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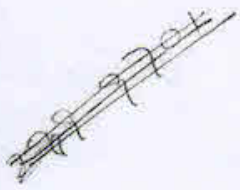
IDRC and Research Networks

CMNS 445

Kohan Samarajiwa

Fall 1979.



I

IDRC in the World 'Development ' Map

The International Development Research Centre (IDRC) came into being in 1970 in a climate of questioning and reassessment of the direction of world development strategies.The first Development Decade was coming to an end with most of its objects unfulfilled. Government aid programs were coming in for increasing criticism. The World Bank had set up a commission to evaluate the past two decades' development copperation. Earlier simplistic views which saw capital transfusions as the key to Third World development had been demolished and the disturbing and complex issues of unequal exchange and transfer of technology had come to the fore.

It was thus natural that these concerns should be mirrored in the structure and policies of this new institution. It was characterised, from the start by flexibility and willingness to experiment, a distinct contrast to its 'big' brother', CIDA.These attributes derived mainly from its size ,its budget not amounting to even 5% that of CIDA.

While almost all other agencies in the field of development define their roles with reference to development aid, IDRC is concerned with development research. This was a concept which came into vogue in the 'sixties with the increasing attention being paid to the role of science and technology in development.In fact it evolved out of the realization that science and technology (assumed to be the monopoly of the developed countries) could not be directly applied to development problems (assumed to be the monopoly of the Third World).While there appeared to be general consensus on the need to harness the energies of science and technology for the benefit of the Third World, there were divergent views on how it could be done.While some emphasised the political and economic issues involved, there were others who saw this problem too, as a technical, apolitical one - a question of doing things in a better way.

also the economists were proving that investment in research correlated with GNP.

The protagonists of the latter view had a favourite example - the International Rice Research Institute (IRRI) in the Philippines, set up by the Rockefeller and Ford Foundations, and the source of the so-called miracle seeds which started the green revolution in Asia. Lester Pearson, the chairman of the

World Bank commission on international development cooperation (also a founding father of the IDRC) says in his report- " the wealthy countries have rarely attempted to focus the energies of their enormous scientific and research establishments to help solve the specific problems affecting developing countries ..... The example of the International Rice Research Institute may suggest the most productive pattern for donor commitments...."(1) David Hopper, the first President of IDRC (formerly associated with the Ford and Rockefeller Foundations and now with the World Bank) is even more specific; "For years the West thought all it had to do was to pass out its agricultural technology. Yet without the adaptation of this technology to the specific needs of the developing regions, the technology was useless. The success of IRRI was partly based on such adaptation"(2)

Thus , the problem is seen as finding the best way of applying western science and technology to the 'problems' of the Third World.Is it to be done through a system of 'outposts' like the IRRI , where Western finance and expertise would be concentrated in one place (in most cases in the Third World itself) and focussed on different'problems' - i.e. rice, cassava, cotraceptives ? Or should an attempt be made to co-opt and integrate into the system whatever capacities the Third World countries already have? who raised this?

The creation of research 'outposts' posed relatively few problems: they were practicable as had been demonstrated by IRRI and CIMMYT; they were managable; they were capable of absorbing capital and giving 'returns'; they were technical and apolitical.The other task was more complicated but it too was neccasary. If not, how would the achievements of the 'outposts' be disseminated?As an IDRC document puts it " In the past there have been research findings which had widespread relevance but which were not disseminated. For example, Dr Norman Borlaug had developed his Mexican dwarf wheats years before they were introduced into India to spark a dramatic upsurge in that country's wheat production"(3) If the national research capacities were not linked up with the research 'outposts', how would the field testing be done, the data collected and the feed-back received? The Consultative Group on International Agricultural Research(CGIAR), the 'holding company' for all the international agricultural research centres (IARCs), puts it thus: "It is not possible for CGIAR to respond to requests to support national research programs, but the linkage between international and national research is recognized as being of great importance. Methods of strengthening this linkage and of making the research work of the international centres pay off on the farmers' fields are accorded high priority.."(4)

But, in 1970, this was uncharted territory, Working with Third World researchers and institutions on their own territories could be messy. The researchers would not be capable of producing "solid research results of the highest quality". The scientists and the institutions might not be'managable! Governments and politics could come in, tainting the technical and apolitical purity of the research.

