GETTING RESEARCH INTO PRACTICE

Proceedings of a
Seminar held on 23rd February 1996 at NARESA

Organized by Natural Resources, Energy and
Science Authority of Sri Lanka
47/5, Maitland Place
Colombo 7.

Foreword

Many points of view were expressed at this seminar. Only one came from a current researcher. However some of the administrators who were resource persons have themselves been researchers and had experience of the problems of researchers with local and foreign agencies.

It is hoped that this publication will help to sort out problems of researchers. But the recent experience of NARESA with the Treasury regulations have been mostly sorted out.

More money has come in for research. However, it is understood that the Treasury allocates money which had been taken at interest from the Banks. Money cannot therefore lie idle in the accounts of institutions. NARESA has hopefully helped the Treasury whilst expressing concerns of researchers and thus helping in the flow of research of grantees.

Audit queries have to be answered by NARESA and that system continues with special justification of obvious expenditure. There is no suspicion of fraud. Memoranda of agreement with foreign agencies state their acceptance of the local audit procedures.

This is not the only headache. Research takes time to get off the ground after allocation of funds. Indents for equipment and consumables are a complicated procedure and must be streamlined and accelerated by the grantee as NARESA is now involved only in the actual payment of bills.

Finally, it is hoped that NARESA now fulfills the requirements of the National Policy for Science and Technology, discussed among researchers and awaiting the direction of Her Excellency the President of Sri Lanka. The plan of action must be rolled out in the very near future.

Prof. Priyani E. Soysa
Director General

LIST OF PARTICIPANTS

Resource Persons

Dr K. Jayasena
Prof. Priyani E. Soysa
Dr Reggie Perera
Dr B.M.A.O. Perera

Committee Members

Prof. Colvin Goonaratna
Dr M.C.L. De Alwis
Prof. Dulitha Fernando

Board Members

Dr R.O.B. Wijesekera
Dr Upali Pilapitiya
Mr D.G. Senadhipathy
Prof. N. Kodagoda

Invitees

Mrs P.G.P. Abeyratna
Prof. B.A. Abeywickrama
Dr Iyanthi Abeywickrama
Dr S. Amarasekera
Ms. Kshanika Anthony
Dr Ariyarani Ariyaratnam
Prof. N.R. Arthenayake
Dr T. Arulananthan
Dr D.N. Athukorale
Dr Sriani Basnayake
Mr W.E. Boteju
Dr N.P. Sunil Chandra
Dr K.C.S. Dalpatadu
Dr Hiranthi De Silva
Dr (Ms) S.D. De Silva
Dr S.W. De Silva
Dr Nandani De Silva
Dr S.D. Dharmaratne
Dr(Ms) S.I. Ekanayake
Dr Ajith Fernando
Dr Geetha Fernando
Dr Ranjen Fernando
Dr Shyam Fernando
Dr Pushpa Fonseka

Dr P. Galapatty
Dr S.A.P. Gnanissara
Dr S.P. Gunaratne
Dr P.C. Gunasekera
Dr W.H.M.W. Herath
Dr H.M.S.S.D. Herath
Dr P. Hettiarachchi
Dr(Ms) A. Horadagoda
Dr Kanthi Jayawardene
Dr J.N.K. Bandara Jayaweera
Dr V. Jeganathan
Dr V. Karunaratne
Dr S. Lakamwasam
Dr Rushika Lanerolle
Dr J. Lankage
Dr Kumara Mendis
Dr I. Munasinghe
Dr Jeniffer Perera
Dr Lalini Rajapakse
Prof. R. Ramasamy
Ms. Mala Salgado
Dr S.M. Samarage
Dr(Ms) P.A.M. Saparamadu
Dr Lakshman Senanayake
Dr (Ms) I.D. Silva
Dr Sisira Siribaddana
Dr Nalini Vithana
Dr L.D. Weerasinghe
Mr O.G.N. Weerawardhana
Prof. E.R. Wickramanayake
Dr(Ms) T.G. Wijewardana

