



*Sakari Kainulainen & Sami Kivelä (eds.)*

**I Will Never Smoke!**  
Results of Anti-tobacco Teaching and Intervention in  
Schools in Nepal

**Sakari Kainulainen & Sami Kivelä**

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**Diakonia-ammattikorkeakoulu  
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## **ABSTRACT**

**Kainulainen Sakari  
Kivelä Sami (eds.)**

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Tobacco use is a major risk factor behind non-communicable diseases and premature deaths. Health education is one way to decrease the prevalence of non-communicable diseases, and school-level interventions have yielded promising results in various countries. Health Education and Tobacco Intervention Program (HETIP) has been carried out in Nepal in 2001–2012. The nationwide project has reached hundreds of public schools and hundreds of thousands of people in two thirds of all the 75 districts in Nepal. It has been organized by Scheer Memorial Hospital of Seventh-day Adventists in Banepa, Kavre, with the help of ETRA Association in Finland. The project has been largely funded by the Ministry for Foreign Affairs in Finland. The present publication discusses tobacco use in Nepal and evaluates the outcome of the project.

After the introduction by Sami Kivelä the first article written by Heikki Hiilamo presents the strategies of the global tobacco industry and key measures and challenges for tobacco control in Nepal. The second article by Radha Devi Bangdel gives an overview of the health situation in Nepal and recent developments in health policy. Aune Greggas then reveals the history, context and statistics of the Health Education and Tobacco Intervention Program, followed by Sundar Thapa's article on the actual implementation and working methods of the program. The concluding two articles present the project evaluation carried out by Sami Kivelä and Sakari Kainulainen at Diaconia University of Applied Sciences in Finland. The evaluation consists of qualitative and quantitative data.

An intensive course for higher education students was held in Nepal in 2011 as a means for project evaluation. Over 30 Nepalese community schools were visited in the Central Development Region, and extensive data were collected by an international team of researchers and assistants, to be supplemented with later data from the Terai region. A VIP seminar was held in 2012 to enhance the capacity of policy makers in tobacco control.

The results show that the HETIP intervention has succeeded as a preventive tool and in helping to give up the use of tobacco. Secondary school students as well as staff members have often found the program personally beneficial. Furthermore, it has created positive attitudes in the community and in some cases shaped the curriculum. It may be worthwhile to consider separate anti-tobacco programs for male and female students in the future. As such the HETIP program has been competent and efficient in complementing the promotive and preventive health education given by various interest groups in Nepal.

**Keywords:**

Anti-tobacco work; Health education; Intervention; Nepal; Secondary education; Smoking; Tobacco use

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## Evaluating an anti-tobacco intervention

### Aim of the report

The Health Education & Tobacco Intervention Program (HETIP) has been carried out in Nepal during 2001-2012. The aim of the program has been to raise awareness of smoking-related health hazards in Nepalese schools (HETIP evaluation plan 2010). HETIP has been carried out as a project largely funded by the Ministry for Foreign Affairs in Finland, and the present publication will discuss and evaluate the outcome of the project.

The external evaluation team consists of staff members at Diaconia University of Applied Sciences, Finland. The team has worked in cooperation with HETIP project members, especially the project secretary, Aune Greggag, who has provided essential background information and necessary contacts to Nepal. The HETIP team itself has been active in recording, systemizing and evaluating their activities during the years, and the evaluation team has benefited from this information. However, the team has maintained its impartiality as an external actor in its choices and assessments.

Instead of a full-scale project evaluation this publication is a review of the results of the program. Nevertheless the articles have been constructed keeping in mind the requirements of the Ministry for Foreign Affairs in Finland. The ministry follows evaluation guidelines set by OECD's Development Assistance Committee (DAC) and its Expert Group on Aid Evaluation (GPDME 2007, 39). According to OECD/DAC,

*[...] an evaluation is an assessment, as systematic and objective as possible, of an on-going or completed project, programme or policy, its design, implementation and results. The aim is to determine the relevance and fulfillment of objectives, developmental efficiency, effectiveness, impact and sustainability.*

DAC also emphasizes the impartiality of the evaluation process. The provided information needs to be useful and credible, and the evaluation should yield results that can be incorporated in the decision-making process of partner countries as well as donors.

This report acknowledges the following perspectives regarding the HETIP project:

- *Relevance:* Does the project make sense within the context of its environment?
- *Impact:* What has happened (or is likely to happen) as a consequence of the project?



- *Effectiveness*: To what extent has (or is likely to be) the project purpose been achieved, and to what extent is the achievement the result of the project?
- *Efficiency*: Does the quantity and quality of the results of the project justify the quantity and quality of the means used for achieving them?
- *Sustainability*: What has happened (or is likely to happen) to the positive effects of the project after the external assistance has (or will) come to an end?

These perspectives form a background for reflection and final analysis. However, the evaluation team has focused on the results of the program. Furthermore, this publication will shed light on the progress that has been deemed valuable in developing international cooperation between institutions of higher education. For example, a two-week intensive course has been applied as a medium for carrying out the evaluation.

## **Building a partnership for education and evaluation**

The link between ETRA Association (ETRA-liitto ry) and Diaconia University of Applied Sciences (Diak) was established in Nepal in 2009. Dr. Heikki Hiilamo, then Head of the Diak South Unit, and Senior Executive Officer Sundar Thapa from Scheer Memorial Hospital, the local partner of ETRA Association, shared an interest in the effects of smoking and tobacco use on health and wellbeing, and an initial agreement for cooperation was made. The plan for the sub-project was outlined in the paper "Capacity building for health promotion and tobacco control in Nepal" written by Dr. Hiilamo (Hiilamo 2009). The overall objective was "to enhance the capacity of social work and health sector professionals and health policy decision makers in tobacco control." The sub-project also aimed "to develop consensus and political commitment for tobacco control in the country." The role of Diaconia University of Applied Sciences was agreed to include these elements:

- Educating the nursing and social work educators
- Educating tobacco control decision makers
- Evaluation of previous ETRA projects

It was seen that Diaconia University of Applied Sciences (henceforth Diak) has both national and international expertise in the field of social work and health care education. In Nepal, Diak has a long-lasting relationship with Lalitpur Nursing Campus (LNC – affiliated to Tribhuvan University) and St. Xavier's College, both being providers of high-quality education in their respective fields and having good international contacts (e.g. the North-South-South program with partners from Vietnam and Finland). Finnish Diak stu-

dents have for years done their practical placement in Nepalese hospitals and social welfare centers and the two educational institutions have provided sound academic support. The goal for this training session was to further educate the local future health and welfare professionals about the complex world around the use of tobacco and to render the subject more visible in their curriculum, thus building the local capacity in the promotion of health and welfare. Education is by any means a major component in health promotion (Green & Tones 2010, 354; Groot & Maassen van der Brink 2006), and developments in vocational training carry many positive long-lasting effects.

A VIP seminar was also planned to inform local decision makers – politicians, ministry officials and journalists – about the implementation of tobacco control legislation in Nepal. It was known that Nepal had signed the WHO FCTC treaty, but at the time its implementation still presented many problems, as the articles in this publication reveal. Later, it was also decided that this seminar would serve as the publication event for the evaluation of the HETIP program.

The HETIP project requires objective long-term evaluation. This was explicated by the Ministry for Foreign Affairs, the financial sponsor for the project during 1999, 2001–2003, 2004–2006, 2007–2009 and 2010–2012. Initially it was planned that the evaluation of the long-term effects could be carried out as thesis work by Diak students, but since this was not seen as sufficient, a higher-profile evaluation team was assembled.

After Heikki Hiilamo took the position of research professor in the Social Insurance Institution of Finland (Kela), the core of the project team at Diak was formed of Dr. Sakari Kainulainen, Director of Research, and Mr. Sami Kivelä, lecturer at Diak South. Dr. Kainulainen had good experiences of similar joint activities in e.g. Swaziland, where a model for the spring 2011 intensive period in Nepal was first shaped. Mr. Kivelä had made his Master's thesis on the cultures and religions of Kathmandu, had voluntary work experience with Nepalese street children and currently worked in other ways with Nepalese students in Finland. Another key figure in the sub-project was lecturer and international coordinator Mr. Kyösti Voima, who had extensive international experience from different continents and would facilitate many things during the process.

## **Structure of the publication**

Chapter one by Heikki Hiilamo gives an outline of the global tobacco industry and its strategies, the prevalence of smoking in Nepal and measures taken to curtail the use of tobacco. Hiilamo also introduces the key stakehol-

ders in tobacco control and presents major challenges for the future. Next Radha Devi Bangdel, Campus Chief at Lalitpur Nursing Campus, sheds light on the general health situation in Nepal, providing information on child and family health, diseases, morbidity, mortality and policy development. She concludes by discussing why the situation has not improved as expected despite the effort.

The two next chapters are written by key members of the HETIP program. Project secretary Aune Greggass from ETRA Association (ETRA-liitto ry), a Finnish temperance association, has overseen the project from its inception. She reveals the history behind HETIP; first by sharing past experiences of temperance work in Finland and then by giving an idea about the first steps of this program. The accomplishments are put into a larger context by examining previous findings on the smoking habits of students in Nepal, and finally she presents the outputs of HETIP collected during the years. Sundar Thapa, Senior Executive Officer at Scheer Memorial Hospital in Banepa, has coordinated the HETIP program in Nepal. He gives a detailed description of all the phases during the project, the different actions carried out in each phase, and finally his assessment on the success and challenges of the program.

The concluding chapters by Sami Kivelä and Sakari Kainulainen present the external evaluation of the project and the empirical data used in the evaluation. Kivelä introduces staff interviews and observations made in over 30 Nepalese community schools in four districts of the Central Development Region. He argues that the HETIP intervention has created positive change in attitudes and atmosphere, and at times also in the curriculum. Schools benefit from the advanced learning methods of outside professionals – such as the HETIP team – since it is their task to provide education on health promotion but often with limited resources.

Finally Kainulainen assesses the long-lasting effects of the HETIP intervention work. He describes the prevalence of tobacco use in secondary schools, analyses changes and evaluates the effects of HETIP. He applies both the data compiled by the HETIP project team in previous years and the new survey data collected for the purpose of this evaluation in 2011. Kainulainen finds social patterns to predict a tendency for smoking and evaluates that the change of target group was a worthwhile decision in the early phases of the HETIP project. Based on his quantitative analysis Kainulainen argues that the HETIP intervention has indeed succeeded both as a preventive tool and in helping to give up the habit, and especially among boys who have used tobacco products more often than girls. However, he suggests it may be worthwhile to consider separate anti-tobacco programs for males and females in the future.

## **Intensive course as part of the evaluation process**

A two-week intensive course was held in Nepal in February–March 2011 (see also Kainulainen in this publication). It was carried out in line with the principles developed at Diak and based on earlier experiences of collaboration with universities from developing countries (see Hälikkä, Kainulainen & Voima 2009). The participants consisted of Nepalese and Finnish higher education students, staff members (Kainulainen, Kivelä and Voima from Diak; teachers from St. Xavier's College headed by Rev. Fr. Antonysamy; teachers from Lalitpur Nursing Campus headed by international coordinator Rebecca Sinha) and core members of the HETIP project headed by Sundar Thapa. The Nepalese students came from St. Xavier's College, Lalitpur Nursing Campus (LNC) and Scheer Memorial Hospital College of Nursing. The latter was a new partner but a very natural one, since Scheer Memorial Hospital was responsible for the HETIP project itself. Finnish students came to do their international placement in local nursing and social work facilities, but they began their stay in Nepal by working for two weeks in the HETIP project. Most of them came from Diak, but two were elected from other Finnish universities with a shared exchange program; Central Ostrobothnia University of Applied Sciences and the teacher training facility at the University of Jyväskylä. All students were given a certificate after finishing the course.

The intensive course was a tool for carrying out the evaluation. It also helped build the capacity of local education in several ways. During the first five days the students – some sixty of them in total – were taught about health promotion, ethics, research methodology and the harmful effects of tobacco use. A multimedia room at St. Xavier's College was reserved for this purpose. The subjects were taught by Finnish and Nepalese teachers, and dialogue between teaching traditions and methods was to be one important learning experience during these days. The latter subject – effects of the use of tobacco – was taught by the HETIP trainers themselves. In this way the evaluation team and students alike could experience first-hand what the lecture and visual methods used in the HETIP intervention were like. The third method, street drama, would be introduced later in a closing ceremony at St. Xavier's auditorium. HETIP team members took part in the intensive days by providing accessories, keeping enrolment records and taking care of logistics, among other things.

After the intensive theoretical days it was time for three days of data collection in the field. The Nepalese and Finnish students acted as research assistants and were divided into six groups. They set out to visit 36 community schools in four districts: Sindhupalchok, Dolakha, Lalitpur (Patan) and Kathmandu; logistics were taken care of by the experienced HETIP team. 24

schools would be ones where the HETIP intervention had been carried out in 2008–2010 and 12 schools would act as a control group (no intervention). Each field group had a responsibility of:

- having the school students answer a questionnaire about attitudes towards smoking and health
- carrying out a thematic interview of the school principal or other supervisor
- carrying out a focus group interview of teachers
- observing the school area and its surroundings

Finnish staff members Sakari Kainulainen, Sami Kivelä and Kyösti Voima joined the groups to assist in and supervise the field process. One school was left out because of unavoidable logistical problems and so the final number of schools was reduced to 35. After returning to Kathmandu it was time to save the data; the quantitative data (= questionnaires) to Excel sheets (later transformed into SPSS data) and the qualitative data (= interviews and observations) to Word documents. Because of constant electrical power outages in Kathmandu (“load shedding”) this was eventually done at Hotel Greenwich Village, which had its own power generator.

The last couple of days at St. Xavier’s saw a surprise visit of Ilkka and Vappu Taipale, influential Finnish academics and high-level politicians, who not only learned about the HETIP program but gave impressive talks to the students. Preliminary results were presented to students, and on the last day a farewell ceremony was held at the main auditorium, showing an example of the street drama method used in HETIP interventions. Consultant Satu Pehu-Voima from the Embassy of Finland in Kathmandu joined the ceremony, and Mr. Dipendra Kafale, the undersecretary from the Ministry of Health and Population, gave a speech, among other participants.

It was agreed that all the key educational institutions involved in the project were able to use and benefit from the research data. However, the analysis needed for evaluation purposes would be done in Finland by Dr. Kainulainen and Mr. Kivelä. Bachelor level students at Diak were invited to assist in the analysis, but eventually the process was carried out by senior members.

During spring 2011 the qualitative and quantitative data were assessed, checked and grouped. An initial evaluation meeting was held on 27 May by Sakari Kainulainen, Sami Kivelä and Aune Greggias. In this meeting it was decided that the evaluation would be written as a collection of articles by Finnish and Nepalese contributors, thus deepening the integration in the capacity building process. Another meeting was held on 6 July by Heikki Hiilamo, Sakari Kainulainen and Sami Kivelä. Here the findings were further discussed and a schedule for the publication was decided.

Additional quantitative data from the Terai region were collected by the HETIP field team and sent to Finland in August (see articles by Thapa and Kainulainen in this publication). The writing process continued during the autumn and was finished in early 2012. Results were presented in the VIP seminar in Kathmandu on 17 February 2012, and the evaluation process as such came to an end.

The HETIP project team has recorded and evaluated their activities every year during the process. They have produced extensive annual reports with letters of approval by local authorities, statistics, pictures and other information. They have also produced a video documentary about the project, with project coordinator Sundar Thapa and project secretary Aune Greggas explaining the proceedings. These have been at our disposal, and the annual statistics have been analyzed in relation to new quantitative data (see the article by Kainulainen).

The Nepalese and Finnish student trainers participating in the course were included in the decision-making process as much as possible. In retrospect this was a good choice and helped in creating exciting new ways of international cooperation.

In conclusion the evaluation process has integrated the guidelines set by the Ministry for Foreign Affairs in Finland with the pedagogical and developmental capacity of Asian and European educational institutions, and finally an active project team itself. The data collected during and after the intensive course turned out to be large, and fruitful links between educational institutions were created nationally and internationally.

## **Acknowledgements**

The editors wish to thank all the writers and contributors who have given their valuable time and effort to make this publication a reality. Our colleagues at Diak have shared their expertise on international cooperation in many ways – among them Mrs. Anne Meretmaa, coordinator on work done in Asia, and the international office headed by Mrs. Riikka Hälikkä. Mr. Kyösti Voima, international coordinator on work done in Africa but also with knowledge on Asia, has provided tremendous support for the program both in Finland and Nepal. Without his help the project would have faced far more obstacles.

In Nepal, Rev. Fr. Antonysamy, Rector of St. Xavier's College, has given wonderful help and support during the process, especially during the intensive course in spring 2011. At St. Xavier's Professor Raj Kumar Yadav also planned to participate in writing this publication, but difficult schedules postponed



our cooperation for the time being. Rebecca Sinha, the former campus chief and current international coordinator at Lalitpur Nursing Campus, gathered her colleagues and helped make the intensive course a reality. At Scheer Memorial Hospital and its adjacent College of Nursing, many people provided their support. Without the HETIP team managed by the insightful and ever-efficient Sundar Thapa many things could not have been done.

Nepalese and Finnish students intermingled with each other, working hard but also having fun during the intensive course. Their work as research assistants made the evaluation reality. We hope they learned new tools to pave their way in the future, but we are also grateful for the many joyful moments they shared with us Finns who came from abroad to their homeland. Thank you all.

Final words are given to the HETIP project members who have given us all the opportunity to participate in this exciting process. Mrs. Aune Greggass wants to underline the fact that if Nepalese NGOs have the goal to support a smoke-free Nepal by the year 2020 this is possible only if the young generation will be smoke-free. According to her in both the Smoking Susan Program (Savusirkku) in Finland and the Health Education & Tobacco Intervention Program (HETIP) in Nepal the most important targets have been those students who have not yet begun to smoke. In Nepal their hope has been: Maybe the Health Course and the Street Play Drama would help the students stay smoke-free and keep the promise they gave to HETIP trainers: "I will never smoke!" The evaluation made by Diaconia University of Applied Sciences in Helsinki, Finland (with St. Xavier's College in Kathmandu, Lalitpur Nursing Campus in Lalitpur and Scheer Memorial College of Nursing in Banepa, Kavre) will reveal if the program has succeeded – and not only this program but all the programs that have been accomplished in Nepal during the last 15 years to reduce smoking in the country.

As Project Director, on behalf of the project team members and Scheer Memorial Hospital, Mr. Sundar Thapa would like to extend his heartfelt appreciation and thanks to Mrs. Aune Greggass, Dr. Ari Mönttinen and the other members of the Board of ETRA Association in Finland and to the Ministry for Foreign Affairs, State of Finland, for their kind cooperation and great contributions in making this project reality. With its help many youths and their parents were able to learn and become aware of the dangers of smoking and alcoholism and be prevented from different diseases caused by them. This will certainly support to develop the health and socio-economic conditions of people in Nepal at a certain level.



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## **Tobacco control in Nepal**

### **Introduction**

**G**lobally, tobacco kills more than 5 million persons each year more than tuberculosis, HIV/AIDS and malaria – put together. Major non communicable diseases (NCDs) such as cardiovascular diseases, acute and chronic respiratory disorders, a variety of cancers are imputable to tobacco. Overall, tobacco is a significant risk factor for six of the eight leading causes of death. According to the World Health Organization (WHO) tobacco control stands atop among the five priority interventions against NCDs. NCDs make the largest contribution to mortality in the majority of low- and middle-income countries. (WHO 2008.) These diseases are largely preventable by means of effective interventions that tackle shared risk factors, namely: tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol.

The tobacco companies act as a vector that spreads disease throughout the world (Sebrié & Glantz 2006). This is largely because the tobacco industry uses its wealth to influence politicians to create a favorable environment to promote tobacco products. The industry does so by minimising restrictions on advertising and promotion and by preventing effective public policies for tobacco control such as high taxes, strong graphic warning labels on packets, smoke-free workplaces and public places, aggressive counter-marketing media campaigns, and advertising bans. The tobacco companies quickly transfer the information and strategies they learn in one part of the world to others.

The history of tobacco industry in Nepal is closely related to India where the British traders imported American tobacco to India to finance the purchase of Indian commodities. When the American colonies declared independence in 1776, the British East India Company began growing tobacco in India as a cash crop. In the late nineteenth century, the beedi industry began to grow in India. The oldest beedi manufacturing firm was established around 1887 and by 1930 the beedi industry had spread across the country. The price differential from cigarettes favored the use of beedis by the working classes and this domestic product soon supplanted cigarettes as the major form of tobacco consumption.

Until recently tobacco leaf production has been an important source of revenue for developing countries such as Nepal. According to the statistics of Ministry of Finance about 2491 tonnes of tobacco leaf were produced in 2009–2010 in Nepal on 2534 hectares of land (Ministry of Health and

Population 2010). The tobacco manufacturing in Nepal is dominated by four major companies: Janakpur Cigarette Factory Ltd, Nepal Cigarette factory in Birgunj, Nepal Tobacco Company Pvt. Ltd., and Surya Tobacco Co. Pvt. Ltd. Cigarette production was 9970 million sticks in 2006–2007, 10 710 million sticks in 2007–2008 and 11 130 million sticks in 2008–2009 (Ministry of Health and Population 2010).

## **Tobacco industry's global strategies**

Decades ago, there was considerable debate about whether tobacco use was harmful to health, and the extent of the risks associated with tobacco use. Senior scientists and executives within the cigarette industry knew about the cancer risks of smoking as early as the 1940s and were aware that smoking could cause lung cancer by the mid 1950s (Cummings & Morley & Hyland 2002). The tobacco industry's own research with animals uncovered the cancer-causing effects of tobacco (Hammond & Collishaw & Callard 2006). The industry actually tried to destroy the evidence of these findings: by shipping incriminating documents to company offices overseas, where they might not be found by US plaintiffs and courts (Francey & Chapman 2000), and by closing down company laboratories that did this kind of research and firing the scientists (Hirschhorn 2005). At the same time the industry leaders went into great lengths to deny all health hazards of tobacco.

The tobacco industry has made intensive effort to attack and refute individual scientific studies (Yano 2005). In addition, the industry has devoted resources to manipulate scientific methods and regulatory procedures to its benefit. The tobacco industry has e.g. played a role in influencing the debate around 'sound science' standards for risk assessment, and international standards for tobacco and tobacco products. In the early 1990s, the tobacco industry launched a public relations campaign about 'junk science' and 'good epidemiological practices' and used this rhetoric to criticize government reports, particularly risk assessments of ETS (Yach & Bialous 2001; Givelber & Strickler 2006). The industry also developed a campaign to criticize the technique of risk assessment of low doses of a variety of toxins, working with the chemical, petroleum, plastics, and chlorine industries (Bero 2005).

The tobacco companies and their information and public relations agencies also staged scientific conferences in which their consultants could 'keep the controversy alive' (an often repeated quotation) about smoking and health (Muggli & Hurt 2003). The evidence on tobacco industry's effort to manipulate led to an intensive debate on the ethics of tobacco industry's research funding and conflict of interest disclosures (Chapman & Shatenstein 2001;

Chapman 2005; Goldstein 1999; Thomson & Signal 2005). Evidence on tobacco industry's manipulation of science has been used to question the adequacy of current journal policies regarding competing interest disclosures and the acceptability of tobacco industry's funding for academic research (Bero & Glantz & Hong 2005).

'Keeping the controversy alive' was especially important with regard to passive smoking, also known as ETS (Hirschhorn 2005). If smoking harms only the smoker, the industry can, and does, defend itself in court and in regulation by saying it is a matter of individual choice. But if it is proved that smokers' smoke harms nonsmokers (children included), then regulation on smoking in public would probably follow. The tobacco industry went into great lengths to battle the ETS issue worldwide by camouflaging its involvement and creating an impression of legitimate, unbiased scientific research (Muggli & Forster & Hurt 2001).

When health concerns related to smoking were first raised in the 1950s, cigarette manufacturers responded by introducing filtered cigarettes and began market cigarettes with less tar (Kozlowski & O'Connor 2002). The impression of being 'lighter' is created by the fact smokers have to inhale more deeply to get the dose of nicotine they crave, the cigarette gave the impression of being 'lighter' (Physicians for a Smoke-Free Canada 2005). The smoke from a ventilated cigarette is less dense, but smokers forget that because they inhale more of it they are actually getting the same amount of toxic substances. The smoking sensation perpetuates the impression.

Tobacco industry has tried to resist tobacco control measures by denying to the public that nicotine is addictive. The most famous instance of denial was in 1994 when seven chief executive officers of US tobacco companies each swore to a committee of the US Congress that they did not believe nicotine was addictive. Without any doubt, the tobacco scientists knew that nicotine was addictive; that the main reason people smoked and had difficulties in quitting was because of addiction; and that the impact of nicotine could be boosted by getting it to the brain more quickly through additions of certain chemicals to the cigarette (Hirschhorn 2005).

