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Economics of Tobacco Control Paper No. 17

# Economics of Tobacco Control - The Maldives

Ahmed Afaal and I. Riaz Shareef

November 2003

Tobacco Free Initiative  
World Health Organization





# **ECONOMICS OF TOBACCO CONTROL – THE MALDIVES**

**AHMED AFAAL AND I. RIAZ SHAREEF**

**NOVEMBER 2003**

## Health, Nutrition and Population (HNP) Discussion Paper

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## Health, Nutrition and Population (HNP) Discussion Paper

### ECONOMICS OF TOBACCO CONTROL PAPER NO. 17

### ECONOMICS OF TOBACCO CONTROL - THE MALDIVES

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Paper prepared for the World Health Organization Regional Office for South-East Asia. Presented at a meeting on the Economics of Tobacco Control in the South-East Asia Region, in Jakarta, Indonesia, December 3-4, 2003

**Abstract:** This paper summarizes briefly the general economic situation in the Maldives and describes its health care system, demographics and health outcomes. Mortality and life expectancy have been improving, but cardiovascular and respiratory diseases and cancers are the top causes of death; smoking is a risk factor for all of them. Tobacco imports have been increasing, although changes in the import duty appears to have caused a significant decrease in 2000. Cigarettes account for most of the tobacco product imports and are smoked by 40% of all tobacco product user. Chewing tobacco is also commonly used, by 30% of tobacco users. Overall, tobacco use prevalence is high by international standards: in 1997, 57% of men and 29% of women used some form of tobacco. Prevalence is higher among island communities than in the capital. Prices of cigarettes have been fairly stable, with some price rises from 2000. Government revenues from tobacco import duties have risen, but are less than 2% of total import duty revenues. Policy recommendations are to ensure regular real price increases in all tobacco products to deter use, accompanied by actions to detect and deter smuggling, better surveillance and monitoring of tobacco use and improvements in the system of reporting causes of deaths, and more cessation support to raise quit rates.

**Keywords:** Maldives, tobacco, cigarettes, bidi, chewing tobacco, tobacco consumption, health, economics, taxes, import duties, prices, revenues

**Disclaimer:** The findings, interpretations and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank or the World Health Organization, their executive directors or the countries they represent.

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## TABLE OF CONTENTS

NOTE FROM REGIONAL DIRECTOR, Office for South-East Asia, World Health Organization .....	vii
FOREWORD .....	ix
ACKNOWLEDGEMENTS .....	xi
SUMMARY .....	xiii
1. COUNTRY SITUATION.....	1
1.1 The economy and social indicators .....	1
1.2 Health system .....	2
1.3 Demographic trends.....	3
2. DESCRIPTION OF THE TOBACCO MARKET .....	6
2.1 Trends in tobacco trade.....	6
2.2 Manufacture of tobacco products .....	9
2.3 Tobacco control in the Maldives .....	9
3. PREVALENCE AND CONSUMPTION.....	10
3.1 Prevalence of tobacco use .....	11
3.2 Annual consumption of cigarettes and other tobacco products.....	12
4. PRICES, TAXES, AND GOVERNMENT REVENUES .....	15
4.1 Cigarette prices .....	15
4.2 Taxation on tobacco products .....	16
4.3 Trends in government revenue .....	17
5. POLICY RECOMMENDATIONS .....	18
APPENDICES .....	21
1. Volume and composition of tobacco imports and import duty, 1988-1999.....	21
2. Analysis of Island-level income and expenditure data.....	23
3. Monthly national data .....	24
REFERENCES .....	25
TABLES	
Table 1.1. Health personnel, Maldives, 1999.....	3
Table 1.2. Maldives, population 1985–2000.....	4
FIGURES	
Figure 1.1. Trend in mortality rates, Maldives, 1991–99.....	4
Figure 1.2. Life expectancy at birth, Maldives, 1990–99 .....	5
Figure 1.3. Eleven leading causes of death, Maldives, 1997–99 .....	6
Figure 2.1. Imports of cigarettes, Maldives, 1988–99 .....	7
Figure 2.2. Imports of cigars, Maldives, 1988–99 .....	7
Figure 2.3. Imports of other tobacco products, Maldives, 1988–99 .....	7
Figure 2.4. Inflation and CIF value of tobacco products, Maldives, 1988–99 .....	8
Figure 2.5. Tobacco imports as a percentage of imports of basic foodstuffs, Maldives, 1994–99.....	8
Figure 3.1. Tobacco users by type of tobacco, Maldives, 1997 .....	11
Figure 3.2. Prevalence of tobacco use by sex and residence, Maldives, 1997 .....	11



Figure 3.3. Annual cigarette consumption by age, Maldives, 1997 .....	13
Figure 3.4. Annual <i>bidi</i> consumption by age, Maldives, 1997 .....	13
Figure 3.5. Annual cigar consumption by age, Maldives, 1997 .....	13
Figure 3.6. Annual cigarette consumption by sex, Maldives, 1997 .....	14
Figure 3.7. Annual <i>bidi</i> consumption by sex, Maldives, 1997 .....	14
Figure 3.8. Annual cigar consumption by sex, Maldives, 1997 .....	14
Figure 4.1. Marlboro real and nominal prices (packet of 20), Maldives, 1997–2000 ....	16
Figure 4.2. Import duty on cigarettes and imports of cigarettes, Maldives, 1999–2000	17
Figure 4.3. Total import duty on tobacco products and as a percentage of total import duty receipts, Maldives, 1989–1998 .....	18

## **NOTE FROM REGIONAL DIRECTOR, OFFICE FOR SOUTH-EAST ASIA, WORLD HEALTH ORGANIZATION**

The trend in tobacco consumption in many developing countries is worrying. This is not only because of the millions of deaths and related suffering that it involves, but also due to its negative impact on economic development. Experiences from many countries have shown that cost effective tobacco control measures can be taken that could bring net economic gains for the country. Proven, cost-effective measures include: public education and information; a ban on tobacco advertising; tobacco smuggling deterrence and increased tobacco taxes. All these measures can be incorporated in national anti-tobacco legislation. Studies and research from countries around the world have revealed that an increase in tax on tobacco products is perhaps the most effective tool for tobacco control, and is especially effective in reducing tobacco use among young people and people with low incomes. Higher tobacco taxes can help a country in a number of ways – by generating additional revenue, reducing tobacco use leading to less tobacco-related morbidity and mortality and reduced expenditure on treatment of tobacco-related diseases.

Effective collaboration between health and finance ministries is essential to address appropriately the economic and fiscal aspects of tobacco control. Such collaboration could ensure improved health for millions of people by protecting them and their families from the harmful effects of tobacco use.

I am confident that the findings of the study initiated by World Health Organization and World Bank will encourage the policy makers, in particular, in the health and finance ministries, to take appropriate and coordinated action for tobacco control.

Dr Uton Muchtar Rafei  
Regional Director  
World Health Organization  
Regional Office for South-East Asia

10 October, 2003



## FOREWORD

In 1999, the World Bank published *Curbing the epidemic: governments and the economics of tobacco control*, which summarizes the trends in global tobacco use and the resulting immense and growing burden of disease and premature death. By 2000, there were already nearly 5 million deaths from tobacco each year. This number is projected to grow to 10 million per year by 2030, given present trends in tobacco consumption. Already about half of these deaths are in high-income countries, but recent and continued increases in tobacco use in the developing world is causing the tobacco-related burden to shift increasingly to low- and middle-income countries. By 2030, seven of every ten tobacco-attributable deaths will be in developing countries. *Curbing the epidemic* also summarizes the evidence on the policies and interventions that have proved to be effective and cost-effective in reducing tobacco use in countries around the world.

Raising taxes to increase the price of tobacco products is the most effective way to reduce tobacco use and the single most cost-effective intervention. It is also the most effective way to persuade young people to quit or not take up smoking. This is because young people, like others with low incomes, tend to be highly sensitive to price increases.

Why are these proven cost-effective tobacco control measures not adopted or implemented more strongly by governments? Many governments hesitate to act decisively to reduce tobacco use because they fear that tax increases and other tobacco control measures might harm the economy by reducing the economic benefits their country gains from growing, processing, manufacturing, exporting and taxing tobacco. The argument that tobacco contributes revenues, jobs and incomes is a formidable barrier to tobacco control in many countries. Are these fears supported by the facts?

In fact, these fears turn out to be largely unfounded when the data and evidence on the economics of tobacco and tobacco control are examined. A team of about 30 internationally recognized experts in economics, epidemiology and other relevant disciplines who contributed to the analysis presented in *Curbing the epidemic* reviewed a large body of existing evidence. The team concluded that in most countries tobacco control would not lead to a net loss of jobs and could, in many circumstances actually generate new jobs. Tax increases would increase (not decrease) total tax revenues, even if cigarette smuggling increased to some extent. Furthermore, the evidence shows that cigarette smuggling is caused at least as much by general corruption as by high tobacco product tax and price differentials. The team recommended that governments not forego the benefits of tobacco tax increases because they feared the possible impact on smuggling. Rather, they should act to deter, detect and punish smuggling.

Much of the evidence presented and summarized in *Curbing the epidemic* was from high-income countries. However, the main battleground against tobacco use is now in low- and middle-income countries. If needless disease and millions of premature deaths are to be prevented, then it is crucial that developing countries raise tobacco taxes, introduce comprehensive bans on all advertising and promotion of tobacco products, ban smoking

in public places, inform their citizens about the harm that tobacco causes and the benefits of quitting, and provide advice and support to help people quit.

In talking to policy-makers in developing countries, it became clear there was a great need for country-specific analytic work to provide a basis for policy making within a sound economic framework. The World Bank and WHO's Tobacco Free Initiative (as well as several other organizations, acting in partnership or independently) began to commission and support analysis of the economics of tobacco and tobacco control in many countries around the world.

The report presented in this paper makes a valuable contribution to our understanding of the issues and likely economic impact of tobacco control. Our hope is that the information, analysis and recommendations will prove helpful to policy-makers and result in stronger policies that will reduce the unnecessary harm caused by tobacco use.

Joy de Beyer

Tobacco Control Coordinator  
Health, Nutrition and Population  
World Bank

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## SUMMARY

### Country situation

The Maldives, an archipelago of about 1190 islands, lies in the middle of the Indian Ocean. The population was 269 010 in 2000. Per capita GDP was estimated at US\$ 1279 in 1998, twice as high as the regional average, and has grown at an average of 9% for the past 25 years.