The need to find a way of negotiating this uncharted territory defined IDRC's role. The need to tackle problems in a way that would transcend national borders and ideological barriers had made the U.S. sponsered research centres 'international'.The sensitivity of the task alotted to it not only made the new Centre pronouncedly 'international'(name, board of governors and even the holding of board meetings) but also affected the choice of the sponsering country, Canada(clean reputation).

new sentence

implies that people other than Canadians chose or that there were alternative sponsors

II

The Network Concept in IDRC Policy

Parliament has set down that IDRC is "to initiate, encourage, support and conduct research into the problems of the developing regions of the world and into the means for applying and adapting scientific, technical and other knowledge to the economic and social advancement of those regions, and, in carrying out those objects

(a) to enlist the talents of natural and social scientists and technologists of Canada and other countries;

(b) to assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems;

(c) to encourage generally the coordination of international development research; and

(d) to foster cooperation in research on development problems between the developed and developing regions for their mutual benefit."(5)

These objects clearly envisage the identification of problems common to the developing regions (the term'country' has been avoided), the building up of research capabilities in the developing regions, and the establishment of links between those institutions themselves and with institutions in the developed regions.

Dr Hopper, the president of the Centre who would have been responsible for translating these broad objectives into concrete policies, stated in his inaugeral speech that" from among (the Centre's) corporate objectives the most significant is the charge.... to 'assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems'." (6) However,this, according to a Centre publication, posed the question as to striking "the correct balance between Centre assistance for improving the innovative skills of young scientists by providing on-the-job research opportunities in their home countries and Centre assistance to the finding of solid research results of the

highest quality." (7)

The solution had been "to develop projects in which several institutions in a region undertake parallel studies, and the researchers meet at regular intervals to share experiences and to cover the gaps or weaknesses in one group by the strengths of another. The second has been to build even more basic networks between individual researchers (or groups of researchers) in different countries, so that together they may form a 'critical mass' of skill necessary for research momentum."(8) The IDRC Board of Governors was informed in March 1973 that "Centre research networks have proven to be an extraordinarily successful tool for organizing, mobilizing and giving experience to researchers in developing countries. The financial and human costs of administering such networks are not small. Nevertheless, it may well be that Centre investments in research networks, despite their administrative difficulties, will prove to be among those of our endeavours to earn the highest return." (9)

How was this general view of research networks reflected in the work of the Centre's four program divisions?

The Agriculture, Food and Nutrition Sciences Division had initially set itself five objectives,one of them being "to provide food and agricultural scientists throughout the less developed world with improved opportunities and means to meet , to inter-communicate,and to cooperate in subjects of closely related research interest and activity."(10) Examples of such networks are given as " links between multiple cropping projects in the Philippines and Thailand, among several grain legume projects in the Caribbean and Africa, between root crops and cassava-swine research in the Caribbean and Colombia and similar work extending through three continents."(11)

Another objective of the Division is given as "(accelerating) the rate at which the research findings of the international centres for food and agricultural research are translatedinto systems of technology relevant to the needs of , and acceptable to, rural communities : and of encouraging and supporting studies of the impact of these technologies upon the material and physical wellbeing of the rural communities which accept them." (12) The means used to achieve this objective are described as "bringing scientists from the low-income countries more into contact

with the international research centres." (13) and the active promotion of more IARCs.The Division's interest in networks is further illustrated by a photograph in an annual report of the Centre, showing the Director of the Division, J.H.Hulse studying a network analysis board. (14)

The Information Sciences Division is also interested in networks but these are for information exchange.The Division's task is to disseminate the findings of research that is regionally relevant.The objective is to create a system whereby research findings, be they Centre supported or not,will be picked up by a global information network and transmitted to the appropriate places in the shortest possible time.The Division also sets up industrial extension services where several counties are connected to a central data bank which processes their requests for industrial information . An example is TECHNONET Asia. → reminds me to tell you about this!

The Population and Health Sciences Division has as its overall objectives the support of research on population dynamics and on the health of rural communities.This has been manifested in Centre support for international collaborative research programs under the auspices of WHO, and in the setting up of several networks connecting scientists regionally, and in some cases , globally.Perhaps due to the absence of a system of international health research centres on the linesof of the IARCs, the Division has been involved in building a large number of developing region - developed region network links.It appears in some instances that the Divisions activities have resulted in the building of networks in the developed region too- for example, in the case of the 'Copper T' intra-uterine device, at one stage there had been one Egyptian researcher working in his own country, connected to a Canadian network of 13 university and medical centres.(15)

A clue as to the reason for this state of affairs is provided by an IDRC publication which states that "there is recognition of the fact that most of the expertise in the field of tropical disease resides not in the tropics but in the industrial north."(16)But , this tendency appears to be most marked in Africa.In the other regions, especially Asia and Latin America, there have been networks limited to the region

to recognize or "reside" confusion

such as the 'Value of Children to Parents' project involving a network of Thai, South Korean , Philippine and Turkish research groups.