Press

Ms. Samanmalee Kumarihami
Mr Chaminda Wariyagoda
Mr P. Seevagan

SEMINAR ON GETTING RESEARCH INTO PRACTICE

Date: 23rd February 1996
Venue: NARESA Auditorium

PROGRAMME

8.30 a.m.	-	9.00 a.m.	*Registration of participants*
9.00 a.m.	-	9.10 a.m.	*Welcome Address* **Prof. Priyani E. Soysa** Director General, NARESA
9.10 a.m.	-	9.20 a.m.	*Introductory Remarks* **Prof. Colvin Goonaratna** Chairman, Steering Committee on Medical & Veterinary Sciences
9.20 a.m.	-	9.40 a.m.	*Global Experience* **Dr. K. Jayasena**
9.40 a.m.	-	9.50 a.m.	Discussion
9.50 a.m.	-	10.10 a.m.	*National Situation* **Prof. Priyani E. Soysa**
10.20 a.m.	-	10.40 a.m.	
10.40 a.m.	-	11.00 a.m.	*An Administrator's Point of View* **Dr. Reggie Perera**
11.00 a.m.	-	11.10 a.m.	Discussion
11.10 a.m.	-	11.30 a.m.	*A Researcher's Experience* **Dr. B.M.A.O. Perera**
11.30 a.m.	-	11.40 a.m.	Discussion

END

CONTENTS

GETTING RESEARCH INTO PRACTICE - GLOBAL EXPERIENCE

Dr K. Jayasena*

The title of this paper - as given by NARESA - has been interpreted to mean the (practical) utilization of research results considered within a global or international perspective. It should be emphasized however that the utilization of research results is a sine qua non, not only at the global or international level, but also at the regional and national levels. This paper will deal essentially with health research.

In order to broaden the scope of the discussion, it is proposed to deal with some general characteristics of research with special emphasis on the utilization of research results and then to give some examples of the global approach to the utilization of research results, especially by donor agencies such as the World Health Organization.

"Research uses the scientific method to discover facts and their interrelationships and then to apply this new knowledge in practical settings. This process was the means by which the jet engine was invented, the atom split, and the green revolution of the past 25 years generated. Research holds the same promise for health, a promise that we have seen fulfilled with the development of new tools such as antibiotics for the treatment of disease, vaccines for its prevention and insecticides for controlling the vectors that transmit it[1]."

Three attributes of research were identified with respect to health systems research[2].

- the scientific attributes;
- the utility attributes; and
- the contextual attributes.

However, these attributes are applicable to all types of research.

The scientific attributes of research, (hypothesis formulation, experimentation using appropriate study designs, scientific rigour - i.e: ensuring the validity and reliability of the data etc.) are too well known and needs no elaboration.
It is with the utility attributes of research that this Seminar is mainly concerned with. In an economic milieu, where the allocation of resources for the provision of health care itself is a major problem, particularly in developing countries, nations are finding it increasingly difficult to finance health research. The same problem applies to research in fields such as education, nutrition and environmental health.

---

[1]* Formerly Regional Adviser in Medical Research, WHO South-East Asia Region and Professor of Pharmacology, Peradeniya Medical School.

The general economic 'crunch' is being faced by international agencies funding research as well. These agencies are therefore reluctant to fund basic research which may add to knowledge, but would not contribute to an improvement in the health status of a community and the quality of life of individuals.

It was in the nineteen sixties that international funding agencies began to experience a feeling of disillusionment and despondency, about the impact of the advancement of science and technology on the quality of life of the community. "It was being increasingly felt (by these agencies) that in the enthusiasm and zeal for the pursuit of science itself, effort, enthusiasm, skills and resources had been channelled not so much towards the alleviation and solution of the real problems of society but towards the solution of much more fragmented and isolated scientific problems[3]."

The reluctance to fund research on subjects such as "Binding of Lysine Vasopressing and Oxytocin by Protein Fractions from Target Organs[4]" began to surface at this time among the international donor agencies. The major criterion that was adopted in the disbursement of research grants was to ascertain whether the research results could be put to practical use. In other words research projects should take into account the perspectives of the users (of research results) and the characteristics that would increase the possibility of utilization. However, this did not preclude support to biomedical research that had a potential for eventual development into a useful tool - e.g. : the isolation of anti-fertility agents from plant sources[5].