The Maldives' social welfare indicators are good compared to most countries with comparable income levels. Adult literacy rate is close to 100%. Infant mortality had fallen to 35 per 1000 by 1995, and the crude death rate to 0.5%. Life expectancy at birth was 72 years in 1998. Cardiovascular and respiratory diseases and cancers are the 3 leading cause of death; they are all linked to tobacco use.

Curative and preventive health services are organized into a four-tier system comprising central, regional, atoll and island levels. Services are provided through both public and private sectors.

### Tobacco imports and tobacco control

Most tobacco products are imported, import volumes are increasing. Cigarettes account for 97% of all tobacco products by quantity. There is very little local tobacco production—just small amounts of *bidi* and tobacco for *hukkah*—in the Maldives. Tobacco smuggling is believed to be negligible. There are no specialist tobacco importers or retail outlets in the country. Thus no jobs would be lost if tobacco sales were to fall.

Maldivian tobacco control goes back to a 1942 law which banned tobacco product imports for some years. A 1947 bill that was enforced for a period banned smoking by all students and Maldivians under the age of 17, and prohibited smoking in public. In 1984, advertising was banned in government media, and in 1994 a total ban on all forms of tobacco advertisement and promotion was imposed. Smoking was banned in all health care facilities in 1993, and in all government buildings and educational institutions in 1994. Islands declaring themselves tobacco-free may qualify for trophies and cash prizes. In 2000, a large-scale school anti-tobacco programme was initiated by the education sector for the whole country. One tobacco-free island, Madifushi, runs a quit-smoking programme that provides accommodation and food for people who come to the island to quit smoking. This island received a WHO tobacco-free award in 2000.

### Prevalence and consumption

A survey conducted in 1997 showed that 57% of males and 29% of females consumed some form of tobacco, and that smoking prevalence stood at 41%. Prevalence is higher in the outlying islands. Per capita consumption is highest in the 15 – 49 age groups, and averages 14 cigarettes a day for men and 10 a day for women.



**Prices, taxes and government revenue**

Prices of cigarettes were relatively stable (in nominal and real terms) from 1997 to 2000. In 2000, prices rose steeply but then fell to 40% above the earlier price. Until May 2000, duty on all imported tobacco products was 50% of CIF value. In 2000 the levy for cigarettes only was changed to 30 laari per cigarette (100 laari = 1 rufiyaa) to reduce cigarette price differentials and eliminate trade in cheap cigarettes. The overall effect was positive for revenue and public health: imports dropped and import duty revenues rose by over 50%. Tobacco duty revenues have fallen as a share of all import revenues from around 4% to below 2%.

**Policy recommendations**

There should be an annual increase in tobacco prices. The World Health Organization recommends an annual 5% increase in the real price of tobacco products. Tax increases should apply to all tobacco products. The Maldives should consider introducing an ad valorem excise tax to sustain increased tobacco prices.

Tobacco control measures should be consolidated and a comprehensive tobacco control law formulated as a foundation for ratification of the Framework Convention on Tobacco Control. The National Tobacco Control Committee needs to be revamped to play a more active role in tobacco control. Surveillance and enforcement need to be enhanced. An assessment of smoking prevalence in the Maldives should be done every five years, as part of the existing regular household surveys.

The government should implement a smoking cessation programme.

Information, education and communication programmes need further innovation and strengthening.

The government should also improve routinely gathered data such as the cancer registry and lifestyle-related disease statistics so that the smoking-attributed burden of disease can be better understood. The government should also consider revising death certificates to include smoking status in order to enhance future research.

# 1. COUNTRY SITUATION

## 1.1 The economy and social indicators

The Maldives, an archipelago of about 1,190 islands divided into 20 administrative atolls, lies in the middle of the Indian Ocean. The population was 269,010 in 2000. Per capita GDP was estimated at US\$ 1,279 in 1998 (World Bank), twice as high as the regional average. The Maldives' social welfare indicators are considerably superior to those of most countries with comparable income levels.

Over the past 25 years or so, the Maldivian economy has been very open and outward-oriented, and has shown exceptionally strong growth performance with annual real GDP growth averaging 9%. The Maldivian economy is based on two main industries based on its surrounding marine resources. Tourism has driven the impressive growth performance of the last quarter of the twentieth century. The fisheries industry is the other key foreign exchange earner and a major source of employment in the country. External and internal balances have been well within sustainable levels, with borrowings and repayments and the public budget maintained without deficit. Despite recent annual population growth averaging around 2.5%, there does not seem to be an unemployment problem, and inflation has remained in the single digits.

The economic outlook seems favourable, albeit with some crucial challenges, including protecting the Maldives' delicate coastline and marine environment and sustainable growth in fisheries and tourism.

The Maldives is extremely vulnerable because of its dependence on a highly delicate marine ecosystem, and to external shocks such as climate change: a highest point of 3 metres and the small size of the islands leave the Maldives susceptible to expected but perhaps, unmanageable natural disasters such as rising sea levels and global warming. Both key industries are vulnerable to external factors. Tourism is vulnerable to possible acts of war or terrorism. The effects of global market prices on fish and fish products and also the possible loss of allocated export quotas to developed countries due to globalization may affect income from fishing. Fluctuations in oil prices can also affect fish production by changing the operational costs of fishing vessels.

There have been considerable improvements in health and social indicators and living standards, particularly in the outer atolls. Infant mortality has dropped from 121 per 1000 in 1977 to 35 per 1000 in 1995, while the crude death rate has been reduced from 1.8% to 0.5%. (Section 1.3 provides more information on trends in demographic and health outcomes.) Primary education enrolment is 90% (1995), which is a phenomenally high figure for a low-income country, and the adult literacy rate is 98.7%, which is one of the world's highest.

## 1.2 Health system

### Organization of the health system

Health services are organized into a four-tier system comprising central, regional, atoll and island levels. At the top of the pyramid is the Ministry of Health. Under the Ministry at the central level are the Department of Public Health, the Indira Gandhi Memorial Hospital, the National Thalassaemia Centre and the Maldives Water and Sanitation Authority. The Indira Gandhi Memorial Hospital delivers tertiary curative care to the whole country. The Maldives Water and Sanitation Authority was established in 1973 and is responsible for providing safe drinking water and hygienic sanitation facilities. In addition, the Malé Health Centre provides primary and secondary level health care to the island of Malé.

The private sector plays an important role in health care delivery at the central level. A company set up as a joint venture between the Maldivian Government, Denmark's Industrialization Funds for Developing Countries and HOH Water Technology of Denmark runs the Maldives Water and Sewerage Company, which provides desalinated drinking water and maintains the sewerage system on the capital island. ADK Hospital, a private hospital, provides sophisticated medical care. Apart from this, private parties operate all pharmacies, and there are a large number of private medical outpatient clinics in the capital and in the outer islands.

The Ministry of Health is responsible for formulating overall health policy and health development plans for the country and for monitoring and evaluating the health situation. The Department of Public Health is responsible for delivering preventive health programmes for the prevention and control of communicable diseases and promotion of health and well-being of mothers and children. The Department of Public Health is also responsible for delivering basic health care (preventive, promotive, curative and rehabilitative) to the islands and atolls. The Faculty of Health Sciences of the Maldives College for Higher Education provides pre-service and in-service training for health care personnel for nurses, paramedics and other primary health care staff.

There are four regional hospitals situated across the country that provide secondary level curative services. Each hospital caters to a designated region, comprising between three and five atolls. The hospitals are planned to provide outreach services to all the atolls within a region. Through the recently established public health units they implement preventive health programmes and supervise atoll level health services. There are private pharmacies on all islands with regional hospitals that provide pharmaceutical drugs at this level of the health care delivery system.

At the atoll level is the atoll health centre. Since 1993, these centres have been staffed with doctors and community health workers. They are being upgraded to provide inpatient and labour rooms as well as laboratory facilities, and operating theatres have been built at some health centres. Since the introduction of health centres, private pharmacies have been established at this level as well.

The family health workers and the *foolhumaa* or traditional birth attendants provide island-level health services, which, being at the bottom level of the health system, are only very basic. Some private initiatives have taken place at island level as well. Clinics and pharmacies have been introduced and cater to the needs of small communities.

In 1999 there were 105 specialist doctors, 104 general practitioners, 260 staff nurses and 197 nurses (MOH, 2000). Apart from this, community health workers, family health workers and traditional birth attendants provide health services at the peripheral level. Due to the country's limited human resource capacity, many health professionals are expatriates, many from India. Staffing levels for 1999 are shown in Table 1.1.

**Table 1.1. Health personnel, Maldives, 1999**

Category	Public sector			Private sector			Total		
	Expat.	Local	Total	Expat.	Local	Total	Expat.	Local	Total
Doctors (MBBS)	60	13	73	31	0	31	91	13	104
Doctors (specialists)	67	12	79	22	4	26	89	16	105
Staff nurses	134	85	219	36	5	41	170	90	260
Nurses	18	168	186	1	10	11	19	178	197
CHW	0	76	76	0	1	1	0	77	77
FHW	0	280	280	0	0	0	0	280	280
TBA	0	459	459	0	0	0	0	459	459
Pharmacists/ asst pharmacists	0	0	0	150	72	222	150	72	222
Laboratory technicians	20	19	39	10	2	12	30	21	51
Public health management	0	3	3	1	1	2	1	4	5
Other paramedics	16	40	56	6	12	18	22	52	74
<b>Total</b>	<b>315</b>	<b>1155</b>	<b>1470</b>	<b>257</b>	<b>107</b>	<b>364</b>	<b>572</b>	<b>1262</b>	<b>1834</b>

Source: Ministry of Health, 2000.

Note: expat.: expatriate; CHW: community health worker; FHW: family health worker; TBA: traditional birth attendant.

### 1.3 Demographic trends

The population of the Maldives was 269,010 in 2000 (MPND, Census 2000). Population growth averaged 3.2% between the 1977 and 1985 censuses. After peaking at 3.4% in 1985–90, the population growth rate came down to 2.8% in 1995 and decreased further to 1.9% in 2000 (MPND, Census 2000).

