

SCIENCE FOR THE PEOPLE

Vol. 13 No. 2

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Science and Technology

in the Third World



Philippines:

Medical Industry

Nicaragua:

Taking Back
the Land

Cuba:

Meeting the People's Needs

India:

Western or Indigenous Science



letters

UNIONS AND THE ANTINUCLEAR MOVEMENT

Dear SftP:

We were very interested to read Joe Shapiro's article — "The Anti-Nuclear Movement", *SftP* Sept./Oct. 1980. Our understanding of the U.S. and European struggles lead us to believe that the traditional working class organizations played only a marginal role, and that there was not really an orientation to organizations such as the trade union movement. The Anti-Nuclear Campaign in the United Kingdom, an umbrella organization active around opposition to nuclear weapons and power, does in fact have a major orientation to the trade union and labor movement.

We were therefore pleased to see an article based on class terms and to hear of the increasing involvement of the trade unions. If any correspondents would like to know more about our work, we'd be happy to oblige. Alternately, a national view may be obtained from the trade union and labor officer at our central office in London. Write to: Trade Union Working Group, Anti-Nuclear Campaign, 256 Battlesea Park Road, London, England.

*Trade Union Sub-Committee
London, England*

CLITORIDECTOMY IN THE U.S.

Dear SftP:

We want to draw the attention of your readers to the practice of clitoridectomy not only in the Third World — as was described in the article, "The Politics of Female Genital Mutilation," *SftP*, Nov./Dec. 1980—but right here in the U.S. where it had been used as part of a procedure to "repair" by "plastic surgery" so-called genital ambiguities. Some of your readers are probably aware of the work of John Money and his colleagues, who for many years treated young girls who are born with "ambiguous" genitalia — that is, with enlarged clitorises and sometimes foreshortened or closed vaginas — and have also counselled their parents in order to make it possible for these children to

grow up thinking of themselves as unequivocally female. Few people realize that this procedure has routinely involved removal of the entire clitoris and its nerve supply — in other words, total clitoridectomy — in addition to the usually described reconstruction of a vagina when that is necessary. This can easily be seen if one looks carefully at the photographs in Money and Ehrhardt's *Man/Woman, Boy/Girl*, in which the "reconstructed" female genitals exhibit scar tissue in place of a clitoris; but it is described explicitly in the relevant medical literature.

Up to the early 1970s, total clitoral amputation was recommended. One operation was designed to try to salvage the organ by "recessing it", but this was not generally accepted. Although some authors admitted that there might be "some impairment" of sexual function, this has been minimized in textbooks. In a lengthy article, Money, Hampson and Hampson discuss the erotic significance of the clitoris as follows: "We have sought information about erotic sensation from the dozen nonjuvenile hyperadrenocortical women (that is, women whose adrenal glands secrete excessive amounts of hormones, including androgens, one effect of which is enlargement of the clitoris) we have studied. There has been no evidence of a deleterious effect of clitoridectomy. None of the women experienced in genital practices reported a loss of orgasm after clitoridectomy..." (Bull. Johns Hopkins Hospital 97: 284-300, 1955). They assert that "Many women are ignorant of the existence of the clitoris on their own bodies," and advise that "A three-year-old girl about to be clitoridectomized...should be well informed that the doctors *will make her look like all other girls and women*" (our emphasis), which is not unlike what North African girls often are told about their clitoridectomies. The authors further urge that "Girls should also know...that whereas boys have a penis, girls have a vagina...as a double insurance against childish theories of surgical mutilation and maiming." ("childish theories", indeed!) Until recently, this paper has been widely quoted in the medical litera-

ture. A 1975 textbook has finally departed from this perspective and urges that total amputation of the clitoris "should be avoided." (Better late than never!)

John Money and his colleagues have studied and described the psychosexual and social development of such "masculinized" girls whose genitals have been "reconstructed" in this way (that is, clitoridectomized). They have reported that these girls in adolescence are less "feminine" than a "control" group of normal girls of the same age and often are "tomboys" (whatever that means). They attribute this difference to a presumed effect of "androgens" (also called "male" hormones) on the developing brains of these girls before birth while they are still in their mothers' wombs. This interpretation has been criticized, since the life histories of these girls *after* birth are filled with medical and psychological interventions for which one cannot find scientifically meaningful "controls" among ordinary little girls (for example, see B. Fried's "Boys Will Be Boys Will Be Boys: The Language of Sex and Gender", in R. Hubbard, M.S. Henifin, and B. Fried, eds., *Women Look at Biology Looking at Women*, Cambridge, MA: Schenkman, 1979). But to date neither Money nor his critics have mentioned that these girls have been clitoridectomized. Yet one would surely expect this to affect their psychosexual development and their feelings of identity as young women.

When there are such obvious and blatant "effects" as the lack of a clitoris, why concoct hypotheses about "masculinizing effects" of fetal hormones on fetal brains? There is a reason, and that is to make our definitions of maleness and femaleness appear "natural"; to attribute sex differences in behavior not to our socializations — which would suggest that they are subject to change — but to inborn effects over which we have no control.

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about this issue

Science and technology exhibit many faces in Third World countries. Growing poverty and misery despite increasing productivity characterize "development" in Third World capitalist countries. On the other hand, evidence from several socialist Third World countries suggests that Third World countries *can* use science to improve the well-being of all the people.

We are devoting this issue of *Science for the People* to beginning the discussion of science and technology in the Third World. (We regret that our survey is incomplete; for example, we do not have any articles on African science and technology.) We believe that an updated account of the effects of technology in countries like the Philippines and India is essential to counter glowing Western reports about "modernization" and "increased productivity." Analyses based on a clearer examination of the conditions under which most people live can challenge the picture presented by Western news reports.

We feel that people need to be informed about Third World issues as the U.S. faces the new Reagan administration. Already Reagan policy makers have admitted that they plan on "using food as a weapon" and on "making countries dependant on the U.S." All of the old arguments about fighting Communism and backing stable (right-wing) governments are once again inundating us in the press.

This issue offers articles concerned with how capitalism works both in individual countries and worldwide. In his article, Charles Dougherty examines the realities of health care in the Philippines and demonstrates how and why the health care system oppresses the poor and rural populace. The merits of indigenous, as opposed to Western, science and technology are advanced in the article by V. Shiva and J. Bandyopdhyay. By using Indian experiences as a model, they present examples which show the negative effects of imperialist technologies and economics. For example, traditional fishing villages have been fighting for their existence after mechanized fishing was introduced. Rashid Shaikh's commentary on India complements the Shiva and Bandyopdhyay article by examining several attempts to take science to the people. New technologies, even when indigenous, are not enough; without changes in the social and political structure they can lead to greater inequities. On the other hand, an educational project to demystify solar eclipses was a popular success.

The worldwide effect of imperialist economics on Third World countries is discussed by Connie Phillips and Sue Tafler in their review of *Aidas Obstacle*. While the reviewers decry the way in which the authors of the

book never use the terms capitalism and imperialism to describe the Western economic system, the documentation of how foreign aid affects the lives of people in Third World countries is impressive. The review summarizes most of the basic Western economic assumptions and the book's analysis of them.

In light of the recent resumption of U.S. military aid to El Salvador and the escalation of the popular revolution, we felt it is important to present a clear picture of the situation there. Arnon Hadar's article about the history of U.S. military connection to El Salvador is an important reminder that the policies which led to U.S. involvement in Viet Nam were not limited to South East Asia. Hadar's article counters the notions presented by Western media that the U.S. is providing help to a "centrist" regime and that U.S. military aid has come only in response to the present crisis.

This issue also focusses on the growing number of changes in socialist Third World Countries. Nations such as Nicaragua, China, Cuba and Mozambique are struggling to use science and technology for the benefit of their entire populations, and we take heart from their struggles. From the efforts of these countries we can learn how difficult it is within noncapitalist societies to transform inventions and systems developed under capitalist regimes.

In the article on how science and technology are planned in China, two Science for the People members summarize what they learned on a study tour in 1978. Although the trend in post-Cultural Revolutionary China appears to be towards more pure research and less on direct work by scientists with the people, the article by Weinstein and Goldfarb demonstrates that Chinese scientists are far from agreement on the worth of these trends.

Cuban scientists have also expressed varying perspectives on science in their country. Dick Levins summarizes some of his experiences with Cuban ecologists and offers a picture of Cuba as a country in which science is serving people's needs — not only their basic needs but their social and cultural needs as well.

Nicaragua has only recently taken control over its own government and economy. In such a predominantly agricultural country, use of the land and what it produces is paramount to the nation's survival. J.A. Gallese and M. Mullen document how Nicaraguan agricultural production and marketing has developed through mass education and the evolution of collective governing bodies.

As Americans, the food, fuel and minerals upon which our lives depend are produced to a large extent in Third World nations. The people who produce these resources are attacking the multinational corporations which exploit them. Their struggles to overcome U.S. domination provides us with both a model and inspiration and points the way to social change in our own country.

Nicaragua

TAKING BACK THE LAND

by Jim Gallese and Maura Mullen

The Nicaraguan people won their political independence on July 19, 1979. Following the overthrow of Somoza, the Sandinistas began transforming the impoverished and repressed society into one where the principal goal is the establishment of equity for all. Since the victory, the country has been enmeshed in a difficult struggle to gain its economic independence.

The Sandinistas feel the revolution must be consolidated, advanced, and defended. As Jaime Wheelock, Minister of Agricultural Development explains, the

... people, led by their vanguard, did not rise up just to topple a tyrant. The heroic Nicaraguan people rose to arms for the resolution of a serious social and economic crisis. This crisis must be resolved. . . by all the people, for we aren't satisfied with just the overthrow of Somoza's regime!(1)

The new leaders are acutely aware of the poverty of the nation, and of the structural limitations impeding change. The Frente Sandinista Liberation National (FSLN), with only a few thousand trained cadre, was able to lead a people's army, but after the victory had neither an extensive organizational base nor the technical and administrative personnel needed to manage the economy. A "class alliance" which was formed with the bourgeoisie indicates a mature response to the challenges of socialist transformation, rather than, as some writers have suggested, a petty bourgeois or social democratic mentality within the FSLN. The Sandinistas are, for the time being, allowing the private sector to develop the forces of production. A truly mixed economy has resulted in which there exist both state and private enterprises. The state will exert considerable control over many aspects of both production and distribution. Socialist transformation in Nicaragua will be

Arthur J. Gallese has lived and studied in post-revolutionary Nicaragua. Maura Mullen is a free-lance writer active in the Central American solidarity movement in Boston.

popular, democratic, and gradual, directed towards maximizing the social well-being of the dispossessed and acknowledging Nicaragua's objective social and economic realities.

This article will first provide a discussion of the conditions in Nicaragua following the revolution. The steps taken to reconstruct the economy, particularly those relevant to the agricultural sector, will be outlined, and we will then describe the current structure and performance of this sector.



"In Planting We Make The Revolution"

The Legacy of Somoza

The political and economic conditions in Nicaragua today cannot be thoroughly examined without taking into consideration the disastrous legacy left by the Somoza regime. The FSLN inherited an impoverished economy ravaged by war destruction and structurally unsound. The Nicaraguan people had voted with their blood (40,000 dead, 100,000 wounded) for the new revolutionary government and were united behind the

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Sandinistas as they began to face the difficult period of national reconstruction. High rates of inflation and unemployment, a bankrupt financial system (carrying an external debt of \$1.6 billion) were several of the more frightening spectres haunting the new government.

Seventy percent of the country's main export crop, cotton, was lost, left unplanted during the war. Corn, bean, and rice fields were also unplanted. At the same time, a major sugar refinery was damaged just as the cane was ready to be processed. The war had also interrupted blight control in the coffee fields. This destruction was all the more serious in light of the structural deformities in the economy. Dependent upon the world capitalist market for the sale of its crops, the nation's economy had been totally geared towards providing raw materials to industrialized countries, especially the United States. Both agricultural and industrial sectors experienced irrational and uncoordinated growth patterns, some of which are outlined below:

- a. The land was concentrated and controlled by the agro-export bourgeoisie.
- b. Virtually no internal market existed, nearly all production being oriented to the exterior.
- c. Expensive imports, needed to modernize and make the export sector competitive, consumed nearly all foreign exchange, aggravating the balance of payments deficit.
- d. All food for domestic consumption was produced in a second, backward sector. The land area of this sector dwindled as it was encroached upon by the export sector, resulting in a reliance upon imports to feed the population.
- e. The rural people served as both producers of the food consumed and as a reserve labor force in the export market plantations.

The Sandinista leadership believing the agrarian reform to be the best way to overcome these structural problems, implemented a bold new economic policy for national reconstruction. Legislation and action commenced soon after the July 1979 victory. First, they confiscated all of Somoza's property (agricultural and commercial) as well as the property of some of his supporters. This property now constitutes the A.P.P., or Area of People's Property. Twenty five percent of the 8.8 million acres of cultivated land has been transferred to the authorities of the agrarian reform. These farms can provide about 20% of production. The remaining cultivated areas remain in the hands of the private sector, composed of both large landowners and small-medium producers. Overall, the private sector contributes 80% to total agricultural production. The entire agricultural economy provides about three quarters of Nicaragua's exports and, directly or indirectly, employs 70% of the labor force.(2)



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Jaime Wheelock, Minister of Agricultural Development

The processing and marketing of the main exports, cotton, coffee, sugar, and beef, had been carried out by a few large-scale firms. Some of these, formerly the property of Somoza, were brought into the A.P.P. More importantly, export trade in agricultural products and much of the internal trade in foodstuffs are now directed by the state. The industrial and commercial enterprises that once added to the immense wealth of Somoza now form part of the base being constructed for public control of the economy, and contribute to the consolidation of the revolution.

The bourgeoisie is being "encircled" by such moves, and its financial hold on the economy has been further eroded by nationalization of the banking system and insurance companies. Credit and foreign trade controls are powerful tools in the hands of central planners. Mass organizations such as the Rural Workers Union (A.T.C.), the Women's Association, Civil Defense Committees, and the Sandinista Worker's Confederation can assist planners by voicing the concerns of the people. These mass organizations also play a vital role due to their efforts to encourage and develop class unity. The ATC is a leading participant in agricultural development and its functions will be outlined in detail in a following section.

Structure of the Agrarian Economy

According to Jaime Wheelock, Minister of Agricultural Development, the overall policy of the reforms is to extract state income from the very large private holdings via taxes, support the medium size landowners, and reform the tiny landholding sector.(3) The so-called "postage stamp" pattern, or parcelization of land, is

considered to be destructive. Avoiding the disastrous experiences of the Mexican land reform, the expropriated farms were not subdivided and given to landless peasants. Rural workers are now employed on both private and state farms, and their standard of living has risen.

The Sandinista Agrarian Communes, CAS, and the technical assistance/credit cooperatives are two new organizational forms which are transforming the relations of production in the countryside. (see Table 1) Small to medium producers are encouraged to pool their resources and work the land collectively in a CAS; however most are now organized in credit/service cooperatives and continue to farm individual plots. On the large state-owned farms which do not include industrial or processing facilities, land is rented to the peasants. Similarly, they voluntarily choose between forming communes or cooperatives.

The experiences of the Reyes family (a composite) can help illuminate some aspects of rural life in Nicaragua Libre. Arturo is one of the over 100,000 *minifundistas* (small landowners) in Nicaragua who grows basic grains for domestic consumption. Small producers such as Arturo generally own anywhere from 0-10 acres, and have an annual income of under \$150. The size of Arturo's farm is less than average and he also rents land. The income it generates did not permit his two oldest children, Marian Elena and Jorge, to return home following their participation in the Sandinista revolution. Maria Elena, now 20, took part in the literacy campaign in the countryside until August, 1980. Since then she has been helping organize a commune in the state sector. Jorge married a woman who lived near the small plot of land farmed by his family. The couple now work part-time on a private cotton producing plantation, whose owner rents some land to Arturo.

Reactivation of the economy is heavily dependent on the private sector and much of the recovery will be a function of the government's success in stimulating small producers. Historically, *minifundistas* have been forced to rent or sharecrop a portion of their land. Before the reform, Arturo had to give nearly half of his harvest to the neighboring *latifundista* (large landowner) for the "privilege" of using his land. The Sandinistas have established a cash-economy throughout the countryside, thereby eliminating sharecropping arrangements. Moreover, rents have been slashed under FSLN leadership. Arturo now pays only about \$3.50 an acre for his land, about one-tenth of the historical level.

Arturo and a group of fellow workers have formed a cooperative which makes them eligible for low-interest credit and technical assistance from the PROCAMPO division of the National Agrarian Reform Institute, INRA. With the credit allotted to them they have begun improving their land, utilizing new agricultural inputs such as seeds and fertilizers. They receive advice from PROCAMPO technicians before carrying out such improvement. In the past, poverty forced all the cooperative members to work as seasonal, salaried laborers in the cotton fields of the *latifundista*. Today only half the group needs to supplement their income in this way. This increased self-sufficiency of the small farmer has led to labor shortages on some large private farms. As a result, the FSLN leaders have been studying ways to solve this problem.

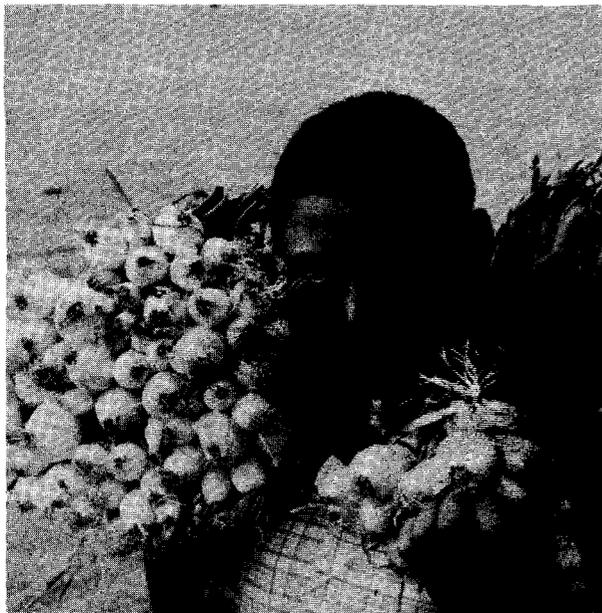
The people of Arturo's region were staunch supporters of the Sandinistas long before the 1979 victory. They joined the Committee of Agricultural Workers, a precursor of the ATC in 1976 when the Sandinistas worked clandestinely in the countryside. The ATC has over 100,000 members and is growing. The agricultural workers union is a vital link between government



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planning centers and peasants. While it works closely with the government, it is an independent organization and not a political appendage. The ATC has proven this by voicing opposition to some government policies and influencing changes made. When Arturo and his fellow workers began to discuss forming a cooperative, they contacted their regional ATC office. A representative assisted in organizing 20 families into what the Sandinistas call a "precooperative" and then contacted INRA/PROCAMPO in order to proceed with the process of organizing a full-fledged technical assistance/credit cooperative.

The people of Arturo's cooperative do not feel they fully understand how the communes are operated, and are not ready to form one. The credit and technical assistance cooperatives are considered to be a preliminary stage in the formation of production cooperatives or communes. Some 17,000 farmers have organized TA/credit cooperatives and received about half of total agricultural credit. Under Somoza, nearly all such credit was given to large farmers growing export crops. Arturo and others also benefit from nationalized market-



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ing channels, under which the government directly purchases basic grains from them, which are sold at subsidized prices in the cities.

