

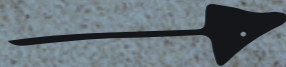
**POPULATION HEALTH
VULNERABILITIES
TO VECTOR-BORNE DISEASES:
INCREASING RESILIENCE UNDER
CLIMATE CHANGE
CONDITIONS IN AFRICA**

THIS PROGRAMME FOCUSES ON

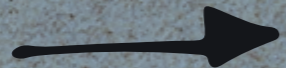
4 VECTOR BORNE DISEASES



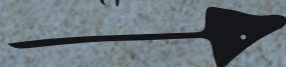
Malaria



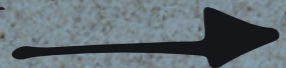
Schistosomiasis



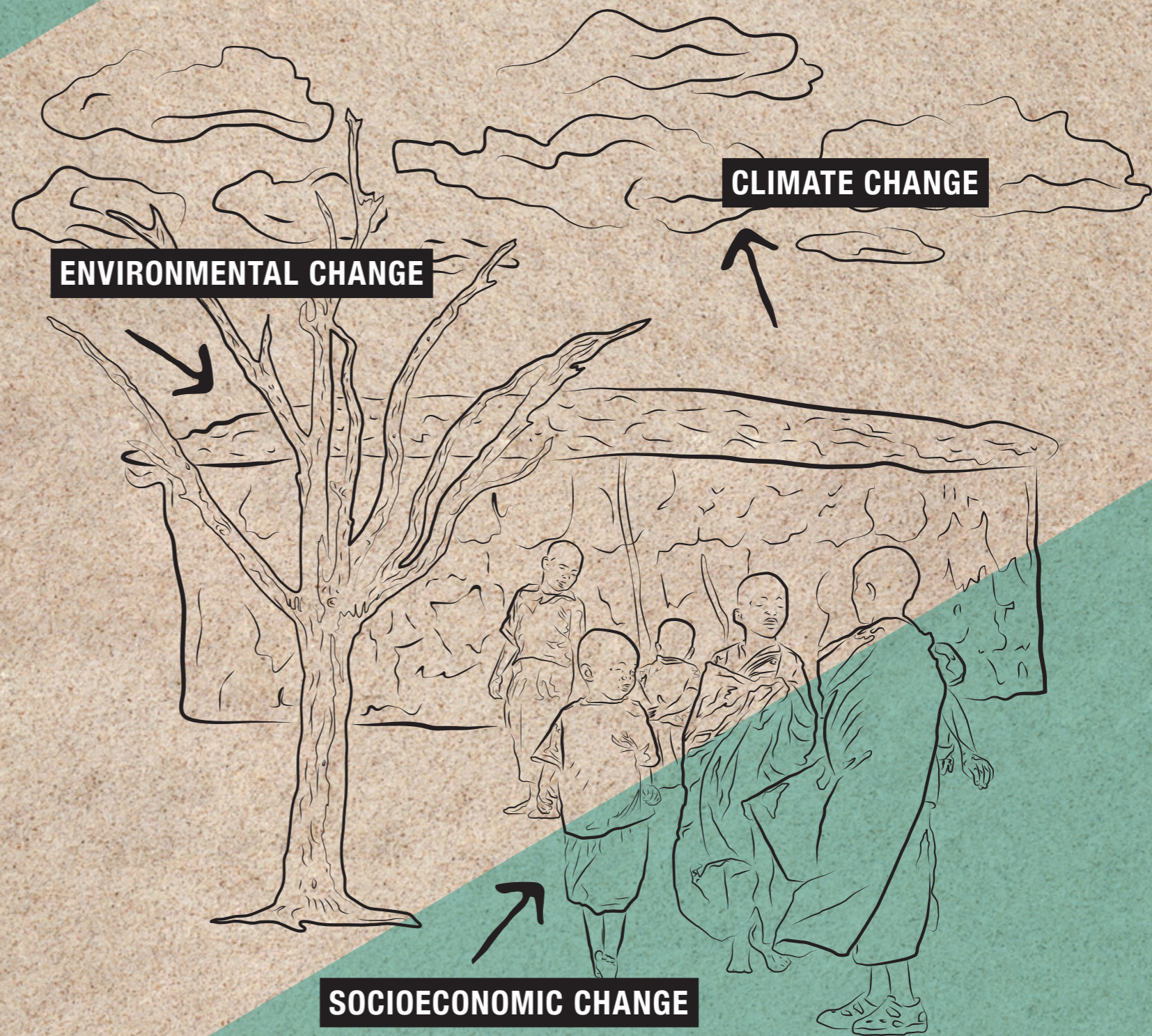
Human African trypanosomiasis



Rift Valley fever



VECTOR TRANSMISSION
DYNAMICS
CAN BE STUDIED
WITHIN A FRAMEWORK
OF LOCAL
**SOCIAL-
ECOLOGICAL
SYSTEMS**



AFRICA'S DRYLAND ECOLOGIES ARE PARTICULARLY VULNERABLE.

