



# PHILIPPINE GEOGRAPHICAL JOURNAL

VOLUME XXXI

JANUARY-JUNE, 1987

NUMBERS 1 &amp; 2

## TABLE OF CONTENTS

### ARTICLES

	<i>Page</i>
A Primer on the Constitution of the Republic of the Philippines <i>by the Constitutional Commission of 1986</i> .....	1
From the Mountains to the Lakebed: Resource Problems and Prospects in Buhi Watershed, Camarines Sur, Philippines <i>by Doracie B. Zoleta</i> .....	32
Genetic Diversity in Small Scale Filipino Agriculture <i>by David L. Clawson</i> .....	44
New Towns as Growth Centres: A Case Study in Nigeria <i>by E. Sokari-George</i> .....	51
News Item .....	68

PUBLISHED QUARTERLY BY

**The PHILIPPINE GEOGRAPHICAL SOCIETY, The  
NATIONAL COMMITTEE ON GEOGRAPHICAL  
SCIENCES, NRCP, And The DEPARTMENT OF  
SCIENCE AND TECHNOLOGY**

MANILA, PHILIPPINES

**The Council of the Philippine  
Geographical Society**

**The Philippine Geographical  
Journal**

**Officers for 1987**

DOMINADOR Z. ROSELL, *President*  
DOMINGO C. SALITA, *Vice-President*  
SHIRLEY C. ESTRELLON, *Secretary*  
AURORA S. TOLENTINO, *Treasurer*  
ARTEMIO E. GESMUNDO, *Director*  
FELICIANO M. LAPID, *Director*  
PATERNO SANTOS, *Director*

DOMINADOR Z. ROSELL, *Editor-in-Chief  
and Business Manager*  
FELICIANO M. LAPID, *Assistant Business  
Manager and Editorial Consultant*  
AURORA S. TOLENTINO, *Assistant Editor*  
MANUEL P. POLIQUIT, *Circulation Manager*

**Fellows, Philippine Geographical  
Society (FPGS, 1980)**

PROF. ARTURO P. ALCARAZ  
PROF. DOMINADOR Z. ROSELL  
DR. DOMINGO C. SALITA  
No. of Life Members (Sept '85) — 48

*Honorary Members*

BRIG. GEN. GUILLERMO PECACHE (1979)  
DR. CELSO R. ROQUE (1979)  
DR. ONOFRE D. CORPUZ (1980)

*Geography Awardees*

DEAN EMERITUS FLORENCIO TAMESIS  
(1975)  
DR. FILEMON C. RODRIGUEZ (1980)  
DR. GERARDO P. SICAT (1980)

**Contributing Editors**

REV. MIGUEL M. VARELA, S.J.  
*Representing Div. I, NRCP*  
DR. DOMINADOR CANLAS  
*Representing Div. II, NRCP*  
DR. ANDRES L. REYES, JR.  
*Representing Div. III, NRCP*  
PROF. BIENVENIDO T. MIRANDA  
*Representing Div. IV, NRCP*  
DR. JOSE VERA SANTOS  
*Representing Div. V, NRCP*  
DR. MELITON U. ORDILLAS  
*Representing Div. VII, NRCP*  
DR. TEODORO M. SANTOS  
*Representing Div. VIII, NRCP*

—oOo—

Neither the *Society* nor the *Journal* assumes responsibility for the statements of fact or opinion by authors.

The *Philippine Geographical Journal* is published quarterly by the Philippine Geographical Society and the National Committee on Geographical Sciences (NCGS), National Research Council of the Philippines (NRCP) and the Department of Science and Technology, and is sent to all members of the Society.

Subscription Rates: Philippines, per year — — — P14.00  
Foreign countries, per year — US\$14.00  
Special issue, per copy, local — P5.00; foreign — US\$ 5.00

All remittances should be payable to the *Philippine Geographical Journal*.

Editorial correspondence should be addressed to The Editor-in-Chief, *Philippine Geographical Journal*, P.O. Box 2116, Manila, Philippines.

Business correspondence should be addressed to the Business Manager, *Philippine Geographical Journal*, P.O. Box 2116, Manila, Philippines.

Re-entered as second-class mail permit at the Manila Post Office on July 5, 1963.

*The*  
**PHILIPPINE GEOGRAPHICAL JOURNAL**  

---

**VOLUME XXXI      January-June, 1987      Numbers 1 & 2**

---

**A PRIMER ON THE CONSTITUTION  
OF THE REPUBLIC OF THE PHILIPPINES\***

by

THE CONSTITUTIONAL COMMISSION OF 1986

**I. OVERVIEW**

**1. Q. Why do we need a new Constitution?**

**A.** We need a new Constitution for us to go back to a constitutional democracy. The 1935 Constitution was superseded by the 1973 Constitution which was in turn replaced by the Freedom Constitution, but this was not ratified by the Filipino people.

**2. Q. What needs does the new Constitution answer?**

**A.** The Constitution, aside from providing for a framework of government with a system of checks and balances, also responds to the people's demand for social justice, human rights, honesty in government, and economic self-reliance.

**3. Q. Why do we have to register and vote on February 2, 1987?**

**A.** We have to register if we want to take part in the plebiscite on the Constitution and in the national and local elections.

We have to vote on February 2 because the Filipino people must decide if they want or not to be governed under a constitutional democracy and the Rule of Law.

**SOCIAL JUSTICE**

**1. Q. What does the Constitution say about social justice?**

**A.** The Constitution provides that the State shall promote social justice in all phases of national development and that Congress shall give highest priority to the enactment of laws for social justice.

---

\* This is a reprint of the text which was intended to inform the public and the voters in particular, on the important provisions of the draft Charter prior to the plebiscite held on 2 February 1987. The Charter was overwhelmingly ratified with 16.6M votes or 77.04 per cent for, as against 4.9M votes or 22.96 per cent "No", a historic high of 87.04 per cent of some 25 million registered voters participated. — Ed.

The Social Justice article addresses the most pressing problems of the nation with respect to social, economic, and political inequality and cultural inequity. These concern labor, agrarian reform, fishermen, urban land reform and housing, health, and working women.

### HUMAN RIGHTS

1. Q. **How does the Constitution protect human rights?**
  - A. Human rights are protected by the following measures:
    - a) Strengthening the Bill of Rights
    - b) Creating the Commission on Human Rights
    - c) Providing as a state policy full respect for human rights
    - d) Emphasizing the proper role of the military
    - e) Prohibiting private armies and dissolving the CHDF (Civilian Home Defense Forces)
  
2. Q. **What is the Bill of Rights?**
  - A. It is an enumeration of the civil and political rights of the people guaranteed by the State.
  
3. Q. **How is the Bill of Rights strengthened in the new Constitution?**
  - A. The Bill of Rights protects individuals from abuses of the State. Additional protection has been provided by the following provisions:
    - prohibiting hamletting (through the liberty of abode provision)
    - guaranteeing the right to form unions and associations to both public and private employees
    - providing that search and arrest warrants shall be issued only by a judge
    - guaranteeing the right to "competent and independent" counsel of persons under all forms of investigation for the commission of a crime
    - prohibiting torture, secret detention places, and solitary and incommunicado detention
    - prohibiting physical, psychological and degrading punishment and the use of inadequate penal facilities under subhuman conditions
  
4. Q. **What are the functions of the Commission on Human Rights?**
  - A. The Commission shall:
    - investigate human rights violations involving civil and political rights
    - provide appropriate legal measures for the protection of human rights of everyone

- provide legal aid services to the underprivileged whose human rights have been violated
- establish a research, education, and information program to enhance respect for the primacy of human rights

5. Q. Will the Constitution assure me of a safer and more peaceful life?

A. Section 5 of the Declaration of Principles (Article II), supplies the basis when it says: "The maintenance of peace and order, the protection of life, liberty and property, and the promotion of the general welfare are essential for the enjoyment by all the people of the blessings of democracy."

The human rights provisions are all designed for this.

### THE ROLE OF THE MILITARY

1. Q. What is the role of the Armed Forces of the Philippines?

A. It is the protector of the people and the State.

2. Q. What is the duty of the State with respect to the military?

A. The State shall strengthen the patriotic spirit and nationalist consciousness of the military, and their respect for people's rights in the performance of their duty.

3. Q. What shall be the prime concern of the State with respect to the military?

A. Its professionalism, adequate remuneration and benefits for the members.

4. Q. How will members of the Armed Forces be recruited?

A. Proportionately from all provinces and cities as far as practicable.

5. Q. What happens to the private armies and paramilitary forces?

A. Private armies shall be dismantled. Paramilitary forces, which include the CHDF, shall be dismantled, or where appropriate, converted into the regular force.

6. Q. Is the police force a part of the military?

A. No, the police force is not part of the military. It is civilian in character, to be administered and controlled by a national police commission. Congress shall decide what authority the local government officials will have over the police.

**PEOPLE'S PARTICIPATION IN GOVERNANCE**

1. Q. Do I have a say on how the State (Government) should conduct its business (should attend to my needs)?

A. Yes. The new Constitution provides for ways by which the people can participate in government.

These may be summarized as follows:

- 1) The multi-party system
- 2) Sectoral representation
- 3) People's organizations
- 4) Participation in making laws
- 5) Participation in amending the Constitution

2. Q. How does the multi-party system allow me to participate more in the political process?

A. By not limiting elections to two major parties, and by allowing different organizations to participate as political parties, more people will have better chances as members of those parties to participate in the political process. Also, this system, together with the party-list system, gives the people a wider choice with respect to platforms and programs of government of contending parties. People will be able to vote according to issues and not by personalities.

3. Q. How will my particular interests as a laborer/worker, farmer, women, youth, urban poor or member of an indigenous cultural community be represented in Congress?

A. For the first three terms (that is, from 1987 to 1998) half of the seats for the party-list system in the House of Representatives (that is, 25 or less, depending on the total membership of the Lower House), will be reserved to representatives of the following sectors: labor, peasant, urban poor, indigenous cultural communities, women and youth. The Congress is mandated to pass a law that will provide the system of electing or selecting these representatives. Until such laws are made, the President shall appoint the sectoral representatives from among nominees by the respective sectors.

Laws may also later add more sectors to be represented in Congress.

4. Q. Will our sectoral interest be represented in the local government level?

A. Yes, the Article on Local Government provides that a law must be passed providing for sectoral representation in the

provincial boards and city, municipal and barangay councils. This may be provided in the local government code which Congress is commanded by the same article to pass.

5. Q. What are the people's organization recognized in the new Constitution?

A. A people's organization is recognized under the Constitution if it is a bona fide association of citizens which is able to promote the public interest, and which has identifiable leadership, membership and structure. In other words, its purposes must not be contrary to law.

6. Q. How will the organization to which I belong help me?

A. The peaceful and lawful activities of people's organizations are now recognized as a means for the people to work for what they believe is good for them. The Congress must pass laws by which organizations will be consulted and allowed by the Government to participate effectively in its decision-making processes.

7. Q. How can I and my friends participate in the making of a law?

A. The new Constitution mandates the Congress, as early as possible, to provide for a system so that laws may be made directly by the people. The people can do this by registering a petition signed by at least 10% of all the registered voters in the country. This 10% must be represented by at least 3% of the total registered voters of each legislative district. This system is called initiative. If the petition is intended to approve or reject any law, or part of a law, passed by Congress, the system is called referendum.

When either of these happens, Congress must act on the petition and pass or revoke the law as the case may be.

8. Q. Is there a system of initiative and referendum in the local government level?

A. Yes, but the mechanism for this will be provided for by the Congress in the local government code that it is commanded to pass.

9. Q. How can my friends and I participate in amending the Constitution?

A. There is also a system of initiative for amending the Constitution. It is the same as the process for proposing a law, except that the petition must be signed by 12% of

registered voters of the country, wherein 3% of the total registered voters of each legislative district must be represented.

When this is registered, Congress must act on it and call a national plebiscite to approve the proposed amendment by ratification.

This may be done, however, only once in every five years.

### STRUCTURE OF GOVERNMENT

1. Q. How is the government organized by the Constitution so that it will perform its tasks well and act for the good of the people?

A. There are three separate and independent branches of government:

- 1) the legislative power, vested in Congress, which represents the people,
- 2) the executive power, vested in the President, and
- 3) the judicial power, vested in the courts headed by the Supreme Court.

These three branches are co-equal and coordinate but they have different functions. They interact in a system of checks and balances. In other words, because they are co-equal and independent of each other, they limit each other's powers, and make certain that each acts within its jurisdiction or competence, and for the good of the people.

2. Q. What is the function of Congress?

A. The Congress exercises the legislative function, meaning it makes the laws of the country.

Q. How is Congress organized, and how does it work?

A. Congress is composed of two Houses: the Upper House or the Senate, and the Lower House or the House of Representatives.

The Senate is composed of 24 Senators elected at large throughout the country.

The House of Representatives is composed of at most 250 Representatives or Congressmen, 20% of whom are elected through the party-list system (and from the sectors for the first three terms). The rest are elected by legislative district.



**3. Q. Is the President very powerful under this Constitution?**

A. Yes, but not as powerful as the President under the 1935 and the 1973 Constitutions because of the limitations placed on the President's powers to declare martial law, among others.

**Q. Why were limitations placed on the President's powers?**

A. Because we have learned from the past that a too powerful President can easily abuse those powers. By limiting them and at the same time increasing the powers of Congress and the Supreme Court, we hope that each branch will be more responsible in the performance of its duties.

**Q. What measures are provided to ensure the independence of the Judiciary?**

A. Courts can now exercise their power to review all cases, where before this could not be done in what was called "political" or "non-justiciable" questions.

The independence of the Judiciary is strengthened by the provision granting it fiscal autonomy and by prohibiting reorganizations which undermine the security of tenure of the judges.

A Judicial and Bar Council headed by the Chief Justice, nominates the appointees to the Judiciary and the President is constitutionally bound to draw from a list of three nominees for every court vacancy. Such presidential appointments do not require confirmation by the Commission on Appointments of the Congress.

**4. Q. What are the local government units?**

A. Local government units are the provinces, cities, municipalities and barangays. These shall enjoy a large measure of local autonomy.

**Q. How does this autonomy benefit the people?**

A. It makes the local government officials more responsive to the needs of their constituents.

**Q. What are the special forms of local government?**

A. These are the autonomous regions created in the Cordilleras and the Muslim areas of Mindanao. These are based on their common and distinctive historical and cultural heritage, and economic and social structures shares within those regions.

- Q. Will the autonomous regions be totally separate from the rest of the country?**
- A.** No, they shall be autonomous within the framework of this Constitution, the national sovereignty and territorial integrity of the country. They shall have limited legislative powers (mainly administrative and with respect to economic, social and cultural matters), and shall have special courts with personal, family and property law jurisdiction.
- Q. Are they automatically created?**
- A.** No. After the ratification of this Constitution and the convening of Congress, Congress shall enact an organic act for each autonomous region. If these organic acts are approved in special plebiscites to be held in their respective regions, then the autonomous region shall be created. Areas which do not vote favorably will not be included in the autonomous region.