The Social Sciences and Human Resources Division is perhaps the most conscious user of networks:"The (Division's) program can be divided into three relatively distinct activities:

1. Understanding the processes of modernization and change
2. Applied Social Sciences
3. Building international and regional research networks."(17)

The Division further says that "Besides networks formed for specific research..... other continuing efforts to foster contacts between social scientists working in many developing countries are being supported.The object is to provide opportunities for the exchange of ideas and research findings to foster confidence among social scientists and to support their recognition of the importance of Third World interdependence and the usefulness of collaborative research."(18) There has also been an attempt to ensure that"in each network is included at least one country within the region with advanced experience from which the others may learn."(19)

Apart from this, there is also an attempt to assist the establishment of regional secretariats focussing on specific issues,(20)and support increased contact between Canadian academic bodies and Third World scholars and researchers(21).

So the contradiction does not in the concept but in the application

Thus it seems that the use of networks is well established in Centre policy and quite widely seen in the operations of its divisions. However the application of the concept is not without its contradictions. The main contradiction is between the expressed intention of building up and strengthening research networks and the stated policy of expecting project proposals to be formulated by developing-country groups free of Centre prompting(22). The re-iteration of the statement that the initiatives must come from the developing country groups appears to be an an important part of Centre diplomacy in relation to the developing countries but, if carried to its logical conclusion,it would place considerable restraints on the building of networks.The actual process of setting up a project must be a compromise between the Centre's desire to establish linkages and the country group's desire to have a project relevant to its interests. It was not possible to verify the actual process by investigating

a sample of projects, but in at least one case - a Physical Quality of Life Index investigation to be carried out by the Department of Sociology, University of Peradeniya, Sri Lanka- the project proposal had come from the Sri Lankan group without Centre prompting, and there had been no attempt (at least at the approval stage) to conscoiusly link it to other projects to form a network (23).This contradiction is perhaps the reason that Ruth Zagorin, the first director of the Social Sciences and Human Resources Division, qualifies her statement that "creating the right milieu for research in developing countries and fostering cooperation in both research design and methodology can be more gratifying than the research itself" by stressing that " networks are a result of research projects, not a reason for them."(24)

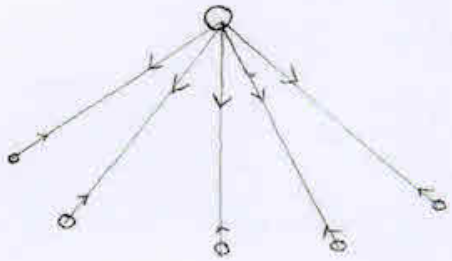
Significant differences in the use of the concept by the different divisions and in the various geographical regions come to light when the approaches and the objectives of the four divisions are analysed.These differences are of use in understanding the present use of the networks and in proposing alternative strategies.

III

Classification of Networks

A perusal of IDRC publications does not show any attempt to classify or categorise networks set up in the course of its work.The term' 'network' is used in a wide , general sense without differentiating for example, between comparative and collaborative studies.Nor is there a differentiation between networks with an identifiable apex, generally an international research centre (i.e. the 'outreach'programs) and the ones where the participants are more or less on equal terms.

It is this latter division which is most useful for an understanding of the functions performed by networks. The type of networks where an apex can be identified have a vertical structure with the apex element being on a higher level than the other participant elements.The subordinate elements which are of a generally similar character,are connected to the apex element , but not to each other.



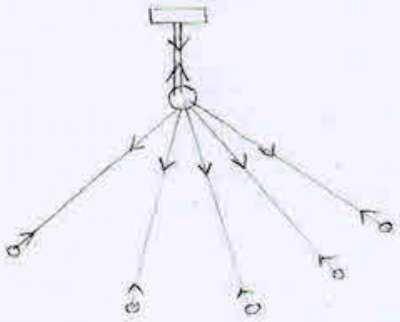
Vertical Model

This approximates very closely the network systems associated with the IARCs.The seeds, the technology and instructions travel down the link to the 'small liaison stations' as the national agricultural research institutes are described,and the results of field testing etc.,the feed-back travels up.There is very little communication between the country institutes, what little there is, being through the apex element, annual workshops at the IARC or through its publications.In this type of network, the emphasis would be on comparative rather than collaborative research,given the need of the IARCs to have their findings disseminated

adapted, and used. However, there may be exceptions.