POPULATION GROUPS STRUGGLE WITH A NUMBER OF CHALLENGES



EXTENSIVE POVERTY



HIGH POPULATION GROWTH



HIGH INFANT MORTALITY RATES



FRAGILE ECOSYSTEMS



POOR HEALTH SERVICES



VECTOR-BORNE DISEASES

THESE 5 PROJECTS EACH HAVE A UNIQUE GEOGRAPHICAL AND THEMATIC SCOPE:

**GENERAL OBJECTIVE:
TO CONTRIBUTE TO REDUCED
POPULATION HEALTH
VULNERABILITIES AND INCREASED
RESILIENCE AGAINST VECTOR-BORNE
DISEASE RISKS
UNDER CLIMATE CHANGE
CONDITIONS IN AFRICA**

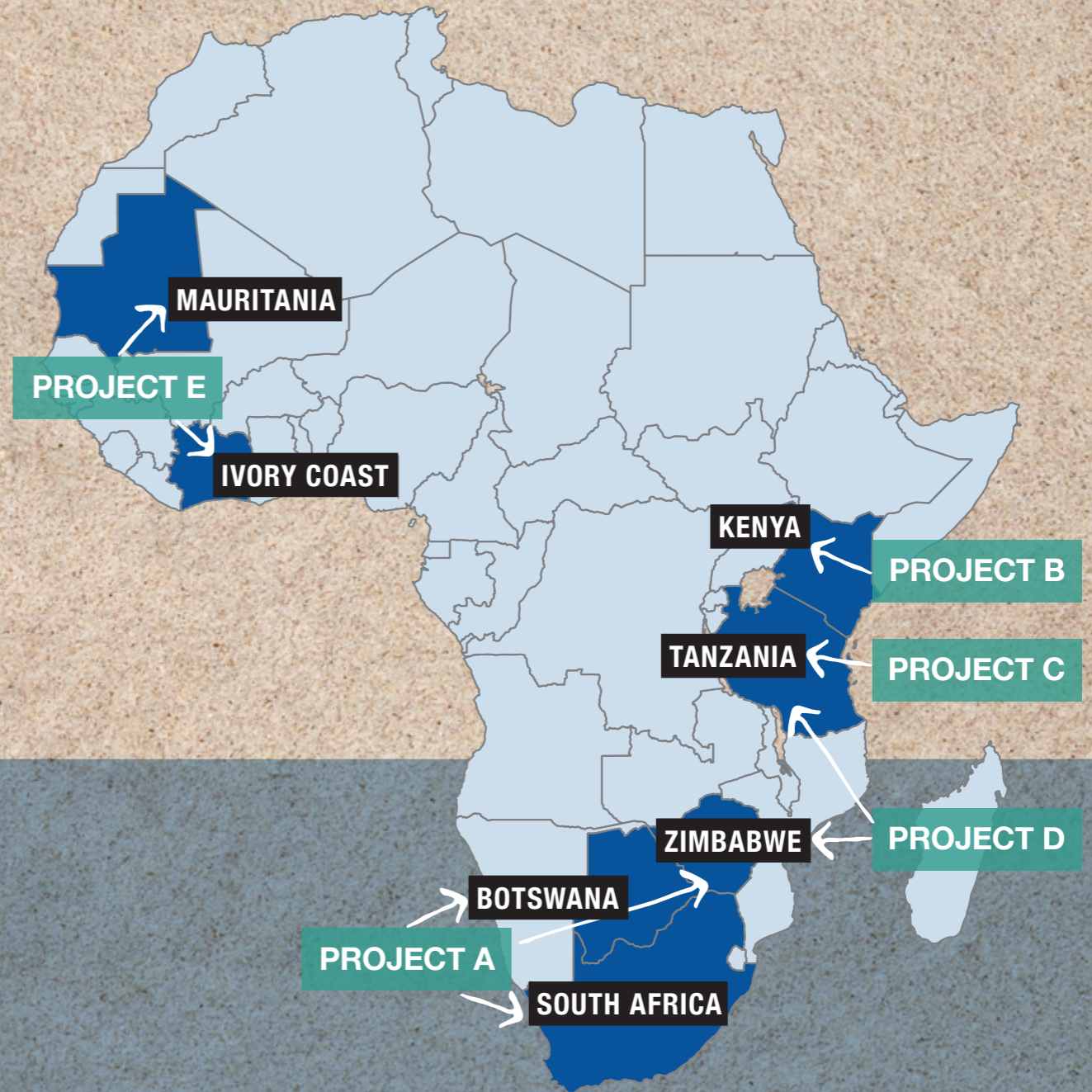
SPECIFIC OBJECTIVES:

