𑄢𑄴𑄡 𑄣𑄨

ꠙ ꠁ ꠂ ꠃ ꠄ

ꠅ ꠆ ꠇ ꠈ ꠉ
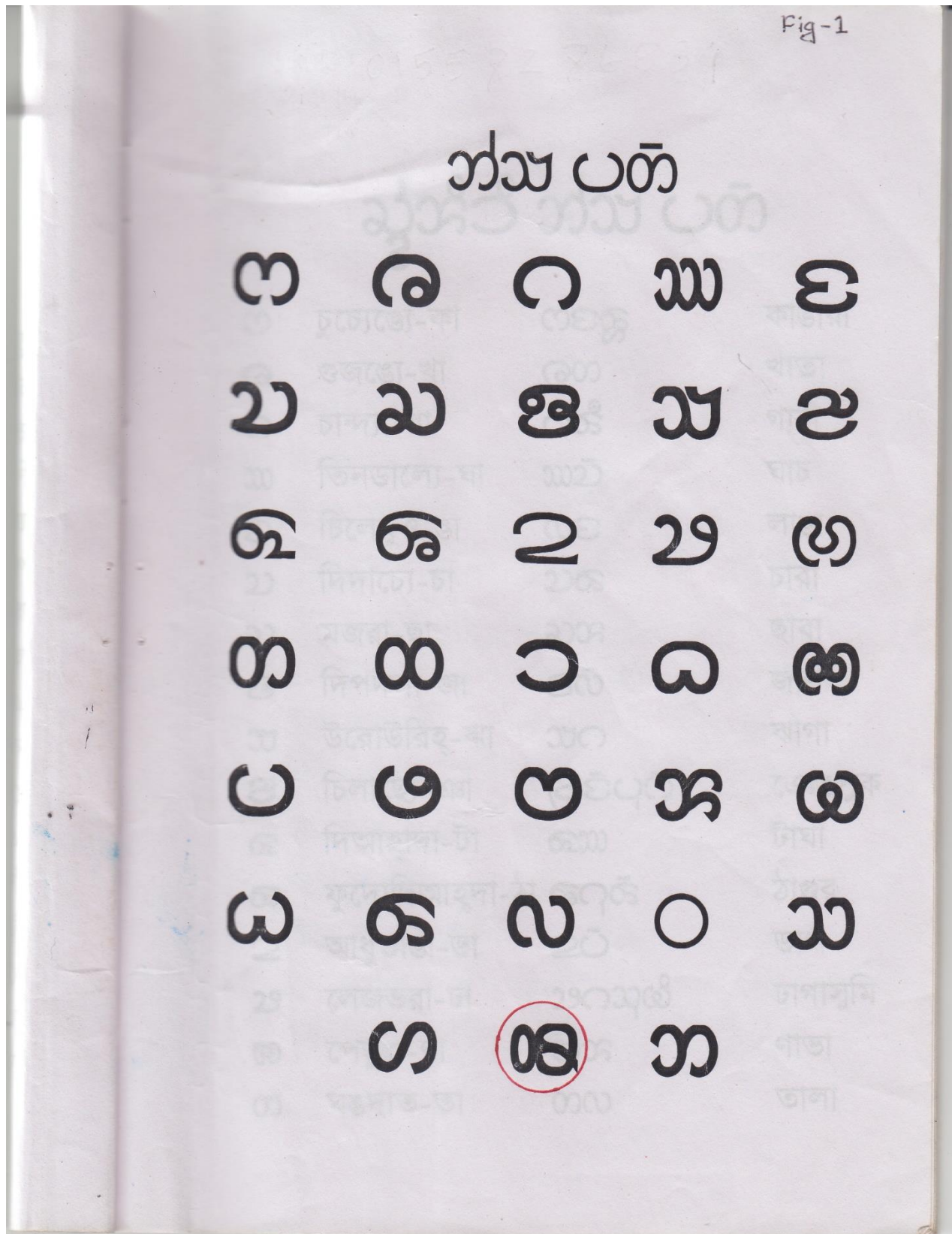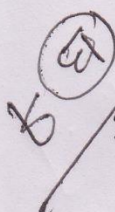
ꠊ ꠋ ꠌ ꠍ ꠎ

ꠏ ꠐ ꠑ ꠒ ꠓ

ꠔ ꠕ ꠖ ꠗ ꠘ

ꠙ ꠚ ꠛ ꠜ ꠝ

ꠞ ꠟ ꠠ

Figure 1: Usage of the proposed character consonant letter **LHAA** of Chakma [from *Chakma Legha Shigheni Bozar 2011 (Chakma Script learning year-2011).* Source: Online Published from Tripura, India]

Fig-2

Figure 2: Usage of the proposed character consonant letter **LHAA** of Chakma [from *Chakma Legha Shigheni Bozar 2011 (Chakma Script learning year-2011).* Source: Online Published from Tripura, India]

Fig - 3.

