CHAPTER 3

OVERVIEW OF THE VARIETIES

3.0 Introduction

This chapter presents an overview of the Koho and Maa varieties used in this thesis. It provides a brief introduction to the people and the general characteristics of the language varieties. A brief phonological description of seven varieties is provided. The purpose of this chapter is to give readers a general understanding of the speech varieties reconstructed in chapter 4.

3.1 Koho Sre

Sre is the largest group within Koho and means "People of the Rice" (Schrock et al. 1966) since they cultivate wet rice in paddy fields. They inhabit many places in Lam Dong Province and most of Di Linh District. Some Sre have settled in the Luy river area of Thuan Hai Province (Bế Viết Đảng et al. 1984). There is not an up-to-date government population figure for Sre. Manley (as reported in Parkin 1991) claims that there are about 23,000 speakers. Through contact, the Sre have been influenced by the Cham, while still retaining their own unique cultural characteristics (Cữu Long Giang and Toàn Ánh 1974). The Sre kinship system is matrilineal. Sre is one of the main languages of commerce used in the area and is also used in radio and television newscasts in Koho speaking areas.

According to Manley (1972) there are at least two dialects of Sre which he calls dialect A and dialect B. These two dialects have a few differences phonetically and lexically, and they are mutually intelligible. The Dialect A speaking group has inhabited Di Linh District for at least four or five generations. This dialect is spoken by the wealthiest, best educated, and higher social class people. As a result, Manley

considers this to be the more prestigious dialect. Dialect B is spoken by a group of people who have lived in the Di Linh District for one generation. This dialect is significant since literature has been developed in it including the Sre New Testament translated by the Christian and Missionary Alliance. Dialect B is the basis of the orthography of Sre and has been used to make textbooks by SIL linguists. Manley's analysis is based on dialect A. He provides a chart of Sre phonemes as shown in Table 5 and Table 6:

		Labial	Alveolar	Palatal	Velar	Glottal
	Voiceless	p	t	c	k	ʔ
	Voiceless Asp.	ph	th	ch	kh	
STOPS	Voiced plosive	b	d	j	g	
	Voiced implosive	ʔb	ʔd			
FRICATIVES			s			h
LATERALS			l			
TRILLS			r			
	Unaspirated	m	n	ɲ	ŋ	
NASALS	Aspirated	mh	nh	ɲh	ŋh	
GLIDES		w		y		

Table 5. Koho Sre consonant inventory of Manley (1972)

	Front	Back Unrounded	Back Rounded
HIGH	i	ɯ	u
MID HIGH	e	ə	o
MID LOW	ɛ		ɔ
LOW	a		ɑ

Table 6. Koho Sre vowel inventory of Manley (1972)

Manley also mentions Dialect C, about which Smalley (1955) researched to write an article entitled "Sre Phonemes and Syllables." In his article Smalley (1955) provides a consonant and vowel inventory as shown in Table 7 and Table 8 respectively.

	Labial	Alveolar	Palatal	Velar	Glottal
VOICELESS STOPS	p	t	c	k	ʔ
VOICED STOPS	b	d	j	g	
NASAL	m	n	ɲ	ŋ	
VOICELESS SPIRANTS		s			h
LATERAL		l			
ALVEOLAR TRILL		r			
VOCOIDS PATTERNING AS CONSONANTS	w		y		

Table 7. Koho Sre consonant inventory of Smalley (1955)

	Front	Back Unrounded	Back Rounded
HIGH	i	ɨ	u
MID HIGH	ɪ	ə	ʊ
MID LOW	ɛ	a	o

Table 8. Koho Sre vowel inventory of Smalley (1955)

Comparing Manley (1972) and Smalley's (1955) studies, it can be seen that their findings for Sre are somewhat different. Manley reports that there are 29 consonants while Smalley presents only 19 consonants. The difference is that Smalley does not include the voiceless aspirated stops, voiced implosive stops and aspirated nasals which are found in Manley. Vowel inventories in these two studies are similar with the exception that Smalley does not identify the unrounded back low vowel /ɑ/. Since Manley and Smalley are investigating somewhat different dialects, it is not surprising that they would have different findings.

The following sections outline the findings of the present study based on the current data.

