'Parasites Lost and Parasites Regained'

Rockefeller Foundation's Anti-Hookworm Campaign in Madras Presidency

In the early 1920s, the Rockefeller Foundation conducted an anti-hookworm campaign in Madras Presidency with the objective of controlling hookworm infection. However, the larger aim was to use it as an entry point for extensive sanitary measures and public health education. Two decades later infection rates remained constant while sanitation made little progress. The common people's beliefs and attitudes were blamed for this. The reality was different. It was the RF's diffused focus and the inconsistencies in its approach coupled with the government's lack of commitment to the programme and public health that determined the campaign's results.

SHIRISH N KAVADI

The International Health Division (IHD), a constituent agency of the Rockefeller Foundation (RF), initiated a global anti-hookworm campaign in the second decade of the 20th century.[1] Investigations by the IHD identified Tamil indentured labour from Madras as a major source of hookworm infection in the British colonies. Earlier surveys by members of the Indian Medical Service (IMS) had reported endemic hookworm infestation in the Madras Presidency. Hookworm parasites bred easily and fast particularly in the rainy climate and wet soil of the coastal districts of Madras. Infection rates were estimated between 52 per cent and 75 per cent for the general population, 70 per cent to 90 per cent for plantation labour and 65 per cent to 90 per cent for Indian immigrants to the colonies.[2] High infection was thought to reduce labour productivity and hence hookworm control assumed economic significance. Indian emigrants to the US, with their high infection rates, were seen by the IHD as a threat to the health of the American people. The IHD's hookworm programme in Madras (1920-1928) was prompted by its belief that it was necessary to control the disease at the source to prevent its spread.

Hookworm infection is a cyclical process. Hookworm enters the body through contact with the soil. Defecation on open grounds infects the soil, exposing communities to re-infection particularly individuals commonly moving around barefoot. Preventing soil-pollution is a necessary condition for hookworm control. The Rockefeller Sanitary Commission, the forerunner of the IHD, had undertaken a hookworm programme in the southern states of the US where the absence of safe and hygienic privies and walking barefoot was as common as it was in India.[3] Drawing upon its American experience IHD officials modelled a programme that consisted of creating awareness on hookworm and sanitary matters, encouraging local organisations to promote sanitary conditions and demonstrating the development of inexpensive and easy to maintain latrines to encourage widespread use. Their methods, IHD officials maintained were simple enough to be acceptable to "even ignorant and prejudiced sections of the population".

Controlling hookworm was the objective, but the aim of its campaign was to create "a health concept in the minds of people" and "a desire for public health agencies". The IHD proposed to use hookworm control as an entering wedge for extensive sanitary measures. RF officials focussed on hookworm not because it was a dreaded disease but because its control methods were the easiest to demonstrate. Practical demonstration of preventive measures to create public health awareness was a well-accepted practice. Its absence in India was lamented by W G King, former sanitary commissioner of Madras, who observed, "education by practical demonstration of sanitary works for the community has been grossly neglected in the rural areas" and blamed the government, the educated representatives of the local bodies and IMS for this state of affairs.[4] The IHD approach to hookworm control clearly addressed this lacuna in Indian public health practice.

A decade after the IHD hookworm campaign ended the incidence rate remained constant at 90 per cent with virtually no reduction in soil-pollution and sanitation had barely made progress. A common refrain of RF officials was that people's ignorance and lack of sanitary habits were major constraints in anti-hookworm work. The IHD field staff in India cited poverty, illiteracy, fear, superstition, and Hindu caste prejudice as impediments in the promotion of sanitation and sanitary awareness and claimed, gross ignorance about hookworm and a complete lack of sanitary awareness among all classes of the Indian population. Reporting on Indian attitudes and beliefs, John F Kendrick, director of the RF programme in Madras observed, "Many of them who are admittedly well educated regard western medicine with the same scepticism with which they regard Christianity, the only difference being that it is much easier to convert them to the former." He further claimed lack of knowledge about hookworm disease amongst qualified medical men, many of who doubted the existence of the hookworm problem and had no ideas about control techniques. Worse, Kendrick noted, was the ignorance and behaviour of a member of the Madras legislature and, "probably the leading Indian physician of the city", who deliberating on the budget, "stated that he opposed voting funds for an anti-hookworm campaign until the disease could be properly diagnosed and a drug found that would cure it." Clearly such ideas needed to be, "dispelled before one can hope to elicit the cooperation and goodwill of those entertaining them".[5] In reality these were common attitudes the RF countenanced everywhere.[6]

Were Indian conceptions about hookworm and sanitation alone the major impediment in the development of the campaign? An examination of the campaign reveals diffused focus and inconsistencies in the IHD approach and lukewarm commitment to the programme on the part of the government. These factors had no less a bearing on the campaign's development and its outcome. In India not many government officials and plantation owners shared the IHD's views and perception of hookworm as a serious public health problem. Consequently, a great deal of ambivalence characterised the stance of government and tea estate officials who oscillated between apparent enthusiasm for the campaign to indifference towards actual implementation evident in inadequate support to sanitation. The IHD, through surveys and public awareness campaigns assiduously sought to dispel all "misunderstandings" and "incorrect notions" about hookworm to promote the campaign. John Ettling observes that before the RF could undertake hookworm control it had to spend energy and money to create the disease in the minds of people[7] in whose perception it was not an illness and a threat to individual health, but an everyday fact of life, as common as a cold disease.

