

**An International Network of Field Sites With Continuous Demographic  
Evaluation of Populations and Their Health in Developing Countries**

**INDEPTH**

**Strategic Plan**

**September 2002**

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## **I. Executive Summary**

### **INDEPTH Description**

Each year millions of people around the world die from preventable acute and chronic diseases. A contributing factor to this high burden of treatable disease is the lack of a reliable information base to support the identification, assessment and cost-effective treatment of disease and associated social issues in resource constrained countries. INDEPTH is a network of community-based demographic surveillance sites that combats this dearth of health and social data by harnessing the latent potential that exists in individual surveillance sites positioned around the developing world. INDEPTH utilizes its resources to provide an empirical understanding of health and social issues in resource-constrained countries, and to apply this understanding to alleviate the most severe health and social challenges.

INDEPTH also seeks to improve the efficiency and effectiveness of research initiatives by playing a key coordination function for research sponsors, institutions and international organizations. INDEPTH provides donor organizations with a single point of contact to launch and conduct multi-site initiatives. Through the relationships and infrastructure within the network, INDEPTH can significantly reduce the time and effort required to identify and select the most appropriate sites for studies and coordinate ongoing multi-site initiatives. In addition, the network can utilize its global reach and scientific credibility to maximize the impact of research on policy and practice. INDEPTH further enhances the effectiveness of funding efforts by providing donors with quantitative feedback mechanisms regarding the impact of the programs being sponsored.

INDEPTH is an international network currently consisting of 29 demographic surveillance system (DSS) field sites in 17 countries that collectively monitor 1,800,000 people at a household-level. INDEPTH exists as an independent entity and will contract with individual demographic surveillance system (DSS) sites to execute cross-site studies, multi-site research and other network-level activities. In addition, INDEPTH is strongly committed to strengthening the scientific and technical capacity at the site-level.

INDEPTH member sites are currently located in Africa and Asia with the majority of sites located in sub-Saharan Africa (SSA). Each site operates in geographically defined populations and conducts longitudinal, demographic monitoring, with timely production of data on all births, deaths, causes of death and migration. This monitoring system provides a platform for the design and evaluation of a wide range of innovations in health care as well as social, economic, behavioral and health interventions and research studies.

### **Situation Assessment**

Despite the existence of affordable and effective interventions, high mortality societies contain a growing population whose health profile reflects surprisingly high rates of treatable acute and chronic illness. A major reason for this health profile is the lack of reliable population-based data in many of the countries. DSS field sites constitute a critical alternative to the dearth of valid population-based data. Lack of coordination, communication and/or standardization between DSS sites, however, can constrain the opportunities and achievements of the DSS sites to a more local level.

Fortunately, the general lack of reliable data has not deterred investor organizations in supporting health and social initiatives in developing countries. In fact, donor funding and interest in health issues in the developing world have been increasing over the past five years. Overall funding levels from foundations in the US and UK have increased dramatically since 1995, and several global funds focused on developing country health issues have been created.

One topic of increasing interest for these donors is health equity. There is currently a lack of data on the extent, causes and remedies for health inequities despite the significant interest that exists in supporting studies focused on this issue.

A second area of perennial interest is malaria. Aggressive goals have been set to reduce malaria infection in Africa and government and donor organizations are looking to meet these goals by scaling up interventions that have been effective at the local level. Governments and external donors will be looking for assistance from organizations with site coordination experience and resources that can support the process of broadening the reach of proven malaria interventions.

A third area of intense interest is HIV/AIDS. This epidemic continues to ravage the developing world, particularly in sub-Saharan Africa and Southeast Asia, and seroprevalence rates are reaching as high as 30-40% among some populations. Beyond even the appalling toll in individual human misery, the epidemic in these areas has now reached levels at which the economic development of entire communities is threatened, with further devastating consequences. The high prevalence of HIV/AIDS, the strong interest from the funding community and the current lack of reliable population-based data create the opportunity to make a significant impact in this area.

As a consequence of evolving health conditions, the burden of chronic disease among people in the developing world is becoming clearer, including the debilitating economic consequences of these conditions. Population migration and urbanization are critical dimensions of these issues. Significant potential exists in coordinating and standardizing individual studies to generate a broader and deeper understanding along these dimensions.

### **INDEPTH Economic Overview**

INDEPTH's network budget is used to support the Secretariat and maintain a high level of collaboration within the network. The INDEPTH budget is approximately \$950k per year with 50% being allocated to supporting the Secretariat and its staff, 30% for network working groups, Board meetings and travel and 20% for the Annual General and Scientific Meeting of member sites.

Funding for the creation of INDEPTH has been provided by the Andrew W. Mellon Foundation, Navrongo Health Research Centre, The Population Council, The Rockefeller Foundation, The Wellcome Trust and the World Health Organization. Since its inception, the network has also received critical support from member DSS sites and their respective donors and institutions. Ongoing funding of core activities will be provided through a variety of donors, investors and partnerships. Additional funding for activities will be recovered from individual network studies in accordance with the funding guidelines of each investor organization.

### **Key Strategic Goals**

INDEPTH has identified and prioritized study opportunities for the network. These prioritized studies include:

- INDEPTH monograph series, a compilation of comparative data provided by member sites focused on a specific topic. The first monograph, which provides insight into previously unknown mortality trends, was released in January 2002. Potential topics for future volumes include health equity, cause-specific mortality, model life tables for Africa and Asia, fertility, migration and urbanization.
- Health equity study to determine the relationship between inequity in health interventions, specific socioeconomic factors and health outcomes.
- Assessment of various malaria interventions being used in multiple countries and assistance in scaling up the most effective interventions.
- HIV/AIDS study to establish prevalence rates, support related behavior studies, transmission assessments and test interventions.
- Adult health study assessing the impact of disease, chronic illness, accidents, injuries, lifestyles and culture on the productivity of adults and the consequences for other family members including children and the aged.
- Pursuit of opportunities for INDEPTH to provide a clinical trial platform for trials that require participation from multiple member sites to test vaccines and drugs in poverty-related diseases – HIV/TB/Malaria.
- Migration and urbanization study that utilizes standardized population-based migration data to inform a comprehensive analysis and accompanying research into population migration within and across countries and continents.

To successfully realize the vision and goals of the network and execute network studies, INDEPTH will pursue five major capacity building strategies:

- 1) Implement INDEPTH Leadership Fellowship Program to support cross-site collaboration and transfer of knowledge and expertise.
- 2) Maximize connectivity among member sites to enable timely and reliable transfer of data, best practice sharing, expertise sharing and overall collaboration.
- 3) Standardize best-practice methodologies to ensure the consistency and quality of network data.
- 4) Enhance the skill sets of INDEPTH and network member staff through on-site training courses, fellowships and collaboration with INDEPTH partners.
- 5) Provide assistance to sites in interpreting and packaging data to maximize policy and programmatic influence.

### **Project Timeline**

The project opportunities identified will leverage existing INDEPTH and member site capabilities and resources. While INDEPTH plans to obtain some additional network resources, the implementation of future studies must be planned in a coordinated and staged manner that avoids overloading network or site resources at any given time. The first studies / cross-site activities to be implemented include the INDEPTH monograph series and multi-site research into health equity. The start dates of further studies will be staggered over the next 24 months.

### **Partnerships**

Maintaining and establishing partnerships will be essential to realizing INDEPTH's vision and mission. INDEPTH's current partner is the African Census Analysis Project (ACAP), and potential opportunities include the European Malaria Vaccine Initiative (EMVI), the European and Developing Countries Clinical Trials Platform (EDCTP) and International Clinical Epidemiology Network (INCLIN). Each of these partnerships will provide resource

support and expertise that will be needed for the new opportunities identified for demographic surveillance in developing countries.

## **II. Vision, Mission and Key Objectives**

### **Vision**

To harness the collective potential of the world's community-based longitudinal demographic surveillance initiatives in resource constrained countries to provide a better, empirical understanding of health and social issues, and to apply this understanding to alleviate the most severe health and social challenges.

### **Mission**

1. To initiate and facilitate cross-site, longitudinal health and social studies and impact assessments in severely resource constrained populations.
2. To disseminate study findings with all external stakeholders to maximize impact on policy and practice.
3. To foster and support capacity building and cross-site collaborations among INDEPTH member sites.
4. To facilitate the process for donors to fund multi-site health and social research projects in the developing world and especially Africa and Asia.

### **Key Objectives of INDEPTH**

- 1: Cultivate cross-site activity through the:
  - Execution of comparative studies and exchange of experiences on critical common problems.
  - Creation and sharing of regional health status assessments relevant to global priority setting.
  - Coordinated multi-site research collaborations that evaluate interventions in diverse socio-culture and geographic environments.
  - Recruitment and/or creation of additional sites; particularly sites that provide INDEPTH with presence in current geographic gaps.
- 2: Broaden the scope of health research by confronting the emerging agenda of non-communicable disease and aging, violence and injury, migration and urbanization and the problems associated with vulnerable population segments.
- 3: Continually improve the methods and technologies used by member sites to ensure all participating groups have access to the most valid and appropriate methodologies available.
- 4: Generate visibility and recognition for INDEPTH and member sites among critical constituencies including academic, government and international agencies and donors.

### **III. Situation Assessment**

**Significant opportunity exists to positively impact the health of populations at greatest risk by harnessing the capabilities of individual Demographic Surveillance System (DSS) sites to better assess, investigate and monitor health and social status and interventions.**

Despite the existence of affordable and effective interventions, high mortality societies contain a growing population whose health profile reflects surprisingly high rates of treatable acute and chronic diseases. A factor contributing to this high burden of treatable disease is the lack of a reliable information base to support health development. Without the guidance of valid population-based health data, health policies and interventions of greatest impact are rarely identified and implemented to improve the health of those at greatest risk. Lack of adequate data also severely limits the capacity to assess the ultimate health benefit of interventions that have been implemented, and ensure resources are being allocated in an optimal manner.

Despite the overall lack of reliable information, a limited number of field stations based on DSS have a proven track record in providing high quality population-based information in their defined geography. These local DSSs generate data that positively impacts the health of their community by informing health priority setting, policy and practice, and the allocation of resources. These sites are also a critical resource to support highly focused, intervention-oriented, research efforts.

DSS sites constitute a critical yet weakly harnessed alternative to the dearth of valid, population-based information in much of the developing world. DSS sites have had a positive impact at both the local level and internationally, but broader research and information generation efforts in data-poor countries are constrained by limited coordination, communication and standardization. The tremendous potential that exists through the coordination and collaboration between multiple DSS sites in multiple countries has yet to be realized.

**Donor funding and interest in health issues in the developing world is increasing.**

The past five years has seen an overall increase in funding for health issues. Between 1995 and 2000 foundations significantly increased overall health funding. In addition, a number of global funds focused on developing country health issues have recently been established. These include funds established by the Global Funds for AIDS, Global Alliance for Tuberculosis (GATB), Medicines for Malaria Venture (MMV) and Global Alliance for Vaccines and Immunizations (GAVI). Together these funds are expected to donate over \$10B to health issues around the world.