#### **HONESTY IN GOVERNMENT**

- 1. Q. How may government officials be removed from office?**
- A.**
- 1) The President, Vice-President, Members of the Supreme Court, Civil Service Commission, Commission on Elections and Commission on Audit, and the Ombudsman may be removed by impeachment, after trial in the Senate.
  - 2) Judges shall be removed by a majority vote of the Members of the Supreme Court.
  - 3) Members of the Congress may be suspended or expelled by two-thirds vote of all its Members.
  - 4) Local officials may be removed by recall, the procedure of which will be provided in the local government code to be passed by Congress.
  - 5) Other government officials and employees may be removed only for cause in accordance with law.
- 2. Q. What other government agencies are there to prevent abuses in the government?**
- A.** There are three Constitutional Commissions.
- The Civil Service Commission is in charge of ensuring morale, efficiency, integrity, responsiveness, progressiveness and courtesy in the government service.
- The Commission on Elections ensures free, orderly, honest, peaceful and credible elections.

The Commission on Audit makes sure that there are no irregular, unnecessary, excessive or extravagant government expenditures or uses of government funds and properties.

**Q. How sure are we that these Commissions can really prevent abuses?**

**A. By their independence, which is assured through the following measures:**

- 1) Appointment of Commissioners must be confirmed by the Commission on Appointments of the Congress.
- 2) Staggered system of appointment of Commissioners.
- 3) Fiscal autonomy, and automatic and regular release of funds.

**3. Q. All in all, what are all these provisions supposed to achieve?**

**A. They are all geared towards improved administration, honest and responsible leadership and service, delivery of basic services, and responsiveness to the people's needs, all of which, will hopefully hasten economic development, bring about progress in all areas of the country, and uplift the welfare of the masses.**

## **II. RIGHTS OF SECTORS**

### **POLICY**

**1. Q. What is the policy of the Constitution on sectors and sectoral organizations?**

**A. The Constitution recognizes the vital role of sectoral organizations in nation building. In support of this policy, the Constitution specifically mandates certain mechanisms that would allow the sectors to directly participate in the vital political processes of the State, through the Government.**

### **SECTORAL REPRESENTATION**

**1. Q. How do the sectors get represented in the national and local legislative bodies?**

**A. The Constitution has instituted the party-list system of representation based on the principle of proportional representation whereby the representatives of sectoral, as well as national and regional parties or organizations, registered with the COMELEC may be entitled to seats in the Lower House if they qualify in an election.**

In order to strengthen the sectors and prepare the sectors for eventual participation in the electoral process, the Constitution mandates that for the first three (3) terms, one-half of the seats allocated to party-list representatives shall be filled by selection or election from the labor, peasant, urban poor, indigenous cultural communities, women, youth, and such other sectors as may be provided by law, except the religious sector. These representatives may initially be appointed by the President from a list of nominees by the respective sectors.

Regarding sectoral representation in local legislative bodies, Congress will have to prescribe the manner by which the sectors may be represented.

**2. Q. How does the party-list system operate?**

- A.** In a party-list system, political parties, organizations, or coalitions with platforms or programs of government may register with the COMELEC. It may be required to submit at least ten (10) names from which representatives of parties will be chosen.

Come election time for Congress, the COMELEC distributes copies of the list of all parties, organizations or coalitions to the COMELEC registrars and to all the precincts. In the ballot, there will be a separate question that asks the voter to vote for the party that he wants represented in the Lower House. The COMELEC tallies all the votes for the parties on a nationwide basis. Then the parties will be ranked according to the number of votes and the percentage of the total votes cast, in this case 2.5%, a party is entitled to one seat. However, a party can get only a maximum of ten (10) seats.

Representatives of the parties, organizations, or coalitions will be chosen from a list of names given to the COMELEC upon registration.

The chosen representatives of these parties, organizations, or coalitions are called party-list representatives.

**3. Q. How many seats are allocated to party-list representatives?**

- A.** The Constitution provides for fifty (50) seats, 20% of the total number of the members of the House of Representatives. These seats will be proportionately increased with an increase in the legislative districts.

## CULTURAL COMMUNITIES

1. Q. Does the Constitution protect the rights of cultural communities?

A. Yes. It is a state policy to promote the rights of indigenous cultural communities within the framework of national unity and development.

This policy is more concretely manifested by specific provisions in the Constitution which protect the rights of cultural communities to their ancestral lands. The Constitution has allowed Congress to make applicable the customary laws on property rights in determining the ownership and extent of ancestral domain.

2. Q. Does the Constitution promote economic and social growth of cultural communities?

A. Yes. One of the reasons for the creation of autonomous regions is precisely to promote and hasten economic and social growth of regions sharing common and distinctive historical and cultural heritage, and economic and social structures.

Also, the Constitution directs Congress to enact measures that will help eradicate cultural inequities and promote the equitable distribution of wealth and diffusion of political power.

## GOVERNMENT EMPLOYEES

1. Q. Can you elaborate on the right of government employees to organize?

A. The Constitution specifically and expressly provides that government employees shall not be denied the right to self-organization for purposes not contrary to law.

2. Q. One of the causes of graft and corruption in government is the outrageously low salaries that we give to our officials and employees. Has the Constitution done anything to improve this situation?

A. The Constitution has mandated the Congress to upgrade at the earliest possible time the salary scales of government officials and employees. It has also mandated the standardization of the salaries of government officials and employees, including those in government-owned or controlled corporations with original charter.

Similarly, the pensions or other benefits due to retirees of both government and private sectors will also be reviewed and upgraded.

3. Q. The reorganization of the government will possibly displace some number of government employees. Does the Constitution provide any protection or benefit for these employees?
- A. Yes. Basically, civil service employees may only be removed for cause. If, however, as a result of the reorganization they are displaced, they are given the following benefits:
- 1) separation pay,
  - 2) retirement benefits, and
  - 3) other benefits accruing to them under the laws of general application in force at the time of the separation.
- These benefits are also granted to those employees who might have been separated from the service as a result of the reorganization pursuant to Proclamation No. 3 dated March 25, 1986.

#### LABOR

1. Q. Does the Constitution recognize labor as an essential factor for growth and development in a developing country like the Philippines?
- A. Yes. In fact, it is on this premise that the Constitution provides for the protection and promotion of the rights and welfare. It is also the policy of the Constitution to strengthen the labor sector such that their full potential and contribution to national development may be attained.
2. Q. How does the Constitution strengthen the labor sector?
- A. The Constitution strengthens the labor sector, whether they be local, overseas, organized and unorganized. It mandates the State to promote full employment opportunities for all. It guarantees the rights of all workers to:
- 1) self-organization
  - 2) collective bargaining
  - 3) peaceful concerted activities
  - 4) strike
  - 5) security of tenure
  - 6) humane conditions of work
  - 7) a living wage
  - 8) participation in policy and decision-making processes affecting their rights and benefits

3. Q. In strengthening the labor sector, does not the Constitution jeopardize the promotion of industrial peace?

A. Definitely not. The Constitution, on the contrary, advances the objective of attaining industrial peace. Specific provisions intended to improve labor relations include:

- 1) promotion of the principle of shared responsibilities between workers and employers,
- 2) preference for the use of voluntary modes in settling disputes, and
- 3) responsibility of the State to enforce mutual compliance with the results of the voluntary modes of dispute settlement.

4. Q. Does the Constitution mandate profit-sharing?

A. The Constitution recognizes the right of labor to its just share in the fruits of production. Just share in the fruits of production includes, but is not limited to, profit sharing.

The Congress may in the future pass a law on how labor may get its just share in the fruits of production. This may take the form of profit-sharing.

5. Q. As this Constitution provides for the use of voluntary modes of settling disputes, does it prohibit compulsory arbitration?

A. No. The intention of the provision is to express preference for the use of voluntary modes in settling disputes without disallowing compulsory arbitration in certain cases where the national interest is involved.

## BUSINESS

1. Q. What is the role of the private sector in the national economy?

A. The Constitution recognizes the private sector as an indispensable factor to national growth. It encourages the growth of private enterprise and provides incentives to some areas of investments.

2. Q. There are claims that the Constitution is not favorable to Filipino enterprises. Is this true?

A. No. In fact the Constitution has provided in very clear terms that Filipino enterprises shall be protected against unfair foreign competition and trade practices.

3. Q. Why does the Constitution retain the 60-40% Filipino-foreign equity ratio in the exploration development and

utilization of natural resources and in the operation of public utilities?

- A. At this stage of our economic development, we need foreign capital to hasten our economic growth.

In the future, however, Congress may prescribe a higher percentage of Filipino equity.

#### DISABLED

1. Q. The disabled is a sector in our society which has been neglected by the government. What is the mandate of this Constitution regarding the disabled?

- A. The Constitution directs the State to establish a special agency for disabled persons for their rehabilitation, self-development and self-reliance. The agency shall also be tasked to work out programs for the integration of the disabled to the mainstream of society.

2. Q. Under the Election Code, the illiterate and the disabled exercise the right of suffrage through the assistance of other persons. The system, however, encourages election fraud. Has the Constitution devised a method to allow the illiterates and the disabled the exercise of suffrage and at the same time avoid election fraud?

- A. The Constitution mandates Congress to design a procedure for the disabled and the illiterates to vote without the assistance of other persons. Meanwhile, the disabled shall be allowed to vote under existing laws.

#### WOMEN

1. Q. Lopsided social standards and legal inequities have made it difficult for women to realize their full potential, and for the State to take full advantage of this vast reservoir of talents. Does the Constitution set a policy to address this problem?

- A. Yes. The Constitution provides the long overdue recognition of the role of women in nation-building. Furthermore, the State is mandated to ensure the fundamental equality of women and men before the law.

The Constitution also mandates the State to provide other facilities and opportunities to enhance women's welfare. Safe and healthful working conditions shall also be provided for women, giving special consideration to their maternal functions.



## YOUTH

1. Q. The role of the youth in nation-building can not be over-emphasized. Their contribution would, however, depend on their development as upright, law-abiding citizens. Does the Constitution provide a program towards this end?

A. The Constitution, in recognition of the vital role of the youth in nation-building provides broad guidelines for the State to fully develop the potential of the youth. The Constitution mandates the States to:

- 1) promote the youth's physical, moral, spiritual, intellectual, and social well-being,
- 2) encourage them to get involved with public and civic affairs, and
- 3) inculcate in them the values of patriotism and nationalism.

To assure them of education, the Constitution provides that elementary education shall be free and compulsory. It also directs the State to endeavor to provide free high school education to all its citizens.

## MILITARY

1. Q. Does the Constitution also provide for the welfare of the military?

A. Of course. The Constitution provides that professionalism in the Armed Forces and adequate remuneration and benefits of its members shall be the prime concern of the State.

## VETERANS

1. Q. What about the veterans?

A. For the veterans of war and other military campaigns, surviving spouses and orphans, funds shall be provided by the State for their immediate and adequate care, benefits, and other forms of assistance. Adequate consideration shall also be given them in the disposition of agricultural lands of the public domain and in the utilization of natural resources.

## FARMERS AND PEASANTS

1. Q. Farmers and peasants constitute the biggest marginalized sector in our society. They have yet to enjoy the benefits

of development and a genuine agrarian reform program. Will they finally enjoy these benefits under the new Constitution?

A. The Constitution provides that it shall be the policy of the State to promote rural development and agrarian reform. More specifically, the Social Justice article of the Constitution provides the framework for the attainment of a comprehensive agrarian as well as natural resources reform.

2. Q. How will the agrarian reform program be undertaken by the State?

A. The agrarian reform program shall be founded on the right of landless farmers and regular farmworkers to own, directly or collectively, the lands they till and to other farmworkers, their right to receive a just share of the fruits thereof.

On the basis of the above, the State will thus undertake an agrarian reform program which shall involve:

- 1) distribution of lands to landless farmers and regular farmworkers;
- 2) distribution to other farmworkers of a just share of the fruits of the land;
- 3) voluntary land sharing;
- 4) resettlement and distribution to landless farmers and farmworkers of government agricultural estates; and
- 5) support to agriculture through appropriate technology and research, and adequate financial, production, marketing, and other support services.

3. Q. What are the "lands" subject to agrarian reform?

A. "Lands" cover all available lands either private or public, including coconut, sugar, sorghum, vegetables, pineapple and banana plantations.

4. Q. Who will be the direct beneficiaries of the agrarian reform program under this Constitution?

A. The beneficiaries of the program are the landless farmers, regular farmworkers who are employed in a plantation and other farmworkers who may be hired on a temporary or casual basis.

5. Q. In developing this program, are the rights of landowners also considered?

A. Yes, the Constitution provides that the distribution of lands shall be just and shall be made subject to reasonable

retention limits that Congress may prescribe. Further, they shall be entitled to just compensation for the value of the land.

### **FISHERMEN**

1. Q. A large number of our fishermen may be categorized as subsistence or marginal fishermen. Do they stand to benefit from the natural resources reform instituted by the Constitution?

A. Yes. The natural resources reform provides the following benefits to subsistence or marginal fishermen:

- 1) preferential use of the communal marine and fishing resources, both inland and offshore;
- 2) State support through appropriate technology and research, adequate financial, production, and marketing assistance, and other services;
- 3) State protection of offshore fishing grounds of subsistence fishermen against foreign intrusion;
- 4) a just share from their labor in the utilization of marine and fishing resources; and
- 5) State protection, development, and conservation of communal marine and fishing resources.

2. Q. Who are the marginal fishermen?

A. Marginal fishermen, according to the Bureau of Fisheries and Aquatic Resources (BFAR), are those who operate in the coastal waters less than seven fathoms deep, using motorized or non-motorized bancas weighing less than three (3) gross tons, and because of the seasonality of fish, operate on an average of 5 hours a day, 20 days a month and 6 months a year.

3. Q. What constitutes communal and marine fishing resources and how are marginal fishermen assured preferential treatment in their utilization and enjoyment?

A. Communal marine and fishing resources refer to the marine and fishing ground which may be declared communal by Congress. They would include the traditional fishing areas of marginal fishermen. They would exclude, however, fishing grounds or fishponds owned, leased, or operated by municipalities in the exercise of their proprietary functions.

### **III. GENERAL FEATURES**

1. Q. In summary, therefore, what are the main features of this Constitution?

- A. The Constitution is pro-life, pro-people, pro-poor, pro-Filipino and anti-dictatorship.

### PRO-LIFE

1. Q. Why is it pro-life?

A. It is pro-life because it:

- 1) bans nuclear weapons, thus removing the danger of a nuclear holocaust in the Philippines, subject to the exceptions dictated by the national interests.
- 2) protects the unborn from the moment of conception, thus removing the possibility of any law in the future allowing abortion.
- 3) abolishes the death penalty except in very extreme cases when the Congress may reimpose it.
- 4) protects the family as a basic autonomous social institution, the foundation of the nation, and its rights.

### PRO-PEOPLE

1. Q. What makes the Constitution pro-people?

A. Pro-people provisions are found all over the entire Constitution. These include the policies to promote people's welfare. One such policy says: "The State shall promote a just and dynamic social order that will ensure the prosperity and independence of the nation and free the people from poverty through policies that provide adequate social services, promote full employment, a rising standard of living, and an improved quality of life for all." There are also policies that protect the right to health, and to a balanced and healthful ecology, and give priority to education.