At the global level, more emphasis was also paid to cost-effectiveness of health research: i.e. novelty alone in the development of new technologies was not considered to be an adequate test to determine whether a health research project was a good investment. Given the limited resources of facilities and funds, an investment in health research was considered to be satisfactory if the results are cost-effective when put into practice - i.e. , when the results are utilized at the community level. Some examples of research sponsored by international agencies that have proved to be extremely cost-effective when put into practical use include the following:

- the discovery of oral rehydration solution which has replaced the more expensive and less freely available intravenous fluids in most patients with diarrhoea; and
- the demonstration that ambulatory treatment of tuberculosis is as effective but much cheaper than in-patient management with its high cost of hospitalization.

Before considering the factors that would facilitate the utilization of research results (or getting research into practice), let us consider the contextual attributes of research briefly: i.e. : the context within which the research project is implemented. Health research is no longer confined to laboratories and hospitals, but is more and more carried out in community settings. In health systems research in particular which deals with communities often it is important to consider the larger context in which the project is to be implemented because this will affect the feasibility of implementing the project.

Since the utility and utilization of results is of prime concern to donor agencies such as WHO when funding research, they prefer that research projects should have certain essential characteristics that take into account the perspectives of the users, thereby increasing the possibility of utilization.

Some of these characteristics are dealt with below:

- The study should focus on issues of priority concern. Traditionally, and particularly before the advent of the economic crisis mentioned earlier, the practice in most types of research was for the researcher to select a topic based on personal interest and knowledge of the subject area, the current literature on the problem and the availability of funding. However, the current economic situation does not permit this luxury. Donor agencies now generally insist that the research project addresses a problem of priority concern to a country or a group of countries. The WHO South East Asia regional office for example supported in Mahidol University in Thailand over a period of ten years, the development of an effective and safe vaccine against Dengue Haemorrhagic Fever which is prevalent in many countries in the Region and is a major health problem in some. In health systems research it is even desired that the research problem focuses on the problem of priority importance identified by health managers or in policy documents.

- The study should address problems that are susceptible to intervention and the funding of the study should have a potential for impact within the existing social, political and economic context.

- Political acceptability-for example a donor agency is unlikely to fund a sociological study to ascertain from the community its willingness to accept surgical abortion in a country where the government is most unlikely to introduce legislation for the purpose due to socio-religious pressures.

- Consideration should also be paid especially by developing countries to the cost of using a new interventional strategy or new technology developed through research and to its appropriateness, sustainability and replicability, in relation to the existing status of the health service.

- There should be a plan for the dissemination of the research results to different audiences - e.g.; health managers, clinicians, academics and the community (depending on the type of study).

This is one of the most effective mechanisms to promote the utilization of research results: i.e. to get research into practice.

This could be achieved not necessarily by scientific publications but through the preparation of executive summaries (for senior health managers), meetings, workshops, press conferences and reports for the community.

The factors or criteria discussed above to enhance the possibilities of getting research into practice though considered from a global perspective, review bodies, funding agencies, medical research councils or analogous bodies such as NARESA could also ensure that these criteria are met when research project proposals are appraised for funding.

References

1. Evans, John (1990) in Health Research: Essential Link to Equity in Development (Commission on Health Research for Development). pp vii New York: Oxford University Press.

2. From The Appraisal of Health Systems Research (1993) pp. 35-39. New Delhi: World Health Organization. Regional Office for South East Asia.

3. From Research Needs for Health For All by the Year 2000 (1983) pp 8 New Delhi: World Health Organization, Regional Office for South-East Asia.

4. Jayasena, K & Ginsburg M. (1996) Binding of Lysine Vasopressin and Oxytocin by Protein Fractions from Target Organs. British Journal of Pharmacology & Chemotheraphy, 27, 443.

5. Goonasekera, M.M., Gunawardana, V.K., Jayasena, K. Mohamed, S.G., & Balasubramaniam, S. (1995) Pregnancy terminating effect of Jatropha curcas in rats. Journal of Ethnopharmacology 47, 117-123.

