

Environmental Health Update

Sustainable Development and Healthy Environments



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Focus of the month

HOLISTIC SOLUTIONS FOR THE AIR WE BREATHE!

Ambient air pollution due to anthropogenic activities is not a new phenomenon¹. The Babylonians and the early Egyptians mention it. More recent times have seen such catastrophic events as the great London smog of 1952, which resulted in about 4 000 deaths and the methyl isocyanide leakage in Bhopal, India in 1984, which directly killed 20 000 people and permanently disabled another 120 000 people.



Smoke filled kitchen — Nepal.

The air of Asian countries has its burden of pollutants from two main sources, namely, rapidly growing industrial activities and an increasing

number of vehicles, and air pollution from traditional sources, e.g. the domestic solid biomass fuels used for cooking and heating by almost 90% of the rural populations. While the overall outdoor air quality, particularly in urban areas, has deteriorated in the last 40 years due mainly to rapid urbanization and industrialization, indoor air pollution is an even greater problem in the Region, due to the use of solid fuels such as wood, charcoal, dung, agricultural residues and coal. An estimated 1 million deaths in developing countries are attributed to indoor smoke from such solid fuels,² while another 500 000 deaths are annually attributable to urban air pollution in the developing countries of the Asia-Pacific Region.

Given the dual nature of these sources of air pollution, our technical focus on just one of these aspects — because of the greater mortality attributed to it — may be too simplistic; ultimately, even indoor air spills into the outdoors, and so a case must be made for pursuing more



Smokeless chula.

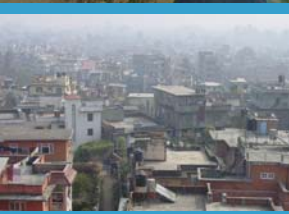
holistic interventions rather than just picking the “low hanging fruit” enabled by action on indoor air. It is true that the occupants of poorly ventilated homes and kitchens need a “quickfix” to respiratory problems; however, our fragmented approach to intervening with a “smokeless chula