3.1.1 Consonants

A phonemic inventory of Koho Sre consonants is shown in Table 9:

	Labial	Alveolar	Palatal	Velar	Glottal
Voiceless plosive	p	t	c	k	ʔ
Voiced plosive	b	d	ɟ	g	
Voiced implosive	ɓ	ɗ			
Nasal	m	n	ɲ	ŋ	
Trill		r			
Voiceless fricative		s			h
Approximant	w		j		
Voiced lateral approximant		l			

Table 9. Koho Sre consonant inventory

Table 9 shows twenty-one segments by place of articulation in the top row and manner of articulation in the left column. The initial voiced bilabial stop /b/ is occasionally heard as the voiced labial-dental fricative /v/. However, the phonemic status of the voiced labial-dental fricative /v/ is doubtful as it appears to be in free variation with the voiced bilabial stop /b/. The alveolar trill /r/ is phonetically realized as a flap /ɾ/ when it is the second consonant in a syllable initial consonant cluster; elsewhere is realized as a trill. The palatal stops /c/ and /ɟ/ were sometimes heard as affricates /ts/ and /dz/, respectively, in syllable-initial position. Affricates in Bahnaric languages do not exist in opposition to palatal and laminal /ɟ/ and /c/. For instance, in Alak these palatal and laminal stops are frequently affricated to /dz/ and /ts/. The proto form *c did not appear in Proto South Bahnaric, but did in Proto Bahnaric. Sidwell (2000:38) comments on this phenomenon, "The lack of *c is striking, but it seems clear that Proto Bahnaric *c shifted to *s, a feature shared by Bahnar."

3.1.2 Vowels

The phonemic inventory of Koho Sre vowels is shown in Table 10:

	Short		
	Front	**Central**	**Back**
High	i	ɯ	u
Mid	e	ə	o
Low	ɛ	a	ɔ

	Long		
	Front	**Central**	**Back**
High	i:	ɯ:	u:
Mid	e:	ə:	o:
Low	ɛ:	a:	ɔ:

Table 10. Koho Sre vowel inventory

Table 10 shows nine cardinal vowels by place of articulation on the top row and relative height in the column to the left. The [+back, -high] vowels have a little transition with a palatal glide before any final palatal coda. The mid front vowel /e/ is realized as the mid front vowel with a palatal glide /e^{j}/ at the end of a syllable. There are two diphthongs /ua/ and /ia/. The diphthong /ie/ occurs only twice in the data. Since there are so few cases of this in the data, and there is no clear contrast with other vowels, this diphthong is treated as residue.

Vowel length in Sre is in complementary distribution with normal and falling tone as Manley (1972:14) states:

> Except in pre-syllable, all vowels in Sre are phonemically either normal in length or long, with low, falling pitch (in markedness terms the normal vowels being unmarked and the long vowels being marked). In principle, it would be possible to select either length or pitch as the phonemically crucial element and, whichever were selected, describe the other as a conditioned feature. However, in view of the general tendency for longer syllables to falling pitch, it seems to make more sense to consider length as primary and low, falling pitch as a conditioned feature.

Tones are predictable and not contrastive. Short vowels (half mora and one mora) are followed by obstruents, glides, liquids and nasals with high-level tone; otherwise, they are long vowels (two mora) with low falling tone.

3.1.3 Syllable Structure

Koho Sre word structure is sesquisyllabic, meaning one and a half syllables. This is consistent with the nature of Mon-Khmer languages. Sesquisyllabic words have a weak and a strong syllable, with the weak (sometimes called the presyllable or minor syllable) being unstressed and the strong (or major) syllable being stressed. The following sections discuss these two types of syllables.

3.1.3.1 Presyllable

Presyllables, or reduced syllables, always precede and are bound to a main syllable. The presyllable structure has three components: the initial consonant C_{p1}, which permits all non-cluster obstruents, except the voiced implosives /ɓ/ and /ɗ/, or sonorants /r/, /l/, and /m/; the mid central unrounded vowel /ə/ which is occasionally called a neutral vowel; and an optional final consonant (C_{p2}) which is restricted to /l/, /m/ or /n/. The presyllable template is therefore, C_{p1}ə(C_{p2}). Table 11 shows the possible segment combinations for the presyllables in the data.

Initial Consonant	Vowel	Final Consonant		
		l	n	m
ʔ	ə	-	-	
t	ə	-	-	+
k	ə	+	+	+
b	ə	-	-	-
ɟ	ə	-	-	-
g	ə	-	-	-
s	ə	-	+	+
r	ə	-	-	-
l	ə	-	-	+
h	ə	-	-	+
m	ə	-	-	+

Table 11. Koho Sre presyllable segment combinations

In Table 11 the hyphens indicate that the combination is not allowed, while the pluses indicate the combination is permitted.

For Koho Sre and the other South Bahnaric varieties under investigation, the proto form of the presyllable is very difficult to reconstruct. Blood (1966) explains, "This is due to the fact that there is a strong tendency within the South Bahnaric area for presyllables to be shortened, replaced, or dropped entirely." Because of this, some forms in the data, such as syllabic nasals before the main syllable onset, are treated as part of the presyllable.

3.1.3.2 Main Syllable

The Koho Sre syllable template for the main syllable can be generalized as $C_1(C_2)V_1(V_2)(C_3)$. Symbols enclosed by (parentheses) are optional elements while other elements are obligatory. The onset is composed of $C_1(C_2)$ in which C_1 is a syllable initial consonant and (C_2) is the second consonant in a cluster. The nucleus is comprised of either an obligatory vowel V_1 or a diphthong $V_1(V_2)$. The coda includes an optional syllable final consonant (C_3). The following are possible syllable shapes: CV, CVC, CCV, CCVC, and CCVC.

