From: Chief, Smallpox Eradication

To: Smallpox Staff

Subject: Target Zero - Progress Report 15 22 October 1973

1.0 The Autumn Campaign

The autumn campaigns have now begun in Bangladesh, Ethiopia, India and Pakistan. While it is obviously too early to anticipate probable achievements, the interest and extent of support on the part of the governments, the magnitude and intensity of the activities, and the concern and determination of the staff give cause to believe that the entire epidemiological situation could radically change within a few months. The relative degree of achievement of the campaign, however, will be difficult to assess before the December-January period. By then, endemic zones should be reduced in area and more sharply delineated and reported smallpox incidence should more accurately reflect the true situation. However, for the next four to six weeks, trends in incidence must necessarily be interpreted cautiously. A notable rise in incidence could well reflect improved case detection or, conversely, might signal the beginning of major epidemics during the coming season. Should the incidence remain at low levels, this may indicate a highly effective surveillance-containment operation or simply reflect the usual low seasonal incidence which may extend into early November. Patterns, of course, may vary from country to country and area to area. For the moment, however, with smallpox incidence still at seasonally low levels, we must continue to guard against the now well-recognized disease of "autumn optimism" to which we have all succumbed on one or more occasions in recent years.

The nature of the activities differs from country to country and thus a brief recapitulation of activities and problems in each of the countries may be helpful.

Ethiopia - The current issue of the WER provides a summary of the situation in Ethiopia. Two additional WHO epidemiologists have now been provided to permit the full time attention of one epidemiologist for each of the three problem provinces of Begemdir, Gojjam and Wollo leaving two others along with Ethiopian coordinators to work with the surveillance teams in the eleven provinces which are now virtually smallpox-free. However, the task ahead in the three problem provinces is formidable. All are mountainous, with few roads; variolation in these areas is extensively practised and many resist vaccination. On the positive side is the fact that immunity levels are far higher in these provinces than a year or two ago. Extensive smallpox epidemics have occurred during the past two years accompanied by widespread variolation and moderately extensive vaccination. Undoubtedly, scattered endemic foci persist throughout the three provinces and much depends on the speed and efficiency with which these can be dealt with. With additional surveillance staff, one team has now been posted in each awraja (district) in the infected provinces and jet guns are being used in some areas as vaccination by this method seems often to be accepted where the needle is not. It would seem likely that a nil incidence in Ethiopia could be

achieved by April but doubtfully before this because of the logistics in the areas involved.

Bangladesh - The 5 national medical officers and 4 full-time WHO staff have now been supplemented by an additional WHO adviser on long-term assignment and five WHO consultants on shorter-term assignment. The six Regional Surveillance teams which were operative in Bangladesh last year have been converted to District teams and 19 additional teams recruited and trained, one or two of which are assigned to each District. Each team consists of four persons (either sub-divisional health inspectors or sanitary inspectors). In addition, there is a 24 man reserve unit recruited from the BCG programme. In the 54 subdivisions, subdivisional medical officers provide additional supervisory support and, as elsewhere on the subcontinent, sanitary inspectors and vaccinators continue to carry out routine activities. Last year's epidemic was exacerbated by two important factors: 1) spread of smallpox within and between non-Bengali camps and 2) spread of disease as a result of large scale internal migration resulting from a poor monsoon and food shortages. Neither should be an important factor this year. The camps have now been extensively vaccinated and placed under close surveillance. The monsoon this year has been one of the longest known and record crops of rice are expected to be harvested in November. The extended monsoon has also sharply curtailed transmission and field observations indicate that many foci have spontaneously terminated. In addition, a special country-wide vaccination effort last spring had undoubtedly improved immunity. A complete appraisal of the smallpox situation will be possible only in November when more remote, previously heavily infected areas can be reached. Possible difficulties at the moment relate to transport problems in riverine areas and a month-long disruption of activities of routine vaccination staff to permit them to be retrained as basic health workers. Revised targets in terms of interruption of transmission are as follows: 1) Chittagong Division - 1 December 2) Dacca Division (except Faridpur District) - 1 January 3) Rajshahi Division - 1 March 4) Khulna Division and Faridpur District - 1 May.

