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Survey of IDRC Completed Projects in Southern Africa Public Good Case Study - Health Sector

A D Daly
Mbabane, Swaziland

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List of Acronyms

ANC	African National Congress, South Africa
CHIP	Inter-Departmental Research Board, Mozambique
CRDS	Regional Centre for Health Development, Mozambique
DC	Documentation Centre
ENHR	Essential National Health Research
ESAP	Economic and Structural Adjustment Program
EMCOZ	Employer's Council of Zimbabwe
FM	Faculty of Medicine
GBS	Guillian Barre Syndrome
HSR	Health Systems Research
ICT	Information and Communication Technologies
IDRC	International Development Research Centre
ILO	International Labour Organization
INS	National Institute of Health, Mozambique
JICA	Japan International Cooperation Agency
MOH&CW	Ministry of Health and Child Welfare, Zimbabwe
NEC	National Employment Council, Zimbabwe
NSSA	National Social Security Authority, Zimbabwe
OHS	Occupational Health and Safety
SAAPAWU	South African Plantation, Agricultural and Allied Workers Union
SAREC	Swedish Agency for Research Cooperation in Developing Countries
SASK	Finnish Labour Organization
UCT	University of Cape Town
WHO	World Health Organization
ZOHSC	Zimbabwe Occupational Health and Safety Council

Highlights

The case study on the impact of IDRC-funded projects on public good in the health sector assessed four projects - two in Zimbabwe, one in Mozambique and one in South Africa. The projects were assessed in terms of their impact on the intended beneficiaries, on policies and programme design, on the health service delivery system and on the recipient institution. The factors that influenced impact were also determined. Of the four projects, two had a high impact, one achieved medium impact and one had limited impact.

The Strengthening Capability of Essential Health Research (90-0095) in Mozambique sought to increase capacity for research by better integration of research activities, training, better access to research literature and funding research projects. It achieved a high impact in that it improved collaboration between research institutions and it increased the quantity and quality of research conducted. Capability was increased to the extent that the National Institute of Health (INS), the recipient institution, was planning to provide technical support to decentralizing health systems research to the Mozambican provinces during the time of the assessment. Factors that enhanced impact included the commitment to research and to collaboration among senior researchers and the availability of dissemination mechanisms (local journal and newsletter) in which research could be published. The key factor that hindered project success was inadequate capacity in the health sector to identify and prioritize research. 90% of the research was researcher-driven rather than user driven. A second hindering factor was the inadequate design for the information and communication technologies (ICTs) component for the documentation centre within the INS. This limited its potential for serving researchers.

The Agrochemicals and Farmworkers (91-0275) Project in South Africa sought to determine the negative impact of pesticides on the health of rural farm workers. It was reviewed as a desk study and reviewing it such did do it justice considering the considerable impact it achieved. Recommendations generated by the project research were included in the Western Cape Health Plan and numerous submissions by the project researchers during the life of the project were made to organizations for development of legislation in the field of occupational health. The project contributed to the knowledge pool both on occupational health as well as using field kits to test for neurotoxic effects of pesticides. For example, methods were developed to characterize exposure to neurotoxins which is a major advance in epidemiological research, as well as development of new types of neurobehavioural tests. In terms of the impact on the recipient institution, the Department of Community Health, University of Cape Town, has developed a long-term programme of teaching, research and evaluation of service intervention in rural farming areas. Project staff are now members of international committees. Key factors for the project's success were the collaborative networks established to facilitate dissemination and use of research information and the timing of the research. The project was implemented at a time when South Africa was developing policies, legislation and plans in occupational health which required input from research. Inhibiting factors included the scarcity of black researchers which limited the extent to which research capability was increased among this group of intended beneficiaries, and the limited capacity of national laboratories to conduct the required analysis of specimens.

The Schistosomiasis Control: A Community-Based Approach Phase II (88-0397) project in Zimbabwe sought to evaluate an integrated approach to schistosomiasis control which was implemented during Phase I. Impact was limited since the results were inconclusive. A key factor which enhanced project impact was the choice of recipient institution which continued to provide

technical guidance in schistosomiasis control long after the major project components had been completed. Key factors which hindered this project were the change of Project Leader at the initial stage of project implementation and the insufficient time given to allow for impact to occur following intervention.

The Workers' Participation (90-0080) Project in Zimbabwe sought to determine the extent to which workplace levels of selected hazards met safety standards and to assess knowledge, attitudes and practices at the workplace towards occupational health and safety. This project achieved high impact in that the research results were used to influence policy at the tripartite level (workers, unions and government) as well as at the union level during collective bargaining. The recipient institution acquired the knowledge to advocate for improved working conditions as well as the capacity to conduct workplace hazard screening and participatory research. Key factors which enhanced impact included the ability of ZCTU to follow-up research results and an enabling policy and legislative environment. Key inhibiting factors were the limited funding within unions to train their workers on hazard assessment and the limited capacity of government to enforce legislation once unacceptable hazards were detected.

In summary, it appears important to implement projects using experienced researchers in institutionally strong organizations. The involvement of stakeholders from the research identification phase is important and the research can result in added capacity building if the research is participatory in nature. To facilitate impact it is also beneficial if the institution either has very good links to collaborative implementing organizations or it is also an implementing organization itself.

All four projects within the case study achieved demonstrable impact, three considerably so. Much of the impact was realised at policy and programme design level and within the recipient institution, but improved health status in some instances was also achieved. A summary of impact achieved by each project is given in Table 1 below:

TABLE 1: SUMMARY OF CASE STUDY IMPACT

Beneficiary	Strengthening Capability of EHR, Mozambique	Agrochemicals and Farmworkers, RSA	Schistosomiasis Control, Zimbabwe	Workers' Participation, Zimbabwe
Recipient Institution	<p>Increasing knowledge, capacity building - High:</p> <ul style="list-style-type: none"> - Integration and coordination among research institutions - Improved quality and quantity of research - Increased capability of researchers + no. of capable researchers (incl. Ph.D. & Master's degree) - Provided springboard for HSR initiative: Dept of Comm. H. providing technical assistance to prov. level 	<p>Increasing knowledge, capacity building - High</p> <ul style="list-style-type: none"> - Increased capability, status and influence of researchers - Updated curriculum - Increased status in subject area 	<p>Capacity building - Medium</p> <ul style="list-style-type: none"> - <i>Schisto</i> research assistants trained and retained (1 to Masters degree) - Large project which helped build administrative capacity - Lessons learned from research 	<p>Capacity building, policy formulation - High</p> <ul style="list-style-type: none"> - Increased capacity to: <ul style="list-style-type: none"> *conduct research *train union members *assess hazards *advocate *develop other OHS policies - Increased prestige - Marketable to donors due to increased capacity
Policy/prog/implment. Organizations/service delivery system	<p>Policy formulation - Low:</p> <p>Examples: - Change in service delivery policy & practice eg home management of diarrhoea</p> <ul style="list-style-type: none"> - Improved coordination of programmes 	<p>Policy formulation - High:</p> <p>Significant contribution to:</p> <ul style="list-style-type: none"> - Western Cape Health Plan - Local surveillance system - Training modules for union on OHS <p>Input into:</p> <ul style="list-style-type: none"> - regulations on agrochemical use - labour legislation - environmental leg'n - policy conference - OHS & compensation bills - pesticide policy 	<p>Policy formulation - Low:</p> <ul style="list-style-type: none"> - Researchers assisted in development of JICA project 	<p>Policy formulation, capacity building - High:</p> <ul style="list-style-type: none"> - OHS incorporated into collective bargaining - OHS union policies - Unions playing > role in OHS - Resulted in ZOHSC which provides forum for improved OHS policies - National Health & Safety Day

Service delivery agents	Capacity building - Medium - Improved problem solving skills - Access to clinical information - Increase in provincial, applied research	Capacity building - High; - Attendance at courses on OHS that have been developed as a result of project findings - seminars on OHS - access to technical information	Capacity building - Medium; - Environmental health officers learned from (and now using) project experience and methods for participatory approach to water and sanitation	Capacity building - Low: - OHS Reps time off work for OHS duties - Trainees able to advise others (informally)
Ultimate beneficiaries	Improved quality of life - Low: - Reduction in side effects from home management of diarrhoea - Improved quality of health service	Improved quality of life - Low: Some benefit from improved services and referral, but data not available to determine accurately	Improved quality of life - Low: Some benefit of study population and those being served by subsequent programmes in provinces	Improved quality of life - Low: - Trainees empowered to assess hazards - Increased confidentiality - First aid available
Other	Increasing knowledge - High - Dissemination of research: Annually 120 papers published locally, 6 internationally and 3 presentations at international conferences	Increasing knowledge - High: - Field tested kits - Developed methods to characterize exposure to neurotoxins - Neurobehavioural tests piloted		Increasing knowledge and capacity building - High - Other unions benefit from Zim experience through training by ZCTU staff - At least one international publication

A number of factors influenced impact in each project. Some concerned the institution itself, others were related to the policy and legislation environment or broader socio- economic factors. A summary of inhibiting and enhancing factors are tabulated in Table 2.

TABLE 2: SUMMARY OF FACTORS INHIBITING AND ENHANCING IMPACT

Project	Factors that Inhibited Impact	Factors that Balanced Impact
Strengthening Research Capability, Mozambique	<ul style="list-style-type: none"> - Inadequate mechanisms to identify and prioritize research; - Inadequate guidance for ICTs - potential impact not realised; - Contextual factors: no career path for researchers; low pay and search for wage supplementation competed with time for research 	<ul style="list-style-type: none"> - Existing planning and policy development processes used, though limited in effectiveness to identify priority research needs; - Committed researchers - Dissemination/publication mechanisms available and used - No external influence on research agenda - Involvement of IDRC project staff in the development of the project
Agrochemicals and Farmworkers, RSA	<ul style="list-style-type: none"> - Paucity of experienced black researchers; - Limited capacity of laboratories to conduct analysis; - Restructuring of local government delayed policy development - Reorganization of unions delayed training and dissemination of results 	<ul style="list-style-type: none"> - Timing of research to coincide when policies and legislation being revised/developed; - Calibre of personnel and reputability of institution; - Pre-established collaborative networks; - Recipient institution (university) could incorporate findings into training & identified graduates to join research in part fulfillment of postgraduate degrees
Schistosomiasis Control, Zimbabwe	<ul style="list-style-type: none"> - Turnover of staff at beginning of project; - Research capacity limited in recipient institution such that inexperienced researchers (in this type of research) were delegated to conduct research without sufficient supervision; 	<ul style="list-style-type: none"> - Established and reputable institution: staff advised on schistosomiasis project design after project; project could continue despite change in project leader; - Regular field visits by IDRC staff to remedy administrative constraints
Workers' Participation, Zimbabwe	<ul style="list-style-type: none"> - Limited capacity of implementing institutions to implement findings of research; - Limited capacity of government (NSSA) to enforce legislation 	<ul style="list-style-type: none"> - Recipient institution well managed, functional and supportive of OHS; - Recipient institution was an influential implementing organization to ensure research results used; - Government supported OHS - enabling policy and legislation existed; - All stakeholders involved and committed

TABLE OF CONTENTS

List of Acronyms	i
Highlights	ii
1.0 Methodology	1
2.0 Project # 90-0095 Strengthening Capability of Essential Health Research	3
2.1 Description of Project	3
Context	5
Objectives	6
Strategy	6
Activities	8
Inputs and Expenditure	9
2.2 Project Outcomes	9
Outputs	10
Reach	14
Impact	15
2.3 Enhancement of Outcomes	15
3.0 Project # 91-0275 Agrochemicals and Farmworkers	18
3.1 Description of Project	18
Context	19
Objectives	19
Strategies	20
Activities	20
Inputs and Expenditure	21
3.2 Project Outcomes	21
Outputs	23
Reach	23
Impact	28
3.3 Enhancement of Outcomes	28
4.0 Project # 88-0397 Schistosomiasis Control: A Community-Based Approach Phase II	29
4.1 Description of Project	29
Context	30
Project Objectives	31
Strategy	31
Activities	31
Inputs and Expenditure	33
4.2 Project Outcomes	33
Outputs	34
Reach	35
Impact	37
4.3 Enhancement of Outcomes	37

5.0	Project # 90-0080 Workers' Participation	39
5.1	Description of Project	39
	Context	39
	Project Objectives	40
	Strategy	41
	Activities	41
	Inputs and Expenditure	41
5.2	Project Outcomes	42
	Outputs	42
	Reach	43
	Impact	44
5.3	Enhancement of Outcomes	47
6.0	Summary	49
	Project Components	49
	Results	54
	APPENDICES	56
	Travel Itinerary	57
	List of People Interviewed	58
	List of Documents Reviewed	60

1.0 Methodology

Impact from research can be achieved in a variety of forms. Impact can be felt by the recipient institution and its staff, such as improved capacity in research, increased prestige or status. Research projects can also contribute to the subject knowledge pool. Ripple effects can be seen through extensive training in research itself, such as improved problem solving skills. Impact is primarily achieved, however, through informing policy, and thence expression of policy into programmes and projects that are implemented and then evaluated. A number of contextual issues influence this process positively and negatively, many of which are outside the control of the research project itself. This case study assessment described and quantified, where possible, the varying types of impact, and identified common factors that influenced outcome.

The case study assessed four health research projects implemented by different types of institutions. Two were implemented by research departments in Ministries of Health - one to strengthen research capability and the other to evaluate the impact of a schistosomiasis intervention project. Two others were occupational health and safety projects, one in Zimbabwe implemented by the Zimbabwe Congress of Trade Unions (ZCTU) and the other by the University of Cape Town, South Africa. The first three were visited and the latter project was assessed through a desk study. The case study budget did not allow for a visit to all four projects. The South African project was chosen for desk study primarily because communication from a distance was thought to be easier for this project.

Firstly, the Framework for the Evaluation of Use and Impact of IDRC Projects was studied. This formed the basis of the format, content and analytical emphasis given to the case study, particularly the need to stress outcome and influencing factors. Efforts were made throughout data collection and analysis to provide information requested in the Framework and to answer its analytical questions. Documents concerning the project were requested and reviewed. Based on the information collected, key issues and reported or potential impact, and its influencing factors, were identified. Interview protocols were developed to explore and verify issues identified. Contact was made with each Project Leader and interviews were set up prior to the arrival of the author. Whilst in-country further documentation was collected and reviewed. Key officials related to the project itself, as well as potential beneficiaries and those who could comment on contextual issues. Some key stakeholders were revisited for clarification on particular issues. The interview protocols were refined and adjusted during data collection as new issues emerged. Documents reviewed included the project summaries, research reports, technical and financial reports, journals and other publications in which research results were published, mission reports and other donor project reports where relevant, workshop and training reports related to the project, general information about the recipient institutions, and reports on the status of the sector and socioeconomic situation of the country in order to grasp the contextual picture. A full list of documents and key informants can be found in the Appendices.

For all projects the objectives were often not specific or measurable. Where necessary indicators were chosen that were related to the strategies, activities and the IDRC Framework.

There were some significant limitations to conducting the assessment. The case study assessment budget only allowed for a maximum of five working days to collect data in-country for each of the three projects visited, which limited the depth of information that could be collected. The Project Leader was unavailable due to other in-country work commitments for the Workers' Participation

project, language barriers reduced the number of documents that could be studied in Mozambique. Extensive comments were received through email from the desk study project, but, due to the Author's time constraints, could not be objectively verified.