Cigarettes are much more than simply tobacco and paper. They are often true 'chemical cocktails' highly processed concoctions designed by tobacco industry chemists who add both natural and synthetic chemicals for a variety of reasons, including:

- to disguise the harsh taste of nicotine
- to make the smoke less irritating to smokers' mouths and throats (particularly to novice smokers)
- to add 'flavour' and sweetness
- to increase the efficiency with which nicotine and artificial nicotine analogues reach the brain to maximise addiction

- to widen the lung passages for faster absorption of the smoke
- to regulate the burn temperature, to prevent the cigarette from going out when not being inhaled
- to prevent the tobacco 'sparking' and sending cinders onto smokers' clothing
- to reduce the smell of ETS
- to retain the optimum moisture in the tobacco "important for storage" via the use of humectants. (Chapman 2003; Garten & Falkner 2004; Keithly & Wayne & Gullen & Connolly 2005)

Tobacco companies and their public relations firms have always insisted that advertising does not cause non-smokers to take up the habit, but is intended to get those already smoking to switch brands (Hirschhorn 2005). The companies have denied vigorously that they ever marketed to children. Since the majority of adult smokers begin in their teenage years, this is the group that had to be targeted by advertising and promotions. The tobacco companies have created 'children shouldn't smoke until they are adults' campaigns around the world, without ever mentioning the health reasons for not smoking.

Evidence from tobacco documents reveals an undeniable interest on the part of the tobacco industry in marketing cigarettes to minors (Cummings & Morley & Hyland & Horan & Steger 2002). In an effort to compete for a share of the starter smoker market, cigarette companies have created special product formulations, developed unique packaging designs and pricing schemes, sport sponsorship (Dewhirst & Sparks 2003) and developed advertising and promotional campaigns to appeal to the unique wants and needs of the young smoker.

As the prevalence of smoking decreases in the developed world, the planning and strategy documents of the multinational tobacco companies show their eagerness to expand profits by vigorous marketing in other parts of the world, especially where restrictions are fewer and the population less aware of the risks. (Sebrié & Glantz 2006.)

The tobacco industry has also used trade policy to undermine effective barriers on tobacco importation (Shaffer & Brenner & Houston 2005). Recent agreements on eliminating various trade restrictions, including those on tobacco, have expanded far beyond simply the international movement of goods to include internal tobacco distribution regulations and intellectual property rules regulating advertising and labeling. Trade negotiations have provided an unwarranted opportunity for the tobacco industry to assert its interests without public scrutiny. Trade agreements provide the industry with additional tools to obstruct control policies in both developed and developing countries.

The tobacco industry has a long record of undermining tobacco control measures to minimize the damage impact on their sales and reputation. Control efforts have been undermined by the industry's success in developing favourable relationships with many governments, the magnitude of their foreign direct investments and the scale of advertising, marketing and sponsorship campaigns. Large-scale cigarette smuggling depletes tax revenues and further jeopardises public health. In their analysis of tobacco industry documents Salojee and Dagli (2000) identify seven categories of tactics used by the industry to resist government regulation. They include

- conducting public relations campaigns,
- buying scientific and other expertise to create controversy about established facts,
- funding political parties,
- hiring lobbyists to influence policy,
- using front groups and allied industries to oppose tobacco control measures,
- pre-empting strong legislation by pressing for the adoption of voluntary codes or weaker laws, and
- corrupting public officials.

Drawing upon tobacco industry's internal strategy documents prepared over several decades research has demonstrated how the tobacco industry operates as a global force, regarding the world as its operating market by planning, developing, and marketing its products on a global scale (Yach & Bettcher 2000). The industry has used a wide range of methods to buy influence and power, and penetrate markets across the world. The industry has tried also to damage tobacco control efforts including the WHO's Framework Convention on Tobacco Control through intelligence gathering and surveillance of public health groups. (Malone 2002; Carter 2002)

## **Smoking prevalence in Nepal**

The global trend is that smoking is increasing in the developing world. Projecting from current trends tobacco will be responsible for ten million deaths per year in 2030, and 70% of these deaths will be in the developing world, and 30% -- 3 million -- in developed countries. This is a major shift in the burden of disease. In 2000 half of the tobacco related -- 2 million -- deaths occurred in developed countries while the other half occurred in developing countries. By 2030, tobacco will cause almost 11% of all deaths in the developing world, and 17.7% of all deaths in developed countries. Half a billion people now alive will be killed by tobacco products, and half of the deaths will happen prematurely.



Different varieties of tobacco products are used in Nepal in both smoking and smokeless forms (Ministry of Health and Population 2010). The smoking forms are cigarette, *bidi*, *hookah*, *sulfa* and *chillum* or *kankad*. The smokeless tobacco products include *surti* leaves, *khaini*, *gutkha* and *paan* with tobacco ingredients. The major chewing form of tobacco is *paan* with tobacco and is most popular in the Terai region. Dry tobacco-areca nut preparations such as *gutkha* and *paan masala* are also popular in Nepal.

Smoking prevalence is measured through surveys. Different surveys may produce different results and it is not easy to detect trends in smoking prevalence. According to a survey in 1983 the overall smoking prevalence in Nepal was 74 per cent (85 % male, 62 % female) with the female prevalence being one of the highest in the world. The smoking prevalence was different in different parts of the country. The highest prevalence (78 %) was in the Ucca Phadi Pradesh region, while the lowest (37 %) was in the Kathmandu area. In 1992 Nepalese Government prepared a plan for national tobacco control. Following the implementation of the first phase of community tobacco control strategy in one rural community in 1992 the smoking prevalence fell from 83 % to 69 % (males) and from 63 % to 44 % (females).

In 1995 a World Bank study on Tobacco Control in developing countries identified Nepal and Haiti as countries where cigarette consumption had grown the most from 1970-1972 levels. In 2000 the smoking prevalence was 32 per cent with the youth smoking prevalence 8 per cent (males 15 %, females 6 %) (Globalink 2000). Different surveys produce slightly different results. In 2002 a national survey indicated that tobacco use was 45 per cent (males 58 %, females 32 %) (Karki 2002).

The National Demographic Health Survey conducted in 2006 revealed that nearly one third of males (33 %) in Nepal and 15 % of females smoke cigarettes. Nearly four in ten (38 %) males used tobacco products other than cigarettes. Use of tobacco products other than cigarettes was reportedly low among females (5%).

According to the report of the World Bank (February, 2011), the prevalence of smoking is the highest for Nepalese females (28 %) in South Asia, and is in the mid range for males (36 %). These figures are higher than in the National Demographic Health Survey in 2006. According to World Bank results the prevalence of smoking in youth is among the highest (boys 13 %, girls 5%) in Nepal.

The smoking prevalence in Nepal has followed the general pattern where illiterates have clearly higher smoking rates than literates. It is much harder to reduce smoking prevalence among people with low education, who probably are less exposed to information, and social pressures not to smoke.

It is estimated that every day 44 Nepalese die of lungs, heart and blood vessels illness owing to smoking. In addition to the health hazards, tobacco consumption has huge economic implications as well. Annually, Nepalese spend nearly NRs. 28 billion on cigarettes, and the government spends NRs. 16 billion for the treatment of the diseases related to the tobacco products.

## **Early tobacco control measures**

Nepal has been fairly progressive in implementing tobacco control measures. Mrigendra Samjhana Medical Trust began pioneering anti-tobacco work in Nepal in 1976. The Trust conducted epidemiological studies on tobacco smoking behavior among adults and young people with special reference to attitude and belief together with community based action research projects for the prevention and control of tobacco use in the country. (Pandey & Venkatramalah & Neupane & Gautam 1987; Pandey & Neupane & Gautam 1988.) In 1994 the trust conducted a pilot anti-tobacco (cessation) community demonstration program in rural Kathmandu.

In 1992, when it was reported that the women in Nepal had the highest smoking prevalence in the world, the Nepalese Government prepared a plan for national tobacco control. The Council of Ministers took a decision in May 1992 to ban smoking in public places. Ministry of Health established a national Anti-Tobacco Committee with representation from several nongovernmental organizations.

In 2000 Nepal banned all tobacco advertisements in the print media, following a ban in place for two years in the electronic media. Nepalese Health Minister Dr Ram Baran Yadav announced the ban was in keeping with the recommendations made by WHO. The Nepalese government also decided to impose a ban on smoking, not only in government offices but in other public places and public transportation. Mandatory health warnings were also put on cigarette packs.

The Nepalese government levies excise tax on tobacco products and on import and customs duty for international brands of tobacco products. However, tax increases every year have not been consistent. A portion of the tax income is directed to tobacco control. According to the WHO Report on the Global Tobacco Epidemic 2009, there is a moderate compliance of the smoke-free policies in the country. Again in April 2010 the Council of Ministers took a decision to extend the ban of smoking in public places

The Government of Nepal is committed to tobacco control in the context of poverty alleviation. Tobacco is relevant to poverty alleviation given the fact

that tobacco use in Nepal is higher among the poor and illiterate sections of the population. Measures to reduce the consumption of tobacco products will also contribute to poverty reduction as well as save people from untimely deaths.

## **Implementing FTCT in Nepal**

Responding to the global threat of smoking, as of January 2006, 121 countries had ratified the World Health Organization's Framework Convention on Tobacco Control (FCTC), the first global public health treaty. Nepal was one of the first signatories of the treaty in 2003.

Since the Nepalese government ratified the World Health Organization's Framework Convention on Tobacco Control (FCTC) in November 2006, Nepal demonstrated a massive increase in tobacco companies' promotional activities (Simpson 2007). The big cigarette companies – Surya Nepal, a subsidiary of India's ITC and British American Tobacco, and Seti Cigarette Factory, a subsidiary of Philip Morris – greatly increased their spending in all national newspapers and weekly, fortnightly and monthly magazines. Billboards of tobacco brands were placed close to places where school children commute.

In 2008, a government delegation from Nepal was among those 160 countries' delegations meeting in Durban, South Africa, to negotiate guidelines for provisions of the FCTC (Effective... 2008). Dr. Dirgh Singh Bam, Secretary for Ministry of Health and Population, Government of Nepal, heads the Nepalese delegation at the COP3 negotiation noted that 'Tobacco industry is very strong. ---(W)e will continue to need increasingly more amount of money to support tobacco control interventions if we don't put a check on the tobacco industry'. Dam emphasized that "There is no partnership with the tobacco industry in Nepal'. At this point a new tobacco law was under preparation in Nepal.

The 2008 negotiations on FCTC centered on the implementation of Article 5.3, which protects the treaty and related public health policies from tobacco industry interference. By this time the treaty protected more than 85 percent of the world's population. But efforts to implement the treaty were systematically stymied by international tobacco companies. Since negotiations on the global tobacco treaty began in 1999, the tobacco industry used its political and economic influence in an attempt to undermine, delay and water down public health measures. (Mamudu & Hammond & Glantz 2011.)

On the occasion of World No Tobacco Day (WNTD) on 31 May 2009, a weekly national language newspaper in Nepal published a WNTD special issue focused on tobacco health warnings, emphasizing the message, "Show



the truth, picture warnings save lives.' (Nepal:... 2009) The special issue, the first to mark WNTD in Nepal, included editorials on tobacco free culture, smoking in Nepal, the history of tobacco, the impact of health warnings around the world, with pictures of actual warnings and a calendar for 2009, as well as interviews with local tobacco control leaders and a case history of a young lung cancer patient who died last year aged just 34. It also contained information about diseases that are caused by smoking, and tips on how to give up.

## **Tobacco Control and Regulation Act**

In 2011 the Nepalese parliament implemented 'Tobacco Control and Regulation Act 2011' (Aryal 2011). The Act stipulates stringent measures such as outlawing smoking and sale of tobacco products in public places, prohibiting advertisement in all forms of media and any sorts of promotion activities, forbidding sale and offer of tobacco products to minors under 18 years and pregnant women, labeling graphical health warning messages on at least 75% area of the cigarette packet. The Act clearly prohibits the use of tobacco and smoking in public places including hotels, restaurants, motels, institutes, offices, sports complexes and any places of public gathering. The Act also includes a provision of progressive health tax in addition to the regular revenue charge.

## **Key holders in tobacco control**

Some people argue that tobacco use should be an individual choice, and that governments have no right to intervene (WHO 2011). But even economists who strongly believe in individual freedom and think that free markets are greatly preferable to government involvement believe that there is a clear justification for governments to act to reduce tobacco use. There are four reasons:

1 Smokers do not know the risks, or underestimate the risks that they themselves face. Eg. 60% of smokers in China said that they think that smoking caused little or no harm. But this is just not correct. Tobacco kills half of the all long-term users.

2 Most smokers start as teenagers. Very few smokers start after the age of 20. Many societies believe that children and teenagers do not make good decisions, especially do not take long term considerations into account, and should be protected. And a lot of advertising takes advantage of the vulne-

rabilities and insecurities of young people , giving the message that smoking will make them popular, "cool", sexy, appealing to the opposite sex, grown-up etc.

3 Most people do not know how addictive nicotine is. Nicotine is just as addictive as heroine and cocaine. Most smokers think they will be able to quit whenever they want to, but most find it extremely difficult to do so. It often takes several attempts to quit. Most tobacco users say that they regret ever starting, wish that they could quit, and support tax increases, public smoking bans and other tobacco control measures.

4 There is growing scientific data on the negative effects of second-hand smoking. If people have the right to choose to smoke, surely people also have the right to choose NOT to have to inhale the smoke from others' cigarettes. We know that pregnant women who smoke can retard fetal growth, have babies that are much more likely to die as infants, and to suffer from respiratory and other diseases. Children who inhale tobacco smoke are also at health risk and need to be protected.

Until recent years many Health Ministries, physicians' groups and others active in public health have without the support of other state agencies lobbied for better policies to reduce tobacco use, provided additional public information, and sometimes provided cessation advice and help for smokers who want to quit. But tobacco control cannot be achieved through these efforts only.

There are many stakeholders with different concerns that need to be taken into consideration. For example, Ministries of Finance care about tobacco tax revenues. For almost as long as tobacco has been commercially sold, it has been taxed and has become an important source of government tax revenue. And tobacco growing provides a livelihood for farmers, and incomes for others who produce, distribute, sell and market tobacco products which are the concerns raised by Ministries of Labor and Ministries of Agriculture when contemplating tobacco control measures. Others benefit from sports and other types of sponsorship from tobacco companies. It is important to consider the concerns and possible contributions of the range of stakeholders when considering tobacco policy.

Key stakeholders include: Ministry of Finance (Tobacco Tax Revenues), Customs Administration (Smuggling, Border Control), Ministry of Labor (Farmers and Manufacturing Labor), Ministry of Agriculture (Tobacco Production), Ministry of Education (Youth education on tobacco), Smokers (Low prices, variety and appealing products), Producers (Profit, market share, sales), Ministry of Trade (Export earnings from tobacco) and Solidarity with Global Tobacco Control Campaign.



## Future challenges

The implementation of effective tobacco control policy is a huge challenge for all governments, especially in developing countries with limited resources and capacity. Advocacy organizations can play a crucial role to influence the public perception. The state mechanism has a limited reach, and, hence, building public stewardship will be a sustainable and effective measure. A strong and continuous vigilance of government authority and rules following nature of the people are attributed for the exemplary success. The development of National Plan and Action on Tobacco Control should be the immediate priority. (WHO 2008.) With the national and international environment being conducive, it is utterly important to capitalize on the existing momentum and advance ahead.

The Nepalese Ministry of Health and Population is implementing tobacco control measures in line with WHO Mpower strategies: (WHO 2008; Ministry of Health and Population 2010)

- Monitor tobacco use and prevention policies
- Protect people from tobacco smoke
- Offer help to quit tobacco use
- Warn about the dangers of tobacco
- Enforce bans on tobacco advertising, promotion and sponsorship
- Raise taxes on tobacco.

According to the Ministry legislation and rules and policy should be established in Nepal for the prevention and the control of tobacco use in the communities, particularly in schools, with an effective enforcement of the same and school personnel should be trained on the prevention of tobacco use among school students. The major challenge for the Ministry concerns the implementation and monitoring of 'Tobacco Control and Regulation Act 2011'.

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## **Health in Nepal**

### **Introduction**

Nepal home to Mount Everest and many other imposing mountains is a landlocked country situated on the Southern slopes of the Himalayas between 26° 22' and 30° 27' North latitudes and 80° 4' and 88° 12' East longitude. Extending from east to west Nepal is shaped like an irregular rectangle and the total area is 147,181 sq. km. 80% of its territory is occupied by the dramatic peaks of the Himalayas. The average length from east to west is 241 km and the average width is 193 km. Nepal borders Tibet of China in the North and India in the South, East, and West.

Geographically, Nepal is distinctly divided into three geographic regions: the Himalayan Region with snow clad mountains in the North; the plain Terai region with agricultural fields and tropical vegetation in the South and the Hilly Region with Mahabharat range in between. All the regions stretch from East to West. The climate varies considerably with elevation. Nepal has four major seasons: winter (December to February), spring (March to May), summer (June to August), and Autumn (September to November).

According to the census 2011, the population of Nepal has reached 26,620,809 growing at the rate of 1.4 percent per annum. The population of males is 1,29,27,431 and females is 1,36,93,378 making the sex ratio 94.41. The Central Development Region of Nepal is the most populated region of Nepal where 36.5% of people reside. Most of the Nepalese live in rural area (83%) while only 17% of the total population live in urban areas (Central Bureau of Statistics, 2011).

Nepal is a developing country. The Per Capita Income of a Nepali is \$562 and GDP growth rate is 4% (ADB, 2011). According to Nepal Living Standards Survey (2011), 95 % of Nepalese have access to primary school and 74 % have access to health centre. The literacy rate is 58 %. The study shows that 56 % of Nepali households receive remittances and the per capita remittance 9,245 rupees. Majority of the remittances receiver use the money for daily consumption. A great majority of Nepali households i.e. 76.3% are involved in agricultural work.

The Human Development Report 2010 highlights that Nepal is one of the fastest movers in the Human Development Index (HDI) since 1970 and is 3rd among the 'Top Ten Movers' list in terms of progress in health and education. Between 1970 and 2010, Nepal's HDI value increased from 0.210 to 0.428,

an increase of 104 per cent, while Nepal's Gross National Income per capita increased by 94 per cent during the same period. The gap between Nepal's life expectancy and the global average has narrowed by 87 percent over the past 40 years.

Nepal's impressive progress in health and education can be traced to major public policy efforts such as the 'Free primary education for all children' legislation as far back as 1971 and the extension of primary healthcare through community participation, local mobilization of resources and decentralization.

However, economic growth has been modest and a lack of employment opportunities has led many Nepalese to seek opportunities abroad. Nepal is still a poor country with an HDI value for 2010 of 0.428--keeping the country in the 'Low Human Development' category--ranking 138 out of 169 countries and territories listed.

Continuing and multifaceted inequity remains a major reason for Nepal's low HDI position. According to the Human Development Report 2010, large disparities remain between boys and girls in school attendance as well as in the quality of education between urban and rural areas and across ethnic groups. Major health challenges remain, related to communicable diseases and malnutrition. Large disparities separate regions and groups, with a quasi-feudal oligarchic system and caste based discriminations continuing to marginalize some.

Considerable inequalities are also seen in terms of the Gender Inequality Index. Only 18 per cent of adult women have a secondary or higher level of education compared to 40 per cent of their male counterparts, fewer women working have paid work and for every 100,000 live births, still 281 women die from pregnancy-related causes. But children are seen to be the most affected by poverty and inequity and remain disproportionately poor according to the NPC/UNICEF report on Child Poverty and Disparities. Indicators on malnutrition and sanitation are particularly noticeable.

Every second child aged under-five (49 %) in Nepal is stunted or has a low height for their age - a result of chronic under-nutrition. Over half of Nepal's children (56 %) defecate in open spaces. Recent calculations by WHO estimates that about 13,000 children aged under-five years die each year in Nepal from diarrhoeal diseases and a further 13,000 from Acute Respiratory Infections. This mortality is caused by and aggravated by poor sanitation, inadequate personal hygiene and a lack of access to quality water.

In Nepal 65 per cent of the population suffer multiple deprivations while an additional 16 per cent are vulnerable to multiple deprivations.

Despite these concerns, the HDR 40 year retrospective assessment in key components of human development reveals that in some basic respects the

world is a much better place than it was in 1990 or 1970. Overall, people are healthier, more educated, and wealthier and have more power to appoint and hold their leaders accountable than before. This should become an encouragement for countries to actively and urgently take the required extra steps to reach the 2015 Millennium Development Goals.

After the restoration of parliament and signing of Comprehensive Peace Treaty (CPA) in 2006, the monarchy was abolished and the constituent assembly election was held in 2008. The Assembly is in process to draft a new constitution which is supposed to restructure Nepal and make it a Federal one. The constitution making process has not been as smooth as in papers. The term of CA has been revised for the third time. As none of the parties hold majority in the CA, the government has been very unstable. Four different governments have been formed since the CA election.

## Child health

### Infant and Child Mortality

Neonatal, post neonatal, infant, child, and under-five mortality rates are shown in the table below in three different surveys. Under-five mortality in 2011 is 54 deaths per 1,000 live births. Infant mortality is 46 deaths per 1,000 live births. During infancy, the risk of neonatal deaths and post neonatal deaths is 33 and 13 deaths per 1,000 live births, respectively.

Year	Neonatal Mortality	Postnatal Mortality	Infant Mortality	Child Mortality	Under five Mortality
2011	33	13	46	9	54
2006	37	23	60	10	70
2000	45	25	70	19	87

**Source: Nepal Demographic and Health Survey (NDHS) 2011.**

Data from the 2011 NDHS indicate that there has been a slight decrease in childhood mortality. A similar trend is seen for the other mortality indicators.

## Immunization

According to WHO a child is considered fully immunized if s/he has received a BCG vaccination against tuberculosis; three doses of the DPT vaccine to prevent diphtheria, pertussis, and tetanus; at least three doses of the polio vaccine; and one dose of the measles vaccine. These vaccinations should be received during the first year of life. The achievement made during the FY 2009/2010 is shown below:

S.N.	Vaccination	Vaccinated to	% Vaccinated
1	BCG	Infant	94,48
2	DPT - Hep B Hib 1	Infant	84,88
3	DPT - Hep B Hib 2	Infant	80,44
4	DPT - Hep B Hib 3	Infant	81,58
5	Polio 1	Infant	86,79
6	Polio 2	Infant	82,54
7	Polio 3	Infant	83,24
8	Measles	Infant	86,39

**Source: Department of Health Services (DoHS), Annual Report 2009/2010.**

Based on the 12 month report of DoHS, immunization coverage for BCG is 94.48% and for DPT – Hep B Hib 1, 2, and 3, it is 84.88%, 80.44%, and 81.58% respectively. The coverage of Polio 1, Polio 2, and Polio 3 is 86.79%, 82.54%, and 83.24% respectively. The coverage of Measles immunization is 86.39%.

## Incidence of Diarrhoea (2009/2010)

Total diarrhoeal cases in the FY 2009/2010 was 20, 34, 892. Among them 91 cases died of diarrhoea. Similarly the incidence of diarrhoea per 1000 under five year population was 598 and the fatality rate was 0.04%.



Indicator	Incidence
Total diarrhoeal cases	20,34,892
Diarrhoeal deaths	91
Incidence of diarrhoea/1000 < 5 years population	598
Case fatality rate/1000 < 5 years population	0,04 %

**Source: DoHS Annual Report 2011**

## Family health

### Fertility Rate

According to the NDHS 2011, TFR for preceding three years is 2.6 births per woman age 15 – 49. The GFR per 1000 women is 96 and CBR is 24.3 per 1000 population.

Indicator	Fertility Rate
Total Fertility Rate (TFR)	2.6
General fertility rate per 1000 women (GFR)	96
Crude birth rate per 1000 population (CBR)	24.3

**Source: NDHS 2011.**

## Use of Contraception

Item	Frequency (%)
Any modern method	43.2
Female sterilization	15.2
Male sterilization	7.8
Pil	4.1
IUD	1.3
Injectables	9.2
Implants	1.2
Condom	4.3
<b>Total number of women using</b>	<b>9,608</b>

*Source: NDHS 2011.*

## Maternal Care Indicators

Indicators	Frequency
Antenatal care from skilled care provider	58.3 %
Last live birth was protected against neonatal tetanus	76.9 %
Delivered by skilled care provider	36.0 %
Delivered in a health facility	28.1 %

*Source: NDHS 2011.*

## Maternity Service Coverage in 2009/2010

Maternity Service	Frequency
ANC first visit	87.4 %
Four times antenatal visit	56.8 %
Delivery services by health workers	41.3 %
Post natal service coverage	49.7 %

**Source: DoHS Annual Report 2011**

## Diseases

### Malaria in FY 2009/2010

A total of 166,090, slides were examined and 2,920 were detected as malaria-positive cases in FY 2066/67. The majority (89%) of cases were among people over 15 years of age. In all regions similar pattern of age group distribution was observed. However, the highest percentage (97,6%) of cases in the over 15 years age group were reported in far western development region.

Indicators	
Total slides examined	136,719
Total + ve	2,920
Most affected group (89 %)	15+ years
Highly (97.6 % of the 15+ age group) affected region	Far West

**Source: DoHS Annual Report 2011**



## **Kala-azar**

The number of reported cases of Kala-azar in FY 2009/2010 was 791 which makes 0.95 per 10,000 population.

