Regulation of flavoured smokeless tobacco in the South-East Asia Region

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Smokeless tobacco

- **Trends of flavoured tobacco products in the South-East Asia Region**
- **Regulatory environment for control of flavoured smokeless tobacco in the South-East Asia Region**

Abbreviations

DHS	Demographic and Health Surveys
GATS	Global Adult Tobacco Survey
GTSS	Global Tobacco Surveillance System
GYTS	Global Youth Tobacco Survey
ITC	International Tobacco Control
NCD	Noncommunicable Disease
NFHS	National Family Health Surveys
SLT	Smokeless Tobacco
STEPS	STEPwise approach to surveillance
WHO	World Health Organization

- **Flavoured smokeless tobacco is ill defined**
- **Flavoured smokeless tobacco constitutes 70–98% of all SLT products in the South-East Asia Region**
- **Adult use of flavoured smokeless tobacco: 3–27%**
- **Youth use of flavoured smokeless tobacco: 7–10%**

Background

Chewing forms of smokeless tobacco (SLT) and related products are highly prevalent in many countries including Bagladesh, Bhutan, India and Myanmar and are increasingly becoming popular in some other countries in the South-East Asia Region, e.g. Nepal, Sri Lanka and Maldives. Betel nut (favoured and unflavoured), both manufactured and prepared for personal consumption by users, is a common constituent of SLT products. Such products, which are basically meant for chewing, can primarily be categorized into one of the following:

(i) areca nut alone;

(ii) chewing tobacco;

(iii) betel quid without tobacco; and

(iv) betel quid with tobacco *(1,2)*.

The second and fourth types constitute SLT along with sucking, dentrifice and nasal tobacco products *(3)*. These products have inter- and intra-country variations in ingredients and nomenclature, indicating limited knowledge about exact terminology and content of the SLT *(4).* All these SLT products are Group 1 carcinogens and are manufactured/used along with a variety of additives, including flavouring agents *(1–7).* Flavours can be characterized by physical means (smell/taste) or by chemical means (presence of specific chemical molecules) *(8).* Additives are any ingredients other than tobacco in a given tobacco product. Therefore, all flavouring agents are additives.

The list of SLT products (*Annexure 1*) assessed in various surveys in the South-East Asia Region reveals that most of the SLT products have additives and/or flavours. These

additives are meant for improving the attractiveness of the tobacco product (leading to initiation) and increasing the dependence on its use (leading to continued use) *(9–11).* This lures the youth and increases demand for tobacco products, hence flavoured tobacco products are considered as "starter" products *(9,10).* The numerous flavour descriptions can be categorized into eight major groups – fruit, spice, herb, alcohol, menthol, sweet, floral and miscellaneous *(8).* Addition of these flavours adulterates the tobacco products. The various functions of these flavours in SLT are to appeal to the youth, attract new users, appeal to cigarette smokers and experienced users, appeal to the masculinity of men, mask the tobacco taste/"bite", create an anaesthetic effect/reduce pain, modify nicotine delivery/affect pH, influence bacterial content, stimulate the nervous system/increase perception of impact, create perception of novelty or innovation and extend product lines *(12).*

The list of flavoured SLT used in the South-East Asia Region is given in Table 1.

Table 1. List of flavoured SLT used in the South-East Asia Region

Country	**Flavoured SLT** *(4,6,8,13–16)*
Bangladesh	*Zarda, paan masala, gutkha, gul*. Betel leaf itself adds flavour to SLT
Bhutan	Snuff, betel quid with tobacco
India	Betel quid with tobacco, *gutkha, paan masala, gul, gudakau,* snuff, *bajjar, kiwam,* dentrifice with tobacco
Indonesia	Snuff, betel quid with tobacco
Myanmar	Betel quid with tobacco (all forms)
Nepal	*Gutkha, paan* with tobacco (betel quid with tobacco), *zarda, paan masala*
Sri Lanka	Betel quid with tobacco, *paan parag/paan masala*, red tooth powder, tobacco powder, *zarda*
Thailand	Snuff, betel quid with tobacco

Flavoured tobacco products are preferred over non-flavoured ones by novices and young users *(10).* In USA, 51% of SLT users consume flavoured non-cigarette tobacco *(17).* Other

studies from USA suggest that flavoured SLT users constitute three fifths of the total current SLT users *(18).* The first and second choices for SLT tobacco are mint or wintergreen flavoured tobacco. Flavoured tobacco use is higher among women than men*(19).*

A deliberate strategy to push for flavoured tobacco products has been successfully persued by tobacco industries *(9,12).* The common flavouring agents like cloves *(21),* camphor *(22–25),* coumarin, diphenyl ether *(27)*, menthol *(28–31),* furan derivatives *(20)*, etc. have ill-effects on our health (Table 2). Some of the agents are also possible human carcinogens.

Table 2: Health hazards of flavouring agents

Flavouring agent	Health hazards
Furan derivatives *(20)*	Group 2B carcinogen (possibly carcinogenic to humans)
Eugenol (cloves) *(21)*	Respiratory infection, aspiration pneumonitis, haemoptysis and haemorrhagic pulmonary oedema
Camphor *(22–25)*	Disorientation, muscle spasms, abdominal cramps, lethargy, irritability, vomiting, seizures and convulsions (a large dose is required)
Coumarin *(26)*	Liver toxicity in laboratory animals following oral administration
Diphenyl ether *(27)*	Severe, irreversible degenerative lesions on the liver and kidneys of humans (a large dose is required)
Menthol *(28–31)*	Vertigo or ataxia; nicotine delivery enhancer and reinforcer of smoking behaviour

Information on flavour stratified tobacco product data is limited for the South-East Asian countries, as tobacco product use assessment is done either by smoking or non-smoking (smokeless) categories, or by the tobacco products themselves. Such information is available in various national and subnational surveys like the Global Youth Tobacco Survey (GYTS), Demographic and Health Surveys (DHS), National Family Health Surveys (NFHS), World Health Organization (WHO) STEPwise approach to surveillance (STEPS), WHO Noncommunicable Disease (NCD) Risk Factor Surveys and International Tobacco Control

(ITC) Policy Evaluation Project, giving an opportunity to assess the burden of flavoured SLT products by product characterization, i.e. presence or absence of flavour. However, the assessment of product-specific tobacco information is not uniform across countries. Besides, Global Tobacco Surveillance System (GTSS) has limited data on direct assessment of flavoured tobacco products, with the exception of a few countries like Poland, where flavoured smoking tobacco products are in use *(19).* It is therefore imperative to consider the epidemiology of flavoured SLT products. This is all the more pertinent to the South-East Asia Region since this Region is home to 80% of SLT users (32) and its association with oral cancer and other health effects is already well documented *(3,33,34).*

This review assessed the trends in use of flavoured SLT products in South-East Asian countries from 2005 onwards by considering the published literature. Items C06 and C10 in the SLT use section of the Global Adult Tobacco Survey (GATS) questionnaire assess various types of SLT use. If each SLT product assessed could be defined as flavoured or non-flavoured considering the description of the product, then it would be possible to estimate the burden of flavoured SLT products.

