



**Struggling to a
monumental
triumph:
re-assessing the final
phases of the
smallpox eradication
program in India,
1960-1980**

*Lutando por um triunfo
monumental: uma
reavaliação das etapas
finais do programa de
erradicação da varíola
na Índia, 1960-1980*

Sanjoy Bhattacharya

The Wellcome Trust Centre for the History
of Medicine at University College London
183 Euston Road – London NW1 2BE – UK
sanjoy.bhattacharya@ucl.ac.uk

BHATTACHARYA, Sanjoy. Struggling to a monumental triumph: re-assessing the final phases of the smallpox eradication program in India, 1960-1980. *História, Ciências, Saúde – Manguinhos*, Rio de Janeiro, v.14, n.4, p.1113-1129, Oct.-Dec. 2007.

The global smallpox program is generally presented as the brainchild of a handful of actors from the WHO headquarters in Geneva and at the agency's regional offices. This article attempts to present a more complex description of the drive to eradicate smallpox. Based on the example of India, a major focus of the campaign, it is argued that historians and public health officials should recognize the varying roles played by a much wider range of participants. Highlighting the significance of both Indian and international field officials, the author shows how bureaucrats and politicians at different levels of administration and society managed to strengthen – yet sometimes weaken – important program components. Centrally dictated strategies developed at WHO offices in Geneva and New Delhi, often in association with Indian federal authorities, were reinterpreted by many actors and sometimes changed beyond recognition.

KEYWORDS: smallpox eradication; India; World Health Organization; primary health care.

BHATTACHARYA, Sanjoy. Lutando por um triunfo monumental: uma reavaliação das etapas finais do programa de erradicação da varíola na Índia, 1960-1980. *História, Ciências, Saúde – Manguinhos*, Rio de Janeiro, v.14, n.4, p.1113-1229, out.-dez. 2007.

O programa global de erradicação da varíola geralmente é apresentado como obra de um punhado de atores baseados no quartel-general da Organização Mundial da Saúde (OMS), em Genebra, Suíça, e em seus vários escritórios regionais. Este artigo apresenta descrição mais complexa do esforço para erradicar a varíola. Tomando como exemplo a Índia, um dos principais alvos da campanha, mostra que é importante reconhecer os variados papéis desempenhados por leque muito mais variado de participantes. Sem subestimar os funcionários que foram a campo, o autor analisa a atuação de burocratas e políticos em diferentes níveis da administração e da sociedade. Fica claro que foram capazes de fortalecer e, às vezes, também, solapar importantes componentes do programa. Desse modo, estratégias concebidas nos núcleos centrais da OMS, em Genebra e Nova Délhi, com frequência envolvendo autoridades federais indianas, foram reinterpretadas por muitos atores e por vezes modificadas a ponto de se tornarem irreconhecíveis.

KEYWORDS: erradicação da varíola; Índia; Organização Mundial da Saúde; atenção primária à saúde.

The eradication of smallpox in India would not have been possible but for the contributions of many actors. The World Health Organization (WHO) headquarters in Geneva, Switzerland, and its South East Asia Regional Office (Searo), based in New Delhi, India, played an extremely prominent role. So did the health ministries of the Indian central government and state governments. All these agencies set up a series of special 'eradication units', which deployed several energetic medical and public health personnel all over the sub-continent. The Soviet Union, the United States of America, Sweden and a host of other Asian and European countries provided generous doses of aid, often on a bilateral basis, in the form of field operatives, vaccine, operating kits and money. Indian and international charitable institutions made significant contributions at crucial junctures as well.¹

¹ The WHO's official history of the last phase of the smallpox eradication program provides a detailed list of the international and Indian epidemiologists deployed in the sub-continent (see Basu, Jezek, Ward, 1979).

The involvement of such a great variety of workers is unsurprising considering how complicated the organization of the final stages of Indian smallpox eradication campaign turned out to be. The country was huge, with stretches of extremely difficult terrain, often with no access to transportation links. The topography was varied and specific campaign methods had to be organized for each territorial context. Linguistic and cultural diversities were as varied. More than twenty major languages and several local dialects were spoken, and a wide variety of religious traditions and class configurations were visible in the localities of each Indian state. The administrative challenges did not end there. Many sections of the Indian population were not only often uncooperative, but also frequently openly hostile to the quest for smallpox eradication.

Even though commentaries about smallpox eradication in India frequently disagree about the value of the contributions of particular players, there is a uniformly celebratory element, which was particularly noticeable in publicity documents, official histories and memoirs. These generally also present a simplified picture of a unified campaign workforce, supposedly confident about its goals and consistently effective in the field due to its educational and technical expertise. A prime example of this is provided in the foreword written by Donald Henderson, the inspirational chief of the special Smallpox Eradication Unit set up within the World Health Organization Headquarters (WHO HQ) in Geneva, in the organization's official history of the eradication program. He declares in it that: "One of the most gratifying features of this program is the unified and effective way in which the Government of India and the World Health Organization have collaborated. At every level, national and WHO staff worked shoulder to shoulder, pursuing their goal with technical competence, dedication and enthusiasm" (Basu, Jezek, Ward, 1979).