As per the request from IDRC, sources of information (including documents and key informants) have been specified. Where the Author has drawn a conclusion this has also been indicated, unless obvious. IDRC also requested detail on the organizations contacted and the efforts made by the author to obtain information if it was unavailable and to verify impact. This has also been provided where appropriate.

The Author was not aware at the time of data collection that all sources of information from key informants would have to be cited by title or relationship to the project. It is hoped that no breach of confidence has resulted. The Author would like to extend apologies to those organizations that are mentioned in the report as not having responded to information requests, since they were not advised at the time that it would be reported.

2.0 Project # 90-0095 Strengthening Capability of Essential Health Research

2.1 Description of Project

In accordance with the recommendations of the Council on Health Research for Development, Mozambique developed a 10 year programme for Essential National Health Research (ENHR). IDRC and the Swedish Agency for Research Cooperation with Developing Countries (SAREC) agreed to co-fund the first three-year phase of the programme with a view to continued funding in subsequent phases. The project was primarily implemented from 1990 to 1995, but inputs (late delivery of computers) were still being provided in 1996.

Project management was the responsibility of the INS. This is a Directorate of the Ministry of Health. The organizational chart for the Ministry of Health is shown in Figure 1 below. In addition to the INS, the Faculty of Medicine (FM) at the Eduardo Mondlane University also significantly benefitted from the project. The project primarily entailed training the staff of these health institutions, as well as provincial health workers, in research methodology; funding of research grants; training medical students in research methodology and funding their research projects; funding participants at national and international conferences; and rehabilitating the INS documentation centre and FM library.

The focus of this case study project will concentrate on the extent to which research capability has improved and whether this resulted in an increase in the quantity and quality of health research. The impact of research on the development of policy and health care service delivery will also be assessed. The level of integration of research institutions will also be an important outcome to measure.

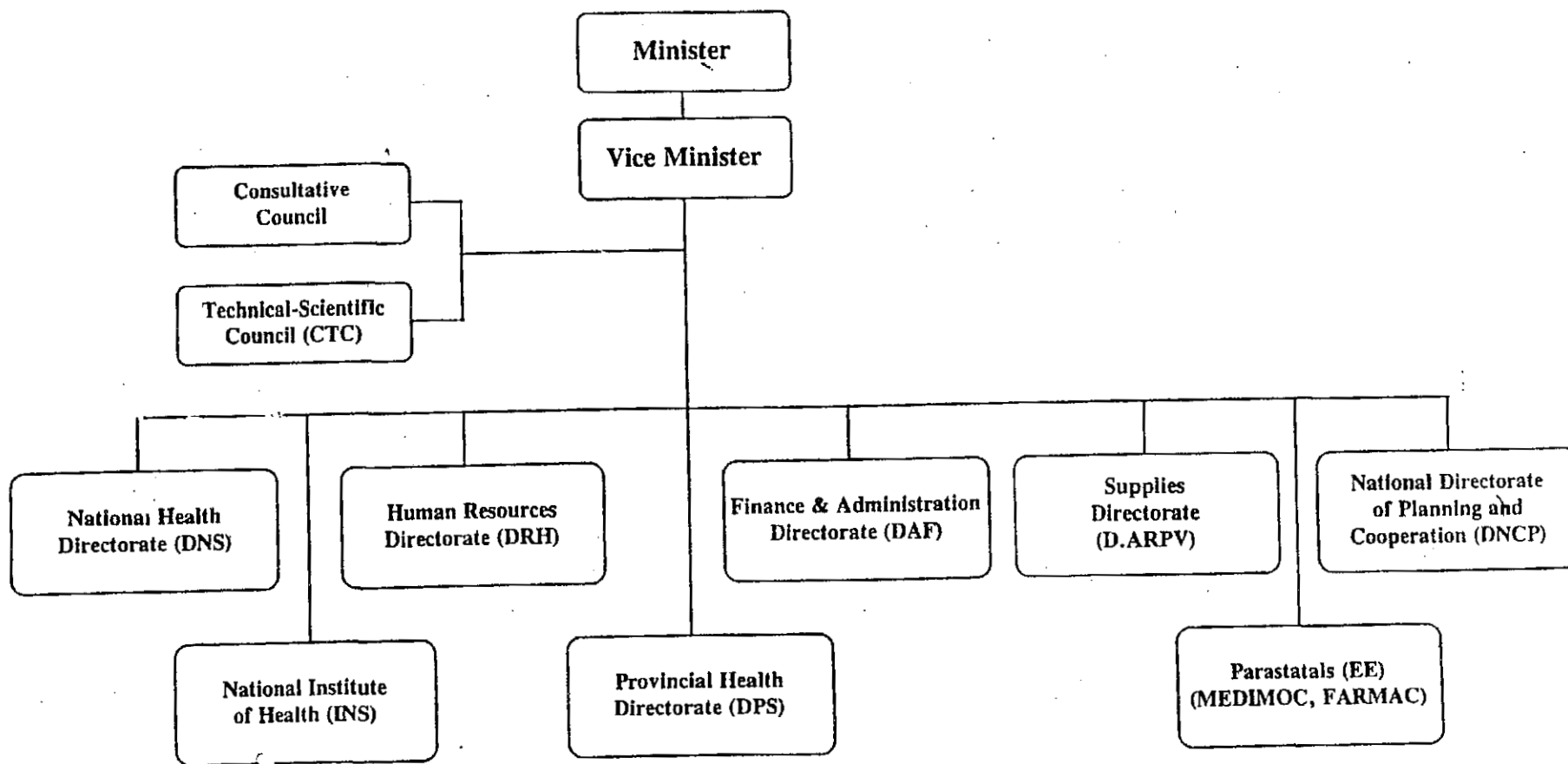
As referred to in the methodology above, the author does not read Portuguese which limited the documentation that was available for review. For example, the training manuals on research methodology and quality of research could not be independently assessed or verified. Additionally, some staff were not available for interview such as the Vice Minister of Health, the Head of the National Health Directorate and the Head of the National Directorate of Planning and Cooperation.

Context

The prolonged battle for independence and 16 years of civil war left Mozambique in 1990 struggling with a range of issues: a ravaged infrastructure, unruly excombatants, ongoing banditry, a legacy of land mines and a lagging economy. Very low civil service wages, severe lack of institutional capacity, and a very low doctor/population ratio, among others, are factors that continually influence any institution-building health project in Mozambique. Examples of resulting constraints include staff (including researchers) not being able to survive on government salary and their professional activities are often determined by the potential for supplemental remuneration; unavailability of skilled and trained staff; weak administrative capacity causing severe delays and inadequate accounting for funds; lack of autonomy to recruit the few motivated and gifted research staff available; and little priority (and resources) given to research. This situation was confirmed by documents available and numerous key informants. There are active policy making bodies, namely the Consultative Council which meets weekly and the National Health Council which meets biannually. Research is both commissioned and

Figure 1

REPUBLIC OF MOZAMBIQUE
Health Sector Recovery Program
Ministry of Health
Organizational Chart



Source: "Development Credit Agreement (Health Sector Recovery Program) between Republic of Mozambique and International Development Association", World Bank 1995

presented to planners and decision-makers at these meetings and they are the main mechanisms through which findings are used in policy development and programme design. According to Ministry of Health staff, at the time of the project research did not play an important part in decision making and these mechanisms were underused. Programme managers were more concerned with implementation and did not possess the managerial capacity or skills to be able to determine and articulate research needs and priorities. The monitoring and evaluation that was conducted was largely prompted by donors and was not part of a systematic planning process in the Ministry of Health. At one time up to 160 individual donor projects were being implemented, stretching beyond capacity the efforts to coordinate and lead health-related activities. Consequently, during the project period 90% (INS staff estimate) of research conducted was initiated by Principal Investigators which has implications for its relevance and the extent to which it was used.

The aforementioned constraining factors are counterbalanced by the skill, dedication and sustained commitment by those involved in implementing the project which has clearly been a critical factor in its success.

One planned recipient institution, the Regional Centre for Health Development (CRDS), did not participate in the project except by receiving in-service training for its library staff from the technical advisor. According to the current CRDS Director, in 1992 mismanagement of the institution was discovered. WHO temporarily withdrew its financial support, and involvement in research and training did not resume until 1994, once the new Director had created adequate administrative capacity and accountability.

A year into the project, the Director of the INS (Project Leader) was replaced. His successor, whilst very able and committed, was somewhat more oriented towards promotion of research capacity (and research output) rather than integration of research institutions (Author's observation based on interviews with INS staff). This subtle shift in focus has to some extent influenced the degree of achievement of related objectives.

Most research staff in the participating institutions in 1990-91 were expatriates and an intensive plan of overseas training at this time was inappropriate. If the limited nationals available had taken up all the training opportunities, other project activities would have ceased.

The project library staff were described in the information specialist's first report as being semi-literate with little, if any, English language proficiency. Consequently progress in capacity building was slow. A suitable national to head the library could not be found and the absence of a counterpart to the information specialist in the documentation centre constrained progress further.

Objectives

The project objective, as given in the Project Summary, was:

To increase the health research capacity of Mozambique in respect to primary health care.

The objective was achieved to a large extent. Research was better coordinated, though not fully

integrated; the documentation centre was significantly improved and numerous research projects were undertaken using the small grants provided.

Strategy

The strategies to be used to achieve the objectives were to create a 'critical mass' of researchers in tertiary health institutions and provinces through in-country and overseas training; gaining experience in research through funding research projects; improving access to literature; and attendance at international conferences. The Author considers that the strategies were appropriate, though overseas training was not feasible due to the limited number of nationals to attend long training courses.

Activities

The Project Summary described specific activities to implement the project. They are listed and commented on here:

1. To rationalize, integrate and coordinate the health research system and activities. The Inter-Institutional Research Board (CIIP) was formed whose main responsibilities were to administer research funds, approve research grants, coordinate preparation of progress reports, and monitor and coordinate inter-departmental research activities, among others. The CIIP membership consisted of the Director of INS and its administrator for project management; the Dean and Deputy Dean of the Faculty of Medicine; and the Head of the Research Department and Tutor and Researcher from the CRDS. CRDS later withdrew its membership for reasons stated under Context above. Three sub-committees were established to oversee components of the project in the areas of library support, training and research. Within research there was a Technical and Scientific Committee which reviewed research proposals in an open forum. These were considered necessary and useful mechanisms for increased collaboration and reaching consensus on project-related decisions.

The intention by INS was to use the project as a vehicle to strengthen long term collaboration and integration of research activities. The Faculty of Medicine, however, regarded it more as a mechanism for project implementation and CIIP has ceased to function. Formal technical appraisal has also decentralized to the respective institutions, though informal technical appraisal between the INS and FM continues.

2. To develop a plan for Essential National Health Research (ENHR) for Mozambique. In the late 1980's a series of workshops were conducted to reach consensus and plan for the development of health research in Mozambique. The workshops were attended by all key players in the health institutions as well as the Ministry of Health. The output from these workshops formed the basis for the 10-year plan for strengthening ENHR. This project co-funded the first 3-year time slice of the plan. The remaining 7 years of the plan required more detail, but this was not developed during the project. Instead, according to the Project Leader, the priority for the INS towards the end of the project was to develop a plan for Health Systems Research which has been produced for the years 1997 to 2000. There has since been a gradual reversal of integration of research activities between the INS and FM (detailed below) and this may also have contributed to the absence of a detailed plan for research activities for all the research institutions (Author's conclusion).

3. To train at least one researcher, at post graduate level in one of the following specialties: epidemiology, tropical and infectious diseases, health economics, sociology, biostatistics, demography and information sciences. As referred to elsewhere under Context and Strategy, this activity was not implemented due to the absence of available nationals at the time of the project. A number of nationals have, however, been trained since the project with other donor funds, primarily from DANIDA, The Commonwealth, and the governments of Italy, United States of America and Spain through scholarships provided by universities in these three countries.

4. To provide research methodology training for staff and students at the three research institutions, in the field and from other Portuguese speaking countries. Although training was not provided to other Portuguese speaking countries, approximately 20 training courses in research methodology were conducted to all tertiary institution staff in Mozambique. INS and FM staff conducted the training. Trainees (numbering 520 in total) mainly included staff from the university and other colleges who were teaching subjects such as biology, science and medicine. A research training course specifically for medical students was also developed and implemented and is now part of their curriculum.

5. To establish a health documentation centre for Mozambique and to train at least two documentalists. This was jointly funded by the Commonwealth Secretariat who provided technical assistance to the project. The documentation centre at the INS and FM library were reorganized. Staff from the documentation centre/libraries of all three beneficiary institutions (including INS, FM and CRDS) were trained in English, basic library skills and computerized cataloguing using CDS/ISIS. One documentalist from the INS documentation centre and one from the FM library were trained to Diploma level in library and information studies, and researchers were also trained to use email and CD-ROM. In addition to furniture, shelving and building renovation, a computer, printer, CD-ROM drive, two terminal workstations, computer and printer for desk-top publishing and a file server were procured for the documentation centre. During the project over 30 journals and MEDLINE, POPLINE and LILACS were regularly being received. The Ministry of Health could not absorb the cost of these inputs and subscriptions have since ceased.

6. To establish and operate a system of small grants in health research. The technical and scientific committee received proposals and made decisions on the allocation of grants. According to the Project Leader, numerous research projects were implemented, but the actual number was not available from the INS when requested, nor was there information on the proportion of research projects that were published. Many probably were, since the Research Board withheld 10% of project funding until an article was written.

Inputs and Expenditure

In addition to SAREC and IDRC, The Commonwealth also provided inputs in the form of technical assistance to the documentation centre and libraries of the participating institutions. A summary of available information on planned and actual inputs is given below:

Source	Planned Contribution (CAD)	Actual Expenditure (CAD)
IDRC (VR)		
Computer and telecommunications equipment	176,594	114,830
Activities: vehicles, rehabilitation, research grants, subscriptions, etc	697,800	572,212
Sub total	875,000	687,042
Field visits	N/A	N/A
Government (PS)		
Training workshops	14,000	N/A
Training students	12,000	N/A
Office supplies & stationery	45,000	N/A
Fuel/maintenance	75,000	N/A
Administration	150,000	N/A
Clerical	46,800	N/A
Library furniture and supplies	15,000	N/A
Telecommunications	9,000	N/A
Sub total	70,800	N/A
The Commonwealth (PS)		
Technical assistance	78,180	N/A
SAREC	N/A	N/A

N/A = Information not available

PS = Source: Project Summary

VR = Source: IDRC Project Variance Report 30/5/97

Although requested through e-mail, SAREC did not provide any financial information on project planned or actual expenditure. Details of Government inputs were also requested but not available.

DANIDA and WHO, whilst not strictly part of the project, also contributed towards achievement of the objectives. DANIDA funded small research grants, targeted primarily at provincial based researchers and also provided support and resources into malaria. WHO provided some funds for training in health systems research (HSR) and to publish the quarterly Mozambique health

sciences journal.

Considerable IDRC technical input was provided by project staff in the development of the proposal as well as during the first two years of implementation.

The project inputs were considered by recipient institution staff to be largely adequate, and comprehensive. One exception was the documentation centre ICT components which were not appropriate in that they were not capable of meeting the demand for literature searches. There were significant delays in transferring funds and the computers arrived four years after the project began.

A significant delay (3 years) occurred in installing the computer laboratory equipment in the Faculty of Medicine. According to the Project Leader, administrative weakness within the INS was largely responsible for the delay. This constraint was foreseen and GTZ were requested to provide administrative assistance for the project. This was not forthcoming, and IDRC subsequently declined to add it to their project inputs. Many key informants from the participating institutions mentioned that the project was innovative in that it did not seek to influence the research topics. Since it was a capacity building exercise there was a large degree of flexibility in the ways that funds were utilized. This allowed research projects to be identified according to beneficiary perceived needs. Unfortunately, maximum advantage of this was not taken by the Ministry of Health due to the inadequate mechanisms to identify and prioritize research needs, as described in the context above.