Other pro-people provision are those which allow greater participation by the people in the government, through the free and open party system, sectoral representation, pro-people's organizations, and the processes of initiative and referendum in law-making and constitutional amendment.

The regulation of the advertising industry to protect consumers, and their protection from trade malpractices and substandard or hazardous products, along with the restrictions against mass media monopolies to protect the public interest may likewise be deemed pro-people provisions.

### PRO-POOR

1. Q. What are the pro-poor provisions?

**A. The pro-poor provisions are:**

- 1) The policies that alleviate the plight of the underprivileged, promoting social justice, the right of labor, and rural development and agrarian reform for the farmers and fishermen.
- 2) Economic policies that benefit the poor. According to these provisions, the goals of the national economy are a more equitable distribution of opportunities, income and wealth, a sustained increase in the amount of goods and services produced by the nation for the benefit of the people, and an expanding productivity as the key to raising quality of life for all, especially the underprivileged. Cooperatives are encouraged as instruments for social justice and economic development.
- 3) Of course, there are also the welfare programs already mentioned for health, housing and education.

**PRO-FILIPINO**

**1. Q. What are the pro-Filipino provisions?**

**A. The Constitution provides for:**

- 1) Filipino control of the economy,
- 2) Filipino control of educational institutions,
- 3) A Filipino national language,
- 4) Filipino technology,
- 5) Filipino control of mass media and advertising,
- 6) Complete Filipino management and control of public utilities,
- 7) Reservation to Filipinos of:
  - a) certain areas of investments (if in the national interest)
- 8) Development of a reservoir of national talents, and
- 9) Preservation of a Filipino national culture.

**ANTI-DICTATORSHIP**

**1. Q. How is the Constitution anti-dictatorship?**

**A.** It puts limitations on the powers of the President, as discussed above, and strengthens the powers of the Congress and the Judiciary, thus preventing the consolidation of powers in any one person or branch of government.

**2. Q. Why is the Constitution democratic?**

**A.** The Constitution is democratic because it provides for a democratic structure of government, with the people as the

seat of power, and guarantees fundamental liberties mainly through the Bill of Rights which guarantees the exercise of the people's civil and political rights.

#### IV. ISSUES

1. Q. Why do we need this proposed Constitution?

A. We need a democratic Constitution that will provide a democratic and socially responsive system of government. Now, we are governed by the Freedom Constitution. Under this provisional charter, there is no system of checks and balances since the President exercises both legislative and executive powers. The 1973 Constitution cannot be called democratic as it was intended to support a dictatorial government. The adoption of this Constitution will pave the way for political stability, normalcy, and economic recovery.

2. Q. Is this new Constitution better than the 1935 Constitution and the 1973 Constitution?

A. Definitely yes. Its most outstanding characteristics are that it is pro-people, pro-Filipino and pro-life, and anti-dictatorship. It protects the rights and promotes the well-being of the underprivileged sectors of our society such as farmers and peasants, workers, urban poor, youth, women, etc., and provides a mechanism for continuing and greater participation of the people in the government. It has restored and even vastly improved the system of checks and balances among the three coordinate and co-equal departments of government to prevent abuse of power. New provisions emphasize that the source of governmental power is the people. It lays the foundation of an economic policy for development that is under the effective control of Filipinos and geared towards the needs of the people. It mandates the State through the government to promote the fundamental equality of women and men before the law, safeguard human rights, and preserve the dignity and solidarity of the family and the sanctity of life.

3. Q. Is this Constitution needlessly long?

A. The draft Constitution consists of about 100 new Sections not found in the 1973 Constitution. These new provisions deal primarily with social justice, the national economy, family rights, education and human resources, the Commission on Human Rights and autonomous regions. The new Constitution is longer because it contains more substantive

provisions that address the pressing problems of social, economic, and political inequalities and cultural inequity.

4. Q. Too many provisions of the Constitution contain the proviso "as may be provided by law." Cannot the Constitution be more definite, instead of allowing Congress to interpret and implement its provisions?

A. A Constitution must contain only broad and concise provisions which Congress must implement by providing for the details. It is the function of Congress to legislate according to the general mandate of this Constitution.

5. Q. The new Constitution allows the Supreme Court to annul a law for being unconstitutional by a vote of majority of its members who took part in the deliberation. What is the rationale for this provisions?

A. This new provision seeks to render effective the exercise of the Supreme Court's power of judicial review, in keeping with the system of checks and balances. The effect therefore is to make it easier for the Supreme Court, whenever warranted, to declare a law unconstitutional.

6. Q. Why should we ratify this Constitution when it is drafted by Commissioners who were not elected but only appointed by President Aquino?

A. The matter of who drafted the Constitution should not be the issue but rather the substance of the written work. The Constitution should be judged on the basis of its contents. The President decided that it was practical and expeditious to form an appointive Constitutional Commission at that time because of the divisive effects of an election of delegates to such a body and the expense to be incurred when the public treasury was about empty. At any rate the draft Constitution will be submitted to the people for ratification.

It may be worth mentioning that the Constitution of other countries which are now thriving democracies, were prepared by appointed men and women. The Constitution of the United States, and the Basic Laws of Germany drafted by appointed bodies, are reputedly the best written constitutions yet.

7. Q. What if this draft Constitution is not ratified?

A. If this Constitution is not ratified, we shall remain under the Freedom Constitution under which the President will continue to exercise executive and legislative powers. There

will be no congressional elections and thus no legislature to represent the people in the enactment of laws. The ratification of this Constitution is imperative for stability and normalcy.

8. Q. Why not allow the voters to choose among the 1935, 1973, and the Freedom Constitutions and this new Constitution?

A. It is difficult enough to make the people study any Constitution, without making them study all four Constitutions. We should not forget that it was through the 1935 Constitution that Marcos was able to declare Martial Law. Moreover, most of its provisions are no longer adequate for present day problems. The 1973 Constitution was basically flawed having been conceived to legitimize a dictatorship. The Freedom Constitution is merely an amended version of the 1973 Constitution. It is just a provisional charter intended to guide the transition from the revolutionary government to a full constitutional democracy.

9. Q. By deleting the phrase "historic right of legal title" in the provision on the National Territory, have we not dropped our claim over Sabah?

A. No. The provision on the National Territory includes "all other territories over which the Philippines has sovereignty or jurisdiction." It is intended to be broad enough to allow the Philippine government to pursue the Sabah claim, should it decide to do so, on the basis of it having sovereignty or jurisdiction.

10. Q. Did the new Constitution forfeit the 200-mile Exclusive Economic Zone (EEZ)?

A. The 200-mile EEZ is a portion of the high seas extending up to 200 nautical miles from our base-line over which the Philippines, as a coastal state, has exclusive economic rights under the Law of the Sea Convention. Further, Section 2, Article XII of the Article on National Economy and Patrimony provides:

"The State shall protect the nation's marine wealth in its archipelagic waters, territorial sea, and exclusive economic zone, and reserve its use and enjoyment exclusively to Filipino citizens." As worded, the National Territory provision keeps intact the reservation of the Philippines in the Law of the Sea Convention, especially on our claim that the waters around, between, and connecting the islands are "internal waters" of the Philippines.



11. Q. Are we allowing foreign military bases, troops or facilities after 1991?

A. Under the draft Constitution, foreign military bases, troops or facilities shall not be allowed in Philippine territory upon the expiration of the RP-US Bases Agreement in 1991, except under the following conditions:

- 1) under a treaty concurred in by the Senate,
- 2) when Congress requires, ratified by the people in a national referendum held for the purposes, and
- 3) when such treaty is recognized as such by the other contracting State.

Government policy makers are therefore given sufficient flexibility, subject of course to these conditions, to exercise any option on the bases upon the termination of the existing military bases agreement in 1991.

12. Q. What does the constitutional ban on nuclear weapons means?

A. The provision reads: "The Philippines, consistent with the national interest, adopts and pursues a policy of freedom from nuclear weapons in its territory." As a basic policy therefore, the Philippines bans nuclear weapons from its territory. However, an exception to this policy is allowed only when it is "consistent with the national interest". It is for the President and the Senate to implement this policy and to decide on such exception, insofar as it involves the conduct of foreign relations or national defense and security.

13. Q. Is the abolition of capital punishment absolute?

A. No. The Congress may impose capital punishment on offenses involving heinous crimes.

14. Q. Does the Constitution prohibit abortion? Why?

A. Yes, it does. The Constitution provides that the State shall equally protect the life of the mother and the life of the unborn from conception. Abortion in fact, is a criminal offense under our penal laws. The mandate to prohibit abortion is now made stronger by this constitutional provision.

15. Q. Why does the Constitution not mandate a simultaneous local and congressional elections?

A. The Commission anticipated serious problems in holding simultaneous local and congressional elections, e.g. the number of positions to be voted on and the possibilities

of fraud arising therefrom. In view of this, the Commission decided to recognize the authority of the President who is more competent to determine the date of the local elections.

16. Q. What is the reason for the different term of office of the President, Vice-President, Senators, Congressmen and local officials?

A. The President has a six-year term with a total ban on reelection. The Vice-President, and the Senators have a six-year term and are allowed only one immediate reelection; while the Congressmen and local officials have a three-year term and are allowed two immediate reelections.

In the case of the President, the term of six years is neither too short nor too long but just enough to implement his or her program of government. The ban against any reelection is to prevent the incumbent from availing of the facilities and resources of the office to perpetuate himself in power.

In the case of the Vice-President and Senators, just like the President, they are elected at large and this is the reason for a longer six-years. With one reelection, they can serve continuously for twelve years.

In the case of the Congressmen and local officials, they are not elected on a national level so their term is fixed for three-years. With two immediate reelection allowed, they can serve continuously for a maximum of nine-years.

All told, the overriding objective of the provisions against continuous reelection is to prevent the consolidation of political dynasties, and the democratization of opportunities for public service. Also because of the different terms, elections are scheduled once every three years without much burden to the national economy.

17. Q. What is the party-list system?

A. The party-list system is a mechanism of proportional representation in the House of Representatives of political parties and organizations or coalitions registered with the COMELEC under the system.

Under the 1986 Constitution, 20% of the total number of representatives in the House of Representatives shall be allocated to party-list representatives.

**18. Q. What is the rationale for instituting this system?**

**A.** The party-list system is intended to democratize representation in the House of Representatives. The system will enable parties, organizations, or coalitions which are not strong enough to get a seat in the House of Representatives under the legislative district system, to acquire representation, if they muster at least 2.5% of the total national votes cast under the system.

**19. Q. How does it work?**

**A.** The Constitution has delegated the formulation of the mechanics of the party-list system to the Congress. Specific provisions of the Constitution as well as the intent of the Commission may, however, serve as a guide to the Congress in the formulation of the mechanics. Basically the system would involve:

**1. Making the party-list**

**1.1** Political parties, organizations, or coalitions which have a platform or program of government and other requirements must register with the COMELEC.

**1.2** Each political party, organization, or coalition must submit to the COMELEC a list of ten (10) names from which representatives of parties will be chosen in case it is able to obtain the required percentage of the votes under the system.

**2. Choosing party-list representatives**

**2.1** The COMELEC distributes copies of the list of all parties, organizations, or coalitions to the COMELEC registrars and to all the precincts.

**2.2** In the congressional elections, the ballot will contain a question which asks from the voter to choose the party that he wants represented in the Lower House.

**2.3** The COMELEC tallies all the votes for the parties on a nationwide basis. Then the parties will be ranked according to the number of votes and the percentage of the total votes cast.

**2.4** Every 2.5% of the total national votes obtained by a registered political party entitles it to one seat in the House of Representatives. However, a party can get only a maximum of ten (10) seats. Thus, for example, on the basis of twenty million votes

casts, a party garnering five million votes, another party garnering six million votes, and another party garnering nine million votes, will all be entitled to ten (10) seats each.

2.5 Representatives of the party, organization, or coalition will be chosen from the list of names given by the party to the COMELEC upon registration, on the basis of their ranking in the said list. Thus, if a party is entitled to one (1) seat, the first name in the list given by said party will represent the party. If the party is entitled to two (2) seats, then the first two names in the list given by the party, will be seated in the House and so on.

20. Q. When will this be implemented?

A. For three (3) consecutive terms after the ratification of the Constitution, one-half of the seats allocated for the party-list representatives shall be filled by selection or election or from sectoral groups like labor, peasant, urban poor, indigenous cultural communities, women, youth, and such other sectors, except the religious sector.

Until a law is passed, these sectoral representatives may be appointed by the President, from a list of nominees submitted by the respective sectors.

The other twenty-five (25) seats may not be filled by election in the first congressional elections since there is as yet no law governing the mechanics and implementation of the system, unless the President in the exercise of her interim law-making power, will issue such a law by executive order.

21. Q. Isn't the party-list system similar to block voting?

A. Only in the sense that the voter votes for a party and not the individual party-list representatives. However, it is very different in the more important sense that the party-list system is based on proportional representation, while block voting is based on monopoly of positions, i.e., the party garnering the most number of votes is awarded all the seats at stake in the election.

22. Q. Why are the sectoral representatives limited to three terms?

A. The three-terms limit actually is meant to give these sectors sufficient time to strengthen themselves so that they can later on evolve into sectoral parties and participate either in the legislative district election or the election of party-list representatives.

23. Q. Are political parties included in the party-list system?
- A. Yes.
24. Q. Why? Aren't they already represented in the regular legislative district elections? Will they not have an undue advantage over the sectoral parties and organizations or coalitions?
- A. There is no legal impediment for political parties to register under the party-list system.

They will not have an undue advantage over sectoral parties or organization because the Constitution has removed the privileges of the two-party system in elections such as representation in the boards of election inspectors and voting precincts, and now encourages an open party system to prevent the monopoly of the electoral process by traditional political parties.

25. Q. Are the powers of the President clipped by the draft Constitution?
- A. Yes, directly by regulating his martial law powers and appointing powers and indirectly by instituting a more efficacious system of checks and balances and by providing policy guidelines on matters of foreign policy and executive agreements. However, the President remains an effective Executive with sufficient powers.
26. Q. Why does the Constitution "grant" the incumbent President and Vice-President a six-year term?
- A. It is not correct to say that the Constitution "granted" the incumbent President and Vice-President a six-year term of office. The sovereign people granted them the term by virtue of the February 7 special or snap election. Upon the behest of then President Marcos, the Batasang Pambansa passed Batas Pambansa Blg. 883, calling for a special election for president and vice-president setting the date of election on January 17, 1986 (later transferred to February 7, 1986) and providing that the winning president and vice-president shall serve for a term of six years. The Batasang Pambansa, in hasty and fraudulent sessions, counted irregular, spurious, and even manufactured election returns and proclaimed Marcos and Tolentino as winners. Our sovereign people did not accept the Batasan tabulation and subsequent events led to the "political miracle" of the peaceful revolution of February 22-25, 1986 which terminated the Marcos regime.

