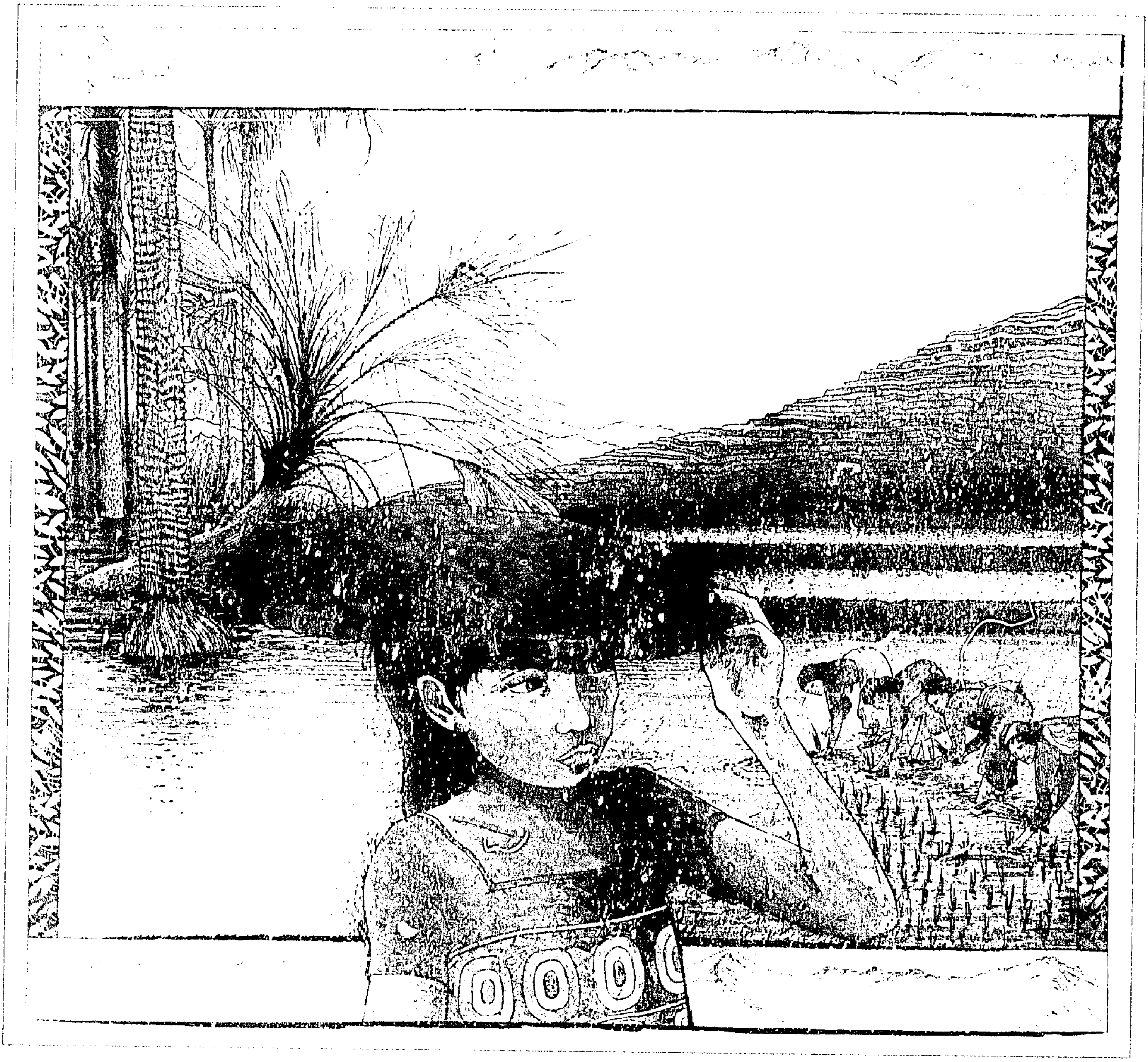
BREAKING THE CYCLE

Winrock International Annual Report 1987



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Hendrik C. Knipscheer
Program Officer
Asia Division
Winrock International

The farmers know the steep hillsides are eroding but they have no place else to grow their food. "Next year," they say, "we will plant trees." But next year they are still hungry and poor. "One more year," they say. What will it take to break the cycle?

WE HELP DEVELOPING COUNTRIES FIND ANSWERS

Robert D. Havener
President

The farmers who plant crops on the fragile hillsides in so much of the developing world understand erosion. They know that someday the good soil will be gone and the hills will grow little or nothing of value.

Yet for so many of the world's subsistence farmers the reality is this: if they don't grow a good crop this year, their children may not be alive next year.

Can the cycle of poverty and environmental degradation and more poverty be broken?

Some people say it can't. But 20 years ago, the pessimists said India would never be able to grow enough food for its people, that the most merciful thing the developed world could do was to let some Indians starve. Today, India feeds three-quarters of a billion people and on occasion sends food aid to Africa.

India could make this progress because its agricultural institutions, scientists, and policymakers were able to bridge the gap between what science could accomplish and what farmers needed. Over those bridges still come steady supplies of technologies—the improved crop varieties and tools and techniques that help farmers break the cycle of poverty.

So we believe that developing nations can do something about hunger and poverty and environmental degradation if they have strong educational and training institutions, well-managed research centers, and responsive extension services. Winrock's strengths are directed toward helping nations build or reinforce those agricultural institutions.

Each country must build its institutions in its own way—to reflect its culture and history and the character of its people. And in the process all countries find that trying to improve agriculture creates as many questions as it answers:

How can they build research institutions that reflect their national identities, that stimulate initiative and creativity among their peoples, and that encourage research excellence?

How can they train and equip people and foster their professional growth and personal productivity throughout their careers?

What kinds of safeguards can they build into research and political processes to ensure that science and policy reinforce each other?

Can they protect natural resources without punishing people? How can they make sure that their new science and technology will do farmers more good than harm?

Ultimately, the right and responsibility to answer such questions fall on a nation's agricultural professionals. However, it's part of our function to ask the same questions, to filter possible answers through our years of experience in agriculture and development, and to share our perspective with the men and women who are making the choices for their countries.

As an institution we focus on five program areas that we believe are at the heart of agricultural development: agricultural research and extension, human resources, renewable resources, agricultural systems, and agricultural policy.

In our staff we have a wealth of experience in these areas. We have people who have devoted decades to understanding how to control insects on crops or how to communicate with farmers or how to design and manage experiment stations.

In the first two years after the merger that created Winrock International, we spent a good deal of time asking ques-

tions about how and where we could best use our skills and experience and money and time.

Based on our answers to those questions, we made two major program decisions in 1987. One was to reorganize our administrative structure. We wanted the people in our five program areas to start answering some of the development questions that donors and other institutions aren't taking the time or money to consider.

The second was to commit ourselves to serving Africa as vigorously as we've served Asia for 30 years. We realize it will take time for Winrock to build the knowledge base and earn the same kind of reputation we've established in Asia, but we'll invest the time because we believe we can make a difference in Africa.

Late in the year, just as we were beginning to free the staff time and core funds to concentrate on these difficult development questions, we received some very good news. The John D. and Catherine T. MacArthur Foundation announced the award of a $5 million endowment grant to Winrock. The money itself and the confirmation that others share our commitment to this work gave us more cause to be optimistic about 1988.

In this report on our 1987 work, we give you a glimpse of the cycle of development—questioning, testing solutions in the field, and questioning again.

The development process is just that: a process. We will always need better solutions to our food-production and environmental problems; we will always have more questions. And for as long as we see our work improving people's lives, we will continue to press for answers.

Dilbagh S. Athwal

Ralph Retzlaff

WE STRENGTHEN INSTITUTIONS

Dilbagh S. Athwal
Senior Vice President
Director, National Agricultural Research and Extension Program

Many developing countries are entering a difficult stage in the growth of their agricultural research systems. In a relatively short time they have built and equipped facilities, trained scientists, and embarked on ambitious research programs.

Our colleagues who manage these systems are like jugglers who have gotten a half-dozen plates in the air at the same time. Momentum is what counts now. They must maintain the physical facilities and professionally challenge the scientists. They must see that research is relevant, that results are used by farmers, and that policymakers and donors—upon whom they depend for funding—are kept abreast of their successes.

"A few creative people can breathe life into an entire research system."

We know how formidable the task is for these research managers. Some of us at Winrock have been in development for 30 years and more; we have worked with countries through every stage of building their research systems, under every imaginable condition.

We have watched systems go through periods of phenomenal progress and disheartening stagnation. As an institution, we have reached a point at which we can step back and learn from what we have seen.

One of our major concerns is the question of maintenance. We all know that physical resources will deteriorate if they are not properly maintained. The same is true of human resources.

A few creative people can breathe life into an entire research system, but an unwieldy bureaucratic system can stifle the creativity of its people. What does it take to create and sustain an institutional environment that encourages excellence and innovation?

I believe the secret is in the leadership skills of the men and women who manage research and in the incentives that the research system offers for professional excellence.

"What does it take to create an environment that encourages excellence and innovation?"

But how does an organization develop leadership? And in systems where there will always be financial constraints, what can be done to motivate and challenge people over time?

These are the kinds of questions Winrock now has the resources to begin to ask in some systematic way, and we are launching a program to do that.

Ralph Retzlaff
Project Supervisor
National Agricultural Research II Project
Indonesia

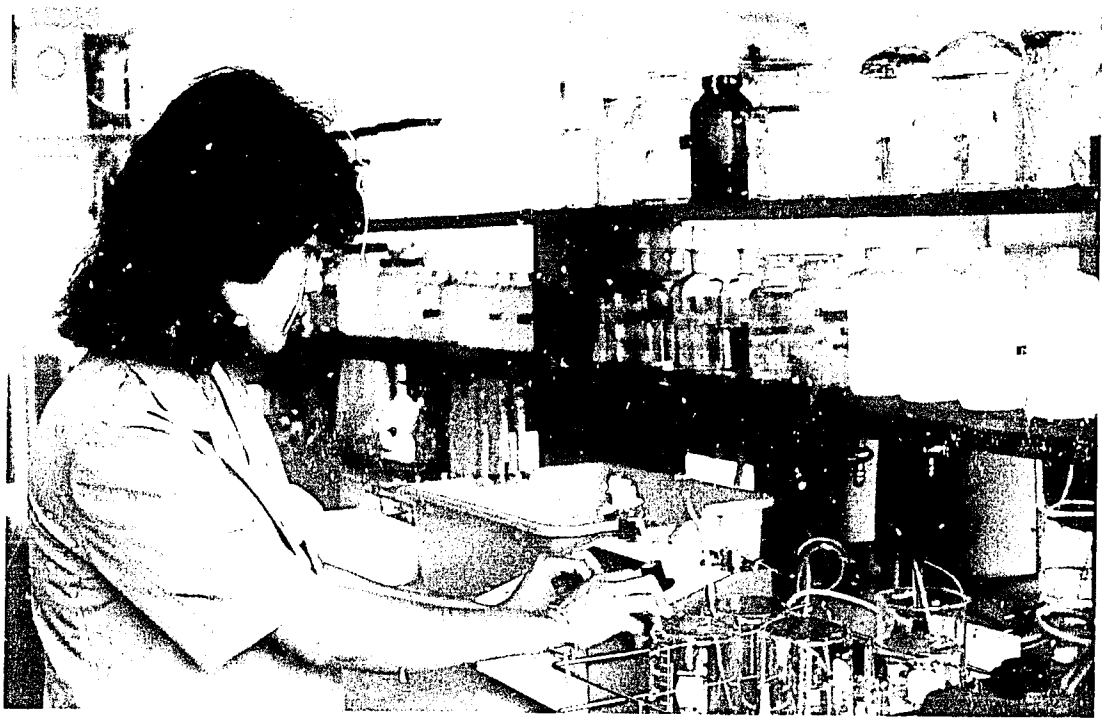
In 1975 there were 16 Ph.D.'s, 26 M.Sc.'s, and 243 B.Sc.'s in AARD, Indonesia's Agency for Agricultural Research and Development. By 1987 those numbers had increased to 154, 343, and 1,396. An additional 150 Ph.D. and 350 M.Sc. fellows are away on training.