3.1.4 Phonotactics

All consonants are permitted in the syllable-initial position C_1. The following initial clusters $C_1(C_2)$ are allowed: C1: /p/, /t/, /c/, /k/, /b/, /d/, /j/, /g/, and /s/ and C2: /r/, /l/, /w/, /j/, and /h/ [+liquids]. There are no restrictions on which vowels occur in the V_1 position. For diphthongs $V_1(V_2)$, the vowel (V_2) is limited to /a/ as in /ia/ and /ua/. All consonants, except voiced stops and implosives, are permitted in the coda position (C_3).

3.2 Koho Cil

The name Koho Cil refers to a group of people who inhabit very high mountains, such as the Lang Biang Mountains, northeast of Dalat City and between the Koho

Lach and the northern Roglai ethnic groups, mostly in Lac Duong and Duc Trong Districts. It is said (Bế Viết Đẳng et al. 1984) that the original Koho Cil were nomadic. Khong Dien (2002) claims that the Koho Cil are of Mnong origin. The term Koho Cil is used by the Vietnamese, but the Koho Cil call themselves "Kou N'Ho" or "Children of the Pines" (Schrock et al. 1966). The Koho Cil people, as well as the local authorities of Lam Dong Province, wish to separate from the Koho group into a distinct ethnic group (Khong Dien 2002). The Koho Cil cultivate mountain rice and also practice hunting and gathering and make handicrafts such as woven baskets, bags, and blankets. Official population figures are not up to date and Manley (as reported in Parkin 1991) estimates that there are about 14,000 Koho Cil speakers.

This section of the thesis describes phonological aspects of Koho Cil, such as consonants, vowels, syllable structure and phonotactics.

3.2.1 Consonants

A phonemic inventory of Koho Cil consonants is shown in Table 12:

	Labial	**Alveolar**	**Palatal**	**Velar**	**Glottal**
Voiceless plosive	p	t	c	k	ʔ
Voiced plosive	b	d	ɟ	g	
Voiced implosive	ɓ	ɗ			
Nasal	m	n	ɲ	ŋ	
Trill		r			
Voiceless fricative		s			h
Approximant	w		j		
Voiced lateral approximant		l			

Table 12. Koho Cil consonant inventory

Table 12 shows twenty-one segments by place of articulation in the top row and manner of articulation in the left column. The alveolar trill /r/ is phonetically realized as a flap /ɾ/ when it is the second consonant in an initial consonant cluster; elsewhere

it is realized as a trill. The palatal stops /c/ and /ɟ/ were sometimes heard as affricates /ts/ and /dz/, respectively, in syllable-initial position.

3.2.2 Vowels

The inventory of Koho Cil vowels is shown in Table 13:

	Short		
	Front	**Central**	**Back**
High	i	ɯ	u
Mid	e	ə	o
Low	ɛ æ	a	ɒ

	Long		
	Front	**Central**	**Back**
High	i:	ɯ:	u:
Mid	e:	ə:	o:
Low	ɛ: æ:	a:	ɒ:

Table 13. Koho Cil vowel inventory

Table 13 shows ten cardinal vowels by place of articulation on the top row and relative height in the column to the left. There is only one diphthong /ie/ in Koho Cil. The diphthong /ie/ is realized as /iɛ/ or /ia/ when the conditioning environment is a final velar consonant or a final glottal consonant, respectively; elsewhere it is realized as the diphthong /ie/. The diphthong /uo/ occurs only two times in the data, particularly in reference number 325 /puon/ 'four' and 435 /buon/ 'easy.' However, the phonemic status of the diphthong /uo/ is doubtful; it is thus regarded as residue. Vowel length in Koho Cil is not in complementary distribution with tone unlike Koho Sre and other groups (Tạ Văn Thông 1988a:64).

3.2.3 Syllable Structure

The following sections present the presyllable and main syllable structure of Koho Cil.

3.2.3.1 Presyllable

Presyllables, or reduced syllables, always precede and are bound to a main syllable. The presyllable structure has three components: the initial consonant C_{p1}; the mid central unrounded vowel /ə/; and an optional final consonant (C_{p2}). The presyllable template is therefore $C_{p1}ə(C_{p2})$. Table 14 shows the possible segment combinations for the presyllables in the data.

Initial Consonant	Vowel	Final Consonant		
		l	n	m
ʔ	ə	-	-	-
p	ə	+	-	-
t	ə	-	+	+
k	ə	+	+	-
b	ə	-	-	-
ɟ	ə	-	-	-
g	ə	+	-	-
s	ə	-	+	-
r	ə	-	-	+
l	ə	-	-	-
h	ə	-	-	-
m	ə	-	-	-

Table 14. Koho Cil presyllable segment combinations

In Table 14 the hyphens indicate that the combination is not allowed, while the pluses indicate the combination is permitted.