Further, considering that most of the SLT products are flavoured (Annexure 1), the trends of ST form a proxy indicator of flavoured SLT use in the context of South-East Asia.. GTSS (GATS, GYTS), WHO STEPS, NCD risk factor surveillance, ITC and DHS surveys have estimated ST burden as well as estimated the SLT product-specific burden. These surveys can give a rough idea of flavoured ST use trends in the South-East Asia Region.

Trends in use of flavoured SLT products in the South-East Asia Region

Review of the literature

Information on flavoured SLT use is very much limited. However, specific flavoured SLT product burden information is available from epidemiological studies and national surveys. There is an abundance of literature [317 in the last 10 years in the PubMed Central (PMC) data base]. These give the product specific SLT burden with varied prevalence estimates across and within countries depending on the study area, that could well result in confusion.

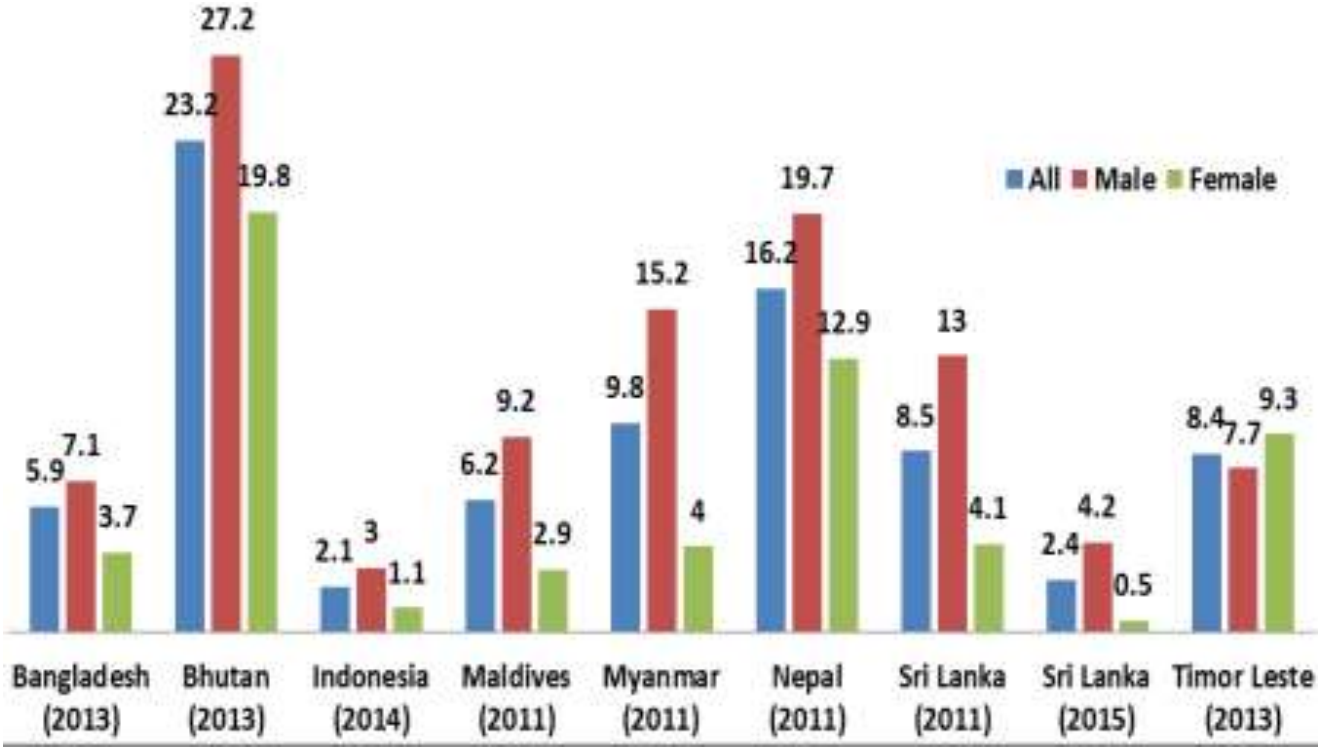
Therfore, such description has been abandoned and only publications of large national/subnational surveys were considered. These are described below.

Flavoured SLT use among the youth

This is important, as flavoured SLT is considered to be a “starter” and lures the youth. In this group, prevalence of flavored SLT use is assumed to be same as that of SLT use.

Considering GYTS from 2011 to 2016, the prevalence of current use of SLT among the youth varied from 2.1% in Indonesia to 23.2% in Bhutan (35). Among male youth, SLT use ranged from 3% in Indonesia to 27.2% in Bhutan, and among female youth from 0.5% in Sri Lanka to 19.8% in Bhutan. Except Timor Leste, in other countries, male youth used more SLT products than their female counterparts (Fig. 1).