Perhaps unsurprisingly, unpublished WHO and Government of India correspondence reveals a far more complex picture. Agencies sponsored by the WHO and the Indian government were often at loggerheads on matters of strategy in particular situations, which shows that neither administrative organization was monolithic in nature. Moreover, many officials, of different nationalities and ranks, remained skeptical about the possibility of expunging variola from the sub-continent. This even included some of the campaign's staunchest supporters within the WHO, who often privately queried many of the successes claimed in relation to the dramatic reduction of the incidence of the disease in the early 1970s.

Despite their ability to provide a more nuanced understanding of the final chapters of one of the most important international health programs in the twentieth century, these administrative complexities are often ignored.² This article attempts to show why it would be profitable not to do so.

² The result is the presentation of huge generalizations about the structures and goals of the World Health Organization and the smallpox eradication bureaucracy it helped set up (see, for instance, Naraindas, 1998, p.94, footnote 21).

A troubled advance: the creation of the infrastructure for eradication

The WHO Health Assembly's repeated calls in the 1950s for smallpox eradication caused a lot of international attention to be focused at India, as it was a major reservoir of the disease (see Table 1, below). This critical gaze made several senior members of India's central government, including Jawaharlal Nehru, the Prime Minister, extremely uneasy. The widespread incidence of variola was considered by this modernizing crusader, with a keen sense of how India was perceived on the international stage, as a stigma, as a sign that his regime's agenda of rapid reform and development was unfolding far less effectively than planned.³ Considering the fact that the Prime Minister was the chief executive authority in the country (the Indian President, who was elected by two houses of parliament, was merely a figurehead), Nehru's views ensured action from within the confines of the federal Ministry of Health. This took the shape of the appointment of a so-called 'Central Expert Committee' in May 1958, which was asked to put forward proposals about the best means of eradicating variola.

³ See, for instance, speech by Jawaharlal Nehru about the importance of smallpox eradication reproduced in Government of India, 1966, p.1.

In many ways, however, this was a rather limited exercise—setting up a committee was one thing, getting policies enacted and bureaucratic and civilian support was quite another issue. Prime Ministerial authority at this time was relatively slight, where state-level politicians and bureaucrats were allowed significant levels of autonomy. Moreover, there was political hostility to the proposal for an organized smallpox eradication program. Even Nehru, widely regarded as a charming negotiator with a knack for rallying wide-ranging political support on the domestic front, found it

Table 1: Smallpox cases in India and the world, 1950-1977

Year	India	World	India/World Percentage
1950	157,487	332,224	47.4
1951	253,332	485,942	52.1
1952	74,836	155,609	48.1
1953	37,311	90,768	41.1
1954	46,619	97,731	47.7
1955	41,887	87,743	47.7
1956	45,109	92,164	48.9
1957	78,666	156,404	50.3
1958	168,216	278,922	60.3
1959	47,109	94,603	50.4
1960	31,091	65,737	47.3
1961	45,380	88,730	51.3
1962	55,595	98,700	56.3
1963	83,423	133,003	62.7
1964	41,160	75,910	54.2
1965	33,402	112,703	29.8
1966	32,616	92,620	35.2
1967	83,943	131,418	63.9
1968	30,925	80,213	37.8
1969	19,139	52,204	35.3
1970	12,341	33,663	36.7
1971	16,166	52,794	30.6
1972	20,407	65,153	31.3
1973	88,109	135,851	64.9
1974	188,003	218,364	86.1
1975	1,436	19,278	7.5
1976	Zero	953	—
1977	Zero	3,234	—

Source: Basu, Jezek, Ward, 1979, p.36.

extremely difficult to get rid of opposition from senior bureaucrats within the federal-and state-level health ministries, which were reported as being deeply divided about the issue (Government of India, 1964, p.25).

Senior WHO officials in Geneva were well aware of these administrative divisions, at each level of Indian government. Despite this, they developed plans for eradication for India, on the assumption that bureaucratic and political opposition in the country would ultimately be overcome with the support of senior members of the central government. This assessment was powerfully underlined by

the presentation of a 'Smallpox Eradication Criterion' in August 1961 (Bonne, Aug. 8, 1961). Strikingly, this prescription proved unpopular within the headquarters of WHO's Searo. They demanded changes in the statement released from Geneva, which were considered necessary for reasons presented as being locally pertinent (Memorandum..., Aug. 18, 1961). Although this reminder of organizational disunity irritated the WHO HQ, its officials were forced nevertheless to provide a written reassurance to New Delhi that local epidemiological and infrastructural factors would be considered during the planning and running of an Indian eradication program (Bonne, Sept. 14, 1961).

The wisdom of developing regionally relevant policy was underlined very quickly. Even as pilot smallpox eradication schemes were started in one district of each of the twenty-two Indian states during the course of 1960, the damaging effects of local infrastructural constraints and bureaucratic disinterest became starkly obvious. The deployment of all the pilot projects, which were intended to introduce a hundred per cent vaccinal coverage, was delayed everywhere, causing much publicized WHO and central targets to be missed. Worryingly for the federal Health Ministry, these setbacks appeared as other disease eradication and control programs began to hit stormy waters and just as their managers started demanding greater chunks of central government allocations (the flagging National Malaria Eradication Program was a good case in point, as was the troubled drive for TB control).⁴

⁴ See, for instance, *Report 1961-62* (1964).

