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UNITED NATIONS CHILDREN'S FUND

Programme Committee

Recommendation of the Executive Director for an Allocation

POLAND

Prevention of Childhood Diseases: Gamma Globulin Production

1. The Executive Director recommends an allocation to Poland of \$14,000 to provide equipment to increase the production of gamma globulin so as to protect an additional 200,000 children under three years of age against measles and resulting complications. Some of the additional gamma globulin would be used for prevention of epidemic hepatitis among young children in institutions. The Fund would provide laboratory equipment with capacity to produce 65 to 70 kilogrammes of gamma globulin annually, or approximately 290,000 protective doses. This equipment, which would be installed in a new production laboratory in Lublin, would permit the Government to more than triple its production of gamma globulin and would greatly strengthen the national programme of vaccination and immunization against communicable diseases of childhood. Equipment would be delivered by mid-1958 and production in the new laboratory would begin early in 1959. The Fund previously provided equipment and supplies for gamma globulin production to a value of \$142,500, excluding freight. (see para. 5 below). The present recommendation is based on a report by WHO consultants following their study of the gamma globulin production project in Poland in July this year. a/

a/ Report on a Study of the Gamma Globulin Production Project in Poland, July 1957. By L. Vallet and L. Hesselvik.

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(6p.)

2. With the increased production, the Government would have a total of 90 to 105 kilogrammes of gamma globulin for its campaign to prevent measles which afflicts 100,000 to 160,000 children annually. Three fourths of the cases are in children under seven years of age, and almost one third are in children under three. About 1,000 child deaths annually are attributed to measles and complications resulting from measles. Gamma globulin is the only known preventive or attenuating measure against measles. The gamma globulin would be administered free to three groups of beneficiaries:

- a) all children under three years of age in nurseries and other institutions where the group living conditions make them especially vulnerable to contagion;
- b) all children under three in families where a case of measles has broken out;
- c) children in children's homes, day nurseries, nursery schools and youngest groups in primary schools, for the prevention of epidemic hepatitis.

3. The Government's costs in connexion with construction of the new laboratory at Lublin and for the provision of supplementary basic equipment would approximate 9,000,000 zlotys. Operating costs would total 2,350,000 zlotys annually. Government matching of the UNICEF contribution would be the equivalent of US\$200,000.

4. WHO will provide two fellowships for production and research chemists to be employed in the Lublin laboratory. Four fellowships for Polish personnel were provided by UNICEF under the earlier allocation, one each for a blood plasma expert, a blood plasma plant engineer, a blood plasma bacteriologist and a bio-chemist.

#### Gamma globulin production in two existing laboratories

5. Gamma globulin production equipment provided by the Fund under allocations approved in 1950 and 1951 is installed in two laboratories in Warsaw with a combined output of 25 to 35 kilogrammes of gamma globulin, or approximately 100,000

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doses annually. This product is used for protection of children up to three years of age in hospitals, sanitarium and children's homes and infants under one year of age in day nurseries; also for the prevention of epidemic hepatitis in children's homes, day nurseries, nursery schools and the youngest classes in primary schools. Of all the children in these groups requiring preventive doses of gamma globulin each year, only about one half can be protected by present production in the country augmented by 20,000 doses imported each year. No gamma globulin is available for protection of young children in families where one member has contracted measles.

6. The two laboratories for which the Fund earlier provided equipment are the Institute of Haematology and the State Sera and Vaccine Institute. As indicated above, the combined output of gamma globulin from these two laboratories is between 25 and 35 kilogrammes a year. The standard of the product is controlled, in accordance with accepted methods, by the production laboratories themselves and by the State testing laboratory for biological products. Field trials have been made and international reports have been issued concerning the efficacy of the product which is reported to prevent measles in 85 per cent of the exposed cases receiving gamma globulin, and is in this respect up to the international standard.