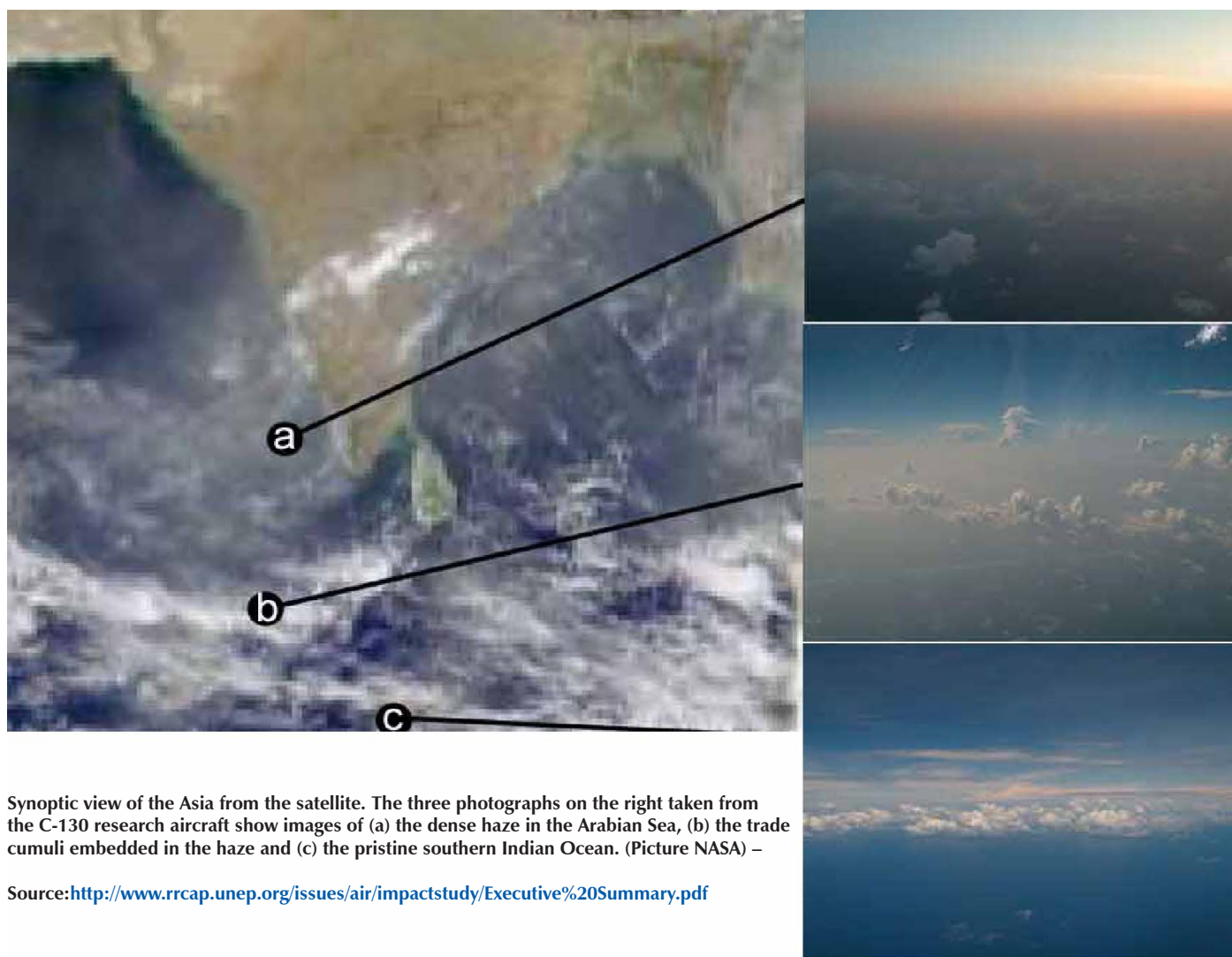
¹K. C. Heidorn Bulletin American Meteorological Society (1978) 59:1589-1594 available at <http://ams.allenpress.com/archive/1520-0477/59/12/pdf/i1520-0477-59-12-1589.pdf>. It has been a problem since 900 BC when Hit, a town located west of Babylon, was the center of asphalt mining. King Tukulti, an Egyptian king, visited the town and reported a strange smell in the air generated by the ulmeta rocks. These rocks are high in sulfur dioxide and hydrogen sulfide. Centuries later in 1157, Eleanor, Henry II's wife, left her home in Nottingham, England because the pollution caused by burning wood was “unbearable.” In the 1300s England began to use coal instead of wood for heat, causing major air pollution problems. To clean up London's air, King Edward I outlawed coal burning exclaiming, “...whosoever shall be found guilty of burning coal shall suffer the loss of his head.”

²WHO 2002. World health report: Reducing risks and promoting healthy life.

Highlights

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Synoptic view of the Asia from the satellite. The three photographs on the right taken from the C-130 research aircraft show images of (a) the dense haze in the Arabian Sea, (b) the trade cumuli embedded in the haze and (c) the pristine southern Indian Ocean. (Picture NASA) –

Source: <http://www.rrcap.unep.org/issues/air/impactstudy/Executive%20Summary.pdf>

(stove)” as a solution to the poor woman’s problem, while strategic, may be myopic. Our research interests may be satisfied, but her broader interests are neglected. It may be that we plan too narrowly, or because we are just too engrossed in seeking to find an answer to our very specific scientific inductive inquiry. Providing the chula will bring immediate succor to the suffocating family, but existing evidence indicates that this is difficult and can take years, and even still this facility is available only to a minority of our rural populations in “research/development project” situations. Perhaps we need to seek ways of taking the woman out of the socioeconomic condition she is trapped in by providing her with better housing, education and a means of discovering her self-dignity through a secure livelihood. Ultimately, with raised socioeconomic status she will emerge from her smoky kitchen out.

Perhaps we should also look at outdoor air pollution in urban settings more holistically. If we think about how indoor air ultimately becomes outdoor air, we will start seeing our environment as a seamless whole, whose issues must be addressed as an ensemble. We need to look at what are the other factors that add burden to our outdoor air. In the urban setting, where the engine of economic

development is raging unabated, how many polluting industries are opening every day, and how many more motor vehicles are added to our roads each day?