The Maldivian population has a young age structure with almost 47% under 15 years old and only 4.8% over 60 years of age. At the current growth rate, the population will double in 37 years (MPND, 2000) and reach 500,000 within the next 34 years.

**Table 1.2. Maldives, population 1985–2000**

Census year	Population			Sex ratio (M/100 F)	Growth rate (%)
	Male	Female	Total		
1985	93 482	86 606	180 088	108	3.2
1990	109 336	103 879	213 215	105	3.4
1995	124 622	120 192	244 814	104	2.7
2000	137 743	131 267	269 010	105	1.9

Source: Ministry of Planning and National Development, 2000

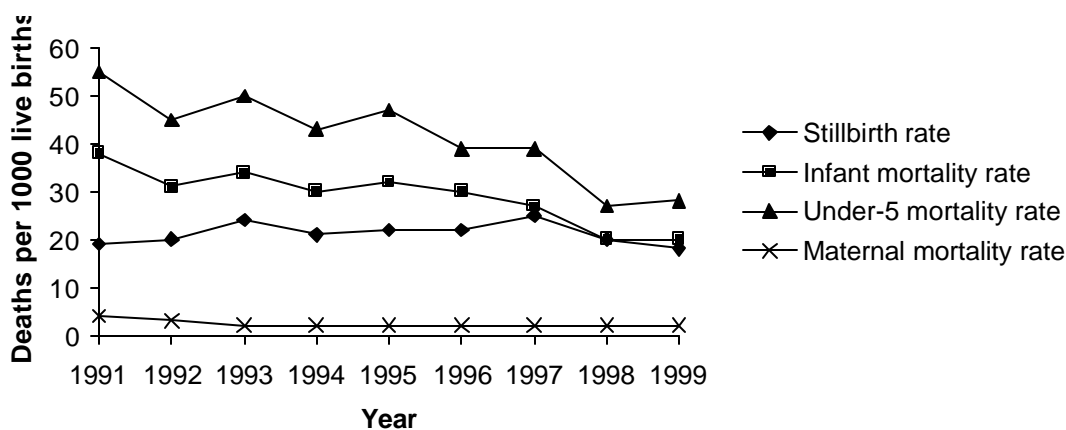
Although the population in the age group 1–4 in 1995 decreased compared with 1990, numerically the largest birth cohorts, during 1980–90 (MOH, 1998), will start entering the reproductive age group within 5 years' time, and may cause a baby boom.

### Infant, child and maternal mortality

The health of the Maldivian people has improved remarkably over the past three decades. These achievements have been due mainly to the emphasis given to preventive health. In particular, the immunization programme was intensified and achieved high coverage: currently over 95% for BCG, DPT and polio (three doses), and measles (MOH, 2000).

The infant mortality rate fell steeply during the 1990s although it remains quite high at 20 per 1000 live births (MOH, 2000). The under-5 mortality rate fell from 108 per 1000 live births in 1983 (MOH, 1998) to 47 in 1995 and 28 in 1999 (MOH, 2000). The stillbirth rate is 18 per 1000 live births, but has shown less decline than infant and child mortality. Maternal mortality has remained a formidable challenge. The maternal mortality rate has shown only a slight decrease and has remained almost constant in recent years at 2 per 1000 live births (Figure 1.1).

**Figure 1.1. Trend in mortality rates, Maldives, 1991–99**



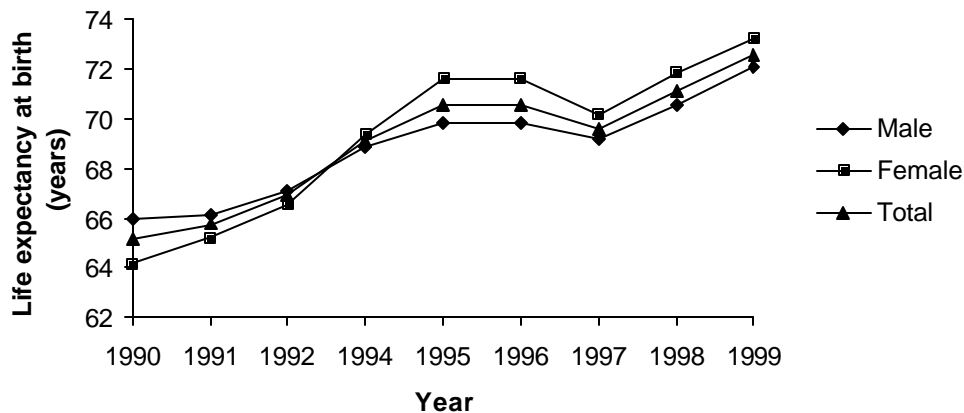
Source: Ministry of Health

## Life expectancy

Improvement in health services and living standards of the Maldivian people has led to improved life expectancy. Life expectancy at birth reached 72 years in 1998 (MPND, 2000), from 65 years in 1995 (MOH, 2000). Unlike most countries, the Maldives had a higher male life expectancy at the beginning of the 1990s. Female life expectancy in 1990 was 64 years while male life expectancy was 66 years (MOH, 2000). In 1998 however, the female life expectancy was 73 years and male life expectancy was 72 years (MOH, 2000).

Figure 1.2 shows the trend in life expectancy from 1990 to 1999.

**Figure 1.2. Life expectancy at birth, Maldives, 1990–99**

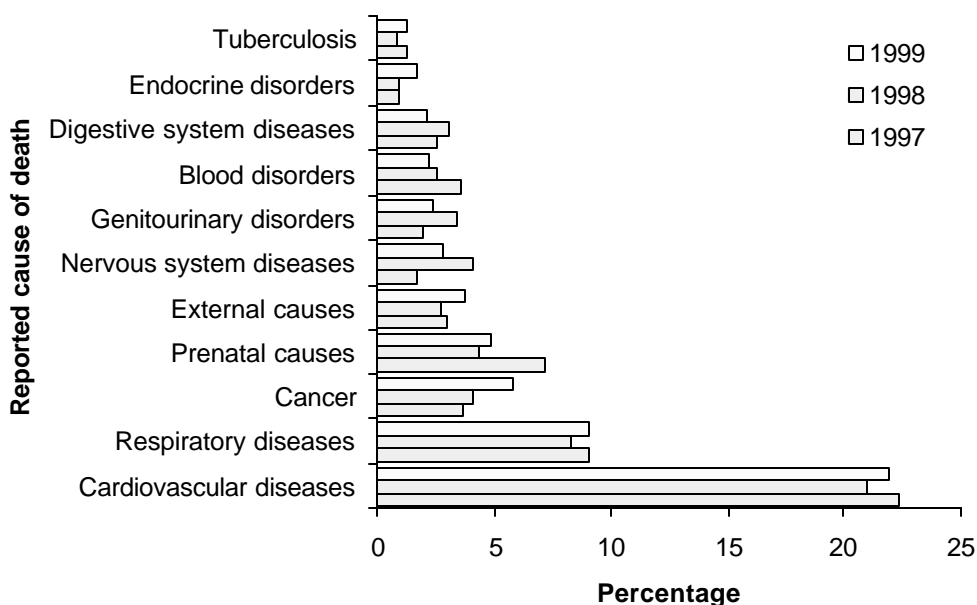


Source: Ministry of Health

## Cause-specific deaths in the Maldives

The clinical information system in the Maldives is not well established. The medical records system at all levels of the health system, both in the public and private sectors, needs to be strengthened. There are discrepancies in the morbidity and mortality data. Furthermore, most deaths occur at home and are certified and reported by lay reporters or health personnel at the periphery of the system. Inadequate morbidity information leads to misclassifications, and many deaths are reported with improper classifications. Many deaths (21%–22% of all deaths) are classified as being due to senility (which is not an accepted mortality classification code under the International Statistical Classification of Diseases and Related Health Problems [ICD-10] system), and no cause of death is started for about 15% of deaths (MOH, 2000). The causes of these deaths cannot be verified since there is no post mortem system in the country, hence these two categories are excluded from Figure 1.3. Diseases of the cardiovascular system are recorded as causing 20% of all deaths (MOH, 2000). This is likely to be an overestimate since a large number of sudden deaths are classified as caused by heart attack. There is a need for improving the recording of cause of death to better track trends (Figure 1.3).

**Figure 1.3. Eleven leading causes of death, Maldives, 1997–99**



Source: Ministry of Health

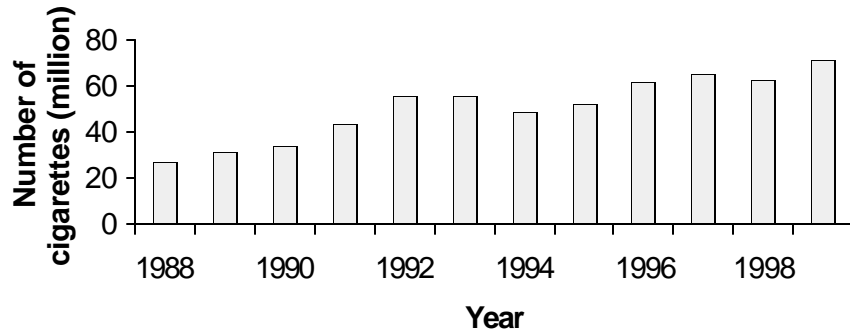
In spite of these shortcomings of the data, it is clear that diseases for which smoking is an important risk factor, figure very prominently. Cardiovascular diseases are the leading cause of death. Mortality due to respiratory conditions accounts for the second largest valid classification, contributing about 10% of all deaths (MOH, 2000). Mortality due to cancer has been increasing in recent years (MOH, 2000). Percentages of deaths due to cancers were 3.7%, 4.1% and 5.8% in 1997, 1998 and 1999 respectively.