There is, in most cases where international research centres are involved, another link, that between the research centre and a metropolitan institution or institutions. It is not always easy to locate and identify the metropolitan link but the following description gives a fair picture of the nature of the link and the rationale of IDRC involvement.

"Much of this work demands basic research of a kind that can only be done in large institutes. For this reason, the Centre has contributed to programs of crop research at the major international agricultural centres in tropical regions..... but it has also on occasions added linkages in two directions. One direction is further back, to even more fundamental research at Canadian universities that is supportive of the work at these tropical centres. An example of this is the grant made in mid 1974 to the University of Saskatchewan to carry out studies..... closely linked with the collection and breeding of sorghum at two centres in Third World countries - the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Arid Lands Agricultural Development Program in Lebanon. The other direction onward from the big research station to smaller liaison stations where improved varieties are tested in a range of climates and environments."(25)



Vertical Model (extended)

The metropolitan link is a broad, equal relationship, defined in terms of similar approaches, managerial techniques, research 'standards' and in most cases even of personnel interchangability, as opposed to the unequal relationship between the 'big research station' and the 'smaller

liaison stations'.

Where there are no established big research stations and yet a need is perceived for basic research, the intermediate step is bypassed and direct contact established between the metropolitan institution and the country researchers.An example of such a network is that between the Memorial University in Newfoundland and field researchers in Ivory Coast and Upper Volta concerned with river blindness(26).Variations of the extended vertical model can also be found in the various WHO sponsored programs on fertility control and tropical diseases, promoted and supported by IDRC.

The ramifications of an actual extended vertical network are thus described in an IDRC publication:

"IDRC's involvement with cassava began in 1970 when CIDA invited IDRC to administer a five year,$ 3.25 million contract for cassava/swine research.$2.5 million was allocated to a major cassava and swine improvement program at the Centro Internacional de Agricultura Tropical (CIAT), which has its headquarters in Cali,Colombia , and the remaining $750,000 was earmarked for supporting research in Canadian universities.....In addition to the research program at CIAT , IDRC supported from its own funds a workshop for representatives of 17 Latin American countries who discussed the program in terms of its applicability to Latin American needs.IDRC also financed the training of four young Latin American animal scientists at CIAT and subsequently supported their own research programs when they returned to their own countries.IDRC-financed research programs have also been planned for African students and plans are well along the way to create research linkages between swine production programs in Southeast Asia and the program at CIAT....

When IDRC signed the cassave management contract,the research program at CIAT amounted to little more than the maintenance of a collection of cassava varieties. Experience in Canadian institutions with cassava was virtually non-existent. At the outset an international advisory committee composed of research workers from CIAT and Canadian universities, together with independent experienced scientists, was established to help IDRC in its task of guiding and managing the CIDA funds productively. In support of the program,IDRC promoted a series of workshops.The first was attended

by more than twenty scientists from all over the world each of whom had at one time or another worked with cassava. This group suggested the priorities for the cassava research program, and recommended that IDRC encourage the collection and maintainance of a definitive cassava bibliography which would bring together all of the relevant literature scattered throughout the world and serve as an advisory service for all future cassava workers.

A second workshop held in Nigeria in 1972, defined a research program to help eliminate cassava mosaic, which is the most serious disease which afflicts the crop in Africa. A third workshop held in Briain in 1973, tackled the problem of toxicity in cassava.....A fourth workshop, held in Ottawa in 1973, discussed a study of the utilization and potential markets for cassava and cassava products....A fifth workshop recently held in Thailand has dealt with the processing and preservation of cassava and cassava products and has given particular attention to the needs for improved quality standards in the chips and pellets designed for export.

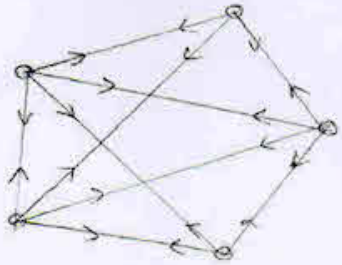
The contribution of the Canadian research institutions, including the University of Guelph, McGill University and the Prairie Regional Laboratary of the National Research Council of Canada, in Saskatoon, has been of great significance.