More than 200 AARD staff members have studied in degree programs administered by the project. They return to their institutes highly motivated, full of ideas and energy, ready to start using what they've learned to assist Indonesia's agricultural development.

"We've been involved in every aspect of their growth."

Absorbing them into the research system and channeling their energies into relevant, well-organized research is a challenge of the first magnitude.

In less than 15 years AARD has grown from a modest beginning into an agency with a research staff of over 2,000, a secretariat, two service centers, six research-



coordinating centers, two research centers, 27 research institutes, 51 research stations, and 196 experimental farms and ponds.

We've been involved in every aspect of that growth practically from the beginning, though the nature of our involvement has changed over the years. The kinds of services we offer AARD today are quite different than what we provided five or 10 years ago.

In the beginning one of our main functions was to provide expatriate scientists who would spend several years assigned to AARD research institutes, providing technical assistance as those units worked on increasing their staffs and strengthening the quality and quantity of their research programs.

Over the life of this project, as hundreds of AARD scientists have returned from advanced-degree training with more skills and experience, there has been less need for expatriate specialists working on long-term assignments within the research system.

Now we have only four long-term staff members serving on assignments in this project. Today AARD is more likely to request that we recruit specialists for a two-month assignment than for a two-year assignment.

For example, over the past three years AARD has commissioned 10 research-program reviews conducted by teams of Indonesian and expatriate scientists. This year AARD wanted to bring in a team of specialists to see how effectively the recommendations from those reviews had been implemented. So we worked with AARD to recruit people who not only were experienced in planning and managing research but who also were familiar with Indonesia's research system.

Half of the members of that team were Indonesian nationals. The same process took place with each of the preceding 10 program-review teams. A decade ago those teams would have been composed mainly of expatriates. As development professionals, we work for just this kind of trend toward national self-reliance.

WE FOSTER LEADERSHIP

David F. Nygaard
Director
Human Capital Development Program

If anything differentiates Winrock in its approach to human capital development, it is our conviction that the process is not finished when you hand someone a diploma and an airline ticket back to the developing world.

Too often newly trained men and women go home to unchallenging situations, to professional isolation, to no money for research, and to equipment that doesn't work.

When that's the case, everyone loses. The developing country and the donor lose the full returns on their investments in education; the scientific community loses the benefit of professional exchange; and the scientist is likely to lose hope.

What can we do about that? We need to keep agricultural professionals intellectually active, to get them involved in research and international conferences and regional networks with colleagues from neighboring countries who face similar constraints.

That kind of thing is so easy to do. Why is it so hard to fund? Whether it's a few thousand dollars for short-term training or $80,000 for a Ph.D., the donors are hesitant to put money into training activities.

Part of the reason is that it is so difficult to prove the value of investments in education. When donors put money into building roads, they can see, for example, that the cost of transferring tomatoes was reduced 10 percent and the return to investment in roads was 25 percent. But the statistics on education aren't that clear.

That's one of the things Winrock wants to look into. We know the value of well-trained people. But someone has to come up with the methodology to measure that value objectively. Is there a way to quantify the returns to investment in education?

The analyses of returns to money spent on agricultural research have been tremendously important in convincing people to support research. We need the same kind of bottom-line justification for investing in people.

Vanida Tulalamba
Administrative Manager
Regional Research and Training Program
Thailand

Our conviction is that professional growth is as vital as degree training. We want those who are being trained to be able to contribute over a lifetime to the development of their countries.

It is foolish to hand them a degree and turn away. Yet that so often happens: at points where a few cents could extend the benefits of the dollars already poured into education, donor support disappears. We believe this failure is due not to lack of commitment but to lack of awareness of the potential for doing much good with relatively small investments.

We are always looking for ways to win support not only for graduate training but also for the continual professional growth of social scientists and the institutions in which they work.

Our Asian fellowship program is one example of a relatively small endeavor that has had substantial success over its 17-year existence because of our attention to quality. The Australian International Development Assistance Bureau and Winrock share the cost of funding the two dozen or so fellowships we award in this program every year.

Two dozen fellowships may sound

inconsequential, but we know that the measure of success is how well people are trained, not how many are trained. This program is designed to produce outstanding scientists.

Our involvement with the fellows starts with the selection process and with the care our selection committee takes to assign each student to the university program that it believes will best meet that student's needs.

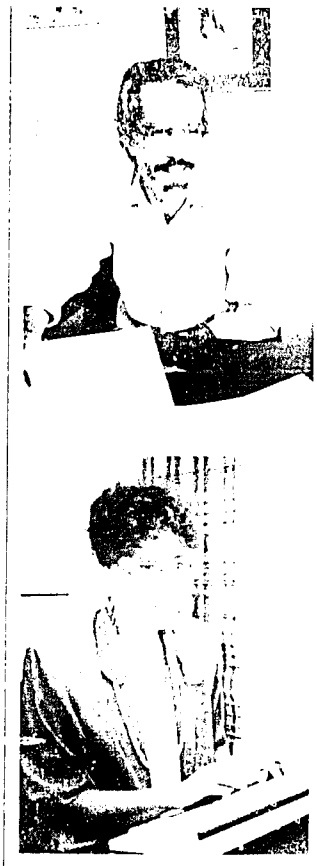
After the students are placed, we do everything we can to smooth the transition to life in another country. We visit all the students at least once a year, so we come to know them as individuals. We try very hard to maintain relationships with all our former fellows.

One of Winrock's advantages, I believe, is our ability to see the value of personal efforts or financial contributions that others might overlook. For example Gerard Rixhon, who coordinates this program, is always working to marshal money and human skills to strengthen social-science graduate programs in which our fellows study.

Rixhon is tenacious: he will organize a workshop that brings together international experts in graduate education and deans from Asian universities; he will seek out retiring professors in developed countries and convince them to donate books and journals to needy social science departments in Asia; he will do anything to help these programs in which we place fellows.

Tenacity is what it sometimes takes to convince donors that no support is too small to be significant. Twenty-five thousand dollars will support someone in graduate study. A few thousand will fund the research he or she is then trained to do. A few hundred will pay postage for the donated books.

Each of these is only a part of what should be the continuing process of human resource development.



WE ENCOURAGE RESPONSIBLE POLICY-MAKING

Enrique Ospina
Program Officer, Agricultural Economics
Agricultural Policy Program

Our U.S. program has a fairly well-defined policy focus, centered on Arkansas. Here in the state we are gaining a reputation for analyzing the changing structure of Arkansas agriculture and for raising questions about the role of state government in agriculture.

Finding our place in the international policy arena will be a little more involved, in part because the questions are a great deal more complicated.

We can break our necks to find ways to make agriculture sustainable and to make farming systems more productive at the subsistence level, but if policies are not right, the poorest farmers and the natural resource base will feel the effects first and longest.

What, realistically, can Winrock do about that? We do not want to do what is being done adequately by others; we do not want to start something that does not match our talents and resources.

One thing we know: we are not going to sit here on the mountain and produce esoteric, academic analyses of secondary data. We have determined that whatever we do in policy will be linked not only to our field staff but to individuals and institutions with which we work in the regions.

In much of the world, certainly in the third world, there is a gap between policy research and policymaking. Economists, for example, do research; policymakers make decisions; but there is often little connection between the two.

Why don't policymakers have a bigger say in what research will be done? And why do they often ignore the relevant research that has been done?

I think Winrock has a good opportunity to take a look at this process and to try to identify where the problems are. My guess is that the biggest blocks are in communication.

And Winrock is strong in the things—workshops, conferences, and professional networks—that can alleviate communication problems.

Jo Ann Pryor
Staff Writer

When we brought a group of Arkansas leaders together to talk about the role of state government in agriculture, we knew we were going to raise sensitive policy issues.

Arkansas is basically a rural state and agriculture is our lifeblood. The early 1980s were tough on farm and country life; things are better now, but more upheaval is predicted for the 1990s.

The question we posed was whether Arkansas—one of only three states without a department of agriculture—has the wherewithal to prepare for, maybe even take advantage of, whatever changes are coming.

It didn't take long for the men and women we'd invited to get pretty honest with each other about how they saw the issues. While they certainly weren't of one mind on how to solve Arkansas's problems, the participants agreed on one thing: if they stick their heads in the sand, the future will roll right over them. They left Winrock determined to not let that happen.

Two months later I sat in on another conference here and listened as international development specialists and American agricultural leaders shared some pretty divergent views of where development aid has been and where it should go in the next decade. It was a completely different kind of conference with, in some ways, a different kind of people—but the chemistry was the same. Why?

Winrock headquarters on Petit Jean Mountain in Arkansas is a congenial locale for decision makers to exchange ideas on critical food and agricultural issues.

Winrock has a knack for getting people together and getting things done. Knacks, by definition, are capacities that are hard to analyze or teach. But there are a few obvious reasons why conferences work so well here.

One is that we know what we're doing when it comes to agriculture and development. We have world-class technical people on staff, people with a wealth of experience.

"If they stick their heads in the sand, the future will roll right over them."

We don't host conferences merely for the sake of seeing people get together. Our time and money are limited, so we are as selective about our conferences as we are about field projects—we keep them relevant to the topics that affect what we're trying to do in the world.

Some of our success has to be attributed to geography and history. Petit Jean Mountain is an incredibly beautiful place. The hospitality here reflects the inherent friendliness of Arkansas people, which was raised to an art form by Winthrop Rockefeller. Some of our conference workers were on his staff and they still hold absolutely to his standard of graciousness.

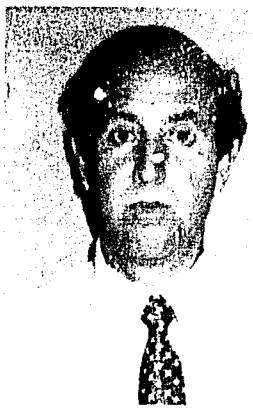
You almost have to relax and get down to basics up here; but just because this place seems to be idyllic, that doesn't mean all we do is sit in lawn chairs and sip iced tea. We don't get all wrapped around the axle about the work that needs to be done, but we have a strong sense of mission and we don't like to waste time.

That's probably the thing that impresses me most about the Winrock conferences I've been part of—so little time is wasted. There's always a sense that people have put out the effort to get here because they're interested in solving problems. And that's just what we want them to do.

Our secret—and it's just what Rockefeller did so well—is to get people comfortable and bring up the uncomfortable issues. Give them freedom and a forum, and set them loose.

Role of
State Government
in Agriculture

Sandra S. Batie of Virginia Polytechnic Institute and State University, a Winrock board member, presides over a session of the conference on the role of state government in agriculture.



WE PROMOTE WISE RESOURCE USE

William R. Bentley
Director
Renewable Resource Management
Program

It doesn't take much study of the environment and the state of the world's natural resources to see that we're working against some tremendous negative forces. Population grows too fast, rural poverty runs too deep, and people too often take short-term, exploitive approaches to resource use.

It's easy for us to say agricultural systems should be sustainable. Of course they should. But we won't accomplish that with a wave of technology's magic wand. The issues are far too complicated.

With all we've learned about the factors that affect resource issues, we've still got more questions than answers. One of the most trou.. g is how to get at the real causes of environmental degradation.

Technology has taken a lot of the blame for the state of the environment, but we're pretty sure the most important causes are not technological but social, ranging from household labor distribution to national land-tenure policies.