2.2 Project Outcomes

Outputs

The research methodology training trained a total of 520 staff. According to INS and FM staff, this resulted in an increase in the quality of research proposals and the quantity and quality of research conducted. National health research conferences were held in 1992 and 1994. The number of abstracts presented at these events increased from 130 to 160 respectively. Some of these research projects were funded by IDRC, though for reasons indicated above, the number could not be determined. The number of INS and FM joint research projects presented at the Conference also increased from 1 to 7, indicating improved collaboration.

Researchers presented findings at international conferences, estimated by the Project Leader to be roughly 3 per year. The number of international publications also reportedly increased to approximately 6 per year, compared to none written by national staff before the project began. The quarterly Mozambique health sciences journal (distribution list of 750) was revived and the number of articles per issue rose during the project period from 6 to 9. A newsletter (1,500 copies) was being printed and distributed every quarter. The Newsletter and journal subscriptions for the documentation centre, described under inputs, were not sustained and require additional funding. According to the documentalist in the INS, production of the Newsletter ceased in 1995 and the journal subscriptions end in 1997. The Ministry of Health has not been able to absorb the recurrent costs.

The inputs into the INS documentation centre and FM library markedly improved its quality of service and demand substantially rose, as indicated in the first project technical report and

confirmed by the technical advisor. Only one CD-ROM drive was originally procured and at least three were needed to easily use the CDs that were ordered. A stack of CD-ROM drives had been procured to overcome this inadequacy, but soon demand again outstripped capacity. Presumably this problem could have been foreseen by IDRC and a suitable system budgeted for at the outset. According to the technical advisor it was finally recommended to install an array of hard disks to allow multi-users to access multi-data bases, but this was not taken up due to competing needs for available resources. If this system is installed in the future, many of the subscribed journals would not be required.

The FM library also received over 20 computers to equip a computer laboratory. One computer has email facilities. According to the FM teaching staff, the computer facilities have 'revolutionized' teaching and learning. Students are becoming computer literate, learning to use data analysis software, and computer assisted teaching is enhancing the learning environment. The equipment has only recently arrived and demand for use has already outstripped availability.

Both the INS documentation centre and FM library have continued to catalogue documents and, according to the INS and FM staff, the resulting improved access to literature is appreciated by all users. Access to email in the documentation centre has been erratic due to administrative delays in paying the telephone bill. The MEDLINE subscription was discontinued from 1994 due to reallocation of project funds and the CD-ROM has not worked since late 1996. The Author was not able to determine the reason for this latter dysfunction as there was no ICT technical support available to diagnose the problem or assist them. A policy on the control of dissemination of data from Mozambican research was developed and implemented through the project structures described above.

Reach

Planned reach included the staff and students of the identified institutional beneficiaries and those health professionals (almost all doctors) who wished to undertake research and who requested outreach library services from the provinces. Since the resulting knowledge from research was to inform decisions regarding the development/rehabilitation of the health care delivery system, it was implied, though not stated, that health programmes and the population at large were also intended indirect beneficiaries.

All groups benefitted to some extent from the project. Details of reach and impact are given in Table 3. As referred to under activities, 520 staff from tertiary institutions (University and colleges within Maputo) received training in research methodology. According to FM staff, 40 medical students each year since 1992 have graduated with sound research skills. A handful of these students have chosen to continue working in research after graduation. The health sciences journal (distribution 750), Newsletter (distribution 1,500) and national conferences were the main vehicles for dissemination of research. It is assumed that the majority of these copies are read by a number of health professionals. There has been no evaluation of their usefulness to those receiving them, however. Unfortunately, the Author could not find the number of conference participants from the conference reports.

As mentioned above, the majority of research was not user-driven, but the policy development mechanisms available were used to present research findings and some usage did occur. For

TABLE 3: EXTENT OF PROJECT REACH AND IMPACT - STRENGTHENING HEALTH RESEARCH, MOZAMBIQUE

Initial priority/ies	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
3, FM	Capacity building	Improved access to information thru strengthening library and DC;	Medium. Rapid searches using CD-ROM and Internet, though multi-user/multi access not poss. in DC and erratic usage of email; -improved cataloguing (now 3,426/7,000 approx. documents catalogued on computer); -trained staff; -access to relevant current journals (subscribed to 34); -data base for Mozambique literature; -production and dissemination of Newsletter (1,500 copies)	Medium. Staff that returned from overseas training in FM library and DC are continuing to improve library services and to forge library union throughout the country. Future potential benefit significant as libraries consolidate and research continues, but subscription to CD-ROM, journals and access to email uncertain; Newsletter also dependent on future donor funding.
	Capacity building	Trained researchers in and out of country	Medium. In-country training only: short courses with total of 520 participants from central and provincial levels.	Medium. Will be determined by the extent to which trainees use knowledge gained in future research. Training will also benefit those conducting HSR training at provincial and district level.
	Capacity building	Increased status as institution attracting international collaboration and funding	Medium/Low. Improved linkages are being achieved though difficult to determine project influence vis-a-vis other donor support	Medium. Increased collaboration likely as INS, FM and CRDS continue to build on successes to date.
	Increased knowledge; capacity building	Increase in amount of research conducted	Medium. Quantity of research increased during project life, in part due to IDRC funding. Researchers gained experience and skills as a consequence	Medium. Momentum for research has been maintained suggesting future research will continue, but dependent on donor funding.
	Capacity building; increased knowledge (indirectly)	Teaching medical students in research; research conference for medical students; funding research by students	High. -From 1992, 40 students have graduated each year with sound research skills and quantity and quality increased; -funding facilitated FM planning since could count on funding available; -some students highly motivated to choose career in research; -installation of computer Laboratory and email has increased data analysis and word processing skills	High. Continued benefit expected provided donor funds are available for teaching, student research projects and the student's research conference. Presently, funding is difficult to find.

Beneficiary/Unit	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
	Capacity building	Increased institutional collaboration	Medium. -Joint (FM & INS) research presented at national conference increased from one to seven articles 1992-94, and joint projects continue; -process of research review (developed for project) was effective and continues. -increased use of other institution's resources such as laboratories and staff to supervise research.	Medium. Inter institutional peer appraisal of projects continues. FM is increasing its independence at present and there is evidence that duplication has occurred since project ended. Extent of future collaboration dependent on whether planned affiliation is successful
IOH: decision makers, planning unit, H programme managers, service delivery system, etc	Increased knowledge; policy formulation; improved quality of life	Use of research conducted	Low. -Quantity and quality of research increased during project life, in part due to IDRC funding. -evidence of programme policy change e.g. discontinued use of SSS for diarrhoea and prophylaxis for malaria, and integrated family health programmes in Dept. Com. Health; -extent research used not possible to determine, but has not been optimal since 90% of research has been PI initiated, though for exist for programme manager input	Medium. Determined by the extent to which trainees use knowledge gained in future research; HSR project beneficial influence since stronger linkage between research information demand and supply and 'critical mass' of researchers likely to increase.
service delivery agents e.g. doctors, clinical technicians	Capacity building	In-service training	Medium. -Increase in provincial research following training; -access to articles/clinical texts/advice through email sent by DC -improved problem solving skills of doctors.	Medium. Momentum for research continues and decentralization will facilitate research activities. Use of email depends on reliability of telecommunications and funding for planned email provincial network
RDS	Capacity building	Improved access to information	Low. Some assistance in improved cataloguing and realized needed to change staff during library training	Low. Library will benefit from on-going training and coordination lead by INS DC
	Capacity building, increasing knowledge	Conducting research	None, since inappropriate for CRDS to participate at the time due to administrative weaknesses	None since project ended
international community	Increasing knowledge	Publications, presentation at conferences	High. Average of 6 international publications per year; average of 3 presentations at international conferences. Before the project no publications or presentations were made by local staff.	High. Quality increasing and international collaboration is strengthening

Clinical significance/Use	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
Health service users	Improved quality of life	Use of research	Low. See above under service delivery agents. Not possible to quantify extent affected. Egs of impact available: observed decrease in hyponatraemia as result of change in home treatment policy for diarrhoea	High. For all the reasons above.

example, sugar and salt solution promotion ceased after a study revealed a high number of hyponatraemia cases among children with diarrhoea.

A growing emphasis is being placed on the decentralization of health systems research (HSR). Through the project, the INS is now sufficiently capable to lead and implement this process. Future reach is therefore likely as more provincial health professionals are trained in research methodology and health systems research is used as a tool for improved service delivery.

Impact

The INS and FM continue to collaborate technically in research appraisal and implementation. This was considered by the INS staff as an important and sustained outcome of the project since it did not exist previously, but there is evidence that duplication of limited resources is beginning to occur. For example, in a sector with very limited resources, laboratories (with ample capacity to spare), of the type which exist in the INS, are also being built in the FM.

Research capability has undoubtedly improved as evidenced by a reported increase in international publications, and a reported increase in quality and quantity of research conducted. This could not be verified by the Author since it was written in Portuguese. All key informants in the implementing institutions agreed that the project had played a major role in creating this impact through its major activities of staff training, research grants and improved access to literature. An FM staff member who had received undergraduate medical training in research methodology, and had worked in the provinces, was convinced that the training had increased problem solving skills among doctors. Doctors placed in provincial health facilities, where operational constraints are commonplace, are better able to solve day to day supply and administrative problems as well as incorporate operational research to improve effectiveness and efficiency in their workplace.

Not only has the project contributed to increasing the knowledge pool, but also document retrieval. The documentation centre in the INS and FM library are both functional. 3,426 documents out of a total of approximately 7,000 (documentalist estimate) in the documentation centre had been catalogued on computer. Computer cataloguing had just begun in the FM library. Retrieval through manual cataloguing was operational in both institutions. This is remarkable progress considering the pre-project situation of very limited capability of documentation centre and library staff (see Context) and the absence of a functional catalogued system.

There was demonstrable impact on policy, programme implementation and health impact resulting from some of the research that was conducted during the project. Use of project research has lead to better integration of programmes and the cessation of the use of chloroquine as prophylaxis. It was not possible to quantify the extent to which health impact resulted from research, nor was it possible to ascertain which research projects were funded by IDRC, but clearly these were not the only examples. The major factors influencing impact have been described under Context above and are summarised in Table 4 below.

It must be remembered that in 1991 the limited research conducted was largely undertaken by expatriates. Today, nationals are initiating, reviewing, conducting and publishing research. The project upgraded the capability of nationals such that they were sufficiently trained and experienced to attend postgraduate training abroad, later funded by other donors, detailed above under Inputs. The INS now has one staff member with a Ph.D., six with a Master's degree, and

six more about to begin postgraduate training. The project probably contributed to this (Author's conclusion) since it increased the capability of individual researchers and their research output, and thus, their eligibility for post graduate training.

Other donor inputs such as that by DANIDA and WHO (see Budget and Expenditure above) were explored for possible project influence. The Danish Embassy was contacted, but no one was available to comment on whether the IDRC project had influenced DANIDA funding. Regarding WHO inputs, it is conceivable that the project maintained the flow of research articles which provided the justification for WHO to continue funding publication of the journal article, but without knowing the number of projects implemented and how many were IDRC-funded, it was not possible to comment on possible project influence.

The project has succeeded in laying the foundation for serving the Ministry of Health's research needs. Since the project began there has been an increased emphasis on 'operational research', indicating the realization among researchers and users of the need to provide research information for practical use. The HSR initiative is furthering this aim and the research institutions are now able to support this process. For instance, the Ministry of Health has provided, through policy development mechanisms, a list of HSR needs and the HSR plan requires the participating research institutions to provide technical assistance to train trainers at provincial level. The Project Leader considered the IDRC project to be the primary vehicle through which the INS staff gained sufficient expertise to be able to implement this initiative.

Key informants in the INS also consider one of IDRC's main contributions to have been the provision of funds for research to facilitate the strengthening process to occur, without imposing a research agenda.

2.3 Enhancement of Outcomes

A summary of the factors which inhibited and enhanced impact are given in Table 4 below:

**TABLE 4: FACTORS THAT INHIBITED AND ENHANCED IMPACT -
STRENGTHENING RESEARCH CAPABILITY, MOZAMBIQUE**

Factors that Inhibited Impact	Factors that Enhanced Impact
Institutional weaknesses e.g. inadequate planning and policy development processes; inadequate programme management capacity, meant that researchers and not users were choosing research topics. This undoubtedly compromised the extent to which research was both useful and used.	Researchers made use of the planning and policy development processes, although they were limited in their effectiveness to identify research needs
IDRC was convinced that the project received strong MOH commitment, but it did not secure tangible government pledged inputs such as provision of new researchers to replace expatriates in the recipient institutions	Commitment of senior researchers to the promotion of research capability and to collaboration between research institutions
No administrative support was provided which caused significant delays e.g. three cohorts of medical students did not benefit from the computer laboratory which reduced reach and probably impact of this project component	Dissemination mechanisms available (national conferences, journal) to distribute results and to provide an incentive to conduct the research (in an environment with many disincentives - see Context).

Factors that Inhibited Impact	Factors that Enhanced Impact
Inadequate guidance in the planning of ICT provision to the documentation centre.	Involvement of all key stakeholders in creating a vision for research and in designing the project
Contextual factors (detailed above) limited the amount of research conducted e.g. no career recognition for published research; competing sources for salary supplementation by civil servants (including researchers); no career path for researchers, etc.	Involvement of IDRC project staff in the development of the project
	Donors involved did not impose research agenda, thereby enabling national priorities to determine project activities, though full advantage of this was not taken due to lack of involvement of users in determining research priorities
	Withholding 10% of project funds until research project articles were finalised (where appropriate) ensured that project funded research was published.

The ultimate aim of ENHR is to provide information which is used to improve health status through the development, and then implementation, of health policy. The objectives of the first phase of the 10-year plan have been achieved. Now that the foundation for research has been created the next stage is to consolidate and maintain research capability at national level and to support and promote research among all health professionals. Research would then be recognized as a managerial tool at all levels to improve service delivery, and would be widely used as such. There is also an initiative to use HSR to facilitate health problem solving at the community level. Major strategies required for this next phase have been identified as follows:

1. Library support: Develop a communication network among all relevant libraries in the country providing all provinces with access to the Internet and the ability to conduct literature searches; provide continued technical assistance to support the continued strengthening of the research institution libraries and provide support to developing the library network throughout the country; provide multi-user - multi data base service capacity in the research institution libraries; provide funding for associated recurrent costs and dissemination mechanisms, e.g. resumption of the Newsletter. There is a plan for expansion of Internet access and email installation but a copy was not available to the author. Complementary to library support is an ICT proposal to the ACACIA Initiative that has been submitted;
2. Training of staff: Training new staff in health research institutions at post graduate level; training trainers at provincial level and support provincial trainers to train provincial and district level staff in HSR; continued funding for medical students training;
3. Funding research projects at all levels; funding national conferences and attendance at international conferences;
4. Affiliation of health research institutions to the university (as already proposed) to further improve integration of research activities and maximize use of limited resources.