<b>Indicators</b>	<b>Frequency</b>
No. of cases	791
Incidence per 10,000	0.95

## **Tuberculosis**

Tuberculosis (TB) is a major public health problem in Nepal. About 45 percent of the total population is infected with TB, of which 60 percent are adults. Every year, 40,000 people develop active TB, of whom 20,000 have infectious pulmonary disease. These 20,000 are able to spread the disease to others. Treatment by Directly Observed Treatment Short course (DOTS) has reduced the number of deaths; however 5,000-7,000 people still die per year from TB (DoHS Annual Report, 2011).

DOTS have been successfully implemented throughout the country since April 2001. The NTP has coordinated with the public sectors, private sectors, local government bodies, I/NGOs, social workers, educational sectors and other sectors of society in order to expand DOTS and sustain the present significant results achieved by NTP. By 16th July 2010 NTP has 1,122 DOTS treatment centers with 3,098 sub centers. The treatment success rate stands at 90% and the case finding rate of 76%. At the national level 37,430 TB patients have been registered of whom 15,562 infectious and are being treated under the DOTS strategy in NTP during the FY 2009/2010 (DoHS Annual Report, 2011).

## **HIV/AIDS**

Since the detection of the first AIDS case in 1988, the HIV epidemic in Nepal has evolved from a low prevalence to a concentrated epidemic. As of 2009, national estimates indicate that approximately 63,528 adults and children are infected with the HIV virus in Nepal, with an estimated prevalence of about 0.39% in the adult population. By the end of FY 2009/2010, a total of 16,138 cases of HIV out of them 6,754 advanced HIV infection cases had been reported to the National Centre for AIDS and STD Control (NCASC, 2011).



## Estimates of HIV Infection

Population Sub Group	Total Infection	% share
IDU	2,534	4.2
MSM	3,699	6.2
Female Sex Workers	605	1.0
Clients for Sex Workers	2,996	5.0
Labor Migrants	17,653	29.4
Remaining low risk males	15,697	26.2
Remaining low risk female	16,800	28.0

**Source: NCASC 2009**

Nepal is categorized as a “Concentrated” epidemic country with some of the sub population groups (IDUs) having more than 5% of prevalence. As in other countries in the region, IDUs, MSM and FSW are the groups most at risk with highest HIV prevalence. The majority of HIV cases have been estimated from labor migrants (29.5%) and increasing numbers of HIV are occurring among their wives (a combined 28% of HIV cases in low-risk women in rural and urban areas). Of all adults estimated to be living with HIV, a major proportion of HIV infections have consistently been among migrant workers travelling to India for work. Clients of sex workers account for 5% in 2009. Spouses or female partners of migrant workers and clients of sex workers, now account for 28% of all adult infections.

## Morbidity

### Ten Leading Morbidity Causes

The following table shows the nation-wide top ten causes of OPD morbidity in FY 2009/2010. In this fiscal year the highest percentage of OPD morbidity was reported on Gastritis (APD) (4.32 percent). Other major reported

causes for OPD morbidity were Intestinal worms (3.74 percent), ARI / Lower respiratory tract infection (3.72 percent), Headache (Migraine) (3.66 percent), Upper respiratory tract infection (3.24 percent), Pyrexia of unknown origin (3.07 percent), Impetigo/Boils/Furunculosis (2.83 percent), Presumed non-infectious diarrhoea (2.74 percent), Amoebic Dysentery (2.38 percent) and Falls/Injuries/Fractures (1.99 percent) (Annual Report, 2011).

S.N.	Disease/Condition	% Share
	Gastritis (APD)	4.32
	Intestinal Worm	3.74
	ARI/Lower Respiratory Tract Infection	3.72
	Headache (Migraine)	3.66
	Upper Respiratory Tract Infection	3.24
	Pyrexia of unknown origin (PUO)	3.07
	Impetigo non infectious diarrhoea	2.83
	Presumed non infectious diarrhoea	2.74
	Amoebic dysentery	2.38
	Falls/injuries/fractures	1.99

**Source: DoHS**

## **Mortality**

### **Infant and Child Mortality**

NDHS 2011 revealed that 45 neonates die in every 1000 live births. Similarly, the post neonatal mortality rate is 25 and the infant mortality rate is 70. The child mortality and under five mortality rates are 19 and 87 respectively.



Indicator	Mortality Rate (per 1000)
Neonatal mortality	45
Post neonatal mortality	25
Infant mortality	70
Child mortality	19
Under five mortality	87

**Source: NDHS 2011.**

## Maternal Mortality

Nepal Maternal Mortality and Morbidity Study 2008/09 identified 1,496 deaths in a total population of 861,312 Women of Reproductive Age (WRA) giving a total death rate of 174 per 100,000 WRA.

## Maternal Mortality Ratio by Age

The MMR was found to vary considerably by age, with the lowest risk amongst women in their twenties, an increased risk for those aged under 20 and between 30-34, and a dramatically increased risk for those aged over 35 (962 per 100,000 live births) (NMMMS, 2010).

Age Group	MMR
< 20	297
20 - 24	119
25 - 29	191
30 - 34	323
35 +	962

**Source: Nepal Maternal Mortality and Morbidity Study 2008/2009**

## Causes of Maternal Deaths

According to the findings of Nepal Maternal Mortality and Morbidity Study 2009/2010 haemorrhage remains the leading direct cause of maternal deaths with 24%. Eclampsia was the second leading direct cause (21%); complications related to abortion the third (7%), with half due to induced and half to spontaneous abortions. Other direct causes included obstructed labour (6%), puerperal sepsis (5%). The leading indirect cause was heart disease at 7% followed by anaemia at 4% and gastroenteritis at 4%.

Causes	Percentage
Hemorrhage	24
Eclampsia	21
Abortion	7
Heart disease	7
Obstructed labor	6
Anemia	4
Gastroenteritis	4
Puerperal sepsis	5
Other direct	6
Other indirect	16

## Mental Health

There is not available nationwide epidemiological data for mental disorders in Nepal. According to a few epidemiological studies carried out in certain districts of Nepal the prevalence rate of all mental disorders exceeds more than 20% in the population. Disorder wise the prevalence is given in the following table:



<b>Mental disorder</b>	<b>Prevalence rate</b>
Psychosis	1 - 2 %
Neurosis of all kinds	10 %
Depression	4 - 6 %
Epilepsy	1 %
Mental retardation	3 - 5 %
Alcohol use disorder	3 - 5 %
Drug use disorder	0,5 %
Other (PTSD, psycho-geriatrics, etc)	1 %

**Source: Mental Health Manual for Health Workers**

In Nepal, about 23% of the total of patients attending the health posts and 28% attending district hospitals have diagnosable psychiatric disorders (Shrestha, 2005).

## **Policy development**

A National Health Policy (NHP) in Nepal was formulated in 1991 with the objective of enhancing the health status of the population, 83 % of which is rural. The NHP is a comprehensive policy that addresses service delivery as well as the administrative structure of the health system. The 8th Health Plan (1992-1997), 9th Health Plan (1997-2002) and Second Long Term Health Plan (SLTHP) (1997-2017) were developed in keeping with the NHP. The main features of the health plan were the development of integrated and essential health care services at the district level and below, active community participation and mobilization of the private sector to develop general as well as specialized health services, ensuring quality assurance in health care making MCH/FP an integral part of PHC services, Inter and Intra sectoral coordination, decentralization of health administration developing the tradi-

tional system of medicine, and promoting the participation of national and international NGOs, private enterprises and foreign investors. In practical terms, achievements include the adoption of an integrated approach to all programmes, and the implementation of special programmes such as district health systems development, safe motherhood, community drug schemes, the health management information system, and special surveys to re-evaluate the achievements in the implementation of the health policy. The main constraints are frequent changes of government, limited national resources for health services development, centralized administration, ineffective management and supervision, difficult geographic conditions and slow economic growth.

### **National Health Policy, 1991**

The National Health Policy was adopted in 1991 (2048 BS) to bring about improvements in the health conditions of the people of Nepal through extending the access and availability of primary health care system. The primary objective of the National Health Policy is to extend the primary health care system to the rural population so that they benefit from modern medical facilities and the services from trained health care providers. The National Health Policy addresses the following areas:

**Preventive Health Services.** Priority is given to programmes that directly help reduce infant and child mortality. Services are to be provided in an integrated manner throughout the country through national health systems network.

**Promotive Health Services.** The programmes that enable people to live healthy lives will be given priority.

**Curative Health Services.** Curative health services will be made available at all health institutions-central, regional, zonal and district hospitals; primary health care centres (PHCCs), health posts (HPs), and sub health posts (SHPs). Hospital expansion will be based on population density and patient loads. Mobile teams will be organised to provide specialist services to remote areas. A referral system will be developed to direct the rural population to well-equipped institutions.

**Basic Primary Health Services.** Sub Health Posts will be established in a phased manner in all Village Development Committees (VDCs). One Health Post in 205 electoral constituencies will be upgraded in a gradual manner and converted into a Primary Health Care Centre.

**Ayurvedic And Other Traditional Health Services.** The ayurvedic system will be developed and other traditional health systems (such as Unani, Homeopathy and Naturopathy) will be encouraged.

**Organisation And Management.** Improvements will be made in the organisation and management of health facilities at the central, regional and district levels. This will include the integration of the district hospitals and the public health offices into District Health Offices.

**Community Participation In Health Services.** Community participation will be sought at all levels of healthcare through the participation of female community health volunteers (FCHVs) and leaders of various local social organisations. VDCs will provide sites for the location of SHPs.

**Human Resources For Health Development (HRH).** Technically competent human resources will be developed for all health facilities. Training centres and academic institutions will be strengthened to produce competent human resources.

**Resource Mobilisation In Health Services.** National and international resources will be mobilised and alternative concepts (such as health insurance, user charges, and revolving drug schemes) will be explored and effected wherever possible.

**Private, Non-Governmental Health Services And Inter-Sectoral Co-Ordination.** The Ministry of Health & Population will co-ordinate activities with the private sector, nongovernmental organisations (NGOs), and non-health sectors of GoN. The private sector and NGOs will be encouraged to provide health services to expand services and access.

**Decentralisation And Regionalisation.** Decentralisation and regionalisation will be strengthened; peripheral units will be made more autonomous. DHOs and DPHOs will have a prominent role in the planning and management of preventive, curative and promotive health services from district to village levels.

**Blood Transfusion Services.** The Nepal Red Cross Society will be authorised to conduct all programmes related to blood transfusion. The practice of buying, selling, and depositing blood will be prohibited.

**Drug Supply.** Improvements will be made in the supplies of drugs by increasing domestic production and upgrading the quality of essential drugs through effective implementation of the National Drug Policy.

**Health Research.** Health research will be encouraged for helping evidence based policy formulation and a better management of health services.

## **Second Long Term Health Plan, 1997-2017**

The Ministry of Health and Population has developed a 20-year Second Long-Term Health Plan (SLTHP) for FY 2054-2074 (1997-2017). The aim of the SLTHP is to guide health sector development for the overall improvement of the health of the population; particularly those whose health needs are often not met.



The SLTHP addresses disparities in healthcare, taking into account gender sensitivity and equitable community access to quality health care services. The aims of the SLTHP are to provide a guiding framework to develop successive periodic and annual health plans that improve the health status of the population; to develop appropriate strategies, programmes, and action plans that reflect national health priorities that are affordable and consistent with available resources; and to ensure co-ordination among public, private and NGO sectors and development partners.

**Objectives.** The objectives of the SLTHP are as follows (DoHS, Annual Report 2066/67 (2009/2010), 17):

- To improve the health status of the population of the most vulnerable groups, particularly those whose health needs often are not met - women and children, the rural population, the poor, the underprivileged and the marginalized population;
- To extend to all districts cost-effective public health measures and essential curative services for the appropriate treatment of common diseases and injuries;
- To provide technically competent and socially responsible health personnel in appropriate numbers for quality healthcare throughout the country, particularly in under-served areas;
- To improve the management and organisation of the public health sector and to increase the efficiency and effectiveness of the healthcare system;
- To develop appropriate roles for NGOs, and the public and private sectors in providing health services; and
- To improve inter- and intra-sectoral co-ordination and to provide the necessary support for effective decentralisation of health care services with full community participation.

**Targets.** The targets of the SLTHP are as follows:

- To reduce the infant mortality rate to 34.4 per thousand live births;
- To reduce the under-five mortality rate to 62.5 per thousand live births;
- To reduce the total fertility rate to 3.05;
- To increase life expectancy to 68.7 years;
- To reduce the crude birth rate to 26.6 per thousand population;
- To reduce the crude death rate to 6 per thousand population;
- To reduce the maternal mortality ratio to 250 per hundred thousand live births;

- To increase the contraceptive prevalence rate to 58.2 percent;
- To increase the percentage of deliveries attended by trained personnel to 95%;
- To increase the percentage of pregnant women attending a minimum of four antenatal visits to 80%;
- To reduce the percentage of iron-deficiency anaemia among pregnant women to 15%;
- To increase the percentage of women of child-bearing age (15-44) who receive tetanus toxoid (TT2) to 90%;
- To decrease the percentage of newborns weighing less than 2500 grams to 12%;
- To have essential healthcare services (EHCS) available to 90% of the population living within 30 minutes' travel time to health facility;
- To have essential drugs available round the year at 100% of facilities;
- To equip 100% of facilities with full staff to deliver essential health care services; and
- To increase total health expenditures to 10% of total government expenditures.

**Free Essential Health Services Programme.** The Interim Constitution of Nepal 2063 has emphasized that every citizen shall have the rights to basic health services free of costs as provided by the law. Ultimately, the government of Nepal decided to provide essential health care services (emergency and inpatient services) free of charge to poor, destitute, disabled, senior citizens and FCHVs up to 25 bedded district hospitals and PHCCs (December 15, 2006) and all citizens at SHP/HP level (8 October, 2007). But MoHP decided to implement from 15th Jan 2008 for its preparations to manage.

After the evolution of the 1st republic budget of Nepal on 19th Sep 2008, the Nepal Government has been emphasized to make free health services up to 25 bedded district hospitals especially to targeted people with listed essential drugs to all citizens. Therefore MoHP has decided to provide free health service to all citizens in all PHCC since 16th Nov 2008 on the basis of equity. In the same way MoHP decided to provide free health care services to all targeted people at district hospitals having less than 25 bedded and making free essential drugs to all citizens since 14th Jan 2009. In order to implement effectively, the MoHP has introduced the operational guideline of a national free health service programme based on new budget policy.

**Three Year Interim Plan.** The Three Year Interim Plan was introduced as a bridge between the Tenth and the Eleventh Five Year Plan as the country is heading towards federalism after making new constitution. It is also to maximize effort in achieving the MDGs. The right to health is the main strategic

direction as per the Interim Constitution. New initiatives include the prevention and control of dengue, avian influenza, an introduction of new vaccines – measles, mumps, and rubella vaccines (MMR) and health for the elderly.

**Millennium Development Goals (MDGs).** At the Millennium Summit of September 2000, the member states of the United Nations adopted the Millennium Declaration, which aims to bring peace, security and development to all people. The Millennium Development Goals (MDGs), drawn from the Millennium Declaration, are a ground breaking international development agenda for the 21st century to which all nations are committed. The MDGs outline major development priorities to be achieved by 2015. Numerical targets are set for each goal and are to be monitored through 48 indicators. The MDGs which are directly related to health, the targets and progress made are illustrated in the following table:

Targets	Item	1990	Latest	2015
<b>Goal 4: Reduce child mortality</b> Target 4 A: Reduce by two thirds, between 1990 and 2015, the under -5 mortality rate	Infant mortality rate (per 1000 live births)	108	41 (2010)	34
	Under 5 mortality rate (per 1000 live births)	162	50 (2010)	54
	% of 1 year old children immunized against measles	42 %	85,6 % (2009)	>90%
<b>Goal 5: Improve Maternal Health</b> Target 5 A: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.	Maternal mortality ratio (per 100,000 live births)	850	229 (2009)	213
	Proportion of births attended by skilled birth attendant	7	28.8 (2009)	60
	Contraceptive prevalence rate (%)	24	45 (2010)	67
	Unmet need for family planning	-	26.3 (2010)	-
Target 5 B: Achieve, 2015, universal access to reproductive health				
<b>Goal 6: Combat HIV/AIDS, Malaria, and Other Diseases</b> Target 6 A: Have halted by 2015, and begun to reverse, the spread of HIV/AIDS Target 6 C: Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases	HIV Prevalence among people of 15-49 years old (%)	NA	0.5 % (2009)	-
	Prevalence rate associated with malaria (no. of cases per 1000)	1.96	0.16 (2009)	-
	Prevalence rate associated with tuberculosis	460	280 (2005)	

The targets which Nepal is likely to meet are (i) reducing under 5 mortality rate by two third, (ii) reducing maternal mortality ratio by three quarters, (iii) halting and reducing the spread of HIV, (v) halting and reducing the incidence of malaria and other major diseases.

**Health Expenditure.** In 2009, government funding for health matter was approximately USD 2.30 per person. Approximately, 70% of the health expenditure came from out-of-pocket contributions. Government allocations for the health care was around 5.8% of the budget for year 2009.

**Unmatched Expansion.** There has been a gap between the financing required for health sector operations and the availability of domestic resources, and the pace of health sector expansion in Nepal has not been matched by the domestic growth. Many HC, HP and SHP are poorly utilized mainly due to the lack of trained health workers or insufficient medical supplies. A significant section of the rural population also still rely on local traditional/trantric healers (Dhami, Jhankri and Bijuwa) which results in an underutilization of the Health Posts in many areas. External assistance from foreign countries has partially filled the gap but at the expense of the dependency on foreign aid.

**Private And Non Government Sector.** The present National Health Policy encourages the private sector to provide specialized and general curative health services in the country. Both national and international non-governmental organizations, private sector and foreign investors are encouraged to contribute to the development of health services in Nepal and as a result, several Medical Colleges and health care centers have been established.

**International Help.** International organizations/agencies have been contributing significantly to the health sector, man-power and infra-structure development, and supplies, in Nepal. WHO and UNICEF have been collaborating/contributing in various health programs and USAID, JICA, BNMT, Save the Children Fund (both UK, USA) and others INGOs have also been very active, in addition to foreign aid.

## Conclusion

The government of Nepal has put considerable effort into the expansion of the health system so as to provide basic health services to every citizen. As a result, at present, every VDC in the country has either an SHP, HP or PHC-C. However, in spite of the comprehensive network from the central level down to the grass roots level, the health situation in Nepal has not improved as expected.

Easily preventable and readily treatable infectious diseases pose a great challenge due to reasons that are beyond the scope of the health system itself. The most fundamental factors are poverty, the rapid population growth and a lack of education coupled with social factors such as gender discrimination (high priority for males), which is reflected in the use of health services. The maternal mortality rate is still high, and in the rural communities there is still a demand for traditional practice/treatment from traditional healers. In addition, at the administrative level, the mal distribution of health resources and the allocation of priorities are also major problems; preventive medicine and health research do not receive sufficient attention. Most health workers are concentrated in the bigger cities and towns while many SHP, HP and PHC-C including some District Hospitals have insufficient health personnel or medical supplies.

Local participation not only in the health system but also in the developmental process as a whole has decreased recently, which may be due to the dependency on external support, without the participation of locals. Thus, to create a sustainable health system in Nepal the issues of the availability of domestic resources, both workers and supplies and local participation needs to be seriously considered.

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## **School Level Health Education and Tobacco Intervention Program (HETIP) in Nepal by ETRA Association, Finland**

### **Background of HETIP program**

**H**ealth Education and Tobacco Intervention Program (HETIP) in Nepal was initiated during the 10th World Conference on Tobacco or Health in 1997 in Beijing, China. Dr. Mrigendra Raj Pandey of Mrigendra Samjhana Medical Trust from Kathmandu had there a lecture about the smoking situation in Nepal. In it he said: "... Nepal had one of the highest prevalence rates of smoking in Asia, and unlike many Asian countries there was a high rate of smoking among women." (GLOBALink 1997; ASH 1997.)

After the presentation the delegates of ETRA Association discussed with the Nepalese delegation about their experiences in the smoking intervention work. This Finnish group represented an NGO which had been working against smoking in Finland from the 1950's. Almost 900.000 young people in Finland had been reached with its Smoking Susan Program (Savusirkku) in the schools and fairs. The organization had also had anti-smoking projects in Tanzania and China. (Greggias 2010.)

In Tanzania the main target group had been medical students (Hirvonen 1989). In China a group of Finnish experts had counseled how to decrease smoking in the schools and in the workplaces. Dr. Reijo Peltonen had taught about the medical aspects of tobacco smoking, Dr. Esko Kuusisto about the impacts of smoking on the environment. Ritva Kuusisto, one of the experts of the Smoking Susan Program in Finland, had taught how to reach the teenagers. A fairy tale program for the minors had been taught by Riitta-Liisa Peltonen. (Greggias 2010.)

This Finnish group was invited to Nepal. Wide anti-smoking work had already begun in Nepal, but the Nepalese delegation welcomed all the help they could get to reach their goal: to decrease smoking in Nepal. They did not know so much about ETRA Association, but they knew that Finland had succeeded in decreasing smoking.

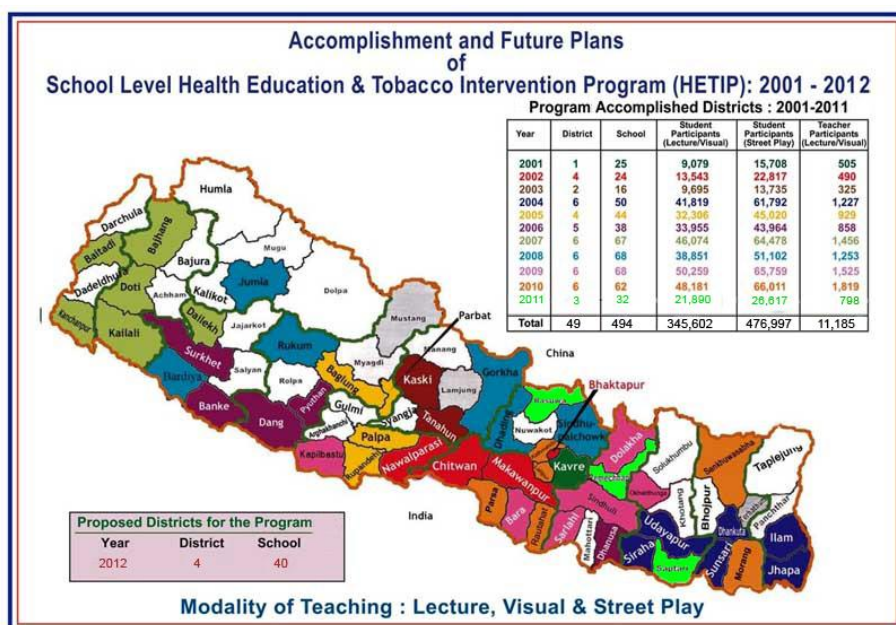
Because of this invitation a new anti-tobacco program in Nepal was organized by Scheer Memorial Hospital of Seventh-day Adventists, Banepa, Kavre, Nepal, with the help of ETRA Association, Finland. The program has been financed by ETRA Association and the Ministry for Foreign Affairs in Finland.



The Pilot Project was opened in 1999 by the Health Minister Dr. Ram Baran Yadav (Thapa 1999). Later Dr. Ram Baran Yadav became the first president of Nepal.

The program has been run according to the recommendations of Department of Education from Ministry of Education and Sports, Government of Nepal. The First Phase was arranged in 2001-2003, the Second Phase in 2004-2006 and the Third Phase in 2007-2009. The Fourth Phase in 2010-2012 included also a long-time effect evaluation. (Greggas & Thapa 2010.)

By the year 2012 the program has reached 49 of the 75 districts in Nepal. The Health Course had been arranged in 494 schools to 345,602 students from grades 4-12. Street Play Drama had been attended by 476,997 students from classes 1-12. 11,185 teachers and also many adults from the villages have seen the Street Play Drama. So, it can be counted that the program has reached more than 500,000 Nepalese.



**FIGURE 1. Accomplishment and Future Plans of School Level Health Education and & Tobacco Intervention Program (HETIP): 2001–2012.**

## Lessons learned in Finland - effects of anti-smoking programs in Finnish schools

ETRA Association is a Finnish health and temperance organization founded in 1956. Until 1990's its most important task had been to decrease smoking

in Finland. The work began in the schools by showing films telling of the dangers of tobacco smoking. Later it introduced Quit Smoking –courses based on the Five-day Plan McFarland and Folkenberg had developed in California, USA (Hirvonen 1984). The Smoking Susan Program was launched in 1969, just before the work for the tobacco legislation began in Finland (Greggas 2010). In Finland also many other NGOs have been working in the schools for the same goal.

At the end of the 1970's a summary of 30 studies about the health education in the schools was published. In them information of the health effects of tobacco smoking was given to the students. The knowledge, attitudes and smoking were examined both before and after the intervention. Among the schools were also control schools in which health education had not been given. These studies revealed that the amount of knowledge could be increased, but not markedly attitudes or behavior. (Pennanen, Paavola & Vartiainen 2007.)

After that the anti-smoking programs in the schools were developed based on Bandura's theory on social learning (Bandura 1977). The basic idea in his theory was that almost always smoking begins as social event among teenagers. If the teenagers are taught how to behave in these situations, they are stronger to meet the social pressure which is present in a situation where they have to decide to smoke or not to smoke. (Pennanen, Paavola & Vartiainen 2007.) In ETRA Association's Smoking Susan program this progress development was made by Ritva Kuusisto.