We need a lot more research to help us understand these social factors. For example, we need to understand more about how the rich and the poor interact at the village level. It appears that any improvement that doesn't clearly and materially help both groups is doomed to failure. We've learned through some unpleasant experiences that the group that isn't helped is likely to drop a monkey wrench into the social gears.

So, landowners may buy the idea of planting trees as a long-term investment. But unless the tenant farmers have a stake in the tree crops and interim income, they'll uproot every tree they come across. They know trees steal sunlight and water from crops.

If the people who design a project understand that's going to happen and build in benefits to the tenant farmers—and ways to make them understand those benefits--the project is more likely to work.

Our understanding and planning have to go far beyond just biological and technical matters. It's the social, economic, and biophysical relationships that interest us in this program.

Carlos Garces
Team Leader
Irrigation Development Project
Honduras

One of the first things we did in this project was to get out in the field with our technical groups.

On one of these trips, we visited two farmers living within a half-mile of each other. They were growing melons, using the same irrigation method. But one farmer watered his fields every day, and the other farmer only watered two times a week.

We talked to both of them. Neither could say just why he irrigated the way he did and neither was aware of the other's schedule. One man belonged to a well-organized farm cooperative, the other was a poor campesino. When I suggested that they exchange information, they were reluctant to talk about their irrigation practices.

These men are not unusual and their attitudes illustrate how social factors affect resource use. A country cannot expect to have sensible, sustainable national water use if the farmers do not know how to manage their irrigation systems for the best crop production and the least resource waste.

Trees are an important part of farming systems in the hilly regions of Nepal, providing food, fuelwood, and fodder.

Campesinos in Honduras are adopting improved irrigation methods, thus making better use of the water that is available to grow their crops.

Most of the small- and medium-scale farmers this project aims to help have had little, if any, experience with irrigation. They have no way of knowing basic principles of water management. So they need more than irrigation systems; they also need training in how to use them.

Farmers are not the only ones who are short on irrigation and water-management training. The extension workers who serve these farmers and the government's civil engineers who design and develop irrigation systems lack training, too. They have no access to in-service training in things like on-farm water management and the relationships between soil, water, and plants.

There is a lot of education to be done, and one of the goals of the project is to build training capacity within Honduran government agencies and private-sector companies.

"These farmers' attitudes illustrate how social factors affect resource use."

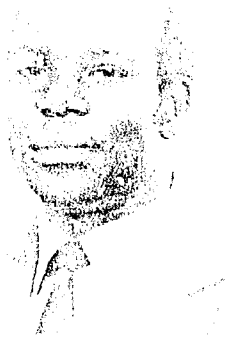
By the time this project is finished, we expect to have built or rehabilitated 600 small irrigation systems serving about 3,000 farm families. This will make it possible for many of these farmers to diversify their production, and we expect our target group to see a 15 percent increase in real income.

That is a significant improvement for now, but of course we are concerned about what happens 10 and 20 years from now to both the farmers and the natural resources. So the project will create structures for planning, designing, and building irrigation systems; obtaining credit; and training people at every level.

We have expatriates on the technical assistance team from Winrock, the Colorado Institute for Irrigation Management, and Harza Engineering. At the end of three years, we plan to pull out, handing full responsibility for the project to Hondurans. The people who take over will be people we are working alongside now: the staff of the Ministry of Natural Resources and Agrotecnia, a local agricultural and irrigation consulting firm.

This is an innovative project, not just because expatriates are being phased out early, but also because we are addressing some farmers' needs—like access to credit and help in pulling together with others who farm one or two hectares so they can qualify for irrigation construction.

We can no longer think of an irrigation project in isolation; it has to be more than water and crop production. If we ignore the social issues the project will fail.



WE SUPPORT THE SYSTEMS APPROACH

H.A. Fitzhugh
Director
Agricultural Systems Program

The beauty of farming systems research is that it gives scientists perspective. It forces them to look at agriculture through farmers' eyes.

When they do that, they begin to see beyond individual crops and livestock to the whole farm. They begin to understand the interactions among crops and livestock and trees and the people who care for them and whose lives depend on them.

Farming systems research demands that we listen to farmers; and when farmers have a voice in the research process, they're much less wary of scientists. When we listen to the farmers, we're more realistic and our work is more relevant to their needs.

Our challenge is to help make farming systems in the developing world both economically and ecologically sustainable. Subsistence farmers have little sense of urgency about achieving ecological sustainability. Their first priorities are surviving and getting their children educated.

That shouldn't be so hard to understand. These people live in poverty. It's hard to take the long view on an empty stomach. The best way to bring about environmental improvements is to make them economically attractive. Only if we can help make farms more productive and increase income will farmers be interested in change.

In our farming systems program, we look at these extraordinarily intricate systems that farmers have devised to keep their families alive. How do we intervene without upsetting the balance they've achieved?

It's got to be done very carefully and the farmer has to be involved in the process. We're always looking for the right mix of crops, livestock, and trees and ways to put them together that meet peoples' immediate and long-term needs.

We want to understand not just the components of farming systems, but how they interact with each other. These interactions are what we focus on in the field research and in our modeling activities at headquarters, where we can use our computer power to ask "what if" questions that would take years to answer any other way.

J.F. Moses Onim
Agronomist
Dual-purpose Goat Production Systems Project
Small Ruminants-Collaborative Research Support Program, Kenya

When this project started in western Kenya nearly 10 years ago, no one was sure whether dual-purpose goats and their products—especially the milk—would be acceptable here. Today the question is how can we get enough goats to give to all the families who want them.

We are, of course, primarily a research group, and it is clear our research is really making headway. We work closely with local farmers, and our results are always readily available to them.

Farmers often visit us at the research station, and because they are more experienced in some things than we are, we give them a chance to do a lot of talking.

They do not hesitate to tell us off if they do not agree with what we are doing. Many scientists are not used to the two-way communication that is characteristic of farming systems research.

I think it is good for us to have that humility built into the system. But even if the farmers never said a word, the

Winrock farming systems activities link crops, livestock and trees for sustainable development that is economically and environmentally sound.

Pakistan is one of several countries in which Winrock is working with researchers on ways to use goats and other small ruminants in the farming systems.

farming systems they have fashioned would still remind us that we do not know everything.

These are amazing systems. In this part of Kenya, the population density is very high. The typical household survives on what a family can produce from one hectare. So the land is very intensively cropped. In addition, the land must carry livestock because most families raise a few cattle or hair sheep or goats.

One of the greatest problems farmers face when they try to raise goats is how to provide adequate feed year-round. Their systems are very carefully balanced and, in most cases, raising a feed crop would interfere with the more essential food-crop production. That makes farmers reluctant to raise goats.

"I think it is good for us to have humility built into the system."

So feed production is one of our main areas of research, and we are trying to make it benefit farmers in more ways. Right now we are looking at linking feed and fuelwood production.

The shortage of fuelwood for cooking is very acute here. People rely on crop residues and twigs or dry branches off trees, but these things are not always available.

We have been looking at multipurpose trees that could provide forage and fuelwood. And we are going further, trying to build soil fertility into our equation.

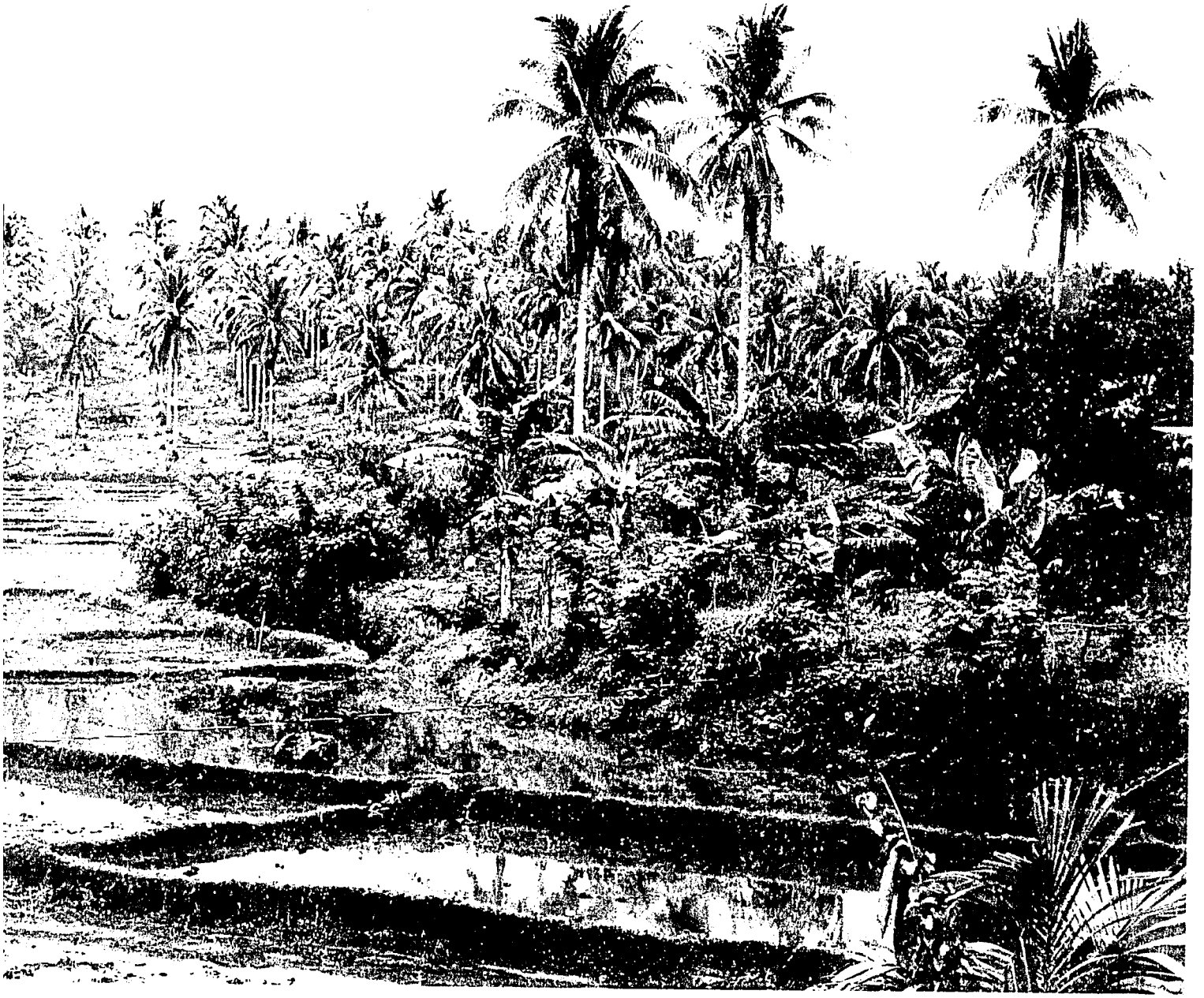
Many of the soils here are depleted because land is scarce and pressure on the land is so great. Almost all families grow several food crops a year on their land.

When they harvest a crop, they are taking nutrients away from the soil. They cannot afford to leave crop residues on the ground to return at least some of those nutrients because they need the residues for fuel or to feed livestock. They are mining the soil and they do not have the resources for adding plant nutrients back to the soil as fertilizers.

Multipurpose trees, particularly the legume trees we are experimenting with, have the potential to solve a lot of those problems. They can supply forage and a steady source of fuelwood; and because of their ability to fix nitrogen, growing them increases soil fertility.

However, growing these trees has some drawbacks, so our research will take more time. In farming systems research there are a lot of checks on the work from within the research team—the sociologist will see things a biological scientist never thought about and the agricultural economist will see problems the others might miss. That makes farming systems research slower but, I believe, surer.

Winrock International's mission is to reduce hunger and poverty through sustainable agricultural and rural development.



HOW DO WE SURPASS ROUTINE SUPPORT?