3.2.3.2 Main Syllable

The Koho Cil main syllable template of is composed of initial consonants $C_1(C_2)$, in which C_1 is a syllable-initial consonant, (C_2) is the second consonant in the onset cluster, a vowel V_1 or vowel diphthong $V_1(V_2)$. The coda is composed of (G), which is an optional glide and (C_3), which is an optional final consonant. The syllable structure thus appears as follows: $C_1(C_2)V_1(V_2)(G)(C_3)$. Symbols enclosed by

(parentheses) are optional elements while other elements are obligatory. Syllable types in the data include: CV, CVC, CVGC, CCV, CCVC, and CCVGC.

3.2.4 Phonotactics

All consonants are permitted in the onset position C_1. In the initial clusters $C_1(C_2)$, the first consonant C_1 of the cluster is restricted to /p/, /t/, /c/, /k/, /b/, /j/, /g/, and /s/ and the second consonant (C_2) is limited to the liquids /r/, /l/, /w/, /j/, and /h/. There are no restrictions on which vowels occur in the V_1 position. The phonemic diphthongs $V_1(V_2)$ are restricted to /ie/ and /uo/. Voiceless stops, nasals, the alveolar trill, the glottal fricative, and the lateral approximant are allowed as the final consonants (C_3). In addition, Koho Cil permits the final cluster /jh/.

3.3. Koho Lach

The name Koho Lach used in this thesis refers to a group of people who live together in Lat Hamlet as well as in a valley around Dalat and at the base of the Lang Biang Mountains. They call themselves Cau Lach which means "People of the River." The Koho Lach people, as well as the local authorities of Lam Dong Province, wish to separate from the Koho group into a distinct ethnic group (Khong Dien 2002). The Koho Lach have considerable contact with the Vietnamese. This contact has led to business and educational development, making their economic situation better than other Koho groups. Like other groups there are not current government population figures for Koho Lach. Manley, as reported in Parkin (1991) estimates that there are about 3,000 speakers. Thomas considers Koho Lach to be a language in the Koho group within the Stiengan sub-subgroup of Bahnaric. The following sections provide a brief discussion of various aspects of Koho Lach phonology including the consonant inventory, vowel inventory, syllable template, and segment distribution.

3.3.1 Consonants

The phonemic inventory of Koho Lach consonants is shown in Table 15:

	Labial	Alveolar	Palatal	Velar	Glottal
Voiceless plosive	p	t	c	k	ʔ
Voiced plosive	b	d	ɟ	g	
Voiced implosive	ɓ	ɗ			
Nasal	m	n	ɲ	ŋ	
Trill		r			
Voiceless fricative		s			h
Approximant	w		j		
Voiced lateral approximant		l			

Table 15. Koho Lach consonant inventory

Table 15 shows twenty-one segments by place of articulation in the top row and manner of articulation in the left column. The alveolar trill /r/ is phonetically realized as a flap /ɾ/ when it is the second consonant in an initial consonant cluster; elsewhere it is realized as a trill. The palatal stops /c/ and /ɟ/ were occasionally heard as affricates /ts/ and /dz/, respectively, in syllable-initial position.

3.3.2 Vowels

The inventory of Koho Lach vowels is shown in Table 16:

Short			
	Front	Central	Back
High	i	ɯ	u
Mid	e	ə	o
Low	ɛ æ	a	ɔ

Long			
	Front	Central	Back
High	i:	ɯ:	u:
Mid	e:	ə:	o:
Low	ɛ: æ:	a:	ɔ:

Table 16. Koho Lach vowel inventory

Table 16 shows ten cardinal vowels by place of articulation on the top row and relative height in the column to the left. There are two diphthongs /ie/ and /uo/. The diphthongs /ie/ and /uo/ are realized as /ia/ and /ua/ respectively when they are followed by a glottal stop or a glottal fricative. Vowels in Koho Lach are in

complementary distribution with pitch: if the pitch is high, the vowel is short (one and a half mora) and if the pitch is low, the vowel is long (two moras).

3.3.3 Syllable Structure

This section investigates the presyllable and the main syllable structure of Koho Lach.

3.3.3.1 Presyllable

The presyllable has three components: an initial consonant C_{p1}, the mid central unrounded vowel /ə/, and an optional final consonant (C_{p2}). The presyllable template is therefore $C_{p1}ə(C_{p2})$. Table 17 shows the possible segment combinations for the presyllables in the data.

Initial Consonant	Vowel	Final Consonant		
		r	l	m
ʔ	ə	-	-	-
p	ə	+	-	-
t	ə	+	-	+
c	ə	-	-	+
k	ə	+	+	+
ɟ	ə	-	-	-
g	ə	-	-	-
s	ə	+	-	+
r	ə	-	-	-
l	ə	-	-	+
n	ə	-	+	-

Table 17. Koho Lach presyllable segment combinations

In Table 17 hyphens indicate that the combination is not allowed, while the pluses indicate the combination is permitted. The initial consonant /n/ and the final consonant /h/ in the presyllable occur only one time each in the data.