## 2. DESCRIPTION OF THE TOBACCO MARKET

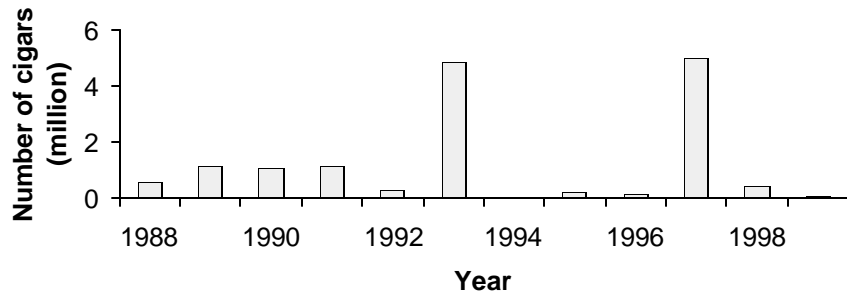
### 2.1 Trends in tobacco trade

From 1988 to 1999 tobacco imports increased substantially (Figures 2.1, 2.2 and 2.3), especially cigarette imports. New brands and cheaper cigarettes came into the country. Cigarettes account for 97% of all tobacco products by quantity, calculated in sticks, cigars for 2% on average and stemmed tobacco 0.2%; other imported tobacco items were insignificant (see Appendix 1 for details). The reason for the large fluctuations in cigar imports is not known (Figure 2.2).

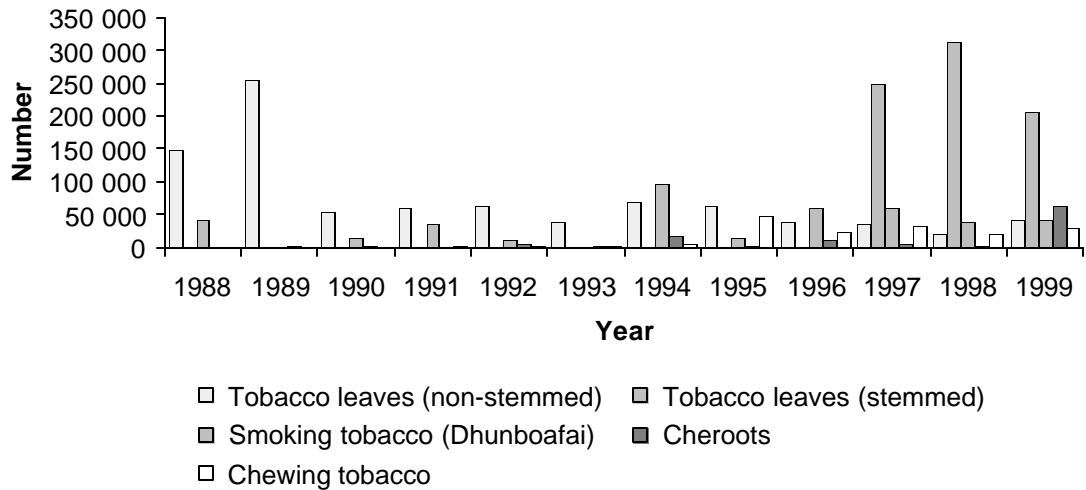
**Figure 2.1. Imports of cigarettes, Maldives, 1988–99**



**Figure 2.2. Imports of cigars, Maldives, 1988–99**



**Figure 2.3. Imports of other tobacco products, Maldives, 1988–99**

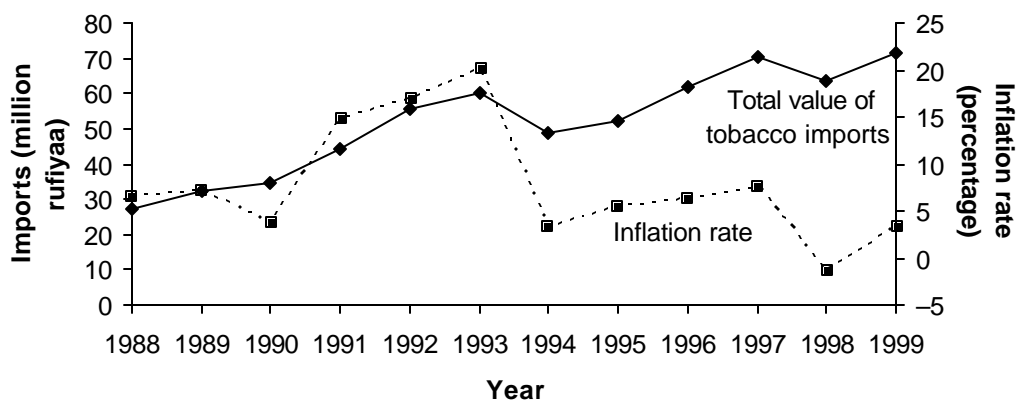


Source (Figures 2.1, 2.2 and 2.3): Maldives Customs Service



Import values have risen along with import volumes (Figures 2.1 through 2.4). Since 1994, inflation has been low, rising import values have been driven by volume increases.

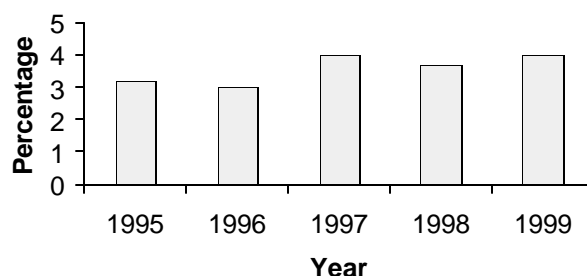
**Figure 2.4. Inflation and CIF value of tobacco products, Maldives, 1988–99**



Source: Ministry of Planning and National Development, and Customs Service.

The proportion of tobacco imports relative to food imports showed little variation between 1994 and 1999, varying between 3.2% and 4.0% with a period average of 3.6%, which seems relatively high (Figure 2.5).

**Figure 2.5. Tobacco imports as a percentage of imports of basic foodstuffs, Maldives, 1994–99**



Source: Maldives Customs Service

There are no specialist tobacco retail outlets in the country. Tobacco products are along with general merchandise. Nor are there specialist tobacco importers, or anyone employed specifically to handle tobacco imports or sales. So although retailers and importers derive some of their revenues from tobacco products, we cannot say that there is any direct employment in tobacco-related commercial activities, or jobs that would be lost if tobacco sales were to plummet.

There are anecdotes that suggest that some smuggling of tobacco products exists, but the Maldives Customs Service has reservations about this. The Ministry of Trade and

Industries discovered a small-scale smuggling operation at the Malé International Airport duty free store, on which the respective authorities now keep a close watch. One interesting point to note is that there is a self-surveillance mechanism intended to prevent smuggling. The cigarette importers are sole agents in the Maldives. To buy from the sole agents is cheaper than buying from a regional port and smuggling the goods into the country. And since all cigarette packs carry a batch number, which identifies where a batch is destined for, the local agents can straight away identify where the smuggled cigarettes arrived from and inform the law enforcement agencies. Due to the smallness of the Maldives it is relatively easy and cheap to monitor imports.

## 2.2 Manufacture of tobacco products

There is very little local tobacco production in the Maldives. *Bidis* are made in households on a very small scale across the country. No data are available on *bidi* makers because they do not require a manufacturer's licence from the Ministry of Trade and Industries. The Department of Public Health household survey (accounts) has a classification for *bidi* but we do not know whether it is inclusive of cheroots. There is also manufacture of tobacco for use with the hubble-bubble pipe (*hukkah*), but since the Maldives now imports such tobacco, domestic manufacture is decreasing. This is also a household industry and does not require a licence, and no data are available.

## 2.3 Tobacco control in the Maldives

The Maldives has a long history of tobacco control. A 1942 law published in the Government Gazette banned importation of tobacco and tobacco products. This law was passed to help ease financial and economic difficulties due to the Second World War. In addition to tobacco and tobacco products, the law banned the importation of sports equipment and jewellery. However, the law was repealed when socio-economic conditions recovered (Council for Linguistics and Research, 1992:61).

In 1947 the Government of the Maldives passed a second tobacco control bill.<sup>1</sup> It emphasized that the intention was to protect Maldivians from the risks caused by tobacco products. This bill predated the publication during the 1950s and 1960s of strong new evidence on the health implications of tobacco use and wider acceptance of the links between tobacco use and disease. The bill laid down some price control provisions and conditions under which import licences would be issued, and controlled the amount of tobacco imported. Furthermore, this bill banned smoking by all students and any Maldivian under the age of 17, and prohibited smoking in public (Tobacco Control Bill, 1947). In the early 1950s, during the First Republic, the Citizens' *majlis* (council) passed a bill banning tobacco and tobacco products. However, this bill is said to be one of the reasons for the fall of the first president of the Maldives and was later repealed.

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<sup>1</sup> Not a law, but was agreed on by the parliament and enforced for a period of time.

Tobacco control activities are still carried out vigorously. Although currently there is no law governing tobacco use and importation, a number of presidential decrees and government regulations have been passed. In 1984, advertising was banned in government media, and in 1994 a total ban on all forms of tobacco advertisement and promotion was imposed.

Smoking was banned in all health care facilities in 1993, and in all government buildings and educational institutions in 1994. Further initiatives were put in place in 1994: the president of the Maldives offered a trophy and a cash prize to islands that declare themselves smoke-free. Two islands have been declared smoke-free and recognized by the government. A third island declared itself smoke-free in 2000 but is yet to be officially recognized. In 1997, smoking was banned in all air-conditioned restaurants and inland vehicles, including taxis. In 1998 smoking was prohibited in all short-haul ferries within the country and all petroleum-operated speedboats. These regulations are not enforced with any vigilance. In spite of this leniency, these government initiatives have played an important role in tobacco control. Furthermore, in 1999, the government started to award certificates to households declaring themselves smoke-free.

The education sector plays an important role through the school health programme in creating awareness in schoolchildren and educating them on the dangers of smoking and tobacco use. In 2000, a large-scale school anti-tobacco programme was initiated by the education sector for the whole country. Good political commitment to that programme was also demonstrated by the presence of high-ranking government officials and a grand inauguration by the president.

There has also been community and private sector anti-tobacco actions. A private health service company, ADK Enterprises Pvt. Ltd., awards an annual financial reward of Rf25 000<sup>1</sup> to any individual or group of people who contribute significantly to tobacco control in the country. If the award goes to an individual, free medical services are also provided to that individual by ADK Hospital for a year. One of the tobacco-free islands in the country runs a quit-smoking programme that provides accommodation and food for people who come to the island to quit smoking. This island (Madifushi in Meemu Atoll) was given a WHO tobacco-free award in 2000.