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এবার তলর লেঘানি র' গরি মাদেনেই লেঘি চা'

⟨Chakma⟩=মালাহ্   ⟨Chakma⟩=চাবারা

⟨Chakma⟩=আধা   ⟨Chakma⟩=পাগালা

সালে আমি জানিলঙ-

⟨Chakma⟩=মা, ⟨Chakma⟩=লাহ্, ⟨Chakma⟩=চা, ⟨Chakma⟩=বা, ⟨Chakma⟩=রা, ⟨Chakma⟩=আ,

⟨Chakma⟩=ধা, ⟨Chakma⟩=পা, ⟨Chakma⟩=গা, আ ⟨Chakma⟩=লা ।

রিনি চা' -

চাঙমাদি দিভ্যে লা আঘন - ইক্কো লা (⟨Chakma⟩) আইক্কো লাহ্
(⟨Chakma⟩) ।

ন চেয়ে গরি লিঘি চা' -

মা = ...⟨Chakma⟩.....   রা = ...⟨Chakma⟩.....

লাহ্ = ...⟨Chakma⟩.....   আ = ...⟨Chakma⟩.....

চা = ...⟨Chakma⟩.....   ধা = ...⟨Chakma⟩.....

বা = ...⟨Chakma⟩.....   পা = ...⟨Chakma⟩.....

গা = ...⟨Chakma⟩.....   লা = ...⟨Chakma⟩.....

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Figure 3: Usage of the proposed character consonant letter **LHAA** of Chakma [from *30 Minide Chakma Legha Shigho (Learn Chakma Script within 30 minutes)*. Souce: Online Published, Tripura, India]

(Read and write)

(Single Vowel Sound)

(Mixed Vowel Sound)

Figure 4: Usage of the proposed character Chakma Dependent Vowel Sign **LHAA** of Chakma [from **Prescribed as a Text Book by the Secretary District School Education Board, CADC, India. vide Notification No. 26/TMSTB/2008- 2009/84/200 Dt. 12/1/09.**

Fig-4

Figure 5: Usage of the proposed character Chakma Dependent Vowel Sign **AA** of Chakma [from *Chakma Legha Shigheni Bozar 2011 (Chakma Script learning year-2011).* Source: Online Published from Tripura, India]

Fig-5

Figure 6: Usage of the proposed character Chakma Dependent Vowel Sign **AA** of Chakma [from *Chakma Legha Shigheni Bozar 2011 (Chakma Script learning year-2011)*. Source: Online Published from Tripura, India]

Fig -6

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ইয়েনিহ্ মাদেই চ'-

ওঙ=মাজা   ত্যাঃৰ=মা'দালা
৩ঙ=বানা   ৩ঙ্ঙ=বানাহ্

( ) ইয়েনরে হন্নে 'আ-কার' আ ( ) ইয়েনরে হন্নে 'আহ্ বাজেই দেনা'। পথমান অহ্রগর বাজগরে লাম্বা গরে আ জেররান গো'র গরে। তলর র'ঘুন মাদেই চ' -

=পা'   =চা'   =গাদানাহ্
=মানাহ্   =মা'জন   =প'র
=বদনাহ্   =জদনাহ্   =নারাহ্
=মা'রাঙা   =চ'র   =ম'র
=ফাগারা'   =কানাহ্   =বারাহ্

চাঙ সারা=   বর চা'ঙ=
লর দেনা=   আহ্দত ল'র=
মাগানা=   মাগানাহ্=
জার কাল=   জা'র গরানাহ্=
বাজানা=   বা' জানা=

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Figure 7 : Usage of the proposed character Chakma Dependent Vowel Sign **AA** of Chakma [from *30 Minide Chakma Legha Shigho (Learn Chakma Script within 30 minutes)*]

ပဒ(ကြ္ဋ ကဂိႀဋ္ကိ ကာ်က်ံ

(Guideline for Teachers)

၄. ဏ္ကြ ၆်ဂ် ကာိ်ကိ:

ဘ - America ဏ္ဂႀဋ္ကိ ပႀဋ္ G A ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as A in the word America). (ဒိ၈, ဘၥ, ဘၵ, ဘၽ) ၊