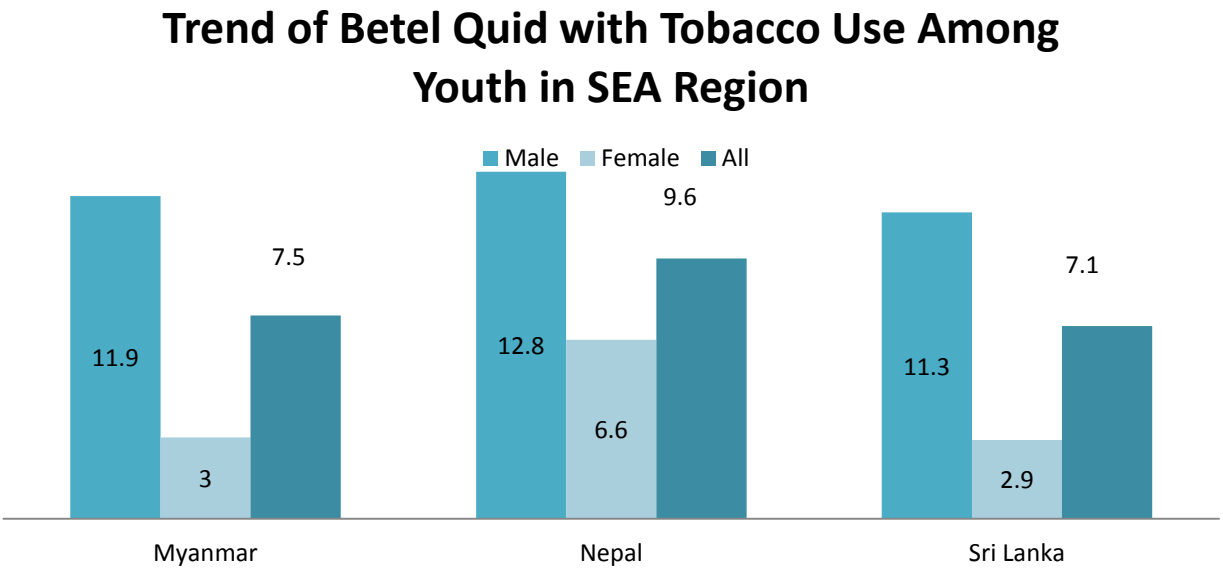
Fig. 1. GYTS (2011–16) assessed trend in current SLT use among youth In South-East Asia Region



Source: Annexure 2

Betel quid with tobacco use ranged from 7.1% in Sri Lanka to 9.6% in Nepal (Fig. 2). Male youths outnumbered female youths in these three countries in the use of betel quid with tobacco. *Paan masala* with *zarda* chewing among youth in Nepal is 7.6% *(35).*

Fig. 2. Betel quid with tobacco use among youth in South-East Asia Region in 2011*(35)*



Source: GTSS-GYTS Data

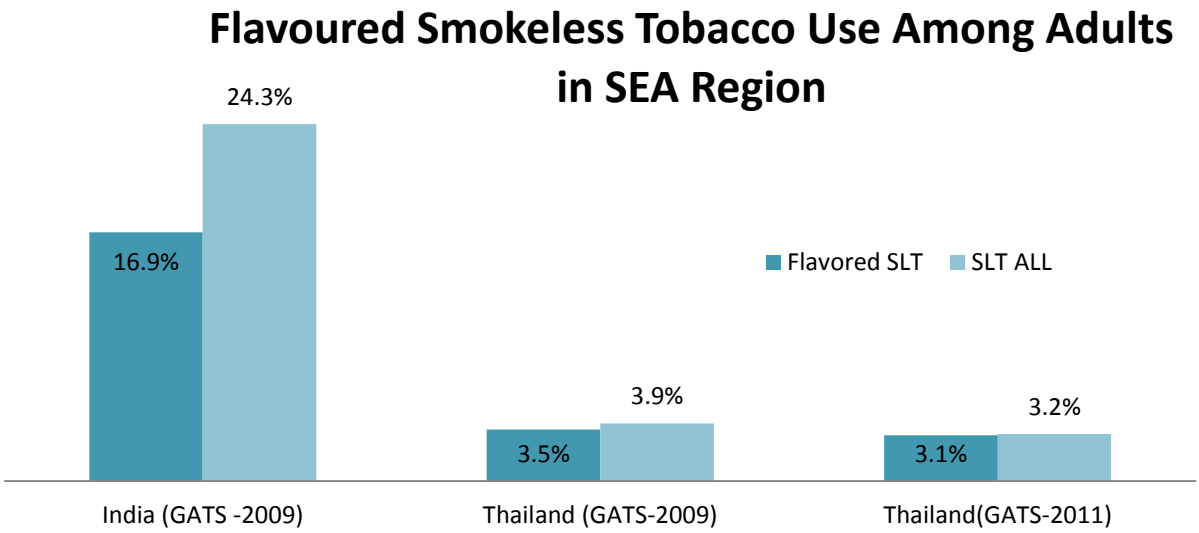
SLT use in adults

GATS data

See Annexure 3.

Considering SLT product assessment in GATS (Bangladesh, India and Thailand), the prevalence estimates of flavoured SLT are in the range of 3.1% in Thailand to 26.6% in Bangladesh. Most of the SLT products are flavoured (69.7% in India to 97.8% in Bangladesh) (Fig. 3).

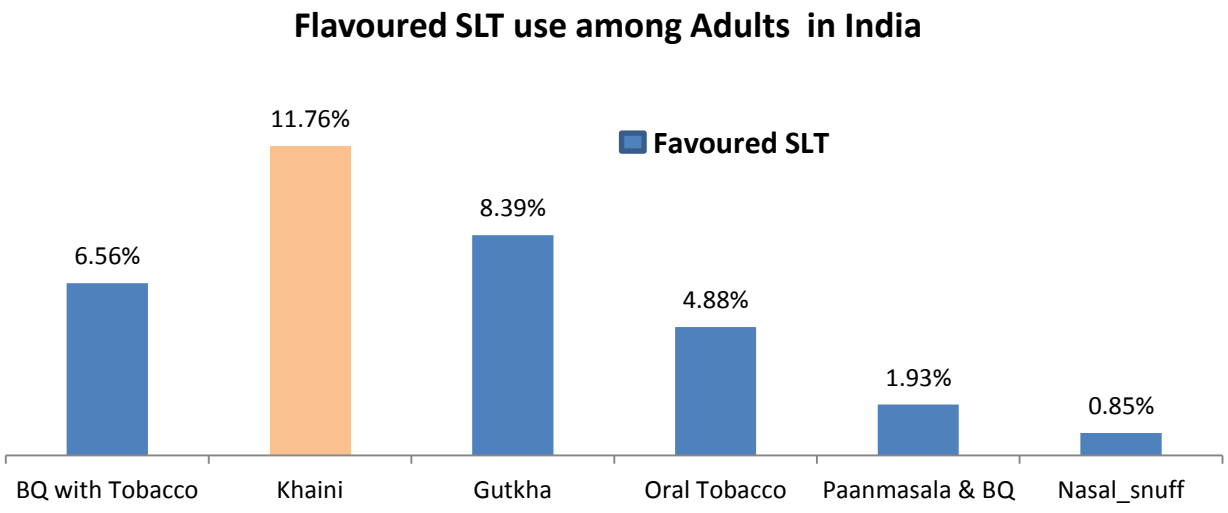
Fig. 3. Flavoured SLT use among adults in South-East Asia Region



Source: GTSS–GATS data

In India, the commonest forms of flavoured SLT products used are *gutkha* (8.4%), betel quid with tobacco (6.6%), oral tobacco (4.9%), *paan masala* and betel quid (1.9%), and nasal snuff (0.9%) (Fig. 4).