I
The IHD Campaign

The IHD intervention in Indian public health began at an opportune time for medical and local authorities in India. Colonial priorities had confined public health measures to European enclaves, except in the case of epidemics.[8] From around 1910, David Arnold observes, colonial medicine in India witnessed a shift, showing greater concern for the health of the Indian people and moving out of its enclavist model.[9] The post-first world war years witnessed important political and economic changes with ramifications for public health. The most important being a curtailment in central government expenditure on public health and a constitutional transfer of public health functions from the central government to provincial governments. For financially weak provinces the RF's cooperation in public health was more than welcome as in the case of Madras where the IHD programme was more important for the flow of funding than for the content of its programme.[10]

Perceptions of policy-makers have an important bearing on the adoption of particular medical interventions against diseases.[11] Thus, although hookworm was endemic in Madras the colonial government did not view it as a major cause of disease or threat to public health requiring any organised control measures. Not surprising, therefore, was the Madras sanitary commissioner's (SC) tepid and indifferent response to the IHD's enquiry in 1915 about hookworm in the province. The official position was that infection largely affected mineworkers and plantation labour and as a disease had not assumed virulent form in any part of the presidency to warrant special control measures.[12]

Dr Victor Heiser, director for the Far East, IHD, then approached the director-general of the Indian Medical Service who too was disinclined towards public health work among Indians. Heiser prevailed over him stressing the government's responsibility towards controlling hookworm in India, the source of infection in the British colonies. He underscored the urgency of investigating hookworm conditions in India, which "should reveal the foci of infection" in southern India; and "point the way toward a definite plan for control of the infection" in Madras.[13] A common RF strategy was to undertake surveys to convince reluctant and sceptical governments the seriousness of the hookworm problem. In Madras the Indian Research Fund Association (IRFA) was assigned the task of conducting an anchylostomiasis inquiry under the supervision of Dr K S Mhaskar of the King Institute of Preventive Medicine. Based on RF principles it covered small controlled communities of emigrating labour, plantation labour, agricultural labour, sweepers, police constables, factory hands, school children, hospital patients in Negapatam, rural Tanjore, Dindigul and Trichinopoly towns and convicts from Trichonopoly and Coimbatore Jails. Controlled communities had been for long the most common sites of medical investigations.

The surveys had the desired outcome. The government appeared satisfied that physical suffering and economic loss caused by hookworm infection required control measures. It sought the services of IHD officers for a thorough hookworm survey, which would eventually facilitate a treatment and prophylaxis programme.[14] Dr George P Paul arrived in early 1920. A year later Dr John F Kendrick replaced him. The planning and organisation of the campaign, however, lacked clarity. Uncertainty marked the nature of cooperation from the very beginning. "I do not know exactly what form your cooperation will take", Heiser wrote to Paul, "As I understand it, the usual form of cooperation which we extend to other countries is not expected in India."[15] As work progressed Paul noted, "Our work so for in this Presidency has been patchwork and scattered. This has been at the request of the surgeon general".[16] A year later Kendrick would write, "apparently the surgeon general has nothing definite in mind for us to do".[17] Heiser and Dr William Sawyer, however, appeared convinced of the "...the intense interest of the governor and surgeon general and other officials in the objects of the work". So much so that, "Realising the difficulties of the situation, they are encouraging the director to work out a new and comprehensive plan which will produce the maximum benefit in a country in which the conditions are such that the usual methods of the Board would not be applicable. It looks as though a big work would be accomplished in south India."[18]

The surgeon general, G G Giffard and his deputy T H Symons advised IHD officials to avoid activity in villages and towns and instead conduct investigations and control measures among "controlled communities", inmates of hospitals, reformatories, jails, school children; and estate and factory labour.[19] Paul agreed that work amongst controlled groups would give him good opportunities for instructing the staff in RF methods and with time when, "we consider that the free people have reached the proper stage of enlightenment we will commence work among them in a systematic way".[20]

From 1920-28, Paul and Kendrick under the surgeon general's supervision conducted investigations into hookworm incidence and intensity. The surveys and studies revealed a high incidence rate but a low degree of intensity in hookworm infection. An infection rate of between 90 per cent and 100 per cent affected the general population, though the degree of intensity varied depending on social class, living conditions, and observance of hygienic and clean habits.[21] The IHD surveys revealed the harmless necator americanus species infecting nearly 100 per cent of the population in most areas while the more pernicious ancylostoma duodenale infected a much smaller percentage of the population in a few localities. This explains why when infection was endemic the physical conditions of the affected persons indicated apparent good health. It also explains why most opinion in India viewed hookworm as an insignificant

public health concern not warranting action. The IHD thought otherwise.

