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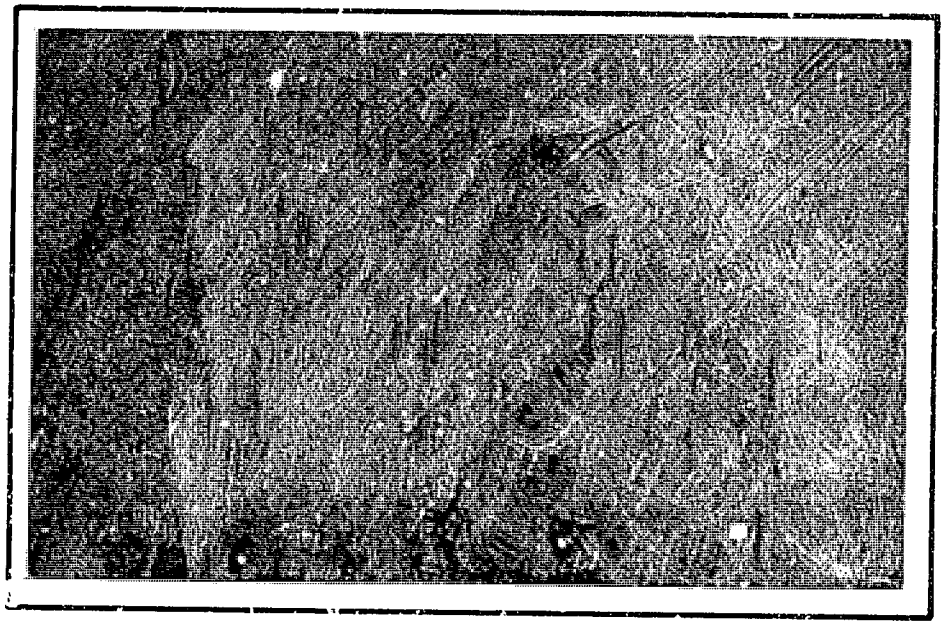

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ZAMBIA NATIONAL DIARRHEAL DISEASE CONTROL PROGRAM: ORAL REHYDRATION SALTS (ORS) SUPPLY AND DISTRIBUTION

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Foreword

This document was prepared as part of a PRITECH team report on Zambia's National CDD program. These sections were excerpted to facilitate discussion of ORS supply and distribution issues.

Oral Rehydration Salts (ORS) Supply and Distribution in Zambia

Summary and Recommendations:

1. The best chance for avoiding the confusing situation of relying on 1-liter packets in an environment where no convenient 1-liter household measure exists, or the even worse situation of having two packet sizes in circulation, is to take the necessary steps to assure that production of 750-ml packets by GPL proceeds without delay. In view of the MOH budgetary crisis due to devaluation of the Kwacha, donor support will be required. A useful form of support would be the provision of ORS materials by UNICEF, plus an additional amount of local currency to cover part of production costs.

Recommendation 1:

MOH and UNICEF should begin immediately to negotiate an agreement through which UNICEF will donate ORS materials and some Kwacha in lieu of imported 1-liter packets.

2. MOH free distribution of ORS packets will be limited by ORS availability to 1 to 2 million packets per year for the foreseeable future due to budget constraints. While the use of homemade ORS is a part of the CDD program, it can be difficult and costly to teach to mothers, and may not fill the gap between total need for ORS and packet supply. Some interesting possibilities for packet production and distribution exist in the commercial sector,

and could fill the gaps, at least for the part of the population able to afford it.

Recommendation 2:

Commercial distribution of ORS should be considered an integral component of the CDD program. Avenues for distribution of GPL ORS should be explored and private sector production should be supported, with the aim of getting a popularly - priced ORS packets available through as many outlets as possible. Promotional activities could be planned to reinforce the MOH's ORT promotional efforts.

ORS Supply and Distribution in Zambia

I. Introduction

The present uncertainty about local public sector production affects the decision about standard ORS packet size, and significantly complicates the planning of the national ORT program. This section will attempt to clarify the facts related to decisions about ORS production, and indicate some of the implications of the decisions.

II. Existing Situation

A. Public Sector

At present, drugs and and supplies are distributed to MOH (and mission) facilities through a dual system. Medical Stores Ltd. (MSL) located in Lusaka, is a parastatal company which purchases, stores, and distributes drugs for the MOH. Sources include foreign and both private and public sector domestic manufacturers. The stores are large and modern and appear very well managed, with a staff of over 200. Distribution to outlying facilities is done by the M.S.L.'s own fleet, and when necessary some Army 4-wheel drive trucks can be borrowed. The facilities served directly are the provincial centers and general hospitals, with smaller units served if the routes used by the heavy trucks happen to pass nearby.