The long time effect of the anti-smoking programs in the schools has been evaluated in Finland in four studies.

- One was made in North Karelia. In it secondary school students received anti-smoking education in 1978-1980. These students were followed first for 8 years (Vartiainen, Pallonen, McAlister & Puska 1990), and then for 15 years (Vartiainen, Paavola, McAlister & Puska 1998). Straight after the program there were one third less smokers in these schools than in the schools where the program had not been. The trend could be seen well for 2-4 years. The students were interviewed last time when they were 28 years old. It was found that the students from the target schools had as teenagers and young adults smoked 22 % less than the others. (Pennanen, Paavola & Vartiainen 2007.)

- In the 1980's another study was done, also in Eastern Finland. In it the results could be seen in the seventh and eighth classes, but not anymore in the ninth class. (Pennanen, Paavola & Vartiainen 2007.)

- In another study made in the 1990's in Helsinki, the capital of Finland, no differences could be seen in the amount of those who had stopped smoking, but in the program schools the amount of the students who



began smoking was only half of that than in the schools where no program had been presented. (Vartiainen, Pennanen, Haukkala, Tossavainen & Lehtovuori 2005.)

- In the fourth study the effect of Smoke Free Class -competition was studied. Smoke Free Class -competition is arranged to all the secondary school classes 7 and 8 in Finland (with no students smoking). It was found that the competition helped students stay smoke free during the competition year but after 18 months no effect was found. (Vartiainen, Saukko, Paavola & Vertio 1996.)

These studies have shown that it is possible to decrease smoking among young people. The most permanent results, however, were gained when the schools themselves worked for the same goal. That's the reason why nowadays more and more responsibility of the health education about the effects of smoking has been given to the schools themselves. (Huopanen, Peltonen, Mustakangas & Koskinen-Ollonqvist 1998.)

## **School Level Health Education on Tobacco Intervention Program in Nepal**

In the 1990's more than 70 % of the inhabitants in Nepal were smokers. Smoking was especially high in the mountain areas. More than 80 % of men and 70 % of women were smoking there. Women in the mountain areas were smoking more than women in any other place in the world. (Pandey, Neupane & Gautam 1988; Pandey & Pathak 2002.) Every year more than 15.000 people were dying from tobacco related diseases in Nepal (Tobacco.org 2003).

The Ministry of Health in Nepal, as well as all the NGOs working with health topics in Nepal, like Mrigendra Medical Trust, RECPHEC (Resource Centre of Primary Health Care), Nepal Cancer Relief Society, Nepal Heart Foundation, Pro-Public, Nepal Consumer Forum, Child Workers in Nepal, JICA, etc. (RECPHEC 2004), have worked in Nepal to change the situation. According to the original plan ETRA Association was asked to have similar seminaries in Nepal as it had had in China. However, the Ministry for Foreign Affairs in Finland did not at that time give money to the seminar. Instead money was given to the base work in Nepal.

In 1999 during the pilot project Quit Smoking -courses were arranged in Kavrepalanchowk District (Thapa 1999). They were arranged in schools. Both students from the schools and smokers from the area could attend them. They were arranged by Scheer Memorial Hospital of Seventh-day Adventists, also called Banepa Hospital. The hospital was known for its community based



health programs. As a project leader was chosen Mr. Sundar Thapa.

The courses became a success. All the schools wanted to have similar courses for their students. It was greeted as a good idea. The effect of the Quit Smoking –courses was not enduring. Half of the participants, who had succeeded in stopping smoking during the courses, were in the half a year evaluation smoking again. Maybe it would be better to change the target group to the students and to help them stay smoke free the rest of their life.

In the First Phase in 2001-2003 the program concentrated on tobacco smoking (cigarettes). In the Second Phase 2004-2006 also chewed tobacco and all the other tobacco products (bidi, surti, khaini etc.) were included in the program. Even the name of the program was changed from Health Education and Smoking Intervention Program (HESIP) to Health Education & Tobacco Intervention Program (HETIP), still later, because the program target were students in schools, to the School Level Health Education and Tobacco Intervention Program. Also the teachers and parents were included in the study. (Thapa 2001, 2004, 2006.) Because of the success during the first and the second phase the program was continued in 2007-2009 and in 2010-2012.

The program has been valued. According to the feedback reports the schools have been content. They say that the program has been very good and helpful. Most of the schools say that they would like to have it again. Also District Development Committees, District Health Offices and District Education Offices have given good reports of the program. The program has been valued in the articles local journalists have written about it. The program has been presented also through different radio stations and national TV. (Thapa 2001-2010.)

## **Previous Findings on Youth Smoking in Nepal**

### **Global Youth Tobacco Survey GYTS**

The real work to measure the youth smoking in Nepal began in 2001. It was when the first Global Youth Tobacco Survey (GYTS) was done in Nepal (Pandey & Pathak 2003). The GYTS "core" questionnaire and methodology was developed in 1998. The survey is a cross-sectional survey of students in grades 7-10. Twelve countries had completed their GYTS by January 2000: Barbados, China, Costa Rica, Fiji, Jordan, Poland, Russian Federation, South Africa, Sri Lanka, Ukraine, Venezuela and Zimbabwe. (Warren, Jones, Peruva et al. 2008).

In Nepal GYTS has been done several times. In 2001 it was done in the Central Development Region (Pandey & Pathak 2003), in 2003 in the Far Western Development Region. The national GYTS in 2007 was conducted in 49 secondary schools in Nepal (Pandey, Pathak, Shrestha & Saud 2007).

In 2007 GYTS the age group 13-15 was analyzed. A two stage cluster sample design was used to produce representative data for the region. At the first stage the schools were selected with a probability proportional to the enrollment size. At the second stage, classes were randomly selected and all students in selected classes were eligible to participate. The school response rate was 98,0 %; the student response rate was 96,6 % and the overall response rate was 94,6 %. (Pandey, Pathak, Shrestha & Saud 2007.)

According to these school-based surveys in Nepal

2001	8,7 % of students had ever smoked cigarettes (Male 12,0 %, Female 3,8)
2007	7,9 % of students had ever smoked cigarettes (Male 11,4 %, Female 3,8)
2001	11,6 % currently used any tobacco products (Male 15,3, Female 6,4 %) of which 4,1 % smoked cigarettes (Male 6,3 %, Female 0,6 %)
2007	8,0 % currently used any other tobacco product (male 11,1 Female 4,4 %)
2001	89.9 % had seen pro-cigarette ads on billboards in the past 30 days
2007	84,7 % had seen pro-cigarette ads on billboards in the past 30 days
2007	87,6 % had seen tobacco ads in newspapers, magazines and in the past 30 days
2001	13,0 % were offered free cigarettes, bidis, or chewing tobacco by a tobacco company representative
2007	7,9 % were offered free cigarettes by a tobacco company representative

**(Pandey & Pathak 2001; Pandey, Pathak, Shrestha & Saud 2007.)**

In 2007 a similar study was done in Western Nepal (Sreeramareddy, Kishop, Paudel & Menezes 2008). In it a pretested, anonymous, self-administered questionnaire (in Nepali) adapted from Global Youth Tobacco Survey (GYTS)



and World Bank study was administered to a representative sample of 1.600 students selected from 13 junior colleges by two-stage stratified random sampling.

In it the overall prevalence of "ever users" was 14 %, boys 21 % and girls 3 %. The prevalence of "current users" was 10 % (cigarette smoking 9 %, smokeless products 7 %, and both forms 6 %). The median age of initiation of cigarette smoking and chewable tobacco was 16 and 15 years respectively. The majority of the students (82 %) were exposed to tobacco advertisements.

The correlates of tobacco use were: age, gender, household assets, score and knowledge about health risks, family members, teachers and friends using tobacco products and purchasing tobacco products for family members.

### **Pokhara Submetropolitan City Study**

In Pokhara Submetropolitan City Study smoking habits of 2.012 students were studied in the year 2002 (Paudel 2003). In the study there were students both from Government Schools (60 %) and Non-Government Schools (40 %). The majority (52 %) of the respondents were of the age group 13-15 years. Nearly equal proportions of boys and girls participated in the study (boys 51 % and girls 49 %).

The prevalence of ever tobacco use by type of tobacco product was 47 % (38 % in Government schools, 61 % in Non-Government schools). The use of cigarettes and Bidi was 15 %, Surti and Khaini 3 % and Pan Masala Gurkha 41 %. The proportion of adolescent students using tobacco showed that

- the boys used much more tobacco than the girls (boys 17 % and girls 9 %)
- the use of tobacco was more common in the Non-Governmental schools than in Government schools (18 % / 10 %)
- the heaviest smokers were Gurung/Magar (17 %) and the least smokers Newar (12 %) and Brahmin/Chhetri (11 %); the others were 13 %
- the mean for current tobacco use was 13 %. Past users were 11 %, Experimental users 23 %
- 54 % had never used tobacco, 40 % of the boys and 68 % of the girls; 63 % in Government Schools, 40 % in Non-Governmental Schools
- the average age of initiation of tobacco use was 12,6 years, for girls 12,4 years, boys 12,8 years; in Non-Governmental schools 12,5 years and in Government schools 12,8 years.

More students from families with at least one tobacco user were using tobacco than students from families with no members using tobacco (51 % vs. 37 % respectively). The proportion of students using tobacco by the level of

exposure to Environmental Tobacco Smoke (ETS) at home and in public places was clear: at home regular 54 %, occasional 50 %, never 44 %; in public places regular 66 %, occasional 50 %, and never 37 %.

### **Manipal College study in 2010**

Manipal College of Medical Sciences study was made in 2006-2007 (Binu et al. 2010). Also it was a cross-sectional study. It was conducted among 816 students selected from five colleges of Western Nepal (Pokhara area) using a self-administered questionnaire.

The prevalence of ever smoking was 34 % (males 48 % and females 18 %) with the prevalence of current smoking 17 %. The mean age of initiation was 16,8 years (standard deviation 2,8 years). The proportion of the youth who said they felt they were addicted was 43 %. 65 % said that they had tried to quit the habit.

The most important predictors having an independent effect on the youth being ever smokers were:

- having three or more smoker friends (OR 18)
- their own chewing (OR=4,8)
- alcohol use (OR =4,2)
- male gender (OR=3,65)
- the type of course they were pursuing, with professional course students having higher risk

The most common reasons cited for smoking were: "I like to smoke", "It relaxes me", "I smoke out of boredom", "My friends smoke", "I get restless without it" and "It makes me more mature".

### **The outputs of HETIP program**

Health Education & Tobacco Intervention Program in Nepal included Health Course and Street Play Drama. The two day health course has been arranged in the schools to the students in the grades 4-12 depending on the school. In smaller secondary schools classes 4 and 5 were often included in the program. In higher secondary schools classes 11 and 12 were preferred. The main topic was smoking, but also other health topics such as alcohol, drugs, AIDS etc. have been introduced. (Greggas & Thapa 2010.)

In the following paragraphs main outputs will be presented. Some findings and notions will be reported as well.

**Participation.** By the year 2012 the program had been completed in 494 schools in 49 districts. 11.185 teachers and 345.602 students had accomplished the two day Health Course. The Street Play Drama had been attended by 476.997 students.



**TABLE 1. Amount of participants in different activities.**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Health Course, Teachers	505	490	325	1227	929	858	1456	1253	1525	1819	798
Health Course, Students	9079	13543	9695	41819	32306	33955	46074	38851	50259	48181	21890
Street Play Drama, Students	15708	22817	13735	61792	45020	43964	64478	51102	65759	66011	26617

**Use of Tobacco.** The differences in smoking were larger between the schools (2 % - 49 %) than between the districts (Palpa 7 % - Puythan 29 %). The school with the highest amount of smokers in the tenth class was Karnali Secondary School in Jumla. There 49 % of the students were smoking, 68 % of the boys and 25 % of the girls. The school with the lowest amount the smokers in the tenth class was Janata Secondary School in Palpa. In it about 2 % of the students were smoking, only 2,2 % of the girls and 2,6 % of the boys were smokers.

The students in the tenth class were smoking the most in Puythan (29 %, males 44 % and females 16 %), in Banke (28 %, males 36 % and females 17 %), in Jumla (27 %, males 38 % and females 13 %) and in Danusha (27 %, males 36 % and females 16 %). The least smokers among students were found in Palpa (7 %, males 11 % and females 3 %), in Dhankuta (10 %, males 17 % and females 5 %), in Dhading (12 %, males 18 % and females 7 %) and in Sarlahi (12 %, males 17 % and females 6 %).

Less smokers than in other places were found also in Kavre, Bhaktapur, Chitwan, Nawalparasi, Makawanpur, Kaski and Tanahun, but these statistics are from the years 2001-2003, when only cigarette smoking was asked about.

The boys used much more tobacco than the girls, 10-20 % more, in some cases even about 30 % more (Puythan) than the girls.

The teachers were smoking the most in Sihara (60 %), Dhankuta (52 %) and Sunsari (50 %). The least smokers among teachers were in Palpa (11 %), Morang (15 %), Bara (17 %) and Kapilvastu (17 %). Also Kathmandu (18 %) and Lalitpur (21 %) belonged to those districts where teachers were smoking less than an average.

The most smokers among the parents were found in Jumla (according to the students 57 % of their parents were smoking), in Dolakha (45 %), in Parlahi (36 %), in Bailali (36 %), in Puythan (35 %) and in Dailekh (35 %). According to the students the least parents were smoking in Bara (12 %), in Okhaldhunga (13 %), in Lalitpur (14 %) and in Sarlahi (14 %).

**Quit Smoking.** It is very difficult to quit smoking. This was found already in the year 1999 pilot. When 75 % of the participants said that they had succeeded in quitting smoking during the course, in the evaluation after half a year about half of them were again smoking.

Although it is very difficult to quit smoking, all the smokers in HETIP were asked if they had decided to stop smoking. The answer was received from all the teachers, students and parents. The students were guided to tell at home what they had learnt about smoking and then convey their decisions to the HETIP team.

During the program about 3000 smoking teachers, 30000 smoking students and 6000 smoking parents said that they wanted to quit smoking. The ratio of the quit smoking teachers (QST 2.305) of the smoking teachers (ST 2.760) was 0,84 and differed from 64 % to 100 % during 2001–2009. The ratio between the students who said they had quitted smoking (QSS 21.971) of the smoking students (SS 26.317) was 0,83 and differed from 75 % to 99 % in 2001–2009. The ratio of the quit smoking parents (40.783) of the smoking parents (126.825) was 0,32 and differed from 17 % to 63 % during 2004–2009 in different years and different areas.

The ratio among the parents (63 %) was the highest in the year 2006 when the Nepalese Government ratified the WHO Framework Convention on Tobacco Control (FCTC). Nepal had signed it already in the year 2003. (Government of Nepal 2010.)

**TABLE 2. Stopping use of tobacco products in three groups within 2001-2011**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Teachers	217	203	158	539	234	183	291	301	179	179	207
%	100	100	100	90	93	79	63	76	64	64	60
Students	507	279	191	1889	2251	4505	5202	3360	3787	3787	3493
%	90	81	94	99	89	80	85	84	75	75	71
Parents				23467	18490	19639	30387	20787	14055	3702	4293
%				17	28	63	24	38	26	26	24

**Smoking pattern in the schools.** The schools were divided into five different categories according to how many students were smoking in the tenth class. The same trend was found in all the grades: The more smoking students in the tenth class, the more smoking students in the lower classes. In those schools the first smokers appeared in lower classes, too.

There was also another trend. The amount of smokers grew gradually. In this study there was no class in which the students had begun to smoke much more than in the other classes. But there was a clear trend that in

the schools where there were more students smoking in the tenth class, the amount of students who began smoking each year was in every class larger than in the schools where there were less smokers in the tenth class.

It was also found that smoking was school dependent. In the same area there were schools with very high smoking percentages, and then other schools with very low smoking percentages.

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## APPENDIX 1. Anti-Smoking work in Finland

The first task was to let people know that tobacco smoking was a health threat. That work was done by health and temperance organizations, cancer organizations, heart organizations etc. Later this health education has been given in the schools and community health centers. This began at the end of the 1950s.

The next step was to teach people how to quit smoking. It was needed, because of the nicotine dependency: it is very difficult to quit smoking. The cessation work was done first in the 1960s by the health and temperance organizations. Nowadays the cessation work is done in the community health centers.

Finally the Finnish legislation has continued to protect nonsmokers and especially young people and children. This has happened especially in the 1990s and 2000s (Pennanen & Patja & Joronen 2006; Tobacco Statistics 2009).

The first tobacco law on Measures to Reduce Tobacco Smoking was accepted in 1976 and it entered into force in 1977

- banned or restricted smoking in public spaces (smoke free schools, public transport and public premises)
- banned advertising tobacco products and the sales to persons under 16 years old
- specified the highest allowed tar, nicotine and carbon monoxide contents for tobacco products
- decreed that health warnings must be printed on retail sales packaging of tobacco products
- 0,45 per cent of the revenue from the tobacco tax must be spent on measures to reduce tobacco smoking.

The first Amendment of the Act was passed in 1994 (entered in force in 1995) to prevent secondhand smoking

- banned smoking at workplaces except restaurants (separately ventilated smoking rooms allowed)
- raised the age limit for the sales of tobacco products to eighteen
- the previously given smoking restriction and advertising bans on tobacco products were expanded

A further Amendment of the Act which entered into force in 2000 against environmental tobacco smoke

- restricted smoking in restaurants (separately ventilated smoking rooms allowed with license)
- classified environmental tobacco smoke as a carcinogen

The next Amendment of Act entered into force in 2007

- smoking in restaurants and cafes was banned completely
- the tax was increased in 2008 and 2009

The latest Amendment of Act launched in 2010 included

- an offence for under 18 years old to possess tobacco products
- buying cigarettes on behalf of a minor becomes a punishable offence
- Tobacco products are not allowed to be seen in the retail shops (entered into force in 2012)

As the first country in the world the Parliament of Finland has decided to get Finland tobacco-free by the year 2040 (Savuton Suomi 2040). This means that tobacco use has to be reduced 10 % annually.



## APPENDIX 2. Smoking in the schools 1999, 2001-2003 (cigarettes) and in 2004-2011 (all tobacco products)

YEAR	DISTRICT	Parents	Teachers	Students	Male	Female
1999	KAVRE, pilot					
2001	KAVRE			11,1	17,0	5,4
2002	BHAKTAPUR			11,7	18,0	6,3
	CHITWAN			9,4	12,7	6,0
	NAWALPARASI			6,2	10,1	1,9
	MAKWANPUR			7,6	11,9	3,3
2003	KASKI			6,8	10,7	2,4
	TANAHUN			6,3	10,4	1,9
2004	DHANKUTA	28,2	51,9	10,4	16,9	5,0
	ILAM	25,8	39,9	12,1	18,4	5,3
	UDAYAPUR	30,6	47,0	15,1	22,0	8,4
	JHAPA	27,4	44,4	15,2	22,6	7,7
	SUNSARI	27,7	50,3	12,2	17,3	7,0
	SIHARA	27,8	63,1	12,8	17,7	8,0
2005	PALPA	23,7	13,0	7,0	10,6	3,3
	RUPANDEHI	24,6	44,3	21,1	31,3	11,2
	BAGLUND	31,8	22,0	21,5	30,5	10,6
	PARLAHI	36,1	19,2	13,4	22,3	3,7
2006	PYUTHAN	35,3	22,7	29,3	44,1	16,0
	DANG	32,5	17,4	23,3	29,7	15,3
	BANKE	23,7	32,5	27,9	35,9	17,4
	SURKHET	30,2	26,8	25,9	35,4	15,5
	DANUSHA	33,9	36,0	26,7	35,6	16,3
2007	BAITADI	36,0	28,2	25,0	32,0	15,6
	DOTI	46,0	32,0	26,1	33,0	15,1
	KAILALI	29,1	24,8	15,9	22,3	8,0
	DAILEKTH	35,1	34,2	17,9	26,3	8,1
	BAJHANG	33,1	31,1	24,2	28,9	16,5
	KACHANPUR	28,9	29,7	14,4	19,9	8,4
2008	JUMLA	56,8	36,7	26,8	37,7	13,2
	SINDHUPALCHOWK	27,2	26,2	16,1	23,0	8,7
	DHADING	22,6	26,6	11,7	18,4	5,5
	GORKHA	28,5	23,2	15,2	22,9	7,2
	ROLPA	29,3	31,3	19,3	24,9	11,2
	BARDIYA	25,0	33,2	16,4	24,8	8,0
2009	SINDHULI	14,2	28,5	14,5	24,1	7,4
	DOLAKHA	13,6	27,1	16,1	27,1	6,4
	BARA	12,3	17,0	12,6	19,7	4,6
	SARLAHI	13,9	17,7	11,8	17,4	5,8
	OKHALDHUNGA	13,0	23,7	18,0	28,1	8,5
	KAPILVASTU	15,3	17,2	16,7	24,3	8,1
2010	LALITPUR	13,6	20,5	17,8	27,4	10,0
	MORANG	21,4	15,2	13,2	20,4	6,5
	KATHMANDU	15,3	18,4	16,0	24,5	8,6
	RAUTHAUT	19,5	21,5	12,9	16,6	6,3
	PARSA	22,6	23,5	18,6	26,3	8,3
	SAKHUWASABBA	26,3	20,8	15,7	24,3	7,1
2011	RAMECHHAP	21,2	15,6	15,9	23,7	6,4
	RASUWA	22,9	17,2	14,6	23,1	6,0
	SAPTARI	19,2	39,3	12,0	17,6	4,3





## **Working methods of School Level Health Education and Tobacco Intervention Program in Nepal 2001–2012**

### **Background**

Scheer Memorial Hospital (SMH) of Seventh-day Adventists has served the people of Nepal for over 50 years. Believing that medical care must be both curative and preventive Scheer Memorial Hospital has been conducting Community-based Health Education Programs and Outreach Clinics in the Kavrepalanchowk district as well as other districts.

In spite of preventive education and innovative teaching (such as drama, rallies, electronic and printing media) the behavioral change toward smoking cessation has been very slow. Alcoholism, which is another major concern in Nepal, is difficult to combat because the use of alcohol is accepted in the vast society of Nepal.

Extreme poverty, a shortage of health facilities and prohibitive cost of healthcare make a negative impact on the population. Hospital data, literature and studies clearly predict an increase in smoking-, alcohol- and HIV-related diseases. Respiratory infections, cardiovascular diseases, lung cancer, gangrene, oral cancer, cirrhosis of the liver and birth deficiencies are some of the major problems related to smoking and alcoholism.

Kavrepalanchowk is a mountainous area, where the majority of the population is poor farmers. A survey conducted in this district revealed that at least one family member in 85% of the households is a smoker. The age of smokers ranged from 12 years to 89. The majority of the smokers fell into the reproductive age group, which indicated that most of the smokers started smoking while pre-teens.

In 1999 to address these problems Scheer Memorial Hospital conducted a preventive, community-based Health Education & Tobacco Intervention Program in five communities (Banepa Municipality, Panauti Municipality, Ugrachandi-Nala VDC, Nashikasthan VDC and Kushadevi VDC) in the Kavrepalanchowk district. Among the 408 participants in those communities, 234 (57 %) were smokers. During the program 175 (75%) smoker participants were able to quit smoking.

The program was inaugurated on August 17, 1999 by then Health Minister Dr. Ram Baran Yadav (currently the first president of Nepal). In his inaugural



speech he said: "Government of Nepal, Ministry of Health & Population welcome this kind of awareness raising program. It is very needful and will help people to become aware of adverse effects of use of tobacco products."

The program was supported by the ETRA liitto ry (Health & Temperance Association of the Seventh-day Adventists in Finland) and the Ministry for Foreign Affairs, Finland. Because the program was a success and the schools wanted similar programs for their students, the program became a PILOT project. For addressing the topic in more effective ways in the schools a new project fund was applied for three more years (2001–2003).

## **Phase I: School Level Health Education and Smoking Intervention**

For reaching out among the young teenagers the school grades 6-10/12 were chosen as a target group. In 2001 the program was carried out in 25 secondary schools of the Kavrepalanchowk District in the Central Development Region. There were 9,079 participants in the Lecture and Visual Program and 15,708 in the Street Play Show.

The Inauguration Ceremony was held on September 7, 2001, inaugurated by then Health Minister Mr. Sharad Singh Bhandari. In his Inaugural speech he said: "- - that our unseen foes (referring to smoking and alcoholism) cause different kinds of diseases that have become very strong in our country, killing many people. Today, I am very happy to inaugurate this program that Scheer Memorial Hospital has organized to launch in different public schools. I am sure this program will be a special one to educate against smoking and alcoholism. This will be the program that will benefit both young and old. I am happy to see that Scheer Memorial Hospital is being challenged to fight against and stop these unseen foes." Wishing that the program would be successful, he concluded by saying: "I convey special thanks to the Ministry of Foreign Affairs, State of Finland and the ETRA Association for their special support towards this program."