3.3.3.2 Main Syllable

The main syllable template of Koho Lach can be generalized as: $C_1(C_2)V_1(V_2)(G)(C_3)$. Symbols enclosed by (parentheses) are optional elements while other elements are obligatory. The onset is composed of $C_1(C_2)$ in which C_1 is a syllable-initial consonant, and (C_2) is the second consonant in a consonant cluster. The nucleus is comprised of either an obligatory monophthong V_1 or a diphthong $V_1(V_2)$. The coda includes (G), which is an optional glide and (C_3), which is an optional final consonant. The following are the possible syllable shapes: CV, CVC, CVGC, CCV, CCVC, and CCVGC.

3.3.4 Phonotactics

All consonants are permitted in the syllable-initial position C_1. The following initial clusters $C_1(C_2)$ are allowed: C_1: /p/, /t/, /c/, /k/, /b/, /d/, /j/, /g/, and /s/ and (C_2): liquids /r/, /l/, /w/, and /h/. There are no restrictions on which vowels occur in the V_1 position. For diphthongs $V_1(V_2)$ the vowel (V_2) is limited to /e/ and /o/ as in /ie/ and /uo/. There is only one consonant cluster in coda position /jh/. All consonants, except voiced stops, and the alveolar fricative /s/, occur in the coda position (C_3). In addition, Koho Lach allows final cluster /jh/.

3.4 Koho Nop

The name Nop, alternately called Noup (Dam Bo 1950:246), refers to a group of people who inhabit a remote valley surrounded by mountains along National Road Number 12, from the south of Di Linh to Phan Thiet. This area is called Son Dien hamlet, which means "The land of mountains." There are no official population statistics available for Koho Nop. Manley (in Parkin 1991) reports that there are about 6,000 speakers. Koho Nop has a close relationship with the Kodon who live in southeast Di Linh District and in Dinh Ninh Hoa Hamlet. Bế Viết Đẳng et al. (1984)

states that the Koho Nop have been culturally influenced by other groups living on the plain, particularly the Cham. The Koho Nop differentiate themselves from other Koho groups by eating betel nut and planting betel nut around their area of habitation.

This section will describe various phonological features of Koho Nop such as consonants, vowels, syllable structure and phonotactics.

3.4.1 Consonants

The phonemic inventory of Koho Nop consonants is shown in Table 18:

	Labial	**Alveolar**	**Palatal**	**Velar**	**Glottal**
Voiceless plosive	p	t	c	k	ʔ
Voiced plosive	b	d	ɟ	g	
Voiced implosive	ɓ	ɗ			
Nasal	m	n	ɲ	ŋ	
Trill		r			
Voiceless fricative		s			h
Approximant	w		j		
Voiced lateral approximant		l			

Table 18. Koho Nop consonant inventory

Table 18 shows twenty-one segments by place of articulation in the top row and manner of articulation in the left column. The initial voiced bilabial stop /b/ is occasionally heard as the voiced labial-dental fricative /v/. However, the phonemic status of the voiced labial-dental fricative /v/ is doubtful as it appears to be in free variation with the voiced bilabial stop /b/. The alveolar trill /r/ is phonetically realized as a flap /ɾ/ when it is the second consonant of an initial consonant cluster; elsewhere it is the alveolar trill. The palatal stops /c/ and /ɟ/ were sometimes heard as affricates /ts/ and /dz/, respectively, in syllable-initial position.

3.4.2 Vowels

The inventory of Koho Nop vowels is shown in Table 19.

Short			
	Front	**Central**	**Back**
High	i		u
Mid	e	ə	o
Low	ɛ	a	ɔ

Long			
	Front	**Central**	**Back**
High	i:		u:
Mid	e:	ə:	o:
Low	ɛ:	a:	ɔ:

Table 19. Koho Nop vowel inventory

Table 19 shows eight cardinal vowels by place of articulation on the top row and relative height in the column to the left. In Koho Nop there is no high central unrounded phoneme /ɯ/. There are two diphthongs /ua/ and /ia/. The vowels in Koho Nop are in complementary distribution with the tones: long vowels are associated with low tones, and short vowels are associated with high tones.

3.4.3 Syllable Structure

This section discusses general features of the presyllable and the main syllable structure.

3.4.3.1 Presyllable

Presyllables, or reduced syllables, precede and are bound to main syllables. The presyllable structure has three components: the initial consonant C_{p1}, the mid central unrounded vowel /ə/, and an optional final consonant (C_{p2}). The presyllable template is therefore C_{p1}ə(C_{p2}). Table 20 shows the possible segment combinations for the presyllables in the data.