Arturo's daughter exemplifies the new Nicaraguan woman and the growing revolutionary consciousness of the nation's youth. She and other guerilla fighters who emerged victorious in 1979 are working to defend the freedom they fought so hard for. Maria Elena came to her commune after a period of working on the Literacy Campaign. She had left her father's farm at the age of 14 to study on a scholarship in a colegio, or high school, in Managua. While studying, she became active in the



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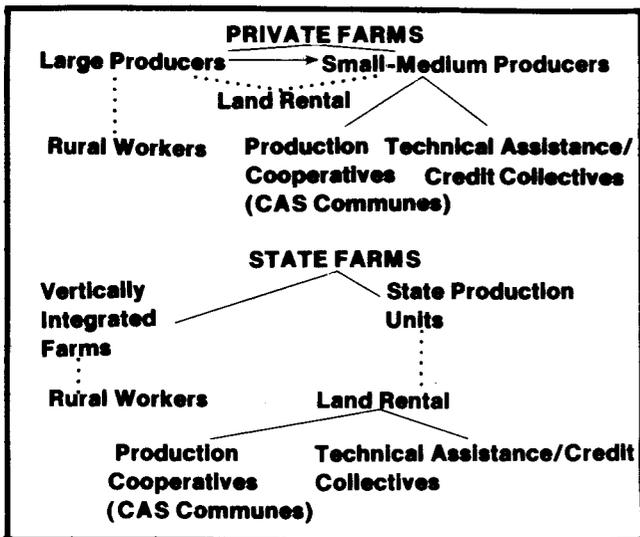
INRA worker conducting a community meeting, Sandy Bay, Zalaya, Nicaragua.

mass women's organization known as AMPRONAC. Originally focussing on the problems of urban women AMPRONAC expanded its scope to include rural women during the revolution and changed its name to AMNLAE. AMNLAE continues its support of the Literacy Campaign, which ended its first phase in August, by building "mini-libraries" and working with the evening radio programs broadcast for people wishing to reinforce their newly acquired skills. Maria Elena helps teach a discussion and study group formed on her commune. She feels strongly about the efforts of popular organizations like the ATC and AMNLAE to aid in the political education of her people and agrees that production cooperatives are the best solution to the problem of economically irrational land parcelization.

Her CAS was formed by a group of landless rural workers who rented underutilized land on a state farm. Small individual gardens are permitted, but the majority of the land is farmed collectively. The profits of the commune are distributed among four funds: 1) a communal health, education, and housing fund, 2) a capital improvement account, 3) an emergency fund, and 4) a wage fund. Each worker is paid from this last fund according to the amount of labor performed. The commune is run by a coordinating council, members of which are elected by a general assembly of all workers. The coordinating council is in charge of planning and political affairs and members chosen from this council compose an administrative committee which handles the day-to-day functioning of the commune. All members participate in decisions regarding production schedules, crop allocation, and purchases of capital equipment. This particular commune was organized on land expropriated from Somoza. These lands have been subdivided and are administered by the workers with the guidance of INRA staff.

The other organizational form developed from expropriated estates is the vertically integrated enterprise, which usually produces crops such as cotton, coffee, sugar or livestock for export. State cane plantations are located near the state sugar refineries, for example. They were maintained intact to avoid losing the positive effect of economies of scale. These units are under the direct administration of INRA. Similar operations are found in cotton, beef and coffee enterprises.

State farms operate on a profit/accounting basis, like commercial enterprises. They are administered by an INRA appointed manager. Credit is obtained from the nationalized banking system, and interest on all loans must be paid. Some profits from export crops are re-invested in the enterprise. On an increasing number of state enterprises food crops are grown after cash crops have been harvested. This reflects a Sandinista policy aimed at reaching self-sufficiency in food crop production in a very short time. Democratic and decentralized methods of decision making are increasingly being employed on the state farms. This is a long, difficult process and many obstacles have been encountered. Such efforts, however, indicate that the Sandinistas envision not only a rational economic reorganization but a significant change in productive relations as well.



Large Private Sector

Reflecting the extreme concentration of land ownership which developed under the Somoza dynasty, there are about 600 very large land holdings (over 2,000 acres) in Nicaragua. About half of these were expropriated from Somoza and his friends. Cotton production, centered on the large *latifundios*, is the most significant activity within the private sector, accounting for over a third of all exports. In 1980, however, the harvest fell to only 20% of historic levels because the war broke out at the time planting was to have occurred in 1979.

Jorge Reyes and his new wife still work as wage laborers on one of these large cotton plantations. Last year, many workers mistakenly believed that the revolution would spare them from having to perform the back breaking labor of cotton picking. This caused severe labor shortages, even though the size of the harvest was much smaller than normal. This year the state lands and the fields of the small-medium cotton growers were planted to capacity. The large bourgeois landowners were less eager to plant. On Jorge's plantation, the landowner only planted his best lands, where his investment was sure to bring a high return. He seemed reluctant to maintain his farm equipment and was suspected of funneling profits out of the country (decapitalization), rather than reinvesting them in his farm. This is illegal in present-day Nicaragua, as is letting good land lie fallow. To combat this problem, the ATC trained Jorge, his wife, and other agricultural workers to monitor the landowners and to spot decapitalization, hoarding, and violations of the labor code on their farms. Throughout Nicaragua idle fields have been invaded by landless peasants and the state must decide whether they are to be returned or remain in the hands of the peasants.

Workers on the private farms benefit from legislation granting better pay, improved living conditions for seasonal workers and social security. Moreover, all Nicaraguans benefit from free medical care which is becoming increasingly available in rural areas.

The Ministry of Agricultural Development provides devices to stimulate export crop production, such as credit availability, and sets prices for products in a range approved by private sector representatives. Most commercial farmers and cattle ranchers belong to associations which are grouped together as the Nicaraguan Agricultural Producers Union, which forms part of COSEP, the Nicaraguan "Chamber of Commerce". COSEP promotes the interests of the private sector and has a seat in the State Council, a principal legislative body.

The political and economic importance of small producers like Arturo Reyes has not been lost upon the large private producers, and they try to compete with ATC for their support by forming private producers' unions. In Matagalpa, for example, large producers contrived to gain such support and organized some 90% of the area's small producers into a cooperative controlled by the large farmers by offering credit services. However, thanks to the ATC, this ploy was uncovered and many of the small producers left to form their own cooperative.

Such contradictions plainly illustrate that class struggle has not ended in Nicaragua. The class alliance is becoming weak as the people organize and the FSLN constructs an economy in the interest of the majority. Large private producers feel increasingly threatened

and have even organized counter-revolutionary schemes. In the words of a leading member of the FSLN, "There are two historic projects in conflict, one that wants to forge a new society that ends exploitation, the other that wants to reintegrate elements of the old social order into a society based on class privilege."⁽⁴⁾

Analysis of Agricultural Performance

The first year of the land reform was a success due to the ability of INRA to maintain a balance between the interests of the state sector, rural workers and peasants, and the large commercial farmers and ranchers. (see Table 2) Nearly a quarter of the agricultural economy has been socialized through the formation of state farms and production cooperatives. State marketing channels provide stable and fair prices to both producers and consumers. The needed institutional framework for further research, planning and administration is under construction.

Although increased production is vital to improving conditions in Nicaragua, there is also a "social wage", which is an important component of the new social and political policy. The literacy campaign, expansion of health and education services and the numerous technical assistance and credit services now provided to the population have benefits which will pay off in greater production and social well-being in the future.

Nonetheless, problems of low productivity, labor, shortages, and income maldistribution persist. Productivity declined when workers were given hourly wages as opposed to the old piecework system. Political consciousness is still quite low among most workers, but is being combatted by the ATC and other groups using education campaigns. Both production and productivity must increase, however, if the economy is to expand and diversify. The ambitious social program of the San-



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Farm workers are planting seedlings for the next crop.

dinistas requires that such surplus accrue to the state and not to individual workers. Large wage increases would be inflationary and benefit no one, but after years of living in dire poverty it is not easy to convince the Nicaraguan people that austerity is necessary. In the long run the Sandinistas know they must diversify the economy and escape from the dependent agro-export oriented economy they inherited from Somoza. A long slow process of diversification, economic planning, and political mobilization has begun.

Other trading partners must be found. Appropriate technology industries must be developed. At the same time, the forces of reaction within Nicaragua are aligning with forces of reaction in the capitalist centers in order to prevent the realization of the Sandinista program. Many believe that U.S. intervention in El Salvador will become regionalized. Some fear that U.S. imperialism may even invade Nicaragua in order to prevent the development of the kind of society which will show to the rest of Central America that revolutionary change is the only answer to the region's massive social and political inadequacies. □

AGRICULTURAL PERFORMANCE VALUE OF SELECTED EXPORTS*

	Goal, Plan '80	Harvest, Nov. '80
Coffee	\$162.0	\$184.3
Cotton	33.8	30.2
Sugar	35.7	27.7
Beef	71.5	51.7
	<u>\$302.9</u>	<u>\$293.9</u>

* (figures rounded off) 96.9% of production goals met in these crops
\$U.S. millions

In 1978-79, 970,000 manzanas (manzana: about 2.5 acres) were planted.

In 1980, 960,000 manzanas were planted.

Source: *Barricada*, December 17, 1980

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Since the Cultural Revolution

SCIENCE POLICY CHANGES IN CHINA

by Ted Goldfarb and Judy Weinstein

Authors' Note: In the summer of 1978 we were members of the second SftP delegation invited to spend a month in China by the Scientific and Technical Association of the People's Republic. For a year following that trip the delegation members agreed to a collective process for reporting their results. Reports, articles and a photoessay (see the box at the end of this article) were written more or less following those guidelines. In addition, delegates have presented numerous talks, slide shows, and participated in radio interviews. A plan to write a book was recently abandoned, partly in response to the group's inability to agree on how to present their China experiences in light of the dramatic changes that have taken place there in the months immediately following their visit. We make no claim to represent the views of other delegation members, who are invited (along with other *SftP* readers) to submit their own thoughts by writing letters or perhaps a follow-up article. We have chosen to identify the Chinese scientists and technicians we met on our trip by giving their positions or titles rather than their names. This is done both because we are not certain of the spelling of their names and also because we are not sure that they would all wish to have their names publicly associated with our interpretation of their views.

An important failing in the way science and technology is done in capitalist countries is the result of the ideological opposition to the creation and implementation of a comprehensive State Plan designed to meet the needs of the people. The multitude of serious problems that result from this fact — duplication of efforts, wasted resources, pollution of the environment and scientific activity that is controlled by bourgeois interests for their own profit — has been a continual theme that writers and editors of *SftP* expose to the readers of this magazine. Our delegation studied how a socialist country creates and implements the part of the State Plan that controls the direction of scientific research and technological development.

During our four week visit as guests of the Scientific and Technical Association of the People's Republic of China (PRC) we focused primarily on agriculture re-

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lated science and technology.* It is our purpose in this article to present first some of our experiences and understandings related to the planning process, and our impressions of its effect on various sectors of the Chinese populace, and second our views and concerns about the ways in which changes in Chinese policy over the past two years are likely to affect future developments.

The State Plan And The Organization Of Scientific Research

In the PRC, the planning of scientific research is accomplished through extensive multi-year Plans, which have input from many levels of society, and are revised to adapt to changing needs. Information about the content of the plans has been available to Western observers only indirectly.**

The current eight year plan was outlined by Fang Yi, minister in charge of the State Scientific and Technological Commission, at the National Science Conference in Peking in March 1978.(3) Eight priority areas for research were identified: agriculture, energy, materials, computers, lasers, space science and technology, high energy physics and genetic engineering. At that conference, Fang Yi urged that research be encouraged in different ways at different levels: strengthening and building key research institutes under the Chinese Academy of Sciences; establishing research institutions appropriate to the needs and conditions of the Provinces,

*Some details about our observations of the ways in which science is integrated into the control of the growing, harvesting, processing and distribution of crops were presented in a two part article written by Michael Hansen and Stephen Risch (*SftP*, Volume 11 Nos. 3 and 4 (1979)).

**The Twelve-Year Science Plan of 1956, for example, was never published. Drawn up with Soviet assistance, the plan gave top priority to scientific research aimed at the development of the military and heavy industries.(1) A Ten-Year Plan was brought out in 1964 and has been viewed as an extension of the Twelve-Year Plan, modified to cope with the changes brought about by the Great Leap Forward. It, also, has not been published.(2)

municipalities and Autonomous regions; forming individual or cooperative research enterprises in factories and mines; and expanding the agro-science research network at the team, brigade, commune and county levels.(4)

Formulation of the State Plan

Much of what we learned about research planning came from people directly involved in the process at various levels.* Together with discussions with workers and peasants all through our trip, we now have a somewhat coherent picture of who has input into the Plan and how this input is communicated.

Through its connection to Chungshan University in Kwangchow, a commune can serve as a source of research ideas. A large research group has been working at the University on integrated pest control since 1973. This project started because the commune leaders visited the University seeking help in controlling the Pine Leaf caterpillar. As a result of five years of research, they have developed a virus which specifically attacks the caterpillar. The virus is disseminated when the pest population is high; the dead caterpillars are collected, dried, and ground up. In this form, the virus lies dormant until it is needed again. Aside from the initial contact with the University, peasants on the commune have been continuously involved in the research, as they need to monitor the pest population and spread and collect the virus at the right time. Young teachers from the University spend one to two years on the commune working with the peasants and teaching them the technical information they need to participate.

Faculty members at Chungshan University were invited to the yearly conference of the Provincial branch of the Ministry of Agriculture to help establish research priorities. The link between the Ministry and the State Council is provided by the Provincial Scientific and Technical Commission, which also solicits input from leaders of schools, factories, communes and counties. Thus, there is a direct pathway from the 4-level agro-science network(5) to the State Council, where the final Plan is eventually formulated.

Implementation

Once the important research areas have been delineated, implementation involves a complicated mix of formal and informal announcements of the Plan, and analysis and interpretation of the rather loose language by each level and each locality.

*In Hunan Province, we spoke with an official of the Scientific and Technical Association. At Chungshan University in Kwangchow, we spoke with faculty members and responsible people from an affiliated commune. In Shantung, we visited Lai-Yang, an agricultural research institute.



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Workers at a Shanghai tractor factory.

Popularization of the Plan is largely accomplished through National Science Congresses and meetings at the local level. The Provincial Scientific and Technical Commission plays a role by circulating the Plan and arranging training for leading cadre in important new research techniques.

At universities and research institutes, research problems are selected from those general areas outlined in the Plan, consistent with the institutions' facilities as well as its needs. To some extent, this furthers a tendency for well-endowed research units to maintain their lead in problem-solving where instrumentation is involved. A tour of the laboratories at Chungshan University revealed several pieces of equipment from Japan, Germany and England as well as China which had been well cared for during long periods of disuse during the Cultural Revolution.

Several of the research labs at universities and agricultural stations we visited were involved in laser research. The Eight-Year Plan of 1978 clearly encourages the use of lasers in research on seed breeding. As no one in our delegation was familiar with this area of research, we repeatedly questioned the workers about it and never succeeded in identifying the rationale behind the research. Thus, although some research areas, like pest control, are recognized to be important by government and people alike, other paths appear to be followed only because they are mandated by the Plan.

Attitudes Toward The Cultural Revolution

Prior to the Cultural Revolution scientists and technicians in the PRC generally had no more contact with the masses than their Western counterparts. One clear goal, enunciated by Mao and the other leaders during that turbulent period in China's recent history, was to require all intellectuals including scientists to spend

time working directly with the people. The hope was that this would reduce elitist tendencies and promote a continuing relationship to insure that the planning of research be based on an internal understanding of the needs and desires of the local citizenry.

On the negative side, the policy of self reliance was frequently carried to the extreme of prohibiting the reading of foreign journals and all contact with Western science and scientists. This practice was universally deplored by all of the scientists and technical workers we spoke to.

While in Shanghai, we had the opportunity for a candid discussion with some members of the Shanghai Agricultural Academy, including a technician involved in herbicide research and the director of the laboratory. Both men expressed their satisfaction with the new policies toward scientific research because of the chance they have now to read foreign journals and have contact with foreign visitors. Other than this, their attitudes toward their experiences during the Cultural Revolution were miles apart.

The lab director was sent to the countryside for two years, during which time he worried constantly because his research work was suffering. He expressed the opinion that he had in fact been following Mao's line of combining theory with practice before the Cultural Revolution, in that he was involved in applied research. Being sent to the countryside to do manual labor, he felt, was meant as a punishment. The new policy, in which researchers will go to the countryside only to solve a specific problem, he perceived as superior.



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Workers and students discussing a production problem at the Shanghai tractor factory.

The herbicide technician, on the other hand, felt that his university education had left him incompetent to carry out the combination of theory and practice he thought he should. Because he had studied only the results of foreign experience, he was not even aware of the actual local problems. He took it upon himself to move to the countryside to become familiar with the peasants' needs and problems. He believes that the only way for

intellectuals to work on research of importance is to be closely tied to the masses. He did not feel that his research work suffered a setback during this period.

It was fascinating to hear such different opinions of the same experience during a single discussion — we could imagine the heated debates which must have occurred in Shanghai during the Cultural Revolution. This same divergence of views — though less clearcut — was expressed by other scientists and technicians. It was our personal conclusion that those scientists who seemed most vehement about rejecting the value of their experiences among the masses were precisely the ones who manifested the most elite attitudes toward the role of the scientist in society.

Recent Changes

The Maoist principle "walking on two legs" refers to combining the best aspects of two very different approaches to a problem such as modern Western and traditional Chinese herbal medicine or cultural pest control with the use of chemical pesticides. Our chief translator (who had also served in this position for the first delegation) had read the Science for the People book.* Although he was favorably impressed by much of its contents, he claimed that with respect to scientific training and practice, it only emphasized *one leg*. By this he meant that it favorably reported the deemphasis of basic research in favor of practical applied technology and the extreme practice of self reliance which resulted in the rejection of all foreign ideas and influence.

A clear goal of our Chinese hosts throughout our visit was to demonstrate to us how the new leadership was correcting what they viewed as excesses of the Cultural Revolution attributed, of course, to the apparently omnipotent "Gang of Four." Some of the changes we were exposed to included:

- An increased emphasis at all institutions on theoretical and "basic" science.
- A reintroduction of traditional examinations both for college admissions and throughout the educational system.
- The reestablishment of "scholars committees" (composed of older "distinguished" researchers) which screen proposed research projects at research institutes.
- The replacement of the revolutionary committees (composed of workers, management representatives and Communist Party officials) which ran research institutes, educational institutions and factories during the Cultural Revolution by a more traditional management hierarchy under Party control.

*The first Science for the People delegation visited China in 1973 during the latter, less turbulent, part of the Cultural Revolution. After returning they wrote a book entitled *China: Science Walks on Two Legs*.

- The establishment of a system of "key schools" at all levels of the educational system which are favored with more equipment and better instructors and are populated by selected "advanced" students.

In the two and one-half years since our visit the process of shifting from the ideological goals set out by Chairman Mao and the leaders of the Cultural Revolution



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tion to the more "pragmatic" policies of Premier Deng and Chairman Hua has been accelerating. An increasing number of young Chinese scientists are being sent to the U.S., other Western nations and to Japan for training. The importation of technology from "First World" countries has been growing by leaps and bounds.

Indeed we did see evidence that the rejection of foreign science and technology and the deemphasis of theory had frequently gone beyond the point of promoting an appropriate level of self reliance and an emphasis on practical problem-solving. It was apparent however that the new policies went further than what would be necessary to reestablish a balanced program of scientific and technical training and practice. The justification repeatedly given us for the sweeping changes that were being set in motion was the new national policy of achieving the *Four Modernizations*. We were told that China could reach "advanced world levels" in agriculture, industry, national defense and science and technology by the year 2000 only by rapidly developing a large, well trained, elite corps of scientific and technical researchers and workers.

Concerns About China's Future Development

The key questions concerning science planning, as well as all other aspects of China's future, relate to the rather dramatic shift in priorities and practices that are being justified by China's "New Long March" toward becoming a thoroughly modern nation in the short period of twenty years. A question that has been frequently asked by foreign visitors is whether it is in fact even possible to realize the goals of the Four Modernizations. More important, however, are questions concerning the effects of the new policies on China's people and its sociopolitical development. We asked many such questions during our visit. The answers we received and pronouncements from China's leaders which we have read since have not served to convince us that through planning China will avoid some serious problems that are now plaguing the developed nations as a result of their comparatively leisurely period of industrialization.