### 3. PREVALENCE AND CONSUMPTION

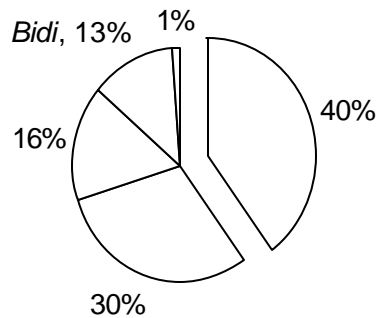
Tobacco is used in the form of *bidi*,<sup>2</sup> cigars and cigarettes, chewing tobacco (often with areca nuts) and in hubble-bubbles (Figure 3.1). Some people consume tobacco in more than one form. Cigarettes are the most common tobacco product, used by 65% of male smokers and 15% of female smokers (DPH, 1997).

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<sup>1</sup> The Maldivian currency unit is the rufiyaa, abbreviated Rf. 1 rufiyaa = 100 laari.

<sup>2</sup> This should not be confused with the Indian *bidi*, formally known as a cheroot. The Maldivian *bidi* is made of stemmed or unstemmed crushed tobacco hand-rolled in imported used printed newspaper strips.

**Figure 3.1. Tobacco users by type of tobacco, Maldives, 1997**

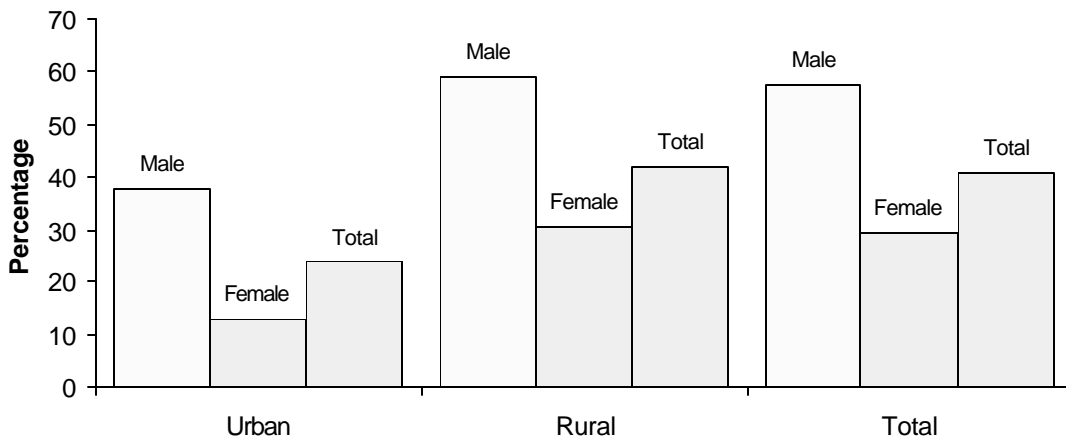


Source: DPH, 1977

### 3.1 Prevalence of tobacco use

A survey conducted in 1997 showed that 57% of males and 29% of females consumed some form of tobacco, and the smoking prevalence stood at 41% (DPH, 1997). There are more tobacco users in the island communities than in the capital. In the outer atolls 42% population are smokers while only 24% of the urban population smoke (DPH, 1997; Figure 3.2). About 13% of the urban female population and 31% of the rural female population smoke. Male tobacco users account for 37% and 59% of urban and rural communities respectively (DPH, 1997).

**Figure 3.2. Prevalence of tobacco use by sex and residence, Maldives, 1997**



Source: Department of Public Health survey, 1997

On average a male cigarette smoker consumes 14 cigarettes per day and a female smoker consumes 10 cigarettes per day (DPH, 1997). For *bidi* smokers, a male consumes on average 13 *bidi* per day and females consume about 10 *bidi* daily, and for cigar smokers the average daily consumption is 6 for males and 5 for females (DPH, 1997).

### 3.2 Annual consumption of cigarettes and other tobacco products

The annual number of cigarettes for each smoker in the Maldives ranges from 365 to 29,200 with a mean of 5,063 cigarettes per smoker. In the 15–29 year age group, 30% of the smokers consume 2,000–4,000 and 36% consume 6,000–8,000 cigarettes annually. The 30–49 year age group shows a similar pattern. The 50 years and older group consume fewer cigarettes than younger smokers, with 33% smoke fewer than 2000 cigarettes a year and 36% smoke 2,000–4,000 cigarettes per year (DPH, 1997). Overall, 31% of smokers consume 2,000–4,000 cigarettes and 34% consume 6,000–8,000 cigarettes annually, 10% consume 4,000–6,000 cigarettes (DPH, 1997; Figure 3.3).

Annual *bidi* consumption by age group shows a similar trend to that of cigarettes. Among *bidi* smokers the mean number of *bidi* consumed per smoker per year is 4,562 with a range of 365 to 21,900 annually. In the 15–29 year age group 23% of smokers consume fewer than 2,000 *bidi* a year and 32% consume 2,000–4,000 *bidi* a year. In the 30–49 year age group the largest number of smokers (36%) consumes 2,000–4,000 *bidi* a year. Similarly in the 50 years and above age group the largest number (39%) of *bidi* smokers consumes 2,000–4,000 *bidi* a year (Figure 3.4).

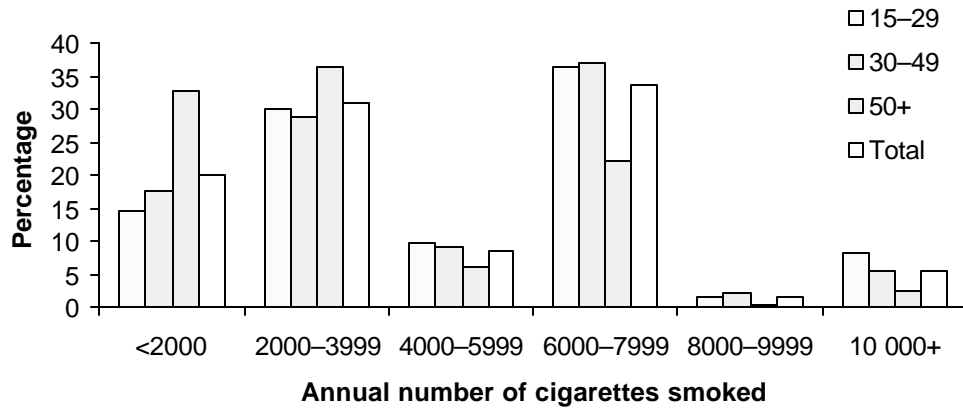
In the case of cigar smokers, the mean number of cigars smoked per year is 1,908 (Figure 3.5). A majority of smokers in all age groups smoke fewer than 2,000 cigars a year.

Females tend to consume fewer cigarettes annually than men (Figure 3.6). Most females consume fewer than 4,000 cigarettes a year, with 37% smoking fewer than 2,000 cigarettes a year and another 37% smoking 2,000–4,000 cigarettes a year. Among male cigarette smokers, 36% consume 6,000–8,000 cigarettes a year and 30% between 2,000 and 4,000 cigarettes a year. The mean number of cigarettes consumed by a male smoker annually is 5,261 compared to 3,572 cigarettes consumed annually by women on average.

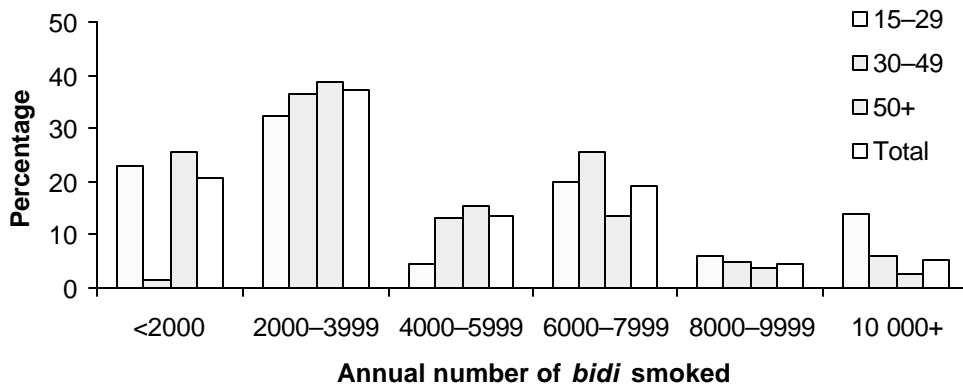
As with cigarettes, females consume fewer *bidi* per year (Figure 3.7). The mean number of *bidi* consumed by a female smoker per year is 3,506 while males consume on average 4,891 *bidi* per year per smoker. However, the highest number of both male and female *bidi* smokers consumes 2,000–4,000 *bidi* per year per smoker, 35% of male *bidi* smokers and 46% of female *bidi* smokers.

The same gender pattern is seen for cigar consumption. Most smokers (72% of males and 76% of females) consume fewer than 2,000 cigars a year (Figure 3.8). No female smoker consumes more than 4,000 cigars a year. On average each male cigar smoker consumes 2,099 cigars and each female 1,664 cigars annually.