Other activities included educational programmes, extensive treatment; and demonstration of latrine construction, which officials believed would induce the population to adopt sanitary habits. Kendrick, for instance, stated that educational work was expected to "instill into the masses a conception of the dangers, which accompany insanitary(sic) practices".[22] He wanted awareness activity to precede all attempts to establish proper disposal of night soil for, "indications are that the Indian is not going to be found so intractable as he is said to be".[23] The hookworm programme, according to Kendrick, was undertaken, "not with the object of totally eradicating the disease from that area but for the purpose of determining whether the people can be aroused sufficiently, by means of patient and tactful educational propaganda supplemented by the offer of free treatment for hookworm disease, to lend their support to an attempt to improve the general sanitary surroundings and especially to put a stop to soil-pollution".[24] The purpose of the campaign was control rather than eradication-something that the IHD had realised was not possible.

Mass Treatment

The IHD believed that its global campaign would "not be of permanent value unless proper sanitation is introduced to protect the soil from pollution and the population from reinfection" and hence generally declined to undertake control measures until governments deemed it fit to enforce the necessary sanitary measures.[25] And yet the Madras campaign became essentially curative. The Madras authorities encouraged the IHD to give priority to treatment justifying it on the grounds that it evoked less resistance, offered immediate benefits and were easier to demonstrate the gains from cure. "By desire of the surgeon general of the government of Madras," Paul wrote, "our work has been entirely that of a curative campaign".[26] The surgeon general referring to the deplorable conditions of rural sanitation, which made prevention of soil pollution extremely difficult, advocated mass treatment as the only means of reducing infection. His argument was treatment would reduce the worms in the infected persons lessening the chances of soil pollution. This in turn would prevent spreading infection amongst human beings.[27] Even a single treatment with a good vermicide was expected to reduce the number of worms in the host thus curbing to a great degree the cycle of infection. IHD officials agreed the goal ought to be reduction in the worm population to a practical minimum. They too did not expect to completely cure or free every individual from hookworm. A reduced worm-content together with improved sanitation and semi-annual treatment they reckoned would remove the hookworm menace.[28] The IHD was unable to attain even this limited goal.

Heiser concurred with the surgeon general's proposal arguing that sometimes it was necessary, as seen in the case of the US south, to start treatment in the hope that interest so created would eventually lead to the use of latrines.[29] Paul acceded, justifying treatment as the only alternative since tea estates totally lacking latrines were unprepared for a real successful campaign while towns and rural areas were even less ready.[30] Kendrick similarly argued that the most logical way of solving the problem was to have funds and effort spent for mass treatment and intensive educational campaigns.[31] However, there was no unanimity among medical professionals about mass treatment. Mhaskar, for instance, believed that it was unnecessary to give mass treatments to communities among whom light infections predominated, as was the case in most parts of India.[32] Asa Chandler, an American doctor who had undertaken hookworm research at the Calcutta School of Tropical Medicine claimed to have strong epidemiological and experimental evidence to show that, "If sanitary improvements can be developed to prevent re-infection clinical improvement will be rapid even if no treatments are given".[33]

Mass treatment suited the IHD well for other reasons. Scientific concerns had begun to overwhelmingly dominate its global programme. The RF, which emphasised science as the primary agent of its worldwide civilising mission, exemplified "the Progressive Era's faith in science as arbiter of humankind's secular problems".[34] An important objective of the hookworm campaign was to "arouse interest in scientific medicine that revealed the cause and cure of the disease".[35] As the hookworm programme progressed promoting the "curative power of western (scientific) medicine" became a primary concern,[36] one that "promoted a public health orientation that favoured the control of diseases amenable to individualised medical interventions".[37] The belief was solutions to all illnesses would come from "the standards set by professional modern medicine".[38]

RF officials were specially interested in Mhaskar's trials with betanapthol and his methods of treatment,[39] which they believed were critical for increasing efficiency of treatment and simultaneously "reducing the working time lost and the cost of anti-helminthics and their administration" without making the treatment less effective. These inexpensive but effective methods of treatment could then be extended to benefit a much larger population.[40] Paul and Kendrick worked briefly with Mhaskar. Subsequently, Kendrick's primary engagement was testing the comparative efficiency and effectiveness of thymol, betanapthol, oil of chenopodium and carbon tetrachloride as vermicides.[41] India with large infection levels and variety in population groups provided an opportunity for experimenting for the IHD, which was simultaneously engaged in testing the efficacy of these drugs in hookworm treatment in other parts of the world.