Initial Consonant	Vowel	Final Consonant			
		r	l	n	m
ʔ	ə	-	-	-	-
p	ə	+	-	-	-
t	ə	-	-	+	-
c	ə	-	-	-	-
k	ə	-	-	+	+
b	ə	+	-	-	-
ɟ	ə	+	-	-	-
g	ə	-	-	-	-
s	ə	-	-	-	-
r	ə	-	-	-	-
l	ə	-	-	-	-
h	ə	-	-	-	-

Table 20. Koho Nop presyllable segment combinations

In Table 20 the hyphens indicate that the combination is not allowed, while the pluses indicate the combination is permitted.

3.4.3.2 Main Syllable

The Koho Nop syllable template for the main syllable can be generalized as: $C_1(C_2)V_1(V_2)(C_3)$. Symbols enclosed by (parentheses) are optional elements while other elements are obligatory. The onset is composed of $C_1(C_2)$ in which C_1 is a syllable-initial consonant, and (C_2) is the second consonant in the onset cluster. The nucleus is comprised of either an obligatory vowel V_1 or of a diphthong $V_1(V_2)$. The coda is composed of an optional consonant (C_3). The following syllable shapes are possible: CV, CVC, CCV, and CCVC.

3.4.4 Phonotactics

All consonants are permitted in the syllable-initial position C_1. The following initial clusters $C_1(C_2)$ are allowed: C_1 may be /p/, /t/, /c/, /k/, /b/, /d/, /g/, or /s/ and (C_2) must be a liquid /r/, /l/, /w/, /j/, or /h/. There are no restrictions on which vowels occur in the V_1 position. In the case of diphthongs $V_1(V_2)$, the vowel (V_2) is limited to

/a/ as in /ia/ and /ua/. There are no final consonant clusters in the speech variety. All consonants except voiced stops and implosives occur in the coda position (C_3).

3.5 Maa Dagui

The name Maa Dagui used in this thesis is the name which people inhabiting an area at the base of Deo Chuoi[4] call themselves. They claim that they are the original Maa. The following sections describe the consonant inventory, vowel inventory, syllable canon, and phonotactics of Maa Dagui.

3.5.1 Consonants

A phonemic inventory of Maa Dagui consonants is shown in Table 21:

	Labial	Alveolar	Palatal	Velar	Glottal
Voiceless plosive	p	t	c	k	ʔ
Voiced plosive	b	d	ɟ	g	
Voiced implosive	ɓ	ɗ			
Nasal	m	n	ɲ	ŋ	
Trill		r			
Voiceless fricative		s			h
Approximant	w		j		
Voiced lateral approximant		l			

Table 21. Maa Dagui consonant inventory

Table 21 shows twenty-one segments by place of articulation in the top row and manner of articulation in the left column. The alveolar trill /r/ is phonetically realized as a flap /ɾ/ when it is the second consonant in a syllable initial consonant cluster; elsewhere it is realized as a trill. The palatal stops /c/ and /ɟ/ were sometimes heard as affricates /ts/ and /dz/, respectively, in syllable-initial position.

[4] Deo Chuoi literally means "Banana Pass."

3.5.2 Vowels

The inventory of Maa Dagui vowels is shown in Table 22.

	Short			Long		
	Front	**Central**	**Back**	**Front**	**Central**	**Back**
High	i	ɯ	u	i:	ɯ:	u:
Mid	e	ə	o	e:	ə:	o:
Low	ɛ	a	ɔ	ɛ:	a:	ɔ:

Table 22. Maa Dagui vowel inventory

Table 22 shows nine cardinal vowels by place of articulation on the top row and relative height in the column to the left. There are two diphthongs /iə/ and /uə/ in Maa Dagui.

3.5.3 Syllable Structure

The presyllable and main syllable are discussed in the following sections.

3.5.3.1 Presyllable

Presyllables, or reduced syllables always precede and are bound to main syllables. The presyllable structure has three components: the initial consonant C_{p1}; the mid central unrounded vowel /ə/; and an optional final consonant (C_{p2}). The presyllable template is therefore C_{p1}ə(C_{p2}). Table 23 shows the possible segment combinations for the presyllables in the data.

Initial Consonant	Vowel	Final Consonant	
		r	m
ʔ	ə	-	-
t	ə	-	-
c	ə	+	-
b	ə	-	-
ɟ	ə	-	-
g	ə	-	-
s	ə	-	-
r	ə	-	+
l	ə	-	-
h	ə	-	-

Table 23. Maa Dagui presyllable segment combinations

In Table 23 hyphens indicate that the combination is not allowed, while the pluses indicate the combination is permitted. The presyllable /gɯ/ occurs three times in the data; since it doesn't fit with the more general presyllable pattern, it is regarded as residue.