Interviews with foundations and research institutions have revealed an increasing emphasis on addressing health issues within developing countries. For example, the Ford Foundation is now directing additional resources toward developing countries and away from Western researchers. In addition, the U.S. Center for Disease Control has indicated that it is increasing collaboration with organizations to improve surveillance efforts in developing countries. USAID is also looking to improve its surveillance network by working more closely with local organizations.

**Global opinion has begun to shift toward an increased concern for the reduction of health inequities.**

Efforts to improve health in developing countries are often limited by the inequity in access to health and related services among various population groups. Equal access depends upon the availability of services and the presence of organizations with the financial and resource capacity to help those in need. Unfortunately, as previously mentioned, these resources are often not available to those in most need.

There is currently a lack of data focusing on the distribution of health conditions and health service utilization among different population sub-groups. In addition, few studies have sought to address the question of how inequalities are initially created and what factors cause these inequalities to persist and even expand over time.

Many organizations have created programs to focus on issues of health equity. For example, The World Bank Group is sponsoring multi-country study programs on equity, poverty and health. These studies seek to understand how health inequalities vary across countries and what factors account for intra-country inequities. In addition, the studies seek to identify poor/non-poor differences in access to health care, utilization of different types of services relative to medical need, and the benefits received from public health care subsidies.

**Malaria continues to be a leading cause of death in many countries despite the existence of cost-effective interventions.**

Significant interest remains focused on reducing the burden of malaria within Africa. Government and external donors continue to direct significant resources towards this effort and this level of support is expected to grow over the next 5 years.

In the 2000 Abuja Declaration, the WHO and Roll Back Malaria Initiative (RBM) established the goal to reduce malaria in Africa by 50% by 2005. This is an aggressive goal that will require substantial local support in the deployment of interventions and the measurement of their impact. Government and donor organizations will likely leverage interventions that have already been proven effective in combating malaria at a local level. Efforts are increasing to utilize DSS sites to scale-up these successful local interventions within and across countries. An example of a successful intervention is the Insecticide Treated Net (ITN) project conducted within specific areas of Tanzania in which mosquito nets are distributed to households and their utilization is supported by a social marketing campaign. The Tanzanian Ministry of Health is looking to replicate the ITN project in other parts of Tanzania and there is significant potential to expand the ITN project to additional countries.

Scaling up interventions within countries and across countries will require the coordination of activities across multiple DSS sites and health facilities. Governments and external donors will be looking for coordination experience, research capability, a strong track record and resources to support the process of broadening the reach of proven interventions.

**HIV / AIDS epidemic continues to grow in Africa and Southeast Asia**

The HIV/AIDS epidemic continues to ravage the developing world, particularly in sub-Saharan Africa and Southeast Asia. Seroprevalence rates are reaching as high as 30-40% among some populations and HIV/AIDS is now the leading cause of death in sub-Saharan Africa. HIV/AIDS has a tremendous impact on the livelihoods of people in sub-Saharan Africa and Southeast Asia. The availability of labor for agriculture and a great number of

activities for sustaining well-being are negatively affected by the disease. Households, communities, enterprises, and both governmental and non-governmental organizations must grapple with the burden of prolonged illness, death and bereavement caused by HIV/AIDS. Indisputably, the HIV/AIDS epidemic has worsened poverty levels in already impoverished nations. Beyond even the appalling toll in individual human misery, the epidemic in these areas has now reached levels at which the economic development of entire communities is threatened, with further devastating consequences.

The lack of representative AIDS data about Africa and Asia severely limits the ability of the national governments and district authorities to assess the impact of AIDS and implement appropriate initiatives to combat the disease. INDEPTH has the potential to provide the representative population based data that is currently lacking.

NGOs and other external donors have shown a strong willingness to support initiatives within Africa that are geared towards reducing the burden of HIV/AIDS in the continent. Up until this point, however, much more emphasis has been placed on the execution of the various interventions and little attention or resources have been placed on the evaluation of the effectiveness of these interventions. Additional education on the evaluation capabilities of the DSS and the utility of evaluation information will be required to stimulate donor interest in this area.

### **Demand for clinical and community trial sites is increasing.**

There is growing demand among pharmaceutical companies, public-private partnerships and non-profits for clinical trial sites for their emerging drugs, technologies and products. Many of these new products target diseases that have significantly contributed to the burden of disease in Africa and Asia (e.g. HIV/AIDS) and an increasing number of these trials are being situated in the developing world. This shift is reflected in the percentage of non-U.S. investigators, which increased from 13% to 28% between 1995 and 2000. While a majority of these trials are conducted in more developed nations, considerable money is spent on clinical trials in developing nations. A single clinical trial costs approximately \$21M to execute.

Important selection criteria for clinical trial sites include the site's diagnostic capability, ability to administer interventions and monitor treatment results, clinical research experience, community and health service acceptance and familiarity with and ability to implement ethical review standards. Based on these criteria, a subset of DSS sites in developing countries provide an ideal platform for clinical trials.

### **Significant potential exists in coordinating and standardizing individual migration studies.**

As a consequence of evolving health conditions, the burden of chronic disease among people in the developing world is becoming clearer, including the debilitating economic consequences of these conditions. Population migration and urbanization are critical dimensions of ongoing societal transition but our understanding of these forces are insufficient.

Currently, migration studies are primarily conducted at the national-level and provide only crude international migration statistics. In addition, some individual DSS sites are conducting independent local migration studies that look at migration within a defined geography and

seek to explain the cause and effect of these migrations with regard to health and socioeconomic factors. These studies have been valuable in understanding the relationship between migration and health and the information generated by these studies has had impact on policy and health initiatives within the study area.

While valuable at the local level, the specific focus of DSS migration studies and the data definitions used in these studies are not currently standardized. This lack of standardization makes it infeasible to utilize this rich migration data at a broader level. Significant potential exists in coordinating and standardizing individual studies so that the data can be aggregated and used to impact policies and interventions at a multi-country level.

## **IV. Overview of Existing Organization**

### **INDEPTH General Overview**

INDEPTH is an international network currently consisting of 29 demographic surveillance system (DSS) field sites in 17 countries that collectively monitor 1,800,000 people at a household-level. The sites are currently located in Africa and Asia with the majority of sites located in sub-Saharan Africa. Each site operates in geographically defined populations, and conducts continuous, longitudinal, demographic monitoring, with timely production of data on all births, deaths, causes of death, and migration. This monitoring system provides a platform for the design and evaluation of a wide range of health care innovations as well as social, economic, behavioral and health interventions and research studies.

The INDEPTH network was established in 1998 through a series of meetings of DSS site leaders who were seeking to network and coordinate their disparate efforts. INDEPTH was subsequently registered as a not-for-profit, international, non-governmental organization and launched activities in 1999 with modest support from a variety of donors. INDEPTH is currently served by an active Secretariat in Accra, Ghana, obtained registration as an international NGO in the USA and Ghana.

The first major network product is Volume 1 of the INDEPTH monograph series entitled *Population and Health in Developing Countries*, a comparative study of recent trends in mortality in Africa and Asia. Titled *Population, Health, and Survival at INDEPTH Sites*, Volume 1 presents age-specific mortality data for INDEPTH field sites and contributes new knowledge on African and Asian mortality patterns in an era of HIV/AIDS. Within the monograph, each participating DSS site has contributed a chapter in which it describes itself and the data it is contributing. In addition to the site profile chapters, the monograph includes chapters that describe the basic methodology employed by all of the field sites and two chapters that compare and summarize the mortality data across all sites, using an empirically derived INDEPTH standard population.

INDEPTH has supported member sites through annual general and scientific meetings, multiple workshops and training courses, and ongoing technical support and troubleshooting in DSS computing and data management. INDEPTH has also established several internal Working Groups including: Technical Support to Field Sites; Analytical Methods and Capacity Strengthening; Malaria; Reproductive Health; Health Equity; Adult Health, Chronic Disease and Aging; Cause Specific Mortality; and Applications of Research to Policy and Practice.

### **Organizational Structure and Governance**

#### ***Organization***

INDEPTH exists as an independent entity, with dedicated resources supported by the Secretariat staff. INDEPTH contracts on an arm's length basis with individual sites to execute multi-site research other network-level activities. INDEPTH funds its activities via direct support from donor organizations.

#### ***Secretariat***

INDEPTH is led by a permanent executive body ("the Secretariat"), which is headed by a full-time Executive Director appointed by and accountable to the Board of Trustees. Additional network support capabilities are to be provided by the Secretariat through a Communications and External Relations Manager, IT Manager, Finance Manager and Administrative Assistant(s). The Communications and External Relations Manager is responsible for

identifying knowledge marketing objectives and implementing strategies to meet those objectives, acting as INDEPTH's senior public relations representative and raising awareness and enhancing the positive image of the INDEPTH network. The IT Manager is responsible for supporting the Secretariat and INDEPTH sites in maintaining an effective flow of information within the network and specific research teams. The Finance Manager is responsible for finalizing and enforcing consistent usage of a transparent, standardized chart of accounts for sites participating in INDEPTH projects. All members of the Secretariat are employees of INDEPTH and receive their full compensation from INDEPTH.

The principal overall responsibilities of the Secretariat are to:

- Identify key health and social issues and questions that need to be investigated
- Maintain donor relations and generate funding for network-level studies and evaluations
- Efficiently coordinate and support the conduct of network studies and evaluations
- Publish and disseminate results to impact health and social policy and practice
- Promote DSS and its capabilities
- Position INDEPTH among regional and international institutions

In identifying key issues and raising funds for network studies, the Secretariat maintains ongoing dialogues with sites and with key donors and other stakeholders. In developing specific proposals the Secretariat will work closely with interested sites to build a Working Group and nominate the Principal Investigator.

### ***Board of Trustees***

A Board of Trustees provides oversight for the activities of the Secretariat. A Chair, elected from among the 6 site members, leads the Board of Trustees. The Board consists of 9 total members: 6 Elected Members representing the sites and selected by them; 2 Appointed Members selected by the Elected Members to reflect donor perspectives, and 1 unaffiliated member, also selected by the Elected Members. The Board of Trustees is scheduled to meet on a semi-annual basis.

The Board of Trustees' primary role is to provide oversight and accountability for the activities of the Secretariat and network as a whole. In addition, the Board of Trustees is responsible for appointing the Executive Director.

### ***Scientific Advisory Committee***

A permanent Scientific Advisory Committee (SAC) assists in maintaining the focus of INDEPTH on health, population and social issues and areas of greatest potential impact; encourages linkages between INDEPTH and related agencies, research bodies and networks; and helps maintain the highest scientific standard for INDEPTH studies. In addition, the SAC facilitates ongoing communication between INDEPTH and donors and key scientific stakeholders. The SAC consists of 15 members selected on their personal merits and representing diverse constituencies including NGOs, academic institutions pharmaceutical and clinical research organizations, etc. Members of the SAC will receive a limited honorarium from INDEPTH.

The SAC is scheduled to meet twice per year. The main activities of these meetings include:

- A review of the current portfolio of INDEPTH network-level studies and impact assessments for scientific rigor and policy impact.
- Suggestions for additional avenues for research or other network activity.