The surgeon general devised a scheme for extensive treatment of persons harbouring the infection that included equipping all hospitals and dispensaries with drugs necessary to extend treatment to as many people as possible.[42] Eventually free treatment would be available at any of the hospitals and dispensaries. It was best, Paul observed, to work with permanent agencies such as hospitals so that the activity "would necessarily at once become part of the routine or permanent governmental procedure" and would aid to curb the tendency for work to fall into a "state of abeyance" after IHD's withdrawal.[43] By 1927 a "million" treatments had been given and, "attacking the hookworm problem" Heiser observed, "seemed within the range of realisable projects".[44] At this juncture the RF acknowledged that necator infection, the most common infection, with even an average of 100 worms per person was not sufficiently important from an economic point of view to warrant usual treatment measures.[45] After establishing mass treatment as a routine procedure at government institutions the IHD accepted that it was not justified in Madras.

Controlling Hookworm on Tea Estates

Soon hookworm activity shifted to tea plantations. Located in heavy rain fed areas, on hilly terrain along the coastal districts, with the absence of sanitation, heavy soil pollution, and high

infection among labour, these became the major sites for control work. Most estates were located along the Wynaad-Nilgiri hills in the eastern part of the Malabar district, one of the wettest regions in the presidency. The region was considered the real home of hookworm. The surgeon general suggested undertaking control measures on the estates, which Richardson, planter member in the Madras Executive Council, enthusiastically supported. Some planters, recognising limited labour supply necessitated improving the health and production capacity of existing workers, invited the IHD to undertake treatment of their workers. As the advantages of treatment became apparent hookworm control soon spread to other estates while some declined to collaborate. To Paul the planters' interest was, "surely a healthy indication of the alertness of the planters and our influence",[46] while the increased awareness amongst sections of Indians indicated that "influential people" had awakened to the need of "doing something active in the hookworm control work".[47] Both Paul and Kendrick worked on the tea estates carrying out treatments every six months and hoping that with the installation and use of latrine the disease could be brought under control. The curative activity was supplemented with educational work on the necessity of cessation of soil pollution and the means to attain it.

The limitations of conducting mass treatment on the estate labour soon became apparent. Paul doubted if treatment alone would have any impact and did not seem much optimistic about the outcome, "One cannot expect to get the good results among estate coolies as with absolutely controlled convicts surrounded by excellent environment as regards sanitation".[48] Without sanitation the good results produced by the curative campaign, Paul believed, would be adversely affected. Labourers on tea estates lived in overcrowded barracks, with no latrine facilities and as a consequence polluted the open space surrounding their residences. In the absence of latrines it appeared difficult to conduct hookworm control work with profit or permanent good results. This, Paul pointed out, could only be expected when the curative campaign was initiated six months to one year after estates had installed latrine systems and enforced use.[49] With the campaign likely to cost the estate owner Rs 2,000 or more in addition to cost of latrines, Paul was sceptical if the estate owner would expect to get results for his expenditure without previous installation of latrines.[50] By the time he decided to quit Paul showed a better recognition of the need to create a proper and sufficient system of latrines on the estates for hookworm control and believed that only if legitimate reasons constrained the establishment of the latrine systems then other less satisfactory relief measures such as repeated treatment of infected labour force could be instituted.

Kendrick, taking over from Paul, was convinced he would be able to demonstrate to the planting community the possibilities of hookworm control,[51] and sought assurances from estate officials and owners that latrines would be installed and all possible steps taken to prepare the workers to use them. Some estate officials apart from sanctioning money for buying anti-helminthics also gave liberal amounts for the construction of latrines.[52] This led Heiser, during a visit to the tea estates to state that the work done by Paul and Kendrick had paid results. He reported "much latrine construction and use" and finding planters having annual treatments done for hookworm and insisting on their laborers using the latrines. To him they, "seemed convinced that it was not only humanitarian but a desirable economic measure as well".[53]

Notwithstanding, the occasional optimistic reporting by RF officials, real progress was limited. The initial interest may have prompted owners and superintendents to support control measures among their workers but soon Kendrick reported, "generally little has been done on estates, and signs that the problem will be dealt with seriously, anytime soon, to an appreciable extent, are not promising" and observed that only sporadic efforts had been made by planters to improve the health by treatment of only those workers who were seriously affected but otherwise had not considered undertaking any concerted action. Few estates made any effort to alleviate the conditions of workers by improving sanitary conditions in worker colonies. Soil pollution was universal and there appeared to be no way of enforcing sanitary improvements on the estates. The only option was to get the estates to house the workers in localities and conditions that were better than in the villages. This was rarely done.[54] Whatever hopes existed of getting the public health department to use its statutory power to enforce sanitation or any other health measures on estates were lost when the government on January 1, 1929, repealed the Madras Planters Labour Act in the wake of the fall in tea prices worldwide to offer planters financial relief. Kendrick approached the South Indian Planters' Association and secretaries of district associations to get the planters themselves to frame reasonable rules and regulations for securing improved health conditions among estate populations[55] but met with little success.