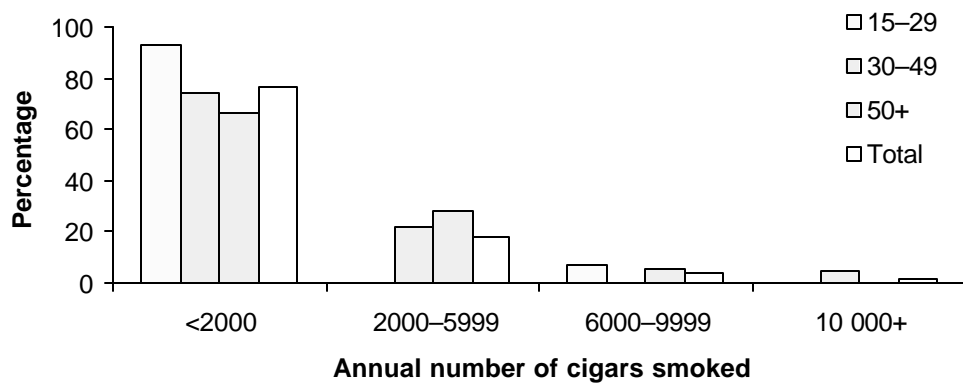
**Figure 3.3. Annual cigarette consumption by age, Maldives, 1997**



**Figure 3.4. Annual *bidi* consumption by age, Maldives, 1997**

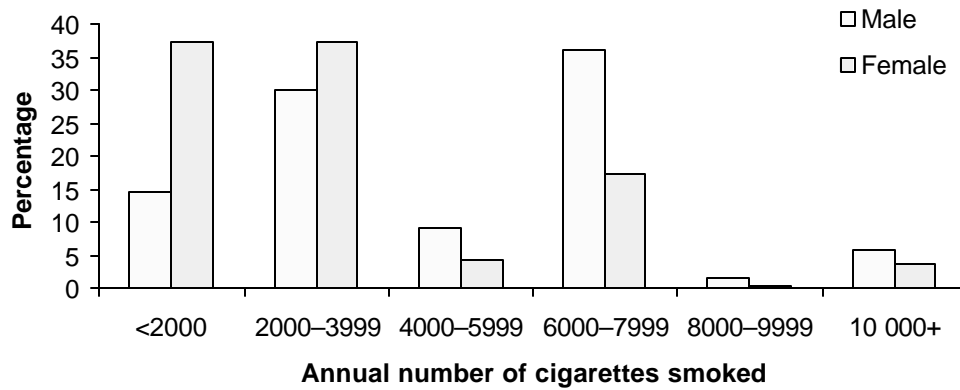


**Figure 3.5. Annual cigar consumption by age, Maldives, 1997**

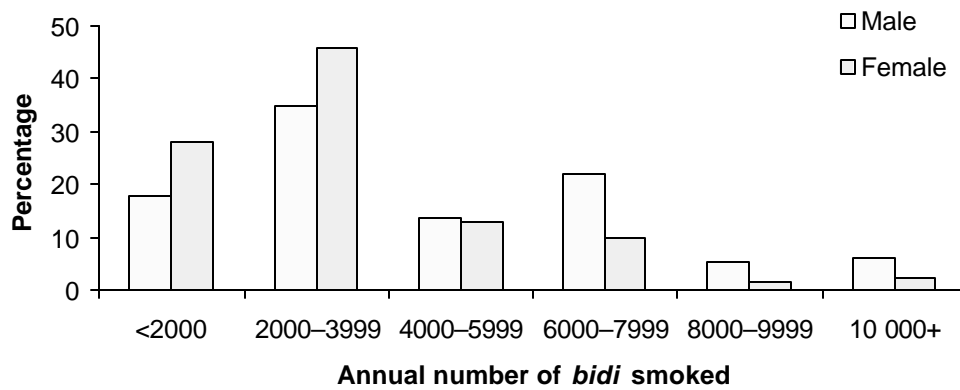


Source (Figures 3.3, 3.4 and 3.5): Department of Public Health survey, 1997

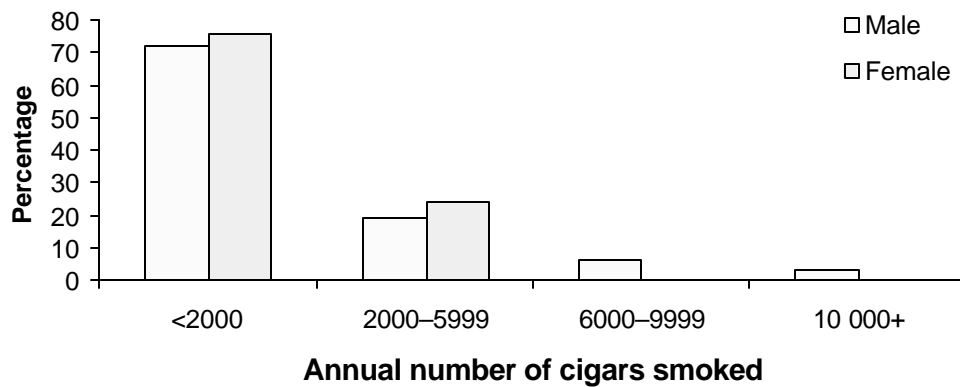
**Figure 3.6. Annual cigarette consumption by sex, Maldives, 1997**



**Figure 3.7. Annual *bidi* consumption by sex, Maldives, 1997**



**Figure 3.8. Annual cigar consumption by sex, Maldives, 1997**



Source (Figures 3.6, 3.7 and 3.8): Department of Public Health survey, 1997

The 1997 smoking prevalence survey did not collect any data on income levels of respondents. Thus it was not possible to calculate the relationship between income and expenditure on tobacco from this survey. An attempt was made to use the income data collected in the Vulnerability and Poverty Assessment (VPA) survey of 1997 to determine the relationship between expenditure on smoking and income. It was not possible to match the household codes used in the two surveys. The best that could be done was to map the survey data at island level. However, there was no relationship between average monthly household income for each island (calculated from the VPA) and average household expenditure on tobacco for each island (Appendix 2 shows the results). Household level analysis is needed to explore the relationship between income and tobacco expenditures.

## **4. PRICES, TAXES, AND GOVERNMENT REVENUES**

### **4.1 Cigarette prices**

It was extremely difficult to compile data on retail and wholesale prices for tobacco products imported into the Maldives. The importers of tobacco products were reluctant to disclose their prices because they claimed that price disclosure would be detrimental to their business. One importer claimed that government tariff policy<sup>1</sup> is based on studies of this nature and would not cooperate, but noted that trade in tobacco made up a very small proportion of his overall business. Some importers said they did not keep price data.

Price data were available from the Ministry of Planning and National Development (MPND) for Marlboro cigarettes, which was collected for compiling the CPI. Figure 4.1 shows the monthly price per pack of 20 Marlboro from December 1997 to January 2001. From January 1998 to February 1999 price was steady at Rf 13, came down to Rf 12 around April 1999, rose back to Rf 13 by August 1999 and stabilized until the month before the new unit tax on cigarette was implemented in May 2000, when the price rose to Rf 15 and continued to rise. In October 2000 the price reached Fr 16, in December 2000 the price per pack of Marlboro went up to Rf 18, then Rf 20, by January 2001 it had reached Rf 25 and then later came down to Rf 18. With some brief exceptions, the inflation rate has been very low in the Maldives, so real prices move in fairly close parallel with nominal prices, but are less “smooth”, mirroring small CPI fluctuations.

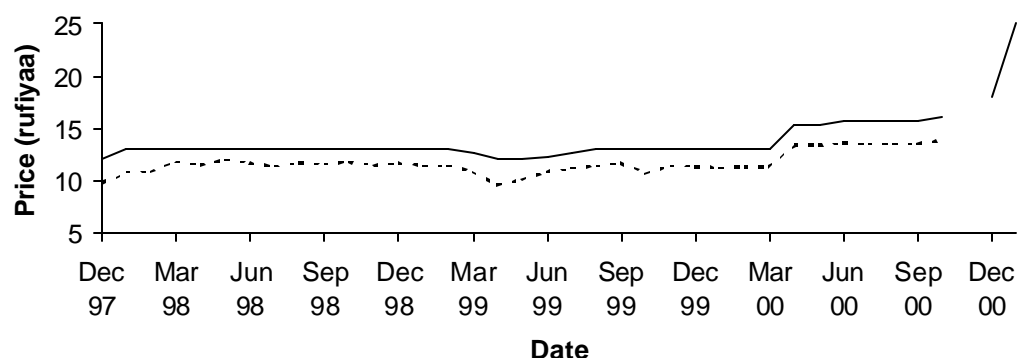
In the current consumption basket of a representative consumer in the capital Malé, cigarettes are in ninth position, which is a higher than essential items like fresh fruits and vegetables. This implies that the average Maldivian consumer devotes a considerable percentage of their average expenditure to tobacco products.

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<sup>1</sup> They referred to the recent change in the tariff structure for tobacco products.



**Figure 4.1. Marlboro real and nominal prices (packet of 20), Maldives, 1997–2000**



Source: Ministry of Planning and National Development

## 4.2 Taxation on tobacco products

The only direct levy on tobacco products used to be import duty. This duty was levied at a rate of 50% of CIF value of all imported tobacco products. However, on 29 May 2000, there was an amendment<sup>1</sup> to the legislation on the tariff structure for all imported goods. The import duty that had been levied as a proportion of CIF value was discontinued, and a unit tax was introduced of 30 laari<sup>2</sup> per manufactured cigarette, regardless of the type or brand. For other tobacco products the tariff was unchanged at 50% of their CIF value.

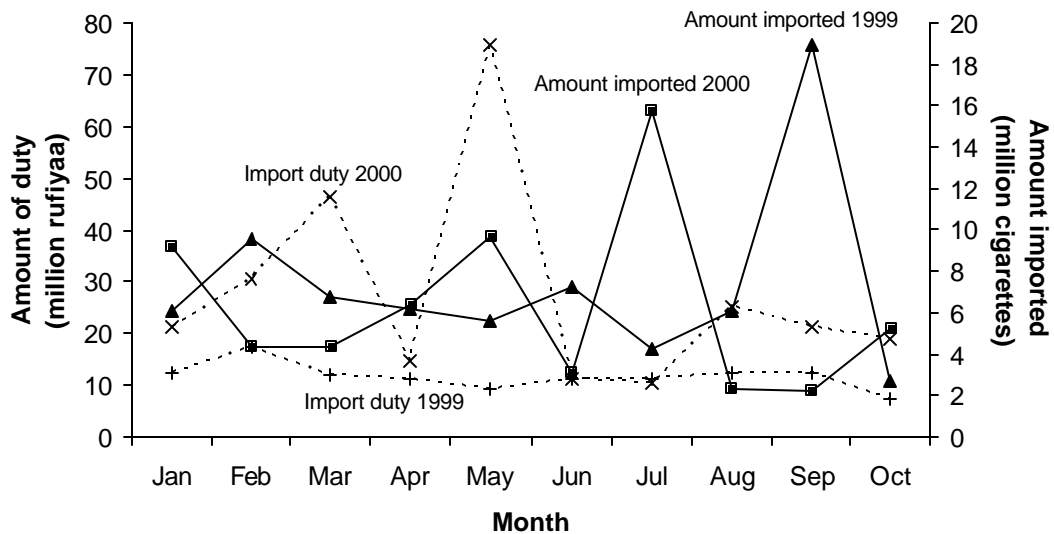
The apparent objective behind changing the cigarette tariff from an “ad valorem” to a “specific” or unit tax on cigarettes sticks was to eliminate trade in low-quality cheap cigarettes. About ten years ago in the Maldives there were three brands of cigarette: Marlboro Lights, Marlboro Red and Benson & Hedges. These are known as high-end (in terms of value) cigarettes, and average price per pack has been Rf 12. During the period under review, there was an influx of low-end (low-quality and cheap) cigarettes into the country with an average price per pack of Rf 6.