GETTING RESEARCH INTO PRACTICE - THE NATIONAL SITUATION

Prof. Priyani E. Soysa*

In this brief presentation, with a time limit, I will consider a few points as an administrator of research grants.

1. First is the core of the national problem viz. research capability. Although NARESA receives a large number of requests, the quality of proposals do not match that quantity. There is much to be desired in quality. Perhaps it is the present educational system of examinations and the appendage of tuition that affects the style of thinking and science writing.

   A science culture needs to be developed. A search for knowledge is perhaps lacking among our general population from where we draw the future scientists. It is necessary to inculcate this science culture into children's thinking at an early age with a stimulating curriculum and extra-curricular activities including science pages in newspapers and magazines and science programmes on TV like the earth file programme on ETV.

   Numbers - what follows from the above is the lack of enough scientists interested in research.

   Time constraints - There are few research institutes with full time researchers. But the majority in the Universities, have a teaching load some have even a service load, like the clinical departments and hence little time for research. A few scientists in Universities who have already secured enough points for promotions are not committed to do any more research. They may sign their names at the end of the research papers written by their postgraduates.

2. Recognition of scientists

   A Ministry has been established for Science, Technology and Human Resources Development which is in its infancy. Budgetary recognition has been inadequate. NARESA gives awards in recognition of good research. Annual awards are recommended by Steering Committees. Then special awards are given once in 3 years - The Presidential Award of Rs. 1 lakh for the highest achievement and the NARESA Award of Rs.50,000/= for the second best. There are other institutions like SLAAS, SLMA, the KSM, the Institute of Chemistry and still other professional organizations that give awards. But there is inadequate public and government acclaim given to these award winners - men and women of scientific repute. It is no small wonder then that many retire into a capsule of somnolence without engaging in research.

---

[1]* Director General, Natural Resources, Energy & Science Authority of Sri Lanka.

3. The national allocation for research in Sri Lanka is less than 0.18% of GDP. It has been pronounced that progressive countries should devote at least 1% of GDP to research for the need of a country's development. Developed countries provide much more e.g. Japan nearly 7% and even India 1%.

Then, the distribution of research funding is uneven. Even still Agriculture receives 60% of the total budgetary allocation.

The Treasury's allocations are 'historical' viz. on the previous year's performance. In that fashion, NARESA's allocation went down from Rs.22 million in 1990 to Rs. 10 million in 1991. When I took over this position in 1992, the total budget was Rs. 5 million. Fortunately, with the Hon. Minister's persuasion, the Treasury has allocated around Rs.17 million for research only. This is the local budget without the foreign component from SIDA/SAREC. Hence from mean budgets ranging from Rs. 50,000/= or Rs. 1 lakh that we gave in 1992/1993, we have now given up to Rs. 1 million for collaborative projects. Besides NARESA, who else funds research for Medicine, Veterinary Science and Dentistry ? Perhaps the MRI and NIHS. But truthfully, NARESA funds even proposals from MRI. I am not taking into account WHO, including TDR, UNFPA, SIDA, World Bank and IDRC which give some funds.

As a member of WHO SEA/ACHR, I know there is funding for Health System Research but few takers.

4. National Priorities in research for the award of grants have been worked out and in practice, there are a few awards for excellent and innovative ideas for experimentation. These need to be reviewed from time to time.

5. Proposals are not well formulated; even the justification for the project. Some are sent back and forth for modification after critical comment and evaluation. Methodology should be well spelt out and given in detail. Experts on the Steering Committees and the Board, must have these details for approval. Work Plans and time schedules are often poorly designed and deadlines not kept. Sampling leaves much to be desired and hence questions of validity arise with poor possibility of replicability and interpretation of results.

6. Budgets are poorly designed, The Travel component and Miscellaneous items may be excessive. Notions of accountability are confused. There is no need to waste time in argument when national policies of accounting and auditing are known. They must be generally accepted.

There is a possibility of justification of unusual requests. There is authority of a flexible Board to consider expenditure outside the system. But these must be planned in advance.