The Constitutional Commission recognized the above historical facts in providing in the Transitory Provisions for the six-year term of the incumbent President and Vice-President. The term was the logical confirmation of the February 7, 1986 election, which was for a "six-year term".

27. Q. Does the provision limiting the President to one term without reelection apply to President Aquino?
- A. Yes. Although there is no explicit provision in the Transitory Provisions, it is the intent of the Commission that the single-term provision for the President should apply to the incumbent.
28. Q. Are the autonomous regions in Mindanao and in the Cordilleras automatically established upon the ratification of this Constitution?
- A. No. The creation of an autonomous region shall take effect when an organic act is passed by Congress and affirmed by a majority of the votes cast by the constituent units in a plebiscite called for that purpose. Only provinces, cities, and geographic areas voting favorably shall be included in such autonomous region. Those voting against shall not be compelled to join the autonomous regions.
29. Q. Why is the term "Muslim Mindanao" used in the Article on Local Government?
- A. The term "Muslim Mindanao" refers to the regions in Mindanao that are predominantly populated by Muslims. It does not refer to the whole Mindanao.
30. Q. By creating the two autonomous regions, are we not encouraging secession?
- A. No. The provision creating autonomous regions in Muslim Mindanao and in the Cordilleras emphasizes that their creation shall be within the framework of this Constitution and the national sovereignty as well as the territorial integrity of the Republic. Further, the Constitution expressly states that the President shall exercise general supervision over autonomous regions to ensure that laws are faithfully executed.
31. Q. Is the Article on the National Economy pro-American and pro-foreigner?
- A. No. On the contrary the Article on National Economy and Patrimony is pro-Filipino. It is a declared state policy that a self-reliant and independent national economy effectively

controlled by Filipinos shall be developed by the State. In support of this policy, the Constitution mandates the protection of Filipino enterprises against unfair foreign competition and trade practices. The exploration, development and utilization of natural resources is also placed under the full control of the State. The use and enjoyment of the nation's marine wealth is also reserved exclusively for Filipinos. Furthermore, Congress is given the right to reserve certain areas of investment to Filipino citizens or increase Filipino equity in these areas. The Constitution also expressly provides that in the grant of rights, privileges, and concessions covering the national economy and patrimony, the State shall give preference to qualified Filipinos.

32. Q. Why was the 60-40% foreign equity ratio retained in the exploration, development and utilization of natural resources and the operation of public utilities?

A. At this stage of our economic development, there is a need for foreign capital in these areas to hasten economic growth. The Constitution, in effect, provides that 60% shall be the minimum Filipino equity, while the maximum foreign participation is 40%. The Constitution in fact mandates that upon the recommendation of the economic and planning agency, when the national interest dictates, the Congress may decrease the foreign equity even down to zero.

33. Q. Are service contracts retained by this Constitution?

A. The service contracts as they were understood and practiced under the 1973 Constitution are not included in this Constitution. Under the new Constitution, these agreements are limited to technical or financial assistance for large-scale exploitation, development and utilization only of minerals, petroleum, and other mineral oils. The agreements should always be in accordance with the general terms and conditions provided by law; and based on real contributions to the economic growth and general welfare of the country.

34. Q. Does the Constitution enshrine free enterprise?

A. Yes. The economic philosophy embodied in the Constitution is that private enterprise is the main engine of economic progress, subject however to state intervention whenever the common good dictates.

35. Q. How does the Constitution provide for profit sharing?

A. The Constitution provides that it recognizes the right of workers to their just share in the fruits of production.

This may take the form of profit-sharing. The Congress may mandate the mechanism and manner by which the workers may share in the fruits of production.

36. Q. Does agrarian reform mean land to the landless?
- A. The agrarian reform program mandated by the 1986 Constitution envisions the distribution of land to the landless farmers and regular farmworkers and the distribution of a just share of the fruits of the land to other farmworkers.
37. Q. Does the distribution of land to the landless farmers mean that lands are to be given to them for free?
- A. No. The landowners are entitled to a just compensation for the value of their lands. Since it is not expected that the farmers will be able to pay for this "just compensation" due the landowner, a portion of this cost shall be subsidized by the Government.
38. Q. Why does the Constitution provide for retention limits? Why are we leaving the decision on retention limits to Congress?
- A. The retention limits are intended to protect the rights of small landowners. The Constitution delegated the determination of the retention limits to Congress since it would be in a better position to determine the equitable and economically viable minimum size for retention for different crops in different places.
39. Q. Does the Constitution encourage squatting?
- A. No. The Constitution merely provides that squatters have rights which should be respected. Thus, they shall not be evicted except in a just and humane manner and always in accordance with law.
40. Q. What is the participation of the mayors in the supervision of the police force?
- A. The new Constitution envisions that the local executives shall have a hand in the appointment of police officers in their municipalities or cities, subject to the approval of the NAPOLCOM which shall have administrative control over the police. As to the powers of the mayors over their local police forces, the same shall be provided for by law.
41. Q. Under the new Constitution, do government employees have the right to strike?
- A. Yes. As the new Constitution states, the right to strike may be exercised in accordance with law. This means that



Congress may regulate this right by classifying those government employees who may not be allowed to strike, such as those involved in the delivery of vital public services. As long as there is a reasonable basis for this classification, the prohibition or regulation of the right to strike in certain government offices is valid.

42. Q. Why is the authority of the PCGG to issue sequestration, or freeze order extended to eighteen months after the ratification of this Constitution?

A. The Transitory Provisions recognize the extra-ordinary circumstances in which the PCGG is striving to fulfill its mission of recovering the ill-gotten wealth of the officials of the past regime. In view of this, coupled with the criticisms by some quarters contesting the validity of PCGG's power, the 18-month period is deemed reasonable. After the lapse of the period, PCGG must apply with the proper court for the issuance of such orders. The Constitution now further requires the PCGG to file the necessary judicial proceeding in the regular courts six months after the issuance of the sequestration order.

The Constitution also requires that all sequestered properties shall be registered with the proper court. It is further provided that in the national interest, as certified by the President, the Congress may extend the 18-month period. In this case, there is intervention by Congress which has the competence to decide on the duration and extent of this extra-ordinary authority of PCGG.

43. Q. Is the CHDF retained?

A. Civilian Home Defense Forces (CHDF) which are not consistent with the framework of the citizen armed force under the new Constitution shall be dissolved or where appropriate converted into the regular force.

**THIS PUBLICATION IS AVAILABLE  
IN MICRO FORM**

For information, contact:  
300 North Zeeb Road  
Ann Arbor, MI 48106  
U.S.A.

# FROM THE MOUNTAINS TO THE LAKEBED: RESOURCE PROBLEMS AND PROSPECTS IN BUHI WATERSHED, CAMARINES SUR PHILIPPINES

by

DORACIE B. ZOLETA\*

## ABSTRACT

Development activities in Lake Buhi, Camarines Sur, and its watershed have been spurious in the past. Removal of forest cover, increase in number of permanent kaingin sites, soil erosion, lake sedimentation, eutrophication, flooding, destruction of aquatic vegetation, change in lake trophic structure, extinction of sinarapan species, decrease in chances or access to some resources and alternatives for development among the subsistence farmers and fishermen, and depreciation in living and economic conditions of the human population are among the observed effects. Although there are various programs to solve these problems, very few attempt to deal with the uplands and the lake as a single interacting entity and unit for research and development.

This study presents information from the Lake Buhi area on: (a) the effects of a growing population and the utilization-management practices employed on watershed and lake resources, and (b) a management approach identified by the local residents, and resource analysts, that can be implemented successfully and practically in dealing with the resource management problems in the area.

## INTRODUCTION

In many tropical countries, the exploitation of upland and aquatic ecosystems destabilizes watershed-production system. In the Philippines, one million hectares of watershed are now degraded. Inland fisheries are subjected to overfishing, agricultural run-off, mine tailings, and industrial and municipal waste pollution. These resource use pressures have had undesirable results such as excessive soil loss, flooding, drying up of tributaries, eutrophication, fish kills, sedimentation, species extinction, and a more difficult subsistence for the surrounding human population. One of the primary causes of upland and fishery deterioration is the 'open access' to Philippine forestry and fishery areas. The result

---

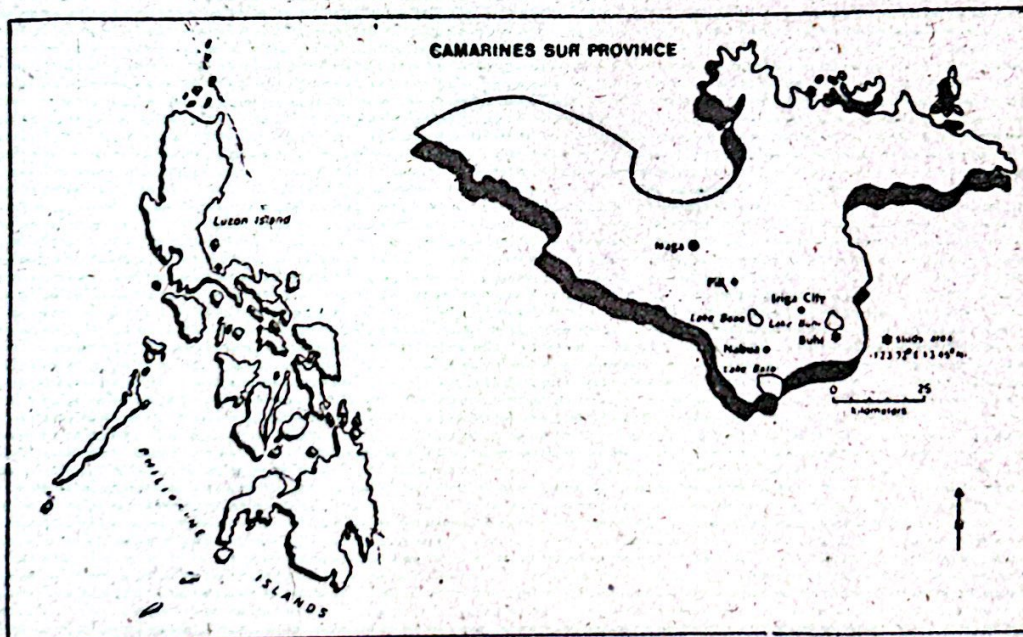
\* Department of Geography, CSSP, University of the Philippines, Diliman, Quezon City.

is a chain of problems caused by overexploitation of these resources by, and heavy competition among, subsistence farmers and fishermen and the well-off, technologically advanced financiers, and capitalist farmers and fishermen.

Most responses to such problems have been technical, piecemeal, and fragmented. Usually a fragmented approach reflects a lack of understanding of how system components or adjoining ecosystems function and interrelate. This paper will suggest an effective management scheme for the utilization of the adjoining upland and lake resources within the municipality of Buhi, Camarines Sur, Philippines (Fig. 1) using the systemic concept of human ecology.

In this paper human ecology is defined as a way of viewing man and nature relationships functionally and holistically. Dealing with the interrelatedness of the different components of man and nature inter-

FIGURE 1. CAMARINES SUR PROVINCE, PHILIPPINES, AND THE STUDY AREA



Source: MA Geography Thesis of D.B. Zoleta-Nantes, 1985, UH Department of Geography. Cartographic illustration by Pat Pennywell.

actions as a whole gives human ecology a practical significance. Human ecology can be a flexible tool for integrating, assimilating, emphasizing and determining the implications of man-nature relationships for the future. Human ecology is a functional analytical approach for understanding and directing relationships among human communities and resource production systems, in their progression through time. Using this tool could effect positive changes to the present conditions and future relation of man and nature.

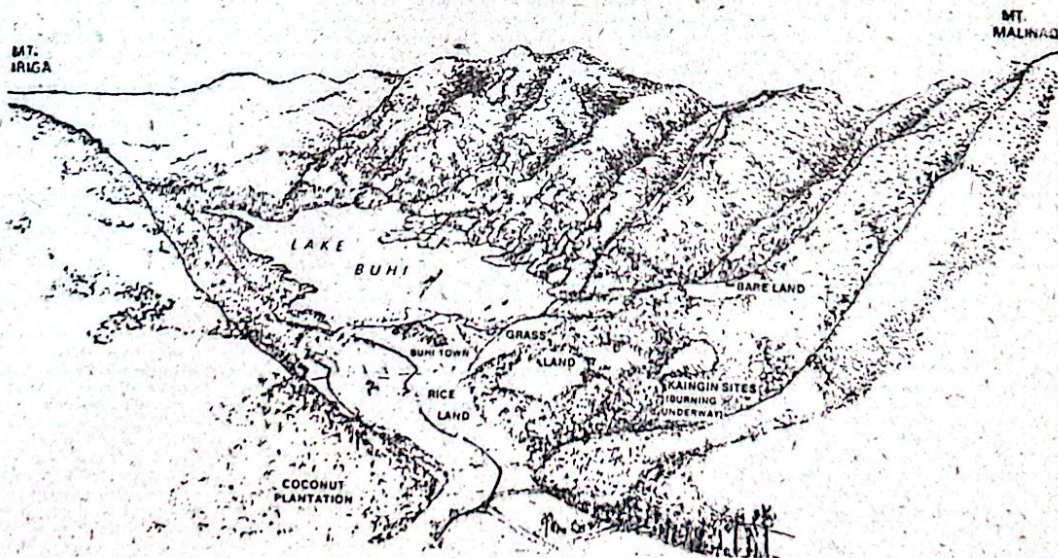
## BUHI: PLACE, PEOPLE AND PROBLEMS

### Area and People:

Buhi has a land area of 22,462 hectares. It has 38 barangays (villages) and a 10,935-hectare watershed which drains into the 1,800-hectare Lake Buhi (Figure 2). Seventy percent of the land steeply or moderately rolls, with the highest peaks at altitudes of 1,657 meters in Mt. Malinao and 1,200 meters at Mt. Iriga. The soils of Buhi uplands are Tigaon clay and Macolod sandy loam. Rains occur throughout the year in Buhi with heavy downpours from May to December. Based upon the data of four different years (1952, 1962, 1972, 1981), the annual average rainfall is 2,902.66 millimeters with the highest months recording 1,100 millimeters. Approximately 77 percent of Buhi uplands are under crop cultivation and permanent settlement, nine percent are upland-lowland drainage areas, and 14 percent are forest reserve-areas.

Buhi is among the most populous municipalities in Camarines Sur. From 1903 to 1985 the population rose from 9,692 to 53,461. Majority of the Buhinon lives in rural upland barangays. The population's

FIGURE 2. AN ARTIST'S ILLUSTRATION OF BUHI MOUNTAINS AND LAKE



Source: Illustrated by Barbara Trapido, Department of Geography, University of Hawaii.

annual growth rate is 1.99 percent. Fifty-nine percent of the people are less than 19 years of age. Households average six members. Buhi is an out-migration area, but there is increasing internal migration to the rural upland and lakeshore areas from the town's lowland center. The Buhi population at year 2000 is projected to be 71,054. The Buhi watershed, draining into Buhi lake, is the irrigation source of 8,000

hectares of agricultural lands. It provides the domestic and agricultural water needs of more than 10,000 families outside of Buhi and the 53,462 Buhi residents. Some of the resource use practices employed by the growing population have resulted in upland degradation. Most of the sloping areas in the watershed are now bare, unprotected or gullied. The Buhi lake ecosystem is also deteriorating. Different fishery activities have destroyed the lake vegetation and affected its fish production. The survival of the world's smallest commercial fish is at stake, and the living conditions of Buhinons depending on this watershed production system are becoming more difficult. There is a need to understand the factors and interrelationships contributing to these problems and develop an approach that could improve the area's conditions. Unless this is done, conditions can grow worse in the future and more people will suffer in the process.