In 2002, the program was conducted in 24 secondary/higher secondary schools in four districts; Bhaktapur, Chitwan and Makwanpur, in the Central Development Region and in Nawalparasi in the Western Development Region with 13,543 students participating in the Lecture and Visual Program and 22,817 in the Street Play Show.

The Inauguration Ceremony was formally held on September 15, 2002. The Chief Guest at the ceremony was His Excellency Mr. Asko Luukkainen, Charge d' Affairs, Embassy of Finland for Nepal. Mr. Roy Kline, Chief Executive Officer of Scheer Memorial Hospital, chaired the program. Also present were



the District Health Officer (DHO), Mayor of Banepa Municipality, District Education Officer (DEO), Program Director of Kathmandu University Medical School, principals representing the targeted schools, representatives representing several different Social Organizations and clubs, local leaders, news reporters.

In his Inaugural speech, Mr. Asko Luukkainen remarked about how difficult it is to stop smoking (referring to his own prior experience) after you've been hooked into the habit of smoking. He enthusiastically endorsed this program because: "- - it will certainly help our young children not to start smoking within their lifetime and to remain free from smoking." He also added: "- - without the program the effect on their health would be a heavy price to pay." He went on to include that he was both honored and pleased to inaugurate the program that Scheer Memorial Hospital organized to be launched in different public schools; and thanked both ETRA Association and the Ministry of Foreign Affairs, State of Finland for their financial and programmatic support. He ended by wishing success for the program.

In 2003, the program was carried out to 16 schools in Kaski and Tanahun districts of the Western Development Region. It met 9.695 students in the Lecture and Visual Program and 13.735 in the Street Play Show.

## **Phase 2: School Level Health Education and Tobacco Intervention**

For extending the program throughout the Kingdom of Nepal ETRA Association and the Ministry of Foreign Affairs, Finland, renewed the project for another three years from 2004 to 2006. This second phase was applied to more students, schools and districts than the first phase program had done. Besides, all use of tobacco, not only smoking, was included in the education.

In 2004, as a result of this renewal, the program was carried out in 6 districts: Ilam, Jhapa, Dhankuta, Sunsari, Udaypur and Siraha, in the Eastern Development Region. The total number of the schools was 50 with 41819 students and 1227 teachers in the Lecture and Visual Session. There were 61792 students (grade 1–10/12) present in the Street Play Show. The program was monitored by Aune and Ben Greggas from Finland.

In 2005, the program was carried out in 44 schools in Palpa, Rupandehi, Baglung and Parbat in the Western Development Region with 32306 students and 929 teachers in the Lecture and Visual Session and 45020 students (grade 1–10/12) in the Street Play Show.

In 2006 the program was carried out in 38 schools in 5 districts, Pyuthan, Dang, Banke and Surkhet, in the Mid-western Development Region and

Dhanusha in the Central Development Region. It was participated by 33955 students and 858 teachers in the Lecture and Visual Session and 43964 students (grade 1–10/12) in the Street Play Show. Also a group of four from Finland headed by Dr. Ari Mõnttinen came to evaluate the program. Also Matti Lahtinen (Ministry for Foreign Affairs, Finland) and Kari Kairamo (The Finnish Embassy in Kathmandu) visited Scheer Memorial Hospital.

### **Phase 3: School Level Health Education and Tobacco Intervention continued**

At the end of year 2006 the Ministry for Foreign Affairs, Finland, accepted a new third phase project proposal by extending the program for another 3 years that is 2007–2009. With this extension the program could be reached out to 40 / 75 districts in Nepal.

Thus, in 2007 the fieldwork was begun in early February 2007. It was successfully accomplished in 6 districts: Baitadi, Kanchanpur, Bajhang, Doti and Kailali in the Far-western Development Region and the Dailekh district in the Mid-western Development Region. In 67 schools 46074 students (grade 4–10/12) and 1456 teachers participated in the Lecture and Visual Session and 64478 students (grade 1–10/12) in the Street Play Show.

In year 2007 the program was extended to Female Health Volunteers/Workers. They work for the Family Planning Association of Nepal (FPAN) in various communities. Basically they teach about the Reproductive Health along with contraceptive methods, but they wanted to include tobacco and alcohol into their program because of their negative effect on Reproductive Health.

In 2008 the program was conducted in 68 schools in 6 districts: in Jumla, Rolpa and Bardiya in the Mid-western Development Region, in Gorkha in the Western Development Region and in Dhading and Sindhupalchowk in the Central Development Region. It was participated by 38851 students and 1253 teachers in the Lecture & Visual Session and 51102 students (grade 1–10/12) in the Street Play Show.

\* In 2009, the program was conducted in 68 schools in 6 districts: Okhaldhunga in the Eastern Development Region, Sindhuli, Dolakha, Sarlahi and Bara in the Central Development Region and Kapilvastu in the Western Development Region. There were 50259 students and 1525 teachers participating in the Lecture & Visual Session and 65759 students (grade 1–10/12) in the Street Play Show. Out of 68 schools in 2009, Chapter Nepal, an NGO in the Bara district, had conducted the program in seven schools in the Bara district with the Technical and Material support of HETIP – 2009.



#### **Phase 4: School Level Health Education and Tobacco Intervention continued & Evaluation**

In any program the successful conduction of the program alone cannot be valued as a 100 % result, so a proper evaluation will need to be done. Thus, in the HETIP program there was a need of conducting an evaluation to measure the correct percentage of Stop Smoking Students, Teachers and Parents who had been smoking for many years.

The Fourth Phase of this program was begun in May 2010 with Training of Trainers (TOT) for new trainers as well as Refreshing Training (RT) for trainers who had already been working as a field trainers. The fieldwork in 2010 was begun on May 16 from the Lalitpur district and continued until January 7, 2011 by successfully conducting the program in 62 Secondary/ Higher Secondary Schools of 6 districts like Lalitpur, Kathmandu, Rauthat and Parsa of the Central Development Region and Morang and Sankhuwasabha of the Eastern Development Region, where 48181 students participated in the Lecture & Visual session and 66011 students were presented in the Street Play show. As well as in 2010 out of 4954 Smoker Students, 3493 Quit Smoking; out of 347 Smoker Teachers, 207 Quit Smoking and out of 18192 Smoker Parents, 4293 Quit Smoking.

Nepalese people listen to the radio quite often. Thus the weekly radio program called "Scheer Swasthya Sandesh" (Scheer Health Tidings) was continued through Gorkha FM 93 MHZ in 2009 with coverage of seven districts, Kathmandu, Lalitpur, Kirtipur, Dhading, Nuwakot, Bhaktapur, Kavre and Sindhupalchowk. Many listeners were found even in rather surprising districts. This was a positive sign regarding the goal of raising public awareness.

With the continued support of the Ministry for Foreign Affairs, Finland and the ETRA-liitto ry, Finland the School Level Health Education & Tobacco Intervention Program (2001–2010) was able to reach out to 462 Secondary/ Higher Secondary Schools in 46 districts out of 75 in the country, resulting in 323712 students and 10387 teachers participation in the Lecture & Visual Session and 450380 students present (grades 1–10/12) in the Street Play show session. Likewise, 30963 students, 3261 teachers and 69711 parents have been able to Quit Smoking.

In 2011, an Intensive Program was conducted at St. Xavier's College, Kathmandu. The purpose of the conduction of the program was to help in conducting the Evaluation in the schools where the Questionnaires been taken. It was done in the Kathmandu, Lalitpur, Sindhupalchowk, Dolakha, Sarlahi, Bara, Parsa, Rupandehi and Banke districts. Beside this, the field-work program has also been conducted in 32 schools of three districts –

Ramechhap, Rasuwa and Saptari. The program was conducted for 798 teachers and 21890 students, and 26617 students participated Street Play show.

Thus, at the end of this year the total number of schools where we were able to conduct the program will be 494 Secondary/Higher Secondary Schools of 49 districts out of 75 in the country, resulting 345602 students and 11185 teachers participation in the Lecture & Visual Session and 476997 students present (grades 1–10/12) in the Street Play show session.

According to the original Project Plan we will have a Seminar in the month of February in 2012. The purpose of having this Seminar is to disseminate the information about the program evaluation which was conducted in February-March 2011. To the Seminar, the higher officials from the Ministry of Health & Population and the Ministry of Education will be invited.

The regular HETIP program will also be conducted in another 4-5 districts, which will be adding another 30–40 thousand students of 40–50 schools.

## **Program Participation**

### **Training of Trainers (TOT) and Refreshing Training (RT)**

The proper training of trainers ensures a better success rate. All the trainers have had a Training of Trainers (TOT) course. In it the trainers were taught and drilled, not only on health topics, tobacco and alcohol, but also on the teaching methods and on having visual aids, group discussion, self-participation. They also received ideas from expert teachers. After the training course the trainers were well equipped to teach the course.

Also the trainers who have been working earlier as field trainers were given Refreshing Training (RT). In it they could share their experiences which they had faced during previous years. It also encouraged and helped them to learn more about the subject matter. Each year from 5 to 10 trainers have participated in the Training of Trainers and Refreshing Training Program.

### **Orientation / Review / Closing Program**

At the beginning of the program an Orientation Program has been held in each targeted district with the participation of targeted School Principals and Health Teachers, District Education Officer (DEO), District Health Officer, (DHO), Local Development Officer (LDO) from District Development Committee (DDC), Chief District Officer (CDO) and Chairman of Association of Nepal Journalists as well as other local journalists. In 2008 instead of Orientation Program in some districts a Review Program was arranged. It was



found to be very beneficial. The purpose of the Orientation Program was:

- to make the officials of the districts aware about the Health Education & Tobacco Intervention Program so that they could know beforehand what will be taught to the students
- to establish in the schools a base to teach the subject matter even in the future by themselves so that there would be a continuity in the subject

In Review/Closing Program the Principals and Health Teachers from the targeted schools were very enthusiastic and gave very good and positive responses. It was exciting when at the end of the Review/Closing Program most of the Principals as well as Health Teachers made an announcement by saying: "I have determined to quit smoking/chewing tobacco."

### **Press Conference**

Press Conference has been arranged at the same time as the Orientation Program or Review/Closing Program. After the Press Conference information about the program and tobacco has been published in the Local/National Level Newspapers. In most of the targeted districts the program was in detail positively published.

### **Electronic Media**

At the present age the Electronic Media has been one of the most popular ways of information. Thus, in 2007 a weekly Radio Program was launched beginning from May 18, 2007 until February 1, 2008. The program was broadcasted through HBC FM 94 MHZ with the coverage of five districts, the Kathmandu, Lalitpur, Kirtipur, Bhaktapur and Kavrepalanchowk districts.

Knowing that Nepalese people like to listen to radio the weekly program called "Scheer Swasthya Sandesh" (Scheer Health Tidings) was broadcast through Gorkha FM 93 MHZ in 2009 with coverage of seven districts (Kathmandu, Lalitpur, Kirtipur, Dhading, Nuwakot, Bhaktapur, Kavre and Sindhupalchowk). We have found many listeners even in the Chitwan district, and that shows us that many people have been listening and benefiting through this program and of course, the objective of this program is specifically for Public Awareness.

There has also been a Folk Song contest in 2005 against tobacco. The series of the program was broadcast through the Nepal Television.

## Program Implementation

The total number of targeted schools is 494. The program implementation has been done by using the following three different methods, Lecture Sessions, Visual Session and Street Play Show.

**Pre-test Session.** Before commencing the Lectures and Visuals a Pre-test session was held, which helped to understand:

- The level of knowledge on the adverse effects of tobacco and alcohol of the students
- The number of SMOKING students and parents (questionnaires)
- The actual attitude towards tobacco or smoking

**Lecture Session.** There were four program sessions. Each one of them was 2.5 hours, which made two full days in each school. Three out of the four sessions were set-aside for lectures and one for visual presentations (a slide show by using a power point program with LCD projectors). The sessions concentrated on:

- The different kinds of diseases caused by cigarette smoking and alcohol
- The importance of a healthy lifestyle and prevention for personal health

Every Lecture Session also included ample time for questions and discussion. The Lecture Sessions were conducted simultaneously in five to seven classrooms by five to seven individual trainers (grades 6–10/12, in most schools also the 4th & 5th grades were included). Since some of the schools have sections for each class — in some even three sections for one class — bigger training halls were used as classrooms.

Most of the teachers and members of the School Management Board were available during the presentation hours in each school. They also participated in the sessions and that helped them individually to quit smoking.

**Visual Session.** Visual Sessions were an excellent method of holding the attention of the young people and helped to better explain the dangers of smoking and alcohol abuse. LCD projectors were used for the slide show to illustrate the course content.

**Street Play Drama.** The Street Play/Drama Show was held after the completion of the Lecture and Visual Sessions in all the schools. Nepali culture embraces street drama. Therefore using it as a teaching method was a very effective method in this program. Street Plays Shows made the problems real, personal and community-related. While entertaining the passersby, the messages of the drama had a profound effect on the community. During the show the students were awarded with different prizes like a T-shirt or VCD of Folksongs on Anti-smoking who helped their parents/family members to QUIT smoking. It used to be a great moment for all students who were present in the show.



**Closing Session.** In each venue in the second day after the completion of program session a Closing Program was held for teachers. It included discussion, interaction and responses from the school principal, teachers and even the students about the program. Very exciting & interesting responses like this were often heard: "How useful and helpful this program has been for me especially for quitting the smoking." At the session a No Smoking Zone Signboard, Manual Book, DVD-slides and No Smoking Logo leveled T-shirts were presented for all the teachers in each school. In some schools these were distributed during the Street Play Show.

**Post-test Session.** Before commencing the Street Play Show a Post-test session was held, which helped to understand:

- The level of knowledge on the adverse effect of tobacco and alcohol of the students
- The number of QUIT SMOKING students and parents (questionnaires)
- Suggestions/comments on the program from the students

**Fieldwork Observation.** It is very necessary and important to have the Fieldwork Observation done by the donor agency/organization. It ensures that the project is really done as planned and targeted with success. The Fieldwork Observation has been done in 2004 (ETRA: Project Secretary Aune Greggass, Jhapa, Ilam, Dhankuta), 2006 (ETRA: Chairman Dr. Ari Mönnttinen, Pyuthan; the Ministry for Foreign Affairs in Finland: Inspector Matti Lahtinen; The Embassy of Finland in Kathmandu: Kari Kairamo), In 2007, ETRA liitto ry Secretary, Aune Greggass visited the Kanchanpur district and in 2008, ETRA liitto ry Chairman, Ari Mönnttinen visited the Gorkha district.

In year 2009 there was no Field Observation person visiting the fieldwork but Aune Greggass, the ETRA liitto ry Secretary, visited Nepal at the beginning of the year to plan the application to the Ministry for Foreign Affairs for the fourth phase of this program for years 2010–2012. It includes an evaluation of the program made by Diaconia University of Applied Sciences. It included also the training of the trainers.

**Program Accomplishments.** In each school, Pre-test and Post-test examinations were given to ascertain the level of understanding received during the program. The results revealed that the knowledge gained about the dangers of tobacco and alcohol was above the average. These tests were also an indication that the major objectives of the program were met satisfactorily. Results were as follows:

#### *1. Students/Parents*

A. Students were eager to learn and know more about the content material of this program.

B. There were multiple benefits of this program:

- Smoker students gained help to quit smoking.
- Non-smokers were even more determined not to start smoking.



- All students were teaching venues when they shared the knowledge gained with family and friends. Many reported incidents testifying to where parents gave up smoking and/or alcohol because of what their children had to say to them after going through this program. In fact, many parents were drawn to school through their children where they had an opportunity to learn more.

C. The change in the children's behavior and outlook was very encouraging to concerned parents.

## 2. *Schools/Teachers*

A. All teachers, non-smokers as well the teachers who were smoking or had the habit of tobacco chewing, participated in the program. Thereby they could help each other to quit smoking, not any more to chew tobacco or to use lots of alcohol.

B. School principals and teachers alike were very cooperative, supportive and offered help. They were very happy to have their school selected. They responded very positively by presenting "Appreciation Letters" in which they requested to have this kind of program in their schools also in the future.

## 3. *Trainers*

A. Balance and variety in teaching methods were crucial in upholding the interest and attention of the students during the entire four sessions.

B. The use of the visual and street play made learning more practical, effective and interesting.

C. The team members exhibited a good working relationship and were very enthusiastic about the subject matter.

# Conclusions

With the continued support of the Ministry of Foreign Affairs, Finland and the ETRA-liitto ry, Finland the School Level Health Education & Tobacco Intervention Program (2001-2011) has been able to reach out to

- **494 Secondary/Higher Secondary Schools**
- **49 districts out of 75 in the country**
- **345.602 students and 11.185 teacher participants in the Lecture & Visual Session**
- **476.997 students (grade 1-10/12) in the Street Play show session**

The target group has during all these years been basically teenage students. Their age has been on an average thirteen years. They have been from different community schools. The students have been eager and enthusiastic



to learn more about the subject in our package program. During these years there has been a lot of travelling and in some more isolated areas also lots of walking. Especially after the monsoon begins, the unpaved roads are rough and muddy and to reach the schools is extremely difficult.

The political strikes and the highway blockages for any reason are quite common in Nepal. There has not been a year during this program without such occurrences. However, with careful planning the team has avoided those particular districts or venues. By this conduction the objectives of the program have been met. Also the students, teachers, parents, the officials of each District Education Offices, District Public Health Offices, District Administration Offices, Local Development Offices and the Community and the journalists, have been enthusiastic about the program with positive responses.

The positive feedback, the responsiveness of the communities and the change in the attitude of the participants indicate that the School Level Health Education and Tobacco Intervention Program has been conducted well. The program has been extremely successful. All the set goals have been satisfactorily achieved and the targeted venues have been reached though there has been a high inflation in Nepal. The cost of all the materials, and especially fuel, has become higher.



## **Constructing non-smoking areas for school children**

### **Introduction**

This article will present the qualitative data collected during the field days of the program evaluation (from 27 February to 1 March 2011). The data are divided into three parts:

- Thematic interviews for schools principals
- Focus group interviews for teachers
- Observations

Our goal was to find out what the management and teaching staff thought about health promotion and what their actions were in practice. We assumed that schools had a significant role in communities but did not have a clear idea about the implementation of the curriculum nor of its precise contents regarding health promotion or anti-tobacco education in particular. Our choice of districts also made us aware of the possible differences between urban and rural environments, since two were in big cities (Kathmandu and Lalitpur) and the other two in more rural areas (Sindhupalchok and Dolakha).

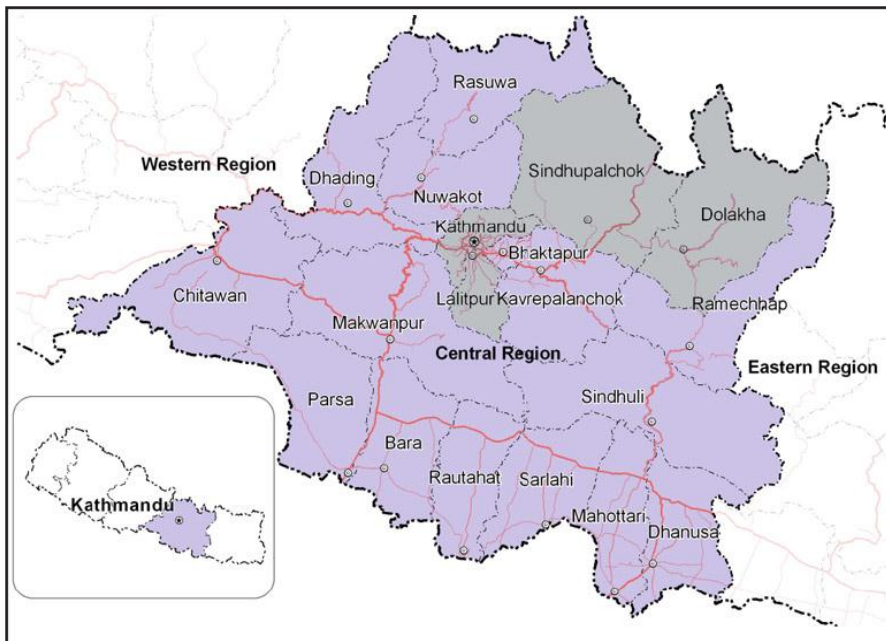
The two-part research question was: *How do public schools promote health and how do they reduce smoking and the use of tobacco?* This article will answer these questions by concentrating on 1) the attitudes and actions of staff members, 2) pedagogical tools such as the curriculum and 3) observations of the Nepalese public school in its environment. The article will begin with background information about the Nepalese school system, the status of teachers and religious and cultural considerations (the Finnish members of the evaluation team were, after all, invited as foreigners to study local communities in a culture very different from our own). Then the findings based on interviews and observations will be presented. Finally some concluding remarks will be made on how the HETIP intervention has or has not changed the face of community schools as places where the health and wellbeing of school children are constructed from day to day.

The qualitative data were collected in 34 Secondary and Higher Secondary Schools in the Kathmandu, Lalitpur, Sindhupalchok and Dolakha districts in the Central Developmental Region (see Figure 1 on the following page). Initially 36 schools were selected, but due to challenges in the research process two could not be used as valid sources of information. In the first case,



a chosen school had suddenly gone on strike due to violence towards a teacher. Another school was selected but it was situated in a difficult location, which meant that the team ran out of time to reach the final school on the way back to Kathmandu. Also the coming Shivaratri festival had its effect on the timing. In the second case, one school was found to have been left out by the team of research assistants.

24 schools out of 34 were so-called “yes-HETIP schools”. This means that the Health Education and Tobacco Intervention Program had been carried out there in the past years. The remaining 10 were “non-HETIP schools” where this program was something new, in which case they acted as a control group. Eight schools in total were Secondary Schools (grades 9–10) and 26 were Higher Secondary Schools (grades 11–12). Table 1 on the following page shows more details of the schools.



**FIGURE 1.** *The Central Developmental Region and the four districts chosen for the field work in spring 2011. (Original picture source: UN Field Coordination Office, Bharatpur, Nepal)*

**TABLE 1. Number of schools (intervention = Yes-HETIP; without intervention = Non-HETIP) in the four districts chosen for field work.**

<u>District (+ level)</u>	<u>Yes-HETIP</u>	<u>Non-HETIP</u>	<u>Total schools</u>
<b>Dolakha</b>	<b>6</b>	<b>3</b>	<b>9</b>
<i>Higher Secondary</i>	6	2	8
<i>Secondary</i>	0	1	1
<b>Kathmandu</b>	<b>7</b>	<b>3</b>	<b>10</b>
<i>Higher Secondary</i>	5	0	5
<i>Secondary</i>	2	3	5
<b>Lalitpur</b>	<b>7</b>	<b>3</b>	<b>10</b>
<i>Higher Secondary</i>	5	3	8
<i>Secondary</i>	2	0	2
<b>Sindhupalchok</b>	<b>4</b>	<b>1</b>	<b>5</b>
<i>Higher Secondary</i>	4	1	5
<i>Secondary</i>	0	0	0
<b>TOTAL</b>	<b>24</b>	<b>10</b>	<b>34</b>

During the HETIP intensive course it became clear that both school management and teaching staff needed to be interviewed in order to get versatile information at different levels. A set of thematic questions was formulated for individual interviews with the management, ie. principals, vice-principals or supervisors. Another set of questions was built similarly for the teaching staff in mind, only this time to be used in a focus group interview setting (see Appendix 1 for all interview questions).

Since formulating the questions was part of the student training on qualitative research methodology, we proceeded in the following way. First the Finnish UAS staff members produced a tentative set of questions on the basis of the project goals as a whole. This was necessary for starting off in the right direction. Then the questions were presented to the Nepalese and Finnish students who were asked to critically assess them and suggest modifications, which they did in an innovative way, taking into account the real-life situation in local communities. After arriving at a mutual agreement on the right wordings and formulations the questions were cross-checked by staff members and finalized for use.

Likewise a framework for observation was constructed. The field groups were asked to pay attention to the people, activity and physical environment at the levels of school, school yard and community. Each group chose certain members among them for carrying out the observation, and likewise for conducting interviews and distributing questionnaires to school children. The language barrier often made the Finnish students act as observers, although they also took part in other activities.

## Background information

### Outline of secondary education in Nepal

The highest national authority in the educational system is held by the Ministry of Education (MoE, formerly Ministry of Education and Sports or MoES). It formulates the educational policies and plans and manages their implementation. A Cabinet Minister and two Secretaries have supreme leadership in the ministry. Responsibilities are further distributed among the following institutions (only relevant to present purposes have been chosen):

- Department of Education (DoE); responsible for implementing and monitoring educational programs under the MoE
- Curriculum Development Centre (CDC): develops curricula, textbooks and materials
- Higher Secondary Education Board, responsible for levels 11 and 12
- Janak Educational Materials Centre (JEMC): develops textbooks, teacher guides, maps etc.
- 5 Regional Education Directorates (REDs); responsible for the School Leaving Certificate (SLC) and recruitment of teachers
- 75 District Education Offices (DEO); responsible for the planning and implementation of development activities, supervision of teacher/learning processes and general liaising with individual schools

The educational system has consisted of primary education (grades 1–5), lower secondary education (grades 6–8), secondary education (grades 9–10) and higher secondary education (grades 11–12). After grade 10 students have needed to pass a national final examination called the School Leaving Certificate (SLC) in order to be eligible for further studies. This is often referred to as the “Iron Gate”, referring to the stress and hardship students go through while preparing for the examination. Only one half of the attendees usually pass the test, and SLC has been criticized for creating externally-oriented motivation and learning style among the students.