7. Monitoring and supervision can be poor. Some projects end up in a fuse for lack of a Supervisor's advice and steering. Supervisors cannot be only in name and for rubber stamping a signature to forward a proposal. Research Assistants must be carefully chosen. Projects are delayed with Research Assistants leaving midstream.

8. Formats for reports are available, but results are poorly reported and hence lack a thrust for recommendations and implementation of results. There are scathing remarks on final reports made by referees. Naturally, this evokes the wrath of a researcher but not well founded.

9. Publications in international journals are few. Our own journal (JNSC) is not overloaded with reports of research done. Very few final reports are published as monographs. In NARESA, there is a special budget allocation for such activity but few Steering Committees pick up material for monographs.

10. High quality research accepted for international gatherings have the possibility of award of travel grants - for instance, from Sida's International Contact Fund. This is under-utilised for the very reason that such papers are too few.

11. Presently, reports on research findings are the demand of the Minister of Science, Technology and HRD. These are used for discussions between Ministers for the implementation of such for the public good. But my experience of picking up such material for presentation at Interministerial meetings has been poor. There had been conflict among scientists even at the Ministerial meeting.

This is a short review of problems of monitoring and evaluation of research grants in practice in the national setting.

_____ ... _____

GETTING RESEARCH INTO PRACTICE
AN ADMINISTRATOR'S POINT OF VIEW

Dr Reggie Perera*

Introduction

Research in the health sector is essentially problem oriented and is called Health Systems Research. Important problems for HSR are identified at National Consultative Meetings.

Policy Measures

A National Health Research Council (NHRC) will be established to promote, direct, finance and offer technical support to researchers. The NHRC will be a representative body of Medical Faculties, Ministry, SLAAS, NARESA, IFS, Ayurvedic Research Institute etc. A secretariat will support effective functioning of the NHRC and will be headed by a full time professional. The Deputy Director General (Education, Training & Research) will coordinate and ensure effective use of research findings.

Human Resources for HSR

Human Resources Development will be an important component of promotion of HSR. For the purpose, modules will be incorporated on HSR in basic and in-service training programmes of relevant staff. There will be links to post-graduate training and capacity building especially in the areas of proposal formulation. Information on funding sources will be disseminated.

Getting Research into Practice

Since the concept of HSR emphasises problem solving approach, the results have to be communicated to policy makers and managers to be ploughed back into better management of programmes and for formulation of new programmes.

Thus, fora are required for :-

i. Channelling topics to prospective researchers - at the moment the Ministry HSR Committee undertakes this and in future the National Health Research Council will do so.

ii. Dissemination of results is the most important and at the moment following fora are available :-

---

* Director General of Health Services.

a. The HELLIS Net-Work

b. HSR Committee channels findings and recommendations of research undertaken through the Committee to the relevant Deputy Directors General prior to release of final payment

c. Seminars

There is a need for a National Body, and a National Publication to get research into practice.

Some Practical Examples of Getting Research into Practice:-

i. The Centre for Inter-Sectoral Community Health Studies set up in Peradeniya organised a seminar for Ministry Officials to appraise them of findings of research, with policy implications.

ii. An important finding of the demographic and health survey 1993 was that the health indices in the state sector continue to be worse than the national indices. A workshop was held for provincial level officers to highlight findings and, to convince them that action is essential and to develop broad strategies to correct the situation.

———— .... ————

GETTING RESEARCH INTO PRACTICE: A RESEARCHER'S EXPERIENCE

Dr. B.M.A. Oswin Perera*

1. Introduction

1.1 Basic Versus Applied Research

Research is generally classified as basic or applied. The former can be of an academic nature, where the quest for new knowledge is fuelled by intellectual curiosity, with no clear link to an output that has immediate practical use. The latter, on the other hand, implies that an important problem has first been identified, and that the research is designed to provide the information or technologies necessary to overcome the problem. Such a clear distinction, however, is often impossible in many research endeavours and more commonly, one merges into the other. We are all aware of the numerous instances where basic research has, either through clever adaptation and innovation or merely through serendipity, yielded applications which have revolutionized our lives. On the other side of the coin, it is not uncommon to find that applied research often requires some basic work to further its progress.