These difficulties ensured that the structures supporting the National Smallpox Eradication Program developed far more slowly than many WHO officials had hoped. The initial burst of growth was limited to the development of a new central nodal organization based in New Delhi and this was accompanied by a round of reform of local administrative rules seeking to make state-level public health officials more answerable to their superiors in New Delhi.⁵ Despite this, smallpox eradication work in the states was dogged by delays and this situation was justified by persistent references to financial difficulties (*Report 1961-62*, 1964, p.19).

⁵ See, for instance, circular letter from Deputy Secretary, Ministry of Health and Family Planning, Government of India, to Public Health Departments of all state governments, January 3, 1962, reproduced in *Government of India*, 1966, p.20-23.

While central government financial assistance allowed the completion of most of the state-level pilot schemes, several senior central government observers were very disheartened by the administrative difficulties that had been thrown up in almost every context. Indeed, unpublished correspondence from the second half of the 1960s shows that many powerful administrators considered this proof of the impossibility of expunging variola and began to develop plans for cutting back the National Smallpox Eradication Program budget. News of these developments set alarm bells ringing throughout the WHO, causing Donald Henderson to personally approach the Director General of Indian Health Services

in February 1967. His aim, which seems to have had widespread support in Geneva, was to ensure that the Indian government continued to back the eradication goal, albeit on a new basis. Henderson suggested that all aspects of the sub-continental campaign be thoroughly reformed. This was, interestingly, to not only involve governmental structures, but also include the relevant departments of the WHO's Searo; senior WHO representatives seemed to consider it politic to accept part of the blame for the problems that were continuing to hound smallpox immunization work in India (Henderson, Feb. 21, 1967).

Henderson's intervention seems to have been timely, even though he appears to have been uncertain initially about the effectiveness of his efforts and of the public declarations of support for the Indian government made by the WHO HQ.⁶ One of his letters to the American Embassy in New Delhi reported, for instance, that the Indian administrators were giving mixed messages and that Geneva had no clear idea whether the sub-continental campaign would survive the year (Henderson, Apr. 12, 1967). He need not have worried. The promises of additional aid caused the Indian federal authorities to reconsider their plans of scaling back their anti-smallpox measures and led to what was widely regarded as a helpful reshuffle of bureaucrats within the central health ministry department charged with the responsibility for coordinating the eradication program.⁷

⁶ See, for instance, Payne, Apr. 4, 1967.

⁷ See, for example, Mani, May 2, 1967.

Expansion, re-organization and re-deployment: Indian smallpox eradication programs, 1967-1980

The developments of 1967 brought about a major shift in the organization of the sub-continental smallpox eradication program. It is important to remember, however, that this was not just a result of the WHO decision to embark on a worldwide campaign of mass immunization. The changes initiated in Geneva and New Delhi from the month of April onwards were a direct response to the threat of withdrawal of the Indian government's support, and these brought forth heightened levels of WHO assistance. The organization's willingness to commit extra resources did, of course, have certain advantages for the managers of its smallpox eradication units: they were able to extract the Indian Prime Minister's permission to launch a mass immunization drive in the sub-continent, with both sides agreeing that this work would be conducted in collaboration with federal health ministry officials. The new plans of action were, therefore, a result of the coming together of the strategic needs of both parties.

The WHO HQ attempted to kick-start the goal of achieving countrywide mass vaccination by the employment of large numbers

of foreign workers; as per agreement, they were expected to work with the local bureaucrats. Geneva also arranged for the re-organization of the smallpox eradication unit attached to the Searo. Once again, this was achieved by the involvement of numerous foreign workers, with experience in managing public health projects, on a variety of short-term contracts. But a variety of problems cropped up. For one, it was difficult to find sufficient numbers of foreign staff; Henderson found it difficult to convince the US government and universities to provide experienced consultants at this time (Henderson, Sept. 6, 1967). Additionally, the WHO offices in Geneva and New Delhi had to get the international workers available for work in the sub-continent cleared by the Indian authorities, which was not easily achieved. References to friction between short-term WHO consultants, officials working on long-term contracts for the Searo and Indian bureaucrats was a common refrain in reports (Maltseva, Jun. 27, 1967).

All these problems combined to reduce the effectiveness of the mass vaccination drives launched in 1968; the continuing shortages of efficacious freeze-dried vaccine and operating kits did not help either. As a result, despite what the Indian government described as 'gigantic and concentrated' efforts to reformulate immunization policy between 1968 and 1970, the incidence of smallpox remained high. These circumstances exacerbated tensions between the eradication units run by the WHO and the Indian health ministry, as officials blamed each others' tactics. Henderson, for instance, referred to the problems existing between the 'various warring factions within the Ministry and between the Ministry and the States' (Henderson, Sept. 14, 1970).

At another level, though, the high incidence of variola encouraged the formation of new alliances. This involved workers and bureaucrats who supported a shift from the goal of mass vaccination, to a new strategy of 'surveillance-containment', based on the isolation of infected people and selective vaccination of smallpox stricken- communities and 'rings' of contacts (immediate contacts targeted first, after which the scope of vaccination increased to cover a broader range of potential contacts).⁸ These views did not, of course, go unchallenged. Reports frequently mentioned how variola outbreaks in the districts could throw carefully laid plans for surveillance-containment out of gear in a situation where local bureaucrats frequently reverted to the strategy of mass vaccination.⁹

In the light of such administrative challenges, the managers of the WHO's smallpox eradication units in Geneva and Delhi made concerted efforts to gain the Indian central government's help in bringing hostile members of the federal and state health ministries and local bureaucrats into line. While published reports and official accounts of the eradication campaign are mostly silent about this

⁸ For a reference to this, see Henderson, May 12, 1970.