ဘၥ - Father ဏ္ဂႀဋ္ကိ 'A' ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as a' in the word Father). (ဒိ၈, (ပ)ႂ) ၵႂ ၵ်ဂ် ဘၥ ၆ိ) ၊

ဘၲ - 'Saw' ဏ္ဂႀဋ္ကိ 'aw' ဘ ball ဏ္ဂႀဋ္ကိ 'a' ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as 'aw' in the word 'Saw' and 'a' in the word 'ball'). (ဒိ၈, ဏ၆ဂ် ပိၵ, ၃ုႂ ၆ိၵ၊

ဘ၆ - ဘ်ဏ်ဏ 'Always' ဏ္ဂႀဋ္ကိ 'A'ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as 'A' in the word 'Always'). (ဒိ၈, ဘ်ဏ်ၵၵ, ၆်ဏ်ဏ်ဏ်) ၊

ဘီ - India ဏ္ဂႀဋ္ကိ I-ဏ် ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as I in the word India. (ဒိ၈, ၁ၵ်-ၵႂ, ၆ၵ် (ဏ်G ၊

ဘဳ - Sweet ဏ္ဂႀဋ္ကိ ၂်ဏ်ဏ 'e' ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (Shall prounce as two e's in the word 'Sweet'). (ဒိ၈, ၃ဏ်-၁ၵ်, ၁ဒ် ၆ၵ် ၊

ဘု - Bullet ,Bulletin ဏ္ဂႀဋ္ကိ 'U' ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as'u'in the word Bullet and Bulletin). (ဒိ၈, ၃ ပႅ, ၵႂၵႂ ၁ဒ် ၆ိ ၊

ဘူ - Book ဏ္ဂႀဋ္ကိ ၂်ဏ်ဏ 'O' ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (၆ိ , ၅) ၊ (pronounce as two'O'sin the word 'Book'). (ဒိ၈, ၃ ၅, ပိၵႂၵႂ ၊

ဘ - Ate ဏ္ဂႀဋ္ကိ 'A' ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as 'A' in the word Ate) . (ဒိ၈, ဘ်၆ိ၈ ပၵ, (ဒၵ ၅ဒ၊ ၊

ဘြ - "Any" ဏ္ဂႀဋ္ကိ A ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as A in the word "Any". ၆ိ၈ ဘ ၆ိ ဘ၆ိ (ဏ ဘ ၆ိ၆ိ ဏ္ဂႂဘ၈ (ဒႄ ပၵ ဏ၆ဒဂ် ၆် ၆်ၵ် ၊ ၆ိ၈ ဘ၆ ၆်ဂ် ဘ Transliteration ၵႂ ဘ ဏဒ္ဓ ၵ်ဘ ဘြ ဘ၆် ဘြ ဘ ၂်ဏ် ၆် ဏဒ်-ဂ် ၆်ဂ် ၆်ဒ(ဏ ဏ္ဓ(ဏ်ဂ် ဏ၆ဒဂ် ၆်ၵ် ၊ (ဒိ၈-(၃ (၃ ၆်ဂ်ႄ ဏဘ ဘ၆်၆ိ ၆ိ ! ဘ်ဂ် ၆်ဘ ၃၃ ၆်ဂ် (ဏ ၆်ၵ် ၊ (ဒိ၈ , ဏၵ ဏ္ဂ် (ဏ၆(ဏ ဏ်ဂ်ၵ, (ဏ၆ ဏ္ဂ် (ဏ၆(ဏ (ဏ၆ ၆်ဂ် (ဏ ၆်ၵ် ၊

ဘီ - My,Sky ဏ္ဂႀဋ္ကိ 'Y'ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as 'Y'in the word Sky My) ၊ (ဒိ၈, ၆်ဂ် ၆ ၆် ၁ဒိ ၊

ဘု - Wall ဏ္ဂႀဋ္ကိ 'Wa" ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as 'Wa' in the word wall) ၊

ဘူ - War ဏ္ဂႀဋ္ကိ 'Wa'ဏ်ဏ် ၆်ဂ် ဏဒ်ဂ် (pronounce as 'Wa'in the word 'War').