Public health measures against childhood diseases

7. Infant mortality in Poland has been dropping steadily since 1952. Rates reported for the period 1949 to 1956 are as follows:

<u>Infant deaths in first year of life per thousand live births</u>			
1949:	107	1953:	88
1950:	111	1954:	83
1951:	118	1955:	82
1952:	96	1956:	71

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8. Although a number of factors are involved, the utilization of gamma globulin may have contributed considerably to the decline in the child death rate since deaths due to measles have decreased by half since 1953, when production from the plants first became available.
9. In its preventive action, the Public Health Service in Poland puts heavy emphasis on prophylactic vaccination and immunization. Compulsory smallpox vaccination is applied universally. Diphtheria immunization, likewise compulsory, has so far been given to at least 70 per cent of the child population, and BCG is administered quite generally to new-born infants. Of childhood diseases not preventable by active immunization, measles is considered to require particular attention.
10. Some 60,000 infants and children are cared for in 750 State-owned or State-controlled day nurseries while their mothers are engaged in full-time work outside their homes. At the outbreak of measles in such groups it is necessary to take immediate and extraordinary measures in order to limit contagion. Newcomers and children convalescing from other diseases must be turned away from the nurseries at such times. If the centres have to be closed down, there are serious economic consequences for the entire family due to temporary loss of the mother's earnings.

#### Plan of operations

11. An unfinished existing building on the estate of the Sera and Vaccine Laboratory at Lublin, 150 kilometres south-east of Warsaw, would be converted into the National Gamma Globulin Production Laboratory which would produce some 65 to 70 kilogrammes of gamma globulin annually, enough to protect over 200,000 children. Adequate water supplies and other services are available to the plant. The production will be carried out by a daytime staff of 25 and by two night shifts employing five persons in each.

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12. A firm schedule will be established and an organization set up for the collection of placentae from 19 (and later 25) maternity wards of the larger maternity hospitals in Poland. The placentae will be frozen to -30°C and delivered to Lublin within 24 hours in insulated containers.

13. The distribution plan will be revised as required to ensure deliveries of gamma globulin to local health authorities to be administered to the agreed beneficiaries referred to in paragraph 2 above.

14. The proposed plan has been examined in detail by the WHO regional MCH adviser and a WHO consultant on gamma globulin production, who have reported that subject to proper arrangements for collection of placentae, the conditions are promising for a successful programme.

UNICEF commitments

15. UNICEF would provide the following equipment for the National Gamma Globulin Production Laboratory at Lublin:

	<u>US\$</u>
a) <u>Laboratory equipment, including:</u>	38,000
i) a supercentrifuge and parts	
ii) sheet filter presses, 7	
iii) freezer cabinets, 33	
iv) vacuum pumps, 5	
v) shell freezer for plasma bottles, 3	
vi) Ph-metres, 2	
vii) micro-electrophoresis apparatus, 1	
viii) horizontal decanter, 1	
ix) automatic cooling equipment	
x) a belt saw and mincer for frozen placentae.	
b) <u>Contingency</u>	<u>2,000</u>
Total supplies and equipment	40,000
c) <u>Freight</u>	<u>4,000</u>
Total recommended allocation	<u>44,000</u>

WHO approval and participation

16. WHO has given its technical approval to this programme. The Organization will provide such technical advice as may be mutually agreed upon and two three to six months' fellowships for production and research chemists to be engaged on the project.

Government commitments and matching

17. The cost to the Government for structural work and for the provision of certain basic equipment for the production laboratory would approximate 9,000,000 zlotys, while operating costs are estimated at 2,350,000 zlotys per year. A breakdown of these estimates is shown below:

	<u>Million zlotys</u>
a) <u>Capital costs</u>	
Value of incomplete building	1.5
Completion of building	1.5
Refrigeration equipment	3.0
Steam and other services	1.0
Laboratory and other equipment	2.0
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Total	9.0
b) <u>Recurrent costs (annual)</u>	
Salaries	0.9
Operational costs	1.0
Transport of placentae	0.15
Packing materials	0.3
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Total	2.35

18. The Government's matching of the UNICEF contribution would be equivalent to US\$200,000.