- Identification of new sources of funding opportunities to support these additional avenues.
- Consideration of ethical issues related to the scientific programme and making recommendations to the INDEPTH Ethical Committee;
- Evaluation of the opportunities, strengths and weaknesses of the scientific activities of the Network;
- Support INDEPTH Working Groups through technical input or review of their scientific programmes; and
- Review procedure developed by INDEPTH on sharing of data

Members of the SAC may be compensated for additional tasks performed in accordance with local regulations and donor guidelines.

The Secretariat will develop Terms of Reference for the SAC.

### ***Working Groups***

INDEPTH actively utilizes Working Groups dedicated to key issues of interest to INDEPTH. Current Working Groups include Health Equity, Malaria, Cause Specific Mortality, Life Tables for Africa and Asia, and Network IT Development. The Working Groups act as generators and incubators for multi-site research and development projects. Working Group members may include scientists from INDEPTH sites, Secretariat staff, and members of the Board of Trustees and/or Scientific Advisory Committee. Site participants are not compensated by INDEPTH for their contributions to a Working Group. The Working Groups ultimately report to the Executive Director of INDEPTH. Each Working Group is led by a leader who is responsible for reporting on Working Group progress and is also accountable to Working Group participants and participating sites. The Secretariat will consider ways and means of making working groups work effectively.

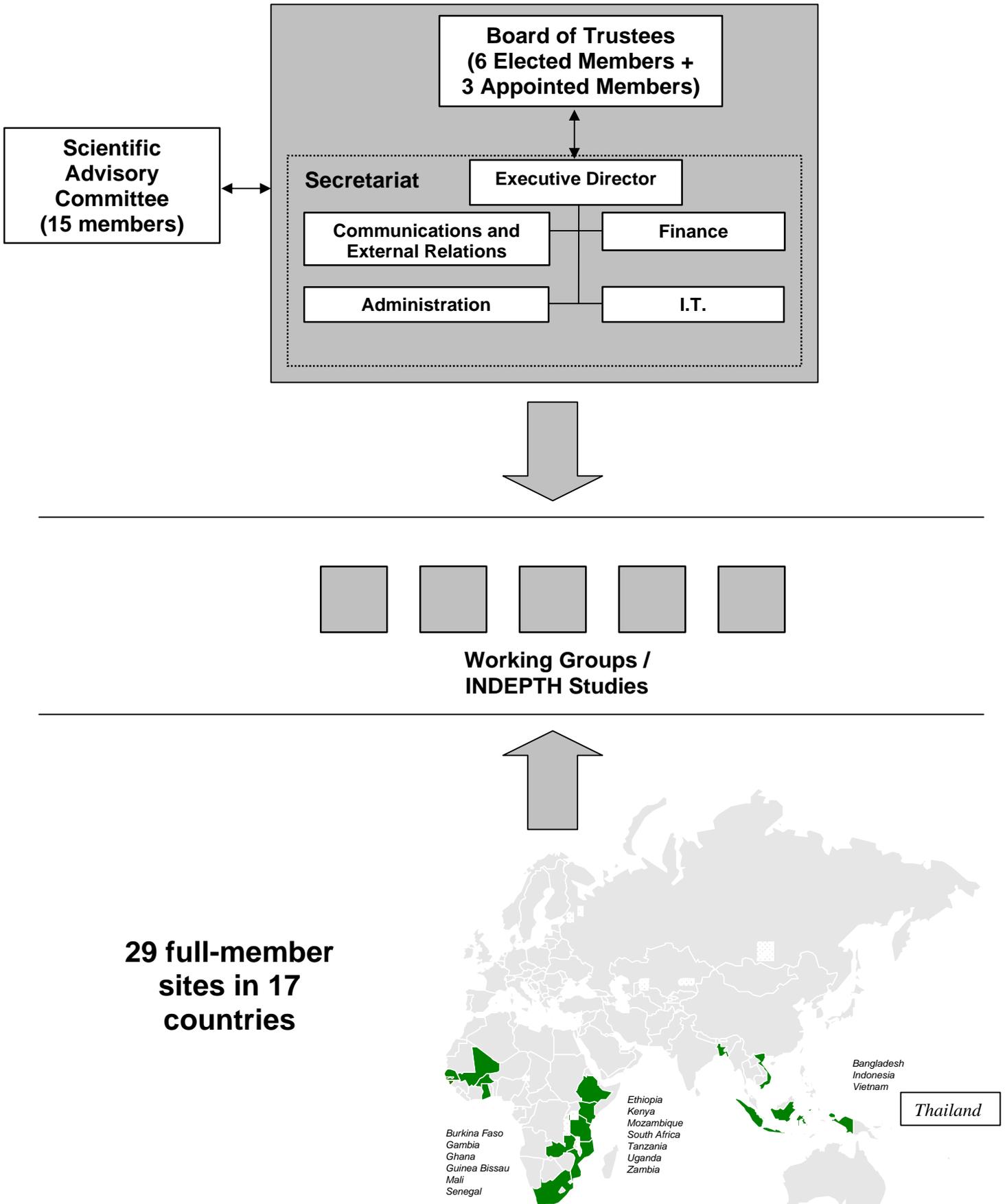
### ***Principal Investigator***

Each network study will be led by a Principal Investigator (PI) who is selected from among the researchers participating in the study. The participating researchers and relevant donors will nominate the PI, who must then be approved by the Executive Director and ratified by the Board. The PI is responsible for the execution of the study including design, data collection, analysis and reporting. The PI reports to the Executive Director and the Communications and External Relations Manager. The PI is compensated by INDEPTH for work done in support of funded network studies. A similar approach may be used with regard to capacity building efforts.

### ***INDEPTH Annual General and Scientific Meeting***

INDEPTH actively utilizes its Annual General and Scientific Meetings (AGMs) as forums for discussing organizational matters of the Network, election of officials, reviewing reports by the Board and the Executive Director, and reviewing progress of the Secretariat. The AGM is the General Assembly of the Network that takes final decisions on issues tabled by the Board and/or the Executive Director. It generates the scientific agenda through its Working Groups and reviews progress of joint work undertaken. In addition, INDEPTH utilizes its Annual General Meetings as Scientific Forums for members to share their experiences in demographic surveillance in the form of presentations of scientific papers. Posters are also presented at the AGM especially by young scientists who are sponsored by the Network.

**Figure 1: INDEPTH Organization**



## **V. INDEPTH Value Proposition**

INDEPTH is committed to harnessing the potential of the world's demographic surveillance initiatives through their global network of sites. This network generates significant value for both the member sites and external stakeholders who both stand to benefit from the knowledge and resources of the network. By coordinating the activities of individual demographic surveillance initiatives and facilitating ongoing collaboration within the network, INDEPTH can generate new knowledge and insights for critical health and social challenges. Through the existing network relationships and infrastructure, INDEPTH can greatly enhance the efficiency and effectiveness of multi-site research initiatives. The combined influence and credibility of INDEPTH and member sites enable the network to have significant influence on key decision and policy makers. INDEPTH will use this influence to ensure knowledge is disseminated and is translated into improved policy and practice.

### **Enhance Site Capabilities and Local Knowledge Dissemination**

INDEPTH will provide value to member sites through increased access to multi-site research opportunities, network collaboration and best-practices. INDEPTH is committed to helping sites expand their intellectual capital, scope of research and research infrastructure through network studies and ongoing network activities. Improved site capabilities can be used to generate more robust data and knowledge on the key health and social issue of the DSS coverage area. This information can better inform policy and planning by local and national governments, which can in turn benefit the communities and households the DSS sites are seeking to aid.

### **New Knowledge and Insights from Multi-Site Studies**

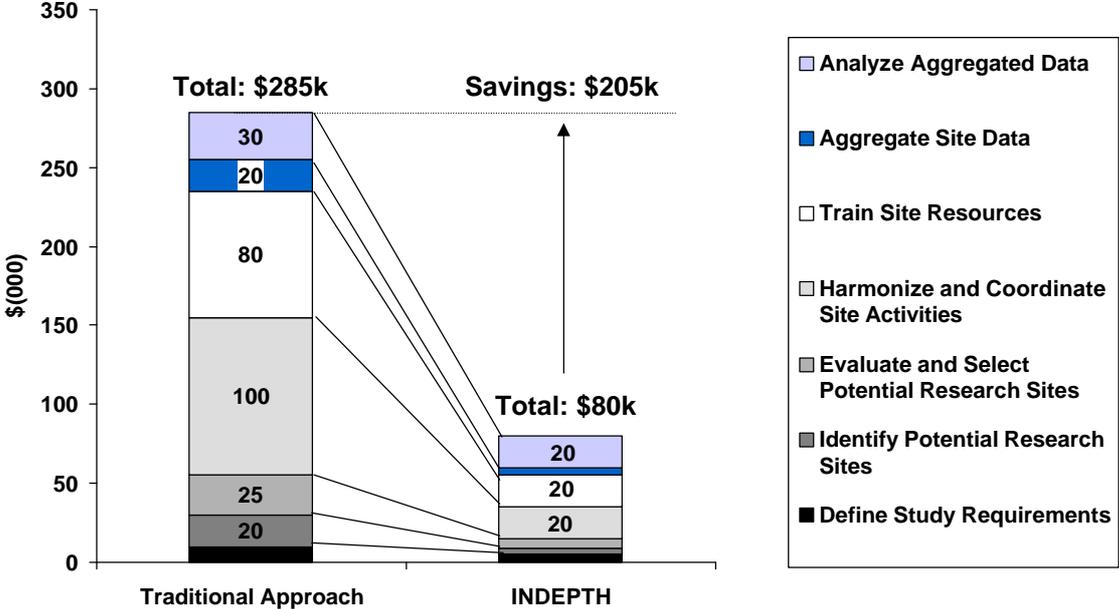
INDEPTH studies have the advantage of incorporating longitudinal data from multiple sites that are located across different countries, regions and continents. INDEPTH has the unique ability to undertake studies across a broad geography while maintaining the rich longitudinal data that exist at an individual site level. This capability enables new insights to be drawn from studies that have traditionally been limited to a targeted geographic region. This capability also enables a new category of multi-site studies to be designed and executed that can generate new knowledge and insights that have previously been unavailable or infeasible. Volume 1 of the INDEPTH monograph series provides an initial example of the new knowledge that can be generated by the network of INDEPTH sites. This monograph and future INDEPTH projects will provide new insights in their own findings and will stimulate new studies and insights from other researcher organizations who have access to the output from INDEPTH.

### **Improved Effectiveness and Efficiency of Research Efforts**

In addition to offering new insights through longitudinal, multi-site studies, INDEPTH also improves the efficiency of these studies by coordinating site activities through the relationships and infrastructure that exist within the network. By creating an integrated network of sites, INDEPTH offers project sponsors with a single, "one-stop" solution for studies that require the identification, selection and coordination of multiple sites. Traditionally, the study sponsor has been required to identify, evaluate, select and coordinate site activities in support of individual studies. This process consumes both time and resources that would be better allocated to executing the actual study. INDEPTH is now able to facilitate the launch and ongoing coordination of multi-site projects using the INDEPTH network infrastructure. This capability enables site selection and coordination to be

completed in a much shorter timeframe and with significantly less expense to the sponsor (see Figure 2). The INDEPTH infrastructure also increases the effectiveness of this process and ensures that participating sites meet study requirements and will yield optimal results.