Fig. 4: SLT Use Among Adults in India

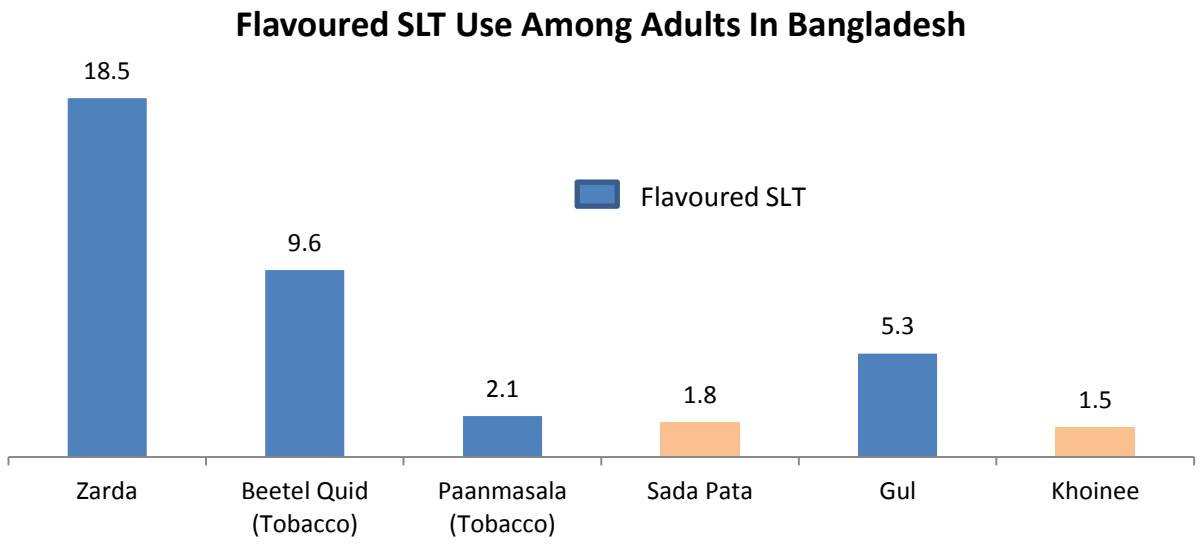


Source: GATS 2010

In Bangladesh, common flavoured SLT products are *zarda* (18.5%), betel quid with tobacco (9.6%), *gul* (5.3%) and *paan masala* with tobacco (2.1%) (Fig. 5). Considering the burden, it

is rightly said that SLT use is disproportionately concentrated in low- and middle-income (LMIC) countries like India and Bangladesh *(36).*

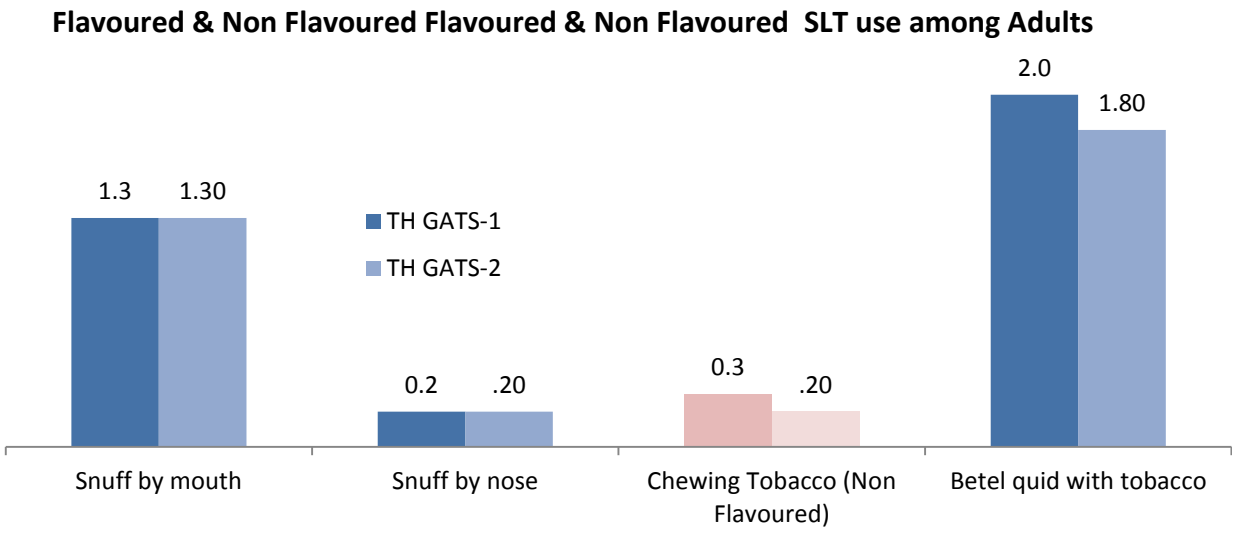
Fig. 5. SLT use among Adults in Bangladesh



Source: GATS 2009

In Thailand common SLT products used is snuff by mouth, betel quid with tobacco, chewing tobacco, and snuff by nose. There is decrease in use of betel quid with tobacco and chewing tobacco, but snuff usage remains the same from 2009 to 2011 (Fig. 6).

Fig. 6. Flavoured & Non Flavoured SLT use Among Adults in Thailand



Source: GATS 2009 and 2011

DHS/NFHS data (37)

DHS have also assessed SLT use across Bangladesh (2007), India (2005–2006 and 2015–2016), Indonesia (2012), Maldives (2009), Nepal (2011) and Timor Leste (2009–2010). India report/data for 2015–2016 for SLT is yet to be made public. Prevalence of SLT use among men was 36.7% in India, 34.8% in Nepal, 21.4% in Bangladesh, 0.46% in Indonesia and 2.5% in Timor Leste. Prevalence of SLT product use among women was 9.0% in India, 4.8% in Nepal, and 4.2% in Maldives. In Bangladesh, women were not asked about any SLT use.