IDRC has, with its own resources, supported a series of outreach programs in Latin America, the Caribbean and more recently in Southeast Asia. An interesting cassava production research project has started in Java, in which the conventional cassava is crossed with a tree cassava.....Training programs are continually under discussion for young scientists from all of the cassava producing regions and at the end of last year IDRC provided travel fellowships for 20 young scientists from developing countries to attend the International Symposium on tropical root crops held in Nigeria.

One of the most exciting aspects of the cassava/swine program has been the way in which it has stimulated the development of an international network of cassava research workers. This network now covers some 50 countries and IDRC has established contact with virtually all the scientists throughout the world who are working on cassava. Other donor countries and agencies have been attracted to cassava and it appears that total major support for cassava research thoughout the world is now equal to roughly three times the money allocated through the CIDA budget.

....the technical and economic benefits from this research do not represent the sole outcome of value. Of great importance is the pattern of network research and intrenational cooperation which has been generated and which can serve as a model for many other food and agricultural research programs in the future."(27)

The other main network type, the 'horizontal' model, is distinctly different from the vertical model and its derivatives.This is, in its ideal form, a relationship of equals. The participant elements are connected to each other directly and, being on the same level, the exchanges are equal and reciprocal.



Horizontal Model

This is the description gven by an observer of the actual working of such a network:"The structure of the project is simply explained. Four country teams(Indonesia, Thailand, the Philippines and Nepal), each based in a national research institute, were invited by IDRC, with full IDRC financial support, to select a 'region' within their respective countries for intensive 'planning oriented' regional research over a two year period.....Several useful points can be made about this project format.First, while the emphasis is on regional research, the pre-occupation in each case was on the complex relationship between regional development research and and regional development policy- i.e.the use of research for regional planning.

Second, there was much conscious stress on the fact that this is regional research being undertaken by Asians themselves unassisted by foreigners, detemmining their own research priorities(as they see them in terms of their respective countries) and their own methodologies.

IDRC's role seems purely administrative (apart from its finance) with no professional contribution.This note of self-reliance was a particularly noticeable feature of the Bali discussions. For all the theoretical and

methodological weaknesses which the individual team presentations exposed (though these were a good deal less than I expected) this strong sense of working things out for themselves, unassisted by foreign mentors, seemed to me a healthy and encouraging sign: and one of the strong points of the project format.

Third, the intention of the four country participation is clearly not comparative research (of the familiar type) and this is a point that needs some stress.Though all the field efforts fall under the general heading of 'regional planning research' no attempt has been made to select 'comparable' regions in the four countries- or to select similar development problems for analysis or to adopt a common methodological approach.

Certainly common themes emerged in the Bali discussions,as one would expect, but the object of the exercise is cooperative discussion,the presentation of individual cases for critical comment by fellow Asian professionals concerned with similar attempts at research understanding, rather than with strict comparative analysis- and platitudinous generalization.....

....The minor note of professional competitiveness between the four teams (in this case) also seemed a healthy stimulus to the raising of research standards-and not least to the maintenance of the project timetable,punctuated as this is by the working meetings at which progress has to be demonstrated to ones colleagues in the other country teams.

Fourth, while there is no formal training ingredient in this project (other than the indirect do-it-yourself 'training ' experince of regional planning research that the project provides for those directly involved), there was a clear interest..... in the subsequent use of these case studies as a contribution to the base materials for regional planning training programs in the individual countries concerned."(28)

In most projects of this type however, there is a degree of asymmetry-one or two of the participant institutions being on a higher level of expertise. This follows from the Centre's policy of "(including) in each network.... at least one country within the region with advanced experience from which the others may learn."(29)

An example of this variation of the horizontal model is an eight country

project on the housing problem in Southeast Asia."Experts and scholars from Hong Kong, Indonesia, Laos, Malaysia, the Philippines, Singapore, Sri Lanka and Thailand are taking part but it is recognized that Singapore and Hong Kong have the most experience to offer.

At first some experts didn't believe the project would get off the ground because of the disparity of housing conditions in the participating countries. There was also the matter of national pride and status - some officials were reluctant to admit that some mistakes had been made in their housing programs. This was the case in Singapore and Hong Kong,.....But, soon it was realized that Hong Kong and Singapore were models to learn from and not necessarily to imitate."(30)

I was supposed to be involved in this, we'll talk about it

The ability of horizontal networks to function on a global- as opposed to a regional- scale is illustrated by the Science and Technology Policy Instruments project involving Argentina,Brazil,Colombia,Egypt, India, S.Korea, Mexico, Peru,Venezuela and Yugoslavia.The project had the individual countries carrying out work of specific interest to them -e.g.South Korea concentrating on the metal processing industry, Brazil paying special attention to analysing state enterprises - within a common framework, the methodological, international and comparative aspects being coordinated by a project field coordinator who meets with the country directors twice a year(31). This network has also spawned several networks of the same type dealing with related issues, one being between India,S.Korea, Nepal, Pakistan, the Philippines and Sri Lanka, and the other being between Kenya, Peru, the Philippines,Senegal and Sudan(32).