We had several opportunities to ask questions about the eight areas of research priority set forth at the 1978 National Science Conference. In particular we questioned the wisdom of appropriating any significant fraction of China's limited resources for research in space science or for duplicating the expensive accelerators being built in the West for esoteric high energy physics experiments. The response clearly demonstrated that the new leadership is attempting to demonstrate that China can compete in *all* areas of science — even those with little or no practical value to the people. We were given the justification that such research might produce valuable spinoff effects by indirectly promoting the development of associated useful technologies. When we suggested that this is inefficient and seemed an inappropriate method of scientific planning in a socialist nation we were simply assured that local needs would be properly taken into account.

We also asked many questions in an attempt to discern whether much attention was being given to the possibility that the new emphasis on competition, the establishment of key schools and the deemphasis of contact between scientists and the masses would lead to increased elitism. The rather unconvincing responses we received were in line with the answer Chairman Hua gave to the British journalist, Felix Greene, who asked him to comment on this problem. Although recognizing the emergence of an intellectual elite as "something to watch out for," Hua stated, "An elite only emerges in certain social systems with their corresponding educational systems."(6)

Another area of concern which we inquired about was the danger of inappropriate technology transfer resulting from the new policy of encouraging the wholesale importation of the products of Western science and technology. The prevailing attitude here is illustrated by

the following quote from an article that appeared in the national scientific and cultural paper *Guangming Ribao* on the topic of how to learn from foreign countries:

Some countries, particularly those developed capitalist countries, lead the world in science and technology, which have grown into their present stage through several centuries' accumulation. This is where their strong points lie. Science and technology have no class nature and belong to the realm of productive forces, and we badly need them in our efforts to accomplish the four modernizations. We should therefore study and introduce foreign sophisticated science and technology in earnest.

The policy of sending large numbers of young Chinese students to study science in the West raises the obvious concern about the values they will be exposed to and the habits they may acquire. This problem was discussed with the President of Beijing University (who is also Vice President of the Chinese Academy of Sciences) during a banquet he gave in our honor. He recognized the problem but expressed the view that the socialist education they had received would protect the



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young students from internalizing inappropriate Western values. The attitude of the present leadership about the seriousness of this issue is clear from the following quote from the same article in *Guangming Ribao*:

It goes without saying that in any surging tide the main current is accompanied by incidental ones. As international exchanges proliferate, it is inconceivable for people to come into contact with advanced science and technology, modern economic management and other positive things from abroad without also coming into contact with

bourgeois ideas, political views and way of life. Because of their inexperience and inability to see things clearly, some people, mainly among the young, took to all sorts of foreign things they came into contact with and even went so far as to ape foreigners. This is, in a sense, inevitable, but efforts should be made to check this. And the answer is to encourage people to foster the habit of analysis and treat foreign things in a scientific way.(7)

We do not share the view that this is merely an "incidental" current accompanying a positive "surging tide". It was evident throughout our visit that the fact that science and technology is *not* value free is something that is only occasionally recognized by China's present leaders and planners, and when it is acknowledged, it doesn't seem to be taken very seriously. It is too early to assess the extent to which the abandonment of past ideals in favor of the promotion of rapid growth and development will negatively affect the development of China's science and technology. Surely many of the accomplishments of the past 31 years of socialist planning survive and are thriving in China. The Chinese masses have proven that they can indeed move mountains. What remains to be seen is whether a rational plan can be reestablished that will prevent the squandering of natural resources, the pollution of the air and water and the frustration of what once seemed a rather unique attempt to develop a democratically planned, nonelitist, socialist science in the interest of the people. □

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The Philippines

MEDICAL INDUSTRY THRIVES, HEALTH CARE FAILS

by Charles Dougherty

The health of a people is one of the best gauges of their overall economic and social well-being. The way in which a society deals with the problem of health reflects the broader social or class relations which prevail in that society. The poor health of the Filipino people is rooted in their profound poverty, which is generated and reinforced by the internal class structure and the extensive control of foreign (primarily U.S.-based) corporations over the local economy. As long as their martial-law government remains the faithful handmaiden of multinational corporations and local elites, the Filipino people will remain incapable of establishing a health care system which can solve their pressing health problems. A health care system which will benefit the majority of poor Filipinos can be constructed only by building a new set of class relations and a transformed state — one free from foreign and local elite domination.

The Link Between Poverty and Poor Health

Poverty is the overwhelming fact of life for the majority of the Filipino people. It stalks them from their cradles to their graves. Malnutrition, sub-standard housing, unsafe drinking water, and lack of access to sewage disposal are symptoms of poverty in the Philippines which directly affect the health of the poor. Eighty percent of pre-school children suffer from malnutrition. Forty-four percent of Filipinos have no access to sewerage, while over 60 percent lack safe drinking water.(1) Millions of urban squatters live in ramshackle huts on stilts above streams of raw sewage in which the children frequently play.

Malnutrition, the seventh largest killer in the country, contributes to the high incidence of many fatal diseases. Despite their rich agricultural lands, Filipinos have the lowest per capita calorie intake of any Asian people, including Bangladeshis, Indians and Indonesians.(2) In 1978, calorie consumption averaged 87.1 percent of the recommended daily allowance. Over

two-thirds of families are too poor to purchase and consume a nutritionally adequate diet.(3) Young children and pregnant and nursing women are hardest hit. In 1978, pregnant women received only 64 percent of the minimum calorie intake prescribed and nursing mothers only 46 percent.(4) A 1978 survey reported that only 21 percent of the 5.1 million pre-schoolers surveyed were well-nourished. About 46 percent suffered from first-degree malnutrition, 26 percent from second-degree, and 7 percent from third-degree.(5) Those who survive third-degree malnutrition usually suffer irreparable damage to their physical and mental development.

Pneumonia, often contracted by infants, kills one out of two of its victims in the Philippines. In 1975 it accounted for 16 percent of all deaths — the largest single cause. Gastro-enteritis and colitis together are responsible for about 6 percent of infant deaths.(6) Altogether, 65 infants out of 1000 die before their first birthday, compared with 31 in Malaysia and 25 in Cuba.(7) As many as 17 percent of all deaths are in the group aged one to four years, a figure nine times that of China and sixteen times that of Japan.(8)

Three-quarters of all children and pregnant women are anemic. Vitamin A and iodine deficiencies reach epidemic proportions in many areas. A study in Cebu City found 1 out of every 661 children under six was blind because of vitamin A deficiency. In epidemic regions, primarily mountainous areas, iodine deficiency is believed to have caused goiter in 60 percent of the children.(9)

Tuberculosis is the second largest killer in the Philippines, accounting for 11 percent of all deaths in 1975.(10) The Philippines has the highest rate of TB in the entire Western Pacific region, as well as the highest rates of schistosomiasis and polio. The Philippines also ranks among the highest in the world for its incidence of whooping cough, diphtheria and rabies.(11) Many poor Filipinos also suffer from rheumatic heart illness, often a complication of untreated strep throat. Heart ailments are the third largest cause of death in the Philippines.(12)

The average Filipino lives only 59 years, compared with a life expectancy at birth of 70 years in China and 72 years in Cuba.(13) Sixty-two percent of all Filipinos die without the benefit of medical attention.(14)

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Bleak as this health picture is, available evidence suggests that it is growing bleaker, as the ordinary Filipino sinks deeper into poverty. The food intake of Filipinos has steadily decreased since 1958, a period during which real wages have also steadily declined.(15) The worsening standard of living has had its greatest impact on nutritional levels since the declaration of martial law in 1972. Wages of industrial workers in Manila have declined by roughly 40 percent since 1972.(16) The net incomes of rice farmers — the largest group of farmers in the Philippines — declined by 53.4 percent between 1976 and 1979 alone.(17)

Food intake, especially for low-income families, has declined significantly during this period. For families with annual incomes below P400 per capita (P7.56 = 1 U.S. dollar), calorie consumption between 1970 and 1974 declined from 87.5 to 79.5 percent of the minimum daily requirement over the same period. Daily protein consumption also declined substantially for all income groups during this period.(18)

Theoretically, the Philippine government could offset the effects of declining incomes on the people's health by providing free or subsidized health care to the masses. It could place greater stress on prevention by improving the nutritional level of the population, upgrading the quality of housing available to the poor, and investing in more and better water and sewerage systems for both rural and urban households. Instead, the government perpetuates a health care system based on private gain, one which literally capitalizes on the poor health of the Filipino people.

A Terminally Ill Health Care System

The Philippine health care system is structured so that opportunities to provide an "ounce of prevention" are overlooked in the rush to provide a "pound of cure." Such a system is irrational, since it costs less in the long run to prevent the most prevalent diseases than to continue treating them. Consider all the work hours lost due to illness and the lowered productivity resulting from malnutrition. One estimate of income lost as a result of malnutrition in the Philippines ran as high as U.S. \$280 million a year.(19)

The Philippine health care system does have an underlying rationale: the search for profit. Since health is such a precious "commodity," people's demand for it is not greatly affected by the price of maintaining or restoring it. More and more Filipinos are unable to afford drugs, hospital fees, and even food. They are often confronted with a cruel choice: buying enough food for their families or buying the drugs needed to treat a tubercular father or mother. The sick family member may have to forego the medicine until it's too late.(20)

The high prices of drugs are driving many Filipinos to their graves. Drug companies in the Philippines (especially the foreign-owned ones) subordinate people's

health needs to profits. Seventy percent of the local Philippine drug market is controlled by multinational corporations and other foreign companies. Overpricing of imports translates into higher drug prices paid by Filipino consumers. In 1972, Ampicillin derivatives marketed by Bristol and Beecham sold for about 25 cents per 500 milligram tablet; both firms are foreign-owned. In contrast, the Filipino-owned Doctor's Pharmaceuticals' brand sold for less than two-thirds that price.(21) In 1979, 100 milligram tablets of Doxycycline were being sold by Terra Pharma (a Filipino firm) for two-thirds the price charged by Pfizer and Rachele (both foreign-owned firms). These price differences mean higher profits for foreign drug firms than for their Filipino counterparts. While Metro Drug (a Filipino firm) earned roughly 4 percent on its assets in 1978 and Pharma (also Filipino-owned) earned merely 2 percent, Bristol was earning 9 percent, Pfizer was reaping a 12 percent return, Parke-Davis 15 percent, and Wyeth-Suaco a whopping 19 percent.(22)

Foreign drug companies in the Philippines (as well as other Third World countries) market dangerous drugs which have been banned by regulatory agencies in



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their home countries. Some of the drugs which have been "dumped" on unwary Filipino consumers include the antibiotic Chloromycetin, a Parke-Davis product which is known to cause aplastic anemia; dipyron and other pyrazolone compounds, analgesic/antipyretics which have been banned in developed countries; Entero-Visiform, an anti-diarrheal drug which contains cloquinol, proven to cause paralysis and eye injuries; Depo-Provera, an Upjohn injectable contraceptive never approved for use as a contraceptive by the U.S. Food and Drug Administration because of its link with cancer in test animals and a possible link with infertility and diabetes.(23)

Hospitals and other health care institutions are also part of the profit motivated health care industry. Since most paying customers reside in urban areas, hospitals are concentrated in the cities. While roughly two-thirds of the population live in rural areas, less than one-quarter

ter of Filipino doctors practice in those areas. In Manila, the ratio of hospital beds to people is approximately 1 to 626 while in most provinces it averages 1 to 1400.(24)

Even within big cities like Manila, access to quality health care is far from evenly distributed. Of the 1420 hospitals in the country, almost eighty percent are privately-owned. Hospital administrators are accountable to shareholders who are often U.S.-trained doctors, who charge hefty fees in hospitals they partly own. The ordinary worker or squatter has no access to these institutions because of the prohibitive price.

Only twenty percent of the hospitals are government-owned; they must serve the majority of the population. Government institutions like Philippine General Hospital in Manila face serious problems of overcrowding and understaffing. In many cases poor patients are turned away for lack of space or personnel to treat them, even when their cases are critical. It is common for patients to die in the halls waiting to see a doctor.(25)

While most hospitals serve only those who can pay, they hardly pay those who serve. Wages of health care workers — especially nurses, who make up 60 percent of the health labor force — are kept at rock-bottom levels. In 1978 the median monthly wage of a ward nurse in the Metro Manila area was roughly U.S. \$31.50. This is far from the U.S. \$122 per month a single staff nurse requires to support him/herself.(26) Many nurses are paid on an hourly basis, forcing them to work a 48-hour week just to make ends meet. Hospitals often squeeze in beds in excess of registered capacity, without hiring extra personnel to assume the additional workload. Physicians not in the upper echelon of U.S.-trained specialists fare little better than nurses. Government physicians, for example, receive a monthly minimum wage of roughly \$70.(27)

The economic motivations of health professional training institutions complement those of hospitals. While the medical and nursing schools turn out as many graduates as possible to maintain their revenues, the flood of new medical and nursing graduates on the market each year guarantees a depressed price for medical labor. In 1978, forty-three percent of Philippine nurses who renewed their licenses to practice were not employed in their profession. Each year between fifteen and twenty thousand new nurses graduate from 140 schools and join the ranks of those looking for work in this buyers' market.(28) When nurses at Chinese General Hospital in Manila attempted to form a union in 1978, it was simple for the head administrator to fire the fifteen nurses, including the assistant head nurse, who were active in the organizing effort. Hospital administrators take the attitude, "there are plenty more where they come from." Since many nursing schools are af-

filiated with hospitals, student nurses provide a large pool of free labor to the hospitals, paying high tuition fees for the privilege of working.

While thousands of health professionals remain unemployed there is a crying need for more doctors and nurses, especially in rural areas. In Manila there is one physician for every 660 people, in Mindanao, the Bicol and the Eastern Visayas there is only one physician for every 5300 people.(30) Roughly twenty-eight percent of employed nurses in the Philippines work in rural areas, where seventy percent of the population lives.(31) Government rural health units are understaffed by about 23 percent in the case of physicians and 38 percent in the case of nurses.(32) There is virtually no incentive to draw more doctors and nurses to the rural areas. The family of a newly licensed doctor invests approximately \$10,000 in a son or daughter's medical education, while the family of a nurse invests \$5000. These expenditures leave most families deeply in debt, so the new doctor or nurse is particularly pressed to find a remunerative job. To the extent that such jobs exist, they are not found in the hinterlands. Recent graduates often find no work in their professions, so that brothers and sisters must drop out of school to work to pay off family debts.(33)

It is small wonder that so many Filipino doctors, nurses and other health professionals seek jobs abroad. Since the mid-1960's, American health care institutions have actively recruited Philippine medical graduates to solve serious understaffing problems. Those most frequently recruited for jobs in the U.S. (and increasingly in the Middle East) are the best-educated doctors, nurses, and medical technologists of each graduating class. Forty percent of all Philippine medical school graduates are practicing abroad.(34) Ironically, in 1975 there were more Philippine medical graduates practicing in the U.S. than there were practicing Black American graduates.(35) Of 5800 physicians recently interviewed in the Philippines, 70 percent said they planned to leave the country.(36) More Filipino nurses are employed abroad than are employed in the Philippines. In 1978 there were roughly 16,000 active duty nurses in the Philippines compared with 20,000 Filipino nurses working overseas, 70 percent in the U.S.(37) Four thousand more nurses left in 1979.(38)

Health Care As Counterinsurgency

The Philippine Ministry of Labor and Employment plays an active role in promoting the export of Filipino medical labor, demonstrating the low priority the government places on the health of its people. In 1979, the Marcos government spent approximately \$15.74 per capita on the military while it spent only \$3.72 per capita on health programs.(39) In 1975 government expenditures amounted to 0.56 percent of the Philippine GNP, one of the lowest shares in the world.(40)

In 1975-76, The Ministry of Health devoted 70 percent of its total field operations expenditures to hospital services, which handle only 10 percent of all patients. The primary health care system, which focuses on prevention and handles 75 percent of patients, received only about 20 percent of Ministry of Health expenditures.(41)

Within the area of preventative health care, the government emphasizes family planning as the solution to the people's health problems. This reflects the priorities of the major foreign aid programs which channel funds into the Philippine health care system. The U.S. Agency for International Development's proposed aid package for the Philippines in fiscal year 1981 contains \$14.7 million in grants and loans (26 percent of the total) earmarked for population planning; only \$7.8 million is set aside for all other health programs.(42) When government health officers assigned to rural health units organize clinics in the barrios (villages), these are usually family planning clinics.



NPA guerrilla using acupuncture.

Evidence suggests that the Philippine government may have deliberately suspended its malaria control program in the early 1970's in order to physically debilitate guerrilla movements in remote areas. Throughout the 1960's malaria incidence had fallen dramatically, from 200 cases per 100,000 population in 1960 to only 85 per 100,000 in 1969.(43) In the period from 1967 to 1977, however, malaria incidence increased fivefold.(44) In 1973, U.S. A.I.D. phased out its support for malaria control, anticipating that the disease was well enough under control for the Philippine government to continue eradication measures with its own resources.(45) Apparently, the government found better ways to use those

resources. A Filipino military commander in Mindanao (an area of heavy fighting between government soldiers and Muslim guerrillas) admitted in 1973, "There is lots of malaria down there, so we have stopped spraying. Sooner or later the rebels will be too weak to fight."(46) It is probably more than coincidence that the malaria rate has escalated during precisely the same period when armed insurgency has been escalating throughout the Philippine countryside.

The government has also tried to suppress rural support for the guerrillas of the Communist-led New People's Army (NPA) through ploys such as civic action teams of the military distributing free medicine in "sensitive areas." In many cases the military's efforts have backfired. In Kalinga-Apayao the people refused offers of free medicines. In the Cagayan valley, the handouts were discontinued when the military began to suspect that the people were passing on the free medicine to the NPA fighters.(47) When rural people who have never received any health care from the government suddenly find themselves the object of the government's health concern, the hypocrisy of the government's health programs becomes all too transparent. The people realize that the same soldier who is offering them medicine today is just as apt to shoot them tomorrow.

Recognizing the credibility gap posed by "military healers," the government has also assembled a civilian counterinsurgency force, into which all newly graduated doctors and nurses are conscripted before they can receive their licenses. Under the Rural Health Practice Program, new graduates are sent to the countryside for six to twelve months to work in provincial hospitals and rural health units. The government borrowed the concept from the Chinese "barefoot doctors" experience. However, the Philippine government tried to duplicate China's program without comprehending the substance of it — the revolutionary transformation of class relations which laid the foundation for a new health care system in China. In the Philippines the profit-oriented health care system remains intact. The education doctors and nurses receive in the Philippines does not prepare them to work in rural areas. Their training is heavily oriented to American medical practices, with American textbooks the standard fare in most classes. When graduates leave for rural service, they are faced with an entirely unfamiliar setting. One nurse who worked in a squatter resettlement area outside Manila remarked, "In Carmona many people came to me with diseases I never heard of before."(48)

These young medical workers also face the problem of a government which places a low priority on the program. Rural clinics are understaffed and poorly supplied. Rural service paychecks frequently are delayed by several months, if they arrive at all. A survey of 7900 doctors and nurses performing their rural service found

NATIONAL DEMOCRATIC PROGRAM FOR THE HEALTH SECTOR IN THE PHILIPPINES

Health workers — of all professionals — are probably in the best position to observe close at hand the debilitating effects of poverty on the health of the Filipino people. They are also uniquely situated to perceive the inequities in the distribution of health care which mirror the inequities in the distribution of income and power in Philippine society. A growing number of these Filipino health workers have become convinced that only a thoroughgoing revolution aimed at a restructuring of the basic economic and political relations in their country and its liberation from the yoke of imperialist domination can provide a viable alternative health care system, one capable of responding to the most pressing health needs of the masses of poor Filipinos. A group of doctors, nurses, dentists, midwives, pharmacists, medical technicians, sanitary inspectors and others sharing this understanding came together in December, 1978, to form an organization known as Makabayang Samahang Pangkalusugan, or Nationalist Health Association. MASAPA, as it is called, drew up a seven-point program of action reflecting its commitment to participate in the national democratic revolution, which is currently gathering momentum in the islands and whose chief expression is the protracted people's war being waged by the Communist-led New People's Army (NPA) in the countryside. Following are excerpts from its program:

1. Combat the imperialist domination of the Philippine health industry.

"The health sector should lead the campaign to dismantle foreign domination of the health system. This campaign calls for nothing less than the complete nationalization of the health industry. . . .