Pakistan - Endemic foci appear now to be confined to the Districts in Sind Province outside of Karachi and to neighbouring Districts of Baluchistan. At present, no more than one to two foci are known to be active in each District. An effective surveillance programme is operative in Northwest Frontier Province and no cases have been detected there since May. Punjab Province similarly appears to have interrupted transmission but, unfortunately, surveillance activities appear to have declined in recent months and full information about the status of the 39 cases reported since June is not available. In Sind, a national medical officer assisted by four WHO staff members and consultants and special surveillance teams in each District have organized one-week systematic searches of the 15 000 villages in the Province. Over 1 000 health workers are participating. The first search for cases was completed on 20 October; a second search will be conducted in mid-November. Prospects for early eradication (end December) in Pakistan appear to be good provided that surveillance activities in Punjab are immediately strengthened (a WHO medical officer will soon be assigned to assist) and known outbreaks in Sind and Baluchistan are effectively and rapidly contained.

India - Throughout India, the pace of activities has sharply accelerated this autumn. In the four states of Bihar, Madhya Pradesh, Uttar Pradesh and West Bengal which have accounted for 93% of India's cases, health workers are conducting week-long state-wide village-by-village searches for cases on three occasions this autumn. Foci outside of these four states are being aggressively attacked by both traditional and special District-wide search programmes. Assistance in implementing this scheme is being provided by 14 specially recruited Indian epidemiologists and additional medical officers from the national level plus 16 WHO staff and consultants. Early results and observations are highly encouraging. A preliminary summer campaign intended to eliminate foci in the municipalities and corporations appears to have been at least a qualified success in many areas; active search in Calcutta and 7 southern Districts of West Bengal, conducted in late September, revealed far fewer foci than had been anticipated and all were expected to have been controlled by the time of the second search programme (state-wide) in late October. Most important, motivation and interest in the smallpox eradication programme virtually everywhere and at all levels in India has notably increased in the past 6 months. Problems and uncertainties remain, however. National and state level supervisory staff are still few in number to cope with the formidable problems of geography and population. Existing smallpox programmes in still endemic Jammu and Kashmir and the states of the eastern wing are weak and questionably adequate for the task despite provision of additional support; Bihar State appears especially problematic and Madhya Pradesh still understaffed. Reporting continues to be deficient. If problems such as these can be satisfactorily overcome, smallpox by the end of December could well be restricted to the three States of Uttar Pradesh, Bihar and West Bengal. In fact, West Bengal itself conceivably could interrupt transmission as West Bengal officials, on the basis of the recent search, now consider a nil incidence by end December a distinct possibility. A nil incidence throughout India is anticipated at least by December 1974, conceivably earlier. The relative success of the autumn campaign and the nature of activities which follow will be determining. With the endemic area still so extensive and the problems so diverse, it is difficult as yet to appraise the likelihood of meeting these goals.

Summary: The final campaign has now begun and, so far, with highly encouraging prospects for success. Active support has been afforded by health authorities in all four countries and WHO has mobilized all possible resources to assist. The task ahead, however, must not be underestimated as there are still many problems to be sorted out in all countries and at all levels. In addition, special efforts will be required to sustain the impetus of the autumn campaign through the coming smallpox season. I personally believe, however, that at long last, the ultimate goal is well within reach - a heroic effort beginning now could succeed in achieving the ultimate goal of global eradication within the coming year.

2.0 Botswana - a regretable setback -

Five months after the last detected case in Botswana, a confirmed case was diagnosed on 20 September in a 16 year old unvaccinated girl admitted to the Francistown hospital. The patient at the end of August had come from a village 20 miles from Francistown to the rapidly developing Selibe-Pikwe mining development where she stayed with a family in the Zezuru section of the town. The Zezurus are a religious sect who object to vaccination as well as medical care and have

previously refused to cooperate in the reporting of cases. The outbreak earlier this year had occurred almost entirely in this group. Following this outbreak special efforts had been made to screen and vaccinate Zezuru groups throughout Botswana and the Selibe-Pikwe area had been kept under special surveillance because of its size and the large number of migrants coming into the area. In fact, a scar survey performed in July showed 86% coverage in the area and a health inspector has continued to supervise special programmes to maintain high levels of vaccination immunity.