The structure of the educational system is currently under a reform. The Department of Education’s School Sector Reform Programme (SSRP) has been implemented since 2009 with the aim to restructure the system as consisting of basic education (grades 1–8) and secondary education (grades 9–12) (Flash I Report 2010; UNESCO-IBE 2011). The reform program will last until 2015 and its primary goal is to increase the overall quality of the educational system. Basic operational conditions for every school include clean water, properly constructed buildings and a sufficient number of lavatories (Ängeslevä 2011, 29). These are the kinds of prerequisites that countries committed to support the reform – such as Finland – currently have.

According to the Flash I Report (2010), there are broadly four categories of schools in Nepal:

- Community-aided: full government support for teachers' salary and other expenses
- Community-managed: full financial support by government but managed by community
- Community-unaided: partial or no support by government
- Institutional: supported by parents and trustees

The HETIP intervention has been carried out only in community schools, which means that no institutional or private schools have been selected in the program. The same applies to the schools selected for the evaluation. In addition to the above-mentioned categories, some religious schools receive support from the government after being approved by the Department of Education and following national legislation. These include madrasas (Islamic), gumpas (Buddhist) and ashrams (Hindu). Out of the total 33 000-plus secondary level schools in Nepal, the number of religious schools is very small (only 766 in official statistics).

The number of public (community) schools is clearly larger than that of private (institutional) schools. According to the Flash report (2010, 42), 68 % of secondary (9–10) level schools were public ones and 32% private ones. On a higher secondary (11–12) level, the percentage of public schools was slightly bigger (73 %).

Community-based schooling seems to present challenges and a risk of greater marginalization (Carney, Bista & Agergaard 2007). There is a notable gap between public and private schools in terms of enrolment as well as social status. Community schools have been selected for the HETIP program with the assumption that there have been more challenges in terms of health awareness and socioeconomic status than in private schools. The final choice has been made by the local District Education Offices.

## **Recruitment and working conditions of teachers**

Traditionally, teachers in many parts of the country have been selected from most suitable former students. Pedagogical practices and goals have been passed on from generation to generation among local communities. Many retired school board members are former teachers and in turn former students in the same community.

There has, however, been another tradition of centralization in order to meet international and national educational ideals. Teacher education in Nepal started in 1948 with the establishment of the Basic Teacher Training Centre (UNESCO–IBE 2011). This in turn evolved into other facilities through which teacher training gradually gained ground.



Secondary and higher secondary level teachers can obtain a qualification either in pre-service training or in-service training. Pre-service training is usually given by the Tribhuvan University's Faculty of Education and the Higher Secondary Education Board. There are proficiency certificates, Bachelor's degrees and higher level programs offered by the University and its constituent and affiliated campuses around the country. A Bachelor's degree and at least a ten-month training period are needed for a permanent vocation to teach at the secondary level. (UNESCO-IBE 2011, 27.)

As in many countries, the teaching profession in Nepal is socially reputable but financially not very rewarding. Teachers are considered agents for development in communities and mediators between community members and authorities. In matters of health and social problems they are usually listened to. In a country of volatile job opportunities and hard competition the appointment to become a teacher is anything but self-evident.

Still, working conditions leave a lot to ask for, especially in the more remote areas. In the north, schools and human settlements need to shift up and down the mountains and valleys depending on the level of coldness in the region. Schools may also be left closed for months due to snow, and some students simply do not return to school after winter vacations. (ibid.) This reflects the reality of a country with very diverse geographical conditions, ranging from the extremities of the Himalayas to the densely-populated plains of the Terai, accommodating between them the hill region and the only real metropolis in the country, the city of Kathmandu.

Salaries of public school teachers follow the general public sector pattern, which means the income is mediocre. Not all private schools pay better salaries either, but some high-profile ones do. Remote area allowances are granted to attract teachers to work in more challenging locations. The average daily requirement for actual teaching is four to five hours, but often the responsible role in community requires staff members to use more of their time in different activities. School board and management members are often seen in Village Development Committees or other decision-making bodies.

The highest authority in school administration is usually held by a School Management Committee (SMC). This is in accordance with the Local Self-governance Act of 1999, which dictates the establishment of committees at district and village levels for managing and monitoring school activities. School supervisors or resource persons (RPs) normally put the Committee decisions into practice along with head teachers and other teaching staff. There are over one thousand resource centers (RC) designed for putting plans and programs into practice.

## **Notes on culture, ethnicity and religion**

This evaluation does not analyze thoroughly ethnological differences, caste-based divisions or the social role of dalit/janajati communities. However, it is necessary to acknowledge even in short detail the complex sociocultural and spiritual motivations in Nepalese culture, since these come out in some of the answers.

Nepalese culture is rich with traditional beliefs – influences having arrived mainly through social, economic, cultural and religious ties with the Indian subcontinent and China/Tibet. From the 18th century onwards, under the influence of Prithvi Narayan Shah and his successors, Nepal was shaped into a unified nation, and one with a strong orientation towards Hinduism as the only official state religion. Other traditions have been acknowledged as equals with Hinduism only recently – although especially Buddhism has a long and vivid history in Nepal (Gellner 1992, Kivelä 2005).

Tantric thinking plays a visible role in Nepalese high religion and among many ethnic groups (Gellner 1992; Wayman 1995). In Tantric religion intoxicants may sometimes be used deliberately to gain access to higher spiritual states, but only in strictly sanctioned rituals and by properly initiated religious professionals; elements of shamanism may also be involved. The question of purity/impurity plays a central role in the attitudes towards intoxicants, and although the spiritually accepted norm far and wide may be abstinence, there are many reasons for treating the otherwise impure substances paradoxically as favourable (the same applies to meat).

One example of a group strongly influenced by shamanism is the Chepang community, a minority indigenous ethnic group of the Central Development Region. Some 90 % live below the absolute poverty line and the literacy rate is estimated to be less than 15 % (An Overview of the Central Development Region (CR) 2011). It is a rising trend in the discussion about Nepalese education to acknowledge the status of indigenous and low-caste caste groups – and especially below them all dalits who have suffered from grave human rights violations in the Indian subcontinent for centuries. Cultural considerations are important to keep in mind, although in the empirical part we refer to these issues only occasionally.

## **Empirical findings**

### **Description of the interviewees**

Who were the teachers and principals that we met? What were their values and attitudes towards the students, their peers and communities as well as



themselves? How did they feel about health, tobacco and smoking in general? What did they do in practice? This is all relevant for getting an idea of their role as promoters of health, which often has to do with acting as public figures especially in smaller communities.

The principals or other members of management were asked to explain their position and duties. Twenty-three acted as principals, nine were vice-principals, one was named "supervisor" and one "primary in charge". Only in Sindhupalchok were there more vice-principals than principals in the interviews. In some schools the principal was absent at the time of our visit and another administrative member answered our questions.

Basically, most principals and supervisors participated in teaching along with administrative duties; they taught a diverse field of subjects such as science, social studies, Nepali language, mathematics, economics and also health. As managers, their duty was to implement the decisions made by the school board (also called School Development Committee in Dolakha). At the community level, they also co-operated with Village Development Committees (VDCs) in villages or municipal authorities in bigger cities.

The teachers were asked to answer our questions in focus groups. The evaluation team did not give prerequisites as to who should take part; this was decided among the school staff itself in cooperation with the HETIP field team coordinators who introduced us to every school. We did not gather background information on the teachers but relied on the expertise of local partners. Usually the groups consisted of both male and female teachers, and the subjects they taught varied greatly. Sometimes a well-known janitor or other maintenance staff member could be present in the situation.

### **General attitudes and actions towards health and the use of tobacco**

In 1946, WHO defined health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity". This definition was a step ahead from the times of seeing health only as the absence of disease, although this classic definition has in turn been challenged. In modern research on health promotion, health is often seen as having both positive and negative aspects (see e.g. Green & Tones 2010). It is linked with the concept of well-being and consists of the physical, mental and social side of human beings, added with the rising interest towards spiritual health.

How did the teachers, then, define health? About half of the answers took into account physical, mental and social aspects, ie. a holistic viewpoint, and in some cases the spiritual dimension was also mentioned. According to the teachers, health can be seen as:

- good state of the mind and physical part of the body along with healthy

living conditions

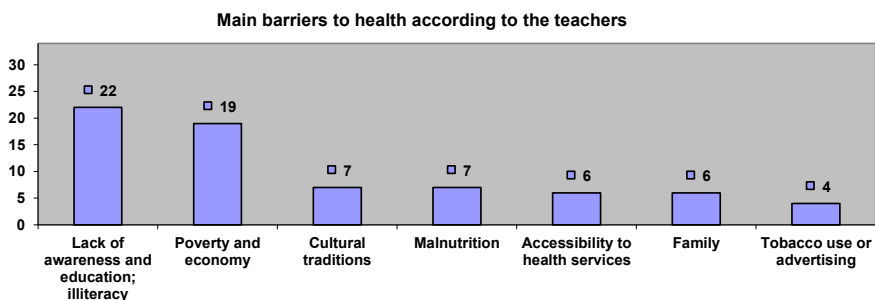
- physical, mental and social well-being
- not only physical dimension but also mental aspect
- condition of physical, social, mental and spiritual fitness
- holistic care

A small number of answers – roughly one in five – followed the traditional absence-of-disease model or merely a physical view to health. Some took a more functionalistic stand by claiming that health is:

- a state in which a person is free from any kind of diseases and functions properly in day-to-day life
- [...] wealth; the power to live, walk and run their daily life
- proper co-ordination of mind and body

There was no clear difference between HETIP schools and non-HETIP schools in terms of seeing the person holistically. Nor can we say on the basis of this information that village school teachers had a more traditional (or limited) view of health than in cities like Kathmandu or Lalitpur. When we think of differences in the answers, the level of training received by teachers is one thing to consider – many school teachers are chosen in their profession based on their former locality, inner motivation and also sheer luck, not always on formal qualification. Many receive their in-office teacher training while working. We did not gather data on the individual backgrounds of the teachers.

The focus groups were asked to define main barriers to health. The answers are shown in the following figure:



**FIGURE 2. Main barriers to health according to the teachers.**

The teachers expressed that good health is something we become aware of at school (often by reading about it). There is also a visible link in their opinions between health and poverty. “Cultural traditions” is a diverse subject

under which we categorized the habitual use of intoxicants by some ethnic groups, superstition (mentioned twice), and an example of women still being isolated from the community during menstruation.

The Tamang community was mentioned as integrating the use of intoxicants into festivities and everyday life. Another ethnic group was the Newars, the indigenous people of the Kathmandu Valley. A principal in Lalitpur gave this answer when asked about the factors with the biggest impact for tobacco consumption:

*This school is located in the Newar community, so culture and tradition are playing a major role in tobacco consumption.*

In the teacher interviews the use of tobacco was explicitly mentioned three times as a barrier to health, and every time in a yes-HETIP school (once in Lalitpur, twice in Dolakha). Now this may be because the staff had previous experience of HETIP and thus wanted to address this issue aloud (to answer in an expected manner). But it may just as well be that the HETIP intervention did have effects on the teachers' way of thinking, putting the use of tobacco on top of the list as a primary health hazard, and showing that the education has indeed had the desired effects. On the other hand, the only mention of seeing tobacco marketing as a barrier to health came from a non-HETIP school in Dolakha: "influence of multimedia like advertisement of cigarettes and alcoholic drinks".

It appears that the teachers were fairly professionally oriented towards health, emphasizing a holistic perception and addressing socioeconomic factors. But what did the principals and supervisors think about their staff and their attitudes towards smoking? Was there any discrepancy? What about differences between yes-HETIP schools and non-HETIP schools?

The majority of answers show a tendency towards a non-smoking culture among staff members. Only one non-HETIP school in Lalitpur reported of the majority of teachers being addicted to tobacco products. In all districts there were both yes-HETIP and non-HETIP schools where no staff member was reported to smoke or use tobacco products. Answers from Lalitpur were most promising in describing the positive effects of HETIP. The following quote serves as an example:

*Some teachers used to smoke before HETIP program, but after this teachers have given up smoking and are helping students and their families to get rid of tobacco.*

Another positive example of what has happened after HETIP was seen in increased student club activity:

*The student club has been conducting different dramas related to anti-tobacco issues.*

The use of corporal punishment and other forms of humiliating acts are an accepted practice in many parts of Nepal, in both schools as well as in homes. In a previous study, students, teachers and parents alike shared the opinion that beating and humiliating children are common in Nepalese schools and families (CVICT 2004). Reflecting on this fact it is interesting that the types of methods used by school management to tackle smoking-related problems seemed to differ in yes-HETIP and non-HETIP schools. Schools with a history of the HETIP intervention appeared to act more constructively and with a more open-minded attitude, whereas straightforward punishment was reportedly used in a few schools without the HETIP intervention. In one Kathmandu yes-HETIP school, students found smoking at school were "counseled", and in two others "drama pedagogy" was used to create awareness. Further, the approach of a third party (such as HETIP) was deemed effective and convincing ("students listen to them").

A non-HETIP Secondary School in Kathmandu had prohibited the use of tobacco products from students and staff members even outside the school perimeter at the risk of penalty. The principal was happy to announce that none of the 40 staff members were current smokers. Another non-HETIP Higher Secondary School in Dolakha had been declared and accepted as a Non Smoking Zone six years ago and regular monitoring was carried out there (Thematic interview data in Dolakha). In some parts of Kathmandu teachers have prohibited nearby shops from selling tobacco products to school children.

In conclusion the HETIP intervention seems to have had visible effects in schools. Individual staff members have quit smoking completely, and a tobacco-free culture has been established in a number of schools. Nevertheless, it is still rather common for staff members to smoke at least occasionally, whether in a HETIP school or not, but nevertheless not inside the school area.

However, there were notable examples of non-HETIP schools with a distinctive anti-tobacco culture of their own. I visited one school in Kavre, Dolakha and was impressed by the breadth by which they had tackled the issue. The principal told me that he and the assistant principal had attended an international anti-drug program which had made them address the problem thoroughly. Six years ago the school area was declared a "No Smoking Zone" in a similar fashion with HETIP schools, regular monitoring ensures the absence of smoking, and teachers need to commit themselves to non-smoking in their contract of employment. One lapse may be permitted, but continuing the use of tobacco products will eventually make them unemployed. This active attitude towards preventive health measures extends wider to the community; the principal has close ties with the Village Development Committee and the school is involved in community development programmes promoting

hygiene. The school has ties with NGOs such as the Centre for Mental Health and Counselling – Nepal (CMC-Nepal) and the Dolakha Red Cross Society, which has been fairly active in shaping anti-tobacco intervention strategies.

### **Findings on the curriculum and other pedagogical tools**

The Curriculum Development Centre (CDC) is responsible for developing and implementing the curriculum and other key educational material in Nepal (UNESCO Bangkok 2008). The centre produces a National Curriculum Framework, a document that outlines broad curricular developments for a number of years (NCF 2005). Regional authorities at different levels (development zones, districts, villages and municipalities) each have their duties in the implementation process. Textbooks have been provided by a different branch of government called the Janak Educational Materials Centre.

Health, Population and Environment (HPE) is one of the subjects taught at secondary level. We will now focus on this subject, since it contains the key elements for our purposes. We will do this by looking at the in-service teacher-training curriculum and see how HPE is defined there. In this way it is possible to take into account the situation of many local student-cum-teachers who need to become qualified professionals. At the same time we have a chance to reflect on the teacher training program, since the development of qualifications for school teachers is changing the landscape of the educational system.

In-service teachers have had to fulfill a 10-month-long, competence-based teacher training program (Health, Population and Environment 2004). The training includes study modules on the subject matters themselves as well as versatile issues on professional growth as a secondary school teacher. The program is pedagogically modern with themes such as lifelong learning and participatory approach. Practical training constitutes roughly one third of the studies.

There are specific content areas for all three subjects; five for population and six for environment. For health education there are the following seven content areas (ibid., 21–23):

1. Adolescent, Sex and Reproductive Health
2. Environmental Health
- 3. Disease, Nutrition, Tobacco and Drugs**
4. Primary Health Care and Safety Education
5. Consumer Health
6. Safe Motherhood
7. Community Health

The third content area includes the topic of “tobacco” in its context. The following table shows details of this content area:



**TABLE 2. Subject of tobacco in the secondary teacher education for in-service teachers**

<b>Content 3: Disease, Nutrition, Tobacco, and Drugs</b>
<i>Diseases</i>
• Introduction to communicable and non-communicable diseases
• Symptoms and preventive measures of communicable diseases
• Non-communicable diseases and preventive measures
• Introduction to sexually transmitted diseases
• Introduction to causes, mode, symptoms and preventive measures of syphilis, gonorrhoea and AIDS
<i>Nutrition</i>
• Introduction and importance of balanced diet
• Introduction to causes and preventive measures of malnutrition
• Methods of preserving nutrients in food
<i>Tobacco and Drugs</i>
• Introduction to Tobacco, Alcohol and Drugs
• Causes, effects, and methods of controlling tobacco, alcohol and drugs

As we see, tobacco is grouped with other intoxicants. In principle it is dealt with from rather diverse angles. In practice the tools that are available to the teachers dictate to a large proportion the extent to which these phenomena can be explored. We will now return to the field data to see how staff members saw the curriculum and its implementation in practice.

All principals were asked about the contents of the curriculum regarding health issues and the flexibility they have in applying the national curriculum to meet local needs. Teachers in turn were asked whether the curriculum gives them enough freedom to teach health-related issues. Yes-HETIP school principals were also asked whether their school had included topics on the use of tobacco in their curriculum after the HETIP intervention.

The basic findings about the teaching of health-related issues were:

- Health issues as a broad concept are taught from grade 1 to 10 (in one answer from Dolakha starting from grade 4).
- On primary level, they may be grouped under the topics of science or social studies or linked with physical activity (Kathmandu and Sindhupalchok).
- Health, Population and Environment (HPE) is taught as a compulsory subject on secondary level (grades 9 and 10) and becomes optional on higher secondary level (grades 11 and 12).
- Nevertheless, HPE can start already from grade 5, 6, 7 or 8 (Kathmandu and Lalitpur). On lower secondary level it deals with "minor issues" and on secondary level "major issues" (Kathmandu). The "minor issues" on lower secondary sometimes go under the name Health and Physical, and on secondary level there may be a special focus on community work (Lalitpur).



More detailed subject matters included:

- personal hygiene, nutrition, communicable and non-communicable diseases, chronic illness, reproductive health, sanitation and hazards of tobacco consumption (Sindhupalchok)
- health awareness, preventive methods, health status and services in Nepal, hygiene, sanitation, reproductive health, nutrition (Dolakha)
- the adverse effects of smoking and drug abuse (Lalitpur)

The curriculum was often regarded as theoretical and fairly heavy. The implementation of health-related subjects was considered difficult in a number of answers:

*It has focused on the theoretical aspect and neglected the possibility to implement in practice. (Principal in Dolakha)*

*It is difficult to teach the health-related issues due to lack of audio-visual aids and infrastructures. (Principal in Dolakha)*

*The designed curriculum is not enough to give information about all the health-related issues. It is not updated and new diseases which have been developed are not discussed. The teachers are not used to using computers and getting information from the internet [...] (Teachers in Sindhupalchok)*

*The curriculum is so heavy and sometimes we even cannot finish the course so we have a very tight schedule, but we are also trying to convey the health issues in extra time, as in assembly. (Teachers in Sindhupalchok)*

*Workload of the teacher makes it difficult to adhere within the time frame specified by the curriculum. (Teachers in Dolakha)*

*[Asked whether the curriculum gives freedom to teach health issues properly] No!! [...] Health issues which should be taught in lower class are in upper class and which should be taught in upper class are in lower class. (Teachers in Kathmandu)*

On the other hand, some teachers and principals were satisfied with the curriculum – whether by adapting it for local needs or just simply following it:

*According to the need (present context) there is flexibility in implementing [the] curriculum in our school. But strict following of national curriculum is emphasized. (Principal in Dolakha)*

*We strictly follow the national curriculum. (Vice-principal in Sindhupalchok)*

*We are including the curriculum given by the government so there is flexibility in implementing [it]. (Principal in Kathmandu)*

*[It is] flexible enough to implement. (Vice-principal in Lalitpur)*

*Seven years ago we had difficulties in imparting knowledge regarding matters like reproductive health, but now it is easier because of different programs being conducted frequently, like in other schools. (Principal in Lalitpur)*

The amount of credits was often considered insufficient for maintaining the personal health of students:

*The subject related to health is perceived as for marks [and] not for the practical purpose. (Principal in Kathmandu)*

*[The] curriculum doesn't include entire subject matter actually needed for the students to carry on their health issues in their practical life. The subject comprises of the 50 marks credit in the curriculum and thus cannot draw the major focus of the students towards the health issues. (Principal in Kathmandu)*

*[The] curriculum doesn't hold practical issue towards health issues. The purpose of strengthening the health of the students is not fulfilled through it. (Principal in Kathmandu)*

*The curriculum is not sufficient. The students are taught in English medium. Extra health-related books must be provided so as to impart the health-related matters to the students. (Principal in Lalitpur)*

What can be said about the effect of the HETIP intervention on the curriculum in the 24 schools where it had been carried out? Were there modifications in this respect? The answers were at times ambiguous, but the following results could be built on what the principals thought: the majority of the principals stated that the intervention had visible (11) or some (10) effect and only a minority of them (3) said no effects can be recognized in the curricula. The topic of tobacco has been included in the curricula in most of the schools.

"Visible effect" means that the answer was plainly positive or showed distinct motivation and already realized changes in the curriculum. "Some effect" implies an answer that acknowledges the importance of tobacco education, but the school has nevertheless retained to the national curriculum. The "No effect" answers were simple and short: "no" (twice) or "not yet". One of the reasons why the line between visible and some effect was difficult to draw was that some principals might have referred to the situation in general without paying attention to the HETIP intervention – this was difficult to deduce from the written answers.

However, it is clear that in general the yes-HETIP school principals felt good about the intervention. It had motivated some schools to organize extra-curricular activities such as non-smoking days or environment days. In one Dolakha school teachers go to the village, collect cigarettes and other tobacco products in a bucket and collectively burn them. Two Kathmandu principals mentioned teacher-parent meetings in which the issue of tobacco is addressed. One principal in Lalitpur asked HETIP to visit the school regularly every year in order to make the message more effective. Finally, one Kathmandu principal (a lecturer in Nepali) said the use of tobacco "is one of



the most focused issues” in the curriculum – a visible example indeed.

We will now return to the teachers and their views about themselves as pedagogical authorities. In general the teachers felt fairly confident with their pedagogical skills. Questions of reproductive health were generally the only problematic area:

*We have got [a] very good environment in our class as well as school. We have created [an] open environment to the students so they don't feel shy to ask questions. That has helped us to build confidence in ourselves while teaching health-related themes. (Teachers in Kathmandu)*

*Especially most of the lady teachers are uncomfortable in teaching the health-related themes to the students and vice-versa. (Teachers in Lalitpur)*  
*Hesitation in teaching certain issues like reproductive health due to cultural set up. (Teachers in Dolakha)*

*[We are] very confident. Don't hesitate to discuss reproductive health. (Teachers in Sindhupalchok)*

*Most of the teachers here are skilled and hold at least a bachelor's degree. So they are confident in teaching health-related issues. Other than that, there have been a few training programs that have helped the teachers to build their knowledge. (Teachers in Dolakha)*

Awareness programs such as HETIP were considered fruitful for teaching as well as developing the teacher training. This view was presented in a number of answers. Many teachers simply do not have tools for delivering the message; the physical environment often contains only a blackboard and notebooks and pencils for students, so the lecture method is practically the only way to convey ideas – added with a lot of jokes (which was well experienced during our evaluation period). This is why visual aids such as projectors used by the HETIP team are a definitive upgrade. Also the visit of other than local authorities is a welcomed change in many schools. Further, the use of drama as a working pedagogical tool was mentioned on several occasions; hence the HETIP street drama method is firmly grounded. An example from Sindhupalchok will enlighten this view:

*Awareness programmes like HETIP and other resources like audio-visual aids are most suitable [for health education]. Moreover, street drama, role play and songs may change their attitude towards a bad habit.*

### **Observations on the school environment**

The field teams were given the task to make observations during the school visits. Every team chose certain members for this purpose, as for other data collection methods (survey and interviews). The following framework for observation was constructed and used in every school:



**TABLE 3. Framework for observation.**

	PEOPLE	ACTIVITY	PHYSICAL ENVIRONMENT
SCHOOL			
SCHOOLYARD			
COMMUNITY			

Research assistants were asked to pay attention to the use of tobacco products and smoking in general; first at the micro-level (the school buildings and their interiors), then the meso-level (schoolyard) and finally the macro-level (the whole community). They were asked to observe the types of people they met (students, teachers, management members, others), their activities concerning smoking and also the physical environment; e.g., was there a HETIP Non-Smoking Zone signboard, could cigarette butts be seen around the area or were there street stalls or restaurants advertising smoking products. Evaluation team members (including the author of this article) also made observations while visiting the schools.