"... Self-reliance must be fostered as the foundation of a truly nationalist health system and industry. We must mobilize the broad masses of the people to take active part in the promotion of their health. . . .

"... Indigenous health knowledge and practices must be developed and elevated to the level of science. . . . We can develop a health system enriched by foreign scientific advancement but effectively free from imperialist exploitation."

2. Oppose the use of health as a tool of the U.S.-Marcos fascist dictatorship.

"The Marcos regime must be stripped of all its pretenses and the duplicity of its health care system laid bare before the people. . . .

"We must painstakingly conduct ongoing investigation of all government health programs, especially those with direct imperialist support and those involving military participation. . . .

"We should build a broad alliance with anti-fascist service-oriented individuals and agencies and reorient their health services towards genuine mass-based, if not revolutionary programs."

3. Development health programs to strengthen the revolutionary mass movement in the urban centers and the countryside.

"In the countryside, we must earnestly respond to the serious dearth of health services catering to the needs of the rural population, and encourage the biggest possible number of health workers to render direct services among the peasantry.

"Health programs. . . must go hand in hand with the effort of building basic mass organizations of peasants, youth, women, children and cultural activists in the barrios (villages).

"In the cities, where health services and facilities abound only for the privileged, we should direct our health programs at the masses of workers and the urban poor, who make up the most numerous and most oppressed segment of the urban population."

that only 21 percent indicated any desire to continue working in the rural areas when their tour of duty was up.(49) On the other hand, increasing numbers of doctors and nurses who have gone to the countryside under government auspices have become radicalized by their observation of conditions there and have joined the ranks of the resistance. Others, already politicized while in school, have taken the opportunity to conduct social investigation and propaganda work in remote areas. Perhaps realizing the program is becoming more of a liability than an asset, the government is planning to discontinue it.(50)

An Alternative System

A growing number of health care workers are engaged in the task of forging an alternative health care system based on genuine people's participation. Experiments in grassroots health care planning have been started in various parts of the country. Their goal is to train health workers in the barrios to pass on knowledge. The focus of the training is on preventative

health, and stresses reliance on locally available materials such as herbs.

While such programs are still in their infancy, participants are learning both their potential and their limits. They have the potential to challenge the basic premises of the elitist, Western-oriented, institution-based, drug-dependent and profit-motivated health care system prevalent in the Philippines today. They are limited because they cannot function in a vacuum; they inevitably must interact with the economic and political power relations at all levels of Philippine society. If the participants in this alternative health system simply take those relations as a given, the "alternative" is apt to become bogged down by the same problems that plague the existing health care system. The only real alternative, many health workers are coming to believe, is to view the goal of transforming the Philippine health care system in a nationalist and democratic direction as part of the broader task of transforming the basic structures of political and economic power in Philippine society through a national democratic revolution. □

4. *Gather the most extensive support of the health sector for the armed struggle.*

"We maintain that only by seizing political power and thoroughly restructuring society can we uproot the poverty and health problem of the masses. Only then, too, can we completely build a truly national and democratic health system.

"It is, therefore, a paramount task of the health sector to support the armed struggle to its fullest capacity. . . The need for optimum health care among the people's army and the revolutionary masses in the countryside rises in proportion to the intensification of the armed struggle. . . .

"Health workers should be encouraged to serve in army units. . . Others, without having to join the army, can play an important role in the consolidation of guerrilla fronts.

"On a wider scale, we must mobilize members of the health sector, especially those in the cities, for indirect support of the armed struggle: 1) services and supplies. . . 2) training. . . of army health officers, local activists in guerrilla fronts and others. . . 3) research (e.g., nutrition and plant pharmacologic studies. . .)."

5. *Uphold the democratic right of health workers to organize and fight for their genuine welfare.*

"We must form organizations of health workers to fight for their economic welfare through collective bargaining and, where feasible, other forms of struggles like work stoppage, strikes and demonstrations.

" . . . forge unity among health professionals to break down professional hierarchies. . .

" . . . join professional organizations and transform these from mere social clubs to effective political organizations. . . campaign for true representatives of the working mass of the health sector to assume positions of leadership in these organizations. . . raise the level of consciousness of the members of health workers' organizations.

" . . . relate our struggle to the comprehensive struggle of the masses."

6. *Work for a reorientation of the health educational system and propagate a nationalist and democratic health consciousness.*

"Either in schools or in our spheres of work, we must continually expose and oppose colonial and elitist values in health care. . . To know what is relevant in our country, we must conduct social investigation of the actual health conditions of the masses and constantly relate the process of learning with them. them.

"We must oppose the commercialization of health education. . . work for the true democratization in the schools; students from poor and middle classes should be given not only equal chances in admissions but also equal opportunities for finishing.

"Finally, we must integrate deeply with the masses. By helping them rely on themselves, utilize their own resources and put up their own health programs, we can slowly crush all values that promote overdependence on drugs, foreign models, hospitals and technology, and the omnipotent doctor for health care."

7. *Promote solidarity with all progressive health workers abroad and seek their support for the revolutionary struggle.*

"We should develop the closest links with all progressive health workers in other countries, especially those under puppet governments and fascist dictatorships.

" . . . send representatives from among our health workers in the various disciplines to conferences and seminars abroad to share experiences in health and in the struggle for national liberation.

" . . . take every opportunity to arrange forums wherein health workers from genuine Socialist countries, as well as Filipinos who have visited them, can talk about their progressive health care system.

"Filipino health workers should be encouraged to return to the Philippines to render service to the Filipino masses and direct support to the Philippine Revolution."

MEDICAL SUPPLIES NEEDED BY NDF

The NDF needs medical supplies and/or money to purchase medical supplies. Donations can be mailed to the International Association of Filipino Patriots (IAFP), P.O. Box 2437, Oakland, CA 94623. Checks can be made payable to IAFP.

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(continued on p. 33)

Alternatives for India

WESTERN OR INDIGENOUS SCIENCE

by J. Bandyopadhyay and V. Shiva

While the voluminous documents say more and more about the invincibility of modern science and technology in tackling the human problems of poverty and unemployment, Indian people in larger numbers sink below the poverty line every day. The third largest scientific and technological workforce in the whole world, sitting amidst the most cruel poverty and stagnating social relations has been feeling strongly about the absurdity of its own existence. The huge modern scientific establishment that has been created in India is neither closer to self-reliance in its own activity, nor has it been able to break out of its social isolation from the deeper and broader realities of Indian life. This manpower plays no significant role in the modern industrial sector which more or less depends on imported technology for its survival and growth. The scientific and technological establishment has not made any positive contribution to the growth of the large traditional sector, a sector that is often invisible to the eyes of urban planners and intellectuals (in spite of the fact that it is the dominant technological mode covering sometimes as much as 85 percent of the population).(1)

Alternatives in Science and Technology

An attempt was recently made by concerned researchers and activists in a Workshop on "Alternatives in Science and Technology" held in Bangalore, India, to identify the historical roots and the present socio-political role of the establishment science and technology and to conceptualize the philosophical, political and economic base of an alternate framework for the development of science and technology that would be helpful to the Indian people.(2)

J. Bandyopadhyay and V. Shiva are scientists working with the Indian Institute of Management in Bangalore, India. They participated in a recent workshop on, "An Alternative Approach to the Management of Research, Development and Education in Science and Technology."

The discussions in the Workshop indicated that there are two significant ways in which the place of science and technology in India differs from their role in the industrially advanced countries. Firstly, the Institutions of Science and Technology and the Centers of research are not directly linked with productive activities in the Indian industrial sector. Secondly, while productive activities based on modern science and technology directly imported from the West are unable to properly substitute the traditional productive activities in terms of employment and ecological stability, they do, however, destroy them by wiping out their resource base.

The conventional viewpoint on science and technology sees the present day Indian science and technology as ineffective because of factors like inadequate budget allocation, lack of proper management and the absence of an appropriate system to inculcate motivation and scientific values among Indian scientists.(3) The discussions in the Workshop, however suggested that the problem in Indian science does not arise from ineffectiveness external to scientific activity, but from the very content of the activity. Indian scientists and technologists are, paradoxically, involved in an activity that is rooted and sustained in alien cultures and different environments, while at the same time subscribing to the myth of the universality of this science and technology.

While scientists in India are channeled into these scientific traditions of advanced countries, the absence of a scientific community in India undermines their productivity both in terms of their intellectual contribution to that science and their technological contributions to the satisfaction of the needs of Indian society. There is no community of scientists in India because, on the one hand, individual scientists interact more with colleagues in the West than with colleagues within the country (sometimes in the same institutions), and on the other hand, Indian industry collaborates directly with foreign companies rather than with the Indian research and

development establishment. There is thus a lack of coherence, within the scientific community, and between this community and industry which influences the health of the Science and Technology establishment in India per se, as well as its impact on society.(4)

INDIGENOUS SCIENCE VS. WESTERN SCIENCE

Today what gets counted as "scientific" in India is the off-shoot of the tradition that was imported to India from the West in the 19th and 20th centuries. Parochial views of science which saw the scientific tradition of the West as universal and those of non-western cultures as particular, irrational, and superstitious led to the belief that scientific thought and activity was being introduced for the first time in India by the European colonisers. This view marginalized and made invisible the indigenous scientific and technological framework which had supported the Indian people successfully, not only by fulfilling the requirements of daily life but by capturing a good amount of the world market for manufactured commodities.(5) The reason that more is not known about this phenomenon of de-industrialization of the Indian economy and destruction of traditional sciences and technologies has little to do with the intrinsic "irrationality" of the traditional world-views or the "inefficiency" of the traditional production systems.(6) It is related more closely to the pervasive assumption (accepted as much by the Indian elites as by the Western ones) that the scientific tradition of the West is inherently most rational, and that the western technologies are the most efficient in an absolute sense, independent of factor endowment and local resources. Further, domination of the non-western colonies by the imperialist nations has been explained on the grounds of this unquestionable superiority, instead of this assumed superiority being explained by first, military and later cultural domination.

Health Care

Thus for example, when health care was being planned in independent India, the obvious assumption seemed to be that there was a need for increased availability of the entire system of western medical science and technology, in spite of the historical existence and availability of systems of health care like Ayurveda* and Yoga. The result was further destruction of these systems, a process which started mainly during the British rule. Today, a single Institute of Medical Sciences in the capital of India, mainly catering to the political and economic elites, has a budget equivalent to that of all the

*Ayurveda is a traditional Indian system of health care using herbs.

indigenous systems of medicine. While it might be fallacious to see deterministic links between budget allocations and productivity of scientific activity, it would also be idealistic to expect scientific systems to prosper with no resource base in material, sociological and intellectual terms. The destruction of the social systems of indigenous medicine was not the result of its inferior effectiveness in health care, which was never ascertained. A conclusive evaluation would be problematic anyway since the systems are framed on diverse philosophical bases. While the western allopathic systems might be more sophisticated, rational and efficient, when evaluated on merely analytic criteria, systems like Ayurveda and Yoga were, and continue to be, more sophisticated, rational and efficient when evaluated on the basis of holistic insights. Thus, while allopathic medicine might provide a finely structured diagnostic breakdown about cardiac problems, and might provide drugs for cure or quick relief (with all the side-effects that may not be desirable but are never part of the assessment of efficacy) it fails to provide the means of prevention of these problems. On the other hand, systems like Yoga, while not having the detailed analysis and categorization of the ailments, can, through its holistic approach, provide a preventive treatment for a range of health problems. Further, the modern system engenders centralized, multinational-dominated, capital-intensive and research-intensive facilities available only to a privileged minority. Traditional systems, on the other hand, are decentralized and to a large extent allow better control by individuals over their own health. Thus, the accepted superiority of the western health care system is found to be based only on a restricted set of evaluative criteria. On the basis of a more general set of criteria, neither its rationality nor its efficacy could be guaranteed.

The fact that most scientists including medical scientists and technologists all over the world are practicing science and technology that originated in the West is in no way a confirmation of its *uniqueness and universality* on the level of rationality. Rather, it is an expression of the cultural domination of the advanced countries over the third world countries. Naive supporters of the universality of science and technology often raise certain irrelevant questions like "Do not Newton's Laws hold good in India?" or "Does the earth rotate only in Europe, since Copernicus was a European?". While a falling apple in China or India will be surely guided by Newton's laws, a Britisher can also be cured by Acupuncture or Ayurveda. However, Newtonian mechanics and Acupuncture or Ayurveda were developed in completely isolated cultural contexts and had their own respective criteria of legitimization within the respective practicing communities. *It is this element of science and technology which is not universal.*

Mechanization Has Led to Greater Poverty

The myth of neutrality and universality of western science and technology has been retained and encouraged by the Indian elites long after political independence was achieved. Paradoxically, this has been with the proclaimed objective of decreasing dependence on foreign powers and multinationals, and removing poverty, inequality and unemployment. Development programs which claim to be for the upliftment of the people, have systematically, through the forceful introduction of alien technologies, led to further impoverishment of the rural poor. Mechanized fishing was introduced by the Indian State in collaboration with agencies like the World Bank in the name of improving the status, i.e. the quality of life, of 6.5 million people living in the Indian fishing communities. The goal was improving the productivity of the sector, thus, also increasing the availability of fish for the protein-starved people of India. What has happened is just the reverse. The control of fishing is now in the hands of multinational corporations and mechanized fishing is a serious threat to the very existence of these fishing communities.(8)

Fate of Traditional Fishing Communities

Traditionally the fishing community of India has been satisfying the need for marine food of the entire coastal region. They have done so over the centuries, with their own techniques which were ecologically stable (the ecological stability is substantiated by the fact that traditional fishermen have not depleted the marine resources. This is in contrast with the collapse of fishing in Peru which resulted after few decades of reckless trawler fishing by the world's leading fishing nations.) The gear, tackle and boats are made by these traditional communities with local raw materials and local skills. The preservation techniques are also labour intensive and self-sufficient. The modern technology packet of mechanized fishing, refrigeration and canning has drastically changed the occupational pattern of the fishing communities, and also the nature of the consumers. After the introduction of mechanized fishing, trawlers and purse seiners, the fraction of fish obtained through traditional techniques has come down from 84 percent to only 7 percent in only a few years.(9) For the majority of the fishing community this has meant a great deterioration in their standard of living.

Most of the traditional fishermen, for whom fish was a regular food until a few years back, now live only on starch like tapioca and consider fish a luxury that they cannot afford! In fact the fish that was available to the poor people through traditional techniques, now finds its way through refrigeration and canning to the affluent in India and abroad. Instead of improving the lot of the poor, the imported modern fishing technology is the vehicle of transfer of resources from the poor to



Trucks are used for travel to distant markets.



Traditional fishing boat.

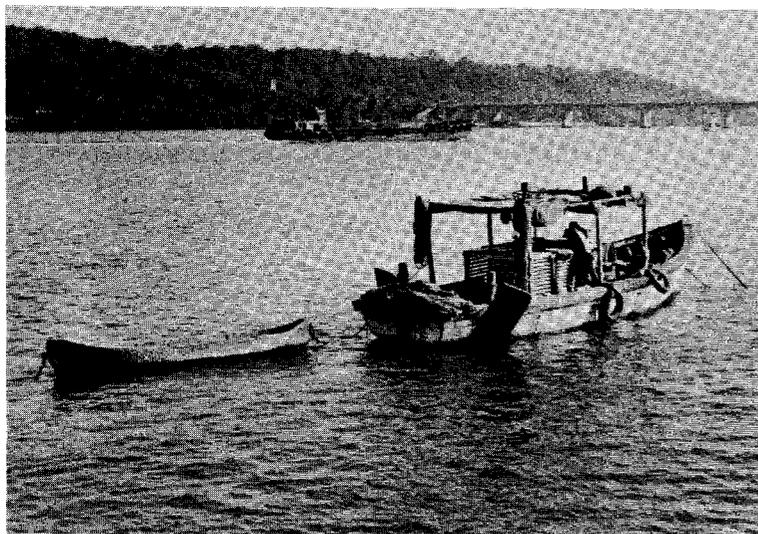
the rich. The modernization strategy has also failed to build self-reliance or decrease dependence on multinationals. While the traditional fishing community did not depend on the Indian bureaucracy or foreign powers for its resources or markets, today fishing is controlled by large Indian business houses like Tatas and large multinationals like Union Carbide, Levers and Britania. Moreover, the purchase of trawlers and canning and refrigeration units have all increased technological dependence on foreign firms.

Self Sufficiency Vs. Centralization

The phenomenon of increasing centralized control of resources and markets, and increasing technological dependence is also found to be taking place in agricul-



Women sell fish in traditional markets.



Mechanized trawler.

ture. This has happened in spite of the existence of ecologically viable and nutritionally adequate cropping patterns. In this sense the imported technologies were not socially neutral; and their use was neither inevitable nor the only choice for technological development. For instance, the technology of the green revolution was only one choice out of an entire range of technological possibilities and has given rise to new hybrid seeds that give high yields under specific conditions. Green revolution technology "was a choice *not* to start by developing seeds that were better able to withstand drought or pests. It was a choice *not* to concentrate first on improving traditional methods of increasing yields, such as mixed cropping. It was a choice *not* to develop technology that was productive, labor intensive, and indepen-

APPEAL FROM TRADITIONAL INDIAN FISHING COMMUNITIES

Extracted from IFDA Dossier 19
Sept.-Oct. 1980

Dear Friends,

The National Forum for Catamaran & Countryboat Fishermen's Rights appeals to you and the concerned authorities of your country to take note of the distress of 6.5 million traditional fishermen of India and to take appropriate measures to alleviate our miseries.

In recent years, the coastal waters of the Indian Ocean, where we have been fishing most effectively for centuries through our traditional, labour-intensive and ecologically safe method of fishing, has been invaded by oversophisticated fishing trawlers and purse seiners. They have been recklessly scrapping the seabed, resulting in depletion of fish resources and destruction of fish ecology. These trawlers and purse seiners, which were supposed to undertake deep-sea fishing, are shamelessly fishing in coastal waters, sometimes hardly 200 meters from the shore; thus driving away the fish from the coastal waters by the turbulence of the waters as well as destroying the valuable nets and boats of our fishermen, which has led to violent clashes in the sea between the mechanized boat-owners and our traditional fishermen, resulting in the loss of life.

The so-called 'mechanization' of our fishing industry has not really benefited the traditional fishermen. Fifty per cent of our fish lies in the coastal waters near our shores. Since 50 per cent of the prawn resources, which our country is exporting, is in these coastal waters, the mechanized trawlers and purse seiners, whose main interest is to catch prawns for export, will always tend to fish in these coastal waters, where our traditional fishermen fish, thus bringing untold misery to our fishermen. It is this craze to export prawns and fish at whatever cost, to foreign countries in order to earn foreign exchange, that has been the cause of our sufferings and hardships.