Price competition intensified, and consumers switched to cheaper brands. This increased demand and hence the amount of cigarettes imported. When the unit tax was imposed, the price difference between the high-end and low-end cigarettes narrowed substantially. The anticipated consumer behaviour is that the average cigarette price would be higher, and the smaller price differential would result in some consumers switching back to the high-end cigarettes. The overall effect was positive for revenues and public health: between January and October 1999 and the same period in 2000 cigarette imports dropped by more than 28% while revenue from import duty increased by over 50% (Figure 4.2, also see Appendix 1, Table A1).

<sup>1</sup> This amendment changed the rate of duty on cigarettes but not other imported tobacco products.

<sup>2</sup> 100 laari = 1 rufiyaa.

**Figure 4.2. Import duty on cigarettes and imports of cigarettes, Maldives, 1999–2000**



Source: Customs Service

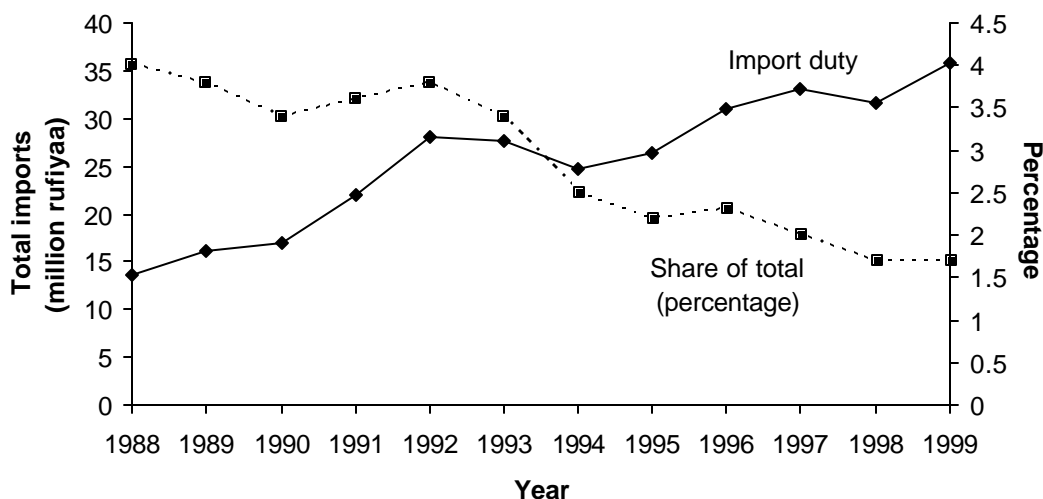
There is a caveat. Some people believe that cheap cigarettes are more harmful to health than expensive ones. However, the evidence does not generally support this belief. The most expensive cigarettes are also highly dangerous to health. There is a serious disadvantage to a specific tax: it is steadily eroded by inflation. Specific tax rates need to be adjusted regularly by at least the rate of inflation, and by a larger percent, if the government wishes to discourage cigarette consumption.

### 4.3 Trends in government revenue

In recent years the Maldivian economy has experienced rapid economic growth. There have been significant increases in government spending and in government revenue. The major sources of government finances are the tourism sector and import duty. Tourism averaged nearly 30% of all government revenue receipts and import duties accounted for nearly 25% on average over the study period.

There has not been any significant change in the government revenue base. The increase in revenue has been related to increases in the volume of imports and rapid expansion of the tourism industry. Despite the increase in government revenue from import duties on tobacco products from about Rf 14 million in 1988 to nearly Rf 35 million in 1999, tobacco revenues have fallen rapidly as a share of all import revenues from around 4% to below 2% (Figure 4.3).

**Figure 4.3. Total import duty on tobacco products and as a percentage of total import duty receipts, Maldives, 1989–1998**



Source: Customs Service

## 5. POLICY RECOMMENDATIONS

Tobacco prevalence is high in the Maldives with about 24% of females and 57% of males being tobacco users. Diseases for which tobacco use is a key risk factor figure prominently among the top causes of death in the Maldives. There is no tobacco agriculture in the Maldives and only a minute tobacco manufacture operation exists. Tobacco trade drains around US\$ 5 million annually from the trade balance. In the light of these considerations, more could be done to reduce tobacco use.

### Price increases

Smokers are responsive to changes in price. Hence it is recommended that there be an annual increase in tobacco prices. The World Health Organization recommends an annual 5% increase in the real price of tobacco products. Furthermore, since the Maldives imports almost all tobacco and tobacco products, it is easy to administer a comprehensive taxation mechanism. Tax increases should apply to all tobacco products. In addition, on top of the current customs duty levied on tobacco products, the Maldives should consider introducing an ad valorem excise tax in order to sustain increased tobacco prices.

It is often argued that large cigarette price increases will lead to rampant smuggling and a large black market will emerge. The argument is based on the hypothesis that large tax increases will produce large differences in prices between the Maldives and other regional economies, which will create opportunities for large profits from illicit trade in cigarettes. In fact, these predictions usually turn out to be gross exaggerations. However, it is true that larger tax and price differentials provide a stronger incentive and

opportunity for smuggling. Therefore, the authorities should enhance coordination and strengthen effective surveillance at all ports of entry to minimize trade in smuggled cigarettes. In this regard, the government should consider a licensing mechanism for tobacco importers and retailers in order to keep track of tobacco trade. In addition such a system would have an indirect bearing on tobacco price increases, especially in a validated system with an applied licensing fee.

### **Tobacco control measures (non-price)**

The tobacco control measures in the Maldives are quite comprehensive. However, there is a need to consolidate these measures and formulate a comprehensive tobacco control law in the country. This would enhance surveillance and enforcement issues that hinder the current programme and also will lay a foundation for the ratification of the Framework Convention on Tobacco Control. Furthermore, the National Tobacco Control Committee needs to be revamped to play a more active role in tobacco control.

The government should implement a proper smoking cessation programme, which is currently lacking. For instance, young people who want to quit could be organized into support groups. Using such gatherings, a fact-finding mission could be launched to make a comprehensive situation analysis and identify what steps could be taken to implement a participatory cessation programme. In such an organized gathering, counselling could be offered and nicotine substitutes could be given out. It is important that an evaluation of such programmes should be done.

Information, education and communication programmes need further innovation and strengthening. Information, education and communication programmes on tobacco control can be integrated into lifestyle disease control programmes.

### **Research and surveillance**

It is recommended that an assessment of smoking prevalence in the Maldives be done regularly, say every five years. For instance, existing household income and expenditure surveys should include a category on smoking prevalence and expenditure. This would allow detailed understanding of smoking prevalence in relation to income and other relevant factors, and be useful in refining programmes to encourage smokers to quit. Expenditures on smoking can affect the well-being of households in important ways – they divert income from other expenditures, and tobacco use raises the risk of illness and premature death, which can have serious consequences for the household. Better and regular survey data would also allow these impacts to be monitored.

The government should also improve routinely gathered data systems such as the cancer registry and lifestyle-related disease statistics so that the smoking-attributed burden of disease can be better understood. The government should also consider revising death certificates to include smoking status in order to enhance future research.



## APPENDICES

### 1. Volume and composition of tobacco imports and import duty, 1988-1999

Volume of total composition of tobacco imports (1988–1999)							
Year	Cigarettes (No.)	Cigars (No.)	Tobacco leaves (non- stemmed) (kg)	Tobacco leaves (stemmed) (No.)	Smoking tobacco (Dhunboafai) (kg)	Cheroots (kg)	Chewing tobacco (kg)
1988	442 767 850	577 375	146 515	–	41 300	–	–
1989	193 932 848	1 138 950	255 016	–	–	25 000	–
1990	252 057 158	1 027 750	54 452	–	1 523	25 100	–
1991	188 857 014	1 117 162	61 024	–	4025	200	17
1992	190 499 540	296 015	64 244	–	29	945	15
1993	245 111 976	4 871 247	37 155	–	–	150 000	15
1994	178 330 252	4 557	70 132	–	9 100	63 284	45
1995	231 730 658	160 454	62 573	–	1 600	85 000	4845
1996	273 542 911	143 422	37 650	–	4815	286 178	100
1997	334 580 980	4 993 920	33 893	24 041	4959	144 080	245
1998	290 172 380	377 091	19 343	25 717	3 995	68 347	90
1999	338 124 350	2 4426	42 687	18 860	4180	834 845	180

CIF value (rufiyaa) of total composition of tobacco imports 1988–1999													
Year	Cigarettes		Cigars		Tobacco leaves (non- stemmed)		Tobacco leaves (stemmed)		Smoking tobacco (Dhunboafai)		Cheroots		Chewing tobacco
1988	26 566 071	97.2	577 375	2.1	146 515	0.5	–	–	42 330	0.2	–	–	–
1989	31 196 229	95.7	1 138 950	3.5	255 016	0.8	–	–	–	–	1 435	0.0	–
1990	33 606 077	96.8	1 027 750	3.0	54 452	0.2	–	–	13 985	0.0	1 657	0.0	–
1991	43 024 133	97.3	1 117 162	2.5	61 024	0.1	–	–	36 114	0.1	41	0.0	1979
1992	55 272 719	99.3	296 015	0.5	64 244	0.1	–	–	10 969	0.0	4 777	0.0	1779
1993	55 035 701	91.8	4 871 247	8.1	37 155	0.1	–	–	–	–	512	0.0	2398
1994	48 467 409	99.6	4 557	0.0	70 132	0.1	–	–	97 423	0.2	15 836	0.0	5209
1995	51 790 721	99.4	160 454	0.3	62 573	0.1	–	–	14 126	0.0	2 602	0.0	48 217
1996	61 394 026	99.6	143 422	0.2	37 650	0.1	–	–	58 525	0.1	9 251	0.0	22 855
1997	65 246 080	92.4	4 993920	7.1	33893	0.0	250 462	0.4	59 739	0.1	5 298	0.0	32 241
1998	62 575 670	98.8	3 77 091	0.6	19 343	0.0	311 830	0.5	38 185	0.1	1 977	0.0	19 740
1999	7 0843 706	99.4	24 426	0.0	4 2687	0.1	207 199	0.3	42 123	0.1	64 269	0.1	28 532
	<b>97.3</b>		<b>2.3</b>		<b>0.2</b>		<b>0.1</b>		<b>0.1</b>		<b>0.1</b>		<b>0.0</b>

