



Fluoridated and iodised in Lao PDR

Expert Panel on Oral Health, World Health Organization

2nd Lao National Oral Health Survey 2012

	DT(dt)	MT (mt)	FT(ft)	DMFT (dmft)	percentage
3 years	(4.28)	(0.02)	(0)	(4.30)	73.3
5-6 years	(5.96)	(0.11)	(0.02)	(6.09)	84.4
12 years	0.89	0.05	0.04	0.98	43.0
15-18 years	1.22	0.14	0.14	1.5	52.8
35-44 years	1.71	1.25	0.15	3.1	69.3
>60 years	2.61	3.99	0.08	6.69	82.3

Caries status in primary teeth at 6 yr old children

Country	Year	dmft
Singapore	2005	2.03
Malaysia	2007	3.6
Thailand	2012	4.4
Vietnam	2001	6.1
<i>Lao PDR</i>	<i>2012</i>	<i>6.1</i>
Cambodia	2006	8.3
Philippines	2006	8.4

Caries prevalence in primary teeth

country	Age (year of age)	prevalence (%)	Year
Japan	3	24.4	2005
<i>Thailand</i>	<i>3</i>	<i>51.7</i>	<i>2012</i>
Lao PDR	3	73.3	2012
Mongolia	3-5	87.8	2007

WHO's World Health Assembly (2007)

- Member states adopted a resolution on oral health, which urged the establishment of national plans for the use of Fluoride based on appropriate programmes for **automatic administration through drinking water, salt or milk and/or topical use such as affordable toothpaste.**

Community Fluoride Approach in Asia

- Water fluoridation
 - China SAR Hong Kong, Malaysia, Singapore, Korea, South Vietnam, Brunei
- Milk fluoridation
 - Thailand
- Salt fluoridation
 - Lao PDR, North Vietnam

Choice from Lao MOH in 2005

- High level of decay
- Water fluoridation not practical
- Low fluoride in natural water
- Iodine and fluoride compatible
- Toothpaste not accessible for all



Why ? Salt fluoridation

- Salt is consumed by virtually all populations
- 250 ppm F (adults and children)
- Amount consumed is constant (~10 g/day)
- Overdose is virtually excluded (safe)
- Concentration of fluoride very low in water in Lao
- No risk to use both toothpaste and fluoridated salt

Cariostatic Effectiveness of Fluoridated Salt

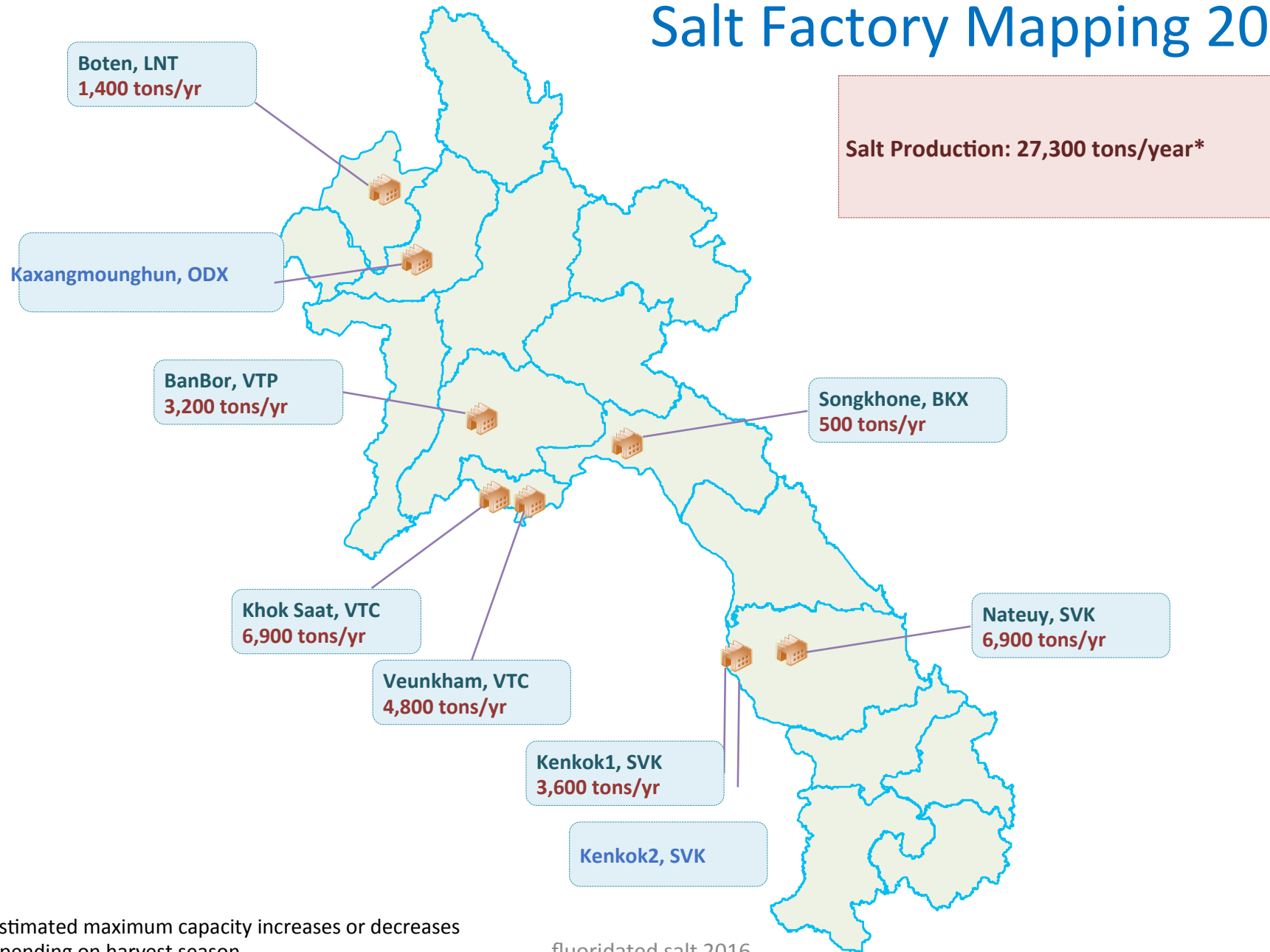
- **France: National** mean DMFT₁₂ decreased from **4.2 to 2.07** from **1987-1993**
- **Montpellier** DMFT₁₂ **1.42** in **1999** and **1.29** in **2002**
- **Heidelberg** DMFT₁₂ **1.56** in **1999** and **1.15** in **2002**