In several of our countries, the picture is not encouraging. In Nepal, air quality is continuing to deteriorate in the large urban areas, mainly due to the rising number of vehicles and industries - a trebling of vehicles in a decade. In Delhi and Bangalore in India, one thousand more vehicles are rolled onto the roads every day, and with the present rush of the Indian automobile industry to enter the low-cost small car segment, we may anticipate future chaos on the roads and a corresponding effect on the ambient air quality³. Bangladesh also reports a trebling of motor vehicles in the past decade; in Sri Lanka they have doubled over the same period⁴, while Indonesian roads experienced a doubling of vehicles in just the past five years.

Further, the Asian Brown Cloud (ABC) is a phenomenon we cannot forget about even though it hovers far above

³CSE news bulletin October, 2007

⁴Indonesia — <http://www.bps.go.id/sector/transport/land/yearly/table3.shtml>; and for Sri Lanka — http://www.searo.who.int/EN/Section1243/Section1310/Section1343/Section1344/Section1836/Section1837_8159.htm



Aerial view of a thick haze.

our heads in the stratosphere. This cloud is the result of pollution mainly from human action in our countries. In 2002, UNEP reported on this 2-mile-thick toxic umbrella stretching over the south Asian region⁵. This haze, composed of a grimy chemical cocktail, is 80 percent human-made, and has serious regional and global implications for climate change; it reduces by about 15% the solar energy hitting the earth's surface, suppressing photosynthesis in plants, affecting rainfall and causing adverse effects on agricultural productivity. Other recent studies have reported direct brown cloud links to the melting and retreat of the Himalayan glaciers⁶.

Whether indoor or outdoor, air pollution and its greenhouse gases add to the burden on our ecosystem and impact its ability to replenish itself, thereby exacerbating the warming of our atmosphere – and setting in motion the phenomenon of climate change.

This the price of development, but with the new awareness and superior global and national data we have today, we can move toward solutions that are holistic rather than fragmented. The holism of Gaia (“mother earth”) must be revived and we must seek to understand the interconnectedness of our existence on this planet. Only from this self-awareness can creative policies and innovative solutions emerge.

⁵The Asian brown cloud : Climate and other environmental impacts. <http://www.rrcap.unep.org/issues/air/impactstudy/Executive%20Summary.pdf>

⁶Warming trends in Asia amplified by brown cloud solar absorption. Nature 448, 575-578 <http://www.nature.com/nature/journal/v448/n7153/full/nature06019.html>

Vehicular traffic – a major polluter in Kathmandu Valley

Compared to other big Asian cities, Kathmandu⁷ is particularly vulnerable to emissions of air pollution. Kathmandu Valley is surrounded by 500 m–1 000 m high hills, and the low wind speed in the valley creates poor dispersion conditions, predisposing Kathmandu to serious air pollution problems. Several studies have shown that the quality of the air in Kathmandu Valley has deteriorated over the past decades. An important cause of this air pollution is the motor vehicle—not only from their exhaust emissions, but through vehicle-induced persistent re-suspension of dust particles from poorly maintained roads in the valley.



Haze in Kathmandu.

Data for 2005 indicate an average PM10 (particulate matter) level of 135 micrograms per cubic meter for residential urban areas in the Valley⁸. However, for one week in April 2006, during and following the peoples' movement in Nepal, when motor vehicle transport was virtually paralysed, the PM10 level was reduced from 226 to 81—far below the national standard of 120. This case dramatically illustrates the significance of the air pollution produced by vehicular transport. For details contact Mr Han Heijnen, Environmental Health Adviser, WHO Nepal at hanheijnen@gmail.com.

⁷Ambient Air Quality of Kathmandu Valley 2003-2004, Ministry of Environment, Science and Technology; June 2005.

⁸MoEST website www.moest.gov.np.