Lynne Brookes
Fellowship Program Manager
Argentina Fellowship Program

We're serious when we say that training shouldn't end with a diploma. So our institutional commitment to human resource development as a program theme has a great deal of effect on how we approach even the strictly administrative functions of fellowship management.

In the Argentina fellowship program we're managing the master's and doctoral training of nearly 200 researchers and extensionists from the National Institute of Agricultural Technology.

They're studying at more than 50 universities in nine countries, and it's our job to give them whatever support they need—financial, academic, immigration, insurance, and personal. Sometimes they just need a friendly voice at the other end of the telephone.

Those things are extremely important and we believe we do them well, but because of our program perspective we're always asking how we can reach beyond the routine.

One of the ways we've done that is by holding predeparture orientation workshops in Argentina. I visited 43 fellows in Buenos Aires and at five experiment stations in different parts of the country to help prepare them for their studies abroad.

We're now trying to assist the fellows in other phases of their training. We're generating a newsletter to increase communication among the fellows, their home institutions, and Winrock.

We're also developing a program to help them deal with problems of reentry and professional reintegration once they return to Argentina.

HOW DOES A NATION HELP ITS FARMERS BECOME MORE PRODUCTIVE?

A. Hugo Manzano
Research Administrator and
Chief of Party
Agricultural Research and Development Project, Burma

How does a nation help its farmers become more productive? By strengthening the agricultural research system that serves those farmers. This project is strengthening Burma's research system by developing physical and human resources.

In our first 18 months, one of the tasks we put great effort into was building drains, levees, and roads for flood protection at the Yezin experimental farm. The work was consistently hampered by weather that was alternately too wet or too dry, by soil that was alternately flooded or dry and hard, and by shortages of fuel and labor.

We have not finished yet, but many research plots that had excess moisture in past years were well drained this season, so fewer experimental trials were lost to flooding.

Also, the farm-management and Winrock staffs worked together on land development at Yezin and the satellite research stations.

Our work is primarily with the maize and oilseed divisions of Burma's national research system. Through cooperation with a number of international agricultural research centers, scientists here are being given the opportunity to test some new and very promising maize and oilseed crop varieties.

Most of Burma's people depend on agriculture for their livelihood. Any increase in crop yields has potential to make their lives better.

WITHOUT RELIABLE INFORMATION, HOW CAN SCIENTISTS PLAN?

Douglas D. Hedley
Chief of Party
Agricultural Planning Project, Indonesia

The Bureau of Planning within the Indonesian Ministry of Agriculture needs better tools to do the work it was designed to do. It has never had quite enough trained people to amass the raw data it needed.

Without reliable information, how can scientists plan? The people in the bureau have found that they can't—at least not to the extent they would like.

In this project we're working with the bureau to set up systems that will give policymakers within the ministry the information they need for planning throughout the agricultural sector.

This year we helped bring together officials from a number of government ministries and representatives of donor agencies to explore long-term directions for Indonesia's agricultural policy.

The bureau began to identify major policy issues that will need analysis over the next few years. One critical area is environmental policy. We asked two scientists—one from the United States and one from Indonesia—to work with the bureau on preparing to address the issue of law and the environment.

The Indonesian government will be considering national environmental legislation soon; it's essential that the agricultural sector have a say in the design of that legislation. We believe the work being done in the Bureau of Planning will ensure that it will.

WHAT SHOULD WE DO TO SUPPORT INTERNATIONAL VEGETABLE RESEARCH?

A. Colin McClung
Regional Representative, Asia

Over the years the Consultative Group on International Agricultural Research has consistently stressed the importance of international vegetable research.

But while CGIAR's Technical Advisory Committee—TAC—has known the great value of vegetables in filling gaps in nutrition and in generating income for small farmers, the time has never been quite right for starting an international vegetable-research effort.

Last spring, after reviewing the recommendations generated at a Winrock conference on vegetable research, TAC asked us to look further into the subject and to suggest what courses of action CGIAR might consider.

I studied earlier TAC reviews and discussed the subject with about 250 scientists and administrators from 20 countries on five continents. In my final report, I proposed that CGIAR take steps to foster an international collaborative vegetable-research network.

The proposal calls for creating a small coordinating institution to work with developing countries to operate the network. Research would be carried out by network partners, by staff of the coordinating unit working on joint projects with these partners, and by research centers outside the network who agree to carry out specific studies.

A number of developing countries have expressed strong support for this collaborative-research concept. They feel that it will strengthen existing national research centers and will provide opportunities to individuals and resarch units whose talents and training are under used because they now work in relative isolation.

These recommendations were endorsed in large part by TAC and will be formally reviewed by the CGIAR during 1988.

Smoke rising from the kitchen fire of this house in Senegal keeps insects out of the rice that is stored under the roof. Tom Osborn of Winrock examines this traditional storage method.

HOW DO WE WORK TOGETHER TO MEET FARMERS'S NEEDS?

Thomas Osborn
Project Leader
On-farm Seed Production Project
Sub-Saharan Africa

Most of the world's farmers can't afford to buy seed; this year they'll plant seeds they saved from last year's crop. Ninety percent of all the crops grown in developing countries are sown from seeds selected and stored by farmers.

Farmers in Africa routinely lose 10 to 50 percent of their seed because of storage problems; that's why we're involved in this project.

If we can provide farmers with better-quality seed or with more-efficient means of growing and storing their own seed, they'll have one more way to increase their incomes.

A number of seed projects are under way in Senegal and The Gambia, where we're focusing our initial efforts. One of the questions we're addressing is how institutions involved in these separate projects can work more closely with each other to meet farmers' needs.

This project brings together government agencies, local and international private voluntary organizations, U.S. universities, and the Peace Corps. All these institutions have worked together before, but usually the links have been informal. We'd like to build on these links and create new ones.

If we pool some of our energies and resources in supporting the on-going seed projects and in establishing community-level seed enterprises, what we learn can be applied to other development projects.

Winrock provides technical training in on-farm seed production for volunteer agencies' field staffs in Senegal and The Gambia.

CAN ONE PERSON CHANGE THE WORLD?

Edward L. Williams
Administrator
World Food Prize

It's no exaggeration to say that the 1988 World Food Prize laureate has improved the lives of millions of people. He's done it by devoting himself to advancing the science of agriculture and to building the institutions and encouraging the people who apply that science to the problems of humanity.

The genius of Robert F. Chandler, Jr., has been expressed in many ways: in his understanding of how crucial the research environment is to scientific progress; in his knowledge of how to create environments conducive to exploration and achievement; and in his ability to recognize promising young scientists and pass on his skills and vision to them.

Chandler may be best known for his leadership in designing and building both the International Rice Research Institute and the Asian Vegetable Research and Development Center. But the effects of his work extend far beyond those institutions.

For instance, IRRI's success under his leadership helped trigger the creation of a group of international agricultural research centers that now spans the globe. And just as important, many of the young scientists influenced by Chandler have gone on to create or manage research institutions in the developing world.

We probably all agree with Dil Athwal's observation that a few creative people can breathe life into an entire research system; but I suspect most people underestimate how consequential one person's career can be.

We know that no one person can be given all the credit for any advance that's been made against world hunger. The problems of hunger are adequately addressed only when many individuals and organizations work together. Chandler was just one of a troop of extraordinary scientists who—under the visionary leadership of the Ford and Rockefeller foundations—launched the international agricultural research center movement.

Nevertheless, we may ask: Without Robert Chandler would there have been a research institution capable of pooling the skills of many scientists and developing the so-called miracle rice varieties that fueled the Asian green revolution? The success of that revolution gave scientists in developing countries reason to believe that through their work they, too, can change the world.

We should never underestimate the value of one well-lived life.

WITH ANSWERS THEY CAN BREAK THE CYCLE

Richard H. Huddleston
Director of Development

Where are the men and women whose search for answers will ignite the next green revolution? We believe they're in Rangoon and Nairobi and San Pedro Sula, in universities and research centers and extension services throughout the developing world.

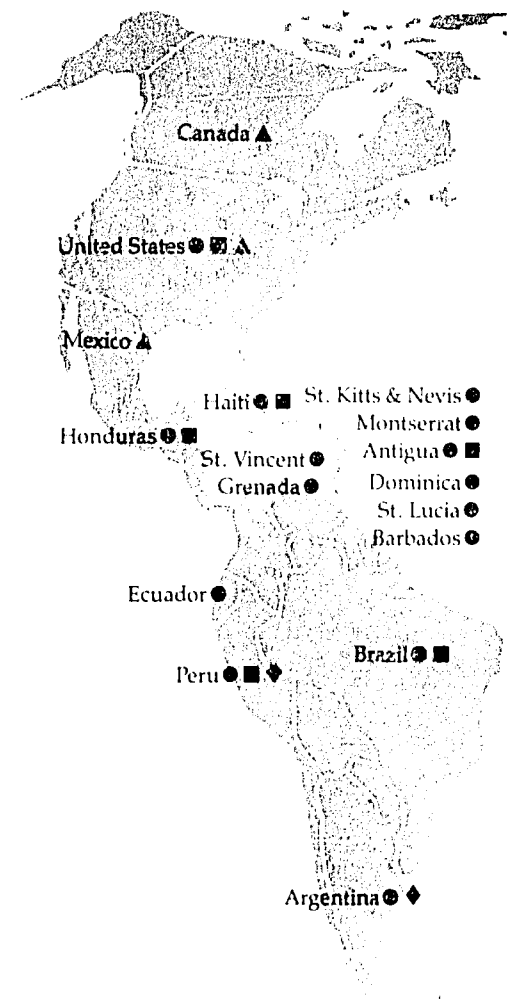
For the most part, they work against tremendous odds. They're constantly hampered by scarcities of equipment and supplies and experience. But they keep at it; they're trying to solve agricultural problems because they know agriculture is the best hope for making their peoples' lives better.

We want to see them succeed. We encourage their success by working with the institutions in which these people serve. Winrock offers the knowledge and skills of the staff members and the perspective we've gained through 30 years of experience in agricultural development.

For Winrock to remain useful and innovative, we have to engage in development of another sort. We must continually marshal financial resources for ourselves as an institution—to maintain the quality of our staff, to pursue sometimes risky programs that we believe are worth trying, and to ensure that 20 years from now this institution is still here and still asking the difficult questions of agricultural development.

Winrock is a partner with many organizations and individuals in what is a very large international development community. There are those who support us financially, those with or for whom we work, those with whom our only connection may be a shared conviction that people can break the cycle of poverty.