Figure 8: Usage of the proposed character Chakma Dependent Vowel Sign **AA** of Chakma [from **Prescribed as a Text Book by the Secretary District School Education Board, CADC, India. vide Notification No. 26/TMSTB/2008- 2009/84/200 Dt. 12/1/09.**
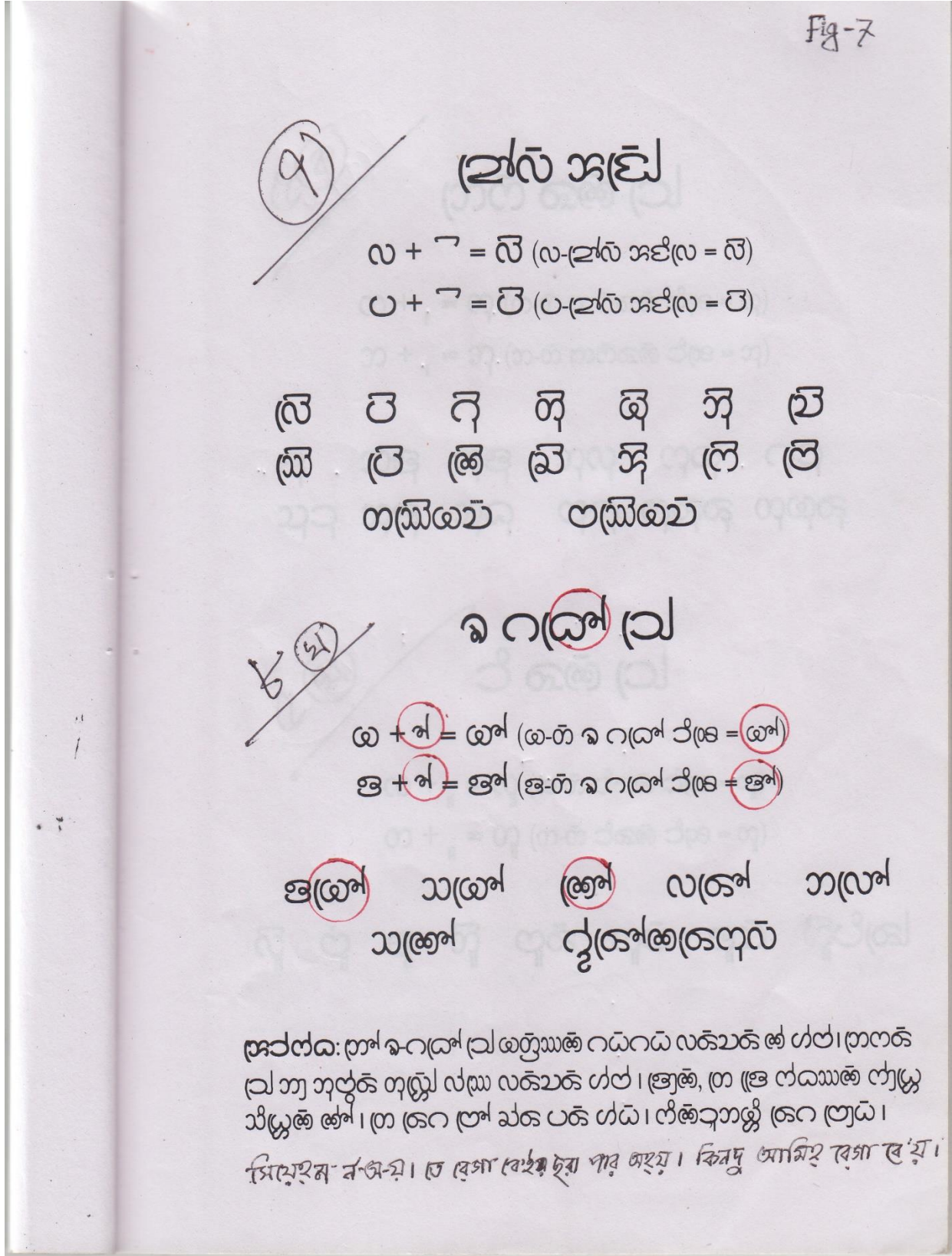
Figure 9: Usage of the proposed character Chakma Dependent Vowel Sign **EI** of Chakma [from *Chakma Legha Shigheni Bozar 2011 (Chakma Script learning year-2011)*. Source: Online Published from Tripura, India]

Fig – 8

॥ ৪৩ অধিগঠা ॥

গমে রিনি চ'-

𑄚 𑄚𑄄=গায় গায়   𑄖𑄣𑄳𑄠 𑄃𑄪𑄖𑄴=তাঘেই মাচ

𑄇𑄧 𑄚𑄄𑄴=খৈ গাঙ   𑄞𑄖 𑄉𑄥=ভাত নেই

𑄉𑄥𑄖=এহইত   𑄉𑄬=নয়

𑄉𑄥=নে'ই   𑄢𑄉𑄬=সামে'ই

(◌) ইয়েনরে 'ধেল ভাঙ্গে', (◌) ইয়েনরে 'এ-গাধেই দ্যে', আ (◌) ইয়েনরে 'ই গাধেই দ্যে' হৃও অহয়। তলর র'ঘুন মাদেই চ'-