A Health Sector Recovery Programme funded by the International Development Association

contains a research component, but the extent to which funds can be accessed for research-related activities was unclear. Although some funding may be forthcoming from the Islamic Development Bank for HSR activities a substantial portion of the strategies identified above remain unfunded. IDRC's role in developing the library network and related ICT input would seem appropriate as well as supporting other unfunded activities listed above. The Health Sector Recovery Programme will also support activities to strengthen institutional capacity which should remove or reduce the influence of many contextual constraints. Since addressing some of the major constraints which inhibit use/impact of research is outside of the mandate of IDRC, the role of IDRC may be optimized if integrated as part of a larger programme of assistance that includes improving institutional and administrative weaknesses.

3.0 Project # 91-0275 Agrochemicals and Farmworkers

3.1 Description of Project

A large proportion of South African workers is employed in agriculture and is exposed to large quantities of agricultural chemicals, especially pesticides. The effects of these chemicals on the health of workers and their families, including chronic effects, were largely unknown. The project consisted of a study which measured the impact of exposure to pesticides on the peripheral and central nervous systems. It also field tested field kits and other testing instruments for their accuracy and reliability.

The study was implemented from 1992 to 1995. It came at a time of imminent change in South Africa. The results were to inform anticipated new legislation, policies and programmes. The project also aimed to train and empower black researchers since the legacy of apartheid had resulted in very limited black research capacity. This assessment will ascertain the extent to which these anticipated outcomes have been realized. The project was implemented by the Department of Community Health at the University of Cape Town, Republic of South Africa.

As referred to in the methodology, this assessment was conducted through a desk study which does not do justice to the considerable impact that was achieved. Information sources included the Project Summary, technical reports and comments through email from a principal researcher in the recipient institution. Due to the Author's time constraints, the information provided by the recipient institution could not be verified with the intended beneficiaries.

Context

The project was conceived at a time of imminent transition to a democratic government. New legislation and policies were being developed to redress the racial imbalance of the previous government. The situation created an environment in which there was a demand for research results that would shape occupational health policy. The recipient institution was already collaborating with centres that were developing policies and legislation. Thus the mechanisms and policy environment was conducive to dissemination and use of research results.

Although the transition laid fertile ground for policy development, the actual restructuring that took place during the project caused delays in impact. The service providers were so busy with restructuring that application of results in policy shifts was retarded. It also caused delays to a follow-on project to investigate methods for the safe storage and disposal of agrochemicals

The legacy of apartheid caused project constraints. Firstly, there was a shortage of black researchers to train. This compromised the extent to which capacity could be built among black staff. Secondly, as a result of the extreme isolation of rural farms and the tight control exerted by farmers over employees, there was a very low level of unionization of workers on farms. The lack of organization among farm workers limited the extent to which they could participate in study design, application and implementation of results.

Shortly after the study was implemented, the main COSATU-affiliated union which served farm workers handed over responsibility for the sector to a new union dedicated to the organization of farm workers, the South African Plantation, Agricultural and Allied Workers Union

(SAAPAWU). This meant that there was a hiatus in attempts to organize workers on farms at precisely the point when implementation of project results could have appeared on a union agenda. Links with SAAPAWU (and other smaller unions) are presently being re-established through a series of training workshops in which the project results are being used.

The market preferences by employers for US and European clients assisted in creating the financial incentive for employers to support research into farm workers' occupational health. Initial suspicion and reluctance by employers towards the study caused delays in granting access to the chosen study site which resulted in hurried preparation and necessary over expenditure on data collection. It influenced the use of project inputs, i.e. more staff and transportation costs were used, but did not influence project outcomes.

The Department of Community Health had established collaborative links prior to project implementation, according to the Project Summary. It had already collaborated on research with the University of South Africa and the National Centre for Occupational Health. Both these organizations assisted with specialized components of the project research. At the University of Cape Town, coordination of research into occupational health had begun through an informal group known as Workhealth, including dermatologists, respiratory physicians and other specialist medical personnel. Through membership of Workhealth, the Department of Community Health was to gain access to the dermatological resources at Groote Schuur Hospital. The on-going research programme in the Department was also helping to coordinate an informal forum of interested groups such as trade unions, rural advice centres, including the Centre for Rural Legal Studies, and environmentalist organizations. Prior to the project these agencies were meeting on a regular basis to discuss, among other things, workers and agrochemicals. Some of these organizations used the results of the research for development of legislation (Centre for Rural Legal Studies) and training (Food and Allied Workers Union, or FAWU).

Tests for organophosphate metabolites in urine, genotoxicity in blood samples, and chromatographic analysis of pesticides were not possible since non-commercial laboratories in South Africa did not have sufficiently sensitive equipment or skilled staff, and commercial laboratories were prohibitively expensive. This was contrary to information provided to the Project Leader during project planning and was therefore unforeseen. Delay in analysis of some research findings has resulted.

Objectives

The aim of the project, as stated in the Project Summary, was to determine the effects of exposure to agricultural chemicals on the health of workers, and the effectiveness of control methods, simultaneously strengthening the research capacity of black staff, students and farm worker's trade unionists.

The objective was largely achieved, but the shortage of available black researchers and the reorganization of farmworker unions limited improvements in research capacity among these target groups.

Strategies

To achieve these objectives a study was designed, comprising a number of components. Firstly, a

series of pilot studies were undertaken to test the data collection tools, such as the Testmate Cholinesterase Kit and the Vibratron peripheral nerve sensation tester, to pre test the questionnaires, and to evaluate airborne exposure to pesticides, among others. Data was then to be collected from farm workers during the high and low spraying seasons, analyzed and then reports written. During the course of the study, an emphasis would be given to the inclusion and training of black researchers, including candidates for post graduate study using data from the research project to produce theses as part fulfillment of their degrees. Through the on-going collaborative networks already established, as well as through publications, the findings would be disseminated and used to develop policy and legislation. The Author considers that the strategies were appropriate, though not all were feasible due to the scarcity of black researchers.

Activities

Prior to the project, initial work had been done to establish the need for such research. As described above, several pilot studies were conducted initially to test the various kits and methods for measuring the impact of pesticides on health. An audit of pesticide safety practices was also carried out as well as a review of existing records of pesticide poisoning notifications.

The main focus of the project, the investigation of the potential neurotoxic effects of long-term low-dose pesticide exposure on farm workers, was then carried out by the research team. Field work was conducted over a period of 8 months in high and low season, followed by data analysis and write up. A further substudy investigated potential chronic respiratory pathology due to long-term paraquat exposure. During first round data collection it was noted that there were high levels of physical trauma amongst the subjects. Subsequently, a trauma inventory was included in the second round. During the course of the study, an outbreak of Guillian-Barre syndrome (GBS) was discovered in another province which was investigated as part of the brief of the project.

A comprehensive range of 'leading edge' tests were used, some of which were field tested for the first time.

Inputs and Expenditure

IDRC was the major donor. The project summary did not give the expected recipient contribution. A summary of available information on planned and actual inputs is given below:

Source	Planned Contribution (CAD)	Actual Expenditure (CAD)
IDRC (VR)		
Research equipment (computers)	5,000	0
Travel	0	1,932
Research activities such as training and data collection.	241,750	224,135
Sub total	246,750	226,068

University of Cape Town		
Time of staff in Dept of Community Medicine, including 20% of Project Leader's time, full time researchers, etc., and office support	N/A	N/A
Other organizations		
Time of staff in other collaborating institutions including University of South Africa and National Centre for Occupational Health.	N/A	N/A

N/A = Financial information not available

VR = Source: IDRC Project Variance Report 30/5/97

Substantial training in research methodology by the Project Leader and others was provided to the team of researchers.

According to the principal researcher, the inputs were adequate and timely.

The other donors were the South African Medical Research Council who contributed towards the costs of the blood tests and the University of Cape Town Research Administration who facilitated a fellowship for the principal researcher before the IDRC finding came through, which allowed ground work to be done.

Some computer equipment was provided. This was mainly used for data analysis. The University provided for fax and email which were used extensively.

3.2 Project Outcomes

Outputs

According to the project's technical reports and principal researcher, the outputs of the project were as follows:

- 9 peer reviewed papers, 4 further publications in non-peer reviewed journals, and 2 monographs, one of which has been made available to health professionals in industry and agriculture who are responsible for monitoring workers exposed to pesticides. Approximately 13 conference presentations (oral and poster) including an invited keynote address at an international epidemiological symposium in 1997, have been made based on project-related work;
- Comments on draft legislation: Occupational Health and Safety Bill, 1993, Injured Employees Compensation Bill, 1993, Environmental Act 1997 and a position paper for the NGO that was commissioned to develop new legislation for pesticides;
- Theses for a Ph.D., master's and B.Sc. degree on various aspects of agrochemical exposure. The Master's graduate (black) is now registered for a Ph.D.;

- A module on occupational health for a Rural Foundation farm health worker project;
- Module on farm worker and rural health in the Masters in Public Health and M.Phil programme in Public Health at the Western Cape School of Public Health. This module is also offered as a free-standing short course every two years at the University's Winter School, as part of the Regional School of Public Health initiative. Teaching material was also developed for postgraduates on the Diploma in Occupational Health offered by the department over the period 1993 to 1997. Additionally, the National Centre for Occupational Health has invited the Department of Community Health to teach on a toxicology course scheduled for 1998, based on expertise in the field of pesticides;
- Questionnaire, pamphlets, and a shop stewards organizing manual for the FAWU. In 1997 health and safety training on pesticides was conducted for the SAAPAWU, and materials previously developed for the FAWU were expanded and used. Based on the research team's experience, the ILO has invited the Department to participate in an ILO sponsored training for all farm worker unions in South Africa in 1988;
- Approximately 100 copies of the guidelines for biological monitoring for organophosphate exposure have been distributed to date in response to requests from health professionals responsible for monitoring workers exposed to pesticides, but also from government inspectors in health and labour departments;
- Draft regulations on Agricultural Workplaces for the Department of Manpower;
- Input to the draft discussion document on ANC policy regarding farm workers which was compiled by the Centre for Rural Legal Studies;
- Training: 6 interviewers, 1 data manager, 2 psychologists, research assistant, and the three researchers who produced the theses have all received substantial training on research methodology, and all but two were black. However, the project did not succeed in providing higher degrees to the number of participants anticipated, or promoting the number of black researchers in academic positions. One of the (black) researchers, however, is now working as Deputy Director for Occupational and Environmental Health for the Province.

Outputs produced that were significantly influenced by the project:

- Report to the Health Department, Stellenbosch Division of the Western Cape Regional Services Council;
- Workshop on promoting the safe use of pesticides (including report of results of research into pesticide poisoning notifications);
- Pilot project on agrochemical disposal; and
- Report to the Northern Cape Department of Health on an outbreak of Guillain Barre Syndrome, 1995.

The technical reports indicated (and confirmed by the principal researcher) that the Department

continues to conduct related research and to collaborate with other institutions.

The prodigious output from the project, including peer reviewed publications, and invitations to international events, indicate the high quality of the project and project-related outputs.

Reach

From the desk study it appears that project reach and impact has been, and will continue to be, extensive. Details are given in Table 5 below. The reputability of the Department and its established collaborative networks facilitated reach considerably. Another contributory factor was its function as a teaching institution, since the results could easily be incorporated into appropriate curricula. The calibre of participating staff also enabled the research results to be included in peer reviewed journal articles and has opened up invitations to give key note addresses at international meetings. It was unfortunate that the union organisation restructured at the time that the project results were available, but a programme of training for relevant unions in the project results is currently underway.

The farming cooperatives were deeply involved in approving the protocol. The FAWU were involved in commenting on the protocol but farm workers organisations did not play any direct role in need identification. Workers and employers on the farms were given report backs on the results, but it was difficult to ensure further action beyond this. A series of meetings were held in three different areas to ensure that both workers and farmers had the opportunity to receive feedback.

Impact

The project has generated considerable interest in this area of research and has also built capacity within the Department of Community Health. As a result the Department has developed a long-term programme of teaching, research and evaluation of service interventions in rural farming areas. The principal researcher has noted that a network of trained professionals is serviced with information and advice since many graduates enquire about pesticide hazards or to request additional information or data sources. Project research staff are now members of international committees and are key resource persons at international committees.

There have been multiple spin-offs from the project. A special edition of the South African Medical Journal is to be dedicated to the health of farm workers in 1998, at the suggestion of the Department of Community Health. It will carry three articles and an editorial from the department, all of which have arisen directly or indirectly from the IDRC-funded research.

According to the principal researcher, the project has been a springboard for further research and intervention in the areas of farm worker health and use of pesticides. A work fatality study was completed, and monitoring of water sources in farming areas for pesticides is on-going. Baseline research has been conducted for pesticide policy and the Department is now involved in a series of national and regional workshops to bring the public into the policy formulation process. A project to address the payment of farmworkers with alcohol is also being implemented in collaboration with other organizations.

The technical reports indicated that the reliability and usefulness of the Testmate field kit for cholinesterase estimates was established for the first time and at least one paper was published in

the field test findings. The kit is very important for field monitoring and potentially very useful for developing countries. One Ph.D. was recently awarded to a Kenyan researcher who made extensive use of the project's published work. The East Africa Pesticide Network has been using the kit and using the project's results in their assessment of its utility. Practical use has been demonstrated by applying it to monitoring exposures in the Northern Cape follow-up of the Guillain Barre Syndrome outbreak. Northern Cape staff have been trained in using the kit and now have the capacity to establish their own monitoring programme.

During the project, methods were developed to characterize exposure to neurotoxins which is a major advance in epidemiological research. Two articles on the methods developed have been published in the South African Journal of Science and another paper revised for publication with an international occupational health journal. The work is of great value in dealing with difficult research issues in developing countries. At a recent international meeting, the principal researcher was invited to present this work to a special workshop addressing exposure assessment in developing countries.

The study also sought to develop new types of neurobehavioural tests that would be suited for use amongst low-education working populations, typical of developing countries. The results have been partially published in recent articles and it is anticipated that the findings could make a major contribution to international standards for neurobehavioural testing.

Input into policies, regulations and legislation has been significant, such as providing comments on the Occupational Health and Safety Bill, 1993, and the Injured Employees Compensation Bill, 1993, and a new Environmental Act. Anecdotal observation by the project's principal researcher suggests that legislation is being enforced to ensure safety standards are upheld.

Various seminars were conducted and recommendations were submitted to the Department of Labour regarding agrochemical use. Recommendations of the project have been included into the Western Cape Health Plan. Indeed, the principal researcher was chairman of one Taskteam because of his involvement in the project. A local surveillance system has also been set up and maintained in one local government.

There is insufficient data to assess empirically whether health status of farm workers has risen as a result of the project. There have also been other initiatives which will contribute to improvements in health such as the implementation of the Hazardous Chemical Substance Regulation.

In conclusion, impact has been primarily felt in policy and legislation development, increasing knowledge pool, and building capacity and influence of the project staff and implementing department. There may have been some impact at the service delivery level through training and dissemination of information. It has not been possible to measure the extent to which farm workers benefitted, but it is probably limited. However, the latter group is likely to benefit significantly in the future through the training of unions, enforcement of new legislation, and on-going research and intervention projects, many of which have directly followed the IDRC-funded project.