THE WORLD OF WINROCK INTERNATIONAL 1987



GRANTS, CONTRACTS, AND DONATIONS

Arkansas Electric Cooperative Corporation
Asian Development Bank
Australian International Development Assistance Bureau
Banbury Fund
Chase Manhattan Bank
Citibank
Consultative Group on International Agricultural Research, Technical Advisory Committee
Consortium for International Development*
First Commercial Bank
Food and Agriculture Organization of the UN
Ford Foundation
Fundación Hondurena de Investigación Agrícola

● Winrock Activities
■ Winrock Staff Posted
♦ Fellows, Home Countries
▲ University Sites for Fellows

Ireland ▲
Denmark ▲
United Kingdom ▲
Netherlands ▲
Belgium ▲
France ▲
Spain ▲
Tunisia ●
Algeria ●
Egypt ● ■
Pakistan ● ■
Nepal ● ■ ♦
Bangladesh ● ■ ♦
India ● ■ ♦ ▲
Burma ● ■
Thailand ● ■ ♦ ▲
China ● ■ ♦
Japan ▲
Taiwan ●
Philippines ● ■ ♦ ▲
Sri Lanka ● ♦
Malaysia ● ▲
Singapore ●
Indonesia ● ■ ♦ ▲
Senegal ●
Gambia ●
Sierra Leone ●
Liberia ●
Côte d'Ivoire ● ■ ♦
Ghana ●
Nigeria ●
Benin ●
Sudan ●
Ethiopia ●
Uganda ●
Kenya ● ■ ♦
Burundi ● ■
Tanzania ●
Malawi ●
Zambia ●
Swaziland ●
Australia ▲

General Foods Fund
German Agency for Technical Cooperation
Grazing Lands Forum
Interamerican Development Bank
International Bank for Reconstruction and Development (World Bank)
International Business Machines Corporation
International Development Research Centre
International Fertilizer Development Center
International Foundation
International Fund for Agricultural Development
International Institute of Tropical Agriculture
International Maize and Wheat Improvement Center
Louis Berger International*
John D. and Catherine T. MacArthur Foundation
Nabholz Construction Corporation
Price Waterhouse
Rockefeller Brothers Fund
Rockefeller Foundation
South-East Consortium for International Development*
Swiss Development Corporation
United Nations Development Programme
United Methodist Church
United States Agency for International Development
United States Department of Agriculture
University of Arkansas at Fayetteville*
University of California, Davis*
Winthrop Rockefeller Charitable Trust
Winthrop Rockefeller Foundation
W. K. Kellogg Foundation

**Lead agency for a USAID-funded project in which Winrock International is a partner.*

1987 PROJECT LIST

Project/Purpose	Funding Source	Amount (U.S. Dollars)	Duration
Worldwide			
Economic Analysis of Small Ruminant Production and Marketing Systems (Title XII) (Brazil, Indonesia, Kenya, and Peru) Evaluating the economic feasibility of efforts to improve the productivity of small ruminants and thereby raise farmers' incomes, and improving the host country's ability to conduct similar economic analyses. Primary contractor: Small Ruminant Collaborative Research Support Program administered by the University of California, Davis.	USAID Winrock	3,250,000	1979-1990
General Foods World Food Prize Administering the foremost international award that recognizes, encourages, and rewards outstanding individual achievement in improving the world food supply. It is intended to attract talented, creative, and dedicated young people to careers in food and agriculture.	GFF	107,000 annually	1986-continuing
Establishing an International Vegetable Research Network Preparing a plan for the Technical Advisory Committee of the Consultative Group on International Agricultural Research defining the potential role of a vegetable crops network within the international agricultural research system.	TAC	78,000	1987
Farming Systems Research Symposium Cooperating with the University of Arkansas at Fayetteville to sponsor the annual international Farming Systems Research Symposium.	RF Ford UAF USAID Winrock	230,000	1987-1989
Technical Assistance in Animal Agriculture to Private Voluntary Organizations Provided services to U.S.-based and indigenous nonprofit corporations, host-government institutions, and small-producer cooperatives and associations that are working to improve animal agriculture.	USAID Winrock	1,343,000	1981-1988
Africa			
Biological Control of Cassava Pests Conducted a review of the Africa-wide Biological Control of Cassava Pests project.	IFAD	117,000	1987
Farming Systems in West Africa Evaluation study of alley cropping and farming systems in West Africa for the International Institute of Tropical Agriculture.	IITA IFAD	56,000	1987
Pan African Networks for Rural Social Science Research Developing a program of training and research for rural social scientists in Africa that emphasizes research networks.	Ford	500,000	1986-1989
On-farm Seed Production for Sub-Saharan Africa Strengthening community-level seed production projects and on-farm seed enterprises in Senegal and The Gambia through PVOs, Peace Corps, and host-country institutions.	USAID JC Winrock	1,851,000	1987-1992
Pan African Training and Research Development Strengthened teaching and research in the rural social sciences, in particular by enabling greater interaction among African agricultural economists.	Ford	280,000	1984-1987
Seed Study Preparing a background paper and conducting a workshop on ways to enhance the capabilities of African countries to produce and use high-quality seed of important crops.	SDC USAID Winrock	75,000	1985-1988
Training Course in Agricultural Cooperatives Shortcourse on agricultural cooperatives conducted at Winrock conference center for 15 technicians from Côte d'Ivoire and Algeria.	USAID	27,000	1987
Antigua			
Livestock Improvement Increasing livestock productivity and improving the quality of livestock products for local use and in the tourist trade in Antigua and Barbuda.	USAID Winrock	648,000	1984-1987

Project/Purpose	Funding Source	Amount (U.S. Dollars)	Duration
Argentina			
Fellowship Program Supporting graduate studies outside Argentina for 212 staff members of the National Institute of Agricultural Technology (INTA)—180 for master's degrees and 32 for doctoral degrees—and providing 128 person-months of short-term training and study tours for INTA personnel.	IDB	9,380,000	1986-1989
Asia			
Fellowship Program Sponsoring master's-level graduate-degree training in the rural social sciences at universities in Thailand, Malaysia, the Philippines, and Australia for students from South and Southeast Asia.	AIDAB Winrock	133,940	1978-continuing
Forestry/Fuelwood Research and Development Improving land-, water-, and human-resource management and increasing employment and income by improving the planning and management of forestry/fuelwood research, developing networks of scientists and institutions, and enabling countries to address their critical forestry/fuelwood needs through better use of on-farm forestry techniques.	USAID	8,949,000	1985-1990
Publications Publishing reference works and research on topics relating to upland development.	Ford	19,000	1985-1988
Bangladesh			
Agricultural Research, Phase II Supporting the improvement of planning, management, facilities, and services for research; and encouraging the growth of research programs, especially those concerned with improving crops, managing soil and water, controlling pests, and using the farming systems approach.	USAID	21,800,000	1981-1987
Agroforestry Training Preparing materials and offering shortcourses to train researchers, extensionists, and PVO personnel in agroforestry problem-solving.	Ford Winrock	115,000	1986-1988
Maize Implementation Developed a plan for introducing maize as a staple food for the poorer people of Bangladesh.	USAID	17,000	1987
Professional Development in Social Sciences Supporting the professional development of rural social scientists by sponsoring in-country workshops and seminars and providing research awards, fellowships for graduate study, and grants for publishing instructional materials.	Ford USAID Winrock	1,415,000	1984-1989
Brazil			
Economic Analysis of Small Ruminant Production and Marketing Systems (Title XII) *(See "Worldwide.")*			

FUNDING SOURCES

AAUMC	Arkansas Area United Methodist Church
AIDAB	Australian International Development Assistance Bureau
ADB	Asian Development Bank
FAO	Food and Agriculture Organization of the UN
Ford	Ford Foundation
GFF	General Foods Fund
GLF	Grazing Lands Forum
GTZ	German Agency for Technical Cooperation
IDB	Interamerican Development Bank
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
IITA	International Institute of Tropical Agriculture
JC	Joint PVO/University Rural Development Center
RBF	Rockefeller Brothers Fund
RF	Rockefeller Foundation
SDC	Swiss Development Corporation
SECID	South-East Consortium for International Development
TAC	Technical Advisory Committee, Consultative Group on International Agricultural Research
UAF	University of Arkansas at Fayetteville
UPLB	University of the Philippines at Los Banos
USAID	U.S. Agency for International Development
USDA	U.S. Department of Agriculture
World Bank	International Bank for Reconstruction and Development
Winrock	Core funds, Winrock International Institute for Agricultural Development
WRF	Winthrop Rockefeller Foundation
WKKF	W. K. Kellogg Foundation

1987 PROJECT LIST *(continued)*

Project/Purpose	Funding Source	Amount (U.S. Dollars)	Duration
Burma			
Agriculture Research and Development Strengthening production-oriented research on maize and oilseeds; developing the ARI station at Yezin and satellite field stations in four agroclimatic zones; and providing short-term training for ARI scientists.	USAID	1,546,000	1986-1990
Fertilizer Sector Study Participated in a review of the needs, use, and supply of fertilizer as an input for sustained agricultural production.	IFDC SECID	23,000	1987
Burundi			
Small Farming Systems Research Generating improved technologies for small farmers, upgrading professional skills of research and extension staff, and strengthening linkages between agricultural research and the farming community. Primary contractor: University of Arkansas.	USAID	975,000	1986-1991
Caribbean			
Caribbean Agricultural Research and Development Institute (CARDI) Farming Systems Research and Development Developing economically viable, farm-tested and -validated technological improvements in crops, livestock, and crop/livestock combinations; establishing a system of close research, extension and private-sector linkages. Primary contractor: South-East Consortium for International Development.	USAID	316,000	1984-1988
China			
Irrigation Management Participated in a fact-finding mission on management and cost-recovery in irrigation.	ADB	10,000	1987
Research and Training Developing Chinese capacity in agricultural economics and policy-making by sponsoring shortcourses for teachers and students and fellowships for master's-level degree study and by participating in curriculum-development workshops and in joint research and publication.	Ford Winrock	1,277,000	1983-1988
Sustainable Agriculture Providing small research grants to study sustainable agricultural systems.	RBF	135,000	1987-1989
Côte d'Ivoire			
Developing Graduate Training in Agricultural Economics Researching, developing staff for, and beginning a master's-degree program at the Ivorian Center for Economic and Social Research.	Ford IDRC	658,000	1984-1988
Ecuador			
Ecuadorian Foundation for Agricultural Research Development of an endowment strategy and guidelines for a project to strengthen the Ecuadorian Foundation for Agricultural Research and Development.	USAID	11,000	1987
Egypt			
National Agricultural Research Developing the Egyptian Agricultural Research Center to provide improved technology leading to increased food production and greater income for farmers Primary contractor: Consortium for International Development.	USAID	789,000	1987-1991
The Gambia			
On-farm Seed Production for Sub-Saharan Africa *(See "Africa".)*			

Project/Purpose	Funding Source	Amount (U.S. Dollars)	Duration
Haiti			
Agricultural Development Support II Working with the Ministry of Agriculture to analyze predominant farming systems in two regions of Haiti and to test alternative crop and livestock technologies that could improve the farming situation; and to develop a national agricultural survey and a geographic information survey. Primary contractor: University of Arkansas.	USAID	970,000	1984-1988
National Goat Production Improvement Assisting Haiti's Ministry of Agriculture, Natural Resources, and Rural Development to establish an effective national goat production-improvement program within its framework and its national agricultural development priorities.	AAUMC USAID Winrock	1,207,000	1984-1987
Honduras			
Irrigation Development Developing small-scale irrigation systems and training farmers in on-farm water management techniques and improved production technologies.	USAID	3,876,000	1987-1990
Technical Livestock Training Short-courses at Winrock conference center for two groups of Honduran small-livestock farmers for training in meat and milk production.	USDA	80,000	1987
Technical Assistance to Fondo Ganadero Providing technical assistance to establish a livestock in-kind credit corporation.	USAID	1,555,000	1984-1988
Honduras Indefinite Quantity Contract Short-term technical assistance to the government of Honduras to address constraints in thirteen subject areas of agricultural and economic development.	USAID	1,254,000	1986-1988
Assessment of Comayagua Valley Development Evaluated the strategy and programs for stimulating agricultural development in the Comayagua Valley.			
Evaluation of the Fundación Hondureña de Investigación Agrícola Analyzed the effectiveness of FHIA, an independent, private research program to expand and improve the national agricultural research system.			
Impact Evaluation of PL480 Titles I and II Determined the effectiveness of activities under PL480 Title I (wheat imports with concessional loans) and Title II (food donated for humanitarian purposes) to meet food, nutrition, and agricultural needs of Honduras.			
India			
Irrigation Training and Research Supporting India's programs to increase irrigated agricultural production through improved efficiency of irrigation systems and improved productivity of water delivered through irrigation systems to farmers' fields. Primary contractor: Louis Berger, Inc.	USAID	1,669,000	1986-1992
Management Support Services for Agriculture Enhancing the capabilities of the national agricultural research system of India to conduct research on high-priority problems that require scientific and technological development, particularly in areas such as soybean processing and use, postharvest technology of fruits and vegetables, forestry education, embryo transfer in livestock, conversion of biodegradable waste for animal feeds, and plant genetic resources.	USAID	2,697,000	1985-1990