SDE news

Delhi Hosts World Toilet Summit 2007

World Toilet Summit 2007 was organized by the Sulabh International Social Service Organization with support from the Ministries of Housing and Urban Poverty Alleviation,

Social Justice and Empowerment, Rural Development, Health and Family Welfare, Government of India, and UN-HABITAT from 31 October to 3 November 2007 at the India Habitat Centre, New Delhi. With the theme of “Toilets for All”, the summit consisted of a conference segment and an exhibition where participants discussed sanitation issues and showcased related technologies and



WHO stall at the WTS 2007.

products. The conference deliberated on challenges and strategies to achieve the MDG 7 goal for sanitation⁹. These focused on various low-cost and sustainable sanitation options for urban, rural and recreational aspects of sanitation; the establishment of a Global Sanitation Fund was also discussed. The summit provided a platform for sharing experiences and ideas on sanitation services among stakeholders from government agencies, local bodies, financial institutions, industries, town planners, architects, designers, NGOs and others. Ms Payden, Regional Adviser, Water, Sanitation and Health, Mr A. K. Sengupta, Advisor at the WHO India Country Office and five regional country participants attended the summit. SEARO also had an exhibition showcasing the sanitation status in several SEA Region countries. Dr Abdul Sattar Yoosuf, Director, Department of Sustainable Development and Healthy Environments, WHO SEARO chaired the first technical session of the summit on achieving MDG 7. For details, please contact Ms Payden at payden@searo.who.int and the conference website www.worldtoilets Summit2007.org.

AusAID-WHO Water Quality Partnership on track

The second review and planning meeting of the WHO-AusAid Water Quality Partnership was held in Bangkok 17-19 October 2007. The meeting focused on further scaling up of the water safety plans in the Asia-Pacific Region and further directing the partnership for long-term investments in water quality management. A total of 22 participants from WHO HQ, WPRO, SEARO, AusAID, UNICEF, the Water and Sanitation Programme of the World Bank, IWA (International Water Association), US AID and the US State Department attended the meeting.

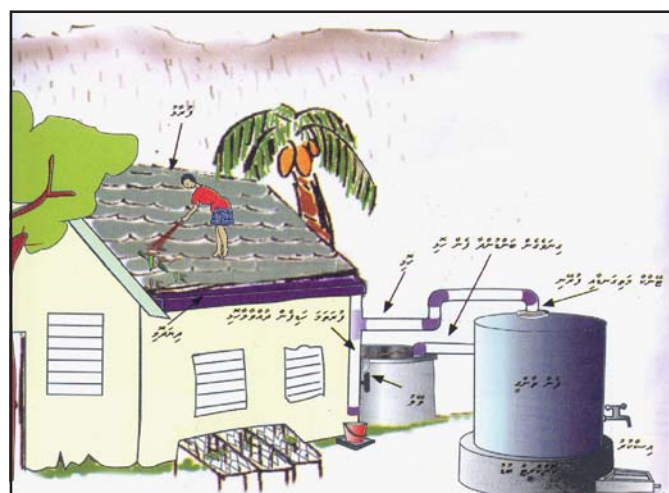
⁹MDG Goal 7: Ensure Environmental Sustainability — integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources; reduce by half the proportion of people without sustainable access to safe drinking water; achieve significant improvement in lives of at least 100 million slum dwellers by 2020.

Project experience at all levels over the past two years has confirmed that advocating for the Water Safety Plan's (WSP) preventive water management approach is highly desirable because WSPs lead to measurable water quality improvement and improved management competence. Also, WSPs are appropriate for resource-poor settings.

AusAid has already provided an additional amount of Aus\$ 1 million to extend Phase 1 until the end of 2008. The main activities for next year will be to carry out demonstration projects, gather further evidence, prepare manuals on WSPs and build capacity for project management. For more information contact Ms Payden (Payden@searo.who.int).

WHO supports rainwater harvesting capacity in Maldives

A workshop on the development of guidelines on rainwater harvesting was conducted at Thulusdhoo Island in Male



Atoll, 19-23 October 2007. The purpose of the workshop was to explore how the Maldives Water and Sanitation Authority (MWSA) can develop local standards for homebuilders and plumbers to improve the quality of collection and storage of the water. The two-day workshop brought together staff from local administrations, the island health centre, MWSA and local NGOs. Following the workshop, MWSA and WHO agreed to work together on developing suitable orientation and training material on safe collection and storage of rainwater. This collaboration is in line with earlier joint work in 2005 on the rehabilitation and protection of water resources for safe water for human consumption. Mr Han Heijnen, Environmental Health adviser, WHO Nepal, facilitated the workshop.