In the contemporary world where resources are scarce, scientists who use public funds for research have a moral obligation to the society that supports them. Not only should they direct their efforts towards outputs that are beneficial to that society, but they must also actively promote the adoption of the technologies or practices developed through their work. The vital link between research and its application is crucial to the survival of our species, but it is usually the most tenuous and therefore the weakest in the chain. Too often, the all important tasks of delivering the message to the target groups, ensuring their proper application, monitoring the responses and judiciously fine-tuning the technologies to suit the particular situation are delegated to personnel who are ill-equipped and poorly motivated to perform them.

1.2 Objectives

The objective of this Workshop is to present different viewpoints and discuss various aspects of "Getting Research into Practice". The objective of my paper is to present the experiences gained from the point of view of a researcher. I therefore wish to state at the very outset that the views and opinions expressed are my personal ones, and might not reflect those of the majority of researchers.

---

[1]* Associate Professor, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

These are based on a very short career of twenty-five years, as a teacher and research worker in Sri Lanka and a research administrator in an UN Agency. The field of research in which I have experience is also very narrow, limited to ruminant livestock production. I shall therefore make no claims to present a formula for universal success, but will merely put forward a few personal ideas and let you be the judge of which, if any, of these might be appropriate for getting research into practice.

In this paper I will initially present a case study of the major programme of research in which my colleagues and I have been involved in over the past two decades, and attempt to identify some of the problems in transferring knowledge and technologies to the end-users, who in this case are rural farmers using livestock to enhance their meagre incomes. I will then attempt, from these experiences as well as from my work with the Joint FAO/IAEA Division of the International Atomic Energy Agency, to outline a possible approach which might ultimately get research into practice.

2. Case Study

2.1 Studies on Buffalo Production

The current programme of research and development to improve the productivity of buffaloes in rural farming systems of Sri Lanka had its origins in the late 1970's, when the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture based in Vienna awarded a Research Contract to study the endocrinology of reproduction in buffaloes. This lead to a close collaboration with the Swedish University of Agricultural Sciences at Uppsala for the establishment of hormone assay facilities. The local collaborators included staff from the Government Department of Animal Production and Health and the Veterinary Research Institute.

The Swedish link resulted in grants from the Swedish Agency for Research Cooperation (SAREC) to undertake a nation-wide field survey on buffalo production systems, and to hold a National Workshop in 1980.

This brought together local scientists engaged in various fields of research related to the buffalo, to critically examine the existing literature and to identify gaps in knowledge which hampered better utilization of this animal's potential.

Based on the recommendations of the workshop, SAREC provided funding through the Natural Resources, Energy and Science Authority (NARESA) for a five year research programme from 1983. This first phase comprised research projects which focused on fundamental aspects of nutrition, reproduction, diseases and socio-economics.

Two buffalo research farms were also established, a small unit at the University of Peradeniya and a large one at Narangalla Farm near Kuliyapitiya, belonging to the National Livestock Development Board. The results of these studies were presented at a symposium held in Kandy in 1989, and lead to a second phase in which SAREC provided funds for projects covering a wide range of topics, including applied studies to develop new technologies which can be used at the field level to improve the productivity of buffaloes under rural farming conditions.

2.2 Infrastructure Development and Supplementary Support

This programme also contributed significantly towards the building up of infrastructure in the participatory institutions, and provided opportunities for postgraduate training of young researchers. In addition, it resulted in the establishment of many advanced scientific techniques, which can now be used to tackle important problems facing the livestock industry as a whole.

It should also be acknowledged that many other national, bilateral and international donor agencies have provided supplementary support to this programme. Chief among these are the International Atomic Energy Agency (Vienna), the Australian Centre for International Agricultural Research, the Overseas Development Administration of the UK and the Government of the Netherlands.

2.3 Putting Research into Practice

In order to disseminate the knowledge gained, and to transfer the technologies developed to the end-users (the village farmers), SAREC is now supporting a third phase of two years, during 1995 and 1996. The activities being undertaken are five fold.