Tramini P., Schweiz Monatsschr 115:656-658 (2005)

LAO SALT FACTS

- Lao needs 30,000 tons of salt per year
- 9 salt factories
- Producers are well organized in an association
- Factories produce 95% of countries salt needs
- Factories have 100% iodization capacity
- Sufficient funds to self finance iodine provisions

Salt Factory Mapping 2015



*estimated maximum capacity increases or decreases depending on harvest season

fluoridated salt 2016

SALT PRODUCTION 2015

- BOILED SALT = 12,488 TONS (12,163 IODIZED)
- SOLAR SALT* = 11,310 TONS (2,200 IODIZED)
- **TOTALS 23,798 TON (14,363 IODIZED)**



Decree N° 1604/MS – October 2011:
Standards for fluoridated salt on Lao market



- Pilot project at Khok Saath from 2011

Quality control: factory Labs and FDQCC



90% of
the samples have a
good concentration of
iodine and fluorine.

Results doubled checked in French and Thai labs

Monitoring Urinary Fluoride in 4-yr children, 2016

	Baseline morning ug/hr	Baseline afternoon	After 6-mo morning	After 6-mo afternoon
Salt F in Lao	4.7 (3.32)	9.5 (4.65)	4.8 (2.49)	9.6 (5.33)
WHO standard	7-12 (low)	8-13 (low peak)	15-20 (optimum)	18-27 (optimum peak)
Milk F in Thai	9.0 (4.87)	9.0 (4.62)	10.7 (6.49)	26.5 (12.02)

Interpretation of urinary fluoride monitoring

- Low fluoride intake in 4-yr old Lao children
- Safety for fluoridated salt consumption in children
- Monitoring period at 6-month after fluoridated salt showed no increased urinary fluoride in comparison with baseline data
- Need more monitoring urinary fluoride in longer period such as 1-yr and over

Fluoridated and iodised salt in Lao PDR



- The main objective for caries reduction in Lao children
- **This is the Lao MOH project with support from AOI and WHO**
- Lao Dental Association and all Lao dentists should support this mission with good scientific understanding
- Promoting fluoridated and iodized salt for consumption in all age group in the community to replace the conventional salt
- Encouraging dental patients to use fluoridated and iodized salt in their routine daily family life
- **Ensuring the safety of consuming fluoridated and iodized salt**

Fluoridated and iodized salt in Madagascar

- The main objective for caries reduction in Madagascar children
- **This is the Madagascar MOH project with support from AOI and WHO**
- Promoting fluoridated and iodized salt for consumption in all age group in the community to replace the conventional salt
- **75% coverage for fluoridated and iodized salt in Madagascar in 2017**
- **Lessons from Madagascar was mainly from salt factories and MOH strong support**

Fluoridated and iodized salt in Madagascar

Main lessons

- **Implication of MOH**
- **Only one MOH program for Fluoridated and iodised salt**
- **Obligation to produce fluoridated and iodized salt with decree**
- Chief Dental officer for improving program
- **Committee with stakeholders to improve program**

Improved oral health and enhanced quality of life



- Oral disease (dental caries) need to be treated or prevented as to control pain and discomfort and enhance the quality of life



Thank You
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