TABLE 5: EXTENT OF PROJECT REACH AND IMPACT - AGROCHEMICALS AND FARMWORKERS, SOUTH AFRICA

Area/Institution	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
Dept of Health; Agriculture; Environmental Affairs; Labour	Policy formulation	Dissemination of findings, participation of project staff on committees, commenting/drafting key documents	High. Seminars for staff of Dept of Manpower; recommendations to Dept of Labour on regulations for agrochemical use; participation in regional seminar on labour legislation; input into policy conference on Occupational Health and Safety Bill, 1993 and Inured Employees Compensation Bill, 1993; input to the Consultative National Policy Process for environmental legislation, and to position paper to redraft Act 36/1947 on pesticides. Project influenced movement at national level to establish safe disposal of waste pesticides nationally. Currently involved in project to bring the public into the policy formulation process.	High. The Department of Community Health is now a key resource for occupational health policy issues. It is likely that the project research, and follow-on studies will inform policy in the future.
Western Cape Health Dept local authorities; Northern Cape Health Dept	Increasing knowledge; capacity building; policy formulation	Dissemination of findings, participation of project staff on committees, commenting/drafting key documents	High. Western Cape: Workshop on promoting safe use of pesticides in farming; seminars for health inspectors of Stellenbosch and Worcester local authorities (resulted in surveillance for pesticide poisoning); Project manager convened Taskteam to develop rural health plan as part of Provincial Health Plan. Recommendations of project findings also included into other Taskteam plans such as occupational health and health status review. Northern Cape: Project manager convened Task Group to develop response to an outbreak of Guillain-Barre Syndrome, discovered during data collection; N. Cape staff were involved in planning and implementing follow-up monitoring. Project also included training of environmental health officers and other staff of the project.	High. Dept of Comm. Health is actively engaged in on-going planning and evaluation activities to inform health planners and policy makers on how to improve service delivery. Future collaboration and implementation of research findings likely due to strengthened networks eg deputy director of occupational and environmental health in the Western Cape was a collaborator on the project. Improvements to surveillance have been maintained and will therefore give future benefit.
Centre for Rural Legal Studies	Policy formulation	Dissemination of information, participation in developing key documents, input into key consultative events	Medium. Input into draft document prepared for ANC farm worker policy; participation in regional seminar on labour legislation; Social and legal issues have been included in University formal courses.	Further collaboration likely, for example, UCT and Centre for Rural Legal Studies are collaborating on a project to address the abuse of farm workers by paying them with alcohol.

Category	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
of Comm T and nts	Increasing knowledge; capacity building	Involvement of staff and students in project; involvement of staff in international conferences and development of publications; networking with other institutions in technical areas; updated curricula	High. Access to Resource Centre; teaching on pesticide hazards to postgraduates in Occupational Health Diploma (total 45 students) and in postgraduate courses run by School of Public Health (M Phil - 30 students; Masters - 60). Fourth year student's projects also included small studies related to project (30 students). Dept now sufficient expertise and information to develop long-term programme in teaching, research and evaluating service interventions in rural farming areas. Increased networking and status from collaboration during project with organizations such as National Centre for Occupational Health. Increased profile of Dept in national and international occupational health contexts. Dept has generated a critical mass of expertise in pesticide safety issues through recruitment of other researchers for follow-on projects.	High. Spin-off projects implemented. Current and future curricula have/will incorporate findings. Teaching will continue and likely to expand as UCT implements interdisciplinary teaching across different departments. WHO invited principal researcher to provide 3 teaching sessions at international training course on toxicology.
et rchers	Capacity building; increasing knowledge	Through participation in the project	High. Resource Centre; Training in research methodology and research experience; academic advancement: opportunity to produce theses towards graduate and post graduate degrees, including those for black researchers. One investigator was awarded a Doctoral Degree for project research work; development of new research projects, attendance at national and international meetings; participation in international scientific committees. Principal researcher has been promoted to Associate Professor.	High. Project investigators will be (and are) in a position to supervise other researchers in the field of pesticides.
ce ery agents: h workers, e officers, s	Increasing knowledge; capacity building	Seminars, formal training courses, access to literature/ publications	High. Workshops with 5 Advice Offices on pesticide safety; seminar for clinicians (total 30 to date) on problems of rural workers and to take occupational factors into consideration as cause of ill health and to encourage collaborative clinical research; training of health workers in the Western Cape on public health, including research and its implications, under the auspices of the Committee on Public Health Education (30 participants to date). Poison Advice Centres and occupational medicine practitioners and hospital staff are better equipped to provide advice and treatment for pesticide poisoning. Environmental NGOs have received advice and support for pesticide-related campaigns and activities.	High. As evidence from on-going research in this area is incorporate into plans and policies service delivery agents will be able to provide a better service. On-going training for health personnel will enable continued benefit from incorporation of research into training courses

Beneficiary	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
PAWU	Capacity building; increasing knowledge	Dissemination and discussion of findings; training	Medium. Inputs into Farm Workers Conference; training modules and materials produced; questionnaire to assist in assessing hazardous work environment	High. Links with unions currently being strengthened and training on-going.
Employers; Producers; Agrochemical industry	Increased income	Dissemination and discussion of findings;	High. Participating cooperatives received full feedback and UNIFRUCO received a written report. Dept were invited to a meeting by one of the fruit industry cooperatives to promote monitoring of workers exposed to pesticides. Dept also providing advice to one of the cooperatives that is monitoring its workers. Employers have also benefitted from an improved trade profile and the involvement of the Dept in the industry's informal environmental monitoring group. Agrochemical industry and producers have commissioned consultancy services from the Dept for pesticide-related health and safety.	Some employers are quite receptive to occupational health interventions and this is quite likely to result in requests for assistance.
Farm workers	Increased quality of life	Improved safety practices at the workplace and better surveillance	Medium. Improved services by local health authorities to reduce preventable pesticide-related morbidity and mortality; farm workers were seen at the Hospital Occupational Medicine Clinic by staff with experience and skills from the project. Increased access to services and increased attention by employers to safety requirements; Referral to services. Unionized workers are being reached through training. Agrochemical industry pressured to be more alert to potential agrochemical hazards. Study population were referred and treated by Occupational Medicine Clinic	High. With the continuation of increased awareness, empowerment through training unions, and updated legislation, future benefit to farm workers is very likely.
Researchers and beneficiaries of research nationally and internationally	Increasing knowledge	Publications, presentations, networking	High. Access to findings through publications and theses. Papers presented at RSA conferences (200 participants) on epidemiology and occupational health, and at a symposium in Cairo in 1994, Stockholm in 1996 and Harare in 1997 on neurobehavioural methods and effects (total attendance approx 5,500). Workshops also held by project manager and researcher at African Medical Students Conference (25 participants). Researchers in other East African countries are using the research results and applying the test kit in their country.	High. There are numerous opportunities for international collaboration. For example, on-going participation in international and national scientific societies ie membership of the Epidemiological Society of Southern Africa, and the International Commission on Occupational Health; there is a plan to develop collaboration with researchers in Kenya on pesticides.

3.3 Enhancement of Outcomes

According to the principal researcher, the most important projects that would enhance project outcomes are as follows:

- Evaluation of training methodologies and dissemination of training for farm workers and farmers;
- Implementation of medical surveillance for farm workers exposed to pesticides;
- Promotion of integrated pest management strategies;
- Programmes to support small scale (emergent) farmers to be safe from the hazards of pesticides. - Development of a listservicer on pesticide issues to share information, assist in problem solving, identify resources for training and information, and to provide a site where the Department of Agriculture can post notices of pesticide registration for public comment. This would be an ideal ICT mechanism to achieve very practical and useful objectives. A complementary Newsletter is also envisaged for those without email.

Factors that inhibited and enhanced impact are summarised in the following table:

**TABLE 6: FACTORS THAT INHIBITED AND ENHANCED IMPACT -
AGROCHEMICALS AND FARMWORKERS**

Factors that Inhibited Impact	Factors that Enhanced Impact
Paucity of appropriately experienced black researchers to train	Timing of research during a transition to democracy when policies and legislation were being revised
Restructuring of local government delayed policy changes being made following research results	Calibre of personnel and reputability and capacity of recipient institution
Limited capacity of laboratories to conduct required analysis	Established collaborative networks prior to project
Reorganization of unions delayed training worker representatives	Institution was a university and therefore quickly incorporated the research results into training curricula, and identified post graduates that were able to use research in part fulfillment of postgraduate degrees

4.0 Project # 88-0397 Schistosomiasis Control: A Community-Based Approach Phase II

4.1 Description of Project

This project was the second phase of a pilot project which sought to demonstrate the impact of an integrated approach to schistosomiasis control. Phase I comprised the intervention stage and Phase II concentrated on evaluating the impact of these interventions, the results of which would form the basis for designing a national schistosomiasis control programme.

The project was implemented from 1989 until 1996, but most project activities were undertaken from 1990 to 1993. Blair Research Laboratory in Harare, Zimbabwe, implemented the project. Together with De Beers Research Laboratory, it forms part of the Blair Research Institute which, according to its Annual Report 1995, is the national centre for research, training and service in the fields of disease control, biomedicine and health. Blair, a department within the Ministry of Health and Child Welfare (MOH&CW), is the major institution within which the Ministry aims to improve the health of the people of Zimbabwe by scientific research. The Director of Blair, along with other departmental heads, reports to the Principal Medical Director in the MOH&CW. Regarding schistosomiasis, Blair collaborates with other related Ministry departments such as the Department of Environmental Health and the Department of Epidemiology and Disease Control.

At the start of Phase II it was estimated that 22% of the Zimbabwean population were infected with schistosomiasis. The two effective control strategies, namely chemotherapy and chemical molluscicides, were prohibitively expensive for national control. The integration of water and sanitation and health education with existing measures was considered the sustainable and appropriate control strategy for Zimbabwe. The project research was to confirm or refute the need to link schistosomiasis control to improved water and sanitation.

This case study project assessment will focus on to what extent the Phase II evaluation results shaped the present schistosomiasis control programme and what impact/reach the programme has achieved. The involvement of schistosomiasis control partners in identifying the need for this research, conducting the study and reviewing the results will also be investigated as will the impact of the project on research capacity at Blair.

Context

Following independence Zimbabwe embarked on an ambitious investment programme to provide free health care to all during a time of slow economic growth. The resulting macroeconomic imbalance was corrected through the Economic Structural Adjustment Programme (ESAP), initiated in 1990. The ensuing cutbacks on social services further reinforced the need for low-cost sustainable health interventions and, due to its influence on mortality, the malaria programme has received the lion's share of limited disease control resources to the detriment of schistosomiasis control. The research was therefore both timely and appropriate.

In 1989 decentralization was initiated with greater responsibility being allocated to provinces and central level was reorganized to provide support to provincial implementation. Blair's mandate was narrowed to conducting research whereas previously they had been responsible for both research and disease control. The project proposal had been agreed whilst disease control was the

responsibility of Blair and then implemented after restructuring had taken place. Thus, Blair staff had ownership of the research, but those responsible for implementing its findings were in other MOH&CW departments or at provincial level.

In recent years the MOH&CW has embarked on a health reform programme which, according to health reform documentation, seeks to rectify managerial and institutional inadequacies. These inadequacies had impacted on research in that there was little systematic national prioritization for research (source: MOH&CW staff). At the time of the Phase II proposal, research topics were often initiated and determined by either Blair or their donor partners (source: previous and present Blair staff). The users of research (decision makers) were therefore not involved in its identification which may have compromised the use of research results (Author's conclusion).

Blair began in 1936 as a research institution for schistosomiasis. It is a highly respected research centre and is the specialist institution for health-related research in Zimbabwe. At the start of Phase II the Director of Blair, also the Project Leader, resigned, and the Co-Project Leader replaced him as Project Leader and Institute Director. According to the replacement Project Leader, this resulted in delays in start-up and reporting, and there was insufficient time for him to supervise all aspects of the study. Whilst Blair has led health research in Zimbabwe, its capacity at the time of Phase II was limited. When the present Director replaced the previous incumbent he was the only Ph.D. holder, compared to 6 Ph.D. holders at present (since 1991) and a further 6 currently engaged in doctoral research. All senior Blair staff, as well as others engaged in the project, were asked (and probed) whether there was any connection between the project and the these doctorates. No relationship was described or evident. The training was undertaken as part of a programme of in-house training of Blair staff.

Much of the research prior to Phase II was small scale and biomedical in nature and there was little experience in evaluating integrated interventions, particularly behaviour change. This, together with the insufficient project supervision (by the Project Leader, mentioned above), compromised the quality of the knowledge, attitudes and practices survey. There was also limited administrative capacity at Blair and financial procedures were slow in accessing IDRC funds from the Ministry of Finance. These comments on Blair's limitations at project onset are based on data collected from key informants at Blair who were involved in the project at the time it was implemented.

The 1991-92 drought in southern Africa affected data collection since some selected water bodies for snail collection dried up.

Project Objectives

As stated in the Project Summary, the project objectives were as follows:

General Objective

To evaluate an integrated, community-based schistosomiasis control programme as a component of an existing primary health care system.

Specific Objectives

1. To study the effect of improved water and sanitation facilities on the transmission of schistosomiasis
2. To measure the impact of treatment interval on the prevalence and intensity of schistosomiasis infection in school children

The integrated intervention was evaluated and a report produced. The study was unable to demonstrate any substantial impact of water and sanitation on the transmission of schistosomiasis, but the 3-4 year evaluation period may not have been long enough to detect a reduction in incidence and prevalence. The study did lead to a conclusion regarding treatment interval, albeit tentative and also demonstrated the sustainability of water and sanitation provision/promotion using the participatory approach.

Strategy

The strategies used to achieve the objectives were to measure:

- a) changes in age prevalence of schistosomiasis in Madziwe and Bushu over a three year period;
- b) prevalence of schistosomiasis in Grade 1 pupils entering the school system from 1990-1992;
- c) incidence of schistosomiasis in a cohort of 7-14 year old school children;
- d) infection rates in intermediate host snails as an indicator of transmission;
- e) changes in water and sanitation coverage since the end of the implementation phase.

Comparisons of incidence and prevalence between Bushu (control area) and Madziwe (intervention area) were to be made to measure their impact on disease transmission. As described in Context above, not all the stakeholders were involved in project identification and design, so it is unlikely that there was a shared perspective on objectives and strategy. The appropriateness of the study design is debatable. An alternative design could have been considered that would have enabled proximity and use of uncontaminated water and sanitation data to be linked to individual infection, thereby allowing for a comparison between villages and individuals within Madziwe and Bushu.

Activities

Activities included providing chemotherapy 36 months after the last treatment, taking and analyzing urine and stool samples; monitoring the snail population and their shedding of the schistosomiasis parasite; measuring the infectivity of exposed hamsters; and a knowledge, attitudes and practices (KAP) study to assess the effectiveness of health education and the sustainability of water and sanitation provision. Extensive meetings were held in the study areas to mobilize the support of officials at every level as well as members of the communities involved.

The results of the study were presented and discussed exhaustively at a two-day workshop attended by two environmental health officers from each of eight provinces.

Inputs and Expenditure

The items included in the budget were all related to data collection, analysis and report writing. No funds were set aside for dissemination or other follow-up activities. The workshop was funded through reprogrammed funds.

According to project staff, IDRC staff from both Ottawa and Nairobi visited the project 3-4 times over the project period. They provided technical advice and were able to agree on project changes and to iron out administrative issues. However, in between visits there were delays in responding to Blair's financial queries which was a source of frustration and caused an avoidable diversion of time from project implementation to project administration.