This paper aims to describe upland-lake interaction in Buhi through examining the impacts of resource management practices employed by its population and present a community watershed resource management approach that could be used in dealing with the Buhi watersheds problems. The data were gathered using library research and field data collection from July 1984 to April 1985.

#### EFFECTS OF RESOURCE USE PRACTICES AND ACTIVITIES ON BUHI RESOURCES

##### Upland use activities impact on upland resources:

Throughout the years, sedentary slash and burn agriculture or permanent kaingin cultivation practices on slopes of 45 percent and over have disturbed upland soil and caused sheet erosion. (See Figure 3). Sheet erosion problems were exacerbated by the erosion-prone characteristics of the Buhi upland soils, poor ground cover made more serious by the rapid increase in fuelwood gathering activities, slope characteristics of the lands, heavy intensity and long duration of rainfall, an exploitative loan system that thrives on cash crops, and uncoordinated resource development projects. Estimates of soil loss in the area range from 1.21 to 10.14 metric tons per hectare per year (m.t./ha/yr.), a relatively tolerable rate on the area's better covered lands, and more than a hundred and possibly up to several hundreds of m.t. of soil lost /ha/yr in the denuded and disturbed cultivated and non-cultivated steeply sloping areas.

Logging operations, which started in the 1940s and are illegally continuing at present, and the heavy traffic of hauling logs have created logging path gullies with depths ranging from one centimeter to five meters. The best example is in Barangay Sta. Cruz, Buhi — one of the logging operation sites. These gullies affect not only upland soils, but the convenience of those traveling on foot. Haulers and uplanders

use the same paths in going to town from the mountain areas. Half of the foot trails that carabaos used while hauling logs, are now gullied, slippery and form ditches during rainy days.

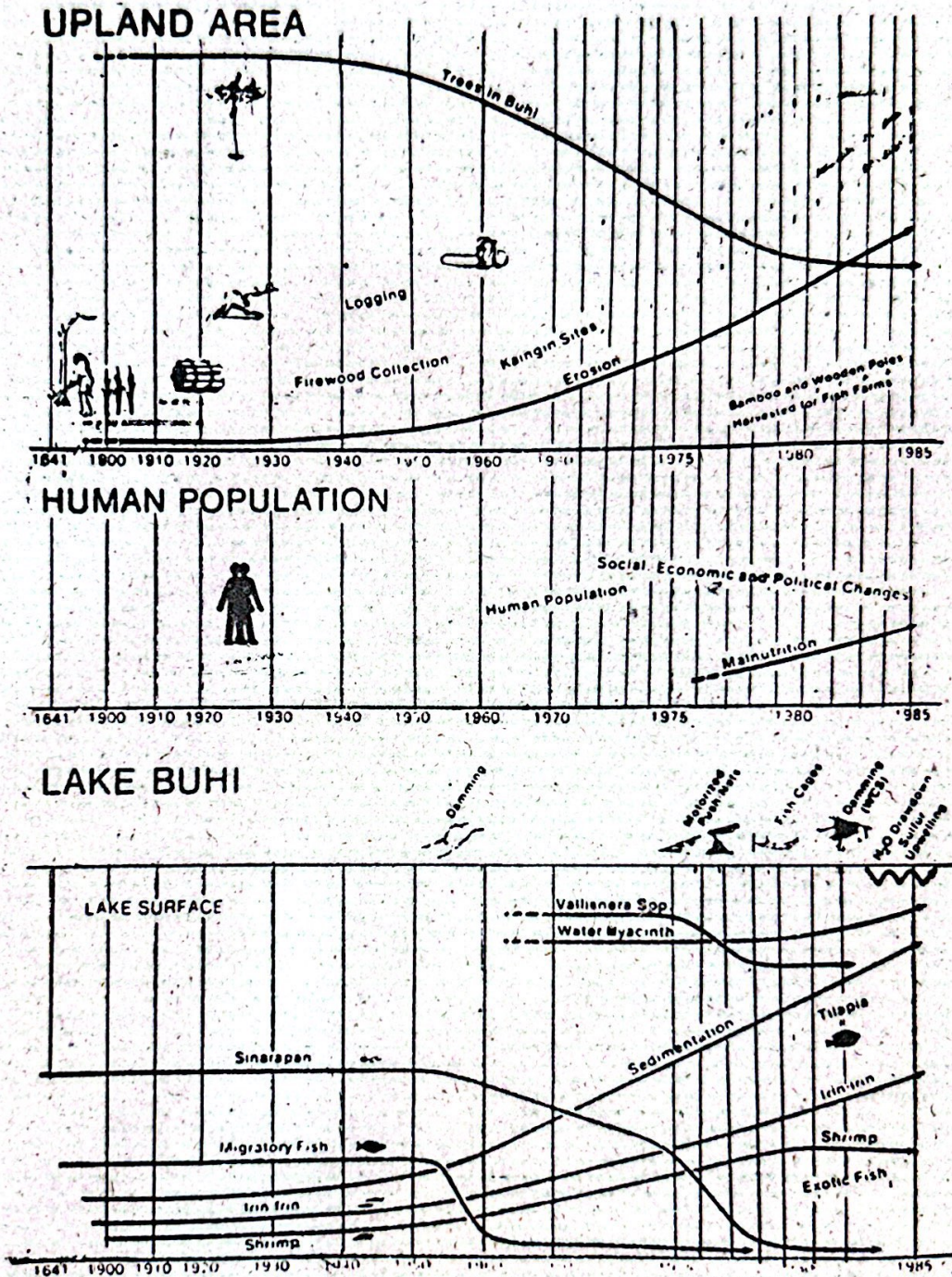


FIGURE 3. RELATIVE HISTORIC CHANGES IN THE HUMAN AND NATURAL RESOURCES OF BUHI, CAMARINES SUR

Source: Illustration by Barbara Trapido and Doracie B. Zoleta-Nantes.

Soil and soil nutrients are washed away and deposited in the lowlying areas in the erosion process. Such physical degradation affects crop production in the area, and coupled to economic forces could eventually worsen its living conditions. Most people have been pushed to acute poverty. There are decreasing educational opportunities for the young in the area and there have been 1,192 cases of 2nd and 3rd degree and 1,021 1st degree malnutrition among 3,190 children in only twelve upland barangays of the municipality. Because of political conditions in the last two years (1984-85) in the country, there is increasing sympathy for the revolutionary New People's Army.

#### **Upland use activities impact on lake resources:**

If the eroded sediments from the upland are nutrient rich, the result is increased downstream productivity. But erosion can also cause siltation of agricultural areas, increase sedimentation in the lake and its tributaries, increase nutrient content and water turbidity, and cause gradual lake shallowing.

Based on a sediment sampling done by the Philippine's Forest Research Institute (FORI) at the lake's major tributaries after an 18 mm rainfall event, the sediment content is 500 p.p.m. (1980). An estimated average of 26 m.t. of soil/ha/yr going into the lake gives a total sediment of 267,540 m.t./yr., or a deposit of 2 mm of mud per year and a total of 80 mm of mud deposit for forty years. This estimate is similar to the observations of fishermen in the area. They have noticed an increase in the depth of mud deposits in the shallow areas of the lake. It has gone just below the knee of an adult at present, compared to just above the heel in the 1940s.

Among the other changes noticeable in the lake is increasing water turbidity. Zafaralla, et al. (1983) noted that:

"By November, light penetrated down to 100 cm and in May the next year, 40 cm. This declining trend is attributed to the enhanced growth of autotrophic algae. Growth enhancement is in turn attributed to increasing enrichment of the lake arising from the combined effects of the growth of the use of fish cages, the occurrence of unusually prolonged summer, and the growth of agriculture in the outlying areas of the sample sites."

#### **Lake use activities impact on lake resources:**

Damning the lake outlet in 1956 meant that at least five known species of migratory fish were not able to enter the lake ecosystem (Figure 3). The construction of a bigger Bicol River Basin Development Programme (BRBDP) water control structure in the lake in 1983 is now being related to the increased incidence of sulfur upwellings which have killed fish, especially the ones trapped in fish corrals and cages.

The maximum drawdown of water by 3.9 meters by the control structure reduced the littoral region of the lake, and affected the fish-cage production. The sites normally available for stationary cages are lessened.

Introduction of *tilapia nilotica* and *mossambica* in 1956, have affected the lake fishery (Figure 3). The hardest hit was *sinarapan* or *tabios* (*Mistichthys Luzonensis* Smith), the smallest commercial fish in the world — with adults having an average size of 12.9 millimeters. Interestingly, the fishermen observed that when *tilapia* population was booming, the *sinarapan* population declined. *Tilapia* competes with *sinarapan* for phytoplankton. *Tilapia* also consume *sinarapan*.

Disturbances caused by the motorized pushnets or *sakag* in the years 1975 to 1978 are also significant. The use of fine mesh nets and dragging of the bamboo support structure during a continuous series of back and forth operation uproot and destroy aquatic vegetation (*Vallisneria* sp.). *Sinarapan* and other fish lay eggs and hide in *Vallisneria* sp. to avoid predation. Also vegetation loss and the stirring up of mud, significantly increase water turbidity, and reduce light penetration and biomass production. Motorized pushnets catch about 100 kg. of *sinarapan* in one operation, and have resulted in overharvesting of *sinarapan*, causing their number to so decrease that recovery to normal levels may be impossible.

*Sinarapan* used to be the cheapest and most available protein for the majority subsistence fishermen who cannot afford to install *tilapia* fish farms. Fish farm construction requires at least ₱1,050.00 or \$114.00 as initial capital. Depletion of the *sinarapan* fishery is a hard blow to subsistence fishermen who earn an average of ₱19.00 per day or \$1.36, and support a family with five other members. Most subsistence fishermen have been finding it difficult to make ends meet. This could possibly be related to the presence of 771 2nd and 3rd degree and 753 1st degree malnourished children out of 1,956 pre-school members of the families in just five barangays around the lake that depend upon its resources for survival.

These activities also resulted in the rapid growth of *irin-irin* (*Vaimosa dispar*) and freshwater shrimp (*Macrobrachium* sp.) population. (Fig. 3). Aside from *tilapia*, the *irin-irin* — a small goby with sizes ranging from 20 to 30 mm — and the shrimp were the most common fishery resources in the town market. These species grew rapidly in number when *sinarapan* population was declining. *Sinarapan* is an effective predator of five day old shrimp larva; while *sinarapan* and *irin-irin* have the same food base, i.e., phytoplankton. *Irin-irin* species has always been in the lake like *sinarapan* but unlike *sinarapan*, it has a mechanism to protect its eggs from possible predators. Male *irin-irin* have a big mouth where the eggs are kept and protected during the three-day hatching period.



Aside from the recent algal blooms, another observed change in this eutrophic lake is the thickening water hyacinth population. Growth of water hyacinth has been greatly enhanced in the past few years. There are possible uses for water hyacinth plants, but at present, they are not harvested nor utilized for such purposes. If these plants are not removed immediately and are allowed to rot in the lake, its decomposition process will consume a lot of oxygen. This will compete with other aquatic and fishery resources on the Lake's available dissolved oxygen.

#### **Lake use activities impact on upland resources:**

To compensate their meager income, most fishermen have other sources of income. Some gather fuelwood. Others cut trees and participate in logging by rendering service boats that carry logs from the barangays across the lake to the town center. Some plant rice in lowlying lands near the lake; or establish permanent kaingin sites in the uplands with slopes of more than 40 degrees to plant camote (sweet potato), corn, and cassava.

The 1,050 fish cages, fish pens, and more than 153 fish corrals in the lake use bamboo and wooden poles that are changed annually to support the nets. A corral requires 40 to 200 bamboo or wooden poles; a fish cage uses 4 to 8 poles; and a fish-pen normally requires thousands of poles. An estimated total number of 14,520 to 20,000 poles are used and needed annually to support the present fish farms. Bamboo has already been badly depleted in the area. Unless sustained tree planting begins, this annual demand will deplete the wood resources of this watershed.

#### **Actions taken in the past to remedy the problems:**

To resolve problems of forest destruction, the Buhi watershed was closed to logging concessions. This ban, however, has not been well enforced, since rampant hauling of logs is still a common sight.

A joint project, undertaken by the Philippine's Bureau of Forest Development (BFD) and USAID, to develop the upland area is called Buhi-Lalo Upland Development Pilot Project (BLUDPP). The initial impact of the program was good. Many farmers participated in reforestation; and several training programs were undertaken by the University of the Philippines at Los Baños' Program on Environmental Science and Management. The initial success was short-lived though. Problems in handling funds and political conflicts among the management echelon of BFD, the BLUDPP personnel, and the Bicol River Basin Development Program responsible for the program impeded the realization of project goals. Some upland cultivators and laborers who participated and rendered labor during the construction of graded trails were not paid the promised compensation. This mishandling of funds hit their everyday subsistence

badly and created a negative attitude toward the project. As a result, one of the major training centers was thrice subjected to arson. The third attempt burnt down the training center in April, 1985.

Resolving the extinction of *sinarapan* fishery was another story. In 1976, people started worrying about the disappearance of *sinarapan*. Petitions were made by local authorities to the Bureau of Fisheries and Aquatic Resources (BFAR), the Ministry of Natural Resources (MNR), and even to the Office of the President of the Philippines to ban *sinarapan* collection and motorized pushnets in the area. Decisions on matters like this are made in the central offices of agencies responsible. It took two years for BFAR and MNR to ban *sinarapan* collection and the use of motorized pushnets. Unfortunately by then, *sinarapan* was being caught in very minute traces only.

### WHAT CAN BE DONE IN DEALING WITH THE RESOURCE PROBLEMS IN BUHI?

The problems affecting the area could be dealt with the same way they were dealt with in the past. For example, to face the problem of *sinarapan* extinction the following things could be considered: (a) encourage the maximum capture of *sinarapan* predators; (b) encourage the maximum capture of *sinarapan* competitors; and (c) enforce the ban on capturing *sinarapan* consistently and faithfully. To deal with the erosion problems one can initiate soil conservation techniques demonstration sites and prohibit cultivation on steep slopes without soil conservation methods. To deal with illegal logging, one can also resort to the imposition of heavier penalties and fines and promulgate more prohibitive laws.

But the problems besetting Buhi watershed can be effectively dealt with if the watershed is managed as one development unit and analyzed as one functioning system. Experience has shown that the extraction, transformation and utilization of resources are intimately linked with the human population's social, economic, cultural and institutional characteristics. A comprehensive approach dealing with the systemic characteristics of Buhi watershed and the lake could be the only practical way of resolving resource management issues in this case.