The MOH is charged the landed cost of the drugs and supplies, plus an additional 20% to cover the operating costs of MSL. The total turnover for 1985 was around K30 million. No duties are paid on goods imported by MSL.

MSL was created as a parastatal in 1976 to relieve problems due to overcrowding at the old Medical Stores. This facility is still in use, and while it is primarily intended as offices of the Pharmaceutical Services and some old stores are being converted to equipment repair workshops, it is also used as stores for materials donated to the MOH, including the ORS supplied by UNICEF (400,000 1-liter packets in stock at present). This organization also has the responsibility for delivering these supplies, but cannot do this effectively due to a shortage of operating trucks. Two new motors have been requested from UNICEF to repair the 7-ton Toyota trucks.

It is not clear why the donated supplies remain the responsibility of the older facility. Possibly MSL did not agree to store and distribute material it did not purchase, or the donors may have refused to pay the 20% surcharge, but in any case some means has been worked out for these supplies to be transferred to MSL. (MSL will definitely be storing and distributing the drug kits to be supplied by SIDA.) The old stores will also continue to be used as emergency stores, with a small backup stock of essential items.

ORS production in Zambia is planned to take place at General Pharmaceuticals Ltd, another parastatal company operating under MOH auspices. After studies by the U.N. Industrial Development Organization (UNIDO), the plant was built in Kabwe in the early 1980's to produce intravenous fluids, and after a 1982 UNICEF study, the MOH and GPL decided to add an ORS production unit. A UNICEF grant of around $100,000 supplied all the equipment for semi-automatic production of 750-ml polyethylene packets, using the citrate formula. The equipment has been delivered and the production rooms are within a month of completion now. Delays have been attributed to the long delivery time for the equipment and to problems with the contractor used for the building construction. The latest delay is due to the need to install a 3-phase electrical supply.

Chemicals and polyethylene packaging materials for 750,000 packets (an estimate of the first year's production) have been provided through UNICEF reimbursable procurement, with UNICEF in effect providing foreign exchange for the MOH. These and the locally-printed packet inserts are now in stock at GPL. The 750 ml size was based on the presumed wide availability of glass bottles of this capacity, from an orange squash (Mazoe) and other soft drinks marketed by Cadbury-Schweppes. Other 750-ml bottles of this capacity are found in large numbers in Zambia also.

This planned local production was intended for free distribution in and through MOH and mission facilities. The initial production capacity of 3/4 million/yr was expected to expand the 1.5 million/yr, which would be less than half the anticipated demand if 50% of under-5 cases were treated with ORS packets.

UNICEF has been providing imported 1-liter packets to the MOH since 1982, at a level reaching nearly one million per year in 1985. When the production delays at GPL became obvious, more packets were ordered (1/2 million most recently) and most of these have been distributed to at least the district hospital level, but few have apparently reached rural health centers. UNICEF's financial commitments for ORS are apparently not determined in advance of MOH requests.

B. Private Sector

Several ORS products are imported to Zambia and distributed in private pharmacies. These are quite expensive, in the neighborhood of K4 to K6 per liter equivalent and at least one is not of the WHO-approved formula. Private pharmacies exist only in the cities and major towns, so it cannot be expected that these products would have a serious impact on the target population of rural poor.

A locally produced 1-liter packet is also distributed in pharmacies, priced at K1.10, but sold as high as K1.60. This is produced by International Chemicals Ltd., (Interchem) a private company in Lusaka which also makes a line of such over-the-counter

(OTC) drugs as paracetamol tablets, kaolin mixture, gripe water, and chloroquin syrup. These are also in the network of parastatal consumer stores (ZCBC, NIEC, and Mwaiseni) comprising about 90 outlets in all provinces.

Production by Interchem started only in 1985 and they are limiting production to what can be moved through pharmacies while simultaneously trying to increase public awareness of the product through fairly extensive radio and TV advertising.

The production capacity is 2 million per year, which they estimate to be 1/3 the maximum national need for ORS. Their packaging machine is used for another product while not used for ORS. The high retail cost of the Interchem packets (equivalent to 16 cents U.S. per liter) is due to the wholesale and retail markups (20% to 30% and 30% respectively) on their production cost of 60 ngwee ($1.00 = K6.90 = 690n), which in turn is elevated by the import duty of 20% on the cost of materials. Labor and indirect costs are quite low due to efficient operations and a low initial investment.

Distribution of Interchem drug products is either through deliveries to their sales agents in Copperbelt and Livingstone, or to general merchandise wholesalers who come to Lusaka to purchase. There is also some direct distribution to pharmacies and other outlets in Lusaka.

Interchem plans to change the size of their packet to 750 ml if this becomes the national standard, reinforced by GPL production of 750 ml ORS.