Generate knowledge and evidence on VBD impacts under climate change conditions on vulnerable populations

Develop practical frameworks, processes and tools for policy and decision-making, for better risk management

Build African capacity for inter-disciplinary policy-oriented research

THE PROGRAMME INCLUDES
5 RESEARCH
PROJECTS
IN AFRICA



PROJECT A

SOCIAL, ENVIRONMENT AND CLIMATE CHANGE IMPACTS ON VECTOR-BORNE DISEASES IN ARID AREAS OF SOUTHERN AFRICA

**THE
DISEASES:**
Malaria and
schistosomiasis



SEVERAL FACTORS:



SOCIOECONOMIC



ENVIRONMENTAL



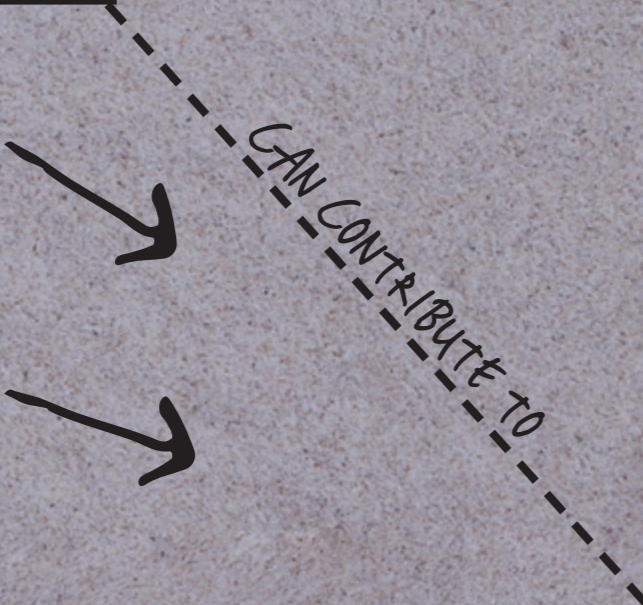
CLIMATE



BIONOMIC



INSTITUTIONAL



THE PERSISTENCE OF VECTOR-BORNE DISEASE TRANSMISSION AND VULNERABILITY TO CLIMATE CHANGE IMPACTS



PROJECT A

RESEARCH APPROACHES



Workshops and group discussions to learn from and with community members



Interviews with key informants (e.g. policy makers, traditional leaders, health personnel)



Lab and field studies of vector viability under different conditions



Determining vector variations across different climatic zones, by using GIS and remote sensing



Modeling future impact scenarios and feeding results into National Adaptation Plans

PROJECT A

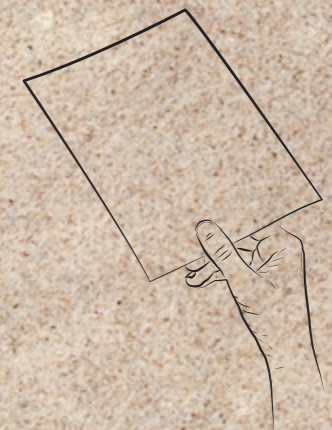
THE OUTPUTS

OUTPUTS INCLUDE:

**STRATEGIES
FOR COMMUNITY
RESILIENCE**

**CAPACITY BUILDING
FOR RESEARCH**

PLANNED



PROJECT A

THE BIG PICTURE

SEVERAL FACTORS:



SOCIOECONOMIC



ENVIRONMENTAL



CLIMATE



BIONOMIC



INSTITUTIONAL

CAN CONTRIBUTE TO

THE PERSISTENCE OF VECTOR-BORNE DISEASE TRANSMISSION AND VULNERABILITY TO CLIMATE CHANGE IMPACTS



OUTPUTS INCLUDE:

STRATEGIES FOR COMMUNITY RESILIENCE

CAPACITY BUILDING FOR RESEARCH

PLANNED

RESEARCH APPROACHES INCLUDE:



Workshops and group discussions to learn from and with community members



Interviews with key informants (e.g. policy makers, traditional leaders, health personnel)



Lab and field studies of vector viability under different conditions



Determining vector variations across different climatic zones, by using GIS and remote sensing



Modeling future impact scenarios and feeding results into National Adaptation Plans

PROJECT B

EARLY WARNING SYSTEMS FOR IMPROVED HUMAN HEALTH AND RESILIENCE

TO CLIMATE SENSITIVE VECTOR-BORNE DISEASES IN KENYA

**THE
DISEASES:**
Malaria and
Rift Valley
fever



SEVERAL FACTORS:



CLIMATE



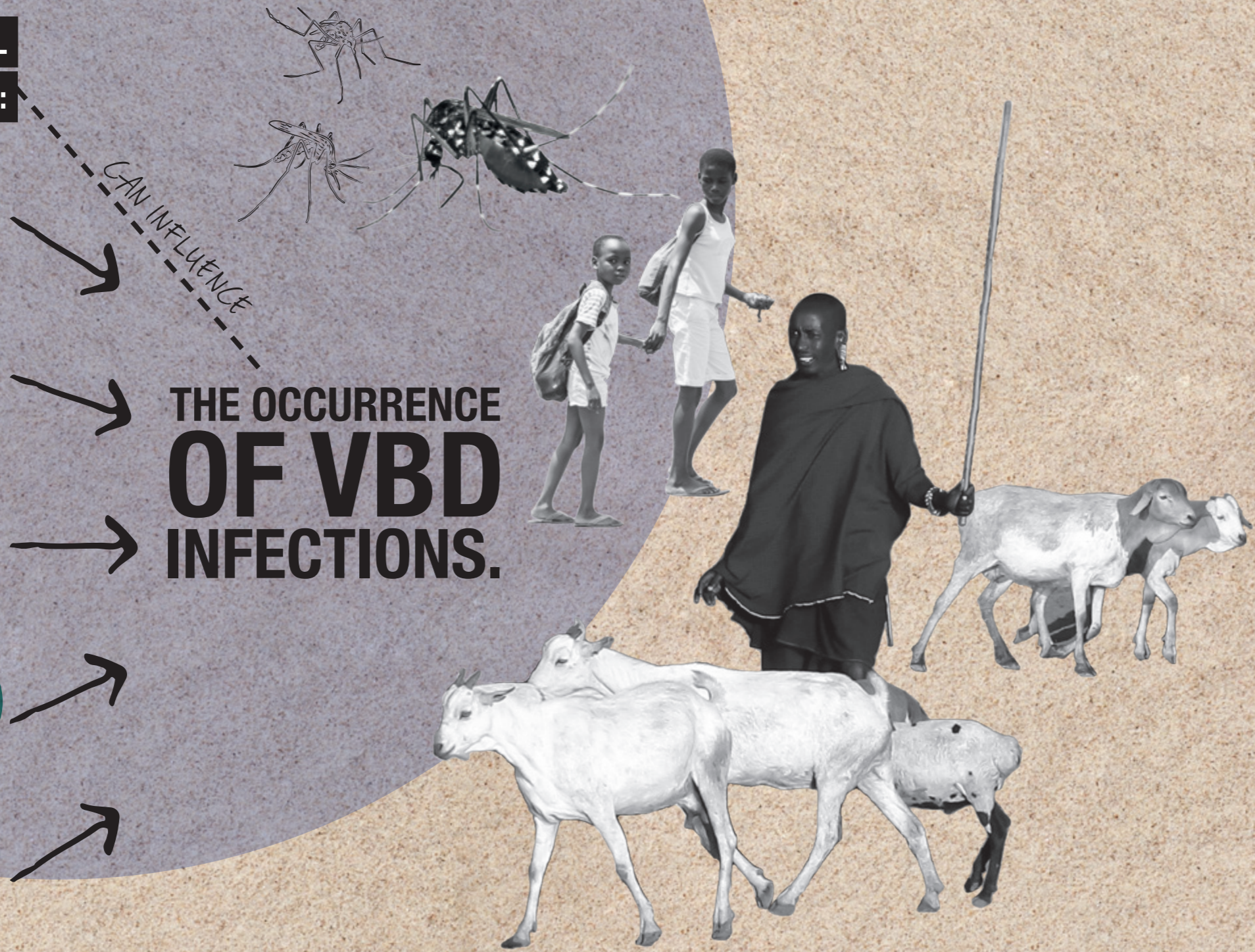
ECOSYSTEMS



HUMAN ACTIVITIES



VECTORS





Entomological surveys of mosquitoes



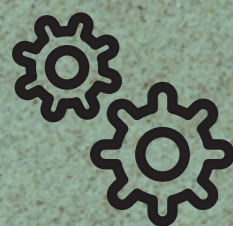
VBD incidence and prevalence surveys



Semi-structured interviews and focus group discussions



Community mapping and profiling



Participatory action research to identify existing adaptation strategies



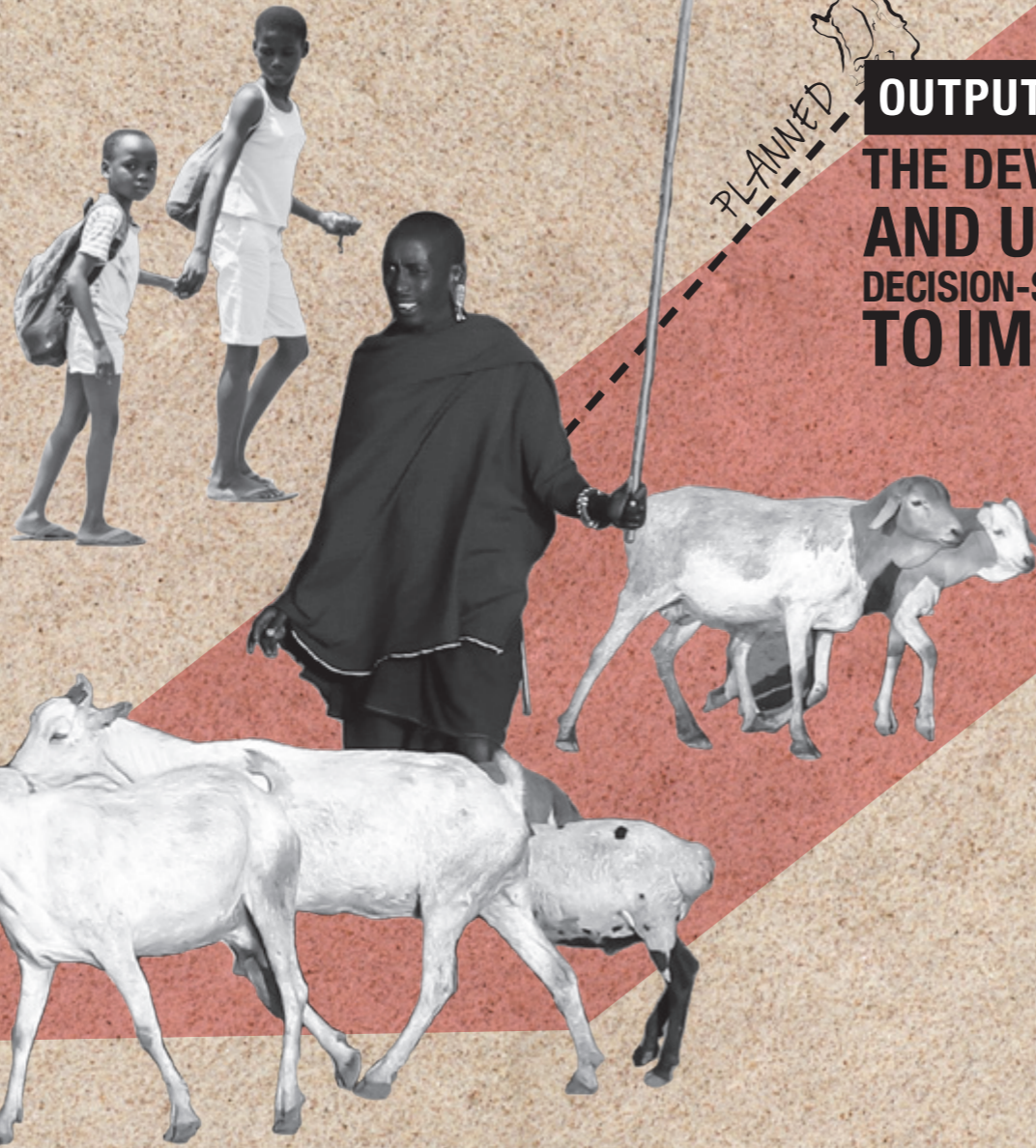
Remote sensing techniques



Building stakeholder capacity to promote use of developed strategies

PROJECT B

THE OUTPUTS



PLANNED

**OUTPUTS INCLUDE:
THE DEVELOPMENT
AND UPTAKE OF
DECISION-SUPPORT TOOLS
TO IMPROVE...**



EARLY DETECTION



EARLY ACTION



ADAPTATION
MECHANISMS

PROJECT B

THE BIG PICTURE

SEVERAL FACTORS:



CLIMATE



ECOSYSTEMS



HUMAN ACTIVITIES



VECTORS



PARASITES

CAN INFLUENCE

THE OCCURRENCE
**OF VBD
INFECTIONS.**



**OUTPUTS INCLUDE:
THE DEVELOPMENT
AND UPTAKE OF
DECISION-SUPPORT TOOLS
TO IMPROVE...**



EARLY DETECTION



EARLY ACTION



ADAPTATION MECHANISMS

RESEARCH APPROACHES INCLUDE:



Entomological surveys of mosquitoes



VBD incidence and prevalence surveys



Semi-structured interviews and focus group discussions



Community mapping and profiling



Participatory action research to identify existing adaptation strategies



Remote sensing techniques



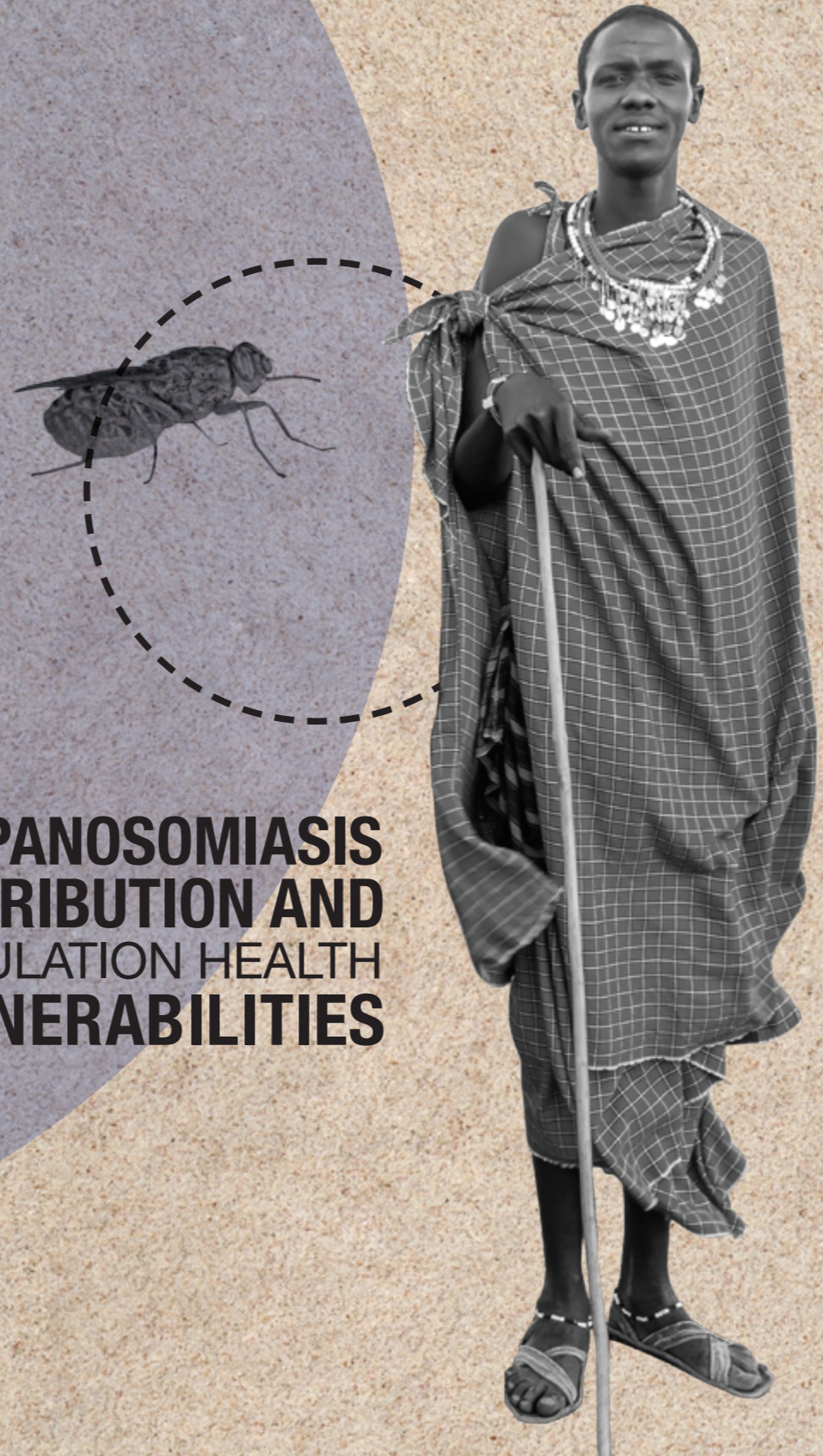
Building stakeholder capacity to promote use of developed strategies

PROJECT C

PREDICTING VULNERABILITY AND IMPROVING RESILIENCE OF THE MAASAI COMMUNITIES TO VECTOR-BORNE INFECTIONS: AN ECOHEALTH APPROACH IN THE MAASAI STEPPE ECOSYSTEM

**THE
DISEASES:**
Trypanosomiasis





SEVERAL FACTORS:



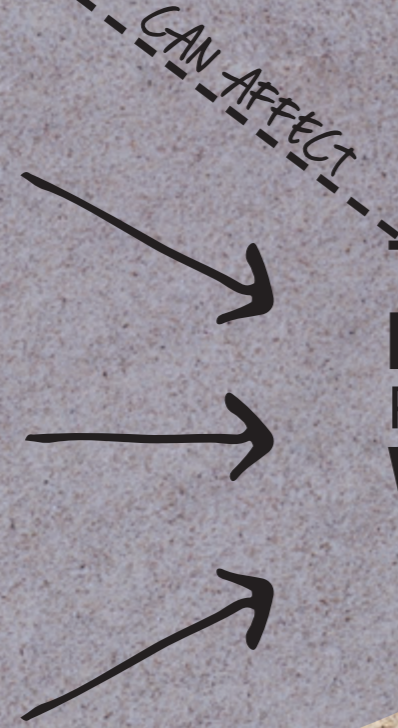
CLIMATE CHANGE



PARASITES AND HOSTS



CHANGING LAND-USE



TRYPANOSOMIASIS DISTRIBUTION AND POPULATION HEALTH VULNERABILITIES



World Health Organization



For research on diseases of poverty
UNICEF • UNDP • World Bank • WHO



CRDI



Modeling temperature and precipitation patterns in East Africa



Modeling land-use and land cover



Vector distribution and infection prevalence measurement



Vector density and location predictions



Collecting confidential data on the views and responses of Maasai people to VBDs



Working with Maasai communities to raise awareness of risks, and develop adaptive strategies

PROJECT C

THE OUTPUTS

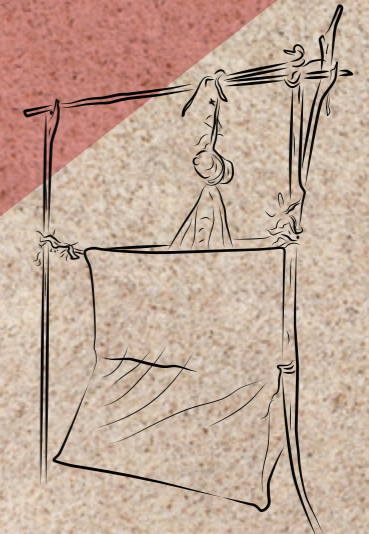


PLANNED

OUTPUTS INCLUDE:

COMMUNITY ADAPTATION STRATEGIES

ECOHEALTH PARTNERSHIPS, INCLUDING WITH LOCAL AUTHORITIES AND OTHER STAKEHOLDERS



PROJECT C

THE BIG PICTURE

SEVERAL FACTORS:



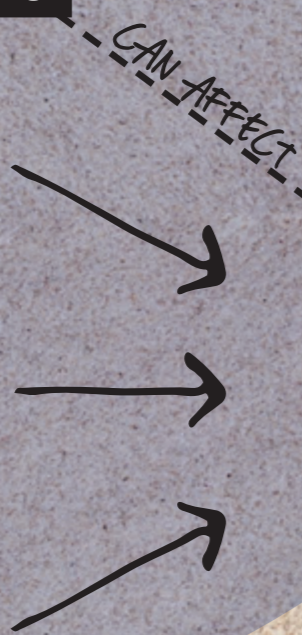
CLIMATE CHANGE



PARASITES AND HOSTS



CHANGING LAND-USE



TRYPANOSOMIASIS AND MALARIA DISTRIBUTION AND POPULATION HEALTH VULNERABILITIES

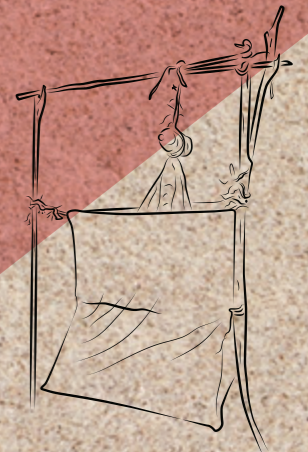


PLANNED

OUTPUTS INCLUDE:

COMMUNITY ADAPTATION STRATEGIES

ECOHEALTH PARTNERSHIPS, INCLUDING WITH LOCAL AUTHORITIES AND OTHER STAKEHOLDERS



RESEARCH APPROACHES INCLUDE:



Modeling temperature and precipitation patterns in East Africa



Modeling land-use and land cover



Vector distribution and infection prevalence measurement



Vector density and location predictions



Collecting confidential data on the views and responses of Maasai people to VBDs



Working with Maasai communities to raise awareness of risks, and develop adaptive strategies

PROJECT D

TRYPANOSOMIASIS: ALLEVIATING THE EFFECTS OF CLIMATE CHANGE THROUGH UNDERSTANDING HUMAN-VECTOR-PARASITE INTERACTIONS

**THE
DISEASES:**
Trypanosomiasis



SEVERAL FACTORS:



CLIMATIC
CONDITIONS SUCH AS
RAINFALL &
TEMPERATURE



POPULATION
GROWTH & AGRICULTURAL
ENCROACHMENT



TSETSE
DISTRIBUTION,
BEHAVIOUR
& HOST DENSITY

CAN INFLUENCE



HUMAN-TSETSE
INTERACTION AND
VULNERABILITY TO
DISEASE
AMONG DRYLAND POPULATIONS



PROJECT D

RESEARCH APPROACHES



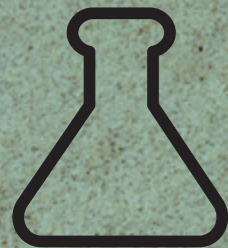
Questionnaires, interviews and focus group discussions



A variety of entomological techniques for indoor and outdoor vector research



Data collection on *T. brucei* infections in cattle



Experiments to measure man-fly contact under different meteorological conditions



Climate-driven modeling of vector dynamics

PROJECT D

THE OUTPUTS



OUTPUTS INCLUDE:

PLANNED



EVIDENCE ON ESTIMATED AND
PERCEIVED RISKS
IN MARGINALISED COMMUNITIES



MAPPING THE LEVELS
OF LIVESTOCK
INFECTION AND THE
HEALTH IMPLICATIONS



AN UNDERSTANDING OF
FUTURE RISKS
AND HOW THESE CAN BE AVOIDED
OR ALLEVIATED

PROJECT D

THE BIG PICTURE

SEVERAL FACTORS:

CLIMATIC
CONDITIONS SUCH AS
RAINFALL &
TEMPERATURE

POPULATION
GROWTH & AGRICULTURAL
ENCROACHMENT

TSETSE
DISTRIBUTION,
BEHAVIOUR
& **HOST DENSITY**

CAN INFLUENCE

HUMAN-TSETSE
INTERACTION AND
VULNERABILITY TO
DISEASE
AMONG DRYLAND POPULATIONS

OUTPUTS INCLUDE:



EVIDENCE ON ESTIMATED AND PERCEIVED RISKS
IN MARGINALISED COMMUNITIES



MAPPING THE LEVELS OF LIVESTOCK
INFECTION AND THE
HEALTH IMPLICATIONS



AN UNDERSTANDING OF FUTURE RISKS
AND HOW THESE CAN BE AVOIDED
OR ALLEVIATED

RESEARCH APPROACHES INCLUDE:



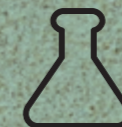
Questionnaires, interviews and focus group discussions



A variety of entomological techniques for indoor and outdoor vector research



Data collection on *T. brucei* infections in cattle



Experiments to measure man-fly contact under different meteorological conditions



Climate-driven modeling of vector dynamics

PROJECT E

VULNERABILITY AND RESILIENCE TO MALARIA AND SCHISTOSOMIASIS IN THE NORTHERN AND SOUTHERN FRINGES OF THE SAHELIAN BELT IN THE CONTEXT OF CLIMATE CHANGE



**THE
DISEASES:**
Malaria and
schistosomiasis

SEVERAL FACTORS:



SOCIOECONOMIC



ENVIRONMENTAL



HEALTH-RELATED



CLIMATE

CLIMATE INFLUENCE

**MALARIA AND SCHISTOSOMIASIS
VECTOR DISTRIBUTION
AND POPULATION HEALTH
VULNERABILITIES**





Collection and analysis of meteorological data



Cultural and socio-economic data collection, such as household surveys



Observations, interviews and focus group sessions



Field and lab studies of host populations



Documentation of facilities involved in adaptation to climate change, as well as the fight against VBDs

PROJECT E

THE OUTPUTS



OUTPUTS INCLUDE:

**INCREASED KNOWLEDGE
AMONG STAKEHOLDERS**



**TOOLS AND STRATEGIES
FOR ADAPTATION**



PROJECT E

THE BIG PICTURE

SEVERAL FACTORS:

-  SOCIOECONOMIC
-  ENVIRONMENTAL
-  HEALTH-RELATED
-  CLIMATE

CLIMATE INFLUENCE

MALARIA AND SCHISTOSOMIASIS VECTOR DISTRIBUTION AND POPULATION HEALTH VULNERABILITIES



PLANNED

OUTPUTS INCLUDE:

INCREASED KNOWLEDGE AMONG STAKEHOLDERS



TOOLS AND STRATEGIES FOR ADAPTATION



RESEARCH APPROACHES INCLUDE:

-  Collection and analysis of meteorological data
-  Cultural and socio-economic data collection, such as household surveys
-  Observations, interviews and focus group sessions
-  Field and lab studies of host populations
-  Documentation of facilities involved in adaptation to climate change, as well as the fight against VBDs