3.5.3.2 Main Syllable

The Maa Dagui syllable template for the main syllable can be generalized as $C_1(C_2)V_1(V_2)(C_3)$. Symbols enclosed by (parentheses) are optional elements while other elements are obligatory. The onset is composed of $C_1(C_2)$ in which C_1 is a syllable-initial consonant and (C_2) is the second consonant in the onset cluster. The nucleus is comprised of either an obligatory vowel V_1 or a diphthong $V_1(V_2)$. The coda includes (C_3), which is an optional consonant. The following are the possible syllable shapes: CV, CVC, CCV, CCVC, and CCVC.

3.5.4 Phonotactics

All consonants are permitted in the syllable-initial position C_1. The following initial clusters $C_1(C_2)$ are allowed: for the syllable initial position /p/, /t/, /c/, /k/, /b/, /d/, /g/,and /s/; and for the second member of the cluster, (C_2) is restricted to liquids /r/,

/l/, /w/, /j/, and /h/. There are no restrictions on which vowels occur in the V_1 position. For diphthongs $V_1(V_2)$ the vowel (V_2) is limited to /ə/ as in /iə/ and /uə/. The coda position (C_3) permits all consonants except voiced stops.

3.6 Maa Tadung

The name Maa Tadung is an autonym used by a group of people who live in Dinh Trang Thuong Hamlet of Di Linh District, near Dac Lac Province. This section investigates phonological characteristics of Maa Tadung. This section considers the general patterns of consonants, vowels, the syllable canon, and phonotactics.

3.6.1 Consonants

The phonemic inventory of Maa Tadung consonants is shown in Table 24.

	Labial	**Alveolar**	**Palatal**	**Velar**	**Glottal**
Voiceless plosive	p	t	c	k	ʔ
Voiced plosive	b	d	ɟ	g	
Voiced implosive	ɓ	ɗ			
Nasal	m	n	ɲ	ŋ	
Trill		r			
Voiceless fricative		s			h
Approximant	w		j		
Voiced lateral approximant		l			

Table 24. Maa Tadung consonant inventory

Table 24 shows twenty-one segments by place of articulation in the top row and manner of articulation in the left column. The initial voiced bilabial stop /b/ is occasionally heard as the voiced labial-dental fricative /v/. However, the phonemic status of the voiced labial-dental fricative /v/ is doubtful as it appears to be in free variation with the voiced bilabial stop /b/. The palatal stops /c/ and /ɟ/ were occasionally heard as affricates /ts/ and /dz/, respectively, in syllable-initial position.

The phoneme /r/ is phonetically realized as a flap /ɾ/ when it is the second consonant in a syllable initial consonant cluster; elsewhere it is realized as a trill.

3.6.2 Vowels

The inventory of Maa Tadung vowels is shown in Table 25.

	Short			Long		
	Front	**Central**	**Back**	**Front**	**Central**	**Back**
High	i	ɯ	u	iː	ɯː	uː
Mid	e	ə	o	eː	əː	oː
Low	ɛ	a	ɔ	ɛː	aː	ɔː

Table 25. Maa Tadung vowel inventory

Table 25 shows nine cardinal vowels by place of articulation on the top row and relative height in the column to the left. There are two diphthongs /uə/ and /iə/ in Maa Tadung.

3.6.3 Syllable Structure

The syllable structure of Maa Tadung is discussed in the following sections.

3.6.3.1 Presyllable

Presyllables, or reduced syllables, always precede and are bound to main syllables. The presyllable structure has three components: initial consonant C_{p1}, the mid central unrounded vowel /ə/, and an optional final consonant (C_{p2}) which is restricted to /r/ or /m/. The presyllable template is therefore C_{p1}ə(C_{p2}). Table 26 shows the possible segment combinations for the presyllables in the data.

Initial Consonant	Vowel	Final Consonant	
		r	m
ʔ	ə	-	-
t	ə	-	+
k	ə	-	-
b	ə	+	-
s	ə	+	-
r	ə	-	-
l	ə	-	-
n	ə	-	-
m	ə	-	-

Table 26. Maa Tadung presyllable segment combinations

In Table 26 hyphens indicate that the combination is not allowed, while the pluses indicate the combination is permitted.

3.6.3.2 Main Syllable

The Maa Tadung syllable template for the main syllable can be generalized as: $C_1(C_2)V_1(V_2)(C_3)$. Symbols enclosed by (parentheses) are optional elements while other elements are obligatory. The onset is composed of $C_1(C_2)$ in which C_1 is a syllable-initial consonant, (C_2) is the second consonant in the onset cluster. The nucleus is comprised of either an obligatory vowel V_1 or a diphthong $V_1(V_2)$. The coda includes (C_3), which is an optional consonant. The following syllable shapes are possible: CV, CVC, CCV, and CCVC.

3.6.4 Phonotactics

All consonants are permitted in the syllable-initial position C_1. The initial cluster $C_1(C_2)$ allows /p/, /t/, /c/, /k/, /b/, /d/, /j/, /g/, /s/, and /h/ in C_1 position and the liquids /r/, /l/, /w/, /j/, and /h/ in the (C_2) position. There are no restrictions on which vowels occur in the V_1 position. In the case of diphthongs $V_1(V_2)$ the vowel (V_2) is limited to /ə/ as in /iə/ and /uə/. All consonants except voiced stops occur in the coda position (C_3).