1987 PROJECT LIST *(continued)*

Project/Purpose	Funding Source	Amount (U.S. Dollars)	Duration
Indonesia			
Agricultural Planning Improving the capacity of the Ministry of Agriculture to analyze agricultural policies and plans and to make analysis part of the process of formulating national and local policies and programs.	USAID	2,952,000	1985-1989
Applied Agricultural Research, II Assisting the national agricultural research system to resolve "second generation" institutional development problems thus strengthening its capacity to generate, test, and disseminate advanced and economically appropriate technology.	USAID	5,991,000	1987-1991
Dairy Marketing Study of economics and marketing services for encouraging dairy development in Indonesia.	ADB	35,000	1987
Economic Analysis of Small Ruminant Production and Marketing Systems (Title XII) *(See "Worldwide.")*			
Farming Systems Research Developing cost-effective, sustainable, and socially sound technologies and farming systems models for Java's nonirrigated upland zone to reduce erosion, increase farmers' incomes and productivity, and promote soil and water conservation.	USAID	1,261,000	1987-1992
Java Social Forestry Providing technical assistance to the state forest corporation to promote development of social forestry on Java.	Ford Winrock	281,000	1987-1990
National Agricultural Research, Phase II Strengthening the national agricultural research system by improving research programs and facilities and by training Indonesian scientists.	World Bank	18,611,000	1982-1988
Pest Management Improving the pest management extension capability in South Sulawesi.	ADB	149,000	1987-1988
Sumatra Agricultural Research Strengthening agricultural research and development capabilities in Sumatra, particularly for food crops and cropping systems.	USAID	2,985,000	1979-1987
Kenya			
Dual-purpose Goat Production Systems for Smallholder Agriculturalists (Title XII) Developing and adapting dual-purpose goat-production systems for use by family farmers, and designing and testing year-round feeding systems. Primary contractor: Small Ruminant Collaborative Research Support Program.	USAID Winrock	3,195,000	1979-1990
Economic Analysis of Small Ruminant Production and Marketing Systems (Title XII) *(See "Worldwide.")*			
Research and Training Support in Rural Social Sciences Strengthening research and training in the rural social sciences at the University of Nairobi through scholarships, research awards, seminars, and publications.	Ford	220,000	1986-1988
Sociology of Dual-purpose Goat Systems Evaluating acceptance of dual-purpose goat technology by farm families in western Kenya.	RF Winrock	40,000	1986-1987

Project/Purpose	Funding Source	Amount (U.S. Dollars)	Duration
Nepal			
Agricultural Research and Production Increasing the institutional capacity to plan and manage the national agricultural research system, focusing on research administration, experiment station management, seed program, creating management procedures for multidisciplinary research, and down stream research-extension links.	USAID	5,718,000	1985-1990
Improving Research Capacity in the Rural Social Sciences Strengthening resource-management capabilities, building human capital in the area of rural social science research, encouraging and guiding policy-oriented research, and stimulating debate on development issues.	Ford GTZ USAID	2,667,000	1982-1988
Pathogenic Variability Program Supported a program in Pathogenic Variability of and Bacteriocin Production by Xan Thomonas Campestris PV. Oryzae.	USAID	120,000	1987-1990
Pine Tree Propagation Providing assistance and support for a research program to establish a laboratory for clonal propagation of pine trees by tissue culture.	USAID	122,000	1987-1991
Resource Management Capacity Supporting training and research on natural resource management policy issues.	Ford	500,000	1987-1992
Pakistan			
Forestry Planning and Development Assisting the government of Pakistan to plan for effective development of forest resources on public and private lands and to design development projects and research to increase the production of trees for fuelwood on privately owned farmlands in the rainfed areas with the aim of reversing the trend toward denuded landscape.	USAID	4,137,000	1985-1989
Management of Agricultural Research and Technology Strengthening the performance of the national agricultural research system to generate and disseminate high-quality and relevant technologies to Pakistan's farmers.	USAID	4,098,000	1986-1991
Soil Fertility Assisted the Pakistan Agricultural Research Institute in designing and establishing a soils analysis laboratory.	FAO	25,000	1987
Peru			
Economic Analysis of Small Ruminant Production and Marketing Systems (Title XII) *(See "Worldwide.")*			
Philippines			
Agricultural Policy Analysis At the University of the Philippines at Los Banos, strengthening the capabilities of the Economics and Agricultural Economics departments of the College of Development Economics and Management to conduct agricultural policy research.	UPLB USAID Winrock	866,000	1985-1988
Economic Analysis of Crop-Livestock On-farm Testing Developing training material for the economic analysis of on-farm livestock trials and holding workshops and seminars in developing countries on methods of livestock trials and analysis of data.	USAID IDRC Winrock	121,000	1986-1987
Forestry Development Networking Strengthening the capacity for community networking in forestry development.	Ford	34,000	1986-1988
Rainfed Resources Development, Package II, Bicol Farming Systems Assisting the government of the Philippines to develop institutional capabilities and policy frameworks to support community-based approaches to land and resource management in rainfed areas.The training component extends to 1989.	USAID	1,602,000	1984-1987
Senegal			
On-farm Seed Production for Sub-Saharan Africa *(See "Africa".)*			

1987 PROJECT LIST *(continued)*

Project/Purpose	Funding Source	Amount (U.S. Dollars)	Duration
Swaziland			
Manpower Training Provided a short-term consultant to recommend a training plan for mid- and high-level management personnel of the Ministry of Agriculture.	WKKF	16,800	1987
Thailand			
Resource Management Organizing research networks and providing training and fellowships for natural resource management specialists.	Ford Winrock	350,000	1986-1988
Tunisia			
Evaluation of Farming Systems Research Participated in a review of the implementation of the farming systems approach to agricultural research in Tunisia.	IDRC	3,000	1987
Uganda			
Manpower for Agricultural Development Assisting in rehabilitating, redirecting, and retraining Uganda's agricultural manpower and institutional capability at Makerere University and at a Ministry of Agriculture research station. Primary contractor: Ohio State University Research Foundation.	USAID	259,000	1985-1989
United States			
Analysis of Resource Factors of Forage Systems for Livestock in the United States Providing quantitative information to be used in formulating grazing-land research, education and land-management policies and programs that can ensure adequate future supplies of forage.	USDA Winrock	57,000	1980-1988
Arkansas Forest Policy Reviewing the forest research policies and the political-economy of forest resources in Arkansas and recommending changes.	WRF Winrock	100,000	1987-1988
Beef and Sheep Improvement Assisting in the genetic-improvement programs of the cattle and sheep industries of Arkansas and the United States.	Winrock	27,000	1983-continuing
Central States Dairy Goat Marketing Cooperative Providing dairy goat producers in Arkansas, Missouri, Oklahoma, Louisiana, and Texas with technical assistance to expand marketing opportunities and to improve herd productivity and standards.	Winrock	14,000	1980-continuing
Farming Systems Support Providing technical assistance, training, networking, and research to farming systems projects.	USAID Winrock	18,000	1983-1987
Forest Resources and Rural Development Analysis and workshops on forest-based economic activities and rural development issues of concern to rural people.	Ford Winrock	150,000	1987-1988
Grazing Lands Forum Participating in and providing limited administrative support for the Grazing Lands Forum, an educationally oriented organization of representatives of 30 public and private agencies interested in grazing lands stewardship.	GLF Winrock	50,000	1983-continuing
Multispecies Grazing Increasing understanding of the benefits of multispecies enterprises to optimize biological and economic efficiency in range and pasture use.	Winrock	20,000	1985-1987
Role of State Government in Agriculture Describing the public sector's role in agriculture based on the experience of Arkansas and 42 other states, and identifying options for interaction in the public and private sectors.	WRF	73,000	1987
U.S. Program Development Developing and implementing a long-range prospectus for Winrock's U.S. program with emphasis on Arkansas and the southeastern United States. Includes the following studies: *An Agricultural and Socioeconomic Perspective of Arkansas: Counties and Regions* and *Production, Marketing, and Transportation of Grain Sorghum in Arkansas.*	Winrock	85,000	1986-continuing

1987 FELLOWS

Winrock International's management of fellowship programs is designed to help the host country institutions and the donor agencies to secure the best possible academic training for the participants. During 1987 Winrock managed the programs of 472 persons from 12 countries who were seeking graduate degrees, pursuing post-doctoral studies, or filling visiting faculty appointments. These fellowships were supported by grants and contracts administered by Winrock, as well as by the organization's own funds. The recipients are listed by their home country, institution attended, field of study, and degree objective.

ARGENTINA

The Agricultural Institute, Western Research Centre (Ireland)

Simon Vulich, animal science, nondegree

Colegio de Postgraduados, Chapingo (Mexico)

Juan Carlos Echeverria, pest management, M.S.

Colorado State University (USA)

Manuel Osvaldo Aguilera, range management, M.S.

Julio C. Bissio, range management, M.S.

Daniel Humberto Iglesias, range ecology, M.S.

Juan Carlos Manchado, agricultural economics, M.S.

Ricardo Luis Sager, animal pathology, M.S.

Marcelo Salgado, plant pathology, M.S.

Andres H. Sipowicz, range ecology, Ph.D.

Armando Suarez, entomology, M.S.

Maria Zaccagnini de Balyk, wildlife biology, M.S.

Columbia University (USA)

Gerardo Kaplan, microbiology, postdoctoral

Cornell University (USA)

Carlos N. Corbellini, veterinary science, Ph.D.

Carlos Alberto Gonzalez, agricultural economics, M.S.

Andres Frederico Lopez-Camelo, vegetable production, Ph.D.

Hugo Mendez-Casariego, international agricultural and rural development, M.P.S.

Institut Agronomique Mediterranean de Montpellier (France)

Carlos Fernandez-Alsina, rural development, M.Sc.

Gonzalo Bravo, production systems, M.S.

Jorge Caviglia, agricultural economics, M.Sc.

Guillermo Dorado, agricultural economics, M.S.

Mario Lopez, agricultural extension, M.Sc.

Antonio Tanzariello, rural development, M.Sc.

Institut National de Recherche Agronomique (France)

Juan Jose de Batista, vegetable production, diploma

Eduardo Comeron, animal nutrition, M.S.

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Adriana Fernandez Suarez, animal nutrition, Ph.D.

Gerardo Gagliostro, animal nutrition, Ph.D.

Edgardo R. Guevara, bioclimatology, Ph.D.

Roberto Lecuona, entomology, Ph.D.

Graciela Magrin, bioclimatology, Ph.D.

Arturo Mazzanti, forage plant ecology, Ph.D.

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Alberto Defosse, agronomy, nondegree

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Eduardo Hector Cassina, agricultural education, M.S.

Guillermo Echenique, vegetable improvement, Ph.D.

Martin Grondona, statistics, Ph.D.

Jose Roberto Marcellino, agricultural education, M.A.

Oscar Rambeaud, agricultural education, M.S.

Juan Carlos Somigliana, vegetable improvement, M.S.

Juan Carlos Suarez, agronomy, Ph.D.

Marcelo Tolchinsky, extension education, M.A.

Gustavo Zielinski, veterinary science, M.S.

Kansas State University (USA)

Fernando Garcia, agronomy, M.S.

Santiago Meira, agronomy, M.S.

Louisiana State University (USA)

Carlos Salomon Eddi, veterinary science, Ph.D.

Alfredo Marin, crop science, M.S.

Ricardo Gabriel Novick, cotton improvement, M.S.

Luis Samartino, veterinary microbiology, M.S.

Michigan State University (USA)

Elena A. Hidalgo de Avila, extension education, M.S.