𑄉𑄣=পেইক   𑄉𑄬=অয়

𑄚𑄄=গুই   𑄖𑄣𑄳𑄠 𑄃𑄪𑄖𑄴=বাঘেই মাচ

𑄖𑄉𑄥=হাবিনেই   𑄉𑄥=ন'য়

𑄉𑄥=বেইন   𑄞𑄖 𑄉𑄬=ভাত পে

𑄖𑄚 𑄉𑄥𑄢𑄬𑄖 𑄉𑄬=রেগা বে'ই সরা পার অয়।

হেইম=𑄉𑄥𑄬   অহ'য় =𑄉𑄬

সানে'ই=𑄢𑄉𑄬   বাঘেইসুরি=𑄖𑄣𑄳𑄠𑄢𑄴

লুহঙিনেই=𑄣𑄪𑄉𑄬   সদর ভেই=𑄥𑄖𑄇 𑄥𑄬

মারি কেইম ফারি ন জেচ ।=𑄃𑄭 𑄉𑄬 𑄖𑄭 𑄇 𑄉𑄬 ।

৪৩/15

Figure 10: Usage of the proposed character Chakma Dependent Vowel Sign **EI** of Chakma [from *30 Minide Chakma Legha Shigho (Learn Chakma Script within 30 minutes)*]

ꠥꠥ = ꠅ, (noun) ꠟꠂ ꠇ ।

- ꠟꠥ UO (pronounce as 'UO').

- Poor ꠟꠥ 'O' (shall pronounce as two'O's in the word Poor ।

ꠐ - prononce as Oi. (Doi=Curd). ꠞ ꠉꠟ, ꠌ ।

ꠐ - pronounce as "Ei". This sign is not practically used singly.

ꠐ - pronounce as "Awi". (ꠇ, ꠐ ꠇ ꠟ ꠇ ।

ꠐ - ꠟꠐ (long and weak stress sound of ꠐ । (ꠇ - ꠐ (Not).

ꠐ - pronounce as 'Ei'=That. (ꠇ, ꠐ ꠇ ꠟꠐ ꠇ ।

ꠐ - ꠟ ꠐ (long and weak stress sound of ꠐ । (ꠇ ꠐ (Navel).

ꠅ - Open ꠟꠥ "O" (prounce as O in the word "Open". (ꠅ = ꠅ) । (ꠇ, ꠇꠐ-ꠇꠐ ।

ꠅꠥ - pronounce as 'Ou'. (ꠇ, ꠅꠥꠐꠐ ।

ꠅꠥ - pronounce as 'Ouh' (Bouhddha = Buddhist).

ꠐꠋ - ꠟ 'Oih' (pronounce as "Oih"), like boih=Book (ꠇꠐꠋ) ।

ꠁ. ꠤꠐꠥ ꠟꠇꠐꠇꠇ ꠟꠐꠇꠅ:

ꠇ = ꠟꠥ ꠇ ꠐ ꠈ ꠇꠟꠇꠇ ꠟꠇꠐꠇꠇ ꠇꠐꠇ । (ꠇ , ꠇꠐꠇ, ꠇꠐꠇ, ꠇꠐꠇꠟꠇ ।

ꠇ = ꠈ. ꠟꠥ ꠇ (noun) ꠟꠂꠐ ꠟꠥ ꠟꠇꠐꠇꠇ ꠇꠐꠇ ꠟꠇꠐ (water), ꠟꠇꠐ (sickle), ꠇꠇꠐ (a busket made of bamboo for measuring paddy,grains etc.).
ꠁ. ꠟꠇ ꠟꠇꠐꠇ (long and weak stress) ꠇꠐꠇ ꠇꠐꠇ । (ꠇ - ꠇꠐꠇ, ꠇꠐꠇ, ꠟꠇꠐꠇ ।

ꠇꠥ = ꠈ.ꠇꠐ ꠇꠐꠇ ꠟꠇꠇꠐꠇ ꠐꠇ ꠟꠟꠇ (verbal root) ꠟꠂꠐ ꠟꠇꠐꠇꠇ ꠇꠐꠇ (ꠇ - ꠇꠇ+ ꠇ = ꠇꠐꠇ, ꠇꠐꠇ + ꠇ = ꠇꠐꠇ, ꠇꠐ + ꠇ = ꠇꠐꠇ ।

ꠇꠥ = ꠟꠥ ꠟꠇꠇꠐ ꠇꠐꠇ ꠟꠇꠐ । (ꠇ-ꠇꠐꠇ ꠟꠐ, ꠇꠐꠇꠐꠇ ꠟꠐꠇ, ꠟꠟꠐ ꠟꠐ, ꠟꠐꠇ ꠇꠐꠇꠇ ꠇꠐꠇ, ꠇꠥ (blood).