Immediately after the case was detected, all Zezuru households in the area were systematically searched and vaccinated and exhaustive inquiries were made of all possible contacts of the patient. As yet the chain of transmission has not been identified. Additional teams have been mobilized and area wide search operations are in progress.

The need in every country for continuing active surveillance after a nil incidence has apparently been reached could not be better illustrated.

3.0 Eradication in the Americas - Resolution XVII of the Directing Council of the Pan American Health Organization (WHO Regional Committee for the Americas) - 17 October 1973.

"Considering that the interruption of smallpox transmission in the Americas since 19 April 1971 has been confirmed on the basis of documents presented to and conclusions reached by the Commission for the Assessment of the Smallpox Eradication Programme in South America, which met in Brazil in August 1973; Bearing in mind that, despite the importance accorded to epidemiological surveillance by the countries of the region among the activities of their health services, there is a need to improve it in certain areas of some countries; Being aware that, in general, the level of protection of children under five years of age and of other high-risk groups is not adequate; and Considering that, due to the rapidity of the means of transportation presently in use, the risk of importation of variola major into this region still remains,

resolves:

1. To take note that, according to the criteria established by the Expert Committee on Smallpox of the World Health Organization, the disease has been eradicated in the Region of the Americas.

2. To congratulate all the countries of the hemisphere, especially the Government of Brazil, for their decisive and forceful efforts in eradicating smallpox.

3. To request the health authorities to devote special attention to maintenance and epidemiological surveillance programmes, without interrupting prematurely the application of the measures recommended by the international health regulations.

4.0 Methodology for the autumn campaign

Of priority concern now is the need to assure that each and every known or suspected outbreak has been properly investigated, its source traced and definite confirmation obtained that it has been entirely contained. Previously, in many endemic areas, this sort of special "care and handling" of each outbreak has not been possible because of the large number of outbreaks present. Now, however, in all areas the number of outbreaks is sufficiently few to permit far more careful investigation and follow-up. For the autumn campaign, this is essential since each outbreak stopped at this time will mean, on the average, 5 to 15 fewer outbreaks in the period January to May.

An effective technique for guiding priorities and for charting progress has been that employed in Orissa State in India over the past year and which, in similar form is being introduced throughout India. In brief, each suspected outbreak, is line listed on a sheet along with the number of cases detected each week. A line is extended to indicate a period six weeks beyond the onset of the last known case. Follow-up visits by State and District teams are noted weekly (weekly visits being called for). All outbreaks considered to be "active" until the six week period has expired and a final check has been made by State teams. Thus, at the end of any given week, it is possible to note how many outbreaks are "active", how many outbreaks have been discovered during the week and how many have been removed from the "active" category. At the same time, the efficacy of the containment measures is assessed by determining in what proportion of outbreaks, cases occurred more than 15 days after the beginning of containment measures and in what proportion, the source of infection could be specifically identified.

In some areas, the scheme has been modified such that outbreaks are considered to be "active" for four weeks rather than six weeks after onset of the last known case and, in some, the efficacy of containment is judged by whether or not cases occur more than 21 days (rather than 15 days) after the beginning of containment.

These variations in the scheme are entirely reasonable - important, however, is the principle of focussing attention and concern on all known outbreaks to assure that they are properly investigated and confirmed. Illustrated in table 1 is one scheme for keeping track of outbreaks in this manner. All sorts of variations on this theme are possible depending on local needs and circumstances. At this stage, however, it is vital that all epidemiologists at State or Regional level maintain some such record as this.

5.0 Target areas - Cases in September occurring within and outside of now revised 31 December target areas are shown in the attached figure. Note that the target areas have been somewhat reduced in size from those shown in previous reports to take account of recent programme developments. Of the 2 393 cases reported in September, 76% were reported from the target areas or occurred as a result of importations from these areas (as in the instance of Nepal). Proper documentation regarding importations in such as Orissa State (India) and Punjab Province (Pakistan), among others, would in all probability, result in an increase in the proportion of cases in this category.