A summary of available information on planned and actual inputs is given below:

Source	Planned Contribution (CAD)	Actual Expenditure (CAD)
IDRC (VR)		
2 Microscopes	6,000	4,976
Reagent stripes	2,300	3,180
Computer	8,000	7,937
Praziquantel	30,000	16,245
Travel	0	2,260
Training	0	50,680
Activities, primarily data collection and salaries for technicians and field workers	151,620	105,640
Sub total	197,920	190,920
IDRC field visits	N/A	N/A
Government (PS)		
Personnel: Principal Investigator, Co-Principal Investigator, Technicians, field workers	30,320	N/A
Camping and laboratory equipment	9,230	N/A
Sub total	39,550	N/A

N/A = Information not available

PS = Source: Project Summary

VR = Source: IDRC Project Variance Report 30/5/97

On the whole, project staff considered inputs to be adequate but not timely. For a number of reasons, disbursement of funds was not satisfactory. The project staff sometimes operated with a debit balance in the project account and some activities had to be rescheduled owing to unavailability of funds, while others were not undertaken at all. This caused a great deal of anxiety among project staff and compromised their functional efficiency.

4.2 Project Outcomes

Outputs

The evaluation of the integrated community based schistosomiasis control project was conducted. The findings, as documented in the study report, revealed a sustained moderate reduction in the prevalence of both types of schistosomiasis and there was some evidence of a reduction in intensity of infection. Chemotherapy was primarily responsible for reduced prevalence and incidence and the level of transmission recorded in both study sites suggests minimal impact of the water and sanitation interventions, but the 3-4 year evaluation period may not have been long enough to detect any impact. Access to water and sanitation had been sustained from Phase I but not appreciably increased.

The KAP study results indicated that (a) people in both study areas were more aware than before of how schistosomiasis is contracted; (b) people were appreciative of protected water supplies and latrines, but the water points were insufficient and those that yielded water all year round were located far away; and (c) there was no appreciable intervention-inspired behaviour change to reduce transmission of schistosomiasis.

A draft report of the research results was produced and Blair are still awaiting technical comments from IDRC before finalization. The report gave an accurate description of the justification, methodology and results. Some tests of statistical significance were performed and conclusions were drawn where appropriate. The report had a some technical shortcomings which relate both to the study design and quality of report writing/analysis, but it must be remembered that the report was still in draft form. They are summarized as follows:

1. The KAP study failed to link behaviour change with disease transmission and there was little quantitative data on behaviour related to schistosomiasis transmission (noted in the project survey report);
2. The Government of Zimbabwe, under a different project, promoted water and sanitation inputs in Bushu during Phase I which compromised, to some extent, its control status. Nevertheless, the study design was maintained, relying on changes in incidence and prevalence between the two communities, rather than linking behaviour change with incidence and prevalence data at an individual level in both communities (Author's observation);
3. There was limited use of Phase I data for longitudinal analysis (Author's observation);
4. There was limited discussion of the implications of snail shedding and hamster immersion results (Author's observation);
5. There was no reference to international literature related to the findings and conclusions (Author's observation);
6. Sample size in Bushu was small because those infected were not treated (noted in the project report and confirmed by researchers). The implications of this on the representativeness of results were not discussed (Author's observation);

7. The results indicated that infection intensity differed by ward within the districts under study. The first phase found that this was related to proximity to natural water bodies (Phase I report), but the phenomenon was not explored for the second phase data (Author's observation).

A major handicap was the inexperience of the project staff during the first year of the study. The lack of continuity of Project Leader may have contributed to this, since the successor did not have the time to provide sufficient supervision of the researchers due to additional responsibilities as Director of Blair.

The three project recruited staff were given one month's schistosomiasis orientation. Seven staff (including 2 university students) were given 3 day's training in KAP survey data collection; and the two project field orderlies were trained in methodologies related to biomedical survey methodology. Blair personnel indicated that administrative staff also learned how to manage a large project through the experience. Almost all staff involved in the project have been retained and used for subsequent research. The research assistant and Co-Project Leader both reported learning a great deal about intervention evaluation and schistosomiasis epidemiology through implementing the project. The latter has since left Blair but remains employed in Zimbabwe as a research officer for an NGO in a related field.

According to project staff, the computer and related equipment was very valuable and necessary to project implementation. It is still being used by secretarial staff for work processing. However, further ICT input such as installation of CD Rom and subscription to Medline would have assisted the researchers greatly to access international literature since the Blair library is small. Email services would also have enabled Blair to network with other researchers internationally.

Blair (with IDRC's agreement) tried to compensate for the limited experience in measuring behaviour change by providing the assistance of a local university lecturer, but the Author was not able to determine why this was not successful.

Reach

According to the Project Summary the results were to be published, and meetings were to be held with communities and the local population. Presentation at international seminars was also intended and further reach was to be achieved through incorporation of the findings into MOH policy and strategies for schistosomiasis.

The results were not published and community meetings were not held. A presentation was made at an international meeting in Cairo and a workshop in Kariba was held to disseminate the results. Two environmental health officers from each province attended the workshop, as well as Blair staff and the Epidemiology and Disease Control Department, MOH&CW. The objective of the workshop was to promote the integrated approach at provincial level. Inviting provincial staff was appropriate within the decentralized system since provinces have their own budgets and are able to initiate disease control activities themselves. According to Blair staff, most of the benefit from the workshop related to recommendations on how to implement the integrated strategy for schistosomiasis control such as community participation and using local government structures. These operational lessons learned, however, were findings from Phase I rather than Phase II.

The potential users were not involved in project identification since this took place prior to decentralization. They were briefed that it was being conducted both at MOH&CW head of department meetings (Planning Pool) and annual disease control planning and evaluation meetings. The involvement of beneficiaries in assessment of findings occurred during the dissemination workshop. For details of the extent of reach and impact, please refer to Table 7 below.

Impact

Impact of the project was to be realized from improved service delivery for schistosomiasis control through the development of a national policy and programme. While a national programme has not yet been developed, there is evidence, according to Blair, that some provinces have adopted strategies used in the project to control schistosomiasis at provincial level. In Mashonaland East Province, for example, there is a schistosomiasis control programme modelled on the Madziwe project design and the implementors are constantly consulting Blair on how to monitor it. Similar smaller scale programmes are also being implemented in two other provinces.

According to staff of the Department of Epidemiology and Disease Control, following a National Schistosomiasis Survey in 1992 (also conducted by Blair) the Department adopted the (unwritten) policy of an integrated approach to schistosomiasis control, based on the Survey's recommendations. Very recently Blair assisted the Department of Epidemiology and Disease Control to develop a schistosomiasis control project proposal for Japan International Cooperation Agency (JICA) funding. It contains the MOH&CW policy on schistosomiasis control and includes strategies that use the integrated approach. JICA and the MOH&CW have since entered into a technical cooperation agreement to implement a schistosomiasis control project.

There are some lessons learned regarding what works and what does not work in the design of such integrated large scale projects. There is therefore some potential for future impact in the area of increased knowledge if these lessons can be documented and disseminated.

In addition to the provincial schistosomiasis control programmes modelled on the Madziwe project, the major past and likely future impact of the Phase II project can be largely determined by its influence in shaping the JICA project, since this contains the national policy and programme design. The project is based on Blair's recommendations, many of which were developed prior to the results of the IDRC-funded research. The integrated approach (water, sanitation and health education) has been a recommended WHO strategy since 1985 and the Head of Department of Environmental Health in the MOH&CW confirmed that his Department had adopted it in its activities without knowledge of the Phase II results.

TABLE 7: EXTENT OF PROJECT REACH AND IMPACT - SCHISTOSOMIASIS CONTROL, ZIMBABWE

Beneficiary/User	How benefit	Mechanism	Extent benefitted/affected	Potential for future benefit
Dept of Epidemiology and Disease Control	Policy formulation	Dissemination of research report; meetings; workshops	Low. Report not disseminated outside of workshop. Indirectly Dept. benefitted since it was able to articulate proposed national control programme to JICA with Blair's assistance.	Medium, mainly through using experience of madziwe project implementation in on-going and planned schistosomiasis control programmes.
Service delivery agents: health educators, environmental health officers, other provincial health team members	Capacity building	Training; dissemination of research report; workshops	Medium. Some provincial staff continuing to learn from Madziwe project experience.	Medium since Blair is providing on-going advice.
Researchers	Increasing knowledge	Dissemination of research report; project proposals	Low. JICA benefitted from Blair's ability to articulate programme through its involvement in schisto. research, including this project	Low
Study population	Increased quality of life	Chemotherapy and raised awareness through participation in giving specimens	Low. Necessarily limited since most activities were collecting data rather than intervention.	Low
Population at risk	Increased quality of life	Improved service delivery	Low, dependent on extent of provincial schistosomiasis control programme.	Medium. Most of the country is unserved and therefore the potential is great for an integrated schistosomiasis control programme. Benefit would be through Blair's influence in designing the national programme and providing on-going assistance using their experience.
International community	Increasing knowledge	Publications, international meetings	Low. Results presented at one international meeting. Attendance unknown.	Low, unless planned comments and assistance from IDRC in analyzing the data further produces an as yet undisclosed finding. There is a stated desire at Blair to publish findings, but no work on publication has begun.

It is likely that the schistosomiasis policy and broad JICA programme design would have been similar, if not the same, had the Phase II project not been implemented. However, some aspects of the project have used the lessons learned during the IDRC-funded research, according to Blair project staff. The IDRC project's primary influence in the future will be from the experience gained by Blair in the implementation of such a design, as is occurring with the provincial programmes.

Following the implementation of the IDRC project, DANIDA funded a project at Blair on the use of plant molluscicides. The in-country DANIDA representative was contacted by telephone and the project supervisors in Denmark were contacted through fax, but a response was not forthcoming and consequently it was not possible to determine whether the IDRC project had in any way influenced the DANIDA project.

According to the Director of Blair, he had requested IDRC to change the financial reporting format to correspond to Blair budget lines. He also requested funds to be transferred to Blair's account. The requests were denied. This, together with the delays in IDRC responding to financial information requests from Blair during the Phase II project, has made Blair hesitant to request further substantial funding from IDRC.

4.3 Enhancement of Outcomes

The relatively short time period to measure impact may have determined the inconclusive findings. A six year time period has now elapsed since the integrated intervention and a smaller scale evaluation study may be justified to measure impact.

There are additional research priorities that would also benefit integrated schistosomiasis control. Although Phase II monitored snail shedding there was very little intervention in Phase I to control the snail population and commercial molluscicides are prohibitively expensive. At present, IDRC and DANIDA are funding research on the use of plant molluscicides. There are also alternative snail control measures such as use of indigenous ducks and fish which Blair would like to evaluate. If shown to be cost-effective, the JICA project would then ensure that there are funds available to apply the research findings in on-going integrated schistosomiasis control activities.

Blair research laboratory is in the process of providing access to computers for its researchers, but progress depends on availability of funds through the various projects that support its activities. Staff did not have the technical capacity to articulate its ICT needs, nor was there time to conduct an thorough assessment. There did seem, however, to be significant potential for improvement in the use of ICTs for research purposes. Since they are such a reputable institution and a source of technical expertise it would be appropriate to enable them to increase their networking capacity to both access and provide research information. To this end IDRC could provide funding for training and equipment.

A summary of factors that inhibited and enhanced impact are provided in Table 8 below:

TABLE 8: FACTORS THAT INHIBITED AND ENHANCED IMPACT - SCHISTOSOMIASIS CONTROL

Factors that Inhibited Impact	Factors that Enhanced Impact
Breadth and depth of capacity of recipient institution was limited. After the Project Leader left inexperienced staff were delegated to implement the research project without sufficient supervision.	Choosing an established and respected institution with experience in schistosomiasis meant that (a) the staff that worked on the project were called upon to advise on future intervention design; and (b) the project could continue despite change of Project Leader.
IDRC were not sufficiently flexible and responsive to the changes that took place among the project staff so that additional technical support, especially related to study design, could have been provided at the start of the project.	Regular field visits by IDRC staff, although seemingly did not involve advice on the limitations of the study design chosen, were valuable in assisting to monitor project progress and enabled the project to continue by solving administrative problems.
Due consideration was not given to the influence of contextual issues prior to proposal finalisation such as the extent to which there is rational and consultative prioritization of research needs; involvement of beneficiaries/users; plans for restructuring the institution/parent institution; and economic realities regarding availability of funds for programme implementation (use of research)	

5.0 Project # 90-0080 Workers' Participation

5.1 Description of Project

This project was implemented by the Zimbabwe Congress of Trades Unions (ZCTU) during the period 1990 to 1995. According to the Manual for Worker's Education (1993), ZCTU is an umbrella union organization made up of 35 affiliate unions. Its functions are to provide services to its affiliates such as providing seminars and scholarships, conducting research, providing legal advice and resolving disputes. It also represents workers at Government level.

Pre-project research indicated that there was a significant under-estimation of occupational injury and disease in official data in Zimbabwe. The project comprised a study that would give the prevalence of the main hazards within the major industries, and determine the extent to which current workplace levels of the selected hazards meet safe practices or use, storage and first aid. The project also assessed the knowledge, attitudes and practices towards occupational health and safety (OHS) at shopfloor level. An emphasis was placed on building capacity of the labour movement to undertake participatory research, including the development of training manuals and a checklist to measure workplace hazards.

This case study project assessment will focus on to what extent the project activities have empowered unions to monitor workplace hazards and negotiate for improvements in OHS conditions, as well as to determine whether there is any evidence of improved health and safety. The impact on building capacity at ZCTU to support OHS activities will also be assessed.

Some of the documents reviewed related to the project such as workshop reports, training reports and manuals and a copy of the first study report. Documents related to ZCTU and the general context in Zimbabwe were also reviewed. A copy of the second study report was not obtained, although it was requested. The ZCTU Secretary General and the OHS Department officer were interviewed, as were representatives of other key OHS organizations such as the National Social Security Association (NSSA) and the employer's organization EMCOZ. Other donors such as WHO and ILO were also consulted. Union members from 2 unions that took part in the project research were also interviewed, two of whom are involved in training their staff on OHS in the workplace and in collective bargaining. The principal investigator for the project was not available for interview due to in-country work commitments. This was a limitation of the assessment. The OHS Department officer was only available at the end of the field visit. Although details on remaining gaps in data and conclusions were sent to ZCTU requesting supplementation and verification, no response was forthcoming.

Context

Prior to independence in 1980 repressive legislation such as the Masters and Servants Ordinance of 1901, and constant attempts by the Zimbabwe government to divide nascent unions, resulted in a low level of worker organization. Workers also were often illiterate, unskilled and insecure in their employment. Not surprisingly, there was little if any organized activity in OHS until after independence. Workers were unaware and uninformed of their rights and union capacity, ZCTU included, was limited to act on their behalf.

The project was positively influenced by the institutional context within the recipient organization. ZCTU was described by key informants both within affiliated unions as well as those not directly connected to the union movement, as a well organized, transparent and respected organization. All personnel interviewed that were involved in OHS spoke very highly of the capability of the Project Leader, which undoubtedly was a positive influence on the success of the project.

Soon after the project began legislation on OHS was adopted. At the time it was considered to be one of best health and safety laws in Africa (ZCTU 1992). Implementation required training and organization which in turn required information about the current situation. The project was therefore timely. It met a demand for information and there was commitment among all parties to use it.

NSSA was also established during the life of the project. This provided the means for government to support implementation of OHS policy through, among others, its Factory Inspectorate. ZCTU and NSSA commented on the Inspectorate's limited capacity which hinders the extent to which improvements in OHS can be enforced.

Similarly, the employer's organisation, EMCOZ, has established a health and environment department. The NSSA Board has a tripartite (unions, government and employers) subcommittee, the Zimbabwe Occupational Health and Safety Council (ZOHSC) charged with developing health and safety standards, policies and promotion.

Union negotiations are conducted through a National Employment Council (NEC) consisting of the employer association and the trade union. This is the mechanism for collective bargaining in which conditions of service are agreed.