⁹ See, for instance, Henderson, Jun. 28, 1971.

tactical shift, unpublished correspondence reveals how important it was considered by a range of senior WHO officials. It was not enough to have the stated support of the central authorities; it was now recognized that it was important formally to involve the federal government in mobilizing local political and bureaucratic support. Needless to say, this strategy of using central government assistance to bring state employees into line was neither easy nor always successful. Such high-level political support was inconstant and needed periodic renewal. The genius of Nicole Grasset – an inspirational French official employed by the WHO Searo HQ – and Henderson lay in their ability to make this possible through lobbying exercises, which were at times based on the unconventional tactic of approaching Indira Gandhi, the powerful Indian prime minister, directly, sometimes in violation of diplomatic protocols. Gandhi's support was significant, as she was actively involved in centralizing power and was in a position to force relatively compliant State Chief Ministers to support, at least publicly, specific immunization campaigns (Grasset, Sept. 15, 1972).

A good instance of this was provided in 1972, a year considered crucial within the WHO and the federal government (they believed that a concerted search of certain states was necessary at this time if eradication was to be achieved in India) (Grasset, Sept. 14, 1972). Central government co-operation, stoked in no small degree by support from the Prime Minister's office, caused the so-called 'smallpox endemic states', like Jammu and Kashmir and Bihar, to be searched intensively (Singh, c.1973, p.1; Pifer, c.1971, p.11-12). As a direct result, thorough surveillance-containment efforts, more rigorous than at any time in the past, were launched. Work was often conducted on a systematic, door-to-door basis, particularly in areas where smallpox outbreaks were confirmed; the policy was effective and even the most demanding assessments accepted that by late 1972, smallpox was only endemic in the four contiguous states of Bihar, Uttar Pradesh, West Bengal and Madhya Pradesh (Henderson, Sept. 26, 1972).

It has to be said, however, that this success in limiting the scope of variola in India surprised many, both within the WHO and Indian government, and questions were raised by those hostile to the eradication program about the reliability of the data being presented. Nevertheless, this reduction in the area of smallpox endemicity was seen as a major advance, so much so that the WHO began negotiations for the launch of an even more concentrated program of action, targeted primarily at the remaining pockets of variola. Based on an offer of even greater levels of financial and infrastructural assistance, these deliberations were successful and the so-called intensified smallpox eradication program was launched in 1973. Grasset and Henderson played an important role in

negotiations with international financial donors—special funds were, for instance, made available after considerable efforts on their part by the Swedish International Development Agency (Jungalwalla, Dec. 12, 1973).

Despite the deployment of unprecedented levels of financial and technical resources, difficulties began to show up almost immediately in the running of the intensified program. Reports of numerous cases of bureaucratic opposition in the states, districts and sub-divisions threatened to sour the spirit of co-operation that appears to have developed amongst at least some senior WHO and Indian government officials. Faced with recurrent smallpox outbreaks across eastern India, accusations of inefficiency, impropriety and lack of commitment began to be traded in meetings and correspondence (Henderson, Mar. 5, 1973). Grasset felt, for example, that problems were being created by officials at the level of state governments. She accused their officials of playing a double game, publicly promising help to the federal health ministry's and the WHO's smallpox eradication departments, but remaining non-committal in private (Grasset, June 7, 1973). Senior WHO officials, therefore, began to push the Indian government, from 1974 onwards, to convert the intensified program into a centrally controlled campaign, one that was politically supported by the Prime Minister's office and run by the federal health ministry's smallpox eradication department.¹⁰

¹⁰ For examples of such official trends, see File 830, Box 194, WHO/SEP.

Yet this aim was not easily achieved in a situation where the Indian Prime Minister's support fluctuated over time for reasons that are impossible to identify definitively. The important point, though, is that her commitment to the eradication goal varied, which kept senior WHO and Indian government officials supportive of smallpox eradication on the defensive. Indira Gandhi would sometimes fully endorse the aims of campaign, release statements to that effect, and allow the WHO officials to distribute copies of these during their tours in the states.¹¹ She would also sometimes force senior state officials – the Chief Ministers and Health Ministers – to show similar levels of support.¹²

¹¹ See, for example, Indira Gandhi's October 1974 statement and the publications released in support by state-level officials, File 832, Box 197, WHO/SEP.

¹² Ibid.

On other occasions, though, this encouragement appeared to all but evaporate. At one point, for instance, the federal Health Minister was permitted, almost at a whim, to freeze the number of international staff the WHO could deploy. The pressures imposed on state level workers to co-operate with WHO teams were often taken off at such moments; the hostility of several senior ministry officials to colleagues working within the smallpox eradication department which had close links with Grasset's and Henderson's offices contributed to these trends as well. Such patterns of inaction and hostility could prove to be administratively problematic. Apart from allowing the under-reporting of variola cases, it created a

situation where surveillance-containment operations were mishandled; local workers would often carry out mass-vaccinations over a limited area of about a five-mile radius, without any attention given to people at a high risk of infection. Workers often failed to detect people who were away from home and possibly carrying smallpox between villages. And district officials seeking to justify their inability to meet vaccination targets frequently exaggerated vaccination refusal rates (Review..., c.1974, p.1-4).

