Essential and inessential medicines

The changing role of pharmaceuticals in world health

Adetokunbo O. Lucas, MD
Three Major Developments

1. Global networks of scientists developed effective technologies
2. Product Development Public Private Partnerships
3. Pharmaco-philanthropy
Challenge

Widespread Scepticism

- Finance
- Naïve new team
- Bureaucracy versus Science
World Bank’s View

The second reason relates to the proposed task force and network approach of the Programme. There is a serious question in my mind whether this approach, which contemplates carrying out research and training for all six diseases in a large number of individual centers which vary considerably in their present quality and are widespread geographically, can be expected to provide the critical mass and to create and maintain the momentum necessary to produce optimum and timely results.
McNamara’s Concern

.....the complex scope & nature of the Programme, will inevitably confront the executing agency with a coordinating & managerial task of extraordinary magnitude.
The Bank takes a strong stand

“I would like to be able to inform the Bank’s Board when I recommend that the Bank serve as co-sponsor…… “
TDR’s Leadership
McNamara’s ..... suggestion

“..that the Programme will be placed under the over-all day-to-day executive direction of an individual of international stature with recognized organizational and managerial ability”.

Letter dated 14 April 1977
"- a globally coordinated effort to bring the resources of modern science to bear on the control of ten major tropical diseases"
Tropical Diseases Research

Research & Development: new/improved tools for the control of 10 target diseases.

Capacity Strengthening: for developing countries in which the diseases are endemic

* UNDP/World Bank/WHO Special Programme for Research and Training in Developing Countries
TDR’s Disease Portfolio

- African trypanosomiasis
- Chagas disease
- Leishmaniasis
- Leprosy
- Lymphatic filariasis
- Malaria
- Onchocerciasis
- Schistosomiasis
TDR’s Disease Portfolio

Criteria for selection:

1. Public health significance
2. Existing technologies inadequate
3. Promising biomedical approaches
Integrated Networks
Soil samples picked up from Japanese golf course were found to contain the organism:

*Streptomyces avermitilis*
New Drugs For Onchocerciasis

**Promising Leads**

- Analogues of known drugs
- Comparative Biochemistry
- Other Promising Compounds

**Screening**

- Small Animal Screens: UK, USA, Japan
- Definitive Cattle Screen: Australia

**Clinical Trials**

- Efficacy Safety: Eyes
  - Ghana, UK, Nigeria
Cost-effectiveness of Malaria Research

<table>
<thead>
<tr>
<th>Organization</th>
<th>No. of Papers / $1 Million</th>
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<tbody>
<tr>
<td>WHO/TDR</td>
<td>23</td>
</tr>
<tr>
<td>Wellcome</td>
<td>20</td>
</tr>
<tr>
<td>MRC - UK</td>
<td>16</td>
</tr>
<tr>
<td>NIH</td>
<td>12</td>
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<tr>
<td>US Army</td>
<td>12</td>
</tr>
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<td>USAID</td>
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No. of Papers / $1 Million
### International Research Institutes: Multilateral

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Risks &amp; Dangers</th>
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<tbody>
<tr>
<td>- Top class research</td>
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<td>- Modern laboratories</td>
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<td>- International scientists</td>
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<td>- Expensive to establish &amp; maintain</td>
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<td>- Variable performance</td>
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<td>- Less flexible than networks</td>
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#### RECOMMENDATIONS
- Caution in planning new institutes
- Explore more cost-effective options
<table>
<thead>
<tr>
<th><strong>Promise</strong></th>
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<tbody>
<tr>
<td>“IITA aims to improve the nutritional status and well-being of low income people in the humid and sub-humid ones of sub-Saharan Africa...”</td>
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<tr>
<td><em>Mission statement, 1990</em></td>
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<tr>
<td><strong>Performance</strong></td>
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<tr>
<td>“.....food production per caput in sub-Saharan Africa continues to show a declining trend while food self-sufficiency ratios are low”</td>
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<tr>
<td><em>External Review, 1996</em></td>
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</table>
Product Development
Public Private Partnerships
## New Drugs Registered

- Praziquantel
- Mefloquine
- Ivermectin
- Halofantrine
- Eflornithine
- Liposomal amphotericin B
- Artemether
- Artemether-lumefantrine
- Artemotil (beta-arteether)
- Miltefosine
- Chlorproguanil-dapsone
Scientists from drug companies contribute to TDR

1. Scientists in TDR’s advisory committees.
2. Services to TDR from industry;
3. Joint programmes
   ➢ Screening
   ➢ Clinical trials
LEPROSY
Victims -- on their knees?
PUBLIC/PRIVATE PARTNERS IN SLEEPING SICKNESS

WHO and Hoechst Marion Roussel Inc. sign a License Agreement allowing WHO to arrange for the production of eflornithine - the ‘resurrection drug’ for African trypanosomiasis.
Pharmaco-Philanthropy
On 20 June 1986, Merck Co. Inc.'s ... telexed the Director of TDR, Adetokunbo Lucas

"... Merck is undertaking .... to make needed quantities of the drug available to governments and patients at no cost to them for the treatment of onchocerciasis"
As much as is required ..... 

539+ million treatments approved since 1988 

...for as long as it takes!
Examples of Pharmaco-Philanthropy

- Merck - Ivermectin  (Onchocerciasis, lymphatic filariasis)
- GlaxoSmithKline – lymphatic filariasis
- Pfizer - Trachoma
- Leprosy – Ciba Geigy, Lepetit, Novartis
Guidelines for drug philanthropy

1. **Purpose**: defined public health goal - measurable and significant impact;

2. **Programme**: strategic plan including chemotherapy as a component; and

3. **Partnership**: public-private sector collaboration.
Lessons
**TDR’s Achievements**

**Products**
- 67 disease control tools developed
- 38 tools in use for disease control

**Impact**
- Prospect of eliminating:
  - Leprosy
  - Onchocerciasis
  - Lymphatic filariasis
  - Chagas' disease

**US$ 400 million**
TDR’s Success Formula

- Clearly defined goals
- Global network
- Multi-disciplinary input
- Flexible & innovative strategies
- Objective decision making
- Partnerships including drug industry
- Long-term commitment all stakeholders
A marathon relay race!

Is this the last lap?
## National Centres of Excellence

<table>
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<tr>
<th>Strengths</th>
<th>Risks &amp; Dangers</th>
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<tbody>
<tr>
<td>Sustainable core support from national sources</td>
<td></td>
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<tr>
<td>Capacity strengthening</td>
<td>International functions may dilute main agenda &amp; national priorities</td>
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### RECOMMENDATION ***

Support & strengthen promising national centres to expand international role.