The burning of trawlers, destruction of fish nets and boats, violent clashes and the cutting of legs of our fishermen and purse seiners, charter smaller mechanized boats to fish in shallow waters and send their trucks around the Indian coast to collect the fish, then freeze and pack it under their label, export the fish, and then collect the deep-sea export cash incentives which should have gone to the smaller fishermen who caught the fish. In this process the deep-sea trawling business encourages the smaller trawlers to violate and deplete the shallow fishing grounds of our traditional fishermen. Besides, once the fish in the sea is over, as has happened in many over-fished countries, the few rich deep-sea fishing companies and businessmen will easily give up fishing as a profitable venture, whilst all that we may get is a few feet of earth to bury our dead.

The burning of trawlers, destruction of fish nets and boats, violent clashes and the cutting of legs of our fishermen around the coast of India, provides grim evidence of the current economic genocide of the 6.5 million traditional fishermen now being committed by the trawler and purse seiner industry with the knowledge of our New Delhi planners.

We appeal to you therefore:

1. To stop the imports of prawns and other varieties of seafoods from our country by Germany, France, Belgium, Sweden, Denmark, Norway and other European countries.
2. To stop all aid to our country for the purchase of more trawlers and purse seiners, as there is an over-saturation of these vessels in our seas.

Thank you,
MATANHY SALDANHA
Chairman
175 South Avenue
New Delhi, 110 011 India

COMMENTARY: REFLECTIONS ON APPROPRIATE SCIENCE IN INDIA

by Rashid Shaikh

Few Third World countries have emphasized the role of science and technology in development as has India. Indeed, the current Prime Minister, Mrs. Indira Gandhi, serves for all practical purposes as the minister for science and technology and views science and technology as a key to solving the problems of poverty and backwardness. Yet the government's approach to technological development has not reached India's poor, and has, in many cases, worsened their plight.

With a total of 2.3 million scientific and technological personnel, India today has the third largest workforce in the world (only the U.S. and U.S.S.R. are larger). This represents an approximately twelve fold increase since independence in 1947. The funds allocated for research and development (R and D) have seen a four-hundred fold increase: from Rs.11 million in 1948-49 to Rs. 4.5 billion (\$600 million U.S.) in 1976-77, and represents about 0.7% of the GNP. The government provides more than 80% of the R. and D. funds. Industrial production has risen at a fairly rapid pace, and India is the tenth largest industrial nation today. India has the best expertise in nuclear technology in the Third World. India manufactures computers, textile machinery, heavy engineering goods, pharmaceutical and fertilizer plants, tractors, automobiles, locomotives and other sophisticated industrial products.

Yet, the Science and technology policy of the government has been a target of constant criticism. It has been argued that given the population and the problems, more funds should be made available for R. and D., perhaps as much as 2.5% of the G.N.P. Also, the major beneficiaries of public spending have been nuclear energy, defence and space; more support should be given to agricultural and medical research. The Indian paper to the United Nations Conference on Scientific and Technological Development (UNCSTD) admitted that "most Indian R. and D. agencies are much stronger in the generation of technology than in its delivery." During the period 1953-75, Indian laboratories developed 1,923 processes, but in 1975 only 254 (15%) were being used in actual production. Thus, although India's industrial sector has shown expansion, most of it has been based on technologies imported from the industrialized countries. In some cases, where know-how exists in India (e.g. construction of fertilizer plants, drilling for oil), the government has still preferred to import the technology. Moreover, scientific and technological personnel have been drawn from the urban middle and upper classes; and industrial production has been directed towards the urban, consumer, and export markets.

The impact of this kind of policy on India's poor is not difficult to fathom.

The scientific and technological development has not helped most of the 80% of the population living in rural areas almost half of whom have practically no land and live below the poverty line. In fact their relative economic status has deteriorated.

These considerations demonstrate the need for a different pattern of scientific and technological development for India. I will discuss two aspects of the problem: appropriate technology, and bringing science to people.

Appropriate Technology

Appropriate technology (A.T.) has come to mean technology which is decentralized, small in scale, labor intensive, amenable to mastery and maintenance by local people, and harmonious with local cultural and environmental conditions. Initially, there was a lot of enthusiasm for A.T. among scientists and engineers. Some of the fervor was lost during the half-hearted and ill-conceived campaign for A.T. during the Janata government (1977-79). More recently, Mrs. Gandhi's government has taken a more critical position toward A.T., calling it a manoeuvre and a diversionary tactic by the West. But, many scientists and engineers still believe that A.T. should be given a lot more emphasis in India's development plans.

Rashid Shaikh is a molecular biologist from India, and a fellow at Harvard. During 1972, he taught science to rural students of the Hoshangabad district in India.

dent of foreign input supply. It was a choice *not* to concentrate on reinforcing the balanced traditional diets of grains plus legumes."(10)

Agricultural Technology

The myth of food shortages in India has been invoked to justify the import of the new agricultural technologies. However, it is interesting to note that "before World War II, Africa, Asia and Latin America were net exporters of food. Then countries such as India, Chile and the Soviet Union, traditionally grain exporters, became importers of massive quantities".(11) This shift from self-sufficiency to dependence has taken place in many subtle ways, one of them being the increased land use for growing cash crops. The new agricultural technologies have generated centralized, capital intensive

and research intensive structures. For example, in traditional crops a farmer could keep aside part of the grain as seed, for if she/he uses the high-yielding varieties (HYV), she/he has to perpetually depend on centralized supplies. While earlier a farmer was dependent on locally available organic manure for fertilizer, for the HYVs she/he has to procure chemical fertilizers at high financial and ecological cost. The chemical fertilizer industry further increases national dependence on multinationals. Moreover, while on narrow criteria the green revolution technology has increased yields of certain crops (and today yields food surplus), it has failed to provide food to half the Indian population which lives below the poverty line and does not have the necessary purchasing power to buy food produced in a capitalist framework.

Appropriate technology R. and D. thus remains an important area of concern for many scientists in India. However, some recent experiences have raised questions about the application of A.T., especially its interaction with the existing social structure. An example will illustrate this point.

In the Hoshangabad district of Central India, the ground water table is quite high, yet the traditional wells are expensive and inefficient. The traditional wells generally depend on seepage of water, are 10-20 feet in diameter, are lined with bricks, and are not very deep due to the cost. In the past decade, two voluntary agencies working towards rural development, introduced a new method for well building. Prefabricated, reinforced cement rings, 5-10 feet in diameter were lowered in the ground as the well was dug. Using a diesel powered pump, water and mud were removed, and digging continued. By the time the well was 50-60 feet deep, an underground spring could generally be tapped, ensuring a continuous and plentiful supply of water. These wells cost about half as much as the traditional wells, and very rarely went dry in the summers. Over the years, a number of entrepreneurs in the area started manufacturing the rings, renting pumps, and training people for digging. The water was suitable for drinking as well as irrigation. It seemed to be A.T. at its best!

But problems soon accompanied the new wells. Typical of most of India, about half of the population in this area was composed of landless labor, and

only about 15% of the land-owning farmers had enough land and credit to own a well. After several years of work, the agencies realized that as a result of their efforts, the better-off farmers now had a source of cheap water for irrigation, and were getting richer, leaving the poor peasants poorer.

This example, one of many, shows that innovations in A.T. alone cannot produce the development of the bottom-half, the have-nots. Their development depends also on a change in the pattern of social organization and structure.

Bringing Science to People

The *Weltanschauung* of the Indian people is a complex mixture of traditional wisdom and superstitions. To dispel some of the myths and superstitions and to expose people to the scientific notions of cause-and-effect, several attempts have been made recently at bringing science to people. One interesting effort is being made by the Science Education Group, based in Bombay, and run by a group of scientists and students. The group has organized several educational activities, but to date the most successful was a program to demystify the solar eclipse on February 16, 1980. Indian superstitions related to the eclipse tell people, among other things, to stay indoors, and not to eat during the eclipse. No attempt was made by the government, scientists, educationists or media to dispel these beliefs.

A young student working at a rural science center found that a polyester film would protect the eyes from the

glare of solar cookers. Further research showed this polyester film to be safe for viewing the eclipse. The Science Education Group then started a campaign, and distributed "Solar Goggles" (a strip of the film, stapled between two computer cards, some instructions and a message to join "the Peoples' Science Movement") for Rs. 1(15¢). They distributed 30,000 goggles, which was a small fraction of the total demand. The group also held a few demonstrations where people came in large numbers to watch the eclipse. Many participants broke the old taboo by eating during the eclipse, only to learn later that some well known scientists, who had gathered to study the eclipse, abstained from eating during the eclipse.

What will be the long term impact of watching the solar eclipse for a people who for centuries have been frightened by them? Will the scientific attitude, learned during the discussions about the eclipse, go beyond the particular phenomenon, and affect other aspects of their lives? And despite the government's position, where will the A.T. movement in India go? Will it lead to development or further the disparities in incomes? It is too early to know the answers to these questions. But one can see a hopeful sign today: India has a growing number of committed people — scientists, engineers, educators, students and other — who, after three decades of experimenting and observing, have learnt that for development of the country, working with that neglected majority is crucial.

Community Response

The conflict between the two systems of production of food as mentioned above is not merely an academic issue related to relativistic criteria of rationality. It is an issue related directly to the survival of the people in the largest sectors of employment (in spite of massive industrialization in India, agriculture absorbs the maximum labor, followed by the handloom sector which is also facing a similar threat from mechanization). In the last few years, this conflict has taken the shape of mass movements in the coastal and agricultural areas, where for the majority of the people, capitalization of agriculture and fishing are a threat to their very survival (and unlike the advanced capitalist countries, the victims of capitalization in India are not even consoled with the

benefits of unemployment insurance!). In India, hundreds have died and thousands have been arrested in fishermen's and farmer's revolts in the last few years. The repression might continue until the livelihood of entire communities is destroyed (with only the privileged minority in these communities being able to avail of the new capital intensive technologies). And after these communities have been wiped out the new systems will be projected as outcomes of a natural and rational pattern of progress!

The Importance of Traditional Technologies

Support to the traditional systems of science and technology in the third world countries has often been attacked as a reactionary attempt to hold back the na-

tional progress and to go back in history. These attacks originate from vested interests as well as well-meaning radical groups. Movements to defend the traditional systems and to improve on them as alternatives in science and technology are not motivated from an utopian and nostalgic attempt to recreate the past. They are motivated, instead, by the recognition that these systems are a contemporary reality in India, that on the functioning of these "inefficient" systems depend the livelihood of the millions of poor Indians today, and a large scale displacement of these systems by "efficient" systems is a guaranteed way to pauperize these millions for whom these are the only technological modes available, either as consumers, or as producers.

Reaction to "modernisation" and westernisation by traditional producers cannot be interpreted as an irrational response to change. Technological change has been accepted by traditional communities irrespective of its country of origin when it does not threaten their existence. Weavers in India very effectively accepted the Jacquards, Dobbies and Fly Shuttles which got transferred from far away places like France and England. And the European nations had systematically absorbed

sciences and technologies from the East. Cross cultural fertilization of ideas and improvement in modes of production have always taken place. The characteristic of contemporary technological change in India is that it is forced on the people without their conscious acceptance and it is a one way process leading to dependence, instead of fruitful interaction with the West.

The arguments in this paper need not be taken as an attack on everything from the West. It is rather an attack on the concept that everything from the West is more rational and efficient, that it is socially neutral and must be adopted for the progress of the Indian people. The case studies that have been discussed here focus on introduction of western science and technology which have restricted the possibilities for survival, let alone human development, for the vast majority of the Indian people. The traditional systems of science and technology offer a set of alternatives that are quickly vanishing. These systems need to be considered if a wider range of technological possibilities allowing human development based on social justice, economic well-being and ecological balance are to be created for the people of India. (12) □

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Ecology Under Socialism

MEETING THE PEOPLE'S NEEDS

by Dick Levins

During the last fifteen years, I have been to Cuba a half a dozen times, working with various institutes of the Cuban Academy of Sciences and the University of Havana around the development of ecology and related fields. I formed long-term friendships with Cubans, mostly within my workplaces; through discussions with them I have been able to check out my casual impressions about developments in Cuban science and Cuban society in general. The notes that follow are based on these experiences. They do not come out of a systematic study of Cuban science, but from participating in it, especially in fields related to ecology, biogeography, and pest control. I hope to present first an overview of the problems confronting Cuban science and then in an anecdotal fashion to describe how Cubans have dealt with them.

The Dilemma of Science and Development

Cuban science is confronting a dilemma common to all aspects of socialist development: how to build the future with the tools and customs of the past. How can Cuba build a modern, socialist, fundamental and practical, international yet intellectually autonomous science in a world still dominated by capitalist science.

On the one hand, there is the urgent need to produce for people's immediate consumption and for development. This means making use of existing knowledge. Yet, for example, the existing knowledge of pest control is the result of research choices made by the chemical industry to create commodities. Ecologically sound methods are still in their infancy, mostly a potential. On the other hand, there is the need to create a new knowledge, with an agenda based on the awareness of

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problems faced by the whole society. To create a new science requires trained people, equipment, and self-confidence free from colonial deference to "advanced science."

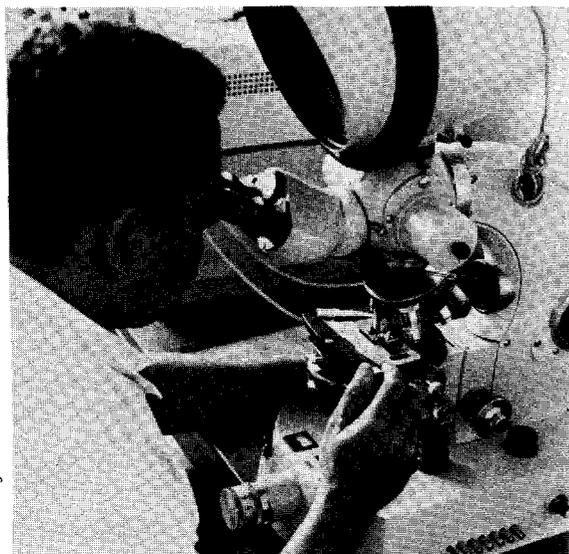
The new society needs people working collectively toward socially useful ends, but the models of science and scientific organization are mostly individualistic and hierarchical. The ideology of world science separates thinking from feeling, science from politics, and has made a cult of specialization. Cuban science needs politically active people whose scientific activity is part of their social practice, and who are able to see their work in its broadest context.

The issue becomes: does "development" or "modernization" mean catching up to world science (still mostly capitalist) or does it mean taking a different path? This dilemma is being confronted in the course of day-to-day practice, whenever decisions about university curricula, research choices, programs for reforestation, conservation legislation, health care priorities need to be made. Is it more important to organize an institute of electrophysiology of the heart or to study the sociology of stress? Should reforestation emphasize fast-growing, easily retrievable lumber species, or instead stress mixed forests that are more costly to harvest but less vulnerable to pest outbreaks? Should the basic zoology course be reduced from a two-year to a one-year survey of the animal kingdom to allow for more electives? What kind of philosophy of science training do scientists need?

Confronting the Dilemma

A Cuban research institute or university is a community of faculty, students, and non-academic staff. The janitors, drivers, cooks and office workers are an active part of the life of the workplace, and share in the trade union and party leadership. At one time, the trade union committee, representing all the workers at the Institute of Botany, was made up of a secretary, a driver, and a researcher.

Felix is a driver in the Academy carpool. He would prefer to be an auto mechanic, but had to transfer when he developed an allergy to car grease. He served as a volunteer in Angola and is now on the Academy's housing committee. Housing is still in short supply, especially in Havana. So "microbrigades" are recruited from various enterprises to learn construction work while still being paid at their old wage rates. Completed apartments are allocated to participating enterprises in proportion to their contribution of labor. Then the



Center for Cuban Studies

housing committee assigns apartments on the basis of need (e.g., a couple living with in-laws would have a high priority). Roberto, a botanist who put in two years with a microbrigade, received an apartment last year. But the fact that he helped build the housing didn't guarantee that he would receive one.

The whole university goes off to voluntary agricultural labor. (Not quite. I overheard two students gossiping about a third: "...and since his first year in the university, he hasn't gone to agriculture once!" A sense of mild outrage, as if he never bathed.) The faculty are not generally the best cane cutters or tree planters. Leadership roles are reshuffled in voluntary labor, so that leadership is part of a division of labor rather than a hierarchy of worth.

An institute director once sent me a note, "I will have to miss your lecture tonight because of militia duty." (This reminds me of 1968; the university militia were drilling on campus. I spotted the rector in the ranks.)

Solving Internal Disagreements

What can you do if you don't like what is happening in the institute? You can bring a problem up in a local of the union or the party, and if necessary, appeal to

the provincial or national organization. Would this include disagreements on scientific policy? Our institute is part of Cerro municipality and Havana province. In practice, the municipal or provincial committees can deal with grievances but are not really capable of dealing with disputes about science policies or priorities. These would probably be handled by the Central Committee of the party.

In contrast to the generally egalitarian atmosphere of the workplace, academic titles are used on formal occasions. One co-worker has addressed me as "doctor" since I first worked with him five years ago. I have explained that I feel the title creates a barrier; he sees it as a simple courtesy and feels more comfortable using it. I have heard some people justify the use of titles and ranks saying, "We want people to study, professional skills are the product of hard work and study, a sign of fulfilling a social duty, not a way to get rich, as under capitalism." It's O.K. to honor that kind of achievement as we honor the best cane cutters or athletes or miners. But do you address them as "Miner" Perez or "Artificial Inseminator" Cruz? It is a statement. Over the years our friendships have become quite easy in most ways, but titles still make me uncomfortable.

Collectivity and Political Activity

Within the laboratory, there is a strong sense of collectivity and mutual concern. Once Rene proposed that we postpone an expedition because Leda's baby was sick: day care is approaching an adequate level for well babies, but not yet for sick ones. What cannot yet be handled by regular institutional arrangements are worked out informally. Cost benefit analysts would see this as gross inefficiency, but the new human relations puts people first.

My comrades in biology are mostly politically active, committed revolutionaries. Onaney commanded the 26th of July movement during the uprising in Matanzas. In the underground, he and his friends were already dreaming of building up botany. He continued in full-time political activity for several months after victory. Then, satisfied with the direction of the revolution, he declined political office to work on the development of science, especially in conservation. (Some 4% of the land area of Cuba will be set aside for conservation. But which 4%? Should there be a few very large national forests or many small ones? Botanists can help choose the areas, but who will manage the parks?)

Gilberto and Maros were in the old Communist Party underground. They then took up assignments in the University and the Academy, disrupting their formal studies to meet urgent needs. Only last year, Gilberto finished his monograph on the bats of Cuba while running the Academy of Sciences publishing activity.

The next younger generation became active at the time of the Bay of Pigs and the counterrevolutionary uprisings. They taught in the literacy campaigns, worked in agriculture, and now are active in the union and serve in municipal assemblies.

However, political activity is not a requirement for scientific employment. Two senior botanical systematists are known to be unsympathetic to the revolution. They carry on research, direct students, and participate in institute affairs but will not become directors of institutes. A younger man is also described as a non-revolutionary, as if to explain his self-centered behavior.

How Research Decisions Are Made

The Sugar Research Institute runs a full-size sugar mill for experiments on the industrial uses of cane. One major goal is to produce newsprint from cane residues. Later, they plan to work on the chemical derivatives of sugar. Part of their goal is to produce closed-system industries; sugar mills pollute the waterways, and Cuba does not have enough water to dilute the pollution out.

Our research problems come from four sources. First the national science council (members of the National Academy) establishes a list of high priority goals. Newsprint production is one. Then research institutes chose from the list those problems they think they can handle. Second, the ministry of sugar may call attention to a particular problem, perhaps impurities in the cane, and we work on it. Third, our own staff come up with a lot of ideas. It is cheaper to do things in the lab than to rearrange a whole mill, so we try out anything that looks possible and screen severely before full-scale testing. Finally, we are committed to giving serious attention to ideas which come through the network of amateur inventors, who are usually production workers. In zoology, if a project requires a relatively small commitment of time and resources, an investigator can simply do it. If a larger commitment is required, the project is submitted as a research proposal to a meeting of the institute.