ꠇꠥ = ꠟꠇꠐꠇ, ꠇꠐꠇ, ꠇꠐꠇ, ꠇꠐꠇ, ꠇꠐꠇ ꠇꠐꠇ, ꠇꠐꠇꠇ, ꠇꠥ (iron), ꠟꠇꠐꠇ (hill). ꠟꠥ ꠇꠐꠇ ꠟꠇꠐꠇ ꠟꠂꠐ ꠟꠇꠐꠇꠇ ꠇꠐꠇ । (ꠇ - ꠇꠇ ꠟꠇꠇꠐ ꠇꠐꠇ (Cause to open). ꠇꠥ + ꠇꠇꠐ = ꠇꠐꠇ । ꠇꠐꠇꠇ ꠇꠐꠇ ꠇꠐꠇꠇ ꠇꠐꠇ (echo) ꠟꠇꠐ । ꠇꠐꠇꠐꠇ ꠇꠐꠇ + ꠇꠥ = ꠇꠐꠇ ꠇꠐꠇ ꠇ (Noun) ꠟꠂꠐ ꠇꠐꠇꠐꠇ (Suffix) ꠇꠐꠇꠟꠇ ꠟꠇꠐꠇꠇ ꠇꠐꠇ ।

ꠐ = ꠐ ꠇꠐꠇꠇ ꠇꠐ ? ꠐ ꠟꠇꠐꠇ । ꠇꠇꠐꠇꠟꠇ ꠇꠐꠇꠇ (infinitive) ꠟꠂꠐ ꠟꠇꠐꠇꠇ ꠇꠐꠇ । (ꠇ- ꠇꠇꠐꠇ ꠇꠐꠇꠐ (ꠟꠐ ꠇ ꠟꠐꠇ । ꠇꠟꠇ ꠇꠐ(ꠐ) ꠇ । ꠇꠇꠟꠇ ꠇꠐꠇ ꠐ ꠇꠐꠇꠐ ।

Figure 11: Usage of the proposed character Chakma Dependent Vowel Sign **EI** of Chakma [from **Prescribed as a Text Book by the Secretary District School Education Board, CADC, India. vide Notification No. 26/TMSTB/2008- 2009/84/200 Dt. 12/1/09.**

ওঙ্গ ওগ্গ

৪. ন'স ওগ্গ - ন্যা (আঃ-কার) লম্বা করে

২. নুর্ত্তঙ গুব্দ্যে ওগ্গ - ন (অ-কার) ছোট করে।

৬. ওব্দ্যে ওগ্গ - ন হসন্ত (্) বিলুপ্ত করে।

৫. ওত্র্যে ওগ্গ - নি, নী (ই, ঈ-কার)

৬. ঙত্র্যে ওগ্গ - নু, নূ (উ, ঊ-কার)

৪. ন্যনঙ ব্দ্যে ওগ্গ - নে, নৈ (এ, ঐ/অ্যা-কার)

৭. নিস সব্দ্যে ওগ্গ - নি (আই-কার)

৮. ঙ্গ ওগ্গ - নং, নঙ, নূ, নূ (ও, এই, ও, অ-কার)

৬. নু ওন্স - নু, নূ (ওয়া, ওয়/ঙঅ-কার)

১০. ন্যা ওগ্গ - ন্যা (য্য-ফলা)

৪৪. নু ওগ্গ - নু (র্য-ফলা)

৪২. নুদ্ন ব্যা ওগ্গ - নং, নঃ নঙ ওদ্ন।
(ং, ঃ, ঁ চিন্ন)