Thus, the Indian government's acceptance of the proposal, around the middle of 1974, that the running of the intensified program be fully centralized was widely celebrated within the WHO offices in Geneva and New Delhi, not least because it formally offered their smallpox eradication units the option of working in an organized manner with the federal health ministry. The officials attached to these agencies were now going to be allowed access to a centralized fund, built up with contributions from a range of donors and held in Geneva. These developments also allowed the creation of a new, well-organized program bureaucracy, which was distinct from the workforce attached to other disease control programs run by the federal and state health ministries. This bureaucracy was to be varied in composition, based not only on workers from the United States, Western and Eastern Europe and Asia (the Centers of Disease Control in the USA and the Soviet Academy of Sciences contributed several consultants to the WHO), but also the employment of local bureaucrats, Indian private medical practitioners and medical students from sub-continental colleges, who were placed on a variety of short-term contracts.¹³

¹³ For a good description of the experiences of American workers in South Asia, see Greenough, 1995.

Increased financial and infrastructural input did not automatically translate into success. The centrally controlled intensified smallpox eradication program was not always able to attract the support of local administrative networks and operate without impediment. The special status accorded to the campaign and its workforce often made it deeply unpopular amongst sections of the Indian central and state government. This even included elements within the federal health ministry, who continued to undermine the intensified program. A dramatic example was Dr. J.B. Shrivastav, the Director General of Health Services, the senior-most bureaucrat within the federal health ministry. Dr. Mahendra Dutta, a senior member of the ministry's smallpox eradication department, noted that Shrivastav began to question the surveillance-containment policy at a time that this was considered crucial. Presenting himself as a supporter of the policy of 100 per cent vaccinal coverage, he began distributing warnings about the dangers arising from the development of a 'vaccination backlog'. This created doubts amongst more junior state- and district-level officials, who began to worry about what would happen to their career prospects if

they were found to be ignoring the views of Shrivastav and his allies. They often tended, as a result, to be less than co-operative to the smallpox eradication teams (Dutta, c.1980, p.9; Mar. 3, 1999).

The problems did not end here. At the same time, certain state administrators began to demand that workers attached to other vertical public health programs and the health centers return to their original duties, rather than buttress the intensified program. Indeed, WHO officials soon found themselves competing for resources with family planning schemes launched by the central and state health ministries due to pressures imposed by Sanjay Gandhi, the Prime Minister's politically powerful son (Dutta, c. 1980, p.13). Senior WHO officials, like Grasset and Henderson, tried to lighten the impact of these developments by directing diplomatic initiatives at the Prime Minister's Office, the State Chief Ministers, and the federal and state health ministries. However, only some of these efforts proved successful; the intensified eradication program moved ahead in fits and starts during the course of 1974 (Grasset, c. Sept. 1974).

Nevertheless, efforts at strengthening the program continued apace right through 1975. This took several forms: more foreign consultants were brought in from a variety of countries, greater numbers of local workers were contracted on a temporary basis with funds held at the WHO HQ, and the support of senior politicians and bureaucrats was lobbied continuously. These efforts paid off; eastern India was systematically and intensively searched for variola pockets, leading to the discovery of several cases in January that year. While the month had started off well, with less than 100 outbreaks being reported throughout the country in the first two weeks, a search carried out by a team led by Dr. R.B. Arnold, a CDC epidemiologist posted to Nalanda, Bihar, revealed a large cluster of new cases at Pawa Puri village. The situation was complicated by the fact that several hundred Jain pilgrims – a religious community averse to vaccination – were visiting the village on a daily basis (Dutta, c.1980, p.9-11).

Ironically, however, this outbreak proved useful to the program managers. Reference to the crisis allowed them to reinvigorate support for eradication, as several senior politicians and bureaucrats were reminded that the battle against variola was far from won. This event also allowed Grasset and Henderson, and their allies within the federal health ministry, to get the Prime Minister's ear, in a situation where she did not want her regime to be identified with the failure of a global program. Her office began involving itself in bringing the Congress-run state ministries into line. The benefits of such trends were clearly visible in the weeks following the Bihar outbreak. Even though several ministerial employees and civil servants doubted that variola could be expunged

in the sub-continent, Indira Gandhi's firm intervention ensured that they were forced to support efforts to contain the outbreak and carry out detailed searches of surrounding areas. In this regard, the role played by Sharan Singh, Bihar's Chief Secretary was very important. He kept pressuring branches of the state administration and the Chief Minister and helped ensure the deployment of governmental resources for special epidemiological teams, which were set up in association with the smallpox eradication unit in New Delhi. Singh also negotiated a political arrangement where Dr. Larry Brilliant, an American consultant employed by the WHO's Searo, was allowed to take over responsibility for coordinating activity in Pawa Puri. The central government even cleared the Bihar Military Police to assist these special epidemiological teams; military personnel helped cordon off affected villages and provided protection to program staff (Dutta, c.1980, p.9-11).