Mississippi State University (USA)

Christiano Casini, seed technology, M.S.

Eduardo E. Martellotto, agronomy, M.S.

Hector Rainero, weed science, M.S.

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Guillermo W. Videla, entomology, M.S.

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Rodolfo Agustinho, agricultural extension, M.S.

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David Lee Anderson, range ecology, Ph.D.

Alberto R. Baez-Kohn, animal production, M.S.

Angel Bono, agronomy, Ph.D.

Rafael Caeiro, agricultural education, M.S.

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Carlos Ferrando, animal science, M.S.

Viviana Nakamatsu, animal science, M.S.

Oscar Nestor Ruffini, agricultural extension education, M.S.

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Ramon Sanchez, soil science, M.S.

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Muslem Uddin Miah, soil science, Ph.D.
Rajat Kumar Pandit, zoology, M.S.
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CÔTE D'IVOIRE

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Mamou Kouyate, agricultural economics, Ph.D.
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Afla Odile Ayemou, agricultural economics, Ph.D.

INDIA

Auburn University (USA)
Ravi Kumar, forest soils, visiting faculty
Sudhindra Tatvasaheb Naik, forest pathology, visiting faculty
V. Muthiyal Naidu Srinivasan, silviculture, visiting faculty
Michigan State University (USA)
K. S. Bangarwa, forest genetics, visiting faculty
K. S. Bhatia, forest soils, visiting faculty

Ranjit Singh Dhanda, forest nursery, visiting faculty
Mukund Purshottam Diwakar, forest pathology, visiting faculty
Allah Rang, forest genetics/tree improvement, visiting faculty
M. Saleem, silviculture, visiting faculty
Ravinder Nath Sehgal, forest genetics/tree improvement, visiting faculty
N. K. Verma, silviculture, visiting faculty

Mississippi State University (USA)

Krishna Narayan Chavan, forest soils, visiting faculty
S. T. Khajjidoni, forest genetics, visiting faculty
Anand M. Mukewar, forest genetics, visiting faculty
C. S. Police Patil, forest genetics, visiting faculty
U. S. Sharma, forest nursery, visiting faculty
K. Sudhakara, forest nursery, visiting faculty

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H. M. Khajuria, forest genetics, visiting faculty

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Salil Kumar Tiwari, forest genetics/tree improvement, visiting faculty

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Musa B. Magdum, silviculture/tree propagation, visiting faculty
Onkar Nath Pandey, silviculture/tree propagation, visiting faculty
Parash Ram Rajput, silviculture, visiting faculty
Raja Ramsingh, silviculture, visiting faculty
S. K. Singh, forest entomology, visiting faculty

Texas A&M University (USA)

Suresh Kumar Malik, forest genetics, visiting faculty
P. K. Mishra, forest genetics, visiting faculty

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Pradip Chandra Deka, forest genetics, visiting faculty
D. K. Khurana, forest genetics, visiting faculty

University of Florida (USA)

Luckins C. Babu, forest genetics, visiting faculty
Munindra Nath Borgohain, forest nursery, visiting faculty
A. M. Chandrasekhariah, silviculture, visiting faculty
S. S. Gill, silviculture, visiting faculty
H. S. Khara, forest pathology, visiting faculty
R. Subbiah, forest nursery, visiting faculty
Sunil Dutta Upadhyay, forest nursery, visiting faculty

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R. K. Nayital, forest nursery, visiting faculty
O. A. Alagia Pillai, silviculture, visiting faculty
Sewa Singh Sagwal, forest nursery, visiting faculty

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Om Pal Singh Bana, silviculture/tree propagation, visiting faculty
Moti Lal Bhat, silviculture/tree propagation, visiting faculty

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Shrawan Dev Bhardwaj, silviculture/tree propagation, visiting faculty
B. Mohan Kumar, silviculture/tree propagation, visiting faculty

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Mohammad Anwar Wardhani, agricultural economics, Ph.D.

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Ika Mustika, nematology, Ph.D.

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Rusdan Dalimunthe, polymer science, Ph.D.

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Sulaiman Effendi, food science, Ph.D.
Erwidodo, agricultural economics, Ph.D.
Agus Pakpahan, forestry, Ph.D.
Adhi Santika, resource development, Ph.D.

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Achmad Sarnita, fisheries, Ph.D.
Maharani Tatang, agronomy, Ph.D.
Yusef Yakub, agronomy, Ph.D.

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Trip Alihamsyah, agricultural engineering, Ph.D.
Hariyatno Dwiprabowo, operations research, Ph.D.
Sukarsih Fatchurochim, entomology, M.S.
Budi Haryanto, animal science, Ph.D.
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Janet C. Sturgeon, Program Officer

Ann Swartzel, Administrative Assistant

George Turner, Maintenance Manager

Ann E. Wilhelm, Agricultural Systems Analyst/Intern

Edward L. Williams, Administrator, General Foods World Food Prize; Conference Officer

James M. Wimberly, Contract Development and Administration Officer

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Floyd J. Williams, Program Officer/U.S. Coordinator for Management Support Services

FIELD STAFF

Antigua

Livestock Improvement Project (Project completed)

Charles E. Burwell•, Livestock Specialist

Bangladesh

Agricultural Research Project—Phase II (Project completed)

David M. Daugherty, Project Supervisor/Advisor (transferred to headquarters)

James R. Dickey•, Livestock Specialist

Travis R. Everett•, Entomologist

Brook A. Greene•, Agricultural Economist

Robert A. Gustafson•, Administration Specialist

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Deran Markarian•, Horticultural Specialist

Robert Hudgens•, Farming Systems Specialist

Leonard R. Mattick•, Instrumentation and Maintenance Specialist

Eduardo R. Perdon•, Production Agronomist

Sam Portch•, Soil Fertility Specialist

Peter Thorpe•, Information Specialist

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Leopoldo M. Villegas•, Associate Production Agronomist

Human Resources Development in the Social Sciences

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Brazil

Small Ruminant Collaborative Research Support Program—Economics Project

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• Completed assignment in 1987.

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Burma Agricultural Research and Development Project

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China

Strengthening Agricultural Economics

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Côte d'Ivoire

Support for Training and Research in the Rural Social Sciences

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Egypt

Egypt National Agricultural Research Project

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Amir Khan, Agricultural Mechanization Specialist

Haiti

National Goat Production Improvement Project (Project completed)

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Haiti Agricultural Support II Project

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Honduras

Small Farmer Livestock Improvement Project (Fondo Ganadero)

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Honduras Irrigation Development Project

Carlos Garces, Team Leader (transferred from Bangladesh Agricultural Research Project—Phase II)

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India

Management Support Services for Agriculture Project

Guy B. Baird, India Coordinator

India Irrigation Management and Training Project

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Indonesia

Agricultural Planning Project

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National Agricultural Research Project—II

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Farming Systems Research Component of the Indonesia Upland Agricultural and Conservation Project

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Small Ruminant Collaborative Research Support Program—Economics Project

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* *Completed assignment in 1987.*

1987 PUBLICATIONS AND PAPERS

Technical Publications

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Argentina Fellowship Program
Arkansas Forest Policy Project
Bangladesh Agricultural Research Project—Phase II
Burma Agricultural Research and Development Project
China: Research and Training in Agricultural Economics
Egypt: National Agricultural Research Project
General Foods World Food Prize
Honduras Irrigation Development Project (also available in Spanish)
India: Management Support Services for Agriculture
Indonesia: Applied Agricultural Research Project, Phase II
Indonesia: Economic Analysis of Small Ruminant Production and Marketing Systems (SR-CRSP)
Indonesia: Upland Agriculture and Conservation Project—Farming Systems Research
Kenya: Dual-purpose Goat Production Systems (SR-CRSP)
Kenya: Strengthening Rural Social Sciences
On-farm Seed Production for Sub-Saharan Africa
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Single copies are free. To order, write to:
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Agribookstore, Winrock International's mail-order bookselling activity, is the U.S. agent for the publications of over 20 international research and development organizations. During 1987 Agribookstore sold more than 6,000 books and other items to researchers, students, libraries, and others interested in international agriculture and natural resources. A catalog describing the 500 publications, slide sets, and computer software offered by Agribookstore is available without charge by writing to:

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Balance Sheet

Winrock International Institute
for Agricultural Development

Assets	December 31, 1987	1986
Current assets:		
Cash and temporary cash investments	$ 1,404,100	$ 1,645,700
Accounts receivable, net of allowances of $82,100 and $205,300, respectively	2,984,500	2,764,900
Unbilled receivables	3,126,600	3,771,400
Note receivable (Note 3)	500,000	
Interest and dividends receivable	180,600	168,600
Prepaid expenses	76,000	95,000
Total current assets	8,271,900	8,445,600
Investment portfolio:		
Investments, at market value	31,935,100	27,112,700
Investment in real estate (Note 3)	10,476,500	11,500,000
Total investments	42,411,600	38,612,700
Property and equipment, net	7,830,900	7,321,800
	$58,514,400	$54,380,100
Liabilities and Fund Balance		
Current liabilities:		
Current portion of long-term debt	$ 32,900	$ 45,000
Due to bank	653,100	
Accounts payable	1,240,400	980,600
Accrued liabilities	731,400	917,500
Deferred revenue	3,288,400	1,937,200
Total current liabilities	5,946,200	3,880,300
Long-term debt	73,100	65,900
Deferred addition to fund balance (Note 3)	10,476,500	11,500,000
Fund balance	42,018,600	38,933,900
Commitments and contingencies (Note 8)		
	$58,514,400	$54,380,100

The accompanying notes are an integral part of this statement.

Accountants' Report

To the Board of Directors of
Winrock International Institute
for Agricultural Development

In our opinion, the accompanying balance sheet and the related statements of revenues and expenses and changes in fund balance and of cash flows present fairly the financial position of Winrock International Institute for Agricultural Development at December 31, 1987 and 1986 and the results of its operations and its cash flows for the years then ended, in conformity with generally accepted accounting principles consistently applied. Our examinations of these statements were made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

Little Rock, Arkansas
April 12, 1988

Price Waterhouse

Statement of Revenues and Expenses and Changes in Fund Balance

Winrock International Institute
for Agricultural Development

	Year ended December 31, 1987	1986
Revenues:		
Contracts	**$23,478,000**	$17,376,500
Contributions	**4,793,700**	4,833,800
Operating grants	**1,343,200**	986,600
Interest and dividend income	**1,399,800**	1,607,500
Other	**272,500**	167,300
Total revenues	**31,287,200**	24,971,700
Expenses:		
Programs	**24,506,300**	18,620,600
Program services	**972,500**	842,700
General and administrative	**4,152,700**	4,586,100
Investment expenses	**542,000**	242,600
Total expenses	**30,173,500**	24,292,000
Excess of revenue over expenses before fund balance additions	**1,113,700**	679,700
Fund balance additions (deductions):		
Increase (decrease) in carrying value of investments	**(2,763,300)**	665,500
Gain on sale of investments	**2,777,700**	1,462,200
Proceeds from sale of real estate	**1,349,000**	
Contributions restricted for construction of plant facilities	**607,600**	
Total fund balance additions	**1,971,000**	2,127,700
Excess of revenue over expenses after fund balance additions	**3,084,700**	2,807,400
Fund balance at beginning of year	**38,933,900**	36,126,500
Fund balance at end of year	**$42,018,600**	$38,933,900

The accompanying notes are an integral part of this statement.