People often ask me, "Isn't Cuban science aimed at practical questions?" Yes and no — while a lot of effort does go into solving problems of immediate practice, there is also a sense of a need to develop a broad, cohesive scientific community with a solid theoretical foundation. Much of the botanical effort is still in the systematic botany and plant geography of Cuba. Plant physiologists focus on problems of drought, water balance, and the nature of the savannas — are these grasslands a natural formation in Cuba or are they the result of deforestation in historical times? The UNESCO-sponsored "Man and the Biosphere" project has a study area in the Sierra del Rosario where a typical eco-system description is underway: the seasonality of growth,

flowering, fruiting, and leaf fall; rates of mineral cycling and litter decomposition; and the role of leaf-cutting ants, and soil microbiology.

The struggle in botany is not between basic research and practical projects. Rather the struggle is between the classical view that description comes before experimentation and the present view that description, experimentation, and theory need to be integrated into a program aimed at understanding two basic questions: why is this forest the way it is instead of a little bit different, and why is it the way it is instead of very different? Those who emphasize description fear that botany isn't yet ready for experiments or theory because there is a lack of trained personnel, library facilities, and equipment. The unreliability of transportation to study areas makes it difficult to design studies that require observations every fourteen days. So, one task is to struggle against the fetish of apparatus, and instead design programs which do not require the unavailable equipment.

Ecology Meetings

Last February, Cuba held its first national ecology meetings. The president, vice-president, and about one-third of the participants were women. Each session began with a ten minute presentation of a topic followed by discussion. The topics included the training of ecologists, the need for whole-ecosystem analysis, problems of pest control (including debate on the provisional legitimacy of pesticides), the impact of urbanization, medical ecology, and sessions on fresh water, marine and terrestrial systems.

Representatives of the food industry talked about the pollution caused by rice milling and fruit juice production — what can we do with the mango pits? (Can you imagine Exxon sending speakers to an ecology meeting to warn about their off-shore drilling?)

One speaker argued that the major ecological problems of Cuba were erosion, deforestation, open-pit mining, and pollution, in that order. A resolution was adopted calling for the Commission on Natural Resources and Environment to have enforcement powers in addition to its monitoring activity.

The tourist industry was also represented. They were concerned with ecology since tourism (both foreign and internal) will focus more and more on the enjoyment of nature, camping, hiking, etc. in Cuba. A rising standard of living for Cubans, which is a basic socialist goal, cannot be met by increasing possession of appliances, of gadgets, of more expensive things. (Cuba already uses more than half its fresh water potential for personal, agricultural and industrial use; the production of plastics and energy are water-expensive.) The idea of an ecological equilibrium is made compatible with the goal of rising living standards by emphasizing the quality of life. Once people do not have to seek personal

RECENT DEVELOPMENTS IN CUBAN TECHNOLOGY

Excerpts from Fidel Castro's report to the Second Congress of the Communist Party (on the 5 Year Plan), December 17, 1980.

Agriculture

...Two (new sugar mills) are nearly finished, and ground has been broken for two others in 1980. These sugar mills — the first to be built in Cuba in the last half century — were designed by Cuban technicians, and approximately 60 per cent of their equipment was made in Cuba.

...Crop care has improved; 2.5 times as much land was nitrogen-fertilized in 1980 as in 1975. Herbicide treatment increased by over 40 percent. This year, sugarcane fields were given the best hand weeding since the triumph of the revolution.

There are over 75 schools and polytechnic institutes related to the sugar industry with a capacity for 45,000 students. Twenty-six of these schools and the National Training Center for the Sugar Industry were built during the five year period. Moreover, four of our universities offer courses to train specialists for the sugar industry; the National Center for Sugar Training was built.

The sugar industry and sugarcane agriculture were integrated this year and four agro-industrial complexes are being set up.

...The use of fertilizers has risen from 959,000 tons in 1975 to 1.574 million tons in 1980, pesticides from 7400 to more than 1,100 tons and herbicides from 11,500 to more than 16,000 tons.

Three hundred million seedlings were planted (in 5 yrs.), forestry classification was completed on 440,000 hectares of land.

More than 5600 university agricultural specialists and 16,000 intermediate agricultural technicians were graduated in this 5 year period.

Science and Technology

Some 80 million pesos have been invested in scientific and technological work carried out by almost 23,000 workers, including 5300 university graduates.

The most important results have been the selection of new sugar cane varieties, the development of equipment for the sugar cane industry, advanced technologies for the recovery of nickel and cobalt, electronic equipment and computers. The work done to eradicate African swine fever was extremely successful. The Center for Animal Health was inaugurated in this period.

...The research program for the joint Soviet-Cuban spaceflight was of major importance.

...The national system of standardization, weights and measures, and quality control was partially implemented and more than 6,000 norms were established.

...A nuclear research center will soon be built and work must be done to develop solar and other energy sources, protect the en-



vironment and use natural resources more rationally. The plan for scientific and technological development with the Council for Mutual Economic Assistance countries should also be developed...

Economic Management Systems

...The Institute for Computer Technology was established and has begun to establish new networks, develop old ones, and organize collective computer centers to provide certain services in the provinces.

Computer equipment is gradually being introduced in enterprises; automated management systems — and to a lesser extent, computer systems for technological processes and projects — are being designed.

Energy

...work will continue on the Juragua nuclear-powered electric power plant and the water pumping storage plant for the central part of the country.

Perspectives for the Year 2000

...Scientific-technical progress should be closely linked to the main lines of productive development. Since this is the case, standardization of weights and measures, quality controls and improvements in designing more sophisticated technological equipment are going to play an important role. At the same time, improvements must be made in planning and managing scientific and technical efforts, especially in terms of introducing scientific-technical advances in production.

Source: Translation of Report by the Center for Cuban Studies, New York, N.Y.

validation by owning more and more things, they can enrich their lives through activities such as sports, culture, and tourism.

Ecology is becoming increasingly important in Cuban Science. (The meeting decided that ecologists should form a permanent organization.) The social

value of environmental productions and gentle pest control are widely recognized, as is the need to plan in a system-wide way rather than using narrow cost-benefit calculations. Ecology is readily popularized since it is inexpensive and complements work done elsewhere. The objects of study, plants and animals, are familiar

objects that are directly observable. This makes it suitable for the activities of the many school "interest circles" and amateur groups.

The Role of Amateur Science Groups

One of the amateur science groups is the Speleological Society. It began as a group of young boys in pre-revolutionary Havana who were attracted to the outdoors and to nature. They joined the Boy Scouts briefly, but saw it as an imperialist agency and moved over to the Natural History Society. There they participated in field trips, got to know the countryside and fell in love with caves. After the victory, they volunteered for the literacy brigades in the countryside and continued studying caves. They decided not to become professionals in cave research and not to set up a new journal. They work at many different occupations and make their knowledge of caves generally available.

When I visited an evening meeting of the Speleological Society, the discussion centered on "does socialism guarantee environmental protection or only make it possible?" The debate was loud and informal. My view, which was supported by others, was that environmental concerns were mostly a fad, appropriate for capitalist countries where the environment is in fact being plundered. Others emphasized that concern for the environment is not enough, that limited resources and urgent economic needs made some destruction inevitable. But the general consensus was that socialism makes a sound

environmental policy possible and that people like themselves played an educational role in assuring ecological rationality.

In the future, when voluntary labor in agriculture is no longer necessary and the housing crunch is alleviated, the intellectual-physical labor of environmental observation and protection may make ecology one of the forms of voluntary labor that helps break down the barriers between mental and manual labor and between work and recreation, both long term communist goals.

For myself, working with the Cubans has been an exhilarating experience. It has allowed me to get a feel for the process of socialism. It has taught me how to cope with the socialist experience, neither with a utopian checklist of what "true socialism is" (graded on a pass/fail basis) nor with the pragmatic resignation which says that due to "circumstances" or heritages of backwardness, things have to be the way they are. Rather, I have worked with people pretty much like ourselves, people struggling to solve problems that are enormous and who are coping with the opposing demands of present and future, now by bold leaps forward, now by compromises with the past. I have joined in some of these struggles, aware that I do not understand Cuba as well as they do, but that the experience of our own movements is also valid, and that solidarity means joining in struggle. And I return convinced that yes, there is another way of living. □

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(continued from p. 21)

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Supporting Repression

U.S. MILITARY SUPPLIES SALVADOREAN REGIME

by Arnon Hadar

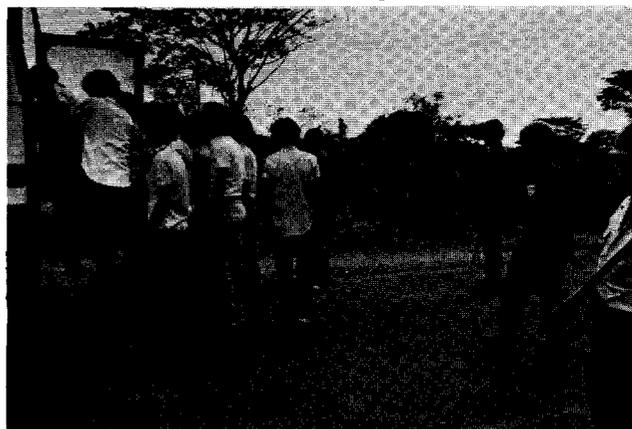
Introduction

U.S. military involvement in El Salvador — as in all of Central America, the Caribbean and South America — promotes, and actually implies, repression. It consists of arming, coordinating, and training undemocratic regimes so that U.S. interests can be maintained. As the Salvadorean revolution progresses, inspiring popular liberation movements and weakening existing dictatorships, U.S. economic interests throughout the region become more precarious and the U.S. military presence increases. The threat of a direct military intervention in El Salvador is very real.

It should be noted at the outset that the U.S. military role in El Salvador has nothing to do with U.S. national sovereignty or security, nor with “preserving democracy.” Rather, it has to do with maintaining, defending and encouraging the economic interests of U.S. multinationals. Hence, the terms “U.S. role” and “U.S. interests” are synonymous with the interests of the U.S. multinationals and U.S. regional strategy, not those of the people of the United States.

The full significance and extent of U.S. military involvement in El Salvador is hard to measure, for much of it is clandestine and surfaces only by accident. For example, the U.S. Customs Service announced on March 18, 1974, that its agents had seized an illegal shipment of \$22.5 million in military helicopter parts en route to El Salvador from Long Beach, California.(1) The value of this single shipment was greater than the combined value of all *official* U.S. military aid to El Salvador for the 33 year period 1946-1979. On April 9, the Miami-based Consul General for El Salvador, a Salvadorean Army major and the director of El Salvador's telephone system were arrested after they were

caught trying to smuggle riot shotguns, rifles, rounds of ammunition, and other military items. Thus, to calculate the real amount of aid one would need access to the books of the CIA and the multinational corporations. As we know from ITT's role in the overthrow of Allende in Chile, Litton Industries' critical role in the 1967 coup in Greece, and Firestone's influence in Liberia, illegal military aid from the multinationals can be formidable; United Fruit (United Brands) actually had its own armed bands and airplanes in Honduras.(2)



Overview Latin America

Military searching school bus for weapons.

A further difficulty in assessing the extent of U.S. involvement comes from the use of second parties as weapons conduits. Israel, France, Venezuela and Brazil are El Salvador's major suppliers of arms, and while these arms are often manufactured in the U.S., the United States does not officially supply them. Rather, the U.S. sets up a “multilateral assistance effort” whereby second parties deliver the goods. With the power to force Western countries to curtail, or even cut, economic relations (consider Iran, 1980), the U.S. also can promote such relations: an announcement of \$5 million in aid to El Salvador from West Germany came in February, 1980, on the heels of a visit to West Germany by William Bowdler, Carter's Assistant Secretary of State for Latin America.

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In military training and coordination, the scope and character of U.S. involvement is more visible. In 1964, the ministers of defense of Guatemala, Honduras, El Salvador and Nicaragua, all of which were under military regimes, established CONDECA (Central American Defense Council), whose purpose was to coordinate and centralize military command of the region through the U.S. Southern Command in Panama. Closely supervised by the CIA, CONDECA's international staff of high level army and security officers claim credit for a great many counterinsurgency efforts, including the defeat of a Christain Democratic coup in El Salvador in 1972, interventions in Nicaragua and Guatemala during 1976 and 1977, and attacks on the FSLN (led by General Dennis McAuliffe, head of the U.S. Southern Command).

One of CONDECA's major functions is to protect U.S. (multinational) interests by maintaining "stability" in the region. But it must be understood that this "stability" does not exclude violence. Violence which promotes "stability" is *supported* by the United States in El Salvador as in other parts of CONDECA's domain.

Under such conditions, the distinction between military and economic aid blurs. Computers, for example, are a form of economic aid, but are used in some Latin America countries to keep track of dissidents and to pinpoint individuals for arrest, interrogation and assassination.(3) Plainly, U.S. military and economic aid not only strengthens the military in El Salvador and elsewhere in Central America, but actively *promotes* repression — all in the name of "stability", and in spite of official advocacy of human rights.

U.S. Direct Military Involvement in El Salvador

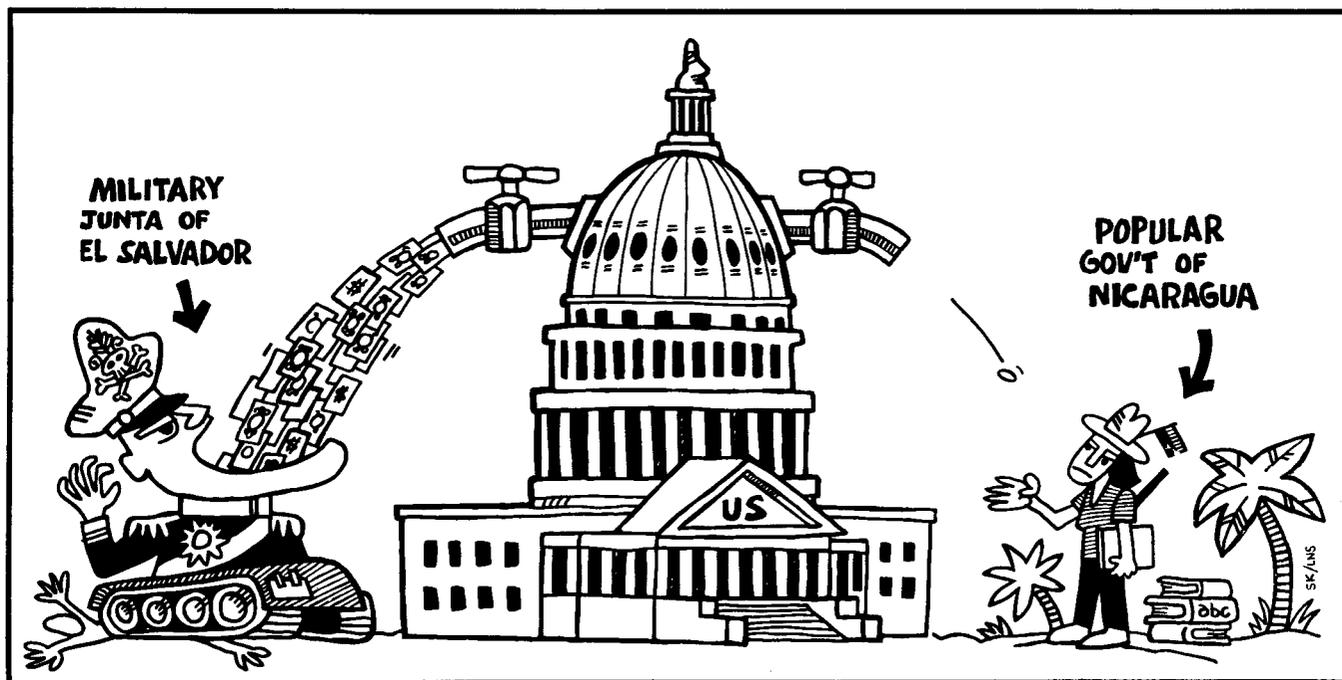
U.S. direct military involvement in El Salvador has at least four major elements:

- 1) Supply of arms to the ruling junta;
- 2) Training of Salvadorean armed forces;
- 3) Stationing of U.S. military personnel in El Salvador;
- 4) Training and supplying other regimes in the region, to enable them better to support the junta in its efforts to crush the mounting popular resistance to its atrocities.

Supply of Arms

U.S. military involvement became increasingly important following World War II, when El Salvador received its first U.S. grants under the Military Assistance Program (MAP), as well as its first military mission. Between the years 1950 and 1969, officially sponsored security assistance from the U.S. to El Salvador averaged about \$400,000 annually. In the period 1970-75 it was approximately \$1,400,000, an increase of 250%. In 1976 U.S. military aid increased again by 57%.

With this background one can better understand the \$5.7 million security assistance appropriation by the U.S. for El Salvador in 1980, the \$92 million in "economic" aid, and the \$5.5 million in military aid for sales and training credits for fiscal year 1981. This aid is complemented by substantial (over \$100 million) loans by the International Monetary Fund and the World Bank. In the next two years, expected U.S. military aid to El Salvador will increase annually by another 150%. To all this must be added the indirect aid which the U.S. provides through its allies. Since 1974, Israel, France, and later, Brazil have played important roles in supplying arms.



Steve Karian

Clearly, the 1970's brought a rapid escalation of U.S. direct and indirect military aid to El Salvador. This aid became a major factor in the regime's ability to maintain control, and has contributed to its increasing brutality.

Overview Latin America



Inside University grounds.

U.S. Military Training

The U.S. trained 1,925 Salvadorean officers during the period 1950-76.(4) In the period 1970-75, training of foreign military personnel at the U.S. Army School of the Americas, Panama Canal Zone, included 298 Salvadoreans, 108 of whom were trained for basic combat and counterinsurgency. The result was that "...our security assistance program facilitates our overall relations with the government of El Salvador and fosters useful professional contacts with key members of the Salvadorean armed forces."(5) This statement is a good example of the intentions and implications of U.S. assistance. The U.S. consciously tries to strengthen its relations with the higher echelons of the army — to the extent that these contacts are "useful" in practice (i.e., they promote U.S. interests in the region).

In 1957, the U.S. instituted a Public Safety Program under the auspices of the Agency for International Development (AID), which undertook "...to develop the managerial and operational skills and effectiveness of Salvadorean civil police forces."(6) These "effective" police have been responsible for the murder and disappearance of thousands of Salvadoreans since the early 70's. Between 1957 and 1974, when the program terminated, the Office of Public Safety spent \$2.1 million to train 448 Salvadorean police and provide arms, communications equipment, transport vehicles, and riot control gear. Thus, a closer relationship has developed between the U.S. defense and political authorities and the Salvadorean police.

It must be emphasized that the U.S. role in training the police was the major factor in making the police an effective and "efficient" instrument of the oligarchy and a guardian of U.S. interests. We see this in the AID analysis which says "...the National Police...has advanced from a non-descript, cuartel-bound group of poorly trained men to a well-disciplined, well-trained, and respected uniformed corps. It has good riot control capability, good investigative capability, good records, and fair communications and mobility."(7) Many of those trained in the program occupied "key" positions in the Salvadorean security establishment.(8)

An additional revealing aspect of this program is that while it was initially concerned with training the National Police, from 1963 to 1974 the program's emphasis shifted to the National Guard. The National Guard became much more directly involved in the repression of working people, especially the peasants.

U.S. Military Personnel In El Salvador

In 1948, we sent our first military mission to El Salvador, a group from the United States Air Force. (We already had an Army officer in charge of training at the Salvadorean military academy.) By 1961...we had both a large Army mission and Air Force mission. In fact, there were more men in the Air Force mission than El Salvador had either pilots or planes.