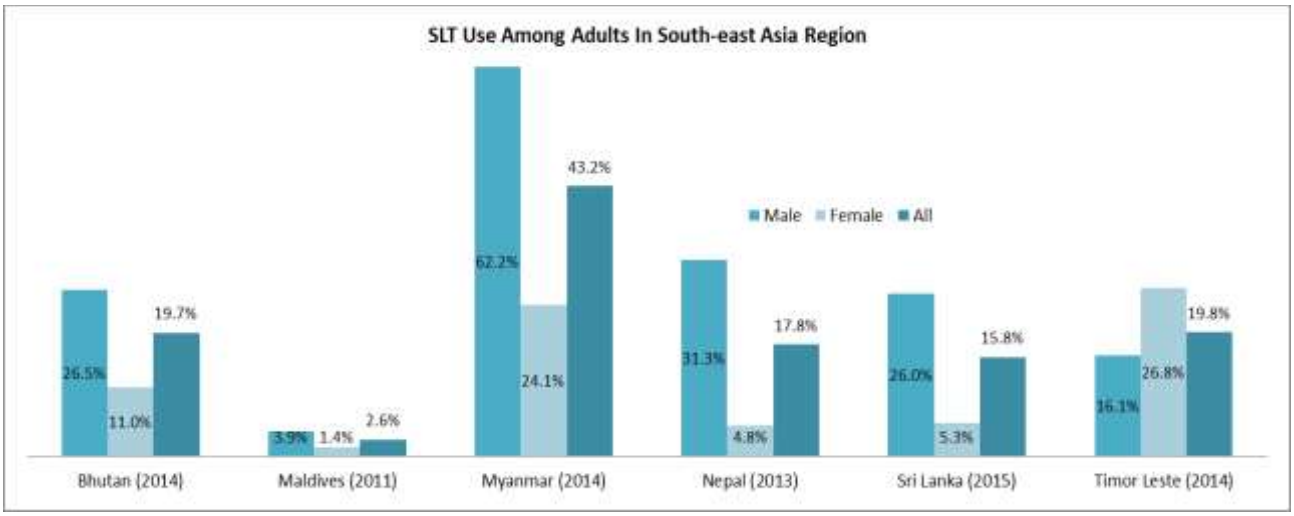
ITC data

The reports from ITC surveys in Bangladesh, Bhutan, India, and Thailand suggest the prevalence of SLT products more or less similar to other surveys like GTSS. The use of *zarda*, which is a commonly used flavoured SLT product in Bangladesh, has been negatively affected with the price rise. Interestingly, the intensity of *zarda* use has been positively affected *(38).* The same study identifies women, elderly people and less educated people as major influencers of SLT use. Product-wise prevalence data is also available, and is similar to that reported in GATS and DHS surveys.

STEPS data

SLT use in the South-East Asia Region ranged from 2.6% in the Maldives to 43.2% in Myanmar. Males used more SLT than their female counterparts, except in Timor Leste. The information on specific SLT product use is limited in NCD reports. Details are given in Annexure 4.

Fig. 7. SLT Use Among Adults In South-East Asia Region



Source: **STEPS NCD risk factor surveillance data (2011–2016)**

Conclusion

In summation, flavoured SLT is ill-defined and its assessment in various health surveys is yet to be standardized. Using the operational definition, it can be safely concluded that the majority of SLT products are flavoured. Hence, SLT use itself can be used as a proxy indicator of flavoured SLT use in the South-East Asia Region.

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Annexures

Annexure 1. Types of SLT used in South-East Asia Region

Country	SLT used	Flavoured SLT *(4,6,8,13–16)*
Bangladesh	Betel quid with *zarda, zarda* only, or *zarda* with *supari*; betel quid with *sada pata*; *paan masala* with tobacco; *sada pata* chewing; *gul*; *khoinee* and others *(39)* *Gutkha* also used *(40)*	*Zarda, paan masala, gutkha, gul.* Betel leaf itself adds flavour to SLT
Bhutan	Snuff, chewing tobacco or betel quid with tobacco *(41)*	Snuff, betel quid with tobacco
DPR Korea	Currently, DPR Korea reports nil SLT use *(42)*	
India	Betel quid with tobacco, *khaini, gutkha, paan masala, mishri, mawa, gul, bajjar, gudakhu*, snuff *(43)* Betal quid *(paan)* with tobacco, tobacco and lime mixture *(khaini, surti, etc.)*, tobacco areca nut and lime mixture, *gutkha*, dentifrice *(gul, bajjar, gudhaku, mishri, dantmanjan)*, etc. *(44)*	Betel quid with tobacco, *gutkha, paan masala, gul, gudakau, snuff, bajjar, kiwam,* dentrifice with tobacco
Indonesia	Snuff, chewing tobacco, betel quid with tobacco and others *(45)* Betel quid, tobacco leaf, tobacco leaf and betel nut mixture	Snuff, betel quid with tobacco
Maldives	Tobacco chewing with betel nut *(44)*	
Myanmar	Raw tobacco, betel quid with tobacco *(44)* Betel quid with raw tobacco, wet tobacco, tobacco soaked with lime/honey/alcohol; raw tobacco; watery tobacco *(46)*	Betel quid with tobacco (all forms)

Nepal	*surti leaves, khaini, gutkha* and *paan* with tobacco *(44)* Betel quid, *khaini (surti), gutka, zarda, paan masala, gul (47)*	*Gutkha, paan with tobacco (betel quid with tobacco), Zarda, Paan masala*
Sri Lanka	Betel quid with tobacco, *paan parag/paan masala, mawa,* red tooth powder, *khaini,* tobacco powder, *zarda (48)*	Betel quid with tobacco, *paan parag/paan masala,* red tooth powder, tobacco powder, *zarda*
Thailand	Snuff by keeping in mouth/nose, chewing tobacco, betel quid with tobacco and others *(49)*	Snuff, betel quid with tobacco*
***Khaini (khoinee)*, which is a mixture of slaked lime with tobacco, has been considered here as a non-flavoured SLT. L**		

* Chewing tobacco has not been specified in GATS report or code book.