Notably, the managers of the intensified program kept reminding the central and state governments, as well as national and international funding agencies, about the possibility of another serious smallpox outbreak if their work slackened. The dangers arising from such potential crises were also underlined; India, it was frequently pointed out, could very well end up bearing the stigma of causing the failure of a high profile global eradication campaign. By all indications, these tactics were very effective. Funding bodies, like the Tata Industrial Group and Swedish International Development Agency, renewed their financial commitment. Surveillance-containment measures elsewhere were retained as well, generally with active assistance from the Government of India, which allowed its anti-malaria and family planning units to be used frequently by the managers of the smallpox eradication program, most notably to strengthen search activities in eastern and northeastern parts of the country.¹⁴

Announcement of the so-called 'smallpox zero status' followed soon after; the last indigenous case was reported on May 17, 1975, from the Katihar district of Bihar (Mahler, Aug. 20, 1975; Brilliant, Aug. 20, 1975). The news was announced officially by Dr. Karan Singh, the federal minister of health, on June 30, 1975, and then widely publicized. The achievement was also celebrated through a variety of public functions, some coinciding with the country's independence day celebrations on the 15th of August 1975. Even though the managers of the intensified program participated in these celebrations, they were extremely uncertain privately about the wisdom of announcing such a 'victory' (Gunarathne, July. 1, 1975).¹⁵ Henderson and Grasset highlighted the need to push through the message that the eradication of smallpox in India could by no means be taken as guaranteed.¹⁶ A great deal of effort was therefore expended by the WHO and the smallpox eradication

¹⁴ See, for instance, Memorandum..., c. Aug. 1975.

¹⁵ Singh's TV broadcast was immediately – and widely – reported in the Indian press (see, for example, Smallpox wiped..., July 1, 1975; Small-pox eradicated..., July 1, 1975; No smallpox..., July 1, 1975; Smallpox..., July 1, 1975).

¹⁶ See, for instance, Henderson, Nov. 3, 1975.

department of the federal health ministry advertising the importance of continuing detailed countrywide searches through 1976 and 1977. These paid off, but despite Indira Gandhi's enthusiasm for this final drive, the Indian administrative services were by no means united in their support for the retention of an intensified program. Even at this late stage, when a victory against variola in India had been confidently announced by the federal authorities, many officials in New Delhi and the states still believed that the disappearance of variola was temporary and that the disease would inevitably reappear, after being re-introduced from Bangladesh or Africa (Grasset, Feb. 16, 1976).

As it transpired, these fears proved misplaced. It should not be forgotten that program workers of all ranks worried incessantly about unearthing a large pocket of smallpox; this anxiety even caused generous monetary rewards to be offered for the notification of variola cases and this was followed up by the detailed investigation of all resultant reports (Brilliant, Dec. 3, 1975). In any case, managers of the intensified program were able to start preparing the documentation that was to certify the eradication of smallpox in India by September 1976 (Henderson, c. Sept. 1976). This evidence was cross-checked by an independent team of international workers over the course of several months and India was certified smallpox free on April 23, 1977.

Concluding comments

The successful outcome of the smallpox eradication program demanded persistent hard work by a range of Indian and international officials. The personal sacrifices were often great: program officials were forced to spend protracted periods of time away from their families in unfamiliar contexts, and put in demanding shifts in the field that often led to physical exhaustion and ill-health. This work was frequently a thankless task, as workers encountered the hostility not only of those they were seeking to protect from a dreadful disease, but also that of politicians and officials. As a result, their experience was often bittersweet: sometimes extremely frustrating but also greatly gratifying, especially when certification of eradication was achieved in the face of overwhelming odds (Grasset, Jun. 30, 1975).

A detailed examination of the experiences of these workers and of their interactions with different governmental departments and officials thus presents a nuanced picture of the multi-faceted smallpox eradication program. This program is sometimes simplistically presented as a vertically organized campaign that was imposed on India by powerful industrialized nations. If anything, Indian administrators accepted the launch of an organized effort

aimed at expunging variola on their own terms; the campaign was also run on their terms over several years, despite the best efforts of certain WHO officials to dictate the design and unfolding of policy in the sub-continent.

These trends were visible at all levels of administration. The Prime Minister, the federal health ministry and central government bureaucracy reminded WHO representatives of their autonomy at every available opportunity. As a result, WHO was forced to change its strategic plans for smallpox eradication in the sub-continent and agree to contribute generously to the setting up of a special bureaucracy for the purpose. And yet, this did not solve all their problems. State and district level administrators, keen to demonstrate their unwillingness to be ordered about by international and New Delhi-based officers, also provided differing levels of co-operation to the plans put forward by the smallpox eradication units. As a result, senior WHO officials remained acutely aware that none of their goals would be met without political and bureaucratic assistance from the highest levels of Indian government. It was recognized that such support was most likely to arise from supplicatory requests, made through diplomatic initiatives.