II
District Campaign

The IHD's anti-hookworm activity evidently did not impress many local authorities and the influence appeared limited. When it was decided to extend the campaign to the districts most district and municipal officers denied the existence of the disease in their areas or considered it not serious enough to warrant specific measures. Kendrick's response was predictable and he suggested surveys to disprove these assertions[56] and to "disillusion" these officials who had reported the non-existence of hookworm infection in their areas. Investigations in Bezwada and Masulipatam towns showed infection rates of 84.6 per cent and 90.6 per cent respectively.[57] These investigations enabled Kendrick to commence the campaign in the districts; however, he was less successful in getting the government and local administration to extend adequate support for creating sanitary facilities.

Public Health and Sanitation

Under the Government of India, Act 1919 public health became a provincial subject. The Madras Presidency in 1920 set up a board of public health but it remained inactive.[58] Commenting upon the sanitary conditions in India, the *Indian Medical Gazette* in an editorial observed that the increasing tendency to relegate responsibility and authority of the central government to the local (Provincial) government had become one of the most serious obstacles for sanitary reform.[59] This was compounded by the provincial governments passing on the responsibility of administering social services such as education, water supply and sanitation to lower level government bodies, the municipal councils and district boards. One motivation behind the process of devolving power was to control the central government's expanding financial burden of managing the Indian empire. Since it was politically inexpedient for the central government to generate revenue through increased excise or custom duties and direct taxes, the task of raising revenue and assuming responsibility

for administration and services was devolved to the provinces. Provincial governments were placed no differently. With rising administration costs taking up a major portion of the provincial funds other government activities such as sanitation were allocated a lesser proportion of the total resources.[60] Provincial governments in turn delegated responsibilities for raising taxes and provision of social services to district boards and municipal councils.

Decentralisation was in reality a transfer of the bureaucratic burden rather than that of executive power. Provincial governments, for instance, continued to maintain control over services. Public works, medical and public health services remained predominantly under provincial control as governmental financial control was used to establish a provincial policy and programme.[61] Close government or departmental control was maintained over all rural services such as roads, hospitals, and public health. District officers were more concerned with services that contributed to administrative efficiency such as communications. Although municipal and rural boards were responsible for public works, their freedom was restricted with no board being able to construct a major project such as a sewerage scheme or even a tank from its own revenue. The resources at the disposal of local bodies were far too inadequate to undertake any scheme on their own. Rural district boards collected no rates and had no money except that granted to them by government. Apart from that a greater problem was that a sizeable number of these boards either did not function at all or existed only in name.[62]

Industrialisation in Europe, Headrick points out, had reduced the costs of cleanliness through technological innovation such as flush toilets. English (and IHB) sanitarians in India whose "religion was the gospel of progress through machinery" and technology, however, seemed to ignore that functioning of these technological marvels depended upon fresh water and sewerage to remove wastes.[63] Tinker has argued that local bodies in India, which by the early decades of the 20th century had a notable Indian element, were generally indifferent or unaware of needs of public health and water supply.[64] In several municipal boards, Tinker notes, members although well aware of the utility of piped water supplies, were far from convinced of the need for sewerage schemes or arrangements for refuse disposal. "Conservancy methods hardly made any advance, with most boards considering sewage plans only to postpone them sine die".[65] But Tinker was only partly correct. For the local bodies finance was a bigger problem than envisaged and services such as sanitation and water supply suffered for paucity of funds and a lack of technical personnel. Limited funds forced municipal councils to make hard as well as popular decisions. When the Madras Municipal Council had to make a choice between implementing a huge drainage and water supply scheme and meet a pressing need for a hospital, it chose the latter.[66] The difficulties faced by local bodies in India in developing public health in the absence of central government aid was completely in contrast to what happened in England. Watts points out that in England loans and subventions from the central treasury to municipal bodies made possible basic sanitary improvements at the local municipal level. Funding in this form increased from 6.7 per cent of total UK revenue in 1890 to 11.6 per cent of total revenue in 1913.[67]