III. Selection of Packet Size

The team feels strongly that simple, consistent messages are needed in promotion of ORS packets and the associated training and education efforts. The team recommends that a single packet size be distributed. Risk of confusion among mothers is great if two packet sizes are available. The team did not have a strong opinion on whether the one liter or the 750 ml packet would be best. To help clarify the issue, the team compiled the following pro and con considerations:

1. Regarding the 750 cc. packet size:

   a. Pros

   - Bottle size readily available. Only 60% of Mazoe bottles returned. Other kinds of 750 cc. containers are available.
   - Materials for 500,000 packets exist in Kabwe.
   - 500,000 instructional inserts have been printed.
   - Inter Chem is able and willing to switch to 750 cc. packets for commercial sales.
   - Schweppes expects no change in size and has placed a new order for 750 cc. bottles.

   b. Cons

   - Possibility of prolonged delays in GPL production.
   - One liter UNICEF (and Inter Chem) packets are available, 400,000 in central Lusaka stores and many distributed.

- Other one liter UNICEF packets may be on order.
- Change in Mazoe bottle size may occur as in Zimbabwe.

2. Regarding the one liter size packets:

a. Pros

- They exist in Zambia and are in the supply system.
- UNICEF cost in approximately 1/2 that of local production.
- UNICEF one liter packets can be purchased/or obtained in emergency shortages.

b. Cons

- Standard one liter measuring system is more complicated.
- Kabwe production and inserts currently set-up for 750 cc.

A final decision needs to be made in time to produce or supply enough packets to match demand resulting from an educational campaign, and before production of educational materials with messages involving packet size. The team recommends that a decision be made prior to the end of June 1986.

From the team's perspective, a key question is when GPL production can begin and whether GPL will be a reliable supplier. If GPL begins production quickly and can produce steadily, the team favors a 750 ml packet. If GPL production is delayed or cannot supply reliably, then UNICEF or another supplier will have to fill the gap with 1 liter packets; then the team favors using 1 liter packets consistently.

IV. ORS Supply Constraints

A. Current Situation

If production of 750-ml packets were to proceed as planned, the fact that 1-liter UNICEF and Interchem packets have been in use for some time is likely to cause confusion and misuse at the household level, if not at MOH facilities. There is therefore considerable concern at present over which size would be best, and a PRITECH-supported operations research activity has been proposed for the near future to help answer this question.

Production at GPL may be delayed further due to financial problems of the GRZ, which have produced an arrears by MOH to Medical Stores, Ltd., and in turn a deficit at GPL. Already, many GPL employees have been furloughed and IV production has ceased. While a newspaper article indicated that the arrears have been settled, at this time there is no definite indication that GPL will resume normal operations soon.

Even if past debts are settled, the recent drastic cuts in the MOH budget and kwacha devaluation would imply that it cannot afford to buy enough drugs, and the reduced allocation would be used mainly to buy essential hospital supplies. It is more likely that it will seek donor assistance for ORS (and other essential drug supplies), rather than choose either remaining alternative - scaling down the ORT program or instituting a patient fee for drugs or services.

B. ORS Production Strategy

UNICEF remains the most likely donor for continued ORS supplies. It may agree to assist the MOH by continuing to donate imported 1-liter packets, but also has the option of supporting GPL production by purchasing ORS packets. UNICEF has done this in at least two other countries (Haiti and Indonesia), paying the local producers the equivalent of the landed (CIF) cost of packets from UNIPAC, plus an additional premium as an indication of its commitment to supporting local productions as a matter of principle.

The major constraint to this type of arrangement being made in Zambia is the high cost of the GPL ORS packets. The approximate cost breakdown for ORS production (using raw materials and packaging purchased through UNICEF) is:

	Per 750-ml Packet	
Materials and Packaging (estimated at 2.9 cent CIF: Kl=$0.1435)	20	ngwee
Labor	6	
Packet insert (locally printed)	7	
Direct Costs	33	ngwee
Factory overhead (25% of direct costs)	8	
Production cost	41	ngwee
Financing and depreciation	10	
Ex-factory cost	51	ngwee
Profit margin	9	
Planned MOH price	60	ngwee

Compared to these prices, the UNICEF 1-liter packets might seem a bargain. Assuming an FOB price of 5 cents U.S. and 25% for shipping, the final cost to UNICEF in Lusaka is 6.25 cents or 43 ngwee per liter. On a volume basis, this equals 33 ngwee per 750 mls.

There are several arguments in favor of price flexibility, which both UNICEF and GPL/MOH can utilize to arrive at a satisfactory result in negotiating an arrangement.

First, it may be held that since two 750 ml packets will suffice for the typical case of diarrhea almost as often as two 1-liter packets, the price paid could be based on a packet-per packet basis rather than a volume-per-volume basis (43 ngwee/packet).