For more than two decades, the collection of rainwater for drinking has been a common feature of life on the islands of Maldives. As the growing population and poorly functioning septic tanks compromise the shallow aquifers

of the islands, rainwater becomes ever-more precious. Following the tsunami disaster of 26 December 2004, the Government of Maldives, through MWSA of the Ministry of Energy, Environment and Water (MEEW) and its partners expanded the use of rainwater harvesting systems. Clean rooftops and several thousand high-density poly (HDPE)

tanks and local management capacity are the critical ingredients that help the programme to collect, store, safeguard and manage this supply of rainwater.

For more details on the workshop, please contact Mr Han Heijnen at hanheijnen@gmail.com.

EH NEWS

Maldives conference gives top priority to reducing atmospheric pollution

Bandos Island Resort in Maldives hosted on 2-3 October the Ninth Inter-Governmental Meeting on the Male' Declaration on Control and Prevention of Air Pollution and its likely transboundary effects for South Asia. This was held in combination with the Fourth Regional Stakeholders Meeting of signatories to the declaration. The meeting reviewed progress connected to the declaration, shared technical information and streamlined action on the fourth phase of project implementation. The meeting assigned top priority to decreasing atmospheric pollution during the fourth phase. Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan and Sri Lanka are signatories to the Male' Declaration. Details available at the website http://www.environment.gov.mv/env_news.php#maledec.

First EASAN Conference to be held in Japan

The first East-Asian Ministerial Conference on Sanitation and Hygiene (EASAN) will be held in Beppu City Japan, from 30 November to 1 December 2007. The Water and Sanitation Program for East Asia (WSP-EAP), United Nation's Children's Fund (UNICEF) and WHO are working with the governments in the region – led by the Government of Japan – to convene this high-level conference on a similar scale as the South Asia Conference on Sanitation (SACOSAN) initiated in 2005. The EASAN conference will advocate for strong commitments to accelerate national action by governments to reach the sanitation MDG (MDG 7). It will also promote shared commitments from countries around the region to develop and implement effective policies, programmes and partnerships for meeting the sanitation and hygiene objectives for East Asia. Indonesia, Myanmar, Thailand and Timor-Leste from the SEA Region will be fielding high-level participation to this meeting. Details are available at <http://www.wsp.org/regions/region.asp?id=2>.

Visits and missions

The third SEAWF held in Kuala Lumpur

The third South-East Asia Water Forum (SEAWF) was organized in Kuala Lumpur, Malaysia on 22-26 October 2007 to take stock of the implementation of the Integrated Water Resources Management (IWRM) initiative in countries, and share implementation experiences among partners from different disciplines of the water sector. The forum also crafted recommendations to link up with Asia Pacific Water Summit that will be held Oita, Japan, 3-4 December 2007. WHO, UNICEF and UN Habitat convened a stakeholder session on Water Supply and

Sanitation (WSS) sector monitoring. Ms Payden, Regional Advisor from SEARO, attended the session.

Since the World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002, all countries in the South-East Asia Region adopted an Integrated Water Resources Management (IWRM) strategy as the way forward in ensuring sustainable use of global water resources. Since then, the biennial South-East Asia Water Forum (SEAWF) has provided a platform for all the major water-related stakeholders from various disciplines of the water sector within the Region to share experiences and lessons learned in the implementation of IWRM. For details on the third forum, please see the website <http://3rdseawf.water.gov.my/background.cfm>.