Racial segregation and income distribution also determined who received the benefits of water and sanitation. Thus, households in the European sections and localities of the well-to-do and middle class Indians were connected to the mains and sewers benefited them the most. The poorer districts suffered from inadequate facilities and had sections where excreta was scattered all over.[68] Kendrick described conditions, for instance in Ranipet as "deplorably bad" and reported scavenging service maintained by the local body as extremely sparse and inadequate. In Guntur and Vizagapatam, most municipalities had no system of collection and removal of night soil.[69]

In rural India, Watts states, that the non-provision of sanitation and potable water was in fact one of the defining characteristics of British policy.[70] He also holds British policy responsible for the unsanitary conditions prevalent in the Indian countryside, pointing out that the British colonial regime under the dictates of its revenue policy had dismantled the pre-colonial system of voluntary contribution, which had paid the wages of the sweeper who had always kept villages clean. The result was that Indian villages were left unswept. Most British officials professing to be unaware that this situation was a creation of colonial rule claimed that Indian villages had been awash with human and animal faecal matter from "time immemorial". On these grounds they sought to absolve themselves of any responsibility for major sanitary and public health for the Indian population. Watts argues, "By falling back on this Orientalist argument the upper echelon British health officers thought to exonerate themselves of any responsibility for the sanitary condition in village India".[71] Though attempts were made to develop rural health services by providing grants to villages for sanitary works such as drains and wells, these were so modest and small that it was impossible to find projects small enough to come within their scope.[72] It was not uncommon to find village water supplies dragging on for years without completion.[73] In 1941, Madras presidency had installed protected water supplies for 46 per cent of the urban population but covered less than 6 per cent of the rural population.[74]

Absence of medical personnel in local government bodies was another major hindrance to the development and improvement of sanitary conditions in towns and rural areas. In Madras, King who in 1894 initiated public health services and secured the compulsory employment of trained sanitary officers by all local bodies faced opposition from the surgeon general who wrecked the scheme so that by 1921 only two sanitary assistants were employed by the district boards.[75] Kendrick reported no sanitary inspectors in Ranipet and most municipalities in Guntur and Vizagapatam. Vizagapatam a town with 70,000 population had four sanitary inspectors.[76] The ministry of local self-government which observed, "The reluctance of professional men to accept service under Municipal Councils is a menace to the future of sanitation in this presidency"[77] ignored the fact that most municipal boards did not offer security of tenure to health officers and did not take kindly to criticism about inadequate sanitary provisions. Since municipal and district boards had no control over selection and work of medical and health officers they showed an unwillingness to appoint and make use of sanitary officers.[78] At times of financial crisis, it was mainly the sanitary and public works staff that faced retrenchment even below the level of minimum service.[79]

Proposals made for forming public health services for municipal and district board areas were held up by the government's reluctance to commit any funds.[80] The government, which was not for expanding the medical department, often expressed its apprehension about financial commitments. In 1924, the Madras government introduced a rural health scheme to meet the "extremely inadequate" facilities arguing that "amelioration of the conditions of the masses was urgent and that immediate steps

should be taken to bring qualified medical aid within comparatively easy reach of the villagers". The primary motivation, however, behind government's outlook was adherence to the principle of laissez-faire and that expansion of medical relief was essentially a local affair to be met by the local bodies. Provincial government was willing to do little. When the question of expanding the district health staff came up in 1927, the secretary to finance department declined to assure that the requirements of the medical and public health department would be met.[81]

Soil Pollution and Latrine Construction

The presidency, which had approximately a population of 4,50,00,000, had just one public latrine for each 22,000 inhabitants. To secure even a moderate proportion between the number of latrines and the people to be served, Kendrick noted, would require a vast expenditure of time, funds and efforts. Kendrick who believed that sanitation was very much a government responsibility arguing, "sanitation would have never reached its present state of perfection even in England had government not taken a hand in the matter", did not, however, believe it was the colonial government's duty to finance the cost of construction and maintenance of latrines in the presidency. He considered it both impossible and unwise. Instead, he suggested that for latrines to be widely used in India "the cost of construction and maintenance must be borne by the people themselves" but given the people's lack of sanitary awareness he believed they were unlikely to pay. He suggested the imposition of a light tax on each village and utilising the proceeds for the construction and maintenance of communal latrines. "Such a procedure would likely give highly satisfactory results", he argued, "as it would then be possible to provide with common funds easily accessible latrines for each social element of the village. Some of the more prosperous villagers can, and perhaps will, provide themselves with private sanitary conveniences but for the ordinary villager this is a practical impossibility".[82] Poverty was a great constraint.