It is also important to note that the smallpox eradication program had variable effects on the running of the health delivery systems based at the different levels of Indian administration. While it is undeniable that some dispensary facilities were affected adversely by the eradication drive, as health personnel were drawn away from their daily responsibilities, this situation was by no means common. In fact, accusations that the smallpox eradication program harmed the provision of local healthcare facilities were frequently exaggerated and politically motivated. Apart from representing the annoyance of bureaucrats and politicians doubting the possibility of eradicating variola, these criticisms were often used to deflect from the fact that many sub-divisional healthcare facilities were not as comprehensive as state government officials had claimed in their reports, publicity materials and election speeches.

The smallpox eradication program thus appears to have competed far more vigorously for financial resources against other centrally administered vertical health schemes, like the family planning campaigns. It is also worth noting, in this regard, that the managers of the smallpox eradication program considered it very useful to employ members of local communities on short-term contracts for special anti-epidemic measures and state-level intensive surveillance-containment campaigns. These short-term employees were seen as an invaluable source of locally pertinent information, as well as useful for introducing teams of touring officials to the rural communities being targeted. These temporary workers were also asked to report on the effective working of local medical and

public health officials, who were expected to notify all rash and fever cases they encountered during the course of their routine duties, for further investigation.

To conclude, it is impossible to tell the complete story of a complex public health program like the smallpox eradication campaign through published WHO and Indian government reports, and the celebratory official histories and memoirs of field workers. Such commentaries usually tend to present an over-simplified sense of unity of purpose, over-emphasize the contributions of certain organizations and individuals, and downplay many of the serious problems bedeviling the campaign. A careful analysis of unpublished correspondence, on the other hand, shows us how policies developed at the level of the WHO HQ and Indian central government had to be re-adapted continuously to meet local conditions. It also reveals that a range of workers, of different nationalities and with widely varying professional qualifications, were responsible for a monumental triumph that many had thought impossible.

REFERENCES

- Basu, R. N.; Jezek, Z.; Ward, N.A. 1979 *The eradication of smallpox from India.* New Delhi: World Health Organization/South East Asia Regional Office.
- Bonne, W. Sept. 14, 1961 Memorandum from Director, Communicable Diseases Section, World Health Organization Headquarters (WHO HQ), Geneva, to Dr. C. Mani, Regional Director, South East Asia Regional Office (Searo). File SPX-1, Box 545 (World Health Organization, Geneva, Switzerland – WHO/SEP).
- Bonne, W. Aug. 8, 1961 Memorandum from Director, Communicable Diseases Section, WHO HQ, Geneva, to Dr. C. Mani, Regional Director, Searo, New Delhi, India. Smallpox Eradication Archives, File SPX-1, Box 545 (WHO/SEP).
- Brilliant, L. B. Dec. 3, 1975 Letter from Medical Officer, Searo, to Mr. A.K. Chakravarty, Government of West Bengal. File 832, Box 197 (WHO/SEP).
- Brilliant, L. B. Aug. 20, 1975 Personal letter from Medical Officer, Searo, New Delhi, to WHO HQ. File number 831, Box 195 (WHO/SEP).
- Dutta, Mahendra Mar. 3, 1999 Interview. Delhi, India. (Private papers of Mahendra Dutta).
- Dutta, Mahendra c.1980 *Snakes and ladders: an untold story of the fight against smallpox in India.* Unpublished TS. (Private papers of Mahendra Dutta).
- Government of India 1966 *National Smallpox Eradication Program in India.* New Delhi: Ministry of Health and Family Planning: New Delhi.
- Government of India 1964 Ministry of Health. *Report of the Smallpox Worker's Conference (18-20 February. 1964).* New Delhi: Ministry of Health.
- Grasset, N. Feb. 16, 1976 Personal letter from Regional Advisor, Smallpox Eradication, Searo, to I. Gandhi, Prime Minister, India. File 831, Box 195 (WHO/SEP).