**Figure 2 – Multi-Site Project Cost Comparison**



Note: Savings estimate based on INDEPTH health equity project. Cost comparison include only network coordination costs and does not include site-level execution costs

**Impact on Multi-National Policy and Practice**

By utilizing its broad membership base, geographic reach and credibility with the scientific community and governmental bodies, INDEPTH can effectively translate research findings into improved policy and practice. By sharing information across sites and using the combined influence of INDEPTH and its members, INDEPTH can have significant influence within individual governments and among international organizations. This influence will be used to ensure that knowledge generated within the network is disseminated and ultimately used to impact policy and practice for health and social issues.

## VI. INDEPTH Economic Overview

### INDEPTH Network Costs

**NOTE: “Network Costs” do not include project-specific funding allocation.**

INDEPTH network costs refer to the costs required to support the ongoing maintenance and expansion of the INDEPTH network. These costs have been estimated for 2002 through 2004 based on the existing strategic plan. More detailed budget information is available on request.

Budget estimates listed below are for 2003, the first full year in which all Secretariat, Board of Trustee and Scientific Advisory Group personnel are expected to be in place.

The annual network budget is estimated to be 950k. This budget estimate includes:

- *Secretariat Salary and Benefits* – Approximately \$290,000 (33%) of the INDEPTH budget will be allocated to Secretariat salary benefits. The budget includes 7 FTEs including an Executive Director, Communications and External Relations Manager, IT Manager, Finance Manager, and 3 administrative support personnel.
- *Secretariat Travel Expense* – Approximately \$62,000 (7%) of the INDEPTH budget will be used for travel expense for Secretariat staff. This includes travel by the Executive Director and Communications and External Relations Manager for internal and external meetings.
- *Secretariat Office and Equipment* – Approximately \$50,000 (6%) of the INDEPTH budget will be used for Secretariat office and equipment expense.
- *Annual General and Scientific Meeting* – Approximately \$180,000 (20%) per year will be used to hold the INDEPTH Annual General and Scientific Meeting of member sites.
- *INDEPTH Working Groups* – Approximately \$120,000 (14%) of the INDEPTH budget will be used to support working groups that will convene to proactively identify new INDEPTH research opportunities. The budget includes 5 working group meetings per year.
- *Board of Trustees and Scientific Advisory Group* – Approximately \$95,000 (11%) of the INDEPTH budget will be used to support meetings of the Board of Trustees and Scientific Advisory Group. The budget includes four meetings of the Board of Trustees and two meetings of the Scientific Advisory Group per year.
- *Contingency Expense* – A 10% contingency expense has been included in the budget for unforeseen costs.

### Network Funding

INDEPTH’s initial start-up activities and cross-site research initiatives to date have been directly funded by the Andrew Mellon Foundation, Navrongo Health Research Centre, The Population Council, The Rockefeller Foundation, The Wellcome Trust and World Health Organization. INDEPTH also relies on the individuals, DSS sites and associated universities and institutes who have contributed their time, expertise and resources to building the network.

Ongoing funding of INDEPTH will be provided through a donor consortium in which individual contributions will be combined to support efforts to maintain and expand the INDEPTH network and support collaboration and new research initiatives among INDEPTH sites.

### **Project-Specific Funding**

Funding for specific studies that utilize the INDEPTH network will be negotiated on a case-by-case basis. Project funding will be allocated to participating DSS sites consistent with protocols and INDEPTH funding allocation guidelines. Project-specific funding will include cost recovery for core network costs and/or core site costs when appropriate and in accordance with the funding guidelines of each donor organization. Additional allowances for investment in site infrastructure and development of long-term expertise in key areas of work may also be made when appropriate and in accordance with funding guidelines.

### **Network Financial Reporting**

INDEPTH is implementing a standard chart of accounts to provide consistent and transparent financial external reporting for all INDEPTH projects. This chart of account has been reviewed and approved by a 3<sup>rd</sup> party accountant to ensure alignment with legal and reporting requirements. Included in the chart of accounts are all assets, liabilities, revenue and expenses of the network.

All sites participating in an INDEPTH study will be required to use the standardized chart of accounts for financial reporting for site work done in support of network studies. Site participation in the chart of accounts enables consistent and transparent financial reporting at the site-level for INDEPTH projects.

## **VII. INDEPTH Opportunity Assessment**

### **A. INDEPTH Monograph Series**

An important INDEPTH product is the monograph series involving the compilation of comparative data provided by network members. The first volume titled *Population, Health, and Survival at INDEPTH Sites* is a compilation of comparative mortality structure and recent trends in mortality among twenty-two DSS sites. Volume 1 was released in January 2002. Future volumes of the monograph series will include publications dedicated to such topics as: cause specific mortality at INDEPTH sites; model life tables for Africa and Asia; health equity at INDEPTH sites; fertility; reproductive health (including HIV); migration and urbanization, and health equity.

The monograph series will be a key network output that demonstrates INDEPTH's ability to coordinate the activities of individual field sites to create a network-level product that was previously unavailable to governments, donors and research organizations. The monograph series will not only provide valuable visibility and credibility to INDEPTH, but also represents a first step in harnessing the collective power of INDEPTH member sites. The monograph series will provide a new empirical understanding of health and social issues that will help maximize the impact of research on policies and programs in developing countries.

### **B. INDEPTH Study Opportunities**

Several potential network-level opportunities have been identified by member sites, the INDEPTH Secretariat and the Board of Trustees. INDEPTH has prioritized the following studies based on the network vision, mission and key objectives, internal and external stakeholder interest and potential impact on health policy and practice:

- 1) Health Equity
- 2) Malaria Transmission Intensity and Mortality Burden
- 3) HIV/AIDS
- 4) Adult Health
- 5) Clinical Trials
- 6) Migration and Urbanization
- 7) Environment and Health

#### **1. Health Equity**

The objective of the health equity study is to determine the relationship between specific, individual-level and household-level socioeconomic factors and inequality of health outcomes, in order to assist program and policy makers to overcome health status disparities and improve overall health status. Specifically, the study intends to examine how gender, education, occupation, social connectivity and other socio-economic status proxies (e.g. housing and water source) relate to mortality in various population subgroups. This study will involve the efforts of thirteen DSS sites located in various parts of Africa and Asia.

The INDEPTH network is uniquely suited to conduct this multi-country study. In many countries, the DSS sites are the only source of reliable population-based data. In addition, much of the information required for analysis is currently being collected and additional data

requirements can be obtained in a cost-effective manner by utilizing the existing DSS frameworks.

## **2. Malaria Transmission Intensity and Mortality Burden**

For many of the INDEPTH member sites, malaria has long been an area of focus. These sites possess significant experience in malaria research and interventions and are collecting a tremendous amount of population-based data in support of various anti-malaria initiatives. The existing foundation of malaria data and expertise combined with the high level of external interest in funding anti-malaria initiatives of proven effectiveness create strong ongoing potential for multi-country malaria studies conducted by INDEPTH.

INDEPTH has launched the Malaria Transmission Intensity and Mortality Burden Across Africa (MTIMBA) initiative to generate reliable information that will guide malaria control policies in Africa. MTIMBA is creating a continental platform to 1) generate new understanding of the relationship between malaria transmission intensity, mortality and the effect of malaria control 2) collaborate with the Roll Back Malaria Initiative at the regional, national and global levels for monitoring and evaluation and 3) further develop and strengthen Africa expertise in the field of malaria control, planning and evaluation. The output of the MTIMBA project will include estimates of all-cause and malaria-attributable mortality by age across Africa, documented trends in malaria in INDEPTH sites, establishment of malaria expertise and strengthened methodology in a continental demographic surveillance platform.

## **3. HIV/AIDS**

The magnitude of the HIV/AIDS problem in Africa and Asia drives INDEPTH's interest to identify preventative and curative strategies for this disease. The high prevalence of HIV/AIDS, the strong interest from the funding community and the current lack of reliable population-based surveillance data create the opportunity to make a significant impact in this area. In addition to establishing baseline prevalence and incidence, the existing DSS framework can be used to support related behavior studies, transmission assessments and HIV/AIDS intervention impact assessments.

INDEPTH will initially focus the HIV/AIDS study on establishing the baseline prevalence and incidence of HIV/AIDS within the network. In addition to establishing baseline prevalence, INDEPTH also plans to link an individual's HIV status to the additional core demographic data that is collected from each household. This data linkage will allow a much broader spectrum of analysis to be performed with respect to AIDS. Potential analyses include behavior studies, transmission assessments and AIDS intervention impact assessments

INDEPTH also plans to provide intervention implementation support to donors in the fight against HIV/AIDS. INDEPTH sites are ideally suited to distribute interventions to health facilities in the district and provide necessary intervention training to health facility staff. INDEPTH sites can also effectively assess the impact of the intervention using the existing DSS frameworks. This intervention support is expected to be provided in parallel to HIV/AIDS prevalence studies.

## **4. Adult Health**

The adult health study will examine the changing profile of mortality amongst adults. This study will assess the impact of disease, chronic illness, accidents, injuries, lifestyles and

culture on the productivity of adults and the consequences for other family members including children and the aged.

The INDEPTH network will generate previously unavailable data and analysis that will enable a greater understanding of adult health issues. DSS sites provide the only source of reliable population-based health and social data that is required for this study. Much of the information required for analysis is currently being collected by member sites and additional data requirements can be obtained in a cost-effective manner by utilizing the existing DSS frameworks. This study will also enable INDEPTH to expand the scope of its studies beyond health issues in a manner that remains consistent with the vision and goals of the network.

## **5. Clinical Trials**

A subset of INDEPTH member sites has previous experience relevant to conducting clinical trials. There is significant potential for INDEPTH to leverage this experience and existing site capabilities to secure clinical trials that require the participation of multiple INDEPTH sites. INDEPTH can offer a unique and superior platform for hosting clinical trials by identifying those sites that best meet the criteria required by a trial and coordinating the individual efforts of these sites to produce a fully integrated study. Hosting only a single clinical trial will provide significant resources to the network and have a positive impact on the network's capabilities and credibility.

INDEPTH will initially focus the clinical trial project on identifying opportunities among neglected disease initiatives supported by pharmaceutical studies such as the Global Alliance for TB Drug Development, International AIDS Vaccine Initiative and Microbicide trials.

The Secretariat seeks to establish a clinical trials capability within the Network. It will take advantage of the European Developing Countries Clinical Trials Platform (EDCTP) and will work closely with it to incorporate ideas from the platform. The Secretariat is working on an audit of INDEPTH sites to determine which sites are willing and which are capable to participate. There is need to commit resources to sites to help them develop good clinical, laboratory and ethical practices.

## **6. Migration & Urbanization**

The migration & urbanization study will conduct a comprehensive analysis of population migration and urbanization trends across multiple countries and continents. Currently, migration studies are typically conducted at the national level and measure only the inflow and outflow of people from the country. In addition, some sites are conducting independent local migration studies that look at migration within a defined geography and seek to explain the cause and effect of these migrations with regard to health and socioeconomic factors. The focus of these studies and data definitions are not currently standardized. INDEPTH will coordinate and standardize existing site-level data to enable the comparison of data and finding across multiple sites and countries. The specific focus of this project is expected to be finalized during the first half of 2002. Submission of full-scale research proposals will follow soon thereafter and be timed to conform to the expectation of prospective donors.