Annexure 2. Current use of SLT among youth in South-East Asia Region

Country *(35)*	Year	All	Male	Female
Bangladesh	2007	4.9	5.8	4.2
	2013	5.9	7.1	3.7
Bhutan	2006	10	14.5	6
	2009	9.4	14.1	5.3
	2013	23.2	27.2	19.8
India	2006	9.4	10.7	7.5
India	2009	9	11.1	6
Indonesia	2014 *(50)*	2.1	3.0	1.1
	2009	2.8 3	3.3	2.3
Maldives	2011	6.2	9.2	2.9
Myanmar	2007	6.5	10.3	2.7
	2011	9.8	15.2	4

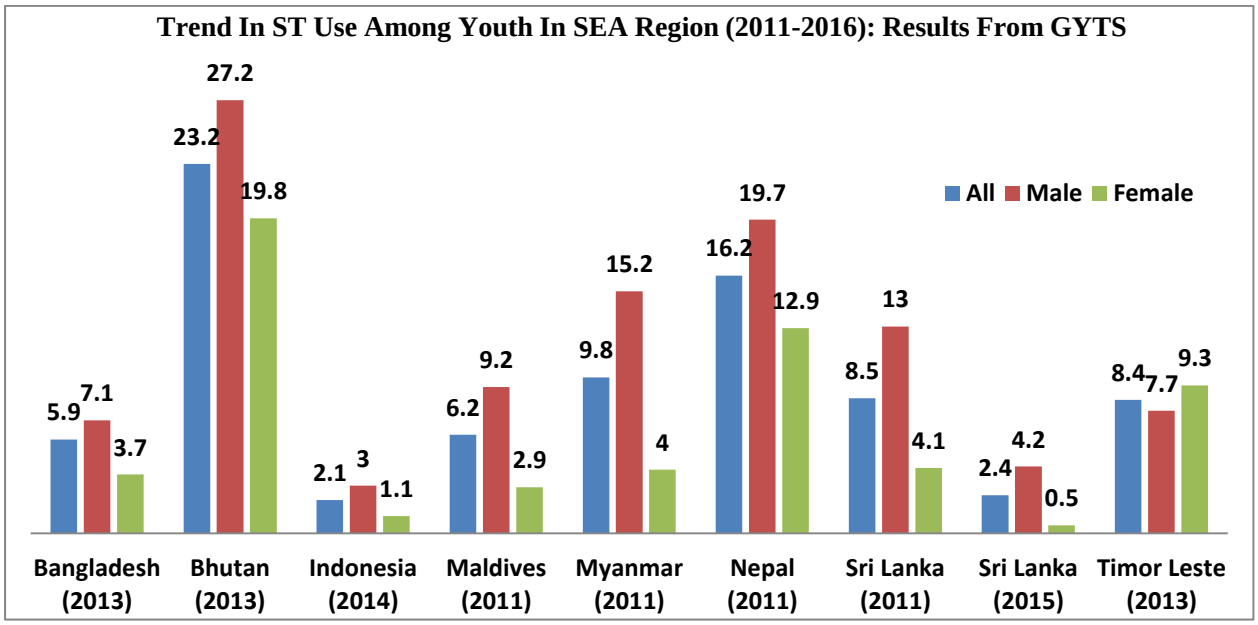
Nepal	2007	6.1	8.8	2.9
	2011	16.2	19.7	12.9
Sri Lanka	2007	6.8	9.6	3.9
	2011	8.5	13	4.1
	2015*(51)*	2.4	4.2	0.5
Thailand	2009	5.7	7.3	4.1
Timor Leste *(52)*	2013	8.4	7.7	9.3

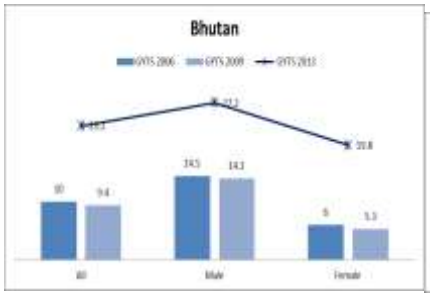
Notes:

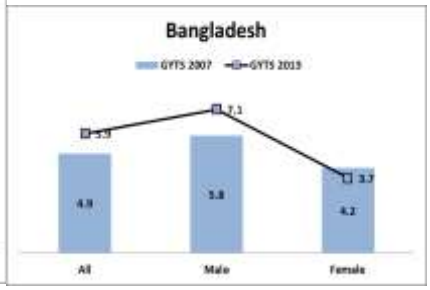
1. All figures are in percentages

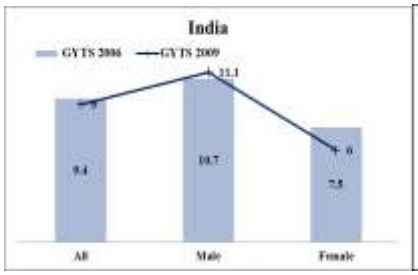
2. The data was compiled from reference *(35)* and matched with original sources. Also,new survey data that was available has been added.

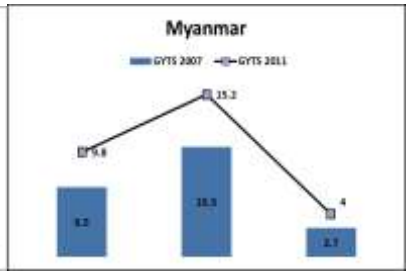
Trends from GYTS data

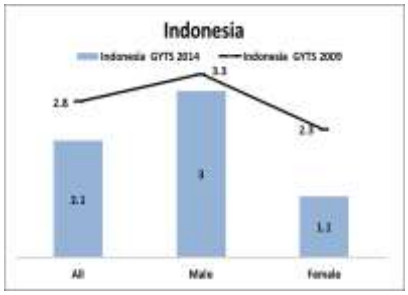


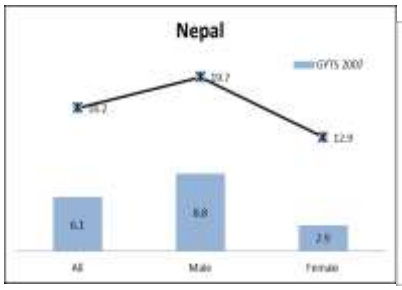


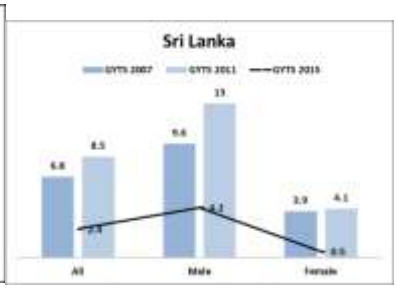












SEA: South-East Asia

Annexure 3. Prevalence of various types of flavoured and non-flavoured SLT products in South-East Asia Region: GATS data analysis

Items C06 and C10 in the SLT use section of the GATS questionnaire assess various types of SLT use. If each SLT product assessed can be defined as flavoured or non-flavoured considering the description of the product, it is possible to estimate the burden of flavoured tobacco products. In South-East Asia Region, GATS has been conducted in Bangladesh, India, Indonesia and Thailand.