Table 1

Outbreak No.	District	Block	Village	Pop	Date of first case	Date of onset last case	Date containment began	Weeks (case detected) 39	40	41	42	43	44	45	46	47	48	49	50	51	52	Source
1	W	3	A	400	15.9	3.10	16.9	4 DS	5 S	D	D	DS	→	→	→							Outbreak 4
2	W	4	B	200	14.8	15.9	28.9	4 DS	D	D	D	DS	→									Outbreak 4
3	X	1	C	300	15.9	10.10	8.10			3 DS	D	D	→	→	→	→						Outbreak 4
4	X	2	D	500	18.7	3.9	9.10			14 DS	DS →											State-Bihar District Q Block X

D - signifies visit by District Team

S - signifies visit by State Team

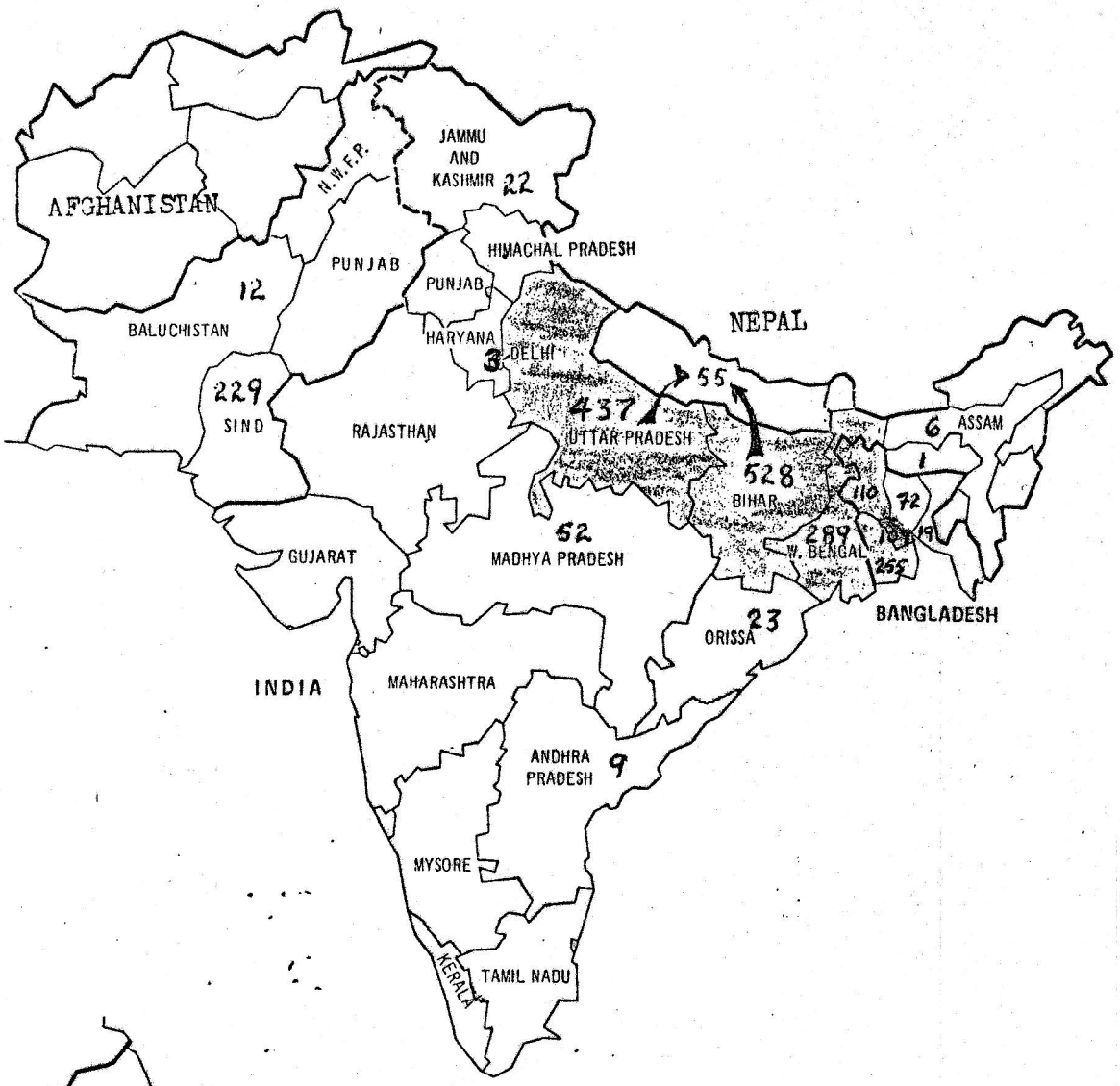
6.0 Reporting -

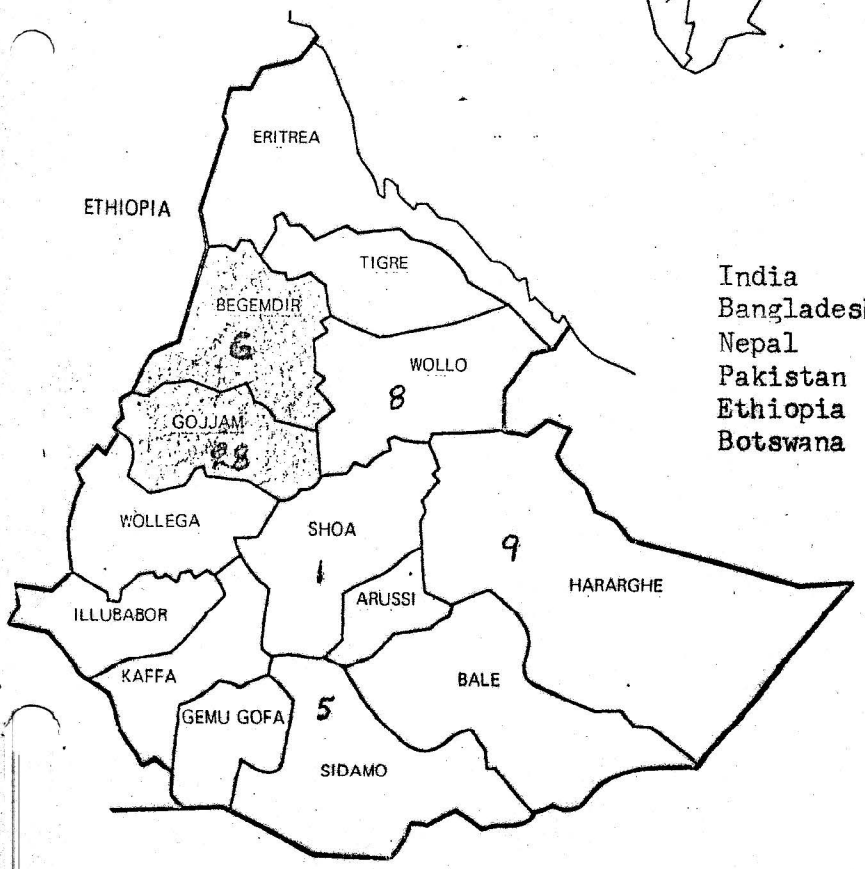
With this report, Botswana and Nepal join the persistently delinquent Indian States in being in arrears in reporting. India continues to fall further behind in its reporting and now shows a cumulative total of 40 weeks in arrears for the listed States and Union Territories! In fact, reports are current for only 2 (Rajasthan and Uttar Pradesh) of the 26 States and Union Territories listed. With other aspects of the programme beginning to accelerate, this is a very regretable record and could well prove to be the Achilles heel of the programme

	Weeks in Arrears
Botswana	2
Nepal	1
India - Andhra Pradesh	1
Arunaschal Pradesh	1
Assam	1
Bihar	1
Chandigarh	4
Delhi	2
Gujarat	2
Haryana	2
Himachal Pradesh	3
Jammu & Kashmir	2
Kerala	2
Madhya Pradesh	1
Maharashtra	1
Manipur	1
Meghalaya	2
Mizoram	1
Mysore	1
Nagaland	5
Orissa	1
Punjab	1
Tamil Nadu	1
Tripura	2
West Bengal	2

STATUS OF 31 DECEMBER TARGET AREAS FOR SEPTEMBER, 1973

(target areas are shaded)





	Cases in target area or imported from them	Cases outside target area
India	1254	116
Bangladesh	472	191
Nepal	55	-
Pakistan	-	241
Ethiopia	34	29
Botswana	-	1
	1815 (76%)	578 (24%)

WHO