## **7. Environment and Health**

INDEPTH member sites have the capabilities to monitor the health consequences of environmental change. DSS data can be linked to geographic and meteorological data using remote sensing (RS) and geographical information system (GIS). This will enable much

deeper and/or novel insights into parameters that influence the spread of diseases. The meteorological data complement the DSS data with the introduction of the spatiotemporal fluctuations of temperature, humidity, precipitation, evapotranspiration and wind. Hence, the different data sets can be used for geostatistical modelling, mapping, geographical and epidemiological analyses. The important issue of how local communities adapt to global changes could be addressed.

## **VII. INDEPTH Opportunity Assessment (*continued*)**

### **B. INDEPTH Network Capacity Building**

To successfully realize the vision and goals of INDEPTH and successfully execute INDEPTH studies, the network will pursue five major capacity-building strategies: 1) Maximize connectivity among network members; 2) Strengthen and, where appropriate, standardize research methodologies among network members; 3) Enhance the skill sets of network and network member staff; 4) Provide assistance to sites in interpreting and packaging their data to enhance policy and programmatic influence; and 5) Recruit additional sites to broaden the reach of the network.

Network capacity building projects will be funded both directly and indirectly. Direct funding will initially be pursued through foundations and philanthropic programs that provide capacity building assistance. Examples of these programs that will be targeted for support include the Bristol-Myers Squibb “Secure the Future” program and the AIDS Medical Training Center in Uganda. Indirect funding will be sought through INDEPTH studies as far as possible and in accordance with the funding guidelines provided by each donor.

#### **INDEPTH Leadership (or Mentorship) Fellows Program**

The INDEPTH Leadership (or Mentorship) Fellows Program will provide a few leading site researchers with the opportunity to complete a rotation through a subset of INDEPTH sites to enable cross-site learning in a priority research topic (e.g., health equity). Each Leadership Fellow will be responsible for a defined deliverable in their respective research area which will be shared with participating sites and sponsors of the Fellows Program. This program is intended to develop the individual researcher and facilitate cross-site project development and implementation.

#### **Maximizing connectivity among network members**

In maximizing connectivity among sites the network will continue to develop an IT and telecommunications infrastructure among member sites to enable the timely and reliable transfer of data, best practice sharing, expertise sharing and overall collaboration. This IT and telecommunications infrastructure will be constructed, tested and refined via an infrastructure pilot. Following this initial pilot, the infrastructure will be rolled out to remaining network members and additional functionalities will be added as required by network projects.

#### **Standardization of best-practice methodologies and approaches**

The value of the INDEPTH network relies on the coordination and standardizing of key technical and research activities among individual DSS sites. Task forces within INDEPTH have begun to identify best practices and encourage the import and rollout of standardized methodologies and tools to member sites. For example, the Financial Reporting task force has developed standard financial reporting tools that all sites will use to provide budgeting and expense reporting for network projects. A second initiative is the survey harmonization effort that is working to ensure data fields, data definitions and collection methods are consistent across individual sites. This harmonization will facilitate valid data comparisons across sites and data aggregation among sites. Another initiative includes site adoption of compatible verbal autopsy instruments, as well as refinements to the HRS database used by several sites within the network.

#### **Enhance the skill sets of INDEPTH and network member staff**

In addition to the Leadership or Mentorship Fellows Program, INDEPTH is seeking to further develop the skill sets of INDEPTH and network member staff through a variety of initiatives. First, INDEPTH will provide short on-site training courses for network members. These will cover such subjects as: site-level strategic planning; computer science; data management; analytic techniques and effective site management. Second, INDEPTH will provide sites with cost-effective remote assistance and training through electronic networking and the Internet. Third, INDEPTH will seek to offer several Masters Doctoral Degree fellowships. These fellowships will be used to develop country nationals at field sites. Finally, INDEPTH will foster partnerships between sites and other organizations. INDEPTH will use network resources to develop partnerships for the network as a whole and also identify and cultivate site-level partnerships when appropriate.

### **Provide assistance to sites in interpreting and packaging their data to enhance policy and programmatic influence**

A key goal of INDEPTH is to ensure that the data collected by sites creates maximum impact on policy and health programs. To that end, INDEPTH will support the sites in interpreting and packaging their data for maximum influence. This support will be provided by leveraging INDEPTH resources, site best practices and INDEPTH partners. These resources will provide sites with customized, project-level advice on how best to interpret and communicate information based on the specific context of that site and the study. The network will actively seek and support efforts to bring INDEPTH information and understanding to bear on regional and global health policy.

### **Recruit additional sites to broaden reach of INDEPTH**

Despite having 29 sites located in Africa and Asia, significant geographic gaps exist in the coverage of the INDEPTH network. INDEPTH is actively seeking to recruit new sites that address these gaps and thereby broaden the breadth and depth of the overall network. In addition, the network is supporting the small but growing number of urban DSS initiatives within INDEPTH. In key areas where no DSS currently exists, INDEPTH will also seek to develop the support and funding required for the creation of a new DSS site.

## VIII. Funding Potential

INDEPTH intends to secure funding that limits its annual network costs of approximately \$950k (see Section VI. INDEPTH Economic Overview) to no more than 20% of the INDEPTH network project funding level. This equates to a 2003 project funding goal of approximately \$4.5 million.

The funding opportunity for INDEPTH priority projects is estimated to be \$680M in 2003 (see Figure 3). Based on this assessment, INDEPTH is confident that the \$4.5M project funding goal is achievable in 2003.

**Figure 3: Funding Opportunity**

Study Topic	Total Funding Opportunity
<b>Malaria Initiatives and Interventions <sup>1</sup></b>	<b>\$30M</b>
<b>HIV/AIDS Related Research <sup>2</sup></b>	<b>\$100M</b>
<b>Clinical Trials <sup>3</sup></b>	<b>\$350M</b>
<b>Remaining Projects <sup>4</sup></b>	<b>\$200M</b>
<ul style="list-style-type: none"> <li>• Monographs</li> <li>• Health and Equity</li> <li>• Adult Health</li> <li>• Migration</li> </ul>	
<b>TOTAL</b>	<b>\$680M</b>

1) Source: "Scaling up the Response to Infectious Diseases", WHO 2002

Assumptions: \$600m is WHO estimate of 2001 spend to fight malaria in sub-Saharan Africa. 5% of funding available for evaluation and studies relevant to INDEPTH

2) Source: "Calculating the Cost Of An Effective Global Campaign Against HIV/AIDS," UNAIDS, 2000

Assumptions: \$1.8B is UNAIDS estimate of 2001 spend to fight HIV/AIDS in low-middle income countries. \$1B for care and support and \$.8B for prevention. 5% of funding available for evaluation and studies relevant to INDEPTH.

3) Source: FDA Bioresearch Monitoring Database; BCG calculations

Assumptions: \$3.6B spent on research of parasitic and infectious diseases. Single trial cost estimate is \$21M. 10% of trials conducted in developing countries

4) Source: "World Development Report: Attacking Poverty," World Bank, 2000/2001

Assumptions: \$50-60B spent on health research and development worldwide, with estimated 8% allocated to developing countries. 5% allocated to studies relevant to Monograph, Health and Equity, Adult Health and Migration studied relevant to INDEPTH

## **IX. Operating Plan**

The general process for executing INDEPTH network level studies includes several main activities (see Figure 4):

- Area of opportunity identified
- Solicit site inputs for network study
- Generate network proposal and secure funding
- Determine participating sites
- Define data requirements and develop data model
- Collect and aggregate data
- Analyze data and create network report and other project deliverables

This process provides a general framework for the completion of network studies. A more specific and customized operating plan will be developed for each INDEPTH study based on its specific requirements. More detail is provided at the end of this section for two INDEPTH projects currently in-process: health equity and the INDEPTH monograph series.

### **Area of opportunity identified**

The study opportunity will first be identified by any one of a variety of parties that have a relationship with INDEPTH. The Secretariat, INDEPTH working groups, site leaders and donors all play an active role in identifying opportunities. An actionable opportunity requires sufficient body of interest (generally 3 or more sites wanting to participate). The Secretariat is responsible for the final prioritization of INDEPTH network studies. This is presented to the Board for approval.

### **Solicit site proposals for network study**

Prior to developing the INDEPTH proposal, a call for proposals will be sent by the acting Principal Investigator and/or Executive Director to all INDEPTH sites to obtain recommendations on interest areas and information on site capabilities.

### **Determine participating sites, generate network proposal and secure funding**

A call for proposals will be issued to all sites. The ongoing Principal Investigator for the study will be selected at this stage. Sites participating in the study will be selected by the Principal Investigator and Secretariat based on their proposal submissions and the requirements and budget constraints of the network study.

Funding will be secured using a combination of donor meetings, proactive proposals and RFP responses. Existing relationships within the INDEPTH network and other external partners will be used to identify potential funding sources and facilitate the proposal process. No additional work will begin on this study until sufficient funding has been committed.

### **Define data requirements and develop data model**

Once the key research questions have been finalized, the Principal Investigator will work with participating site leaders/scientists to finalize the research approach, study design, individual data fields etc., required for this study. The Principal Investigator will work with internal INDEPTH resources to develop the data model that will be used in the network study.

### **Collect and Aggregate Data**

Sites will collect the data required for network studies using their existing DSS frameworks when appropriate. Modifications to this framework will be made to assure consistency of data across sites.

Required data from each site will be transferred from the site to the Principal Investigator on a scheduled basis. An electronic transfer will be performed whenever possible. If an electronic transfer is not possible, data will be sent via conventional mail.

Aggregation of study data will be performed by an individual designated by the Principal Investigator. This individual is responsible for ensuring the timely and accurate collection and aggregation of data across participating sites. Individual site data will then be aggregated to enable network-level analysis.