To realize this, the concept of community watershed resource management and development can be used in Buhi.

### THE CONCEPT OF A COMMUNITY WATERSHED RESOURCE MANAGEMENT AND DEVELOPMENT APPROACH

The Community watershed resource management and development approach is an appropriate tool for directing and controlling the utilization, management and development of the limited land and water resources of a watershed. This approach utilizes the combined efforts, resources

and time of the people, government and concerned public and private sectors in the affected area. It aims to restore degraded watershed sites, maintain the productivity and sustainability of the system, and develop and harness further the watershed resource potentials. The final product is an adequate capacity of the system for resource production, and a continuous improvement of the subsistence level of the populations directly depending on the system for survival. The approach consists of:

- a. An appraisal of the resource endowments and limitations of Lake Buhi and its watershed;
- b. An analysis of human population dynamics;
- c. An appraisal and analysis of the reasons for the utilization and demands of watershed and lake shore dwellers;
- d. An appraisal and analysis of outside groups' demands for utilizing the lake and the watershed;
- e. An analysis of the conflicting demands and uses of the watershed dwellers and outside groups and recognition of possible ways of how to deal with them or to reach compromises;
- f. An appraisal and analysis of the problems besetting the area and prioritizing them;
- g. A recognition of the possible impacts of these problems on the conditions of the watershed and the lake through successive periods.
- h. An appraisal and prioritization of possible solutions that could solve the problems in the area;
- i. A thorough understanding of the legal, institutional, social, economic, political, and cultural scenarios in the watershed;
- j. An estimate, recognition, and prioritization of the potentials or prospects for development of the lake and watershed;
- k. An appraisal of the different programs and activities that could be complementary to each other and be implemented practically and feasibly;
- l. An appraisal and recognition of the willingness to cooperate and effect changes by the watershed dwellers and other resource users;
- m. An appraisal and recognition of local government efforts and willingness to initiate, cooperate and effect constructive changes;
- n. An appraisal and recognition of the influences of the regional and national policy makers and identification of possible ways to attract their support and cooperation in effecting constructive changes;
- o. An appraisal and recognition of benefits and possible problems that would result from the realization of the process of developing the watershed and lake resources.

Applying these steps in solving Buhi watershed problems of Buhi's problems of resource development, will lead to a better set of alternative actions and solutions, and thus improve the resource conditions in the area.

## CONCLUSIONS AND RECOMMENDATIONS

Numerous laws, rules, guidelines, and regulations have been set and promulgated in the past both at the local and national levels, but many conflicting political and economic interests impeded their proper execution. Based on the present conditions and realities, the effectiveness and functionality of these laws have yet to be proved. An approach that could possibly improve the situation is increasing the awareness of the community members of their present conditions, and more importantly of the implications of the activities taking place within their resource bases, on the quality of their lives and their children's future. This can make the people have a better general feeling of their resource problems and, in the end, seek for themselves a collective solution given the present realities. Rather than only penalizing the destroyers of its environment, the community can exert a pressure on individuals and groups to stop the damage being done and engage instead in alternative livelihood projects while rehabilitating their physical resource bases.

Power can be generated by organizing local residents, starting from the smallest political unit of the community, the *barangay* to exert pressure on the government to play its critical role of regularly monitoring the environmental and socio-economic conditions of the people more seriously and in a better manner.

Funds could be generated from governmental or non-governmental organizations and private groups to start implementation of projects that could augment the people's income and provide for additional food supply, for example; agroforestry, home gardens, fruit and forest trees plantations as reforestation activities, promotion of long-term lease of forest land to the local people, cooperative fish farming, and the possible creation of a group that would serve as the economic or bargaining arm of subsistence farmers and fishermen in selling their produce.

If the foregoing were to be realized, it could increase the access of the people to food and other basic necessities. An ecologically sound resource production base can be maintained and a bright future awaits not only the families of Buhi uplands who are tightly integrated into the life cycle and productivity of the upland ecosystem, but also the families of the subsistence fishermen who depend upon the continued productivity of Lake Buhi.

As Buhi's experience illustrates, the present condition in a particular resource production system can best be improved through three mechanisms. First is an inventory of the resource system's capabilities. Second is an understanding of the interrelations limitations and prospects for development, the resource users' population growth, their needs and the utilization techniques employed, and the socio-economic and institutional settings with the possible changes over time. Third, the combined

efforts of people, government, and other concerned groups are essential. Without these three factors, a pragmatic resource development program will not become a reality.

Acknowledgments to Dr. Brian Murton, Dr. Leslie Sponsel and Dr. John Street of the University of Hawaii, to Dr. Gerald Marten and Dr. Percy Sajise of EAPI-East West Center, and the beautiful people of Buhi, Camarines Sur, Philippines.

#### LITERATURE CITED

- Best, Jody. 1974. "Report on *Tabios (Mistichthys Luzonensis, Smith)*", An unpublished report submitted to the BFAR Office in Buhi, Camarines Sur, Philippines. January. pp. 1-4.
- Beveridge, Malcolm. 1983. "The environmental impact of recently implemented water control measures on fisheries and aquaculture in Lake Buhi, Bicol Region, Republic of the Philippines." A report submitted to ICLARM. Makati, Philippines. November. pp. 1-28.
- Castillo, E. 1980. "Field verification for Bicol river basin development." In *Canopy*, 6(4): 8-9, April.
- FORI Consultancy Team. 1979. *Rinconada Watershed Management Verification Report*. Manila, Philippines. pp. 1-48.
- Gindelberger, B. 1982. "After *sinarapan*: The planned small-scale fish cage industry of Lake Buhi." In *ICLARM Newsletter*, 5(1): 6-7. Makati, Philippines.
- Gindelberger, Bruce. 1981. "Fishery management in Camarines Sur, Philippines: Why Sinarapan almost disappeared from Lake Buhi." In *ICLARM*, Vol. 4, No. 3. Makati, Philippines. July.
- Gudger, E. W. 1941. "The quest for the smallest fish," In *Natural History Magazine*, Vol. XLVIII, No. 4. November. pp. 216-223.
- MDP-Buhi, Camarines Sur. 1985. *Municipal Development Plan, 1982-2000*. MLGCD-Buhi, Camarines Sur, Philippines. 384 pp.
- MDP-Buhi, Camarines Sur. 1982. *Municipal Development Plan*. MLGCD-Buhi, Camarines Sur, Philippines. pp. 1-84.
- NEPC. 1982. *Philippine Environment*. Roxas Boulevard, Manila, Philippines. pp. 1-190.
- NEPC. 1978. *Philippine Environment*. Roxas Boulevard, Manila, Philippines. pp. 1-169.
- Penaranda, V. J. and D. B. Zoleta. 1982. *A micro survey of Pagbilao Bay*. A report submitted to the Environmental Center of the Philippines, Manila, Philippines. October. pp. 1-89.
- USAID-Philippines. 1979. *Bicol Integrated Area Development III (Rinconada/Buhi-Lalo)* (Project Paper Volume I). Manila, Philippines. June. pp. 1-59.
- USAID-BRBDP. 1979. *Bicol Integrated Area Development III (Project Paper Annex G-(3), Rinconada/Buhi-Lalo)* Volume II. Manila, Philippines. June. pp. 1-35.
- Zafaralla, M. T., Cadiz, N. M., Magcale, D. B. and Vidal, L. R. 1983. Physical-chemical features and some aspects of Phytoplanktonic algal communities in Lake Buhi of the Philippines. Unpublished report, University of the Philippines at Los Baños, College, Laguna, Philippines. pp. 1-15.
- Zoleta-Nantes, D. B. 1985. *From the Mountains to Lakebed: Resource Problems and Prospects in Buhi, Camarines Sur, Philippines*. A masteral thesis submitted to the Department of Geography, University of Hawaii. December. pp. 1-125.

# GENETIC DIVERSITY IN SMALL SCALE FILIPINO AGRICULTURE

by

DAVID L. CLAWSON\*

*"The peasant farmer is an artist. He extracts a meagre subsistence living from the soil under conditions in which scientists, bureaucrats, and politicians would starve."*

— Norman Borlaug

The purposes of this paper are to document the survival of multiple cultivars of staple tropical food crops in the Philippines and to illustrate their utilization by small scale Filipino farmers. The continued cultivation of multiple varieties of food crops constitutes perhaps the most practical means of preserving the dwindling genetic diversity of the plant kingdom. The production systems employed by traditional Filipino farmers also suggest alternate strategies for the development and diffusion of Green Revolution technologies within developing nations.

## GENETIC DIVERSITY OF TROPICAL FOOD CROPS

The genetic diversity of the plant world is seemingly limitless. Although the process of identification and classification of plant species and varieties is far from complete, over 1,000,000 specific names have been given to seed plants alone. Acknowledging the extensive duplication of names assigned identical species in different settings of time and space, most authorities estimate that approximately 250,000\* to 300,000 distinct species of plants have been identified to date with a vast, unknown number yet awaiting discovery and classification (Liberty Hyde Bailey Hortorium 1976; Cox, Healey and Moore 1973).

The genetic diversity of the families of common human food crops is so great that the significance of the numbers is readily misunderstood. The *Compositae*, or sunflower, family alone include about 800 genera and 20,000 known species. The protein-rich *Leguminosae*, or pea or

---

\* This paper was presented at the First National Conference on Geographic Education and Research in the Philippines, Diliman, Quezon City, 10-12 July 1985. The author served as Visiting Fulbright Associate Professor of Geography, University of the Philippines, Diliman, during the 1984-1985 academic year. He is currently Associate Professor and Chairman, Department of Geography, University of New Orleans, New Orleans, Louisiana 70148.

The research upon which this study is based was supported by the Philippine-American Educational Foundation (Fulbright-Hays). All opinions and conclusions are the author's.

purse, family is thought to have 690 genera and 18,000 species. The Gramineae, or grass family from which man's basic grains are derived, includes 700 genera and 7,000 species (Purseglove 1968; Liberty Hyde Bailey Hortorium 1976).

Just as plant families exhibit great genetic variation, individual food crops within families do likewise. Over 28,750 cultivars or just one Leguminosae species, *Phaseolus vulgaris* L., or the common bean, have been collected by researchers at the Centro Internacional de Agricultura Tropical (CIAT) in Colombia (Plucknett, et al., 1983 and CIAT 1981). One genera of Gramineae, *Triticum* L. or wheat, to consist of more than 63,000 cultivars (Plucknett, et al., 1983), over 20,000 of which belong to the economically dominant species, *T. aestivum* (Feldman and Sears 1981; Vavilov 1951). More than 67,000 accessions of rice, *Oryza* L., are in storage at the International Rice Research Institute (IRRI) in Los Baños (Swaminathan 1984). The dominant tuber crops are only slightly less impressive in their variability, with present collections ranging from 1,200 sweet potato, *Ipomoea batatas*, cultivars to 13,000 potato, *Solanum*, species (Table 1).

Even these figures are minute in comparison to the almost infinite number of heritable characters that are transmitted, in dominant or recessive form, within the cellular chromosomes and alleles. Plants propagated by vegetative, or apogamous, means are no less diverse genetically than those whose existence depends on seeds. When the potential for mutations and also the potential number of crosses between future cultivars are added to the original genetic base, it becomes apparent that the number of different forms and varieties of food crops which have and hopefully will yet evolve is essentially infinite. In sum, "one has the general impression that the more we study plants... the more variable they appear to be, and the more varieties there are discovered" (Vavilov 1951, p. 58).

#### THE LAW OF HOMOLOGOUS VARIATION

Given the infinite polymorphism of plants, one might possibly expect to encounter a total lack of genetic pattern or regularity among tropical food crops. Such, however, is not the case. Inspired by the work of Dresser (1859), Darwin (1896), and Bateson (1894; 1913), Nikolai Vavilov developed the "Law of Homologous Series in Heritable Variation." Vavilov found that, in spite of the genetic diversity of the plant kingdom, similar or common kinds of variations occur in most species. Not only do parallel variation patterns exist, but they are most evident in closely related species. "The closer species are related genetically, the more exact is the repetition of series of morphological and physiological characters" (Vavilov 1951, p. 65). If, for instance, a given trait series, such as tall, medium, and short-stemmed varieties, is found to exist in one member of the Graminae family, we would predict that it

TABLE 1. ACCESSIONS OF STAPLE TROPICAL FOOD CROPS IN GENE BANKS

Species	Accessions	Institution*	Location
<b>Grain Legumes</b>			
Common Bean ( <i>Phaseolus vulgaris</i> )	28,750	CIAT	Cali, Colombia
Chickpea ( <i>Cicer arietinum</i> )	13,000	ICRISAT	Hyderabad, India
Cowpea ( <i>Vigna unguiculata</i> )	12,000	IITA	Ibadan, Nigeria
Groundnut ( <i>Arachis hypogaea</i> )	8,800	ICRISAT	Hyderabad, India
Lima bean ( <i>Phaseolus lunatus</i> )	2,300	CIAT	Cali, Colombia
<b>Grains</b>			
Wheat ( <i>Triticum</i> species)	63,000	VIR	Leningrad, USSR
Rice ( <i>Oryza</i> species)	60,000	IRRI	Los Baños, Philippines
Maize ( <i>Zea mays</i> )	14,000	CIMMYT	El Batán, Mexico
Sorghum ( <i>Sorghum bicolor</i> )	24,000	ICRISAT	Hyderabad, India
Pearl Millet ( <i>Pennisetum typhoides</i> )	14,340	ICRISAT	Hyderabad, India
Finger Millet ( <i>Eleusine coracora</i> )	5,904	AICMIP	Poona, India
<b>Tubers</b>			
Potato ( <i>Solanum</i> species)	13,000	CIP	Lima, Peru
Sweet Potato ( <i>Ipomoea batatas</i> )	1,200	LPPPP	Bogor, Indonesia
Cassava ( <i>Manihot esculenta</i> )	3,000	CIAT	Cali, Colombia
Yams ( <i>Dioscorea</i> species)	7,100	Dodo Creek Research Station	Honiara, Solomon Islands

\*Acronyms: CIAT, Centro Internacional de Agricultura Tropical; ICRISAT, International Crop Research Institute for the Semi-Arid Tropics; IITA, International Institute of Tropical Agriculture; VIR, All-Union Institute of Plant Industry (USSR); IRRI, International Rice Research Institute; CIMMYT, Centro Internacional de Mejoramiento de Maiz y Trigo; AICMIP, All India Coordinated Millet Improvement Program; CIP, International Potato Center; LPPPP, Lembaga Pusat Penelitian Pertanian.

Source: Plucknett, D. L. et al. 1983.



also exists in most if not all of the other members of the family, especially those most closely related to the species in which the trait was originally observed. This principle has been documented so extensively in recent years that I am convinced that if mankind has not detected an observed trait series of a given species in related species, it is not because the series does not exist, but rather is attributable either to a lack of sufficient research or, less likely, to the extinction of the sought-for variety. In short, the homologous variation principle provides order to a seemingly otherwise disordered genetic world and enables us to anticipate future discoveries of valuable genetic traits and attributes among the world's food resources.