The government, as stated earlier, had entirely neglected rural sanitation with the result that villages lacked both latrines and system of night soil disposal.[83] The IHD's attempts at getting people to take the initiative for securing latrine construction in villages faced numerous difficulties. Influential villagers failed to keep their promises of constructing latrines. Although stirring the people into action was difficult, the greater problem according to Kendrick, was the one most villagers faced while constructing latrines. Most house-owners owned only the few feet of land on which the hut stood but no spare land on which latrines could be built. Kendrick's answer to this dilemma was as naïve as it was impractical. He observed, "Strictly speaking there is no reason why private latrines should be constructed at all in villages", since inhabitants were grouped into sections according to caste or blood relationships and if, therefore, latrines were provided for males and females of the various sections of each village "there is no logical reason why they should not be used".[84] Kendrick's suggestion did not address the question of who would ensure the maintenance and cleanliness of these common privies. Scavenging was the task of the lower castes and the higher castes were unwilling to use privies that had been "polluted" by the lower castes even if this was for the purpose of cleaning them.

Inadequate or absolute lack of both public and private latrines was common to even municipal towns. European residents and a few well-to-do natives had private latrines. As a result the majority of the people invariably resorted to using vacant sites adjoining houses, which were thus constantly polluted. Soil pollution occurred to the same extent in municipal areas as it did in rural areas. Even in Madras city, which had the most number of public latrines and where education was more widely diffused than elsewhere, soil pollution was a common phenomenon. But soil pollution, Kendrick believed, was not solely a result of an insufficient number of latrines but of inadequate usage requiring people to be taught the use and purpose of latrines. For this reason Kendrick argued against expending any funds on latrine construction before the people had been educated in the use of latrines for the money was sure to be wasted.[85]

Securing an adequate number of latrines that would protect the community required a latrine cheap enough to construct and to maintain and one that people would be willing to use. Existing latrines were mere enclosures for privacy. Very few had cement steps to sit upon, and none were of the sanitary type. As a result these became ideal breeding grounds for hookworm larvae and a constant household source of infection once they were infected.[86] Kendrick wondered, "…if a latrine has been devised yet which could be honestly recommended for general use in southern India. There are many good types of latrines but the best of them are too expensive to be recommended here, and the less satisfactory types may be a positive danger." He, therefore, suggested the undertaking of special studies with a view to devising latrines that would meet the special requirements of the various localities.[87] Chandler, sensitive to Indian ideas about cleanliness, argued that closed European style privies were indeed unsuitable for rural Indian conditions, being difficult to maintain. Indians, he felt, were not wrong in avoiding European latrines, finding these filthy and obnoxious and preferring the open grounds.[88] These European types of pail-latrines were unsuitable on account of their rapid fouling and instead he recommended the use of more primitive methods that had proved suitable in some parts of India such as squatting on bamboos placed six inches above the ground over pits or drainage channels.[89] There was, however, hope for the IHD as at least one district board showed both willingness and initiative in constructing latrines.

Madura Initiative

The Madura district board, which had an Englishman as president, sanctioned an amount of Rs 20,000 for latrine work on the understanding that the government would match it with an equal amount. The government declined. Not deterred, the district board went ahead with latrine construction in Usilampatii and nearby villages. In addition, the board successfully got the local governing boards in the district to meet half the cost of latrine construction in their areas. In 1925 when Kendrick recommended that the government and district boards unite in an effort to initiate and develop rural sanitation, the "first Minister (an Indian) practically told me that government would put up as much money for latrine construction as I could get for the same purpose from district boards".[90] Nothing materialised as Indian ministers in the cabinet had little authority. Official European members, who wielded real executive power, controlled finance and it was not uncommon for them to turn down public health schemes on financial grounds. [91] Kendrick's efforts to get the government to allot Rs 50,000 to be matched by the Madura district board's Rs 25,000 did not yield results. Both the surgeon general and Russell, the sanitary commissioner were just as unsuccessful.[92]

Although the legislative assembly sanctioned funds for the educational campaign, treatment on tea estates and schools and even a health officer for the estates it did not sanction funds for latrine construction.[93]

Given the Madura board's initiative, Kendrick decided to demonstrate IHD methods in the district before moving on to other districts. Experiments with different types of latrines followed including the bored-hole-latrine, which Kendrick reported had found definite acceptance as the most satisfactory type for use in rural area amongst all classes of Indians and, "one at which the government official hesitates to sneer".[94] These experiments if combined with educational work, Kendrick argued, would have better results since experience had shown that villagers were ready to use the latrines if educational work was conducted at the time of installation and provided the latrines were kept clean. In Usilampatti only six latrines were completed but these were in use by large numbers of people. Although floors and steps were fouled, Kendrick claimed, these latrines were popular among the people with a general demand for greater number of latrines.