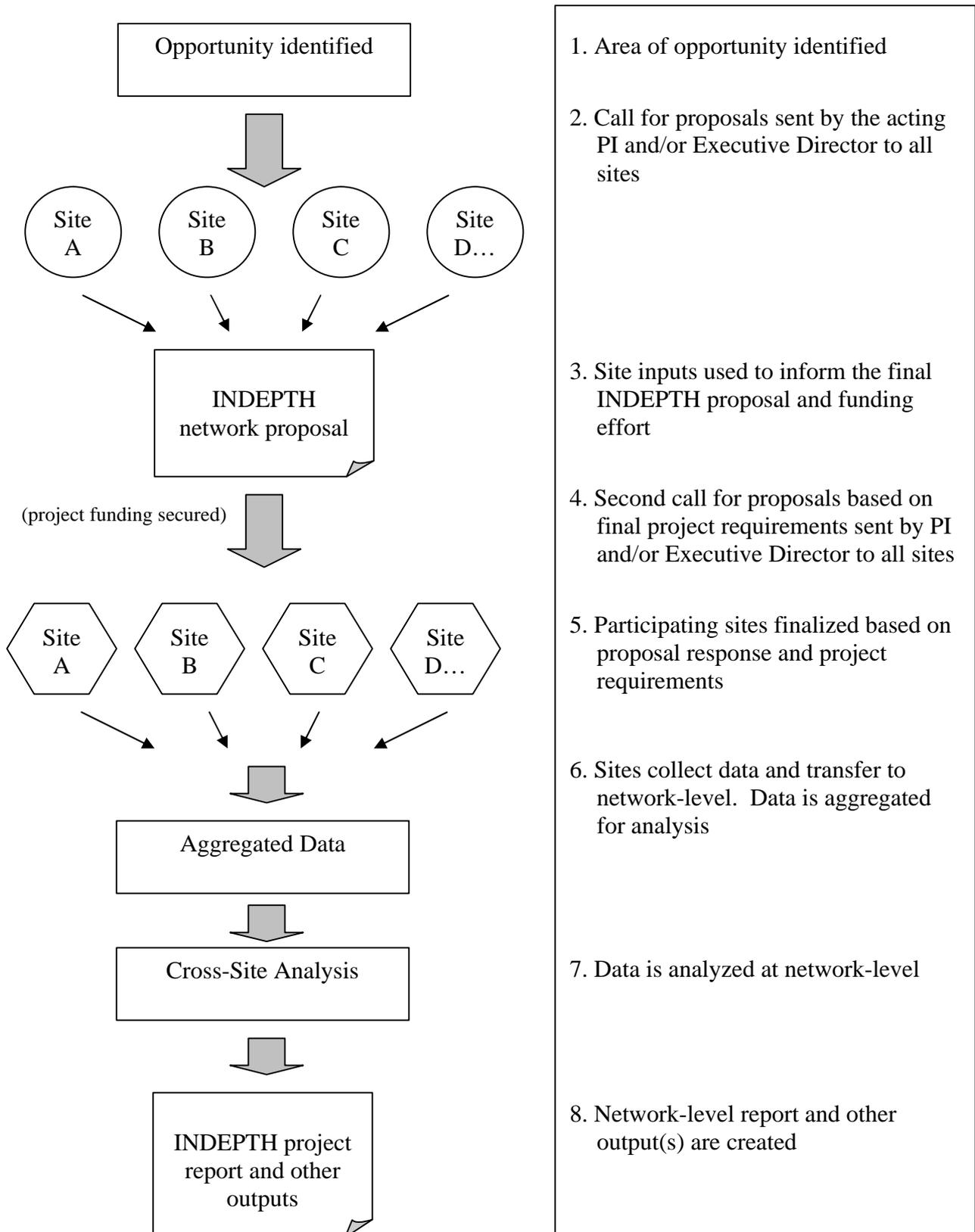
#### **Analyze site data and create network report**

The network-level data will be analyzed by a project researcher. In addition, each site will analyze and report on site-level data. The output from site-level analysis and reports will be shared with the network researcher. The final report will be created using the site-level and network-level analysis.

#### **The role of workshops**

A series of workshops will be necessary for the various activities discussed above in the operating plan.

**Figure 4: INDEPTH Operating Framework**



## **Study-Specific Information**

### **1. Health Equity**

The health equity study will require the completion of 5 main activities:

- Generate proposal and secure funding
- Determine participating sites
- Define data requirements and develop data model
- Collect and analyze data at the site-level
- Analyze site output and create network report

#### **Generate proposal and secure funding**

INDEPTH has secured initial funding to explore how health equity can be monitored within the existing DSS framework and how this predicts health outcomes. Once this effort is completed INDEPTH will proactively seek additional funding from organizations that focus resources on issues related to health equity.

#### **Determine Participating Sites**

There are currently 13 sites that are participating in the initial health equity study. These sites were identified through a call for health equity proposals that was sent to each INDEPTH member site. The sites that submitted proposals by the predefined deadline were given feedback by the INDEPTH Secretariat on their proposal and are now participating in the initial phase of the health equity study.

When the initial phase is complete and additional funding has been secured, a second call for proposals will be issued to all sites. Sites participating in the second phase will be selected by the Principal Investigator and Secretariat based on their proposal submissions and the requirements and budget constraints of the health equity study. Subsequent phases will also use the proposal process to select participating sites.

#### **Define Data Requirements and Develop Data Model**

Once the key research questions have been finalized the Principal Investigator will work with participating site resources to finalize the individual data fields required for this study. In addition to identifying data fields, the Principal Investigator will also define and distribute the data definition for each data field so that all participating sites are collecting standardized and comparable data.

The Principal Investigator will also work with internal INDEPTH resources to develop the data model that will be used in the health equity study.

#### **Collect and Analyze Data at the Site Level**

Sites will collect the data required for the health equity study using their respective existing DSS frameworks. Modifications to this framework will be made to assure consistency of data across sites.

Each site will analyze the data it collects using common methods and data definitions. Once data collection and analysis have been completed, each site will generate a report containing the site's findings.

### **Analyze Site Output and Create Network Report**

The output provided by each site participating in the study will be aggregated and analyzed at the network-level by the project researcher(s). The final INDEPTH report and any additional outputs will be created based on the output from individual sites and the network-level analysis

### **2. INDEPTH Monograph Series**

The INDEPTH Network will publish its monographs. INDEPTH will consider diversity in publications – get different co-publishers for different focuses of its monographs.

Each INDEPTH monograph volume will focus on a specific topic. The first step in creating each volume is to determine the topic of focus for the forthcoming volume. This decision will be made by INDEPTH based on a survey of interests of the INDEPTH network. Once the monograph topic has been identified, a volume editor will be selected. The volume editor will act as a Principal Investigator and ensure that the work on the volume is progressing in a timely and coordinated manor.

The volume editor will work with INDEPTH site leaders to identify specific analysis responsibilities for each participating site. The sites will develop the initial drafts of their respective section which will then be sent to the volume editor for review and feedback. The analysis drafts will also be used to begin the cross-site analyses. An internal researcher will work with the volume editor to complete the cross-site analyses.

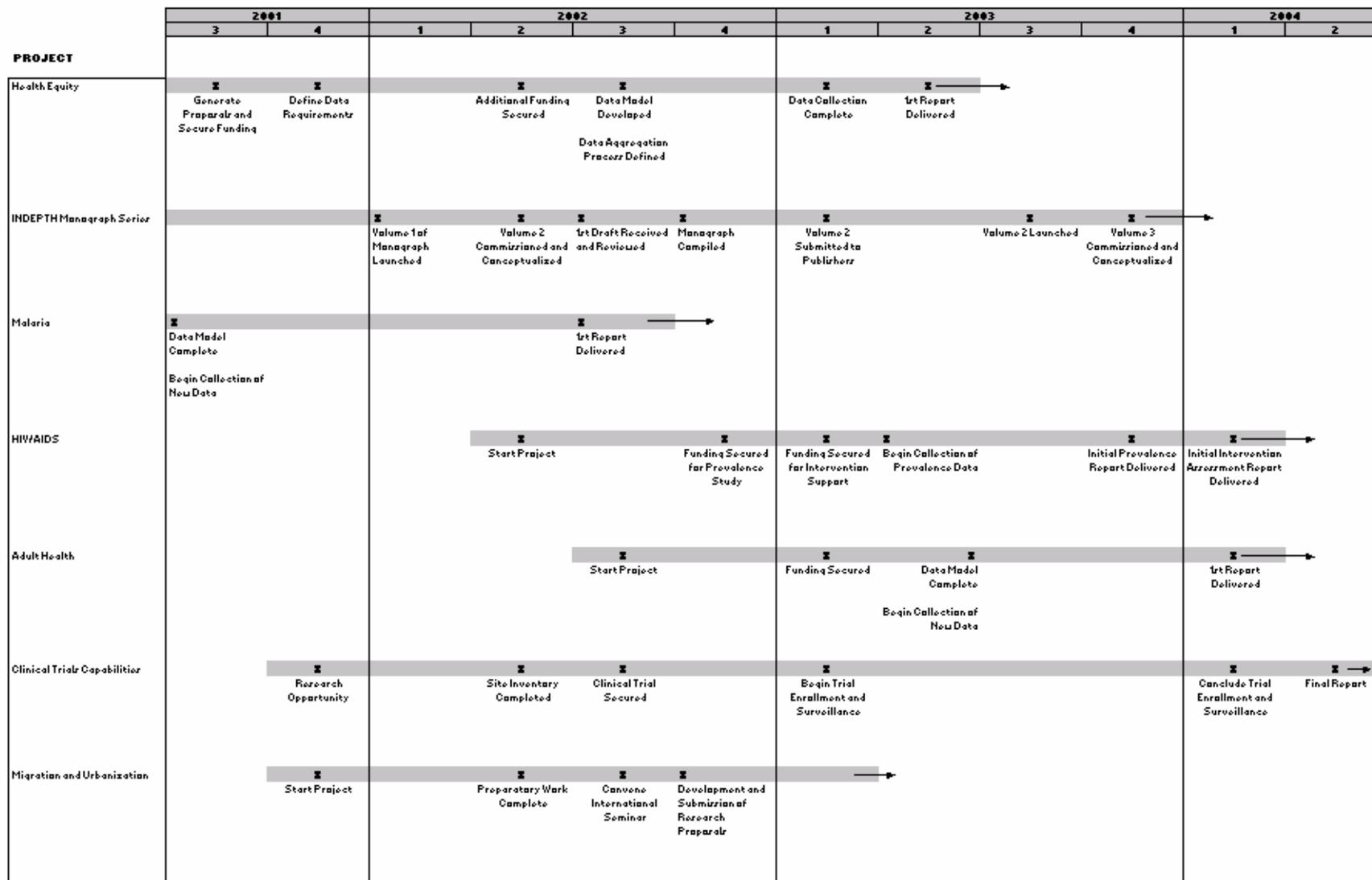
Once sites have completed their second drafts, the monograph will be compiled. Internal and external reviews of the compiled monograph will be completed and final revisions made. Following final revision, the monograph will be submitted to publishers for publication and launch. Upon submission to the publishers, the INDEPTH site interest survey will be distributed so that conceptualization of the next volume can begin.

The launch of the monograph will be supported by a marketing campaign that includes creation and distribution of press kits to key media just prior to release, distribution of free monograph excerpts and order forms to a targeted audience.