- Grasset, N.
June 30, 1975 Letter from Regional Advisor, Smallpox Eradication, Searo, to D.A. Henderson, Chief, Smallpox Eradication, WHO HQ and V.T.H. Gunaratne, Regional Director, Searo. File number 831, Box 195 (WHO/SEP).
- Grasset, N.
c. Sept. 1974 Letter from Regional Advisor, Smallpox Eradication, Searo, to D.A. Henderson, Chief, Smallpox Eradication Unit, WHO HQ. File 388, Box 194 (WHO/SEP).
- Grasset, N.
June 7, 1973 Personal and confidential letter from Regional Advisor, Smallpox Eradication, Searo, to D.A. Henderson, Chief, Smallpox Eradication, WHO HQ, Geneva. File 830, Box 194 (WHO/SEP).
- Grasset, N.
Sept. 15, 1972 Letter from Regional Advisor, Smallpox Eradication, Searo, to D.A. Henderson, Chief, Smallpox Eradication, WHO HQ. File 830, Box 194 (WHO/SEP).
- Grasset, N.
Sept. 14,
1972 Letter from Regional Advisor, Smallpox Eradication, Searo, to Mrs. I. Gandhi, Prime Minister, India. File 830, Box 194 (WHO/SEP).
- Greenough, P.
1995 Intimidation, coercion and resistance in the final stages of the South Asian Smallpox Eradication Campaign, 1973-75. *Social Science and Medicine*, Oxford, v.41, n.5, p.633-645.
- Gunaratne, V.T.H.
Jul. 1, 1975 Letter from Regional Director, Searo, to H. Mahler, Director General, WHO. File number 831, Box 195 (WHO/SEP).
- Henderson, D.A.
c. Sept. 1976 Letter from Chief, Smallpox Eradication, WHO HQ, to L.B. Brilliant, Michigan, USA. File number 831, Box 195 (WHO/SEP).
- Henderson, D.A.
Nov. 3, 1975 Letter from Chief, Smallpox Eradication, WHO HQ, to Z. Jezek, Medical Officer, Searo. File number 831, Box 195 (WHO/SEP).
- Henderson, D.A.
Mar. 5, 1973 Personal letter from Chief, Smallpox Eradication, WHO HQ, to Dr. N. Grasset, Regional Advisor, Smallpox Eradication, Searo. File 830, Box 194 (WHO/SEP).
- Henderson, D.A.
Sept. 26, 1972 Personal letter from Chief, Smallpox Eradication, WHO HQ, to Dr. N. Grasset, Regional Advisor, Smallpox Eradication, Searo. File 830, Box 194 (WHO/SEP).
- Henderson, D.A.
June 28, 1971 Personal letter from D.A. Henderson, Smallpox Eradication Unit, WHO HQ, to Dr. V.A. Muhopad, Lucknow, India. File 416, Box 193 (WHO/SEP).
- Henderson, D.A.
Sept. 14,
1970 Personal letter from Chief, Smallpox Eradication, WHO HQ, to Dr. A. Oles, Searo. File 416, Box 193 (WHO/SEP).
- Henderson, D.A.
May 12, 1970 Personal letter from Chief, Smallpox Eradication Unit, WHO HQ, to Dr. Joel Brown, Los Angeles, USA. File 416, Box 193 (WHO/SEP).
- Henderson, D.A.
Sept. 6, 1967 Letter from Chief, Smallpox Eradication, WHO HQ, to the Surgeon General, United States Public Health Service, Bethesda. File 416, Box 193 (WHO/SEP).
- Henderson, D.A.
Apr. 12, 1967 Letter from Chief, Smallpox Eradication, WHO HQ, Geneva, to Dr. E. S. Tierkel, Usaid Office, American Embassy, New Delhi. File 416, Box 193 (WHO/SEP).
- Henderson, D.A.
Feb. 21, 1967 Letter from Chief, Smallpox Eradication Program, WHO HQ, Geneva, to Dr. K.M. Lal, Government of India. File 416, Box 193 (WHO/SEP).
- Jungalwalla, N.K.
Feb. 21, 1967 Letter from N.K. Jungalwalla, Government of India, to Dr. D.A. Henderson, Chief, Smallpox Eradication, WHO HQ. File 948, Box 17 (WHO/SEP).

- Mahler, H.
Aug. 20, 1975 Letter from Director General, WHO, to K. Singh, Minister of Health and Family Planning, Government of India. File number 831, Box 195 (WHO/SEP).
- Maltseva, N.
June 27, 1967 Personal letter from Dr. N. Maltseva, Searo, to D.A. Henderson, Chief, Smallpox Eradication, WHO HQ. File 416, Box 193 (WHO/SEP).
- Mani, C.
May 2, 1967 Letter from Director, Searo, to the Ministry of Health and Family Planning, Government of India. File 416, Box 193 (WHO/SEP).
- Memorandum...
c. Aug. 1975 Memorandum from Searo, New Delhi, India, to D.A. Henderson, Chief, Smallpox Eradication, WHO HQ. File number 831, Box 195 (WHO/SEP).
- Memorandum...
Aug. 18, 1961 Memorandum from Regional Director, Searo, New Delhi, to the Director, Communicable Diseases Section, WHO HQ, Geneva. File SPX-1, Box 545 (WHO/SEP).
- Naraindas, Harish
1998 Care, welfare, and treason: The advent of vaccination in the 19th century, *Contributions to Indian Sociology*, Delhi, v.32, n1, p.67-96.
- No smallpox...
July 1, 1975 No smallpox in India. *Hindustan Times*, New Delhi.
- Payne, A.M.H.
Apr. 4, 1967 Telegram from A.M.H. Payne, WHO HQ, Geneva, to the Regional Director, Searo. File 416, Box 193 (WHO/SEP).
- Pifer, John M.
c.1971 Confidential: Smallpox in Bihar State of India during 1971. File 436, Box 193, (WHO/SEP).
- Report 1961-62
1964 *Report 1961-62*: Ministry of Health, Government of India. New Delhi: Shastri Bhavan Library.
- Review...
c. 1974 Review on the situation of reporting of smallpox, investigation and containment of outbreaks, Bhopal Division. File 832, Box 197 (WHO/SEP).
- Singh, Mahendra
c. 1973 Report on a visit to study the implementation of the National Smallpox Eradication Program in Jammu & Kashmir (November 12-27, 1972). File 830, Box 194 (WHO/SEP).
- Smallpox...
July 1, 1975 Smallpox eradicated. *National Herald*, New Delhi.
- Small-pox eradicated...
July 1, 1975 Small-pox eradicated, claims minister. *The Times of India*, New Delhi.
- Smallpox wiped...
July 1, 1975 Smallpox wiped out, says Karan Singh. *The Indian Express*, New Delhi.

Submitted on March 2007.

Approved on August 2007.