The ESAP referred to in section 4.1 above has also impacted negatively on OHS and possibly *reduced potential project impact*. Economic stress has resulted in employers cutting back on funds for OHS. Wages have been kept low and unions in turn have maintained low subscriptions which limits their capacity to support OHS promotion. With the opening of markets, imported machinery and chemicals are being used for which there is no knowledge of potential hazards.

Project Objectives

As specified in the Project Summary, the project aimed to identify the extent of important *occupational hazards in selected industries in Zimbabwe* and to assess the role that workers can play in producing an objective assessment of those hazards. It also aimed to determine the current nature and functioning of OHS structures at workplaces and the constraints to implementing control of the identified hazards. It was intended, through this research, to build workers participation (community involvement) in workplace hazard screening which could inform and facilitate the monitoring and control of hazards in Zimbabwe.

It was reported by ZCTU that these objectives were achieved, but not all of them could be verified since the second research report was not made available, although requested by the Author.

Strategy

Participatory research was the main thrust of the project coupled with meetings and workshops that would discuss the implications of the findings and design intervention strategies. Whilst ZCTU and affiliate member unions implemented the research, EMCOZ and NSSA (on behalf of government) participated in the workshops where the findings would be discussed. The Author considers that the participatory strategy was appropriate. An alternative strategy would have been to conduct research with very limited participation, but this would have most likely compromised impact and reach.

Activities

Following a preliminary study a tripartite meeting (ZCTU, EMCOZ and Ministry of Labour/NSSA) was held in which the participants agreed on the need for participatory research into OHS. The Project Summary description of the preliminary activities, and subsequent workshop reports, suggest that all stakeholders shared a common view of the project strategy. This observation was confirmed by ZCTU OHS staff.

The research comprised two phases. The first phase entailed training 3 Health and Safety Coordinators and 15 union data collectors. They administered a questionnaire to determine perceptions and knowledge and report on OHS practices at shopfloor level. The union health and safety officials were consulted throughout data analysis, report writing and decisions on dissemination of findings. The second phase involved measurement of hazards at selected workplaces and the development of a checklist for coarse screening. The same participatory methods were used. Existing practices in relation to specified hazards were compared to international standards. National workshops were held to discuss findings and produce recommendations.

Inputs and Expenditure

A summary of available information on planned and actual inputs is given below:

Source	Planned Contribution (CAD)	Actual Expenditure (CAD)
IDRC (VR)		
Equipment (computer, photocopier and OHS hazard assessment)	42,360	21,496
Personnel and activities (salaries, equipment, travel, workshops, document production and reproduction)	155,061	104,000
Miscellaneous	12,000	3,649
Sub total	209,421	129,146
IDRC field visits	N/A	N/A

ZCTU (PS)	(Z\$)	(Z\$)
Personnel	205,000	N/A
Equipment and supplies	109,000	N/A
Travel	10,000	N/A
Stationery and administration	44,000	N/A
Sub total	368,000	N/A

N/A = Information not available

PS = Source: Project Summary

VR = Source: IDRC Project Variance Report 30/5/97

Note: Only local currency estimates were available.

IDRC staff contributed to the generation and development of the project and visited the project during implementation, but the frequency and extent of the contribution was not determined. The project methodology was in great part designed with the results of a similar project in Mexico. The Principal Investigator from that project visited Zimbabwe to assist in project development and continued to correspond with the implementing team.

SASK and the International Labour Organization (ILO) also contributed to the project. SASK contributed to personnel costs and equipment as part of its on-going funding to ZCTU. SASK and ZCTU were independently requested to provide details of SASK's assistance, but no information was forthcoming. ILO funded some events such as the tripartite (ZCTU, EMCOZ, Ministry of Labour/NSSA) workshop to discuss the results of the first phase of the study. ILO also provided technical assistance during training and workshops through their Factory Inspectorate Strengthening Project.

ICTs comprised two faxes, one phone line, one computer, printer and photocopier. The equipment is still being used by the OHS Department in its day to day activities.

The inputs as a whole were considered by ZCTU OHS staff as valuable, necessary, adequate and comprehensive. There were regular and persistent delays in the transfer of funds, and delays in the arrival of some equipment. Also errors in shipment caused delays in implementing stage two of the research, but this did not influence the research quality or impact.

5.2 Project Outcomes

Outputs

The research was conducted and reports produced. Only the report of the first phase was available from ZCTU at the time of writing, as mentioned above, although there was verbal assurance given that the second phase report exists. The survey found that workers and employers have very different views of how safe their workplaces are and health and safety representatives are out of touch with their workers' perceptions. There were also

recommendations regarding the need for negotiating codes of practice in some industries and for conducting regular medical checks in high risk occupations. It was found that there was a need to strengthen worker awareness on their rights and involvement in health and safety activities. The existing law, including first aid measures, is inadequately enforced and ZCTU and EMCOZ needed to agree on the structure of shopfloor health and safety committees. The research report is concise, easy to follow and served its purpose as an information and advocacy tool to promote change in health and safety at the workplace. A plan of action resulted from a subsequent tripartite workshop where these findings and recommendations were discussed.

Eight health and safety officers in 10 affiliated unions, plus 3 OHS educators and 1 ZCTU OHS Department officer were trained on research methodology, administering the questionnaire and workplace survey techniques. Two hundred health and safety representatives were trained in phase 2 on occupational hygiene assessment. Eight university students were also trained in administering the questionnaire used in phase 1. The OHS educators have continued to work in OHS within their unions, as has the OHS officer in ZCTU. It is most likely that the health and safety officers and representatives are still in employment and active in general union affairs, though findings from interviews suggested that many of the representatives were not very active in promoting OHS and screening for hazards following the research.

Many of the project outputs were related to training, including course handouts and a manual, namely, 'Workers Participation in Workplace Screening'. Also, the Health and Safety Representatives Manual was produced which was influenced by the research. An IDRC staff member from Nairobi visiting the project at the time described the training and training materials as 'excellent' in a written communication with IDRC headquarters. The research process was innovative in that its focus was on building monitoring capacity at shopfloor and union level. Outputs were timely since the findings were required for advocacy and training in order to implement the new OHS policy. The hazard measuring equipment supplied during the research is still being used by ZCTU as required to objectively measure workplace hazards.

Reports of the training and survey follow-up meetings were also produced as was the checklist for coarse screening. The use of the latter tool however did not seem to be extensive following the project.

The Project Leader co-authored a paper on participatory research, containing results of phase 1 of the research, that was presented to the NIVA Course on Occupational Health Research in Developing Countries in Sweden, 1993. The collaboration with the Principal Investigator from a similar project in Mexico (described under Inputs above) led to a joint book on participatory research in occupational health. The Project Leader may have published/presented more papers but she was not available for comment, due to other in-country work commitments, despite pre-field visit assurances.

Reach

Planned dissemination included routine information exchange within the union system, national tripartite workshops, a regional workshop, publication of guidelines on research training and workplace surveys, a research report and presentation of papers at national and international

meetings.

Table 9 below provides a detailed inventory of project reach and impact. An undetermined number of workers have been sensitized on OHS issues and some, though probably a small proportion, have benefitted from improved OHS standards on the shop floor.

One commendable feature of this project was the extent to which all relevant players and beneficiaries (or their representatives) were involved throughout the project. The potential for reach was, and still is, great. There are 1.4 million workers in Zimbabwe, many of whom belong to a union or have access to a union representative. Unfortunately, it was reported by union staff that capacity and funding to conduct training of shopfloor health and safety committee members has been very limited. Only an estimated (by the union representatives interviewed) 5% or so of workers have directly benefitted from the research so far following the training of their members.

As detailed below under impact, ZCTU reported that unions in other countries and, no doubt, their members have benefitted from ZCTU's experience.

Impact

Planned impact included building capacity of the labour movement to conduct independent research in order to strengthen efforts to improve OHS; decentralizing monitoring of OHS so that shopfloor representatives can carry out valid course assessment; providing information about the situation of OHS to unions to assist them in implementing change; producing guidelines on OHS workplace screening and producing a manual for training on monitoring workplace hazards.

The following description of impact is based on the perceptions of ZCTU staff. Where possible, reported impact was verified with other key stakeholders. All the reports of impact that could be verified were accurate.

Impact of the project has been substantial. Research capacity has increased. ZCTU recently conducted research independently and presented it at a United Nations sponsored international meeting. Accident report forms have been designed to redress the imbalance of previous reporting procedures. These procedures for handling accidents are now changing. Unions are playing a much greater role in improving health and safety through developing and implementing their OHS policies (also verified by the union representatives that were interviewed). The research was instrumental in providing the justification for the resuscitation of ZOHSC. All those interviewed commented very positively on the role of ZOHSC to bring all major stakeholders

TABLE 9: EXTENT OF PROJECT REACH AND IMPACT - WORKERS' PARTICIPATION, ZIMBABWE

Potential Beneficiary/Unit	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
ZCTU	Policy formulation; increasing knowledge	Research result dissemination and discussion with employer's representatives	High. Advocacy achieved: able to resuscitate ZOHSC which then produced health and safety standards and how health and safety should be organized; helped to demystify OHS such that union leadership now supportive of health and safety issues and the work of their officers	Low. Time has moved on. With the on-going changes at shop floor level the data is becoming out of date.
	Capacity building	Training in research and OHS issues, participation in project process	High. OHS department substantially increased capacity to conduct research, technically support OHS union activities, train union trainers in OHS, conduct work hazard assessment.	High. Future research dependent on funding; on-going support to union personnel and regular representation on national committees such as ZOHSC
Unions	Increasing knowledge; capacity building	Information exchange through participatory process and dissemination	Medium. All unions now have a written OHS policy. They are now incorporating OHS issues into the collective bargaining process and some NECs have subcommittees for OHS. Unions have also received technical support from ZCTU in their negotiations for improved OHS	High. Since it is now part of collective bargaining the promotion of health and safety has become institutionalized. Experience in negotiation will continue and OHS standards are likely to rise as a result of on-going negotiations.
	Capacity building	Training of staff	Low. This has taken place, but seems to be conducted sporadically. Unions have lacked capacity to conduct extensive training.	High. Unions are now involved in on-going training programmes for shopfloor health and safety officers. This is substantially dependent on outside funding.
Union agents: OHS educators, H&S officers	Capacity building	Training	High. Training reported by representatives interviewed to be extremely beneficial, but very little opportunity to put into practice because little training has been conducted.	High if there are funds to significantly increase training capacity. ZCTU is also lobbying for the practice of registering all workplace accidents. This data should further strengthen union negotiation.

Potential Beneficiary/Unit	How benefit	Mechanism	Extent benefited/affected	Potential for future benefit
NSSA/EMCOZ	Increasing knowledge; capacity building	Workshops, reports, attendance on committees	Medium. Benefit for EMCOZ and NSSA has been more from ripple effects of the research such as the resuscitation of ZOHSC where the organizations benefit from participating. NSSA benefits through ZOHSC's improved ability to guide OHS policy since it is a subcommittee of the NSSA Board.	High. ZOHSC is gaining in experience. If NSSA's factory inspectorate collaborated more closely with the union officials then it would be better able to serve the welfare needs of the workforce.
Workers	Improved quality of life	Improved OHS standards at the workplace	Low. To date very limited since most impact has been achieved at national and union/employer level. Officials interviewed from two unions estimated that only 5% of their workers had directly benefitted from the project through training.	High if training of shop floor representatives can be accelerated.
Employers	Increased income	Healthier and more productive workforce	Low, since achievements at shop floor have been limited.	High if training by EMCOZ and unions can be accelerated, and research is conducted to assess cost-effectiveness of preventing workplace accidents
International community	Increasing knowledge	Publications at international meetings	Not possible to determine due to unavailability of Project Leader for interview	Low since activity of Project Leader in project has ceased.
Unions and workers in other countries	Increasing knowledge; capacity building	Dissemination of results and training of sister unions on continent	Reportedly high. Results were disseminated through the research report. In 1995 presentations were made to the Southern African Trade Union Coordinating Council and the Organization for Africa Trade Unions. ZCTU has also been invited by other umbrella union organizations to train working groups from Botswana, Mozambique, Seychelles, and Uganda. The ILO funded a Tanzanian group to visit Zimbabwe to design a participatory research project.	High if the unions from other countries conduct useful research and use it to improve OHS.

together to guide and promote OHS. The guidelines that ZOHSC have produced are used during union negotiations on the role and rights of workers and employers regarding health and safety in the workplace. The Project Leader is currently the Chairman of ZOHSC.

Tangible change has been effected, though it has not yet achieved widespread coverage due to capacity reasons, as described above. Examples of change at specific workplaces have been cited by union representatives, such as medical reports being kept confidential, first aid boxes and training in first aid being provided by employers, and health and safety representatives being given paid time off work to promote OHS.

ZCTU staff reported that outputs from the project have spilled over to other related union work. Workers (and union officials) that have been trained are now better at problem solving and negotiation over other, non-OHS, conditions of their work. Similarly, increased capacity at ZCTU through the project has enabled the OHS Department to develop and implement policies on gender and AIDS. It is also working on other health and welfare related issues such as the environment, and drug and alcohol abuse.

The training programme has been adapted for other union training. Following training of health and safety representatives, some unions have experienced an increase in membership once workers realize their rights and the beneficial role that the union can play in OHS. A further impact on ZCTU has been its capacity to implement projects funded by other donors. When technical assistance is offered, ZCTU request the funds to be used for other activities, thereby increasing potential impact. ZCTU feels that it now is more attractive to receive donor support since it has established itself technically through the project research, though this was not verified by donors.

Following the project a campaign was held on OHS issues. The ZCTU office was inundated with enquiries for weeks, suggesting some impact on raising awareness. Informal lectures from trained branch officials and health and safety representatives have also contributed to raising general awareness of workers' OHS rights. At the national tripartite workshop to review phase 1 results it was decided to commemorate June 6th as a National Health and Safety Day. This day has now been recognized by government and there are hopes that it will become a national holiday in future.

As detailed in Table 7, OHS staff reported that they have provided extensive training to sister umbrella union organizations within Southern Africa on the participatory research methodology that they used. This international recognition is an indication of the quality and importance of the project research.

A negative consequence of OHS activities generally is the victimization, and sometimes dismissal, of active health and safety representatives by employers.

5.3 Enhancement of Outcomes

Additional funding to enable an acceleration of training would increase reach considerably and thereby affect workers at the shopfloor. IDRC could, through publicizing the project, advocate

for this funding. Other research topics that would also contribute to enhancing outcomes are listed as follows:

1. Implications for health and safety of new technology and chemicals;
2. An assessment of the cost-effectiveness of preventing avoidable injury;
3. An assessment of health and safety in the commercial sector (this sector was left out in the project);
4. Produce a profile of occupational related diseases so that they are recognized for compensation.

IDRC might consider funding these research projects.

The OHS Department did not consider that further ICTs would have significantly increased project outcomes. This is probably due to the limited knowledge of the potential for ICTs. There are potential areas for ICT investment such as linking branch officials via email to their respective unions, ZCTU, NSSA, etc to facilitate reporting and investigation of accidents. There was insufficient time to conduct a thorough assessment of ICT support needs.