India

At C06 and C10, the following items were assessed:

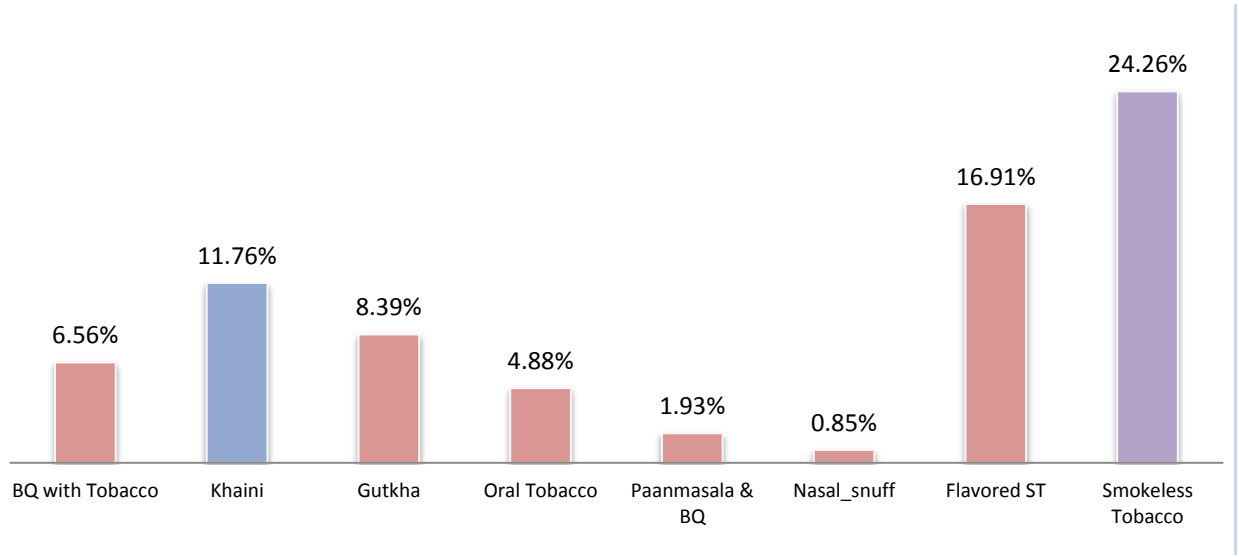
(a) Betel quid with tobacco
(b) Khaini
(c) Gutkha
(d) Oral tobacco (snuff*, mishri, qul, gudakhu)*
(e) *Paan masala* and betel quid without tobacco
(f) Nasal snuff
(g) Other SLT products

In the tobacco products assessed , responses to "(g) – others" is negligible, and some products specified are not clear. In oral tobacco, except for *mishri* (prevalence is also negligible comprared to others in that category), all others are flavoured.

Therefore, in this analysis, other than khaini (a) and other SLT products (g), products under (a), (c), (d), (e) and (f) are operationally defined as flavoured.

Prevalence of SLT (all types) products is 24.26% (CI: 23.94–24.58%). Flavoured SLT is 16.91% (69.7% of all SLT products). Half of the *khaini* users use one of the flavoured SLT products (Fig A3.1).

Fig. A3.1. Flavoured and non-flavoured SLT use in India



Source: GATS-India 2010

Indonesia

As the items at C06 and C10 of the original GTSS–GATS questionnaire were modified and details of SLT products were not collected, analysis for flavoured SLT was not done.

Bangladesh

The following SLT products have been assessed at C06 and C10 of the GATS questionnaire:

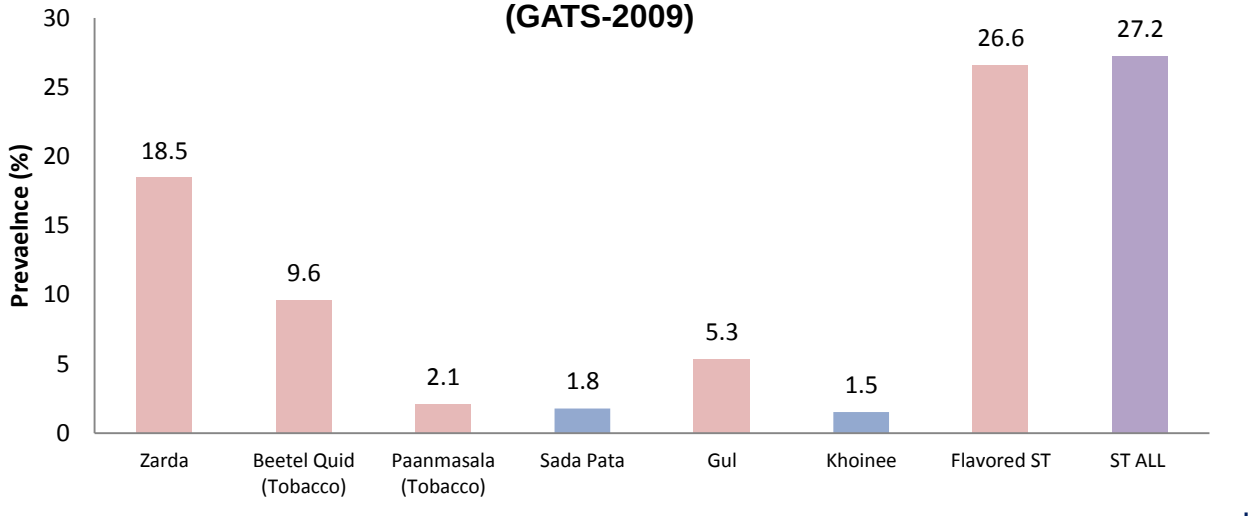
(a) Betel quid with *zarda, zarda* only, *zarda* with *supari*
(b) Betel quid with *sada pata*
(c) *Paan masala* with tobacco
(d) *Sada pata* chewing
(e) Gul
(f) Khoinee
(g) Any other SLT products

Of the above, responses to "(g) others" is negligible and some products specified under "other" category are not clear. Except *sada pata* and *khoinee*, others products are flavoured.