Figure 12: Usage of the proposed character Chakma Dependent Vowel Sign **AA** & **EI** of Chakma [from *Chakma Legha Shigheni Bozar 2011 (Chakma Script learning year-2011).* Source: Online Published from Tripura, India]
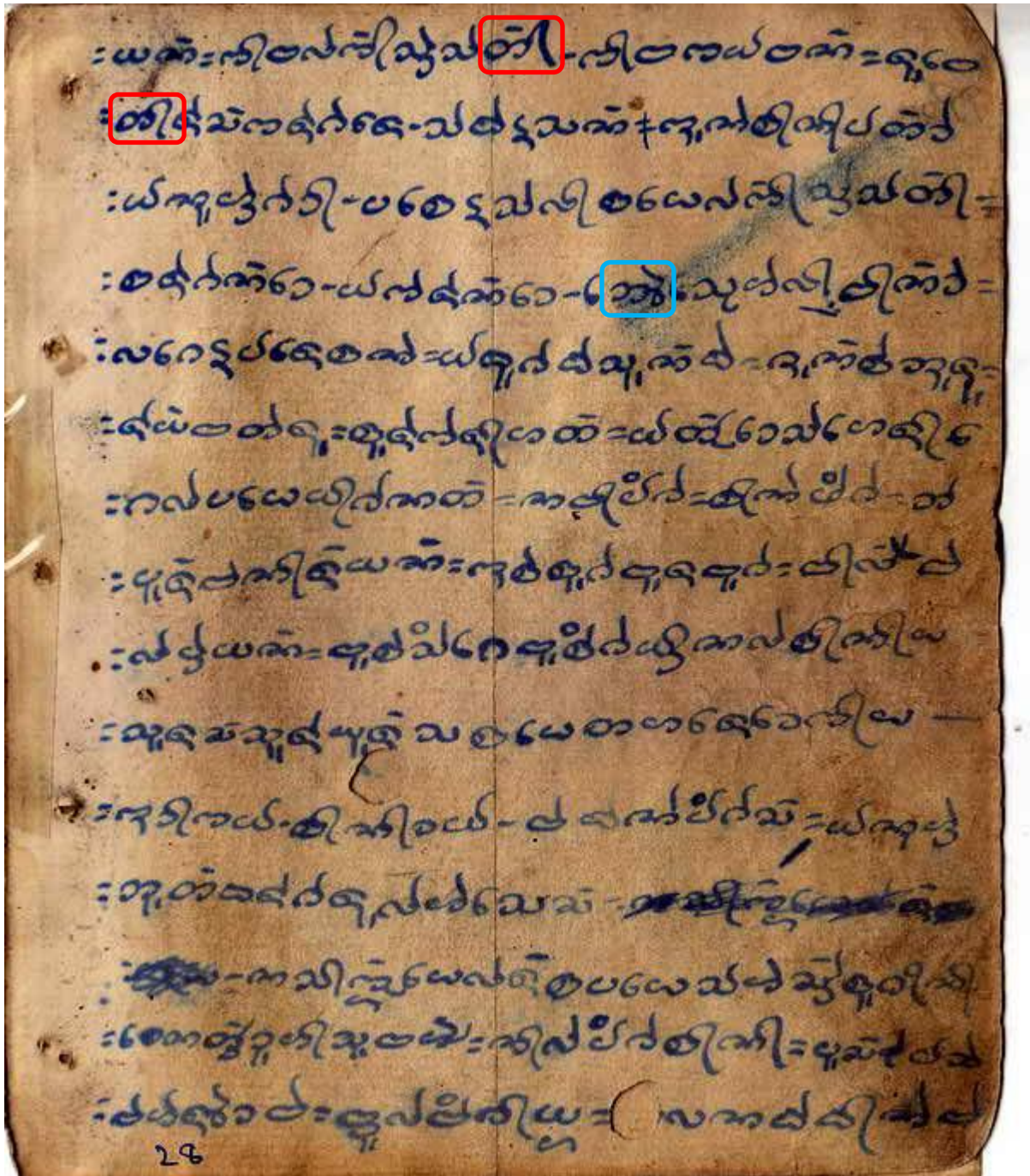
Figure 13: Usage of the proposed character Chakma Dependent Vowel Sign **AA** & **EI** of Chakma [from Chandobi Baaro Mach manuscript, circa 100 years old].

vi

(navel), ... (noun) ... (infinitive) ... = ...

... (Present tense) ... .

... .

... .

... .

= ... (an edible fruit), ... (straight), ... (opportunity)

= ... (salutation), ... (a long days), ... (a snail).

= ... (Suffix) ... .

... .

= ... (suffix) ... .

= ... (mud),

= ... .

= ... Under ... `u` ... (Pronounce as `u` in the word `Under`.

= ... (male cat,monkey,squirrel etc).

= ... (meat).

= ... (Account).

= ... (Sense,Advice).

/ = ... (Termaric).