Source: Maldives Customs Service

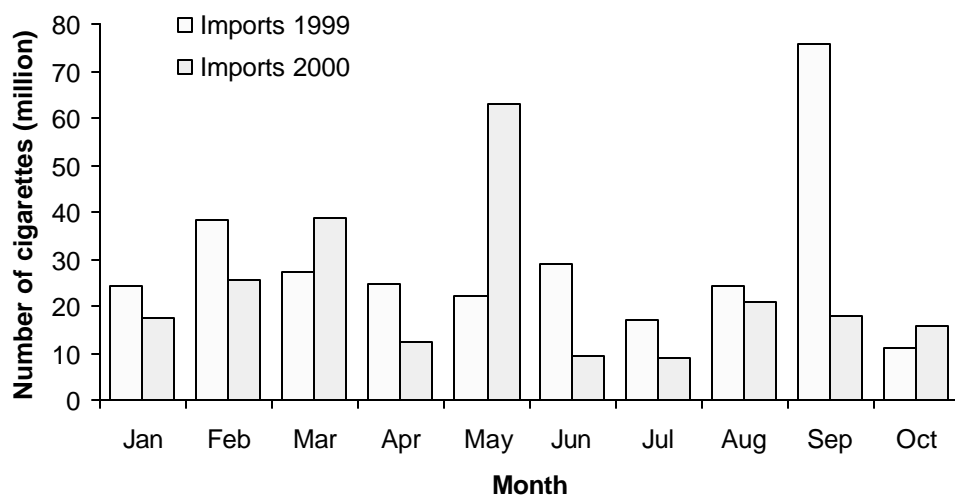
**Total import duty receipts from tobacco imports 1988–1999**

Year	Cigarettes	Cigars	Tobacco leaves (non-stemmed)	Tobacco leaves (stemmed)	Smoking tobacco (Dhunboafai)	Cheroots	Chewing tobacco
1988	13 283 036	2 349.85	357 423.50	–	21 165.00	–	–
1989	15 598 114	16 690.36	566 952.05	–	–	717.50	–
1990	16 803 038	11 230.26	112 302.62	–	6 992.69	828.50	–
1991	21 512 067	8 816.20	410 092.00	–	18 057.00	20.50	989.50
1992	27 636 359	3 176.15	389 856.10	–	5 484.43	2 388.50	889.33
1993	27 517 850	34 994.45	183 335.94	–	–	255.80	1 199.23
1994	24 233 705	787.50	402 992.24	–	48 711.34	7 917.78	2 604.64
1995	25 895 360	1 101.43	333 349.29	–	7 063.00	1 300.85	24 108.50
1996	30 697 013	6 768.98	209 712.45	–	29 262.56	4 625.59	11 427.46
1997	32 623 040	24 944.61	177 787.09	125 231.15	29 869.53	2 649.14	16 120.50
1998	31 287 835	6 453.34	104 586.89	155 914.84	19 092.67	988.59	9 870.00
1999	35 421 853	15 268.23	230 485.79	103 599.58	21 061.50	32 134.72	14 265.97

Source: Maldives Customs Service

Figure A1 shows cigarette imports in 1999 and 2000. There are two main outliers. This was due to speculation in anticipation of an amendment to cigarette duty in the import/export legislation. It was supposed to be implemented on 1 January 2000, but was delayed until May 2000 for various reasons. The same reason explains the September 1999 peak as the first speculation began during this period and also the low imports from October 1999 to about January 2000. Prior to the effective date of legislation importers had brought their shipments onshore to make the maximum return on capital employed and avoid the higher duties.

**Figure A1. Imports of cigarettes, Maldives, 1999–2000**



Source: Maldives Customs Service

## 2. Analysis of Island-level income and expenditure data

The analysis at island level did not show any relationship between average island income and average island expenditures per household on tobacco. The sample correlation coefficient ( $r$ ) between income and cigarette consumption was 0.041. Similarly, for *bidi* and cigar consumption, no relationship was found. The sample correlation coefficients for *bidi* and cigar consumption against income were  $r = 0.105$  and  $-0.093$  respectively (the closer to 0  $r$  is, the less likely any correlation, positive or negative). Table A2 shows the details of the regression analysis for income against tobacco consumption.

**Table A2. Correlation between tobacco consumption and income**

Pearson correlation coefficient ( $r$ )	cigarette	0.041
	<i>bidi</i>	0.105
	cigar	-0.093
Significance (1-tailed)	cigarette	0.038
	<i>bidi</i>	0.007
	cigar	0.26
$N$ (number of households)	cigarette	1890
	<i>bidi</i>	549
	cigar	50

Source: VPA, 1997; DPH, 1997.



### 3. Monthly national data

Date	Variable												
	Price	CPI	Money stock million Rf (Y)	Million packs	CIF (million Rf)	Real CIF	Real price	Real Y	Ln packs	Ln CIF	Ln RCIF	Ln Rp	Ln RY
Dec 97	12.00	122.75	1195.43	13.72	3.35	27.31	0.10	68.47	2.62	1.21	3.31	-2.33	4.23
Jan 98	12.33	114.86	1197.06	67.67	6.43	55.95	0.11	70.10	4.21	1.86	4.02	-2.23	4.25
Feb 98	13.00	120.41	1190.87	23.00	4.81	39.93	0.11	66.53	3.14	1.57	3.69	-2.23	4.20
Mar 98	13.00	109.99	1232.54	18.20	4.56	41.44	0.12	75.38	2.90	1.52	3.72	-2.14	4.32
Apr 98	13.00	113.08	1254.84	23.49	6.52	57.68	0.11	74.65	3.16	1.88	4.05	-2.16	4.31
May 98	13.00	108.26	1291.35	17.90	4.34	40.12	0.12	80.24	2.88	1.47	3.69	-2.12	4.38
Jun 98	13.00	111.41	1315.59	18.64	4.45	39.93	0.12	79.43	2.93	1.49	3.69	-2.15	4.37
Jul 98	13.00	114.75	1313.37	38.20	6.77	58.98	0.11	76.99	3.64	1.91	4.08	-2.18	4.34
Aug 98	13.00	111.13	1298.93	18.76	5.23	47.04	0.12	78.62	2.93	1.65	3.85	-2.15	4.36
Sep 98	13.00	112.21	1309.09	23.45	5.24	46.66	0.12	78.48	3.15	1.66	3.84	-2.16	4.36
Oct 98	13.00	110.54	1345.23	17.19	4.61	41.70	0.12	81.86	2.84	1.53	3.73	-2.14	4.41
Nov 98	13.00	113.63	1411.73	17.02	6.20	54.52	0.11	83.57	2.83	1.82	4.00	-2.17	4.43
Dec 98	13.00	111.29	1384.24	6.66	3.43	30.83	0.12	83.67	1.90	1.23	3.43	-2.15	4.43
Jan 99	13.00	113.81	1410.73	24.16	6.25	54.95	0.11	79.73	3.18	1.83	4.01	-2.17	4.38
Feb 99	13.00	113.55	1479.99	38.44	8.75	77.09	0.11	83.83	3.65	2.17	4.34	-2.17	4.43
Mar 99	12.67	117.30	1494.49	27.11	5.95	50.77	0.11	81.95	3.30	1.78	3.93	-2.23	4.41
Apr 99	12.00	125.51	1526.72	24.71	5.66	45.08	0.10	78.24	3.21	1.73	3.81	-2.35	4.36
May 99	12.00	118.83	1552.33	22.32	4.60	38.69	0.10	84.02	3.11	1.53	3.66	-2.29	4.43
Jun 99	12.33	113.62	1618.09	28.85	5.70	50.16	0.11	91.60	3.36	1.74	3.92	-2.22	4.52
Jul 99	12.67	113.49	1645.96	16.85	5.63	49.65	0.11	93.28	2.82	1.73	3.90	-2.19	4.54
Aug 99	13.00	113.97	1644.59	24.35	6.22	54.58	0.11	92.81	3.19	1.83	4.00	-2.17	4.53
Sep 99	13.00	111.53	1653.39	75.93	6.21	55.70	0.12	95.35	4.33	1.83	4.02	-2.15	4.56
Oct 99	13.00	121.50	1611.58	11.00	3.62	29.78	0.11	85.31	2.40	1.29	3.39	-2.23	4.45
Nov 99	13.00	113.56	1624.24	36.62	6.97	61.42	0.11	92.00	3.60	1.94	4.12	-2.17	4.52
Dec 99	13.00	115.02	1585.19	17.28	5.27	45.79	0.11	88.65	2.85	1.66	3.82	-2.18	4.48
Jan 00	13.00	115.70	1614.76	17.56	4.37	37.76	0.11	85.85	2.87	1.47	3.63	-2.19	4.45
Feb 00	13.00	115.50	1671.30	25.49	5.46	47.28	0.11	89.01	3.24	1.70	3.86	-2.18	4.49
Mar 00	13.00	115.00	1642.40	38.71	9.82	85.42	0.11	87.85	3.66	2.28	4.45	-2.18	4.48
Apr 00	15.33	114.40	1679.00	12.29	1.36	11.92	0.13	90.28	2.51	0.31	2.48	-2.01	4.50
May 00	15.33	114.70	1755.16	63.10	11.80	102.86	0.13	94.13	4.14	2.47	4.63	-2.01	4.54
Jun 00	15.67	115.50	1789.29	9.20	1.78	15.38	0.14	95.30	2.22	0.57	2.73	-2.00	4.56
Jul 00	15.67	115.70	1769.92	8.81	2.98	25.77	0.14	94.10	2.18	1.09	3.25	-2.00	4.54
Aug 00	15.67	115.80	1729.40	20.98	4.63	39.94	0.14	91.87	3.04	1.53	3.69	-2.00	4.52
Sep 00	15.67	115.90	1734.95	17.66	4.07	35.14	0.14	92.08	2.87	1.40	3.56	-2.00	4.52
Oct 00	16.00	115.30	1766.19	15.63	4.13	35.82	0.14	94.23	2.75	1.42	3.58	-1.97	4.55

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