Therefore, in this analysis, other than *khoinee, sada pata* and any others, SLT products at (a), (b), (c) and (e) are operationally defined as flavoured SLT.

Prevalence of SLT (all types) products is 27.2%. Flavoured SLT is 26.6% (96.3% of all SLT products). Majority (90.4%) of khaini users used flavoured SLT products (Fig A3.2).

Fig A3.2. Flavoured and non-flavoured SLT use in Bangladesh (GATS-2009)



Source: GATS-2009

Thailand

The following SLT products have been assessed at C06 and C10 of GATS questionnaire:

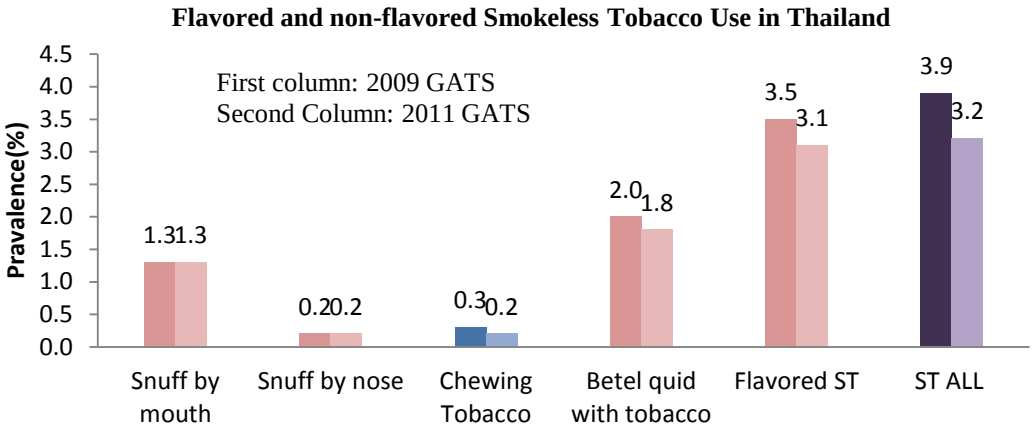
(a) Snuff by mouth
(b) Snuff by nose
(c) Chewing tobacco
(d) Betel quid with tobacco
(e) Any others

In the tobacco products assessed above, response in the "(e) others" has not been specified. Snuff and betel quid with tobacco are flavoured. Therefore, SLT products at (a), (b) and (d) are operationally defined as flavoured SLT. This is applicable for GATS-1 (2009) and GATS-2 (2011).

Prevalence of SLT (all types) products is low (3.2% in 2011 and 3.9% in 2009). Flavoured SLT consititutes more than four fifths of all SLT products. Betel quid and snuff are two major SLT products (these are also flavoured) in use in Thailand. There has been a decrease in the

use betel quid with tobacco and chewing tobacco but there is no change in prevalence of snuff use from 2009 to 2011 (Fig. A3.3).

Figure A3.3. Flavoured and non-flavoured SLT use in Thailand



Prevalence of various types of SLT products

The prevalence of of various types of SLT products in South-East Asia countries is given in Table A3.1.

Table A3.1. Prevalence of various SLT products (GATS analysis)

	SLT products assessed	N (sample)	P (weighted %)
INDIA 2009(43)	Beetel quid with tobacco	5783	6.6
	Khaini	7708	11.8
	Gutkha	4841	8.4
	Oral tobacco	2772	4.9
	Paan masala and betel quid	2435	1.9
	Nasal snuff	869	0.9
BANGLADESH (39)2009	*Zarda*	1886	18.5
	Betel quid (tobacco)	891	9.6

	Paan masala (Tobacco)	209	2.1
	Sada pata	178	1.8
	Gul	548	5.3
	Khoinee	164	1.5
THAILAND 2009(49)	Snuff by mouth	265	1.3
	Snuff by nose	75	0.2
	Chewing tobacco	55	0.3
	Betel quid with tobacco	347	2.0
THAILAND 2011(53)	Snuff by mouth	308	1.30
	Snuff by nose	73	.20
	Chewing Tobacco	42	.20
	Betel quid with tobacco	402	1.80

Source: Secondary data anlysis of country GATS data

Note: In weighted samples, 95% CI is very close to the prevalence estimate and is hence not given

Annexure 4. Prevalence of use of SLT from WHO STEPS NCD risk factor surveillance report

The prevalence of use of SLT from WHO STEPS NCD risk factor surveillance report in various countries of South-East Asia Region is given in Table A4.1.

Table A4.1. Prevalence of use of SLT from WHO STEPS NCD risk factor surveillance report

Country	All	Men	Women
Bhutan (2014) National	19.70%	26.5%	11%
Bhutan (2007) Subnational	19.40%	21.1%	17.3%
Maldives (2011)	2.6%	3.9%	1.4%
Myanmar (2014)	43.2%	62.2%	24.1%
Myanmar (2009)	29.70%	51.40%	16.10%
Nepal (2013) *(54)*	17.8%	31.3%,	4.8%
Nepal (2007)	18.6%	31.2%	4.6%
Sri Lanka (2015)	15.80%	26.00%	5.30%
Sri Lanka (2006) *(55)*		24.90%	6.90%
Timor Leste (2014)	19.80%	16.10%	26.80%

In Bhutan, the prevalence of SLT use is higher in men (26.5%) than women (11.0%). Most of the current users (95.5%) consumed chewing tobacco and snuff by mouth, followed by 6.1% chewing betel quid.

In Nepal, around 77.6% of current users took *khaini*, 23.1% had chewing tobacco and 7.8% used betel or quid. More than three fourths (77.6%) of the total daily SLT users used snuff by

mouth, 23.1% used chewing tobacco and 7.8% used betel or quid. Among men, 76.6% used snuff by mouth and about a quarter (24.3%) used chewing tobacco. Among women, 83.3% used snuff by mouth *(khaini)* and 15.7% used chewing tobacco.

Use of flavoured smokeless tobacco and flavoured betel nut products is highly prevalent in the countries of the WHO South-East Asia Region including Bangladesh, Bhutan, India, Myanmar and Nepal. The additives and flavours are used to enhance the attractiveness and appeal of smokeless tobacco (SLT) and related products containing betel nut. The flavours used for SLT in the Region are mostly traditional, unlike in developed countries. Information on flavoured SLT products is limited, making their regulation a challenge for countries. This document presents trends and other aspects related to SLT products in selected countries of the South-East Asia Region.

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