3.7 Maa Chop

This group resides in Loc Thang Hamlet of Lam Dong District within Lam Dong Province. Various phonological features of Maa Tadung are examined in this section. These aspects are as follows: consonants, vowels, the syllable template, and phonotactics.

3.7.1 Consonants

A phonemic consonant inventory of Maa Chop is shown in Table 27:

	Labial	**Alveolar**	**Palatal**	**Velar**	**Glottal**
Voiceless plosive	p	t	c	k	ʔ
Voiced plosive	b	d	ɟ	g	
Voiced implosive	ɓ	ɗ			
Nasal	m	n	ɲ	ŋ	
Trill		r			
Voiceless fricative		s			h
Approximant	w		j		
Voiced lateral approximant		l			

Table 27. Maa Chop consonant inventory

Table 27 shows twenty-one segments by place of articulation in the top row and manner of articulation in the left column. The alveolar trill /r/ is phonetically realized as a flap /ɾ/ when it is the second consonant in a syllable-initial consonant cluster; elsewhere it is realized as a trill. The palatal stops /c/ and /ɟ/ were occasionally heard as affricates /ts/ and /dz/, respectively, in syllable-initial position.

3.7.2 Vowels

The set of native Maa Chop vowels is shown in Table 28.

	Short			Long		
	Front	**Central**	**Back**	**Front**	**Central**	**Back**
High	i	ɯ	u	i:	ɯ:	u:
Mid	e	ə	o	e:	ə:	o:
Low	ɛ	a	ɔ	ɛ:	a:	ɔ:

Table 28. Maa Chop vowel inventory

Table 28 shows nine cardinal vowels by place of articulation on the top row and relative height in the column to the left. There are two diphthongs /ie/ and /uo/ in Maa Chop.

3.7.3 Syllable Structure

The syllable structure of Maa Chop is discussed under two subsections: presyllable and main syllable.

3.7.3.1 Presyllable

Presyllables, or reduced syllables, always precede and are bound to main syllables. The presyllable structure has three components: the initial consonant C_{p1}, the mid central unrounded vowel /ə/; and an optional final consonant (C_{p2}) which is restricted to /r/, /l/ /n/or /m/. The presyllable template is therefore C_{p1}ə(C_{p2}). Table 29 shows the possible segment combinations for the presyllables in the data.

Initial Consonant	Vowel	Final Consonant			
		r	l	n	m
ʔ	ə	-	-	-	-
t	ə	-	-	-	+
c	ə	+	-	-	-
k	ə	-	+	+	-
b	ə	-	-	+	-
d	ə	-	-	-	-
ɟ	ə	-	-	-	-
g	ə	-	-	-	-
s	ə	-	-	-	-
r	ə	-	-	-	-
l	ə	-	-	-	-
j	ə	-	-	-	-

Table 29. Maa Chop presyllable segment combinations

In Table 29 hyphens indicate that the combination is not allowed, while the pluses indicate the combination is permitted.

3.7.3.2 Main Syllable

The Maa Chop syllable template for the main syllable can be generalized as $C_1(C_2)V_1(V_2)(C_3)$. Symbols enclosed by (parentheses) are optional elements while other elements are obligatory. The onset is composed of $C_1(C_2)$ in which C_1 is a syllable-initial consonant, (C_2) is the second consonant in the onset cluster. The nucleus is comprised of either an obligatory vowel V_1 or a diphthong $V_1(V_2)$. The coda includes (C_3), which is an optional syllable-final consonant. The following are the possible syllable shapes: CV, CVC, CCV, and CCVC.

3.7.4 Phonotactics

There are no restrictions on which consonants can occur in the initial consonant position C_1. The following initial clusters $C_1(C_2)$ are allowed: for the initial consonant position C_1: /p/, /t/, /c/, /k/, /b/, /d/, and /s/, while the second consonant (C_2) is limited to the liquids /r/, /l/, and /h/. There are no restrictions on which vowels occur in the

V_1 position, but for diphthongs $V_1(V_2)$, the (V_2) element is restricted to the mid unrounded front vowel /e/ and the mid rounded back vowel /o/ as in diphthongs /ie/ and /uo/. All consonants except for voiced stops are allowed in the coda position (C_3).

3.8 Summary

This section provided an overview of the basic phonological properties of the seven speech varieties under study in this thesis. All of these varieties share the same inventory of 21 consonants. The vowel inventories are somewhat similar. Maa groups have the diphthongs /iə/, /uə/, /ie/, and /uo/ while Koho groups have the diphthongs /ie/, /uo/, /ua/, and /ia/. Final clusters $(G)(C_3)$ are not present in Maa groups, Koho Nop or Koho Sre but are present in Koho Cil and Koho Lach.