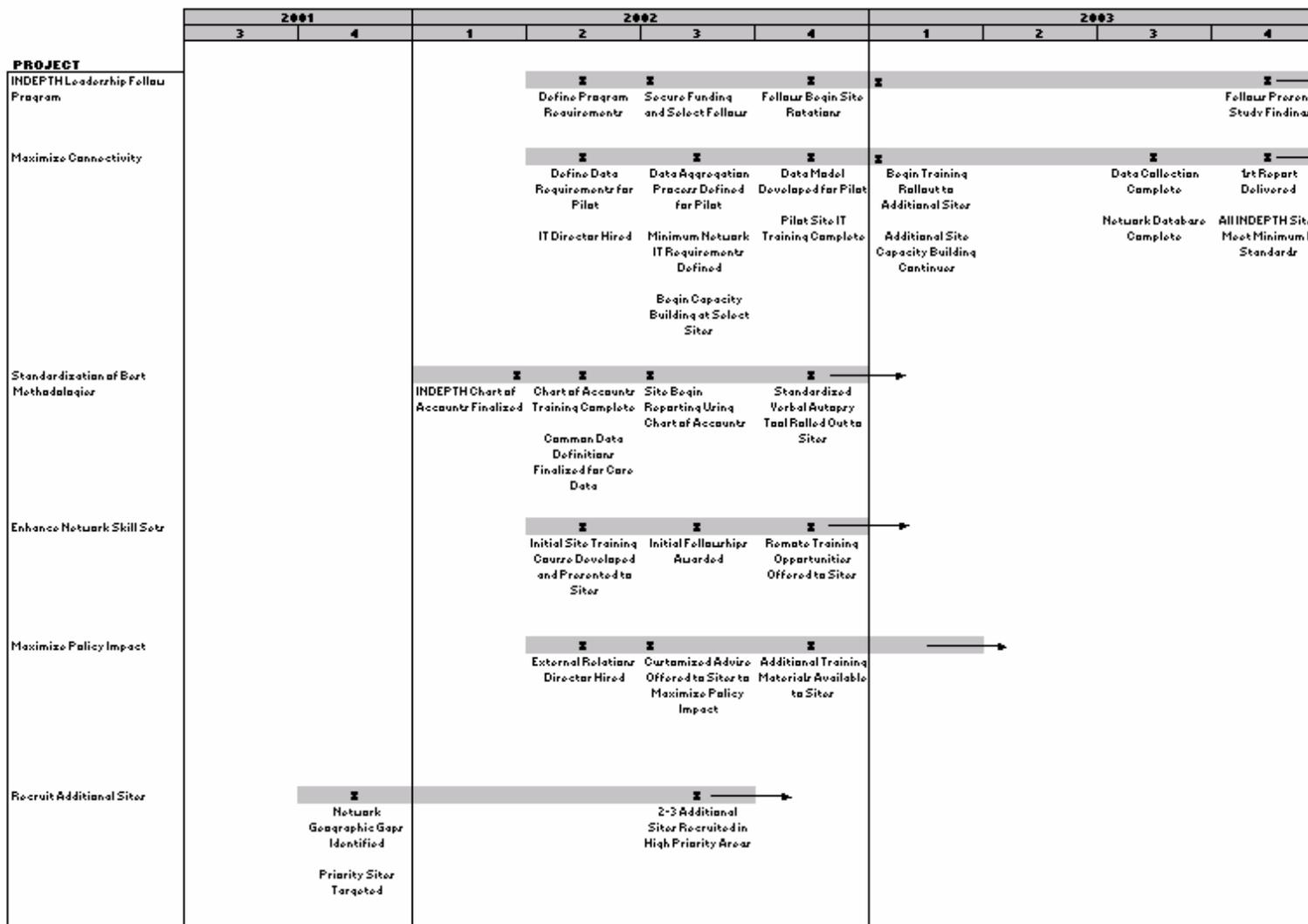
## **X. Opportunity Timeline**

The opportunities identified will utilize existing INDEPTH and member site capabilities and resources. While INDEPTH plans to obtain some additional network resources, the implementation of future projects must be planned in a coordinated and staged manner that avoids overloading network or site resources at any given time. The provisional timing for INDEPTH studies and capacity building projects are displayed in the timelines located in this section.

**Figure 5: INDEPTH Study Timeline With Key Milestones**



**Figure 6: INDEPTH Capacity Building Timeline With Key Milestone**



## **XI. Alternative Information Sources**

INDEPTH has the unique capability to design and execute studies using multi-country, population-based, longitudinal data. The breadth and depth of the INDEPTH network, combined with the strong capabilities of individual member sites, enable INDEPTH to generate knowledge and insights into critical health and social challenges that was previously unavailable. To secure funding and continued support from donors, governments, research institutions and other external stakeholders, INDEPTH is differentiating itself from alternative information sources. Examples of these information sources include independent DSS sites, cross sectional population studies and other multi-country research projects.

### **Independent DSS Sites**

Independent DSS sites provide a strong platform from which to execute studies that do not require broad geographic coverage or large population sample sizes. Examples of these studies include intra-country burden of disease assessments, intervention assessments and clinical trials. Donor organizations have traditionally used independent DSS sites to support their research needs and these relationships will continue.

INDEPTH will appeal to organizations that require broader coverage than can be obtained from an individual DSS site. INDEPTH monitors approximately 1.8 million individuals across 16 countries. INDEPTH provides a one-stop solution that combines the strength of individual community-based DSS initiatives with the broad geographic reach made possible through the coordination and infrastructure within the INDEPTH network. By establishing a network of sites, INDEPTH provides a pre-existing multi-site framework to organizations that would otherwise have to individually select and coordinate the efforts of multiple independent DSS sites. Such project-specific coordination is both time and resource consuming and often results in sub-optimal results.

Due to their narrow geographic coverage, individual DSS sites also typically influence policy and practice at a local or national level. Through its broad coverage and deep expertise, INDEPTH will concentrate on impacting policy and practice at the multi-country level. This ability to impact policy at the macro-level will appeal to organizations seeking to have a broad impact on health and social issues.

### **Cross Sectional Population Studies (e.g., Demographic and Household Survey (DHS), National Bureaus of Statistics, Central Statistics Offices)**

Many population studies rely on population-level, cross-sectional studies for data generation and analysis. Examples of cross-sectional studies include the Demographic and Household Survey (DHS) and studies conducted by national bureau of statistics, central statistics office or corresponding organizations. These studies provide policy makers with information on the health and social status trends of the population within their country. The perceived advantages of these programs is that they utilize sampling of the entire population of the country and can generate data at a relatively low cost by sampling the population on an annual or semi-annual basis.

While cross-sectional studies provide a low-cost approach to population health and social data generation, the application of the data has some significant limitations. First, cross-sectional data is suitable only to the identification of health and social trends. This data is not preferred for monitoring specific outcomes (e.g. current child mortality) or the evaluation of current

health and social needs at the individual level. Due to these limitations, cross-sectional studies are primarily retrospective in nature and a significant period of time must pass (e.g. 5 years) before substantive conclusions can be made about the current health and social landscape.

INDEPTH is focused on executing population-based studies that rely on longitudinal-based, household level data that is only provided by DSS initiatives. Unlike cross-sectional studies, DSS data can be used to monitor health outcomes and current health and social needs at the individual level. Due to the longitudinal nature of the data, INDEPTH is able to provide immediate insight into the critical health and social issues. The studies that INDEPTH will pursue rely on the information that is available from only DSS sites.

### **Individual Multi-Country Research Projects and Multi-Country Organizations (e.g., TDR, WHO Insecticide Treated Net (ITN) trials, UNICEF)**

Several multi-country groups undertake population studies using research networks specifically created to support an individual study. While this has been the traditional approach to multi-site studies, the process of creating one-off networks is often resource intensive as the project sponsor is responsible for identifying potential sites, evaluating sites, training site staff and coordinating the activities across independent sites. This process also often results in sub-optimal site participation, as the sponsor must often initially rely on existing relationships with a limited set of sites. These sites may not provide the optimal health and social environment for a given study, but may be the only feasible options for executing the study.

INDEPTH offers an attractive alternative to one-off network creation by providing a one-stop-shop research platform that organizations can access to execute multi-site studies. By creating an integrated network of sites, INDEPTH offers project sponsors with a single, integrated solution for studies that require the identification, selection and coordination of multiple sites. INDEPTH is able to facilitate the launch and ongoing coordination of multi-site projects using the INDEPTH network infrastructure. This capability enables site selection and coordination to be completed in a much shorter timeframe and with significantly less expense to the sponsor (see Section V. INDEPTH Value Proposition). The INDEPTH infrastructure also increases the effectiveness of this process and ensures that participating sites meet study requirements and will yield optimal results.

## **XII. Partnerships**

### **Existing Partnerships**

#### **1. African Census Analysis Project (ACAP)**

The African Census Analysis Project (ACAP) is a collaborative initiative between the University of Pennsylvania and African institutions specializing in demographic research and training. This initiative was started as an effort to try and maximize the use of African census micro-data for academic and policy oriented research that will be beneficial both to African governments and individuals interested in African research.

ACAP pursues three specific aims: archiving of African census data, research collaboration with African researchers, and demographic capacity strengthening in Africa. To date, ACAP has obtained and archived 38 censuses from 16 African nations thus preventing some of them from further destruction. The fifteen countries from which we currently have data spread across all regions of Africa.

ACAP and INDEPTH maintain research databases that complement one another. ACAP census data covers whole national populations at consecutive ten-year intervals whereas INDEPTH data is collected around small populations and is acquired continuously. Each data set provides a different perspective on the African population and great benefit can be realized through the integration of the two. Access to INDEPTH data will provide ACAP with better African based model life tables and provide a validity check for ACAP data. Access to ACAP data will provide a broader national context for INDEPTH data. The integration of data will not only lead to policy oriented studies, but will also produce new analytical methods for demographic analysis in the developing world and correction factors for national census.

#### **Potential Partnerships**

Developing partnerships will be critical to the success of INDEPTH. A host of organizations have resources that would substantially enhance the INDEPTH's ability to successfully execute current and future projects. A brief description of potential partner organizations is presented below:

#### **1. The European Malaria Vaccine Initiative / African Malaria Vaccine Testing Network**

The European Malaria Vaccine Initiative (EMVI) was established in 1998 by the European Commission and interested European Union Member States, in order to address identified structural deficiencies in public funded malaria vaccine development.

The aim of EMVI is to provide a mechanism through which the development of experimental malaria vaccines can be accelerated within Europe and in developing countries.

EMVI aims to facilitate and contribute to the post validation phase of nationally and internationally funded malaria vaccine research and development, and seeks to provide a mechanism to see candidate molecules through to limited GMP production and clinical trials in close collaboration with the African Malaria Vaccine Testing Network, AMVTN. EMVI also provides a forum for scientists and policy makers engaged in malaria vaccine research and development

The African Malaria Vaccine Testing Network (AMVTN) is a non-profit network established in 1995 in Arusha, Tanzania. Its overall objective is to provide a forum for scientists and policy makers involved in the planning, coordination, and execution of malaria vaccination trials in Africa.

## **2. INCLEN**

INCLEN provides a forum for researchers to discuss critical health issues through educational programs, global meetings, and an international communications network. INCLEN supports young researchers and provides network members opportunities to participate in collaborative clinical studies.

INCLEN comprises health specialists concerned with the availability, effectiveness and efficiency of health care in their home countries. The organization was created in 1980 as a project of The Rockefeller Foundation and its membership now includes over 56 medical institutions in 24 countries throughout the world. The multi-disciplinary faculty includes clinical epidemiologists, health social scientists, biostatisticians, and clinical economists.

## **3. EDCTP**

The EDCTP goals are to increase the effectiveness of Europe's investment in clinical trials for interventions against HIV/AIDS, TB and Malaria and to attract more resources into developing interventions. The EDCTP will be distinguished from many other international initiatives to fight these poverty-related diseases by its long-term relationship with the DCs, and the proposal to form the EDCTP as a North-South partnership.

The aims of the EDCTP are:

- Increase the effectiveness of Europe's investment in clinical trials for interventions against PRDs;
- Attract more resources into developing these interventions;
- Accelerate candidate products and other interventions through the developmental pipeline (translational research); and
- Accelerate the development of capacity and capability in DCs to test the efficacy and effectiveness of interventions against PRDs.