(i) **Field projects** are being established in villages, to demonstrate the applicability and effectiveness of the new technologies. Selected farmers in three regions (Thambuttegama in Mahaweli System H, Girandurukotte in Mahaweli System C, and Kuliyapitiya, Bingiriya and Pannala in the Coconut Triangle) are provided assistance and technical advice to upgrade their holdings to serve as "Model-farms". These farms will in turn serve as demonstration sites and training locations for other farmers who wish to learn from the experiences of their colleagues. For example, a group of farmers and extension workers from the Coconut Triangle were recently taken to Thambuttegama to see the homesteads of the farmers there. The resulting discussions between the two groups was clearly beneficial to both, and was an exciting learning experience for the researchers !

(ii) **A documentation centre** is being established, to serve as a repository and resource base for future research and development on buffalo production. The services of the Librarian at the International Buffalo Information Centre (IBIC) in Thailand were obtained recently to plan the future activities of this centre.

(iii) **A series of publications** are under preparation, including a book for scientists and students, and a handbook for extension workers, to document and disseminate the scientific, technical and practical knowledge that has been gained. The project also publishes results of baseline surveys conducted, proceedings of workshops held with farmers, and relevant extension material.

(iv) **A public awareness** programme is being launched, through linkages with on-going agricultural programmes on television and radio, to broadcast the potential of the buffalo and to popularize buffalo farming based on sound principles.

(v) **A programme of continuing education** is being implemented, to update the knowledge and skills of farmers, extension workers, field officers and administrators in appropriate technologies which can optimize the utilization of this valuable livestock resource in rural development.

All these activities are conducted in close collaboration with the main governmental institutions and co-operative organizations responsible for livestock development in Sri Lanka. These include the Department of Animal Production and Health, the Veterinary Research Institute, the Provincial Directorates of Livestock in the project locations, the National Livestock Development Board, the Livestock Division of the Mahaweli Authority of Sri Lanka, the Coconut Triangle Milk Union, and the Agrarian Research and Training Institute. The project draws heavily on the expertise of research workers at the University of Peradeniya and is coordinated by a Secretariat located at the Regional Office of the Ministry of Livestock Development and Rural Industries, Getambe, Peradeniya.

2.4 Regional Symposium

At the end of 1995, the project management team organised a Regional Symposium titled **"The role of the buffalo in rural development in Asia"**. Its objectives were to review the work done under the second phase of the SAREC/NARESA buffalo research and development programme, share experiences with scientists in other

Asian countries on the application and dissemination of technical knowledge to rural farmers, formulate guidelines for wider application of selected technologies, and identify potential areas for further study and technology transfer. Eminent scientists from other countries in the Asian region presented keynote lectures and participated in the discussions. An important challenge that was identified for the future was to develop innovative management packages, utilizing locally available resources, which will be sustainable under the more intensive land use systems that are evolving in most parts of the Asian continent.

3. Major Problems in Applied Research and Getting Results into Practice

Based on the above and experiences, I have categorised the major problems and bottlenecks into five broad areas:

3.1 Field Studies with Farmers

In this particular field of activity, which involves close interaction with rural farmers, there are inherent difficulties in conducting scientific research. Farmers are strongly conservative and risk-averse. They are (quite rightly !) suspicious of the "City-folk" who come to show them how to do their farming. Even when shown the advantages of new methods through convincing demonstrations, they are slow to change and adopt these technologies. Sometimes, the only way is to get them to try out these methods on a limited scale, at our cost, and experience the results themselves.

Such field studies have their limitations from the scientific point of view. In many cases they are uncontrolled and unpredictable, and the results may be "unpublishable". These are often the reasons for scientists confining themselves to more controlled "laboratory" or "on-station" studies, and passing the buck for field applications to developmental or extension personnel.

3.2 Personnel

A project of the nature described above requires a critical mass of active and dedicated scientists, who are not averse to hard work. We are fortunate in having such a group, albeit small. In many cases, however, what one finds in abundance are "advisors" and "committee members" who are vocal critics but do not like getting their hands dirty.