Statement of Cash Flows
Winrock International Institute
for Agricultural Development

	Year ended December 31, 1987	1986
Cash flows from operating activities:		
Excess of revenue over expenses	$ 1,113,700	$ 679,700
Adjustments to reconcile excess of revenue over expenses to net cash provided by operating activities:		
Depreciation	443,000	418,500
(Increase) decrease in accounts receivable	425,100	(2,346,800)
Increase in interest and dividends receivable	(12,000)	(20,000)
Decrease in prepaid expenses	19,000	213,600
Increase in due to bank	653,100	
Increase in accounts payable	259,800	682,500
Decrease in accrued liabilities	(186,100)	(416,100)
Increase (decrease) in deferred revenue	1,351,200	(267,900)
Net cash provided (used) by operating activities	4,066,800	(1,056,500)
Cash flows from investing activities:		
Capital expenditures	(952,100)	(417,100)
Investment purchases, net	(3,459,000)	2,165,000
Increase in note receivable	(500,000)	
Contributions restricted for construction of plant facilities	607,600	
Net cash used in investing activities	(4,303,500)	1,747,900
Cash flows from financing activities:		
Borrowings (repayments) under note payable obligations (Note 5)	(4,900)	27,900
Net cash provided (used) in financing activities	(4,900)	27,900
Increase (decrease) in cash	(241,600)	719,300
Cash at beginning of year	1,645,700	926,400
Cash at end of year	$ 1,404,100	$ 1,645,700

The accompanying notes are an integral part of this statement.

Notes to Financial Statements
Winrock International Institute
for Agricultural Development

Note 1—Organization and Summary of Significant Accounting Policies:

Organization

Winrock International Institute for Agricultural Development (Winrock International) was incorporated under the Arkansas Nonprofit Corporation Act on August 16, 1984, and was formed on that date upon the merger of Winrock International Livestock Research and Training Center, International Agricultural Development Service and the Agricultural Development Council.

The basic objective of Winrock International is to help alleviate poverty and world hunger. This objective is supported by Winrock International's program and administrative offices and staff and by other general supporting services. Services are provided on a contractual basis and generally involve locations outside of the United States.

Consolidation

Prior to fiscal 1987, the financial statements included the accounts of Winrock International and IADS Operations, Inc. (IOI), a for profit corporation wholly-owned by Winrock International. During fiscal 1987, IOI was liquidated and all assets and liabilities were transferred to Winrock International.

Investments

Investment assets include quasi-endowments and are recorded at fair market value based upon last reported sales prices on or about the last business day of the fiscal year, except for investments in limited partnerships which are recorded at estimated market values as determined by the general partner.

Investment transactions are recorded on trade date (date purchased or sold); gains and losses are reflected currently as fund balance additions (deductions) as allowed by state law.

Additions to fund balance

Winrock International receives contributions of cash, marketable securities and real estate from the Winthrop Rockefeller Charitable Trust (the Charitable Trust). Winrock International has full rights to any investment income, as defined in the grant instruments, and may market and reinvest the securities; however, it must maintain, available for refund, principal, as defined in the grant instruments. Trustees of the Charitable Trust have retained this right of refund, on demand, until such time as the trustees are discharged of any further responsibility with respect to the estate of the late Mr. Winthrop Rockefeller. Management does not anticipate being required to return these contributions; accordingly, distributions from the estate have been recognized as additions to fund balance (Note 3).

Contributions of property and equipment from the Charitable Trust and contributions of amounts that must be used to acquire property and equipment are recognized as fund balance additions.

Revenues

Contract revenues and operating grants are recorded as revenue when the related expenditures are incurred. Advance payments are recorded as deferred revenue until the applicable expenses are incurred. Contributions include quasi-endowment gifts and are considered to be available for general use and thus are recognized as revenue when granted.

Investment income is recorded as revenue when earned.

Property and equipment

Significant property and equipment purchases are capitalized and recorded at cost. Property and equipment contributed to Winrock International are recorded at estimated fair value at the date of receipt (Note 4).

Depreciation is computed using the straight-line method, based upon estimated useful lives (25 to 40 years for depreciable real property, 3 to 10 years for other property and equipment).

Income taxes

Winrock International is a publicly supported organization exempt from income taxation under Section 501(c)(3) of the Internal Revenue Code. Accordingly, there is no provision for income taxes in the accompanying financial statements.

Statement of cash flows

During the current fiscal year, the Company adopted the provisions of Statement of Financial Accounting Standards No. 95 "Statement of Cash Flows" (FAS 95). The provisions of FAS 95 were applied retroactively for the year ended December 31, 1986.

Reclassifications

Certain amounts have been reclassified to conform to the 1987 presentation.

Note 2—Investments:

Investments at market value are comprised of the following:

	December 31, 1987	1986
Cash equivalents	$ 6,482,400	$ 2,173,600
Government obligations	3,329,100	2,225,400
Corporate and municipal bonds	4,097,100	4,480,000
Corporate stocks and mutual funds	14,134,700	16,466,400
Investments in limited partnerships	3,891,800	1,767,300
	$31,935,100	$27,112,700

The market value at date of receipt of contributed securities and the cost of purchased securities at December 31, 1987 was $32,843,800.

During October 1987, the stock market experienced significant fluctuations in the value of securities traded. As of October 31, 1987, the market value of securities held by Winrock International had decreased by approximately $4,200,000 as compared to the market value the preceding month.

Note 3—Investment in Real Estate:

On December 10, 1986, the Charitable Trust conveyed to Winrock International, title to approximately 110 acres of land located in Little Rock, Arkansas (the Riverdale property). At the date of transfer, management estimated the market value of the Riverdale property to be approximately $11.5 million. The estimated market value at the date of transfer was recorded as an investment in real estate with the fund addition being deferred until the Riverdale property is sold. During fiscal 1987, a portion of the property was sold for $1,349,000, net of $151,000 in broker's commission and other sales expenses. At the date of sale, Winrock International received approximately $900,000 in cash and a $500,000 note receivable due in March 1988 with $50,000 of the broker's commission due upon the payment of the note receivable. Accordingly, the investment in real estate and deferred revenue was reduced with the net proceeds of the sale being reflected as a fund balance addition.

The Charitable Trust has an in principle commitment to Winrock International (Note 6) that should the net proceeds from the ultimate sale of the Riverdale property be less than $11.5 million, the Trust will pay Winrock International the amount necessary to bring such net proceeds to $11.5 million. The transfer is subject to the same refund provision as explained in Note 1.

Additionally, at the date of transfer of the Riverdale property, the Charitable Trust contributed $300,000 to Winrock International to provide for current operating expenses of the Riverdale property. The Charitable Trust has agreed to provide an additional $300,000 for such expenses should additional amounts be needed.

As a part of the transfer of the Riverdale property, Winrock International entered into an agency agreement with the trustee of the Charitable Trust which provides that the trustee will serve as agent for the sale of the Riverdale property. For the year ended December 31, 1987, approximately $21,000 was paid to the trustee for these services.

Note 4—Property and Equipment:

Property and equipment is comprised of the following:

	December 31, 1987	1986
Land	$ 227,100	$ 227,100
Buildings	7,062,600	6,418,100
Equipment	1,558,500	1,370,200
Furniture and fixtures	704,900	653,500
	9,553,100	8,668,900
Less accumulated depreciation	(1,722,200)	(1,347,100)
	$7,830,900	$7,321,800

Note 5—Debt:

Long-term debt is comprised of the following:

	December 31, 1987	1986
Payable to equipment vendors, payable in monthly instalments of $2,709 through September 1992 at interest of 3.9% to 17%, secured by equipment purchased	$106,000	$110,900
Less portion due within one year	(32,900)	(45,000)
	$ 73,100	$ 65,900

At December 31, 1987, Winrock maintained a $400,000 line of credit agreement with a bank which may only be drawn upon to cover Winrock's letters of credit for overseas purchases honored by the bank. Any outstanding balance is unsecured and is to bear interest at 11%. The agreement expires September 8, 1988. At December 31, 1987, there were no outstanding borrowings under the agreement.

Note 6—Related Party Transactions:

Winrock International maintains business relationships with other entities indirectly related to Winrock International. Transactions with such related parties consist primarily of investment management and advisory services.

In addition to contributions and other grants from the Charitable Trust, Winrock International receives interest from the Charitable Trust at an annual rate of 8% on the outstanding in principle commitment ($10,600,000 at December 31, 1987). Winrock International received $866,000 and $920,000 of interest from the Charitable Trust for the years ended December 31, 1987 and 1986, respectively (Note 3 and 4).

Note 7—Employee Benefits:

Winrock International maintains an employee retirement plan (the plan) for all full-time employees. Under the plan, Winrock International will contribute from 6% to 20% of the employees' salary to the plan. Additionally, Winrock International maintains an employee thrift plan for all full-time employees whereby the employee can contribute up to 5% of salary and Winrock International will match the contribution. Employees vest immediately under both plans. Pension expense for both plans for the years ended December 31, 1987 and 1986 was $1,219,100 and $1,053,800, respectively.

Note 8—Commitments and Contingencies:

At December 31, 1987, Winrock International had commitments for the construction and renovation of office facilities of approximately $2 million. The Charitable Trust (Note 1) has agreed to provide approximately $2 million to fund the construction and renovation.

Winrock International maintains a noncancellable operating lease for office space in Arlington, Virginia which expires in 1989. Minimum lease payments relating to the lease are as follows:

1988	$212,600
1989	70,900

Rental expense for the years ended December 31, 1987 and 1986 was $336,500 and $332,600, respectively.

Since its inception, Winrock International and a predecessor organization have received contributions of cash, securities and property from the Charitable Trust. As explained in Note 1, the trustee of the Charitable Trust retains the right of refund of the contributions and related gains earned by Winrock International on those contributions. At December 31, 1987, such contributions and related gains approximated $30,433,000.

Costs under U.S. government contracts and grants are subject to audit by the cognizant U.S. government agency. Management believes that cost disallowances, if any, arising from audits of costs charged to government contracts and grants through December 31, 1987 would not have a material effect on the financial position of Winrock International.

The Winrock International Institute for Agricultural Development came into being July 1, 1985 by the merger of three organizations with a common heritage of helping people of developing areas to make better use of their agricultural resources.

The Agricultural Development Council (A/D/C) grew out of the Council on Economic and Cultural Affairs, an organization founded in 1953 by John D. Rockefeller 3rd. A/D/C was designed to stimulate and support economic training related to human welfare in rural Asia. Its aim was to strengthen the professional capacity in Asia to deal with the economic and human problems of agricultural and rural development. Through A/D/C's fellowship program, more than 600 young Asians received formal training in institutions throughout the world. Almost all of these scholars returned to their home countries and have become national policymakers, educators, and researchers.

The International Agricultural Development Service (IADS) was created in 1975, with initial support from the Rockefeller Foundation, to provide services to developing countries wanting to strengthen their agricultural research and development programs. IADS was particularly concerned with finding ways to quicken the adoption of science-based agriculture that would expand food output and increase incomes of rural people in the developing countries. It emphasized increasing the production of crops and livestock, strengthening institutions crucial to developing technology, training personnel, and implementing production programs.

The Winrock International Livestock Research and Training Center was established in 1975 in response to the bequest of Winthrop Rockefeller that the trustees of his estate be "venturesome and innovative" in creating and supporting institutions that would help people help themselves. This organization was created in consideration of his interest in animal agriculture and his concern for rural people. It had a mandate to improve animal agriculture for the benefit of people, and operated projects in the United States as well as in many developing countries of the world that were involved in farming systems research, institutional development, policy research, and training.

The mission of Winrock International Institute for Agricultural Development is to reduce hunger and poverty in the world through sustainable agricultural and rural development. Winrock International helps people of developing areas to strengthen their agricultural research and extension systems, develop their human capital, institute appropriate food and agricultural policies, manage their renewable resources, and improve their agricultural production systems. It actively seeks support from and partnerships with public and private organizations. Winrock International is an autonomous, nonprofit organization that is exempt from federal income tax under Section 501(c)(3) of the United States Internal Revenue Code. It is recognized as a private, voluntary organization by the U.S. Agency for International Development.

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