### **XIII. Key Threats**

#### **Lack of sufficient funding to maintain network**

The sustainability of INDEPTH relies on the ability of the network to generate sufficient funding to support the core network-level activities. Without sufficient funding allocated to recovering network overhead costs, INDEPTH will be unable to provide the coordination function and site support required for cross-site studies.

To mitigate this overhead funding risk, INDEPTH is pursuing multiple strategies. First, the Secretariat is filing 501 (c) (3) forms that will provide INDEPTH with status as a charitable organization and enable tax exemption for funds donated to INDEPTH. Completion of this process will also enable INDEPTH to recover a percentage of its overhead costs from study funding originating in the United States. In addition, INDEPTH continues to proactively seek funding to directly support the maintenance of the INDEPTH network and development of network capabilities

A second funding risk relates to the quantity of additional funding individual sites gain access to as a result of INDEPTH's activities. If INDEPTH is unable to increase the flow of funds to individual sites, these sites may be less able to contribute the time and resources required to maximize the value of the network. INDEPTH must therefore generate sufficient funding for all participating sites to demonstrate the value and importance of the network to member sites. To manage this risk, INDEPTH will generally focus on pursuing studies that require contributions from several sites rather than studies that may only require participation of one or two sites. In addition, INDEPTH will seek to allocate a portion of funds to support sites who are most resource and funding constrained to ensure these sites have the ability and incentive to participate in network activities.

#### **Balancing interests between sites and network**

While the INDEPTH network provides a unique platform for multi-country studies, there may be instances when individual sites have the opportunity to participate in a specific study as a stand-alone site or as part of the INDEPTH network. In such a scenario, the funding potential for the site may be greater if it secures the study independently rather than as part of the INDEPTH network. For some sites, this tension may provide a disincentive to be part of the network for particular studies. It will also limit INDEPTH's ability to secure these studies, and has the potential to create dissonance within the network.

To minimize the potential for this conflict, INDEPTH will maintain a transparent process with sites regarding the focus areas of the network and specific proposals it is pursuing. Individual sites will equally be requested to maintain transparency to ensure clear communication between sites and network.

#### **Insufficient coordination of network activities**

Effective coordination of the activities of the 28 INDEPTH field sites is critical to the success of network projects. Each site contributes an individual piece to the network study and it is critical that all of the pieces fit well together. This will require clear and appropriate division of responsibility, ongoing communication between the network and sites, consistency in methods and output, and accountability for quality deliverables. If any part of this coordination falters, the quality of the output and credibility of the network will be threatened.

To ensure effective ongoing coordination, INDEPTH is using multiple strategies and tools. To ensure appropriate division of responsibility, each study will have a Principal Investigator who will be responsible for managing an individual network study, assigning roles and responsibilities for this study and managing the ongoing work. To maintain ongoing communication between sites and the network, each Principal Investigator will host conference calls and meetings with study contributors to monitor progress and ensure each participant has a clear understanding of their responsibilities and the responsibilities of others. In addition, the Secretariat will facilitate communication within the network through regular INDEPTH newsletters, email announcements and periodic network meetings involving the key staff from each site.

Consistency in methods will be achieved through a combination of processes and tools. For example, each site will be required to submit standardized financial reports to the Secretariat for the purpose of budget creation and cost tracking. Each site will be provided with the tools and training required to create these standardized reports. In addition, standardized research methods, data definitions and data entry formats will be defined at the outset of each study to ensure the collection and entry of data that can support network-level analysis. When comparable site outputs are required, templates and instructions regarding these outputs may be provided to participating sites prior to beginning the study. This will usually be preceded by a research planning process that will ensure the necessary internal agreements and compatibilities.

Individual sites will also be held accountable for quality and timely outputs. Prior to each study, individual sites will need to sign a participation agreement that clearly defines what is required for the study. Any sites not meeting these requirements will not receive study funding and will be removed from the study without exception.

## **XIV. INDEPTH Board of Trustees**

### **Stephan M. Tollman – Chair of the Board of Trustees, BSc, MBBCh, Mmed, MPH, MA Agincourt Health and Population Unit, Johannesburg, South Africa**

Stephan Tollman is an Associate Professor at the School of Public Health, University of Witwatersrand where he is Head of the Division of Health, Development and Non-communicable Disease. Professor Tollman also serves as the Director of the Agincourt Health and Population Research Unit where he has worked since 1998.

Professor Tollman played a leading role in the foundation of the INDEPTH network. From 1998 until his appointment as the Chair of the Board of Trustees Prof Tollman served as the Deputy Chairman of the Coordinating Committee. He has been actively involved in the INDEPTH working group on Adult Health and Productivity.

Professor Tollman is also actively involved in issues of public health in South Africa working with the Department of Health, the Medical Research Council and the Health Systems Trust in South Africa.

Professor Tollman received his undergraduate degree (BSc) in Anatomy and Physiology in 1979 from the University of Witwatersrand; a Rhodes scholarship to Oxford in 1980; a degree in Medicine (MBBCh) from the University of Witwatersrand in 1984; a masters in Health Services Administration (MPH) from the Harvard School of Public Health in 1988 and most recently in 1999 a Masters in Public Health Medicine (Mmed) from the University of Witwatersrand.

### **Alex Chika Ezeh, Ph.D, MA, MS, BSc**

#### **African Population and Health Research Centre, Nairobi, Kenya**

Dr Ezeh is currently the Executive Director of the African Population and Health Research Center in Nairobi, Kenya where he has worked since 1998. He is also currently a member of the Regional Advisory Panel for African and the Eastern Mediterranean, Department of Reproductive Health and Research for the World Health Organization.

Dr Ezeh received his undergraduate degree (BSc) in 1985 from Imo State University, Nigeria; a master's degree (MS) in 1988 from the University of Ibadan, Nigeria; a master's degree (MA.) in 1990 and a doctoral degree (Ph. D.) in 1993 from the University of Pennsylvania, USA. During his academic studies Dr Ezeh received fellowships from the Rockefeller Foundation (1992-1993, 1989-1991), the Population Council (1991-1992), and USAID (1991-1992).

### **Bocar Kouyate, MD, MPH**

#### **Centre de Recherche en Santé de Nouna, Nouna, Burkina Faso**

Dr Kouyate is currently the Director of Centre de Recherche en Santé de Nouna (CRSN), Nouna, Burkina Faso and has held the position since October 1999. He is also a member of the Steering Committee of the "Centre Nationale de Recherche Scientifique et Technologique, Ouagadougou, Burkina Faso. Dr Kouyate was a member of the INDEPTH Coordinating Committee prior to his election to the Board of Trustees.

Dr Kouyate received his undergraduate degree (MD) in 1983 from the University of Bénén, Lomé Togo, a masters degree (MPH) in 1994 Cotonou, Bénén. During his academic studies, Dr Kouyate received fellowships from WHO (1987-1988) and University of Heideberg-Germany (1998-1999).

**Ricardo Thompson, Ph.D, DVM**

**Manhica Health Research Centre (CISM), Maputo, Mazambique**

Dr Thompson is currently the Scientific Director of the National Institute of Health in Mozambique. Since 1991 he has been a member of the Malaria Technical Advisory Group of the National Malaria Control Program in Mozambique.

Dr Thompson graduated with a degree in Veterinary Medicine (DVM) in 1987 from the Eduardo Mondlane University, Mozambique. He received his doctoral degree in Epidemiology in 1999 from the University of Aarhus, Denmark.

**Peter Kim Streatfield, B.Sc., M.Sc., M.Sc., Ph.D. Health & Demographic Surveillance Program (Matlab), Public Health Sciences Division, ICDDR, Dhaka, Bangladesh.**

Kim Streatfield is head of the HDSP and is currently involved in expanding the Matlab HDSS to collect more detailed information on chronic (adult) diseases, on equity issues, on health systems research, in addition to modernizing the data systems.

For three decades he has been involved in health and population research and training, particularly child survival and reproductive health. Half of this time has been spent working in Asia.

His undergraduate training (B.Sc.) was in Physiology and Biochemistry from University of Sydney in 1971, then M.Sc. (Physiology) from University of Melbourne in 1976; M.Sc (Medical Demography) from London University (LSHTM) in 1977 and Ph.D. (Demography) from Australian National University in 1982.

**Chuc Nguyen Thi Kim**

**Institute of Health Strategy and Policy, Hanoi, Vietnam**

Dr Chuc Nguyen Thi Kim is currently the Vice Head of Health Economic Department, Health Strategy and Policy Institute (HSPI) and senior lecturer on Health Economics at the Hanoi Medical University, Vietnam. She is presently Coordinator of Health System Research Project in Vietnam, supported by Sida/SAREC, Sweden.

Dr Chuc NTK received her undergraduate degree (Pharmacy) in 1976 from the School of Pharmacy in Hanoi, Vietnam; a Master's degree (MSc in Health Economics) in 1994 from Chulalongkor University, Bangkok, Thailand and a doctoral degree (Ph. D.) in 1996 from Army Medical University, Vietnam.

**Donald H. de Savigny, PhD, MSc, BSc**

**International Development Research Centre, Canada**

Tanzania Essential Health Interventions Program, Ministry of Health, Dar es Salaam, Tanzania

Dr. Don de Savigny is Principal Health Specialist for the International Development Research Centre, Canada since 1988 and is presently the Research Manager for the IDRC/MOH

Tanzania Essential Health Interventions Program based in Dar es Salaam at the National Institute for Medical Research since 1996.

Dr. de Savigny played a leading role in the conceptualization and foundation of INDEPTH and served on its first Coordinating Committee facilitating a number of startup initiatives. He also managed the installation and development of the Rufiji DSS site in Tanzania, and was formerly Director of the Swiss Tropical Institute, Ifakara Health Research Centre in Tanzania. Dr. de Savigny has been actively involved in public health research and research facilitation internationally, and particularly in Africa since 1980 with emphasis on epidemiology, health systems research and health information systems.

Dr. de Savigny received his undergraduate degree (BSc) in Medical Microbiology in 1970 from the University of Guelph, Canada; a masters degree (MSc) in Parasite Immunology in 1975 from the Ontario Veterinary College, University of Guelph, Canada, and a doctoral degree (PhD) in Epidemiology in 1980 from London University, London School of Hygiene and Tropical Medicine, UK, all with fellowships from the Ontario Ministry of Health.

## **XV. Appendix Materials**

## INDEPTH Member Site Location Map



### Current DSS Site Membership

#### West Africa

Nouna, Oubritenga (Burkina Faso), Farafenni (Gambia), Navrongo (Ghana), Bandim (Guinea Bissau), Kolondieba (Mali), Mlomp and Bandafassi, Niakhar (Senegal)

#### East Africa

Butajira (Ethiopia), Nairobi, Kisumu (Kenya), Gwembe (Zambia), Ifakara, Rufiji, Dar es Salaam, Hai, Morogoro, Magu (Tanzania), Rakai (Uganda)

#### Southern Africa

Manhica (Mozambique), Agincourt, Diggale, Hlabisa (South Africa)

#### Asia

Watch (Bangladesh), Matlab, ORP, Purwojoro (Indonesia), Filabavi (Vietnam), ... (Thailand)

Visit the <http://www.indepth-network.net> to obtain site profiles and addresses, bibliographies of sites