Murat W. Williams, U.S. Ambassador to El Salvador 1961-64

Available information is too scanty to allow for an exhaustive account of U.S. personnel in El Salvador. With the increasing arms sales in the 1970's, it can be assumed that the number of U.S. advisers of all sorts also increased. Even during 1977-78, when U.S. military aid was suspended, the U.S. maintained a military assistance group in El Salvador.(9) Until recently, military personnel played a minor role in achieving U.S. objectives, but as we will see, this role has become more and more important since General Carlos Romero was ousted in October, 1979.

In February, 1977, when General Carlos Romero took power after an election that was internationally recognized as fraudulent, protests and demonstrations escalated, culminating on February 28 when police and the National Guard began firing on demonstrators. During the following days, hundreds of people were killed. These events brought U.S. human rights policy into conflict with the Salvadorean regime and led to a temporary halt in U.S. aid to El Salvador. What was not officially reported, but claimed by eye witnesses, was the involvement of U.S. personnel in directing the Salvadorean police and soldiers in their armed confrontations with the people. This is another instance of a contradiction between U.S. official policy and U.S. deeds.

The Recent Situation

The most important aspects of the U.S. military role in (and effects on) the present situation are:

- the Salvadorean regimes' increasing violence and brutality;
- increased U.S. military support to sustain the present regime and state apparatus;
- increased U.S. organization and coordination of other regimes in the region, in preparation for their direct support of the shaky Salvadorean regime, including the possibility of military intervention.

All these measures are necessary to prevent the overthrow of the present regime and the economic, military and legal system on which it is based. A victory by the popular-democratic forces means not only that the oligarchy, the army and the police lose privileges, but that U.S. multinationals lose those extremely favorable conditions for extracting wealth from El Salvador, and controlling this strategic region. In this context, no other option is left to the U.S. and the ruling oligarchy, but to take the measures outlined above.

Violence by the Junta Against the People

The increasing number of murders by the police, army, and paramilitary forces are so well known that we shall dwell only briefly on this escalation of repression.

Of the more than 9,000 persons who have been killed in the first eleven months of 1980, the majority were murdered by the various security forces, despite U.S. State Department and press claims that only "right-wing terrorists" have been involved.(10) The assassination of Archbishop Romero in March, 1980, highlights the regime's brutality. The state of siege imposed on March 6, 1980, for 30 days has been extended indefinitely. These facts alone are sufficient proof of state violence.



Direct U.S. Military Participation

In November 1979, the U.S. government authorized the sale of \$206,000 worth of tear gas, gas masks, and protective vests to El Salvador's security forces. A six-man U.S. military team arrived in El Salvador on

November 12, to train security forces in riot control. On December 15, 1979, a military operation was carried out against LP-28 (a popular organization) members who occupied the hacienda El Porvenir in El Congo. Nearly 100 people were killed. U.S. soldiers participated, according to eye witnesses.(11)

In March 1980, U.S. mobile military training teams composed of 36 advisers arrived in El Salvador to train Salvadorean soldiers in counterinsurgency in three centers which also serve as helicopter bases. Since August, eight Navy ships (including an aircraft carrier) with over 2,000 marines have been patrolling the Pacific Coast of El Salvador. During that month, five North Americans were reportedly killed in combat in El Salvador. Since then, North Americans have increasingly participated in military actions. For example, on November 19, Security Forces attacked the office of the Archdiocese in San Salvador, reportedly with the participation of U.S. military advisers.(12)

The Regional Framework

The geographical framework of U.S. military involvement in El Salvador must encompass at least Central America and the Caribbean. This is the context within which U.S. military involvement has actually been taking place; and only within this context is it possible to appreciate and understand the dimension, the seriousness, and the danger of U.S. military involvement in El Salvador.

U.S. policy has always explicitly taken into account the interdependence of the whole Central American region. A State Department policy maker said, "We are prepared to swing with change and ready to get in there and fight it out. We are not going to be left behind and out of it. Our national interest is involved and we owe it to Central America."(13) On October 1, 1979, President Carter vowed to expand U.S. military maneuvers in the region; by the following March the *U.S.S. Manley* and the *Nassau*, an 800-foot amphibious assault ship, with combat helicopters aboard, were in the waters of Central America.(14) It has been widely reported in Latin America that U.S. military advisers are training a right-wing army numbering about 3,000 in Guatemala and about 4,000 in Honduras (composed of Somoza's ex-National Guards and other right-wing patriots) for an invasion of El Salvador.(15)

Through its military aid and guidance, the U.S. has actively sought to amplify national conflicts into regional ones. This internationalization has been carried out on three levels:

—First, through coordination of the military forces in the region, especially among the key members of these forces. Since the beginning of the 1960's, joint forces, e.g., CONDECA, have continuously intervened in var-

ious countries in support of the oligarchical-military regimes and against the popular-democratic movements.

—Second, the U.S. has actively encouraged western countries (e.g., West Germany, Israel, Spain) to supply arms to El Salvador and to countries throughout the region.

—On the third level, the U.S. has consistently and vocally raised the false Cuban “threat” to its security and the stability of the region. U.S. economic and strategic interests in Latin America required an increasing cooperation among the antidemocratic and repressive regimes in this region. The “Cuban threat” was, in part, raised in order to facilitate this cooperation, especially military cooperation.

After the success of the popular-democratic revolutions in Grenada and Nicaragua, the U.S. has been taking even more extreme measures than it did in these countries in order to prevent a popular-democratic revolution in El Salvador. These measures have made it increasingly clear to the poor, churches, and the middle classes in these countries that their socio-economic liberation is directly and visibly standing in contradiction to U.S. imperialist interests, and the mutually dependent oligarchical-military interests.(16) It must be stressed that this understanding is emerging in the exploited sectors of *all* countries in this region.

During the past year, the involvement of the armies of Venezuela and Columbia in preparation for invasion into El Salvador, and the military training of Salvadorean officers by Argentina, and the U.S. Army School of the Americas in Panama have increased tremendously.(17) These activities plus the frequent help provided by the armies of Guatemala and Honduras to the regime in El Salvador, are all part of a coordinated plan, under the military guidance of the U.S., to intervene in El Salvador in order to try to stop the liberation struggle in its last stage.(18)

Conclusion

As we have seen, the U.S. role in El Salvador and the Central American region has several dimensions. In addition to training military and police forces, the U.S. has been the main arms supplier to the region, with a regional policy aimed at unifying the forces of repression and defending multinationals against popular liberation movements. Arms sales, military exercises, and the number of U.S. military personnel in El Salvador and the region have escalated tremendously in recent years, especially since 1979.

Confrontations between the popular liberation forces and the oligarchical-military forces broaden and deepen, largely as a result of U.S. policies in El Salvador and the region. The extreme repression of the people and of the church, and the inability of the people to ef-

fect change through years of peaceful attempts, is a by-product of the U.S. role in El Salvador, and this fact is recognized by the Salvadorean people.

The success of the Salvadorean revolution — the overthrow of the present regime, the abolition and replacement of the existing state apparatus by a popular-democratic one, the elimination of repression and the end of U.S. domination over the lives of the people of El Salvador — will show the popular liberation movements in the other countries that such transformations are possible. It is precisely this situation, and its dynamics, which make the unfolding revolution in El Salvador of special importance.

The U.S. has already intervened in El Salvador, in an effort to halt the transformation of economic and social relations. *U.S. military personnel are already present; U.S.-made tanks, helicopters, arms, and bombs are killing Salvadoreans daily.* This intervention must be stopped, and the complete withdrawal of U.S. economic and military aid and of the U.S. military presence must be demanded. It is the responsibility of all freedom-loving people in the United States to oppose U.S. backing of the repressive oligarchical-military regime in El Salvador, and to support the popular liberation forces of that country in their just struggle for freedom. □

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U.S. STEPS UP AID TO SALVADOREAN JUNTA: ONE GIANT STEP TOWARD MILITARY INTERVENTION

Worried by an increase in guerrilla fighting in El Salvador, former President Carter, as one of his final acts in office, restored military aid to the ruling junta in that country. The decision to send El Salvador \$5 million in "lethal" military aid came one week after the U.S. resumed a program of \$5 million in "nonlethal" military assistance. Nonlethal aid had been cut off after the murders of three American nuns and a lay missionary.

Nonlethal military aid includes items such as trucks, uniforms, and helicopters. This aid was restored when the Carter Administration announced that the El Salvadorean junta was conducting a thorough investigation into the killings of the four Americans. Only after the equipment was "in the pipeline" to El Salvador did the U.S. Ambas-

government supported Haig's decision to cut aid to Nicaragua and to resume lethal aid to El Salvador by alleging that there was an increasing flow of weapons from Nicaragua to the El Salvadorean guerrillas. "That's just a cover for justifying U.S. intervention," McArthur concluded. This charge was corroborated by leaders of the El Salvadorean opposition. Guillermo Ungo, President of the Democratic Revolutionary Front of El Salvador, recently stated:

We have accepted only political solidarity from Cuba and Nicaragua, because we realize it is best to stop there. Any other form of aid will internationalize the conflict and we don't want that. The United States has internationalized the conflict by supporting the Salvadorean junta and military

aid," his actions were met with some opposition from House members. On January 19, 1981, three House members returned from a ten day trip to Central America. Representatives Gerry E. Studds, Barbara Milkulski, and Robert W. Edgar held a press conference to call for an end to the aid for the El Salvadorean junta. Bill Woodward, an aide who accompanied Rep. Studds on the trip, said that interviews were held with El Salvadorean refugees in Honduras. According to Woodward,

They told us a longseries of stories we found incredible. The army is engaged in a systematic attack to make it impossible to live in some of those villages. Those are the same forces which receive military aid (from the U.S.).

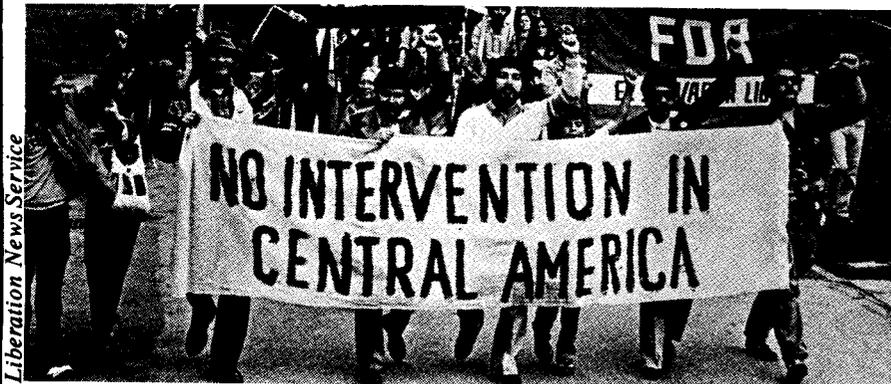
The Congress members were angered by the U.S. government's claim that an investigation of the four American deaths was being carried out. "Originally, the rationale for reinstating the aid was that an investigation was supposedly going ahead," Woodward said, "Ambassador White's reply was those stories were horseshit."

The Congressional mission also ran into problems with the State Department. "We tried to work out a method to go into El Salvador," said Woodward. "We were warned away by the State Department. The State Department passed on a message — don't hold a press conference, American public opinion is on our side to go ahead with aid." Woodward was not convinced.

If the public had accurate information, it would be opposed to aid. We want to mobilize American public opinion. We sent telegrams to Carter and Reagan calling on them to halt aid. Beyond that, we'll do everything we can do to see that hearings are held.

Meanwhile, support groups such as CISPES are holding rallies throughout the country, calling for an end to U.S. intervention in El Salvador. The end of such aid is extremely important, for as McArthur said, "Without U.S. backing, the junta wouldn't have remained in power."

—Liberation News Service, Inc.,
Copyright Jan. 23, 1981



sador, Robert White, concede that "no serious investigation" had taken place.

The lethal aid approved a week later includes grenade launchers, M-16s, ammunition, and additional helicopters. Although there have been U.S. military advisers in El Salvador, this is the first time since 1977 that direct military aid has been shipped.

According to Harvey McArthur of the Committee in Solidarity with the People of El Salvador (C.I.S.P.E.S.), the new aid is not likely to stop the guerrilla offensive. McArthur commented, "A bigger danger is it's another step towards increasing direct U.S. intervention" and "It may lead to further U.S. involvement."

With Reagan in power, it is not clear what additional measures may be taken. Matters do not look promising; one of the first acts by Secretary of State Haig was to cut aid to Nicaragua. The U.S.

and financial aid. If Cuba and Nicaragua were to give us one-tenth the aid that the U.S. has given Salvadorean juntas over the years, we would have achieved victory by now. We have people but not enough guns. The best help that Nicaragua can give us is for the Sandinistas to consolidate themselves in the country so that we will have a friendly neighbor.

Nevertheless, the U.S. government has used the charge of increasing Nicaraguan aid as an excuse to suspend its \$75 million loan to Nicaragua. An amendment to the aid agreement with Nicaragua states that aid must be suspended if Nicaragua is supporting "international terrorism." Nicaragua has denied that it is aiding the guerrillas.

Although Carter was able to circumvent Congress by calling the \$5 million for El Salvador's junta "emergency

book review

by Connie Phillips and Sue Tafler

AID AS OBSTACLE

by Joseph Collins, David Kinley and Frances Moore Lappe
Institute for Food and Development Policy
2588 Mission St. San Francisco, CA \$4.95 (paperback)

Aid as Obstacle: Twenty Questions about our Foreign Aid and the Hungry(1) is the latest book published by the Institute for Food and Development Policy(2) (IFDP). IFDP does much-needed research into issues of world food systems. They reach out to educate people who are concerned about hunger but who generally do not see hunger in its political framework. IFDP's earlier book was *Food First: Beyond the Myth of Scarcity*(3), first published in 1977 (see our review in *Science for the People*, Vol. IX #6, Nov. 1977). *Food First* attacked the myths that hunger and poverty are caused by overpopulation, scarcity of agricultural resources and lack of modern technology. *Aid as Obstacle* goes one step further and indicts foreign aid for its role in maintaining the power relationships which perpetuate poverty.

The image of the U.S. as the generous savior of the world's poor is presented by the U.S. government as a major aspect of its foreign policy. Many well-meaning people who are genuinely concerned with world hunger accept this image with pride. The U.S. as benefactor of the world's poor is a myth that the book dispels.

Sue Tafler and Connie Phillips are long-time members of SftP and helped start the Food and Nutrition Group in the early '70's. They recently co-authored and published Feed, Need, Greed, a high school curriculum on population resources and hunger (available from the SftP office for \$5.00).

Aid as Obstacle is a welcome book which extensively documents the bitter reality of actions taken in the name of the world's poor. Foreign aid is hurting the very people it claims to help. The book explains why foreign aid fails and actually *increases* poverty. The authors call for a stop to all foreign aid to all countries where a narrowly based elite controls the economic system.

The authors use a question-and-answer format in *Aid as Obstacle* as they do in many IFDP publications. While this style was successful in *Food First*, it seemed somewhat contrived and strained in *Aid as Obstacle*. Some of the questions seemed obvious: for example, Question 14 asks: "What happens when food aid goes to a country where the majority of the people are hungry?" (4) After one hundred pages of reading that aid contributes to rather than alleviates poverty, it seems naive that a reader would be asking that question at that point. Each chapter (or answer to a question) does end with a good summary of its particular point in case the figures and details are overwhelming.

The most informative section of the book was eighteen pages entitled "A Primer: Some Essential Facts About the Aid Establishment", appearing at the end as an appendix. We found these essential facts concise, easy-to-read and quite fascinating. The Primer would be the most valuable section for anyone who wants to pick up the book for only a

short period of time. The book ends with a resource list of periodicals and support groups which would be useful for potential activists.

We found *Aid as Obstacle* to be an excellent resource and reference book, but have a few objections. Its numerous detailed examples are overwhelming at times. With so many bits and pieces of information it was hard to keep the larger picture in mind while reading. We felt that some examples were repeated excessively to strengthen points. In addition, there is no index, a major drawback to using the book as reference. Since *Aid as Obstacle* fragments its coverage of any one country, maybe in a revision or reprinting the authors will include an index by country, by agency and by types of projects.

Government And Agency Aid: How It Fails

Aid as Obstacle discusses how many of the top ten countries receiving bilateral(5) economic assistance from the US are particularly well-known for their neglect of the needs of the poor. (See chart) These countries include: Indonesia, Bangladesh, the Philippines and Pakistan. These same countries are also known for their repression of those working for social change. The top ten recipients of World Bank aid include: Indonesia, Brazil, South Korea, the Philippines, Colombia and Mexico. The major *effect* of aid to these countries is to increase the prosperity of the elites and to prop up regimes that might otherwise fall.

The recent resumption of both economic and military aid to El Salvador is a perfect example of the kind of government that the US supports.

The authors emphasize the effects of aid to Bangladesh. We appreciated being given the facts behind the myths carried over from the extensive media coverage given to the famines there. The book confirms that the country has exceptional agricultural potential while half the population is underfed.(6) As much money goes to "security" (police, defense, etc.) as to helping the poor. The results of the electrification and tubewell projects have been to benefit the larger commercial growers. Improving the rural roads helps the government move troops more easily to maintain control.(7) While the U.S. recognized Bangladesh as a human rights violator (in 1977), PL480 (Food for Peace) money made Bangladesh the fourth largest recipient of U.S. food aid.(8) (See chart)

As the book makes clear, not all aid to developing countries comes from bilateral (U.S. government) agencies per se. The multilateral(9) agencies include the World Bank, the International Monetary Fund (IMF) and various organizations within the U.N. These agencies are no more neutral than agencies controlled directly by the U.S. government. The multilateral agencies are free to be less responsive to any limitations imposed by the U.S. public or Congress. The World Bank and the IMF frequently step in to replace U.S. bilateral aid in those countries which have gotten too politically touchy for the U.S. to admit supporting. Multilateral agencies are well known for rewarding countries which create a climate favorable to the interests of multinational corporations.

U.S. AID loans the Latin American Agribusiness Development Corporation (LAAD) millions of dollars a year at only 3-4% interest rate. LAAD helps set up small agribusiness companies in Latin

American countries. Helping the economy of a country in general does not help the people at the bottom, as the "trickle-down" theory purports. LAAD projects include processing and marketing beef, growing and exporting fresh and frozen vegetables, wood products, seafood, cut flowers, tropical plants and other specialty items.(10) The book demolishes for good the notion that increasing the productivity in a region helps the poor and hungry who may live in that region.

Even the aid agencies now admit that "trickle-down" hasn't worked. Recently, U.S. AID guidelines (which actually apply to only a small portion of aid) claim to be working in "new directions" to serve "basic needs". Their modern rhetoric would almost sound as if

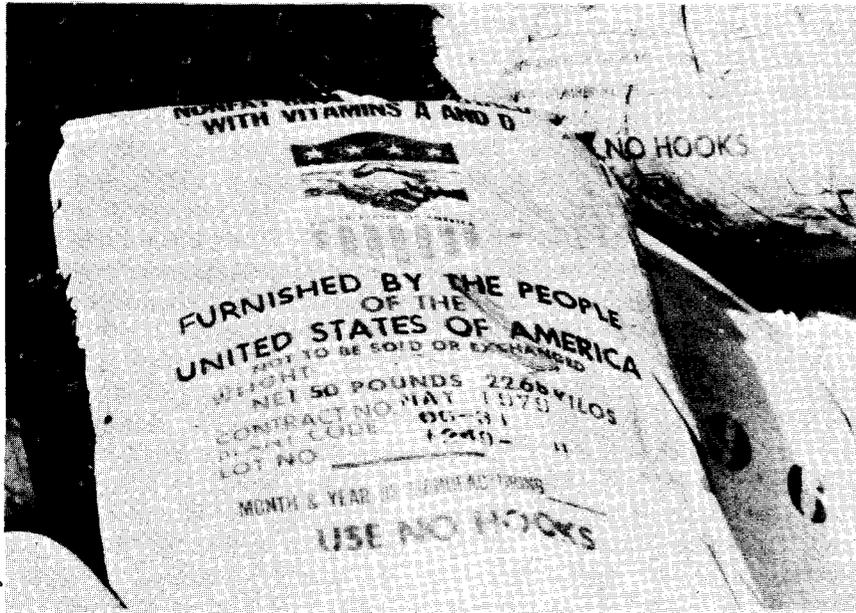
aid agencies have reformed, but *Aid As Obstacle* documents how empty are their claims of new attention to the small farmers, land reform, etc. Since the IMF has been "helping" Peru with assistance, bread prices have increased 1000% and infant mortality has increased 30%.(11) When the World Bank funded 3,000 tubewells to increase rice production in Bangladesh, it claimed that each well would serve 25-50 farmers. While the World Bank *still* maintains that this project is a success, *Aid As Obstacle* documents its failure due to the exclusive control of each tubewell by one rich man who charges for the water his neighbors use in irrigation. "Such a project actually *undercuts* those it is supposed to help by enriching their economic enemies."(12)

The Top 10 recipients of U.S. Economic and Military Aid as Well as World Bank Economic Aid.