### INTERSPECIFIC DIVERSITY IN SMALL-SCALE FILIPINO AGRICULTURE

The relationship of the Law of Homologous Variation to traditional tropical agriculture has been widely overlooked. Small-scale tropical agriculturists can survive only by maximizing their harvest security. Faced with the reality that they are totally, or near-totally, dependent upon their own resources, they plant the greatest variety or diversity of crops possible within the confines of the limited space available to them.

It is universally recognized that small-scale farmers in the tropics cultivate as many different food crops as possible (Chang 1977; Igbozurike 1971; Colson 1979). A typical plot will contain a multilayered mixture of grains, tubers, legumes, and cucurbits, each growing in its own spatial niche, with tree crops, bananas and papaya forming the crowning upper story. In the Philippines, and in many other regions of tropical Asia, an additional aquatic component, consisting of a small fish pond, is common. This cropping system, patterned in its structure and composition after the tropical rainforest environment, focuses on interspecific variation or the simultaneous cultivation of multiple crops in the same space (Clawson 1985a).

A survey was conducted in June, 1985, of traditional agriculturists working small, primarily subsistence, plots on lands owned by the University of the Philippines in Diliman, Quezon City. The objective of the study, which consisted of a 50 percent sample of 38 plots with gardens and fish ponds, was to assess cropping intensity levels as measured in part by the degree of farmer reliance on interspecific polyculture. The nineteen plots analyzed averaged 90 square meters in size and contained an average of twelve species of food crops, excluding fish, snails and other aquatic animal life in the ponds (Table 2). Two case studies illustrate the nature of intercropping in the area.

TABLE 2. CROPPING INTENSITY IN SMALL-SCALE POLYCU-  
LTURAL PLOTS, DILIMAN, QUEZON CITY, 1985

Number of crops excluding fish and snails	Frequency	Percentage
<6	1	5.3
6-8	2	10.5
9-11	4	21.1
12-14	7	36.8
15-17	3	15.8
17	2	10.5
Total	19	100.0

Source: Author field data.

Vicente Faulan works a 48 square meter tilapia pond and a 40 square meter adjoining garden. In this small area, Vicente raises simultaneously fifteen to twenty crops during the rainy season and ten to fifteen crops during the dry season with the precise mix in a state of constant flux as individual crops are planted and harvested with the changing seasons. The sixteen species under cultivation in June, 1985, in the garden adjoining the pond resulted in a cropping intensity index of 2.5, meaning an average of 2.5 square meters of land per cultivated crop species (Table 3).

In contrast to most of his poorer neighbors, Juan Molina is fortunate to have two fish ponds whose surface areas total 224 square meters and 1276 square meters of dryland garden. In June, 1985, Juan had fourteen tree crops under cultivation forming the upper story of his "food forest," eight tuber crops, and seventeen additional vegetable and legume crops occupying varying niches (Table 4). He also raised snails and three species of fish in his ponds which comprised an almost sub-surface layer in the vertical zonation structure of his polycultural plot. The total of 39 wet season crops resulted in a crop intensity index of 32.7.

#### INTRASPECIFIC DIVERSITY IN SMALL-SCALE FILIPINO AGRICULTURE

While the practice of interspecific multiple cropping among small-scale Filipino farmers is generally acknowledged, it is less understood that the traditional agriculturist attempts to maximize his harvest security through the additional reliance on intraspecific polyculture (Clawson 1985b). This is accomplished by cultivating numerous varieties of the same staple crop in the same plot or in neighboring fields.

TABLE 3. INTERSPECIFIC DIVERSITY IN SMALL-SCALE AGRICULTURE: VICENTE FAULAN, DILIMAN, QUEZON CITY, JUNE 1985

English name	Pilipino name	Botanical name
taro	gabi	<i>Colocasia esculenta</i> S.
cassava	kamoteng kahoy	<i>Manihot esculenta</i> C.
sweet potato	kamote	<i>Ipomoea batatas</i> L.
swamp cabbage	kangkong	<i>Ipomoea aquatica</i> F.
eggplant	talong	<i>Solanum melongena</i> L.
okra	gumbó	<i>Hibiscus esculentus</i> L.
bath sponge	patola	<i>Luffa acutangula</i> (Linn.) Roxb.
saluyot	saluyot	<i>Corchorus acutangulus</i> L.
malabar nightshade	alugbati	<i>Basella rubra</i> L.
lima bean	patani	<i>Phaseolus lunatus</i> L.
pigeon pea	kadios	<i>Cajanus cajan</i> (Linn.) Millsp.
winged bean	sigadilya	<i>Psophocarpus tetragonolobus</i> (Linn.) DC.
horseradish tree	malungay	<i>Moringa oleifera</i> L.
ipil-ipil	ipil-ipil	<i>Leucaena leucocephala</i> (Lmk.) de Wit
banana	saging	<i>Musa paradisiaca</i> L.
papaya	papaya	<i>Carica papaya</i> L.

Source: Author field data.

TABLE 4. INTERSPECIFIC DIVERSITY IN SMALL-SCALE AGRICULTURE: JUAN MOLINA, DILIMAN, QUEZON CITY, JUNE 1985

English name	Pilipino name	Botanical name
<b>Tree crops</b>		
coconut	niyog	<i>Cocos nucifera</i> L.
banana	saging	<i>Musa paradisiaca</i> L.
papaya	papaya	<i>Carica papaya</i> L.
mango	mangga	<i>Mangifera indica</i> L.
avocado	abukado	<i>Persea americana</i> Mill.
orange	kahel	<i>Citrus aurantium</i> L.
horseradish tree	malungay	<i>Moringa oleifera</i> L.
star apple	kaimito	<i>Chrysophyllum cainito</i> L.
guava	bayabas	<i>Psidium guajava</i> L.
jackfruit	langka	<i>Artocarpus heterophylla</i> L.
santol	santol	<i>Sandoricum koetjape</i> (Burm. f.) Merr.
atsüete	atsüete	<i>Bixa orellana</i> L.
jambolan plum	duhat	<i>Syzygium cumini</i> (Linn.) Skeels
sineguela	sineguela	<i>Spondias purpurea</i> L.
<b>Tuber crops</b>		
taro	gabi	<i>Colocasia esculenta</i> S.
cassava	kamoteng kahoy	<i>Manihot esculenta</i> C.
sweet potato	kamote	<i>Ipomoea batatas</i> L.
yam bean	sinkamas	<i>Pachyrrhizus erosus</i> (Linn.) Urb.
arrowroot	araru	<i>Marantha arudinacea</i> L.
ginger	luya	<i>Zingiber officinale</i> Roscoe
peanut	mani	<i>Arachis hypogaea</i> L.
garlic	bawang	<i>Allium sativum</i> L.

Cont'd. TABLE 4

<i>English name</i>	<i>Pilipino name</i>	<i>Botanical name</i>
<b>Other vegetable and legume crops</b>		
tomato	kamatis	<i>Lycopersicon esculentum</i> Mill.
okra	gumbo	<i>Hibiscus esculentus</i> L.
eggplant	talong	<i>Solanum melongena</i> L.
squash	kalabasa	<i>Cucurbita maxima</i> Duch.
cucumber	pipino	<i>Cucumis sativas</i> L.
bath sponge	patola	<i>Luffa acutangula</i> (Linn.) Roxb.
bitter gourd, bitter melon	ampalaya	<i>Momordica charantia</i> L.
swamp cabbage	kangkong	<i>Ipomoea aquatica</i> F.
popcorn	mais	<i>Zea mays everta</i>
sugarcane	tubo	<i>Saccharum officinarum</i> L.
bamboo	kawayan	<i>Bambusa blumeana</i> Schultz. f.
sweet pepper	sili	<i>Capsicum annum</i> L.
chile pepper	sili	<i>Capsicum annum</i> L.
common bean	bitsuwelas	<i>Phaseolus vulgaris</i> L.
winged bean	sigadilya	<i>Psophocarpus tetragonolobus</i> (Linn.) DC.
mushrooms	kabute	<i>Agaricus campestris</i>
saluyot	saluyot	<i>Corchorus acutangulus</i> L.

Source: Author field data.

Varietal variation is preserved in nature through a wide array of slight physical differences. The majority of these, while recognizable to the naked eye, are not visually obvious. To the uneducated, yet highly intelligent and creative small-scale tropical agriculturist, color differences constitute one of the most distinctive and readily observable indicators of variation in food plants. Patiño (1963, p. 105), concluded that color was formerly so dominant in varietal differentiation among Latin American peasants that "it is almost exclusively by color that some varieties can be identified in the colonial literature." Even today, he continued, "in the language of superstitious natives, the names of the varieties are merely the word use to express the corresponding color."

Pickersgill (1969, p. 445), has observed that "variability is greatest in that part of the plant that is of economic importance." Applying this concept to the Law of Homologous Variation, we would expect to encounter the greatest differentiation in color among the edible portions of food crops, particularly seeds, tubers, fruits, and leaves.

Other physical differences that are frequently used by small-scale traditional Filipino farmers to distinguish intraspecific cultivars include the shape of leaves, tubers or other plant organs, the size of the plant organs, the method of propagation, the storage life of the edible portion, soil moisture requirements, maturation period or length of growing season, and perceived sensory variations, such as taste and texture, associated with the consumption of the edible portions.

The greater the dietary importance of an individual crop within the polycultural assemblage, the greater the number of cultivars is likely

to be. In other words, one can usually judge the relative importance of a given crop to an individual traditional farmer by the number of varieties under cultivation.

By thus enveloping himself in a plethora of crops and crop varieties, the small-scale Filipino agriculturist maximizes his harvest security. If some of the crops or cultivars are damaged by pests, disease, or abnormal weather, others will survive. Genetic diversity also allows the small farmer to distribute more evenly his labor throughout the year. Last, but not least, genetic diversity satisfies more fully the cultural and dietary needs of the farmer allowing him to select from a variety of products. The remainder of this analysis consists of two brief representative case studies of traditional Filipino intraspecific polyculture, one focusing on tuber crops and the second on rice, the basic grain of the Philippines.

#### INTRASPECIFIC DIVERSITY IN FILIPINO TUBER CROPS

For an analysis of the utilization of multiple varieties of staple tubers, we return to the tiny 40 square meter plot of Vicente Faulan. Vicente depends heavily on three tuber crops: taro or gabi, sweet potatoes or kamote, and cassava. The six taro varieties cultivated are distinguished primarily on the basis of white, green, red or purple plant organ colors, adaptability to reasonably well-drained upland soils versus swampy, water-logged conditions, whether the plants reproduce by runners or by splitting, and season of harvest (Table 5). The length of growing season of the gabi varieties is of relatively minor concern to Vicente owing to both the year-around growing season made possible through irrigation and to the continuous production of gabi leaves which constitute a more important dietary component than the tubers.

Sweet potatoes are equal to gabi in importance in the Faulan diet. Although the kamote vine tips and leaves are highly valued as food, the tubers constitute the most important edible component. Owing to the emphasis on the production of the tubers, the length of the growing

TABLE 5. INTRASPECIFIC DIVERSITY IN TUBER CROPS, VICENTE FAULAN, DILIMAN, QUEZON CITY, JUNE 1985

<i>Crop</i>	<i>Cultivar or Variety</i>	<i>Characteristics</i>
Taro	a. green leaf, green stem, white tuber	swamp environment, rapid multiplication by runners, small good tasting leaves, tubers of secondary dietary importance
	b. green leaf, purple stem, white tuber	swamp environment, rapid multiplication by runners, tubers too fibrous to eat; large tasty leaves
	c. green leaf, red stem, white tuber	moist upland environment, sucker reproduction, sticky tuber texture, thrives at edge of standing water

Con'td. TABLE 5

<i>Crop</i>	<i>Cultivar or Variety</i>	<i>Characteristics</i>
	d. green leaf, purple stem, white tuber	dry, upland environment, sucker reproduction
	e. "Australian," green leaf and stem, white tuber	dry, upland environment, sucker reproduction, largest size, leaves inedible, tubers ready 7 mo.
	f. "Gabi Tagalog," green leaf and stem, white tuber	dry, upland environment, propagation by splitting, tops die off in dry season, leaves inedible, tuber eaten in summer
Sweet Potato	a. green and round to oval leaves, green vines, white tubers	largest tuber, best tasting and sweetest tuber, 3 mo.
	b. green star-shaped leaves, green vines, white tubers	large tuber, 4 mo.
	c. purple round to oval leaves, purple vines, purple tubers	medium size tuber, vines inedible, 6 mo.
	d. purple star-shaped leaves, purple vines, purple tubers	small, thin tubers, "surest" because largest number of tubers, vines inedible, 6 mo.
	e. small green oval leaves, green vines, green tubers	vines which grow in almost wild state, not major food source
	f. light green almost yellow oval leaves and vines, yellow tubers	good taste, 3-4 mo.
Cassava	a. green leaves, yellowish-green leaf stem, white tuber	smaller, softer, less tasty tuber, "surest" because of short 3 mo. maturation period to first harvest.
	b. green leaves, red leaf stem, white tuber	larger, harder, better tasting tuber, 7-10 mo. maturation period

Source: Author field data.

is of prime concern, with the cultivars varying in maturation period from three to six months (Table 5). The leaves of the cultivars range from light yellow-green to dark green to purple in color and from round to oval to star shaped. The tubers occur in white, yellow, green and purple color and also vary in size, shape, and taste.

TABLE 6. INTRASPECIFIC DIVERSITY IN RICE, SEGUNDO VALDEZ, BALAOAN, LA UNION, APRIL 1985

Name	Husk Color	Grain Color	Ht. relative to Segundo	Maturation Period	Harvest Order	Texture	Other
Virgie	red	reddish	chest	4 mo	1st	hard	upland variety
Mallioc	golden	white	head	4.5 mo	2nd	soft	most prestigious among elites
Malagkit	purple-black	white	chest	5 mo	3rd	softest	sweetest, used in native delicacies,
Dinominga	golden	white	neck	5.5 mo	4th	soft	shape of tailings discourages bird infestation
							crunchy or chewy texture

Source: Author field data.

Cassava, the third major tuber crop, is cultivated in two varieties. The cultivars are almost identical in their above-ground organs and the only way to distinguish them is by the color of the leaf stem. The red stemmed variety produces a harder, larger tastier tuber in comparison to those of the yellow-green leaf stemmed variety. The latter is cultivated much more extensively, however, owing to its shorter maturation period which allows initial harvesting to occur at three months compared to a minimum of seven months for the red-stemmed counterpart (Table 5). Although cassava does not command as much space in the Faulan garden as gabi or kamote, it is nonetheless a very significant crop.

### INTRASPECIFIC DIVERSITY IN RICE

Varietal differentiation among peasant rice farmers is represented by Segundo Valdez of Balaoan, La Union. Segundo transplants at least four rice varieties to his fields at the beginning of each rainy season (Table 6). The most rapidly growing and the earliest to be harvested is Virgie, a red upland variety. The second variety harvested is Mallioc which has a golden colored husk. Mallioc is followed by Malagkit, a purple-black husked variety. Dinominga, another golden colored variety, is harvested last. The length of the growing season of each variety is a major concern to Segundo who, by sowing four or more cultivars, both stretches out his peak labor harvest period and increases his level of harvest security. In addition to differing in color and maturation period, the rice varieties also vary in the height of the mature plants and therefore in their suitability to lands of varying slope and depth of standing water, in resistance to disease and pests, and in texture and taste.