Figure 14: Usage of the proposed character Chakma Dependent Vowel Sign **AA** & **EI** of Chakma [from **Prescribed as a Text Book by the Secretary District School Education Board, CADC, India. vide Notification No. 26/TMSTB/2008- 2009/84/200 Dt. 12/1/09.**
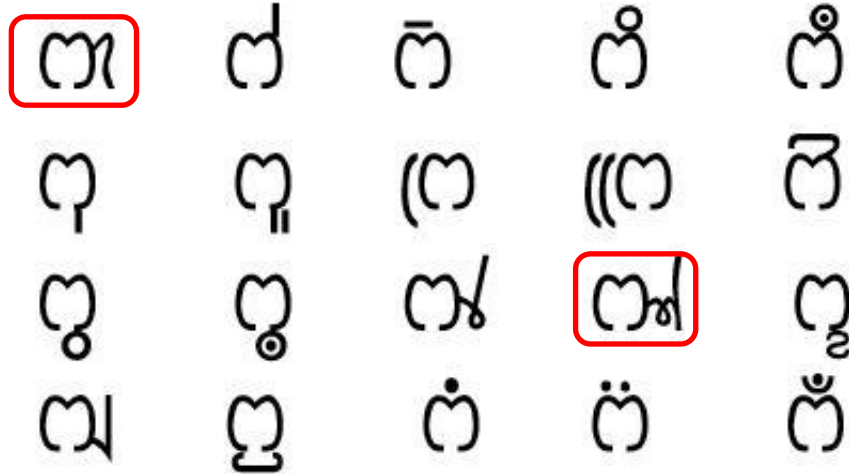
Figure 15: Usage of the proposed character Chakma Dependent Vowel Sign **AA** & **EI** of Chakma [from **Prescribed as a Text Book by the Secretary District School Education Board, CADC, India. vide Notification No. 26/TMSTB/2008- 2009/84/200 Dt. 12/1/09.**

ISO/IEC JTC 1/SC 2/WG 2

PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[1]
Please fill all the sections A, B and C below.
Please read Principles and Procedures Document (P & P) from http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html **for guidelines and details before filling this form.**
Please ensure you are using the latest Form from http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html.
See also http://std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html **for latest *Roadmaps*.**

A. Administrative

1. **Title:** **Proposal to encode CHAKMA LETTER LHAA, DEPENDENT VOWEL SIGNS AA & EI for Chakma**

2. Requester's name: Bivuti Chakma, Andrew Glass

3. Requester type (Member body/Liaison/Individual contribution): Individual contribution

4. Submission date:

5. Requester's reference (if applicable):

6. Choose one of the following:
   This is a complete proposal: Complete
   (or) More information will be provided later:

B. Technical – General

1. Choose one of the following:
   a. This proposal is for a new script (set of characters):
      Proposed name of script:
   b. The proposal is for addition of character(s) to an existing block: 11100–1114F
      Name of the existing block: Chakma

2. Number of characters in proposal: 3

3. Proposed category (select one from below - see section 2.2 of P&P document):
   A-Contemporary A   B.1-Specialized (small collection)   B.2-Specialized (large collection)
   C-Major extinct   D-Attested extinct   E-Minor extinct
   F-Archaic Hieroglyphic or Ideographic   G-Obscure or questionable usage symbols

4. Is a repertoire including character names provided? Yes
   a. If YES, are the names in accordance with the "character naming guidelines"
      in Annex L of P&P document? Yes
   b. Are the character shapes attached in a legible form suitable for review? Yes

5. Fonts related:
   a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?
      Bivuti Chakma
   b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):
      bsereye at hotmail.com

6. References:
   a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided? Yes
   b. Are published examples of use (such as samples from newspapers, magazines, or other sources)
      of proposed characters attached? Yes

7. Special encoding issues:
   Does the proposal address other aspects of character data processing (if applicable) such as input,
   presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)? Yes
      Shaping

8. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at http://www.unicode.org for such information on other scripts. Also see Unicode Character Database (http://www.unicode.org/reports/tr44/) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

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[1] Form number: N4502-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?	No
If YES explain	
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?	Yes
If YES, with whom? Bivuti Chakma	
If YES, available relevant documents:	
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?	No
Reference:	
4. The context of use for the proposed characters (type of use; common or rare)	Common
Reference:	
5. Are the proposed characters in current use by the user community?	Yes
If YES, where? Reference:	
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?	No
If YES, is a rationale provided?	
If YES, reference:	
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	Yes
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?	No
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?	No
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to, or could be confused with, an existing character?	No
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
11. Does the proposal include use of combining characters and/or use of composite sequences?	No
If YES, is a rationale for such use provided?	
If YES, reference:	
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	No
If YES, reference:	
12. Does the proposal contain characters with any special properties such as control function or similar semantics?	No
If YES, describe in detail (include attachment if necessary)	
13. Does the proposal contain any Ideographic compatibility characters?	No
If YES, are the equivalent corresponding unified ideographic characters identified?	
If YES, reference:	