The communities we visited were located in either highly urban (Kathmandu and Lalitpur) areas or in the countryside (Sindhupalchok and Dolakha). There are differences between urban and rural environments in terms of population density and types of goods and services produced and distributed (primary production and agriculture in the countryside versus a service-based and highly differentiated economy in large cities). Population density in Nepal is relatively high even in rural areas, but the most thinly populated Himalayan mountain regions make an exception (Kotilainen & Kaitila 2002, 50–52). Hence our target districts in Sindhupalchok and Dolakha are examples of rural Nepal whereas Kathmandu and Lalitpur together constitute the largest urban city complex in Nepal.

The schools we visited had been chosen by or in cooperation with the District Education Offices. They were all public community schools instead of private ones, and most were Higher Secondary Schools. One criterion for initially choosing the schools for the intervention had been the likelihood of having smokers among both students and teachers, thus making the intervention worthwhile. During the evaluation period our Finnish team had no control over which schools to select; this remained the work of the HETIP field workers and the District Education Offices.



General remarks after the observation period can be summarized as follows:

In approximately half of the schools some form of smoking-related activity or leftover products could be observed. Cigarette butts, wrappers or packages were found in the area. Butts were found in the backyard, toilet or directly in front of the school area (see Figure 3).



**FIGURE 3. Cigarette butt outside the entrance to the schoolyard in a Higher Secondary School in Dolakha.**

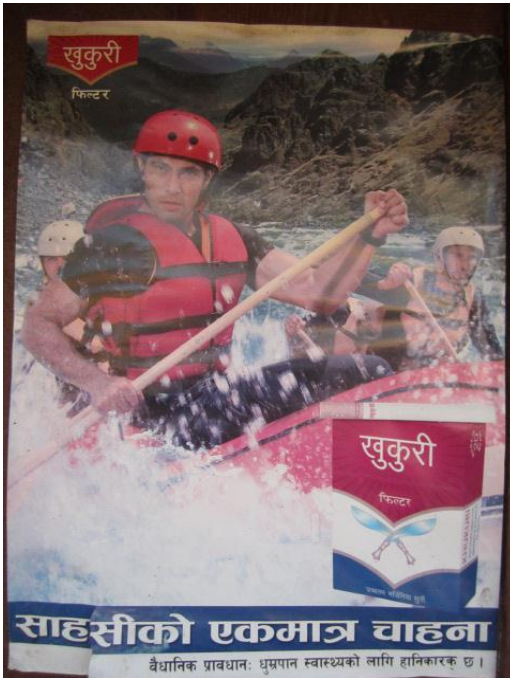
HETIP No Smoking Zone signboards were found in a number of schools where the intervention had been carried out (see Figure 4). However, the reported amount of signboards seemed low compared to the general acceptance towards the HETIP program in yes-HETIP schools. The most likely explanation here is the diversity of field notes made by the dozens of research assistants. (There was a teaching session about the observation method before going to the field, but a longer preparation with cross-checks and plenty of exercises would have ensured more uniform observation data.) My own team in Dolakha visited two yes-HETIP schools and they both had the signboard attached and clearly visible.



**FIGURE 4.**  
**The HETIP No Smoking Zone signboard at Shree Baiteshwor Higher Secondary School in Namdu, Dolakha.**

There were practically no observations of direct smoking or use of tobacco products in the school area during the visit, except for one reported case in Kathmandu where teachers seemed to act nonchalantly and smoked openly; the reason for smoking was that they did not want to hurt their friends by quitting (Observation data in Kathmandu). All in all, a general non-smoking attitude was sensed in many schools, but on the other hand, there were examples of schools with a positive attitude towards anti-tobacco activities and yet individual staff members carrying on smoking.

When you left the school area and stepped to the community, things changed rapidly. There were street stalls, bars or restaurant in the vicinity and tobacco products were readily available in all four districts. Advertisements were seen on the walls (Figure 5) and people smoked in nearby restaurants – sometimes it was only the women who were reported to smoke (Observation data in Dolakha). Based on the observations in February 2011 the legislation and anti-tobacco policy had not significantly hindered the use and promotion of tobacco in either urban or rural communities.



**FIGURE 5. Khukuri filter tobacco advertisement on the wall of a street bar directly opposite a school entrance.**

Geographically, our observations were made in the Bagmati and Janakpur Zones in the Central Development Region. Since there are altogether 14 zones and 5 regions in Nepal, no nation-wide generalizations can be made as such, but we did acquire a general understanding of the atmosphere towards health promotion and the use of tobacco in both urban and rural settings. The research assistants observed not only tobacco-related issues but also other important things, such as the level of hygiene and sanitation, availability of potable drinking water and general cleanliness. These are all key factors promoting the wellbeing and health of school students in their learning community and the wider habitat.

## Conclusion

What is the picture that we can shape on the community schools selected in our study? How do they promote the health of their students and reduce the use of tobacco? Has the HETIP intervention changed attitudes, actions, educational methods or the curriculum?

As a conclusion, schools promote the health of their students in the following ways:

- by including health education as an indicated part of the curriculum under the subject Health, Population and Environment (HPE)
- by keeping the level of knowledge of teachers about different aspects of health on high level through pre-service and in-service training
- by adding the methodological and material resources of teachers
- by addressing the need for interaction with the community and especially the parents
- by conducting health check-ups
- by having a management that has a positive attitude towards health promotion
- by using external resources such as NGOs, INGOs and programs like HETIP

Challenges in this regard are the lack of proper resources, certain parts of traditional cultural beliefs, poor sanitation and hygiene and socioeconomic problems (poverty, illiteracy) in the community.

Schools reduce smoking and the use of tobacco in the following ways:

- with one's own example; even if staff members do smoke, they don't do it in the school area
- with an agreement of non-smoking in the contract of employment
- by declaring to be a non-smoking school
- by discussing the issues in teacher-parent meetings
- students tell their families and friends about the harmful effects of tobacco use
- student clubs organize dramas and plays similar to the HETIP street drama
- by reaching out in the community and organizing rallies or theme days
- by using external resources such as NGOs, INGOs and programs like HETIP
- by modifying the curriculum so as to address the issue more efficiently

The main challenge here is the influence of the surrounding community; street stalls, bars and restaurants in the vicinity and, above all, the slowly changing attitudes of members of family and other important role models.

The HETIP intervention seems to have created positive change first and foremost in attitudes. Students and teachers have kindled new enthusiasm for quitting and also telling about their decision to others, especially in homes. A general smoke-free atmosphere has gained ground in a number of schools.



Curriculum changes have been made to address the issue more efficiently, although the answers need to be read with some caution. In single schools the HETIP intervention has created drastic changes.

There are other organizations doing similar kind of work, and there were also examples of non-HETIP schools with an extremely proactive atmosphere and wise strategic choices made to prevent tobacco-related hazards. Still the program was generally considered necessary; it had influence on the attitudes and actions of people, and the teaching methods in use brought added value to the limitations faced by many schools.

None of the respondents directly criticized the program. Preparations for the visit of the evaluation team could have been done a bit better in some urban schools, where the atmosphere was rather indifferent. However, in most cases the team was received very well indeed. It became clear that yes-HETIP schools had positive memories of the intervention, and many non-HETIP schools showed interest after hearing about it. One respondent wished for the intervention to recur once a year in order to keep the motivation alive. This suggestion is well worth consideration.

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## **APPENDIX 1. Questions in individual and focus group interviews.**

### **Thematic interview for school principals and/or supervisors**

#### Questions for all interviewees:

1. Please tell us a little about your position and duties.
  2. What does your curriculum say about teaching health issues on different grades?
  3. How much flexibility do you have for implementing the national curriculum?
  4. What is the role of schools in promotion of health in communities?
  5. What is the attitude of staff members (teachers, others) towards smoking?
  6. In your opinion, which factors have the biggest impact for tobacco consumption here at your school?
  7. What are the most effective ways to promote your pupils' health?
- Additional questions only for schools where HETIP HAS been carried out:
8. After HETIP, what has happened in your school regarding smoking-related issues?
  9. Have you included topics in your curriculum regarding the use of tobacco?
  10. Have you noticed permanent change in the behaviour of teachers or pupils?

#### Additional questions only for schools where HETIP HAS NOT been carried out:

8. What kind of programs are there against the use of tobacco?
9. Have you heard about the HETIP? If you have, how and what can you tell us about it?

### **Focus group interview for teachers**

#### Themes:

1. Please describe the pupils in this school and their life circumstances.
2. What is health in your opinion and what are the main barriers to health?
3. Which teaching methods and resources do you consider most suitable for health education?
4. How confident are you in teaching health-related themes?
5. Does the curriculum give you enough freedom to teach health-related issues in the way you consider best?
6. How would you develop training for teachers regarding health issues?



## **Use of tobacco products among Nepalese school children and effects of preventive project work**

### **Introduction and aim of the article**

**I**t is clearly showed in other articles of this report that the use of tobacco products is a global hazardous risk in every part of the Globe. Especially it will be a problem in developing countries where people's capability and resources to resist marketing of global tobacco business is the lowest. According to Hiilamo (see article Tobacco control in Nepal) "half a billion people now alive will be killed by tobacco products". This means that prevention is not only increasing the knowledge and changing the attitudes. It is a fight against a premature dead.

This article aims to find out the long lasting effects of intervention work done by the HETIP-project. A task to make visible certain changes in society and explain those by some activities is challenging from many viewpoints. Questions like "how to differentiate specific changes from general trends?" and "is it correct to explain changes by only some activities and not with other activities?" are relevant in evaluation studies like this. As Flay (2009) has stated, there exist numerous problems or limitations to do this kind of evaluation of long-term effects.

In the HETIP-project there was no explicit evaluation plan for the whole project and for specific outcomes. Despite of that lacking the project management had a very knowledge intensive way of working from the very beginning of the project. They were interested in the outputs of the project; is the work valuable and honorable for the main aims of the project. They measured the immediate effects on smoking. And when the results were not good enough they changed their methods and target group as well (see article Working Methods of School Level Health Education and Tobacco Intervention Program in Nepal 2001–2012). Objective information – not only tacit knowledge – has been targeting the work of the HETIP-team.

Another thing the team did during the project period was that they changed their main concept from "smoking" to "tobacco products" because their knowledge on "enemy" was increasing. That happened in year 2003. Other than cigarettes, smokeless forms of tobacco products are defined in other articles (see Hiilamo and Greggias) in this volume. From the research view-



point it means that comparison before and after the change of concept is not reliable in a full sense.

The aim of this evaluation process reported in this article is to

- describe the prevalence of using tobacco in secondary high schools
- analyze the changes in tobacco using
- evaluate the effects of HETIP-program on tobacco using

## Data and methods

Two separate data are used in the analysis. For the follow-up analysis one mixed data was constructed as well. The first data has been collected during the years for statistical purposes (see Greggas and Thapa in this report). The second data was collected during one week in February/March in 2011 for evaluation purposes. The third data has been merged from these two in order to find out the outcomes of the HETIP-project. Details of the three data are shown in table 1.

The HETIP-team has visited more than 400 schools since year 2001. This means that about every week they contacted a school and its hundreds of students somewhere in Nepal. In every class students and teachers answered pre- and post-questionnaires. After the visits of the HETIP-team all the data was merged into the class-level and shown on one sheet. All sheets of one year were bound in one volume. This means that no data of individual students is any more available for further analysis.

An inquiry on use of smoked and smokeless tobacco products was done before the HETIP-intervention. This info with other published studies done in Nepal in this field is a base against what the comparisons with later data can be done. Another inquiry was done after the intervention. It measured exactly the same things than before the intervention and other issues as well. The time between these two measures changed from one day to one month. The duration of time depends on the location of the school. The schools far in the rural areas were hard to reach and therefore both inquiries were done when the HETIP-team was visiting that region. In easily reachable areas the time distance was longer.

All class-level data from the year-statistics were scanned into an electronic format. The information was standardized among the years and the data was transferred into the statistical SPSS-program. The HETIP-data consists of more than three hundred thousands of students answers merged into nearly three thousands of classes in more than four hundred schools. About half of the students were female (girls) and another half male (boys).

Another data was collected in February and March when a specific intensive course was held in Kathmandu in 2011 (see details Kivelä). The practical

aim of this course was to collect data for evaluative purposes. Students and academics from four universities and colleges from Finland and Nepal organized a data collecting process with the HETIP-personnel. Information on the use of tobacco products was collected from schools where the HETIP-intervention was done, from eight months to six years, earlier. Students from other schools from the same region were also studied in order to make comparisons between the HETIP-intervention and non-intervention schools. Comparison is difficult because there are many anti-tobacco programs going on and no knowledge if other schools were affected by these other programs is available.

Within one week 35 schools were reached. Nine more schools from the Terai region were reached later, making the final number of schools 44. Data collection was organized in 164 classes, and altogether nine thousand questionnaires were filled up. About 55 per cent of the respondents were female and 45 per cent male. Questionnaires from the nine schools in the Terai region were collected by the HETIP-team in May/June. Reasons for this difference were the long distance and the hard way to schools and the insecure situation in that part of Nepal.

Third data is a combination of the two data presented above. It was constructed for the evaluation of long lasting effects, outcomes of the HETIP-project. In the first phase intensive data (T2) was aggregated from individual level to class level. This was done because in the other data we had only class level information on the use of tobacco. In the second phase the same schools were picked up from T1 data than were in data T2. 25 schools were selected for this follow-up evaluation: relevant information from both cross-sections, T1 and T2 was available. Within those 25 schools there were 81 classes in which the follow-up was possible to do: the same students (approximately) were in both cross-sections. With the follow-up data changes in the use of tobacco products can be evaluated within the population of about 5000 Nepalese students.

**TABLE 1. Description of the three data in use.**

	HETIP statistics (2001-2010) T1	Intensive (2011) T2	Follow-up data T1 / T2
Number of schools	434	44	25
Number of classes	2821	164	81
Number of students	301 796	9000	5983 / 4580
-of which girls	146 242	4940	3137 / 2503
-of which boys	155 709	4047	2879 / 2077
OBS.	Collected during the HETIP intervention	Collected during intensive course (2/2011) and later from Terai (5-6/2011)  HETIP intervention schools  Control schools	Merged from two data  Data aggregated to class-level
Unit of data	class	individual	Class
Main questions	Use of tobacco products (before intervention) Decision to stop use of tobacco products (after intervention)	Use of tobacco products  Actions done to stop use of tobacco products  Quality of life	Use of tobacco products

All three data sets were analyzed with the statistical software "SPSS Statistics 17.0". Data transformations from Excel-sheet to SPSS and analysis were done by the author of this article. After checking the correctness of the data, the first impression was got by frequencies, correlations and cross-tabulations. Regression analysis was also used in order to see how the use of tobacco products relates to other issues.

Results shown in this article have been done by comparing the means of the share (%) of tobacco products users. Comparing means was the best method because the unit of analysis was a class and the share of tobacco products using within it. It means that we tried to find out how the share of tobacco products using differs in some groups within time.

GLM (General Linear Model) Univariate Analysis was used in the analysis. The GLM Univariate procedure "provides regression analysis and analysis of variance for one dependent variable by one or more factors and/or variables. The factor variables divide the population into groups". (SPSS 17.0 Online help.)

The use of tobacco products, the decision to stop the use and the factual end of use were the dependent variables in the analysis. Differences within grades and regions were analyzed separately in the populations of females and males. In the analysis relevant covariates were used, when needed, for reducing the effects of time or grade. Dependent variables (questions) used in the analysis are shown in table 2.

**TABLE 2. Questions used in analysis.**

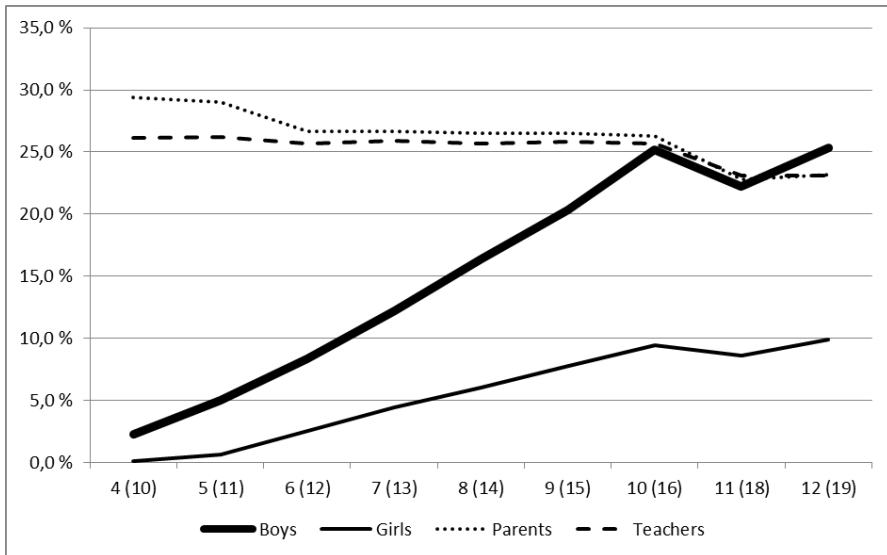
	T1	T2
USE OF TOBACCO OF STUDENTS	<b>Do you smoke or use tobacco products?</b> (a) Yes, (b) No	<b>Do you smoke or use tobacco products?</b> Yes, (b) No  <b>If, you smoke what do you smoke or use?</b> (a) Cigarette, (b) tobacco dust /snuff, (c) Other
DECISIONS AND ACTIONS OF STUDENTS	<b>If, you are a smoker then did you decide not to smoke or did you already quit it?</b> (a) Already Quit (b) Decided to quit	<b>If, you are a smoker then did you decide not to smoke or did you already quit it?</b> (a) Already Quit (b) Decided to quit (c) Can't say
USE OF TOBACCO OF PARENTS	<b>If, there is [someone who smokes] then who does smoke?</b> (a) Father/mother, (b) Other members .....	<b>If, there is [someone who smokes] then who does smoke?</b> (a) Father/mother, (b) Brothers (c) Other members, (d) None of them smoke
DECISIONS AND ACTIONS OF PARENTS	<b>If, you have taught [your parents about the adverse effect of smoking that you have learnt through this program] then how did they response to you?</b> (a) To quit (b) Not to quit (c) Already quit	<b>If, you have taught [your parents about the adverse effect of smoking] then how did they response to you?</b> (a) To quit (b) No quitting (c) Already quit

## Results

### Prevalence of tobacco product use in different regions and grades

Latest studies have shown that about one of three Nepalese males and more than one of four females are smoking cigarettes. Luckily the general trend in smoking has gone recently down quite rapidly. About 20 years ago the prevalence was more than twice higher than nowadays. Especially older generations use frequently tobacco products in many different forms. The prevalence of smoking within young Nepalese (approximately 13-15 yrs.) is much lower than within adults; 10-15 per cent of males and around 5 per cent of females are using some sort of tobacco products. The prevalence of smoking differs highly from region to region and even from school to school. (see Hiilamo and Greggas.) It is also reported that general trends in tobacco using change in the South-East Asia region from country to country and differently within boys and girls (Warren et al. 2009, 71).





**FIGURE 1. Use of tobacco products (%) in different groups at different grades (average age of students). Effect of time (year of data collection) has been reduced.**

Basic information on the use of tobacco products is shown in figure 1. The results are based on more than 300 000 students' answers to the question: Do you smoke or use tobacco products? Students answered the question during the period 2001-2010. These lines show the prevalence of the use of tobacco products in different grades. The figure shows us what ageing means to health behavior of 10 to 20 year old youngsters. Three main findings can be seen: 1) the prevalence of the use of tobacco products increases gradually from grade four to grade ten. The highest level is reached when students, both girls and boys, are around 16, 2) Boys use tobacco products more often than girls and 3) parents' and teachers' use of tobacco products is quite stable and non-correlative with the age of students. As shown in other studies about 40 per cent of the students are living in families where someone is smoking (see Sreeramareddy 2008). Other findings have also been reported in earlier studies.

According to the statistics only a few of the students are using tobacco products when they are about ten years old. The prevalence increases so that when students are around 16 year old one fourth of boys and one tenth of girls smoke or use tobacco products. This prevalence of the oldest students is nearly the same<sup>1</sup> as was found among medical students in 2010 and even

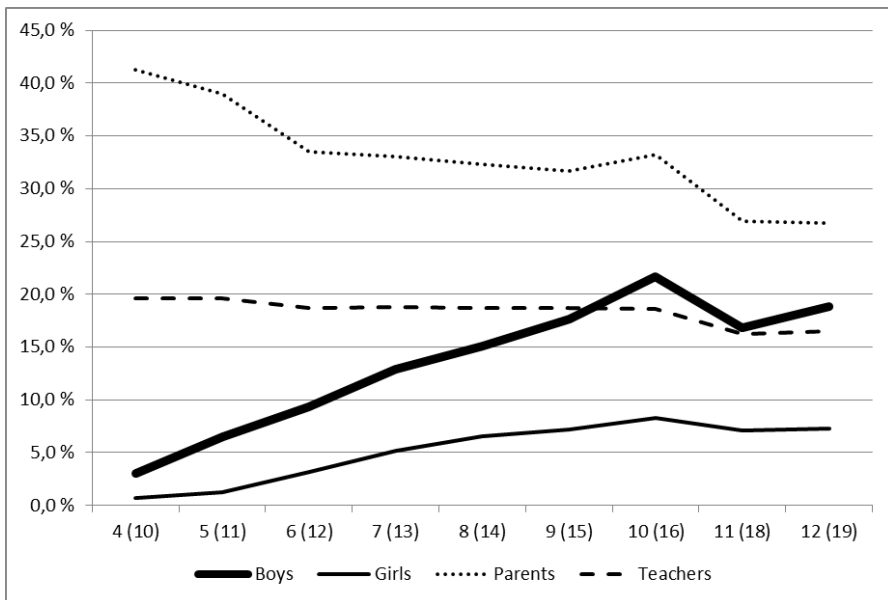
1 There are some limitations to compare results here to other studies because the definition of "smoker" differs. In many studies "Current tobacco user" means "those who had smoked/chewed tobacco product on one or more days in the preceding month of the survey" (see Sreeramareddy 2008).

among health professionals in Nepal (Sreeramareddy et al. 2010; Pokhrel 2006). Every fourth of the adults around the students, parents and teachers, are smoking or using tobacco products.

The information has been collected during the period starting from 2001 and ending in 2010. It means that general changes (trends) might disturb the results. In order to reduce the effect of general trends the year of data collection was used as a covariate. Figure 1 tells us a general relationship between the prevalence of tobacco products and the grade of the student. Based on these results of data T1 we may suppose that the same relationships exist in data T2. Putting them as a suggestion we may say:

- the use of tobacco products increases with ageing.
- boys use more frequently tobacco products than girls
- parents and teachers use tobacco products more frequently than students
- parents' and teachers' use of tobacco products does not correlate with grade

When evaluating an educative intervention not only the factual prevalence but the decision against the use of tobacco is important as well. In figure 2 decisions of four populations are shown: how many decided to stop using tobacco after the HETIP-intervention? Figure 2 shows to us that the aim to stop using tobacco products is linked to use of tobacco products. It is supposed that those persons who smoke or use tobacco products want to stop their activities relating to tobacco using.



**FIGURE 2. Share of persons (%) who have stopped (decided to stop or already stopped) using tobacco products. Effect of time (year of data collection) has been reduced.**

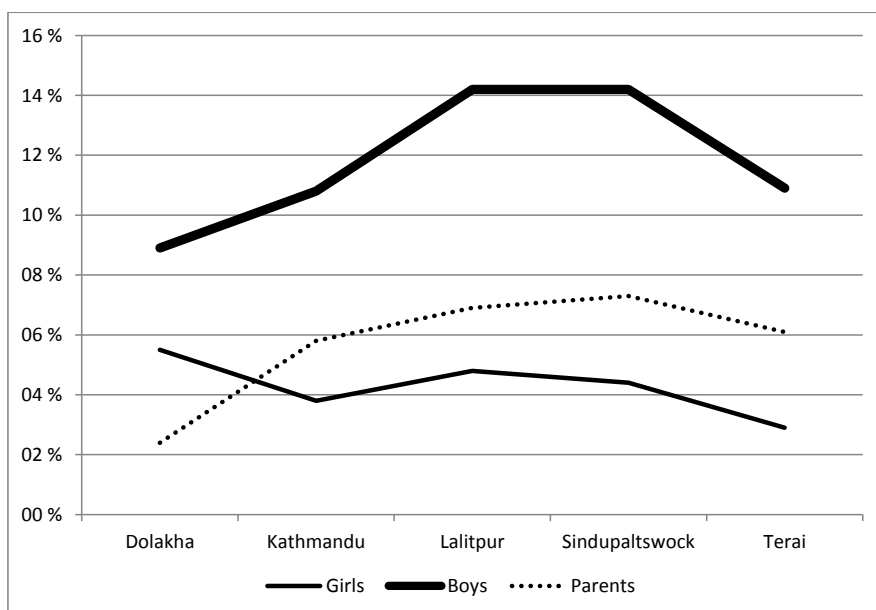
The results in figure 2 give us a possibility to suppose that the prevalence of the use of tobacco products ought to be much lower in time T2 than it was in time T1. It seems that almost all of the students who are using tobacco wanted to stop their behaving. The trend is almost the same within teachers. Among the parents a will to stop smoking is even higher than the prevalence of smoking.