The work at Madura attracted attention of other districts. The president of Chingleput district board, an Indian, expressed his desire to initiate similar work in his district. Kendrick not doubting the earnestness of the appeal, nevertheless, had reservations since the district board was Indian dominated.[95] Other presidents were willing to sanction money for latrine construction but none were successful with their boards. Kendrick attempted to get the government to subsidise the work attempting to convince it to provide at least the borers free which under the Rural Sanitation Campaign charged rent again without success. In the meantime, Kendrick tested a cooperative plan in Poonamallee union board supplying material worth Rs 200 and the union and district boards each contributing Rs 200.The success of this scheme encouraged three areas in Chingleput district to install latrines under a similar cooperative scheme financed by local funds. Kendrick's reports do not speak of the final results of this venture.[96]

Campaign Concludes

The IHD campaign came to an end in 1928 and Kendrick asserted that hookworm infection "constituted a distinct public health problem in many parts of the presidency", demanding "definite proposals for the commencement of comprehensive control measures".[97] In contrast, Chandler who had conducted independent investigations into hookworm at the Calcutta School claimed that hookworm in India was in reality a relatively unimportant cause of disease.[98] More important was Kendrick's acknowledgement that they had completely neglected sanitation relying only on measures such as propaganda and treatment. He further accepted that these activities, although important adjuncts to soil sanitation, no matter how vigorously pursued, alone could not be expected to bring hookworm or for that matter any other filth-borne diseases under control. Kendrick noted that as long as these diseases played havoc with the health of the people it was impossible to establish with any success the other more special branches of public health that were put in practice by modern health services in many parts of the world. "The very fact that we have left almost untouched that factor which alone can produce permanent benefits", Kendrick stated, "strikes one as incongruous", adding, "We know definitely that the ultimate success of any anti-hookworm campaign depends upon the effective disposal of human excrement, and unless steps are taken to accomplish this the results of all other activities will be of temporary duration". Kendrick admitted that it was not possible, "that the whole population of any given area can be induced to forsake their insanitary (sic) habits and adopt the use of latrines overnight", but believed, "that if suitable types of latrines are provided in sufficient numbers to meet the needs of a community and the latrines are kept clean they will be used properly in reasonable course of time".[99]

The government continued the hookworm control activity after the IHD's withdrawal. The focus of the government's rural sanitation programme was on controlling hookworm infection and the prevention of soil pollution. Even in 1938-39 when anti-hookworm work was undertaken in six districts of the presidency the infection was still around 90 per cent, which indicates that much had yet to be done for rural sanitation. Propaganda, mass treatment covering 1,68,902 patients and the construction and repair of public and private latrines was carried out during this one year.[100]

Summing Up

Inconsistencies in the IHD approach, dependence on mass treatment contrary to its own stated policy, and neglect of sanitation undermined the hookworm campaign in Madras. To the government the IHD was merely a supplementary source of funds. The government's lack of commitment to both the specific objectives and general goals of the campaign was evident in its tardy support to sanitation. The decline in hookworm infection was contingent to the installation of inexpensive and hygienic latrines and improvement in the general sanitary condition. The lack of improvement in hygiene and sanitation and decline in hookworm infection can only partly be attributed to popular attitudes and beliefs. The people's response at best was ambivalent with no known instance of systematic opposition while a few cases of popular initiative for developing sanitation were evident. EPW

Email: shirish.kavadi@gmail.com

Notes

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The phrase "Parasites lost, parasites regained" reports the impression of a Fijian schoolboy, which the president of the RF said describes precisely what happens unless proper precautions are taken to control hookworm, RF Annual Report, 1923, p 34. Heiser gives a different version of the origin of this phrase. (Victor Heiser (1936), *An American Doctor's Odyssey: Adventures in Forty-Five Countries*, Norton, New York, p 370).]

1 Initially called the International Health Commission later renamed the International Health Board and finally the IHD, here IHD is being used throughout without reference to the changing nomenclature during the period. For a recent history of IHD see John Farley (2004), *To Cast Out Disease: A History of the International Health Division of the Rockefeller Foundation (1913-1951)*, OUP, New York.

2 For a detailed narrative account of the hookworm campaign in Madras, see Shirish N Kavadi (1999), 'The Rockefeller Foundation and Public Health in Colonial India 1916-1945', *A Narrative History*, FRCH, Mumbai/Pune.

3 About the centuries old unchanged sanitary habits of the rural population in the American South see, William A Link (1990), 'The Harvest Is Ripe, but the Labourers Are Few: The Hookworm Crusade in North

Carolina, 1909-1915', *The North Carolina Historical Review*, LXVII, P1-27; for a detailed account of the hookworm campaign in the American south, see John Ettling (1981), *The Germ of Laziness*, Rockefeller Philanthropy and Public Health in the New South, Cambridge.

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5 Kendrick to Rose, June 14, 1921, Record Group (RG) 5, Series (S) 1.2, Box 123, Folder (F) 1633-34, Rockefeller Archive Centre (hereafter RAC) also see proceedings of Madras Legislative Council, March 23, 1921; March 19, 1923.

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