Upcoming events

- First meeting of WHO's Foodborne Disease Burden Epidemiology Reference Group (FERG) to be held in WHO/HQ Geneva, 26-28 November 2007. http://www.who.int/foodsafety/foodborne_disease/ferg_advisers/en/
- WHO Regional Workshop: "Building Capacity for Implementing Sound Health Care Waste Management in SEAR countries", MS Ramaiah Medical College, Bangalore, India, 17–19 December 2007. For details contact Mr Alexander von Hildebrand at hildebranda@searo.who.int.
- "WHO Regional Workshop on Climate Change and Human Health in Asia: From Evidence to Action", Bali, Indonesia, 10 – 12 December 2007. For details contact Mr Alexander von Hildebrand at hildebranda@searo.who.int.
- National workshop: "Protecting Human Health from Climate Change", Jakarta, Indonesia, 14 and 15 November 2007. For details contact Mr Jan Speets at speetsj@who.or.id.
- National workshop: "Climate Change & Health Impacts", Dhaka, Bangladesh, 26-27 November 2007. For details contact Dr Andrew Trevett at trevetta@searo.who.int.
- National Nepal Consultation on "Climate Change and Human Health in Nepal: Vulnerability and Impact, Adaptation and Mitigation", Kathmandu, Nepal, 17-19 December 2007. For details contact Mr Han Heijnen at hanheijnen@gmail.com.
- WHO Intercountry Workshop for Healthy Settings Coordinators, Male', Maldives, 13-15 November 2007. For details contact Dr A Sattar Yoosuf at the email address yoosufa@searo.who.int.
- WHO Bi-Regional Workshop on Strengthening Occupational Health and Safety, Kuala Lumpur, Malaysia, 12-14 November 2007. For details contact Dr Habibullah Saiyed at saiyedh@searo.who.int.
- WHO Intercountry Consultation on Reducing Workplace Exposure through Risk Management Toolkit, Chennai, India, 19-22 November 2007. For details contact Dr Habibullah Saiyed at saiyedh@searo.who.int.

Publications and Learning Materials

Directory of web-accessible resources

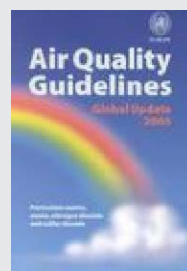
Links to portals of the WHO Programme on Indoor Air Pollution, UNEP and other organizations, e.g. development agencies, academic/research institutions and civil society, are available at <http://www.who.int/heli/risks/indoorair/indoorair/en/index.html>.

Global indoor air pollution database

This is an Access database on indoor air pollution commissioned by WHO and developed by researchers at the University of California at Berkeley. It aims to provide the scientific community with an overview of measured household indoor air pollution levels in about 250 communities around the world. Researchers can review and analyse findings within and across studies, and can either query the database directly or export the files into a statistical programme for in-depth analysis. For details visit the website http://www.who.int/indoorair/health_impacts/databases_iap/en/print.html.

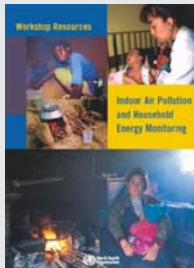
Air quality guidelines: Global update 2005

Particulate matter, ozone, nitrogen dioxide and sulfur dioxide



This WHO document presents revised guideline values for the four most common air pollutants—particulate matter, ozone, nitrogen dioxide and sulfur dioxide—based on a recent review of the accumulated scientific evidence. It gives a brief yet comprehensive review of the issues affecting the application of the guidelines in risk assessment and policy development. These guidelines are applicable throughout the world. They provide reliable guidance for policy-makers everywhere when considering the various options for air quality management. For details visit the website <http://www.who.int/bookorders/anglais/detart1.jsp?sesslan=1&codlan=1&codcol=34&codcch=66>.

Indoor air pollution and household energy monitoring



This is a report of a 2005 WHO-organized series of five-day training workshops as a step towards building regional capacity in the area of household energy and indoor air pollution monitoring. Workshops were conducted as a contribution to the Partnership for Clean Indoor Air in collaboration with the Pan-

American Health Organization, the United States Environmental Protection Agency, the German Technical Cooperation (GTZ) agency, the Center for Entrepreneurship in International Health and Development at the University of California at Berkeley (CEIHD) and the Aprovecho Research Center. These training workshops were designed to empower governmental and nongovernmental organizations as well as research institutions to evaluate the impact of intervention projects or programmes. The full document is available at the link http://www.searo.who.int/EN/Section23/Section1001/Section1110_12744.htm.

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