Though IDRC does not differentiate between the two basic types of networks consciously, their use varies with the divisions and the geographical regions. The vertical model appears to be favoured by the Agriculture, Food and Nutrition Sciences Division and the Population and Health Sciences Division, while the horizontal networks are most often found in the projects of the Social Sciences and Human Resources Division.With regard to geographical regions, Asia and Latin America appear to have more horizontal networks (subject to the differences in emphasis of the different divisions) than Africa.These trends or emphasis have been on an examination of the stated objectives and descriptions of work of the different divisions and short descriptions of all projects approved, and are in no way conclusive.For that, it would be necessary to undertake an exhaustive study of the working of

all 800 or so projects funded by IDRC so far.

The networks associated with the Information Sciences Division are of quite a different character, not being used for conducting research but for the transmission of information.In these ,the central notion is of gathering information from a large number of sources and processing it for distribution at a central data bank. At this apex ther is to a processing both of information received and of requests for information.

le Devmbes

IV

Conclusions

As was discussed in chapter one ,IDRC's role in the hierachy of world development institutions was that of incorporating into the international development research thrust that was then gaining momentum, the research capacities of the Third World countries.This was held out to be a technical, apolitical task, just as the work of the international research centres are held out to be technical and apolitical.But, reality is different.Niether development nor research are apolitical. They serve political, and in the final analysis, economic ends and even the holding out of such activities as apolitical is a political act.

The definition of 'development' held by the international development establishment is derived from the nature of the present capitalist world system.It means,in the context relevant to the present discussion,basically two things:the 'development' of natural resources to an appropriate level for exploitation for profit and the 'development' of people into cnnsumers so that they can buy the goods so produced,once again to the profit of those who own the production process.

It is to these tasks that the world development effort is addressed and the development research thrust is the application of science and technology to these tasks.The resources as well as the human beings of the peripheral Third World countries are being 'refashioned' inthe interests of the capitalist world system.The function of IDRC is to explore the possibilities of using the capacities of the Third World in this process, in conjunctioh with world development research thrust. More concretely the task was finding out how to connect up the developing country research capabilities to developed country institutions. It had, by the nature of its task, a great deal of flexibility and license to experiment.An indicator of the success of tying up the national research capacities (agricultural) is the recent report that it is now considered by the development establishment that the 'returns' on investing in them is are higher than on investing in the IARCs,and that the CGIAR is considering granting funds direct to such institutions.

Conducting research through networks was one of the experiments tried out

successfully by IDRC.Being an experiment all kinds of networks were tried out or were evolved in the courseof Centre operations, and it is likely that the types which fit the requirements will be picked up by other institutions and further refined, while the others will gradually fade out. Already the vertical networks have been picked up by the IARCs and are being operated even without IDRC participation. This is understandable since the vertical model, in fact, duplicates in research the relationship that exists in economics. The vertical model makes it possible for the core interests to guide the direction of research and is amenable to 'management'.An example of this is the cassava-swine research project described in chapter three.Despite all the talk of cassava being "the world's sixth or seventh most important staple food crop"(33) and being able to "in terms of calories per unit of land per unit of time, outproduce wheat, rice , maize and sugar cane"(34) the focus of the project is on feeding it to swine so the pork may be marketed or, even more on making it an export crop.Of the five workshops organized by IDRC one was on markets and another was on the export standard of cassava chips and pellets(35).

Rest is, other "donors" pay for them →

→ for swine?

In contrast to the vertical net works which perpetuate unequal relationships the horizontal networks have the potential of becoming an important feature of a future collective self-reliance in research of the Third World.Though not capable of reaching that potential in isplation from socio-economic factors, the concept of collective self-reliance embodeed in the demand for a New International Economic Order makes such a prospect not so very far-fetched.

very good work, considering (i) the paucity of non-IDRC documents to work with, (ii) your unsatisfactory attempts classify the 800 projects

Lets discuss the complex issue of "science as competitive" yet the relationships as cooperative I mean, is Bacon's ideology about nature + the man as objects of research supposed to coexist with the ideology of the horizontal model.

Give not written this fully here - we'd discuss

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