- Prevalence of the use of tobacco products is lower in time T2 than was in time T1.

## **Lasting effects of preventive work**

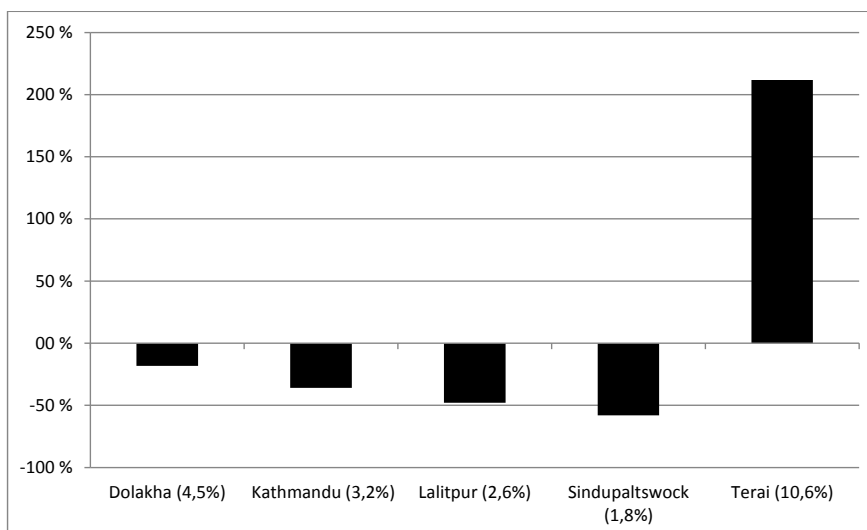
In the following paragraphs differences between time T1 and T2 in different regions will be analyzed. In all analysis the effect of grade has been reduced. It means that regions are comparable to each other even if there were radical differences in their profiles of grade. By these analyses it is possible to see general changes in the use of tobacco products and region specific changes as well. From time T2 we have no information on teachers' use of tobacco products and therefore only girls' and boys' and their parents' health behaving will be analyzed. In the analysis the merged follow-up data was used. It means that the results are based on the information given by about 5000 students. The same students are the informants in both of times (T1 and T2).

In figure 3 the share of persons who have decided to stop using tobacco products is shown in three groups. As recognized earlier there is a quite strong correlation between the use of tobacco products and the decision to stop using it. This means that boys have more often than girls decided to stop using tobacco products. Approximately 12 per cent of the boys have done this decision after the HETIP-intervention. This is true in every region but especially in Lalitpur and Sindhupalchowk. Compared to the boys the girls' prevalence is evidently lower: only about four per cent of the girls have done this decision. The prevalence is quite stable within different regions but is at the lowest level in Dolakha. These results are in line with the earlier results. A sort of surprising is that in this specific selected data parents' level of decision to stop the use of tobacco products is much lower than in general in time T1. Explanations for this low level couldn't be found.



**FIGURE 3. Share of person (%) who decided to stop using tobacco products in time T1. Effect of grade has been reduced.**

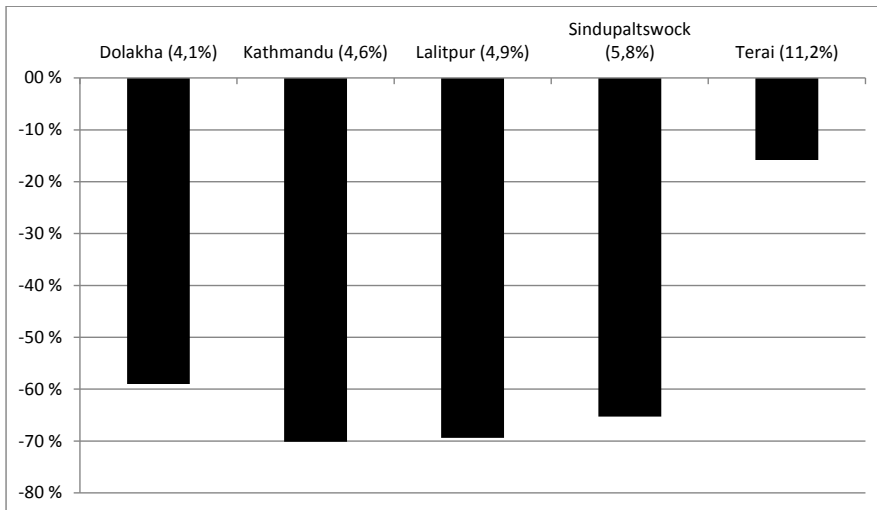
What has happened to the prevalence of using tobacco products in different regions? Changes in girls' prevalence can be seen in the figure 4. The bars tell the amount of change and the direction of it. Above the base line (= no changes between T1 and T2) are only the girls from the Terai region. They have doubled their habits on the use of tobacco products. In spring 2011 about every tenth of the girls used tobacco products in Terai which is almost the same level as the boys have. In all other regions the use of tobacco products has decreased from about 20 per cent to almost 60 per cent. Generally speaking in spring 2011 quite rarely girls smoked or used tobacco products. It also seems that the level is lower now than was earlier.



**FIGURE 4. Change (%) in between time T1 and T2 in use of tobacco products within girls in different areas. Prevalence in time T2 in parenthesis. Effect of grade has been reduced.**

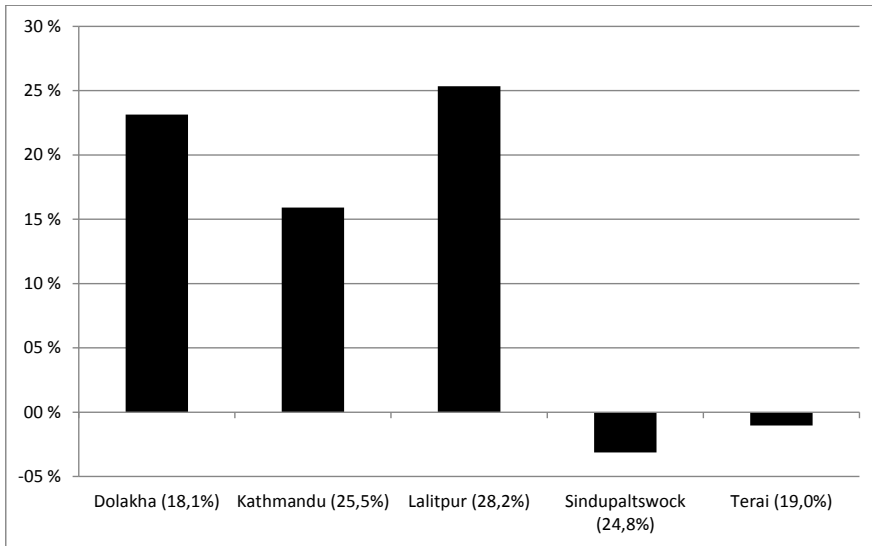
Within the boys the direction is the same as within the girls in every region: now they smoke or use tobacco products more rarely than earlier. Compared to the girls the frequency has gone in the opposite direction in the Terai region. The prevalence of the use of tobacco products has diminished more than 50 per cent in other regions than Terai where diminishing was much lower.

It can be recognized from both girls' and boys' figures that something has happened after the HETIP-intervention. The level of the use of tobacco products has gone down rapidly, even dramatically when keeping in mind that in time T2 the students were older than they were in time T1. In Terai the duration between T1 and T2 was in some schools much longer than in other regions. This might somehow explain the (strange) change in the girls' prevalence of the use of tobacco products in Terai. On the other hand we tried to minimize this effect by using the grade as a covariate in the model.



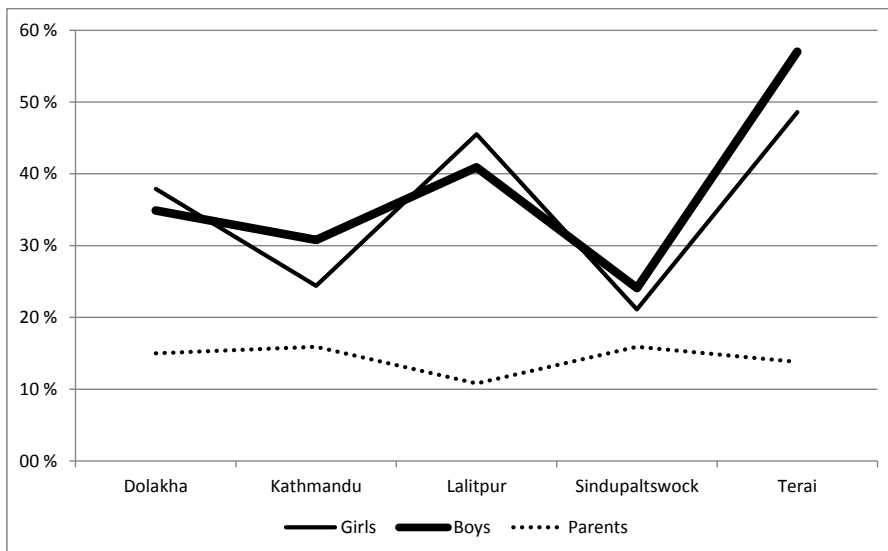
**FIGURE 5. Change (%) in between time T1 and T2 in use of tobacco products within boys in different areas. Prevalence in time T2 in parenthesis. Effect of grade has been reduced.**

Parents' behaving is the opposite to students' behaving when speaking on the use of tobacco products: in three regions from five the prevalence of the use of tobacco products has increased and in two the prevalence has been quite the same. This might show to us the sensibility of young people: they adopt new ideas and knowledge easier than older persons. It also makes worthwhile the decision to change the target population from adults to adolescents in the first phase of the HETIP-project. Another explanation can be raised up as well. Students' parents were not the primary target group and they were informed on the risks of tobacco through the students and by attending the street play drama and maybe therefore the effect was weaker for them.



**FIGURE 6. Change (%) in between time T1 and T2 in use of tobacco products within parents in different areas. Prevalence in time T2 in parenthesis. Effect of grade has been reduced.**

The results show to us that in spring 2011 quite rarely students were smoking or using tobacco products. But this does not mean that most of them have been non-smokers their whole life. As a matter of fact it seems that about half of the students, both girls and boys are using tobacco products currently or they have done it before. That a great number of students report they have already stopped smoking indicates that quite many youngsters use tobacco products longer or shorter period during their adolescence. Luckily most of those who tests tobacco stop after some time. Terai and Lalitpur are the regions where tobacco testing is on the highest level. On the contrary most of the students within those regions stop their behaving. (Figure 7.)



**FIGURE 7. Share of persons (%) who reported they have already stopped using tobacco products in time T2. Effect of grade has been reduced.**

## Results of HETIP intervention

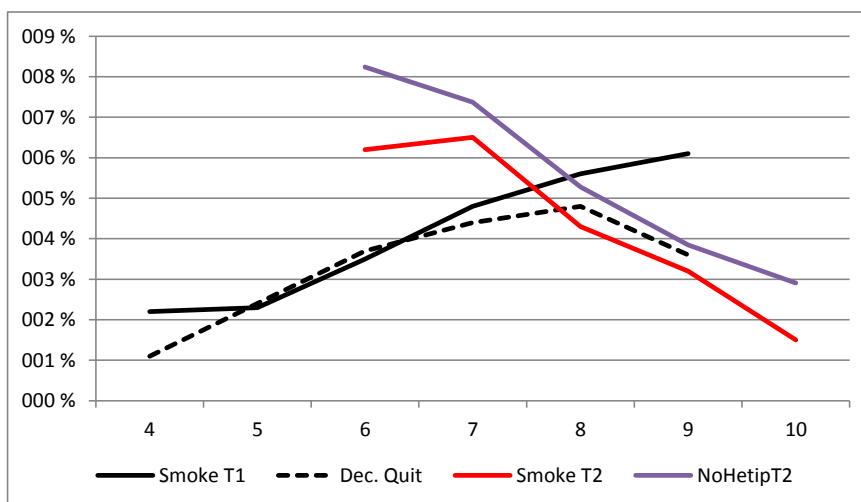
Earlier in this article use of tobacco products in different grades was reported. Based on hundreds of thousands of students' opinions we can state that during adolescence an increasing age means also an increasing prevalence of tobacco product using. Also differences between time T1 and time T2 were analyzed. Great changes in tobacco product using before and after the HETIP-intervention were reported and the changes differ from region to region as well. It seems obvious that the intervention has decreased the use of tobacco products. The use has fallen approximately to one third from time T1. Results are very positive from the viewpoint of national health.

But what is behind this change? Is this change a general trend in Nepal or is it a clear result from the effective preventive work done at schools? According to Flay (2009) reducing the use of tobacco is possible but it needs long training (more than 15 sessions) through the years in the school. Based on several studies Flay evaluated that it is possible to reduce smoking with school training programs even by 30 per cent and together with other (community) programs even more. In this chapter we try to find out the long-lasting effect of the HETIP-program. We try to analyze outcomes by comparing the profiles of tobacco products use in different grades in time T1 to the same profiles in time T2. Same students' behaving through time will be



analyzed. Results are shown separately for girls (figure 8) and boys (figure 9).

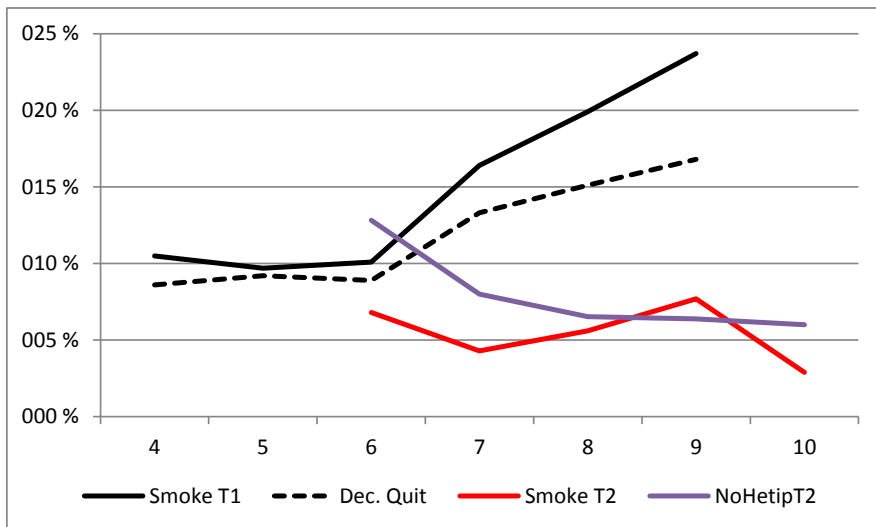
In time T1 not more than two per cent of girls in grades four and five used tobacco products. From grade six the prevalence increased gradually and in the ninth grade the prevalence was six per cent. In time T2, about one year later, the profile has been changed so that the older the girls were the lower prevalence of tobacco products using. The result is not clear and almost one question can be done: why the prevalence in the sixth and seventh grade is higher in time T2 than it was in time T1? This result is in line with the global trend (Warren et al. 2009, 87), which was explained by the authors as following: "Target marketing and visibility of women smoking may have contributed to a change in cultural traditions and social influences, making smoking among women and young girls more acceptable. The tobacco industry targets women through advertisements showing smoking associated with independence, stylishness, weight control, sophistication, and power". Another possible and more concrete explanation might be that the HETIP-intervention had two kinds of effects: to prevent smoking in the future and to ease to stop the use of tobacco products as well. Maybe the former component of intervention (prevention) didn't manage as well as the latter did. It means in concrete that the incidence (of new smokers) stayed at the same level or rose even a bit higher than earlier. At the same time the prevalence of the use of tobacco products among older students decreased quite dramatically. In the ninth grade the prevalence among girls was in time T2 half of the prevalence in time T1. Another notion can also be done. In every grade the prevalence of tobacco products use is lower in schools where the HETIP intervention has been done. The difference is not big but clear.



**FIGURE 8. Differences (%) in between Intervention classes (HETIP) and control classes (NON-HETIP) in use of tobacco products within girls in different grades.**



The prevalence of tobacco products use is much higher among boys than among girls. Every tenth of boys from grades four to six were using some tobacco products in time T1. After this phase the prevalence increased gradually until ninth grade. The profile of boys and girls in time T1 was quite the same. But the consequence of intervention was different: the prevalence of tobacco products use within the boys was lower in time T2 than it was in time T1 in every grade. Within those boys who were under the HETIP intervention the prevalence is lower than within boys in other schools. The result indicates that both components of intervention, prevention and termination, succeeded within boys.



**FIGURE 9. Differences (%) in between Intervention classes (HETIP) and control classes (NON-HETIP) in use of tobacco products within boys in different grades.**

## Discussion

Based on earlier studies and this evaluation it can be said that smoking and the use of tobacco products is strongly a group phenomenon. In the present study there is a robust correlation with the share of smoking girls and boys. There is also a clear correlation between the prevalence of students' (both boys and girls) smoking and the smoking of teachers and parents. This correlation is stronger within the girls than boys. But adults' smoking earlier (in time T1) does not reflect students' smoking later (in time T2).

A small effect of class-size can be identified. It seems to be easier to stop smoking in a small than in a large class. We also can recognize that parents smoke more rarely in the case of small than in big classes.

Something about group phenomena tells us the fact that if there are more boys in the class there exist also more girls who have stopped their smoking. A shared (public) decision to stop smoking and the use of tobacco products seems to help students to keep their decision running. Also parents' decision to stop smoking correlates with students' decision. In many cases the decision was conclusive: there was a clear correlation with the decision to stop smoking in time T1 and with those who said they have already stopped smoking in time T2.

Based on the analysis with intensive data T2, we can check which things are the predictors of smoking (or using tobacco products). The smokers are more frequently boys, coming from poor families, from nonreligious backgrounds and they feel they are ill. They say they started smoking because their friends were smokers and especially because their own brothers were smoking. These (boys) also had poor relationships with their parents and they usually had tensions, low satisfaction with life and no real support from adults. Their knowledge on the adverse effects of using tobacco products was lower than non-smokers had. These results are in line with Global Youth Tobacco Survey GYTS done in 2001. In a meta-analysis based on several studies the same linkage between poor relations to family members and a stressful life with smoking have reported (Fisher et al. 2011).

According to Warren et al. (2009) "... evidence was found supporting the idea that tobacco use among adolescent girls is likely increasing. This finding suggests tobacco control programs need to develop special programs directed toward tobacco use prevention among girls." This might indicate some demands to change the anti-tobacco program separately for males and females in Nepal.

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## APPENDIX 1. Variables in two cross-sections (T1, T2).

	N	Minimum	Maximum	Mean	Std. Deviation
Data collection, year T1	186	2005	2010	2008,96	1,522
Hetip T1	186	1	1	1,00	,000
Grade T1	186	4	12	7,55	2,233
Number of student T1	186	13	294	82,55	47,758
Girls T1	186	4	174	42,95	25,451
Boys T1	186	6	125	39,48	24,019
Smoking girls T1	139	0	20	3,40	3,026
Smoking boys T1	162	1	47	8,82	7,771
Girls decided to quit smoking T1	139	0	17	2,63	2,432
Boys decided to quit smoking T1	162	1	38	7,02	6,288
Number of parents (2*students) T1	186	26	588	165,10	95,517
Smoking parents (fathers+mothers) T1	186	7	112	34,54	20,288
Parents decided to quit smoking T1	186	1	74	11,31	12,499
Smoking fathers T1	186	5	77	25,65	14,298
Smoking mothers T1	186	1	44	8,90	6,925
Fathers decided to quit smoking T1	186	1	50	7,84	8,081
Mothers decided to quit smoking T1	174	1	30	3,71	4,783
Number of teachers T1	174	14	62	29,18	12,808
Smoking teachers T1	180	2	13	5,11	2,356
Teachers decided to quit smoking T1	180	1	10	3,86	1,984
participants in SP show T1	186	264	2076	804,06	400,987
Girls in class, % T1	186	,29	,78	,5219	,08128
Boys in class, % T1	186	,04	,91	,4793	,09349
Smoking girls, % T1	139	,00	,36	,0758	,05666
Smoking boys, % T1	161	,02	,74	,2093	,11106
Girls decided to quit smoking, % of girls T1	139	,00	,25	,0580	,04340
Boys decided to quit smoking, % of boys T1	161	,02	,62	,1655	,09015
Smoking parents, % of parents T1	186	,09	,72	,2214	,09315
Parents decided to quitsmoking, % of parents T1	186	,01	,24	,0684	,04564
Smoking teachers, % of teachers T1	168	,06	,45	,1865	,08943
Teachers decided to quit smoking, % of teachers T1	168	,04	,36	,1373	,07429
Difference in years (T2-T1)	186	1	6	2,04	1,522
Hetip T2	135	0	1	,59	,493
Grade T2	135	6	10	7,92	1,191
Number of student T2	135	5	168	54,56	27,099
Girls T2	135	2	94	30,07	15,603
Boys T2	135	0	74	24,48	14,230
Smoking girls T2	135	0	18	1,36	2,479
Smoking boys T2	135	0	10	1,53	1,688
Girls decided to quit smoking T2	135	0	16	2,88	3,647
Boys decided to quit smoking T2	135	0	12	2,46	3,029
Girls already quit smoking T2	135	0	48	11,73	10,648
Boys already quit smoking T2	135	0	39	9,75	8,869
Smokers decided to quit T2	135	0	6	,67	1,304
Girl smokers decided to quit T2	135	0	5	,33	,854
Boy smokers decided to quit T2	135	0	4	,34	,755
Number of parents (2*students) T2	135	10	336	109,11	54,198
Smoking parents (fathers+mothers) T2	135	1	73	24,13	14,070
Parents decided to quit smoking T2	135	3	98	26,33	15,493
Parents already quit smoking T2	135	0	49	15,91	10,553
Smoking parents decided to quit smoking T2	135	0	48	12,22	8,419
Girls in class, % T2	135	,18	1,00	,5534	,12475
Boys in class, % T2	135	,00	,82	,4466	,12475
Smoking girls, % T2	135	,00	,41	,0496	,08233
Smoking boys, % T2	131	,00	,36	,0656	,07551
Girls decided to quit smoking, % of girls T2	135	,00	,75	,0938	,12333
Boys decided to quit smoking, % of boys T2	131	,00	,57	,0978	,11735
Girls already stopped smoking, % of girls T2	135	,00	1,00	,3892	,28455
Boys already stopped smoking, % of boys T2	131	,00	1,00	,3864	,25174
Smoking parents, % of parents T2	135	,01	,43	,2232	,07841
Parents decided to quit smoking, % of parents T2	135	,09	,50	,2409	,06933
Parents already stopped smoking, % of parents T2	135	,00	,36	,1436	,06221
Size of a class T2	135	1,00	3,00	2,0667	,79363



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## **Diakonia-ammattikorkeakoulun julkaisuja B Raportteja**

Sarjassa julkaistaan pääsääntöisesti Diakonia-ammattikorkeakoulun opinnäytetöitä, henkilökunnan tutkimuksia ja opinnäytetöitä sekä niiden Diakin kehittämisprojektien raportteja, jotka ovat tuottaneet innovatiivisia ja merkittäviä työelämää kehittäviä tuloksia.

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## **SARJOJEN KRITEERIT**

### **A Tutkimuksia:**

Sarjassa julkaistaan uutta ja innovatiivista tietoa tuottavia tieteellisiä tutkimuksia Diakonia-ammattikorkeakoulun opetus-, tutkimus- ja kehittämistoiminnan alueilta. Julkaisut ovat lähinnä väitöskirjoja, korkeatasoisia artikkelikokoelmia sekä lisensiaatintutkimuksia, joiden julkaisemista A-sarjassa puoltaa tohtoritason tutkija. Ulkopuolisen tohtoriarvioijan lisäksi A-sarjassa julkaistavan lisensiaatintutkimuksen lukee julkaisuryhmän jäsenenä toimiva tohtoritason lukija. Sarjaan voivat tarjota julkaisuja sekä Diakonia-ammattikorkeakoulun omat työntekijät että ulkopuoliset kirjoittajat.

### **B Raportteja**

Sarjassa julkaistaan henkilökunnan tutkimuksia (lisansiaatintöitä, pro graduja), ansioituneita Diakonia-ammattikorkeakoulun opinnäytetöitä sekä niiden Diakin kehittämisprojektien raportteja, jotka ovat tuottaneet innovatiivisia ja merkittäviä työelämää kehittäviä tuloksia.

### **C Katsauksia ja aineistoja**

Sarjassa julkaistaan Diakonia-ammattikorkeakoulun tutkimus-, kehittämis- ja opetustoiminnan tuloksena syntyneitä julkaisuja, esim. työelämän oppimisympäristöistä ja muista projekteista nousevia opinnäytetöitä, oppimateriaaleja, ohjeistuksia sekä seminaari- ja projektiraportteja.

### **D Työpapereita**

Sarjassa julkaistaan asiantuntijapuheenvuoroja ja kannanottoja ajankohtaisiin asioihin, erilaisia suunnittelutyön tarpeisiin tehtyjä selvityksiä (esim. laaja projektisuunnitelma) ja projektien väliraportteja. Sarja mahdollistaa kokemusten ja asiantuntijatiedon nopean eteenpäin viemisen.