If this principle is not accepted, UNICEF could also consider paying a premium of, say 25% above the landed cost per liter, as would only be paying a fraction (20 ngwee for materials) in dollars.

Next, there is most likely some room for GPL to reduce its selling price, perhaps foregoing a profit or a positive cash flow for the first few years. This could result in packet price of 51 ngwee (no profit) or 42 ngwee (no positive cash flow).

GPL could consider recovering some cash flow or profit increasing production beyond the MOH requirements for distribution through the commercial sector and to other donor agencies. Sale price could then be raised to a level which would include a net profit.

The Director of Pharmaceutical Services has indicated that the MOH could make an amount available equal to the cost of UNICEF packets under the old exchange rate, reflecting a determination to support the CDD program and GPL production, but also reflecting an effective budget cut for imports.

This suggests a possible arrangement. The MOH budgets 15 ngwee per packet, and might therefore be able to spend K150,000 for a million packets in 1986. If GPL production starts by May 1986, it will be necessary to order materials for a further million 750 ml packets as soon as possible since it will take at least 6 months for delivery

from UNICEF. If UNICEF agrees to provide the materials and some GPL production costs as assistance to the MOH, it would actually be spending less foreign exchange than for the finished 1-liter packets.

A possible arrangement might work as follows:

a) GPL agrees to lower sales price to 45 ngwee, covering direct costs of production, overhead, and some financing costs.

b) UNICEF agrees to provide foreign exchange for materials and packaging, totalling 20 ngwee.

c) The MOH continues to pay 15 ngwee per packet, the same amount as UNICEF packets cost before devaluation.

d) UNICEF agrees to pay the difference of 10 ngwee per packet in Kwacha.

In terms of one million 750-ml packets, the contributions would be:

MOH	K150,000		
UNICEF	K200,000	=	US$29,000 forex for materials
UNICEF	K100,000		(for printing inserts with UNICEF/ MOH name)
	K450,000		

If UNICEF had been asked by MOH to donate 1 million 1-liter packets, it would cost $62,500 in foreign exchange, so if the

idea that the 1-liter packet is equivalent to the 750-ml packet in terms of clinical management of diarrhea is accepted, UNICEF has had the same impact for $33,500 less foreign exchange, plus $14,500 in kwacha, for a net savings of $19,000 per million packets.

GPL, which would be operating at a slight accounting loss but possibly a positive net cash flow (depending on its debt obligations) might compensate for its concessions by increasing production to 2 million per year, selling 300,000 to SIDA (actual requirement for the RHC drug kits) and 700,000 to the NIEC stores. It could request UNICEF to provide materials on a reimbursable basis (duty exemption has been arranged for GPL), but probably would have to provide the $20,000 in foreign exchange if UNICEF finds it impossible to do.

E. Potential for Commercial Distribution

Even if there is substantial donor support for ORS packets to be distributed free through health centers and hospitals, there will be a need for other modes of access to ORS, as well as the need to promote home-mix solutions. The commercial sector in Zambia offers several attractive possibilities which, taken together, might constitute the field for a social marketing project. The potential components identified during this visit are:

1. Distribution through private pharmacies and drug stores of the Interchem ORS packets. Interchem have already started promotion of these products, but could use assistance in designing a campaign, packet design, point-of-sale displays, etc.

Their low production costs (low labor cost and low finance and depreciation due to a low initial investment) offer the possibility of a much lower sales price if materials cost could be lowered and/or an exemption from import duties obtained.

2. Distribution through parastatal government stores (ZCBC, Mwaiseni, etc.) of both Interchem and GPL ORS packets. Both these units (subsidiaries of NIEC) have expressed interest in cooperating with GPL in distribution, and already carry Interchem products. Side-by-side competition between two socially-priced products presents interesting potentials for mutual promotion.

3. Distribution of either ORS packet through general merchandise stores, by means of drink distributions is another approach to reaching remote rural areas. Schweppes-Cadbury have expressed an interest in this, since this is a tie-in with their drinks and squashes sold in 750-ml bottles.

PRITECH can recommend that activities of the above nature be aided by Project Support, a parallel USAID centrally-funded project intended to aid the private sector in ORS production and distribution.

CONTACTS: PRODUCTION AND DISTRIBUTION

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Mr. Chinto, Director, Medical Stores, Ltd. Lusaka

Mr. Patrick Kalenga, District Manager, M.S.L.

Mr. Bill Hampson, Production Manager, Interchem

Mr. Patel, Pharmacist, Central Medical Stores

Mr. Peter Chisha, Acting Sales Manager
Mr. M.V. Mistry, General Manager, Schweppes Cadbury, Ltd, Lusaka

Mr. Scott Zula, Stores Manager, Mwaiseni Stores (NIEC) Lusaka

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