A summary of influencing factors are given in Table 10 below:

TABLE 10: FACTORS THAT INHIBITED AND ENHANCED IMPACT - WORKERS' PARTICIPATION

Factors that Inhibited Impact	Factors that Enhanced Impact
Limited capacity of unions to train health and safety representatives and committee members	The recipient institution was well managed, functional and supported OHS
Limited capacity of NSSA to enforce legislation once hazards have been identified	The recipient institution was also a major and influential implementing organization
	There was government support to OHS as evidenced by its establishing NSSA and producing OHS policy and legislation
	All stakeholders were involved and committed

6.0 Summary

Project Components

Context

The context included factors in the project's external environment which influenced the project in many ways. These included those factors related to the institution, data collection and other climatic and socio-economic conditions. The socio-economic conditions in Mozambique and Zimbabwe were ubiquitous constraints to project implementation. The former country was recovering from years of civil war, and the latter was in the throes of an ESAP. On the other hand, the political situation in South Africa, a country in transition, provided fertile ground for policy to be influenced by research. The drought affected data collection for schistosomiasis research in Zimbabwe, but this did not affect the overall findings. The policy development and planning process was inadequate in the Ministries of Health which implemented two of the projects. This compromised the extent to which research was undertaken according to user priorities, which in turn compromised impact, particularly for the research strengthening project in Mozambique. This link between context and outcome is further expanded under Impact below.

Objectives

The purpose of setting objectives is to provide direction to the project so that there is a common understanding of what the project is trying achieve, and to set measurable targets to enable evaluation of that achievement. The objectives within the case study were to a great extent achieved, which is commendable. However, the objectives for the projects were all related to the research process and its outputs, rather than impact, and were of limited use for impact assessment.

Strategies

Although not specifically described as such in the Project Summaries, the strategies were sound and clear in that they were technically appropriate, and their clarity gave the author a detailed view of how the objectives were to be achieved. The participatory strategy used by the Zimbabwe OHS project had additional merits in its inherent capacity building process.

Inputs/Activities

The majority (sometimes all) of funds were budgeted for the research itself. Setting aside funds for dissemination of results significantly influenced project reach. This is not always necessary as was the case in Cape Town since adequate sources of funding for dissemination and discussion could be found from elsewhere. Many developing countries, however, are not in this position.

The two Government institutions, implementing two out of four projects, had a great deal of difficulty administering project funds, both in accessing and accounting, but particularly the latter. Future projects might consider a financial audit component. The project in Zimbabwe resorted to this even though Zimbabwe's institutions are relatively functional compared to many other

African countries. At least two projects also experienced delays on the part of IDRC in disbursing funds.

IDRC project staff felt that IDRC input into project development in at least two projects was a determining factor that influenced the project's success.

Funding of project staff, per diem, travel, equipment, etc, were all essential project components that contributed to project outcomes. ICTs, particularly computers, were a feature of all projects, but outcomes could (have) benefit(ed) from a further ICT investment. For example, literature searches using computers were limited in the Strengthening Capability for Essential Health Research project in Mozambique, because the equipment provided could not keep up with demand. An array of hard disks was required to enable multi access by multi users. Outcomes could be enhanced further in the Worker's Participation project in Zimbabwe if all union branches were linked by e-mail to communicate workplace accidents with NSSA as well as ZCTU. Except for the University of Cape Town, none of the recipient institutions was aware of the potential benefit of ICTs in enhancing outcomes and were therefore not in a position to articulate future ICT needs.

Other donors contributed major inputs to two out of four projects. In the Strengthening Capability of Essential Health Research project in Mozambique, other funding partners were identified at the onset. In the Worker's Participation project in Zimbabwe, other donors with overlapping project components either provided funding for related activities or technical assistance during key events. There were no special mechanisms for donor collaboration and there were no apparent commonalities from which to draw conclusions.

Outputs

For each project the primary project output was the research report itself. Surveillance tools, and strengthened collaborative mechanisms were also useful outputs that were largely sustained and therefore able to continue to enhance outcomes. Most of the trained staff were still contributing to post-project research, using the skills acquired during the project. A total of 1,040 were given training related to research methodology. The total per project ranged from 10 to 720.

All projects resulted in national or international presentations of research findings and all except one produced journal articles for publication. These enhanced the status and reputation of both the institution and the researchers which often contributed to further donor projects or international collaboration.

One project produced only a draft report. The recipient institution was awaiting technical comments from IDRC, before finalisation.

Reach

The three projects with quality output achieved substantial reach and all have good potential for future benefit to large numbers of people provided funding is available to implement the research recommendations. The involvement of stakeholders in at least the needs identification and project

design is an important determinant for use of research findings.

The actual number of people reached by the projects in this case study is not possible to determine. However, when a health intervention is changed as a result of research, as was the case in Mozambique, for example, and the disease trend changes (hyponatraemia reduced), then it is likely that large numbers of people were reached in this instance. Even infants not yet born will be reached since they will also benefit from improved home management of dehydration due to diarrhoea.

Planned dissemination of results was often vague in the Project Summaries indicating that detailed thought had not been undertaken regarding potential beneficiaries of the research.

Impact

Impact on the participating institution was achieved in all projects. It was greatest in the *Strengthening Capability of Essential Health Research* project in Mozambique since this was the main objective of the project. Not surprisingly, the most common form of impact within the institutions was improving their capacity for research, but other effects were also seen such as improved coordination of research, improved administrative capability, and increased status as a technical authority in the field of the project research.

The impact on policy, programmes and, ultimately, the quality of life of the target group were evident in two projects and probably occurred in a third, but was not verified. Obviously, the influence on policy and programmes is easiest to achieve since they are developed institutionally where the research findings are most accessible. For example, the Workers' Participation project in Zimbabwe had resulted in policy changes at national and union level, but it will take further time and substantial funding to implement this policy. Policies and programmes are also the precursors for intervention and improved health status. The fact that some ultimate beneficiaries had been reached within two years of project completion is to the credit of the institutions concerned. A synthesis and summary of impact by type of beneficiary is shown in Table 11 below.

In this case study the most important category of influencing factors for output and reach, as well as impact, was the context. In some cases contextual developments were opportunities for the project to seize, such as political transition in South Africa. If the research had been conducted five years earlier it would not have generated anything like the impact that was seen. Other contextual factors, for example Structural Adjustment, could largely not be mitigated against.

There were other contextual factors that could have been foreseen, but were not. These were particularly present in the government recipient institutions. It was assumed that research results would automatically be used for policy and programme design without determining whether a systematic planning and policy development process existed and, if it did, what the potential constraining factors were for use of research. For example, in Mozambique and Blair Laboratory,

Zimbabwe, the researchers both developed and implemented the research proposals because the capacity to determine research needs for policy analysis or development was inadequate. It was then hit or miss (especially Mozambique) whether the results were ever used, which significantly limited impact. In future, it would be wise to probe further when appraising proposals to ascertain the linkages between research and policy development as well as the planning and policy development process.

Changes of staff during a five year period (project life) are common. It is important to determine what influence this would have on the quality of the project outputs and to minimise risk as far as possible before project implementation.

Results

Impact area

This case study contained components of ICT, policy and public good. The comments related to ICTs have already been mentioned under inputs. Generally, research feeds policy and public good is an outcome of implemented policy. As referred to above, the linkages between research, planning and the policy development process are critical factors in determining whether research leads to impact, particularly within institutions that are also primary policy-implementing organizations. The case study also demonstrates that it is possible for one research project to improve health status, which underlines the importance of ensuring that research is used maximally.

Sectors

Since health services are for the public good, it is necessary in many instances for the government to lead policy development and implementation. Impact often then depends on the effectiveness of government institutions, mainly the Ministry of Health. Unfortunately, as institutions, Ministries of Health tend to be weak and this can compromise impact - as demonstrated by the inadequate capacity to identify research needs for policy development in Mozambique. A solution may be to coordinate research projects with other institution-building programmes to ensure that such weaknesses are minimized.

Recipients

Although Ministries of Health may have institutional weaknesses, they have the advantage of also being implementors. If the link between research and use is strengthened then potential for impact is great. Those projects implemented by the Ministry of Health were also characterised by least involvement of the users of the research results. An example can be seen with Strengthening Capability for Essential Health Research project in Mozambique where an estimated 90% of research was researcher-initiated without input from the users.

The University implemented project in South Africa produced the greatest output for the type of project it implemented. The reputation of the institution and the calibre of staff were influencing factors. Fortunately, dissemination and use of results were easily effected since the university already enjoyed strong links with research users, which is not always the case for universities.

ZCTU, like the Ministry of Health, is an implementor. The NGO also had the advantage of being relatively strong as an institution. The implementing institution was therefore able to create change and achieve impact rapidly. The disadvantage of many national NGOs is that they lack the resource base that government enjoys and their capacity to implement on a national scale is very limited. When used for advocacy or piloting a project, however, they can be very effective.

It is important to note that many of the inadequacies of the institutions have significantly improved since the time of the project.

TABLE 11: SUMMARY OF CASE STUDY IMPACT

Beneficiary	Strengthening Capability of EHR, Mozambique	Agrochemicals and Farmworkers, RSA	Schistosomiasis Control, Zimbabwe	Workers' Participation, Zimbabwe
Recipient Institution	<p>Increasing knowledge, capacity building - High:</p> <ul style="list-style-type: none"> - Integration and coordination among research institutions - Improved quality and quantity of research - Increased capability of researchers + no. of capable researchers (incl. Ph.D. & Master's degree) - Provided springboard for HSR initiative: Dept of Comm. H. providing technical assistance to prov. level 	<p>Increasing knowledge, capacity building - High</p> <ul style="list-style-type: none"> - Increased capability of researchers - Updated curriculum - Increased status in subject area 	<p>Capacity building - Medium</p> <ul style="list-style-type: none"> - Schisto research assistants trained and retained (1 to Masters degree) - Large project which helped build administrative capacity - Lessons learned from research 	<p>Capacity building, policy formulation - High</p> <ul style="list-style-type: none"> - Increased capacity to: *conduct research *train union members *assess hazards *advocate *develop other OHS policies - Increased prestige - Marketable to donors due to increased capacity
Policy/prog/implementation. Organizations/service delivery system	<p>Policy formulation - Low:</p> <p>Examples: - Change in service delivery policy & practice eg home management of diarrhoea</p> <ul style="list-style-type: none"> - Improved coordination of programmes 	<p>Policy formulation - High:</p> <p>Significant contribution to: - Western Cape Health Plan</p> <ul style="list-style-type: none"> - Local surveillance system - Training modules for union on OHS <p>Input into: - regulations on agrochemical use</p> <ul style="list-style-type: none"> - labour legislation - policy conference - OHS & compensation bills 	<p>Policy formulation - Low:</p> <ul style="list-style-type: none"> - Researchers assisted in development of JICA project 	<p>Policy formulation, capacity building - High:</p> <ul style="list-style-type: none"> - OHS incorporated into collective bargaining - OHS union policies - Unions playing > role in OHS - Resulted in ZOHSC which provides forum for improved OHS policies - National Health & Safety Day
Service delivery agents	<p>Capacity building - Medium</p> <ul style="list-style-type: none"> - Improved problem solving skills - Access to clinical information - Increase in provincial, applied research 	<p>Capacity building - High:</p> <ul style="list-style-type: none"> - Attendance at courses on OHS that have been developed as a result of project findings - seminars on OHS 	<p>Capacity building - Low:</p> <ul style="list-style-type: none"> - Environmental health officers learned from project experience and methods for participatory approach to water and sanitation 	<p>Capacity building - Low:</p> <ul style="list-style-type: none"> - OHS Reps time off work for OHS duties - Trainees able to advise others (informally)

Ultimate beneficiaries	Improved quality of life - Low: - Reduction in side effects from home management of diarrhoea - Improved quality of health service	Not possible to determine	Improved quality of life - Low: Some benefit of study population	Improved quality of life - Low: - Trainees empowered to assess hazards - Increased confidentiality - <i>First aid available</i>
Other	Increasing knowledge - High - Dissemination of research: Annually 120 papers published locally, 6 internationally and 3 presentations at international conferences	Increasing knowledge - High: - Field tested kits - Developed methods to characterize exposure to neurotoxins		Increasing knowledge and capacity building - High - Other unions benefit from Zim experience through training by ZCTU staff - At least one international publication

APPENDICES

Travel Itinerary

Manzini-Harare	14 April 1997
Harare-Manzini	24 April 1997
Manzini-Maputo	11 May 1997
Maputo-Manzini	18 May 1997

List of People Interviewed

Project # 90-0095 Strengthening Capability of Essential Health Research

Mr M de Almeida, Project Coordinator, World Bank
Dr M Aragon, Disease Prevention and Control Officer, WHO Mozambique
Dr MacArthur, Head of TB and Leprosy Programme, Ministry of Health
Dr J Barretto, Head of Immunology Department, Ministry of Health
Dr J Cliff, Lecturer, Dept. Of Community Health, Faculty of Medicine, Eduardo Mondlane University
Dr Dgedge, Director, INS, Ministry of Health
Mr A Felisberto, Chief of Documentation Centre, INS, Ministry of Health
Dr L Gujral, Biologist, HSR Unit, INS, Ministry of Health
Dr R Mondlane, Head of Community Health Department, Ministry of Health
Dr Rui Gama Vaz, Former Director of INS, Ministry of Health
Dr Schwalbach, Director of Faculty of Medicine, Eduardo Mondlane University
Dr A Solomon, Director, CRDS
Mr J Tomo, Director of National Directorate of Planning and Cooperation, Ministry of Health

Project # 91-0275 Agrochemicals and Farmworkers

Desk study. Detailed comments from:
Dr L London, Associate Professor, University of Cape Town

Project # 88-0397 Schistosomiasis Control: A Community-Based Approach Phase II

Dr Arivshatian, WHO Representative, Zimbabwe
Dr J Bradley, Water and Sanitation Unit, Blair Research Laboratory
Dr S K Chandiwana, Director, Blair Research Laboratory
Mr A Chihaka, Medical Research Officer, Blair Research Laboratory
Mr M Chimbari, Schistosomiasis Section Head, Blair Research Laboratory
Mrs T Dooley, Project Officer, hygiene education, UNICEF
Mr P Dziwa, Disease Control Officer, Department of Epidemiology and Disease Control, Ministry of Health and Child Welfare
Mr C Hongoro, Deputy Section Head, HSU Unit, Blair Research Laboratory
Mr Madhina, Medical Research Officer, Blair Research Laboratory
Mr Musingarambwe, Director, Department of Environmental Health, Ministry of Health and Child Welfare
Mrs Ngwenya, Chief, Health Education Office, MCH/FP Dept, Ministry of Health and Child Welfare
Dr J Ndamba, Research Officer, Institute of Water and Sanitation Development
Dr P Ndhlovu,
Mr Nzuma, Principal Environmental Health Officer, Department of Epidemiology and Disease Control, Ministry of Health and Child Welfare

Dr P Taylor, Director, Institute of Water and Sanitation Development
Mr T Tsukakoshi, Administrator, JICA, Zimbabwe

Project #90-0080 Worker's Participation

Mr C Bhiza, Safety and Health Committee member, National Engineering Workers Union
Mr M Dube, Vice Chairman of Harare East, National Engineering Workers Union
Mr Fallah, Technical Advisor, ILO
Mr J Guavava, Deputy Secretary General, National Engineering Workers Union
Mr P Johnston, President of EMCOZ/Vice Chairman of ZOHSC
Mr L Kaondishaya, Health and Safety Officer, Zimbabwe Catering and Hotel Workers Union
Mr I Mudyandaruva, Head of Health and Social Welfare Department, ZCTU
Mr M M Ncube, Director, Occupational Health and Safety, Research and Development, NSSA
Mr M Tsvangirai, Secretary General, ZCTU
Health and Environment Officer, EMCOZ

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