U.S. Bilateral Economic Assistance (FY 1980)	U.S. Military Assistance (Fiscal Year 1981)	World Bank economic Assistance (FY 1979)
1-Egypt	Israel	India*
2-Israel	Egypt	Indonesia*
3-India*	Turkey	Brazil
4-Indonesia*	Greece	Mexico
5-Bangladesh*	South Korea	Korea, Republic of
6-Turkey	Spain	Philippines
7-Portugal	Philippines	Morocco
8-Pakistan*	Portugal	Egypt
9-Philippines	Jordan	Turkey
10-Syria	Thailand	Colombia
% Of		
Total Received by	51%	90%
10 Top recipients		56.3%

* = "low-income" by World Bank definition.

Adapted from Tables 1,2 and 3, *Aid as Obstacle*



Strings Attached

Most Americans forget that aid is never a gift. *Aid as Obstacle* illustrates the frequency of aid which requires the expenditure of *counterpart funds* by the recipient countries to match the incoming money. The book also taught us about *tied aid*, whereby the aid money *must* be used to buy commodities from corporations in the donor country. Most aid is in the form of loans, most of which are interest-bearing. Once the recipient governments use the aid money to buy U.S. food, the food is then sold and mostly distributed in urban rather than rural markets. Development loans must be paid back in foreign currency even if the project fails. This requires cash crops for foreign exchange and also puts an increased tax burden on the farmer.

Aid As Obstacle goes into the many forms of non-aid agencies which exist in the U.S. and worldwide. These agencies offer support through economic channels as well as military assistance and sales. An example is the Ex-Im bank (Export-Import), a U.S. federal agency which loans money to governments

and businesses which purchase U.S. manufactured goods. Ex-Im's largest funding supports nuclear power, aircraft and mining, hardly basic necessities for the poor. Some of the largest beneficiaries of Ex-Im bank operations to date are Boeing, Westinghouse, G.E., General Motors and Chrysler. Ex-Im's loans, guarantees and insurance to the South Africa apartheid regime exceeded \$32 million in FY 1978 despite enormous attempts by human rights groups to amend Ex-Im's authorizing legislation.(13)

Positive Trends

Aid as Obstacle discusses two countries where increased productivity is being organized by the people who both do the work and receive the benefits. Since the overthrow of Somoza, Nicaraguan peasants have decided how the land will be controlled and how marketing will be reorganized. Another example is Mozambique where there has been a gradual reorganization by cooperative villages directed by a village-to-national decision-making process. These are countries aiming for self-sufficiency and control

which we should study to learn of their setbacks and successes.(14)

The book ends with a brief review of non-governmental voluntary organizations. We knew about CARE ties with U.S. AID but the active presence of the Catholic Relief Services in Pinochet's Chile was new to us. Oxfam-America, World Neighbors, the Mennonite Central Committee, and the Economic Development Bureau are groups which refuse government funds. They were groups chosen by the authors as examples of organizations doing progressive work.

Also offered is a check-list of ten questions to help the reader decide whether or not to support an international charity. They share some of the questions they themselves ask: (A) - Does the project first address the underlying social economic and political constraints that stand in the way of solving the physical or technical problems? (B) - Whose project is it? Is it the donor agency's or does it originate with the people involved? (C) - Does the project strengthen the economic and political position of a certain group, or does it generate a shift in power to the powerless? and (D) - Does the project generate a process of democratic decision making and a thrust toward self-reliance that can carry over to future projects?(15)

A key emphasis of *Aid as Obstacle* is to expose power relationships and the authors encourage their readers to educate themselves. They make a strong call for taking action, for assuming responsibility for the economic system and for working for change. They propose that the U.S. halt all foreign aid and support for repressive, elite regimes, but leave unsaid how U.S. citizens are to accomplish this. In encouraging activism, they recommend their own book "*What Can We Do?*"(16), which contains fifteen case studies in interview format.

Throughout the book, Lappe, Collins and Kinley never once refer

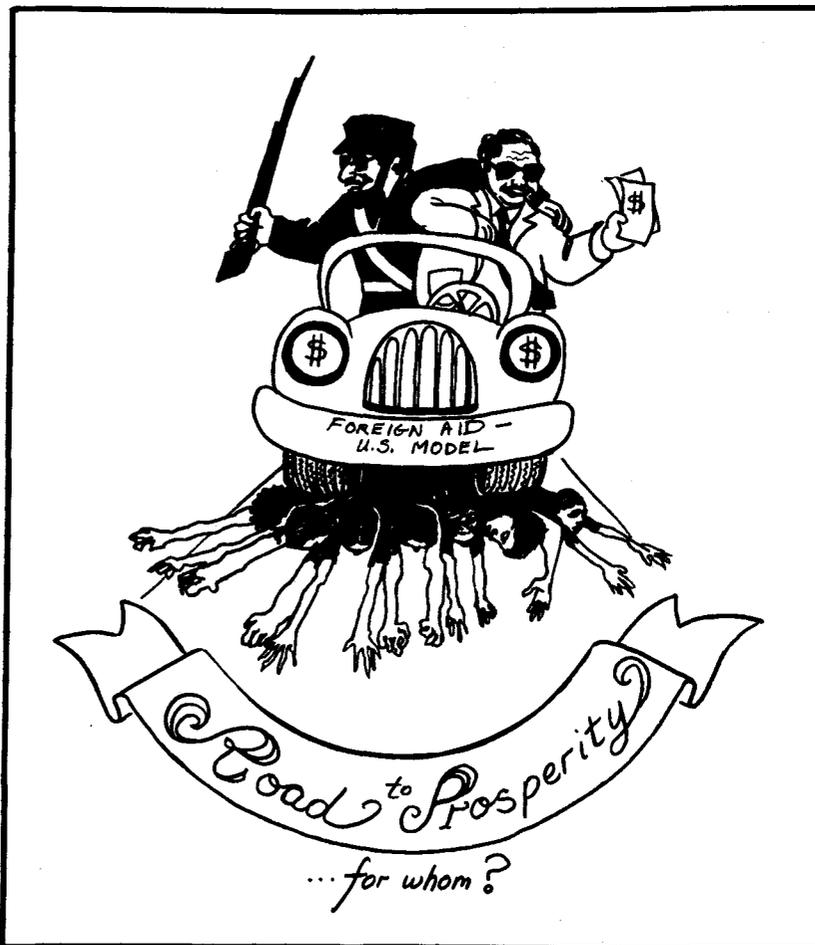
to the current system as capitalism or imperialism, yet they call for an end to the "anti-democratic economic system".(17) The authors bend over backwards to avoid terminology while their whole approach is anti-capitalist and anti-imperialist.

There are pros and cons in using political terminology. We feel that it is a weakness of *Aid as Obstacle* that it fails to educate its readers that aid is an integral part of a capitalist and imperialist system. *Aid as Obstacle* seems to advocate socialism without ever once using the word. They talk about the need for collective decision-making by indigenous groups, involving people in the historical struggle for power, and focusing on the roots of social problems. Their avoidance of the word socialism is consistent with their position described in *What Can We Do?* that there are no blueprints they can offer. In describing any successes in development or feeding people, they emphasize that these are not models but rather lessons to be learned or visions to inspire.

The authors say that the book focuses on the iceberg and not the tip.(18) We agree that the book successfully exposes the U.S. aid program as the perpetuator of poverty and not the beneficent benefactor it is believed by many to be. However, we would have liked a stronger political message. □

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2. Institute for Food and Development Policy (IFDP), 2588 Mission St., San Francisco, CA 94110. Write them for more information and for their list of publications.
3. Lappe, Frances Moore, Joseph Collins with Cary Fowler, *Food First: Beyond the Myth of Scarcity*, Houghton-Mifflin, Boston, 1977; revised and updated, Ballantine paperback, 1978.



4. *Aid as Obstacle*, p. 107.
5. *Bilateral aid* refers to transfers of goods or services from one government to another, as either grants or loans. US AID, Food Aid (PL 480 or Food for Peace) and the Peace Corps are examples.
6. *Aid as Obstacle*, p. 21.
7. *Ibid*, p. 39.
8. *Ibid*, p. 105-107.
9. *Multilateral aid* is a transfer of goods or services from one government to another through an intermediary organization (controlled at least nominally by more than one government).
10. *Aid as Obstacle*, p. 67.
11. *Ibid*, p. 127.
12. *Ibid*, p. 59.
13. *Ibid*, p. 128.
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17. *What Can We Do?*, p. 43.
18. *Aid as Obstacle*, p. 121.

Diet For A Small Planet Update

Frances Moore Lappe is preparing a tenth anniversary edition of her best-selling book, *Diet For a Small Planet*. She is seeking new recipes as well as personal statements about how *Diet's* explanation of the political implications of food changed people's eating habits, lifestyles and political commitments.

Diet for a Small Planet originated and popularized the principle of protein complementarity, the idea that by combining several plant foods, such as rice and beans, one could eat protein of the same "quality" as meat, but at much lower ecological and financial cost. Since its publication in 1971, more than two million copies of *Diet For a Small Planet* have been sold, including editions in Spanish, French, German and Swedish.

New recipes and personal statements should be sent by April 15 to Lappe at the Institute for Food and Development Policy, 2588 Mission St., San Francisco, CA 94110. All material used will be credited in the tenth anniversary edition of *Diet For a Small Planet*, to be published in the fall of 1981 by Ballantine Books.

news notes

NUCLEAR PLANS LAID WASTE BY PACIFIC ISLANDERS

Plans of the Japanese Government to dump thousands of barrels of radioactive waste in the Western Pacific Ocean have sparked unanimous opposition from Pacific Island nations.

To appease growing Pacific protests, including talks of economic boycotts of Japanese products, Japanese government officials travelled through the Pacific Islands recently to explain the "safety" of their dumping plans.

At the Pacific Basin Governor's Conference on Guam in August, the Japanese claimed their dumping will not pose environmental hazards. "If you don't believe me," said a Japanese scientist, "I would welcome you to Japan where I will bare myself naked and embrace a drum (of waste)."

Mariana Islands Governor Carlos Camacho was not impressed. "The record of miscalculations in this field for the last 30 years is monumental," Comacho stated, "and I say that before I am willing to commit the lives and well being of our citizens and our descendants for the next thousands of years, these scientists must refine their methods."

The mayor of Tinian, an island in the Marianas where thousands of Japanese soldiers died during World War II battles, has demanded that the Japanese stop the dumping plans. If they don't he warned, all Japanese tourists will be barred from his island, and its many historic sites, which bring thousands of Japanese tourists to Tinian annually.

Combined with these officials protests, a growing grass roots movement has sprung up behind stopping the nuclear waste dumping. Tens of thousands of signatures on petitions and large demonstrations in these sparsely populated Pacific Islands indicate the level of awareness. A "sail in" to prevent ships carrying nuclear waste from leaving Japanese ports — similar to Japanese fishermen's tactic of blocking the nuclear ship Mutsu — is being discussed.

Reacting to mounting pressure, unofficial Japanese government reports suggest postponing the proposed dumping until 1982 or 1983. Nevertheless, with 20 operating nuclear power plants presenting a serious waste disposal problem, Japan has no intention of shelving its plans.

Initial plans call for "experimental sea dumping...to demonstrate operational safety...and confirm the environmental safety of sea dumping of low level radioactive waste." Ten thousand barrels will be dumped during each year of a two-three year experimental program, followed by larger scale dumping in mid-1980's.

The Japanese state that "no significant effects on marine products and human health have been reported as a result" of previous U.S. dumping in the Pacific. This ignores the growing concern over the Farallon Islands dump off California and radiation that has been found in commercial species of fish in the area.

In a recent show of solidarity, more than 40 Japanese environmental, anti-nuclear and religious organizations joined forces with the Marianas Alliance, an organization leading the Guam anti-dumping campaign.

The anti-waste campaign, continued French nuclear testing in Tahiti and deployment of the Trident submarine are among the international issues that the Pacific Concerns Resource Center — with offices in Hawaii, Palau, New Zealand and Vanuatu — is now coordinating.

Notable exceptions to this broad range opposition are the Australian and American governments. Australia is selling uranium to Japan to fuel its reactors, and is quietly accepting the dumping plans. The U.S. government not only supports the Japanese dumping, however, but for five years has been conducting secret research into sub-seabed radioactive waste dumping in the same location between Japan and the Marianas.

Ultimately the success of the anti-nuclear waste dumping campaign will hinge on the international support and solidarity it generates, particularly in Japan and the United States.

For further information: Marianas Alliance, Box 24714, Guam Main Facility, Guam, 96921, or Pacific Concerns Resource Center, 1212 University Ave., Honolulu, Hawaii 96826.

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HEALTH CARE IN ZIMBABWE

Since independence on April 18, 1980, there has been a fundamental change of priorities within the entire health policy of Zimbabwe. The new Government, led by ZANU (Zimbabwe African National Union) is totally committed to bettering the life and health of the masses of the people in the shortest time. Zimbabwe inherited from colonialism a health care system which was highly technological and specialized, serving the needs of the white minority. The Rhodesian government spent twice as much on white hospital patients as on African patients. African infant mortality was higher than 120 in 1000 while white infant mortality was 17 in 1000.

The Ministry of Health has implemented a new plan to offer free health care to people earning less than \$150 a month (only 2.3% of the rural population earns more than \$150 a month). The number of people using the available medical services since the plan's introduction has doubled and in some cases actually tripled. The goal of the new government is health care for all the people by 1990. To do this the government is developing a health care system which emphasizes, according to President Canaan Banana, "(1) primary health care and health education, (2) the decentralization of health services, and (3) the democratization of health care decisions." The previous system had a grossly unequal distribution of the health resources with most care centered in the urban areas, which had a highly concentrated white population, while the rural areas where most of the Zimbabwean people live, had little if any health care.

The new primary health care system diverts more resources to the rural areas. Primary health care involves, again in the words of President Banana, "greater

responsibility for health by communities and individuals and their active participation in achieving it." Primary health care is geared toward preventative care and the improvement of the quality of life and maximum benefits to the greatest numbers. Expanded immunization programs and improved sanitation are emphasized in the new health plan. Community-based village health workers are the basis of the primary care system. Traditional medicine and healers are also part of the new health care system.

The Material Aid Campaign for ZANU is raising funds for a rural health clinic in Zimbabwe as part of their commitment to build political and material solidarity with National Reconstruction. Reconstruction of Zimbabwe as a free and independent socialist African nation is critical to the heightening struggle to defeat imperialism and white supremacy in Namibia and Azania/South Africa, and to the liberation of African people worldwide. For all anti-imperialists and progressive people in this country, building a movement here in solidarity with the total liberation of all of Southern Africa is key to building a movement that will contribute to the total defeat of US imperialism and world white supremacy. Join in this struggle by contributing to the Reconstruction of Zimbabwe. Participate in this National Campaign to build a rural health clinic in Zimbabwe! For more information contact:
Material Aid Campaign for ZANU
Box 1276
Peter Stuyesant Station
New York, New York 10009

MULTINATIONALS PUSH BANNED PESTICIDES TO THIRD WORLD COUNTRIES

Of the 800 million pounds of pesticides that pour into Third World countries each year, the United States contributes 600 million pounds, 150 to 200 million pounds of which are either banned or not registered for use in the U.S. However, even "safe" pesticides become dangerous when used by uneducated workers under poor working conditions, with few protective regulations.

Export of dangerous pesticides is a link in the chain of poison that disables U.S. chemical plant workers, poisons Third World workers and their environment, and returns to the U.S. in imported foods.

In 1976, for example, the *Washington Post* reported that the pesticide Leptophos had brought illness and death to many farmers and rural village dwellers in Egypt. And as early as 1972, workers manufacturing Leptophos at a Texas plant were becoming severely ill. Despite the Egyptian poisonings and extensive additional data showing the pesticide to cause severe nerve damage, Velsicol continues to market Leptophos abroad for use on grain and vegetable crops.

Central America's main export crop, cotton, is one of the biggest pesticide users. One fifth of all the deadly parathion produced worldwide is used on El Salvador's cotton crop, with 2400 lb. per sq. in. of cotton grown yearly. Cottonseed is a main component of the processed feed which fattens Latin American beef for export. About half that beef goes to the U.S. and Europe.

The herbicides 2,4,5-T and 2,4-D, components of the infamous Agent Orange, are used to clear forest land for cattle grazing in Mexico, El Salvador, and Guatemala. These herbicides leave residues of dioxin in the soil and water. All beef imports from these countries have been halted by the U.S. Dept. of Agriculture because the beef contains dangerous levels of pesticide residues.

In addition to promoting pesticide use through massive advertising campaigns, multinational corporations control the Third World production and marketing of luxury food crops for export. The blemish-free products shipped to Japan, American, and European markets are produced with heavy use of pesticides and fungicides. Ten to 20 percent of insecticides used on U.S. fruits and vegetables serve only to improve appearance.

The Food and Drug Administration, responsible for monitoring food imports for illegal pesticide residue levels, currently samples only about 3 per cent of imported food. While pesticide tests are in progress, the food in question is usually allowed to be sold, on the grounds of its perishability. Even when food is found to be contaminated with illegal residues, it is rarely recalled.

A pesticide too dangerous to use in the U.S. is certainly too dangerous to use anywhere else, and is probably also too dangerous for workers to be manufacturing or applying. Regulations requiring Third World countries to acknowledge in writing their intent to buy dangerous pesticides are not effective. Further legislation must stop the cycle of pesticide poisoning at the source.

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ERITREA—ADVANCING GUERRILLAS FACE NERVE GAS THREAT

For the last 20 years, the nation of Eritrea and its 3.5 million people have fought to regain freedom denied to them by a U.S.-sponsored United Nations resolution that handed the territory to Ethiopia in 1952. However that resolution acknowledged Eritrea's distinct "institutions, traditions, religions and languages" and promised "the widest possible self-government." But that did not prevent Ethiopia from annexing Eritrea 10 years later or the Eritrean people from rising up in arms to resist annexation.

Now, as the struggle hovers at a turning point, the leaders of the Eritrean People's Liberation Front (EPLF), fear an escalation in the form of a shift to toxic warfare.

Eritrea has already been sprayed heavily with toxic defoliants similar to those used by the U.S. in Indochina. Now the EPLF is conducting an intensive political and diplomatic campaign to prevent the use of Soviet supplied nerve gas, mustard gas, and other chemicals known to be in the Soviet arsenal. At the same time, says Anderbrhan W. Glogis, a member of the EPLF's Central Committee, "we are preparing our forces and our people politically and militarily. On our part, we are convinced we can meet this offensive, even though we know that the use of chemical weapons could cause enormous suffering. Looking on the bright side," he added, "we also realize that the Ethiopian army is resorting to this out of desperation."

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resources

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