A further impediment to progress is the high turnover of younger staff such as Research Assistants and Technical Assistants. Their appointments are by nature temporary, and therefore seen by them as a stepping stone to more secure employment. One often spends

much time and effort training such staff, only to find that they leave in mid-stream.

3.3 Collaboration with Other Organizations

Transferring technology to end-users invariably involves working closely with a number of other organisations, at the technological as well as the socio-economic level. Obtaining the support of personnel in such organisations calls for good inter-personal and public relations skills. It is my experience that this is best approached at the personal level, through direct and frank discussions, rather than through official channels and remote communication.

3.4 Administrative Procedures (Red Tape)

We are all aware of the requirements imposed by official rules and regulations, and acknowledge that such procedures must be followed, provided they are reasonably interpreted and benevolently imposed. However, it is my contention that many of these procedures were framed for regulating general financial and related matters in State administration, and have little relevance to the type of activities involved in applied field research. Furthermore, as a researcher, I am inclined to think that these regulations are sometimes interpreted and imposed in a manner which impedes research. As a consequence, it is the honest and hard-working scientists who are discouraged, while the more shrewd and insidious ones find ways to outwit the system in any case.

The fundamental reason for the above situation appears to be the lack of understanding among many administrators of the problems in conducting applied research and then getting the results into practice. Without direct experience of such work it is difficult to understand the delays, frustrations and disappointments that arise due to administrative bottlenecks.

3.5 Sociological Aspects, Government Policies and Economics

The success of transferring research into practice hinges on the active participation of a variety of social groups. In the case of livestock production this includes research workers, administrators, officials, extension workers and farmers. Thus a crucial factor is communication, where everybody has to be on the same wave-length. Unfortunately, this is not always the case.

In the case of the dairy industry, numerous other factors can negate the efforts of researchers to introduce new technologies. These include inappropriate Government policies, prevailing marketing practices and local prejudices. In some cases, it may be found that organisations or individuals who are purporting to help the farmers are

actually exploiting them. It is therefore important to realize the role of these factors in hindering progress, and to take appropriate steps to mitigate their effects.

4. An Approach to Promote "GRIPS"

The following strategy briefly outlines an approach that might be taken to get research into practice.

4.1 **Select the SYSTEM:** The first task is to identify the target group or population and define the overall production system which is to be addressed.

4.2 **Establish Priorities:** The priorities must be established from different viewpoints. These may be national, sectoral or institutional.

4.3 **Bottom-up Approach:** The current situation should be studied in detail at the field level, with the participation of the target groups, in order to clearly identify the major constraints.

4.4 **Formulate Strategies:** Strategies to overcome the identified constraints should be based on the needs of the target group and must be both practicable and acceptable. This usually requires an inter-disciplinary approach and structured research.

4.5 **Test Potential Technologies:** This must be done under real-life situations, in the FIELD. It should be undertaken as a partnership between the end-users, field workers, administrators and the researchers.

4.6 **Promote Adoption and Dissemination:** Proven technologies must be popularised and "extended" through a variety of well-planned and integrated activities, including education, demonstrations, training, and technical assistance. During this entire process, it is essential that procedures are in place for monitoring, evaluation and feedback.

4.7 **A Plea to Research Administrators:** By definition, they should be facilitators, helping the researchers to get their job done. They must, of course, ensure that funds are used within established rules and practices. The challenge for them, I feel, is to help the researcher by finding the correct path through the maze of regulations, and dealing efficiently and expeditiously with financial matters. In order to facilitate getting research into practice, they need to be able to identify potentially good projects as well as scrupulous researchers, and then support them vigorously until the objectives are realised.

After all, if research does not succeed in getting into practice, it is not only the scientists, administrators and the end-users who will be the losers, but it is society itself.

5. Acknowledgements

I wish to thank all my colleagues who have been actively involved in the SAREC/NARESA Buffalo Research and Development Programme for their contributions towards getting research into practice. I am also grateful to Prof. Lars-Eric Edqvist of Sweden and Dr. James Dargie of the Joint FAO/IAEA Division, whose ideas on applied research, technology transfer and development support for improving rural livestock farming have greatly influenced my thinking.