### CONCLUSIONS

The world is losing its irreplaceable genetic food plant resources at an increasingly rapid rate (Brown 1983; Duvick 1984; Grosvenor 1985; Fishbeck 1981). It has become apparent that in our drive to increase yields through the introduction of hybrid crop varieties, we have sacrificed countless traditional plant varieties, many with extremely useful attributes. Monoculture has come to so dominate American agriculture, for example, that the six most popular cultivars of each major economic crop account for approximately 40 percent of all plantings (Table 7). Plant gene banks are viewed by many as the solution to the profit-preservation dilemma (Plucknett, et al., 1983). The collection and storage in gene banks of germplasm of major food crops is unquestionably preferable to no preservation program at all. Such efforts, however, are at best poor imitations and substitutes for nature, where through countless genetic mutations and crossings, new varieties are constantly evolving in response to the dynamic physical and cultural environments. Traditional farmers are active and, indeed, vital parti-



participants in this process (Johannessen 1982). Vicente Faulan, for example, cultivates more crops and crop varieties on his tiny plot than are utilized collectively by thousands of large-scale farmers in the American midwest.

The present challenge is how to increase productivity while simultaneously preserving and strengthening our genetic heritage. One needed step would be to expand significantly research on increasing the productivity of traditional varieties rather than focusing our efforts, as we

TABLE 7. PROPORTION OF TOTAL CROP PLANTED TO THE SIX MOST POPULAR CULTIVARS IN THE UNITED STATES

Crop	1970%	1980%
Cotton	68	38
Soybean	56	42
Wheat	41	38
Maize	71	43

Source: Duvick 1984.

generally have in the past, on replacing them with hybrid monoculture (Clawson and Hoy 1979). In addition to supporting basic research, any successful development program should start from the premise that the traditional varieties can be preserved through the preservation of small-scale traditional agriculture itself. Rather than being viewed with disdain as an embarrassing relic of an unproductive past, traditional agriculture should be valued as an essential partner in protecting and strengthening industrial agriculture.

This partnership can best be encouraged through marketing strategies which build upon the recognized strengths of the traditional crop varieties. When price considerations are discounted, for example, most Filipinos continue to prefer traditional rice cultivars over their hybrid counterparts owing to the perceived superior taste and nutrition of the former. It is well known, also, that the traditional varieties require a considerably lower level of expensive industrial inputs such as chemical fertilizers and insecticides. In spite of these major cultural and economic advantages, however, the traditional varieties have been legislated against through government price support programs and development packages which are structured to encourage large-scale grain production to which the hybrid varieties are best adapted.

Farmers utilizing traditional varieties should be permitted equal access to government support programs. Consideration might also be given to marketing the traditional varieties as "organic" or "natural" specialty foods. The healthy profits derived therefrom could provide much needed financial incentives to the continued production of the traditional varieties. If adequate marketing and production support programs could be developed, the long-term vitality of the traditional-industrial partnership would be assured.

## REFERENCES

- Anderson, Edgar. 1952. *Plants, Man and Life*. Boston: Little, Brown and Company.
- Bateson, William. 1894. *Materials for the study of variation treated with especial regard to discontinuity in the origin of the species*. London: Macmillan and Company.
- Brown, W. L. 1983. Genetic diversity and genetic vulnerability — an appraisal. *Economic Botany* 37: 4-12.
- Centro Internacional de Agricultura Tropical. 1981. *The CIAT Bean Program: Research Strategies for Increasing Production*. Cali, Colombia: Centro Internacional de Agricultura Tropical Series 02EB-2.
- Clawson, D. L. 1985a. Small Scale Polyculture: An Alternative Development Model. *Philippine Geographical Journal*, 29: 92-103.
- Clawson, D. L. 1985b. Harvest security and intraspecific diversity in traditional tropical agriculture. *Economic Botany* 39: 56-67.
- Clawson, David L. and Hoy, Don R. 1979. Nealtican, Mexico: A Peasant Community That Rejected the 'Green Revolution'. *The American Journal of Economics and Sociology* 38: 371-87.
- Colson, Elizabeth. 1979. In Good Years and in Bad: Food Strategies of Self-Reliant Societies. *Journal of Anthropological Research* 35: 18-29.
- Cox, C. Barry, Healey, Ian N. and Moore, Peter D. 1973. *Biogeography: an ecological and evolutionary approach*. New York: John Wiley & Sons.
- Darwin, Charles. 1896. *The Variation of Animals and Plants Under Domestication*, 2 volumes, 2nd edition. New York: D. Appleton and Company.
- Dresser, Christopher. 1978. *Unity in Diversity*. New York: Garland Publishers, Reprint of the 1859 edition published by J. S. Virtue, London.
- Duvick, D. N. 1984. Genetic diversity in major farm crops on the farm and in reserve. *Economic Botany* 38: 161-74.
- Feldman, Moshe, and Sears, Ernest R. 1981. The Wild Gene Resources of Wheat. *Scientific American* 244: 102-12.
- Fishbeck, G. 1981. *The use of genetic resources in the plant kingdom*. Union Internationale pour la Protection des Obtentions Vegetales. Geneva.
- Grosvenor, G. M. 1985. The society and the discipline. *Journal of Geography* 84: 51-54.
- Igbozurike, M. U. 1971. Ecological Balance in Tropical Agriculture. *Geographical Review* 61: 519-29.
- Johannessen, C. L. 1982. Domestication process of maize continues in Guatemala. *Economic Botany* 36: 84-99.
- Liberty Hyde Bailey Hortorium. 1976. *Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada*. New York: Macmillan Publishing Company, Inc.
- Patiño, Victor Manuel. 1963. *Plantas Cultivadas y Animales Domésticos en América Equinoccial*, tomo 2. Cali, Colombia: Imprenta Departamental.
- Pickersgill, Barbara. 1969. The domestication of chili peppers. In *The Domestication and Exploitation of Plants and Animals*, eds. Peter J. Ucko and G. W. Dimbleby, pp. 443-50. London: Gerald Duckworth and Company.
- Plucknett, D. L., Smith, N. J. H., Williams, T. J., and Anishetty, N. M. 1983. Crop germplasm conservation and developing countries. *Science* 220: 163-69.
- Purseglove, J. W. 1968. *Tropical Crops: Dicotyledons*. New York: John Wiley and Sons, Inc.
- Swaminathan, M. S. 1984. Rice. *Scientific American* 250: 81-93.
- Vavilov, Nikolai I. 1951. *The Origin, Variation, Immunity and Breeding of Cultivated Plants*, trans. from the Russian by K. Starr Chester. New York: The Ronald Press Company.

# NEW TOWNS AS GROWTH CENTRES: A CASE STUDY IN NIGERIA

by

E. SOKARI-GEORGE\*

## INTRODUCTION

Rivers State is the only State in the Federal Republic of Nigeria which has a single major city — Port Harcourt. Port Harcourt, the State's capital is used for administrative and both for public and private sectors of the economy. Also, Port Harcourt is the centre of Nigeria's petroleum production. Because of the petroleum industry, multinational oil companies such as Agip, Elf, Mobil, Philips, Shell-BP as well as the Nigerian National Petroleum Corporation (NNPC) and the Nigerian Petro-chemical Industry (NPI-head office) are located in Port Harcourt while others like the Nigerian Petroleum Refining Company (NPRC) and the National Fertilizer Company of Nigeria (NAFCON) are located at the periphery of the city. Apart from the companies mentioned above, there are other major manufacturing establishments in Port Harcourt (Table 1).

TABLE 1. MANUFACTURING ESTABLISHMENTS IN PORT  
HARCOURT: 1970-1983

Industry Type	1970-73	1974-75	1976-77	1978-80	Total
Fishing	2	1	1	2	6
Mining and quarrying	1	1			2
Food beverages and tobacco	33	4	5	4	46
Textiles, clothes and leather	54	6	5	13	78
Wood and wood products	22	1		1	24
Paper and paper products	15	4			19
Chemical and plastic products	23	6		3	32
Non-metallic mineral products	4				5
Basic metal industries	1				1
Fabricated metal products	23	2	7	14	46
Electricity, gas and water	1		1	1	3
Repair services	25	2		8	35
<b>Total</b>	<b>204</b>	<b>27</b>	<b>19</b>	<b>47</b>	<b>297</b>

Source: Industry Directory of Rivers State, No. 3, 1983.

\* Dr. Sokari-George is with the Department of Architecture/Town Planning, Rivers State University of Science and Technology, P.M.B. 5080, Port Harcourt, Nigeria.

Due to these activities and others, Port Harcourt therefore pulls massive migrants to itself for better employment and/or a response to spatial earnings differential in the capital city (Sokari-George, 1985). For instance, in 1973, migrants into Port Harcourt from within the Rivers State were 107,720, while those from other states were 61,739 (Salau, 1984). On the whole, the total migrant population in 1973 was 169,459 and represented 73 per cent of the population of the city in that year.

As a result of the massive migration into Port Harcourt and with an "annual growth rate of 9.5 per cent, the dangerous phenomena of over-crowding, sub-urban sprawl, traffic congestion, squalor and shortage of housing, crime, and other urban facilities have begun to manifest themselves... (Ndiomu 1981:1).

To ameliorate the above urban problems in Port Harcourt, during the Third National Development Plan 1975-80 period, with a civilian administration at the helm of affairs in 1979, seven new towns (Ekeremor, Bori, Woji, Boro, Ogbia, Abua, and Obigbo<sup>1</sup> see Figure 1) "conceived as growth centres with... a target population of about 50,000 of each new town when completed" (Ndiomu, 1981) were selected from seven local government areas by the Rivers State Government in 1980. Four of the designated centres were found in four local government areas on the main land of the state, three were located in the smallest (by population) local government areas in the Riverine area, and none was designated in the two largest (by population) local government areas.

If indeed the State Government was in for growth pole or growth centre<sup>2</sup> strategy, little did the government know that there has been a controversial debate on the issue for almost two decades. During the period opposition to growth centre strategy became stronger especially in developing countries. From a golden national or regional development catchphrase, growth pole or growth centre has become almost a dirty word. The debate, however, is more of a semantic one than of substantive one. Similarly, the more relatively recent disenchantment is more a product of new fashions and pet phrases ("new international economic order," "basic minimum needs," and "integrated rural development") than of long experience with attempts to implement growth pole strategies. The purpose of this paper is not to review the debate on the growth centre controversy but to determine if the seven designated

<sup>1</sup> Actually, all of them are existing villages of different sizes population. The Government felt the expansion of these centres is a less costly alternative than the creation of new towns and as they are conceived as growth centres, we have also tagged them the terms "growth centres growth poles."

<sup>2</sup> We do not engage in any semantic discourse on the distinctions between the two terms here but will throughout the paper use them interchangeably.

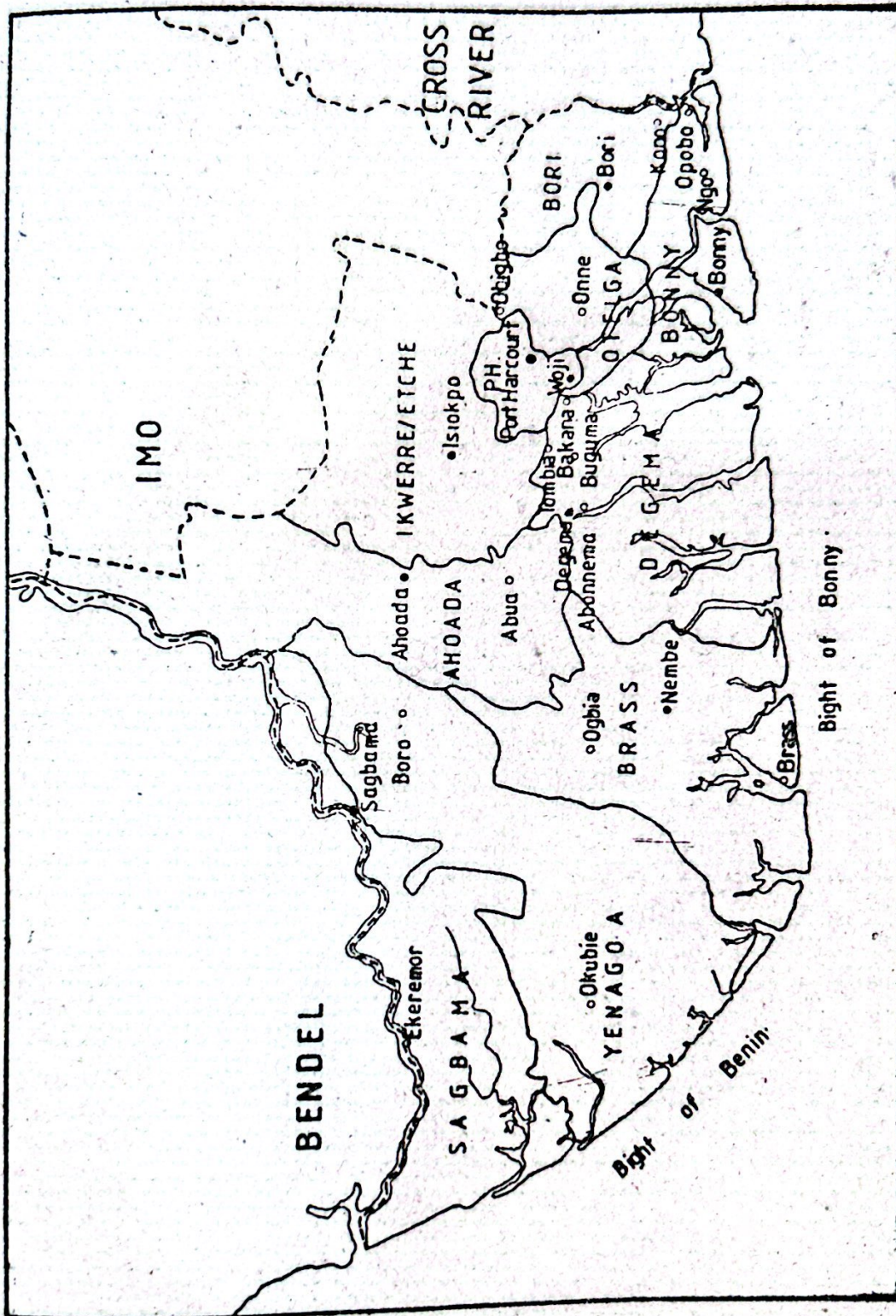


FIGURE 1. RIVERS STATE: LOCAL GOVERNMENT BOUNDARIES AND IMPORTANT TOWNS

centres are feasible for growth pole strategies and if they are not, to suggest and/or to indicate how the strategies might play a significant part in the development process of Rivers State.

### GROWTH CENTRE AND RURAL DEVELOPMENT IN DEVELOPING COUNTRIES

In some developing countries, as indicated earlier, the growth pole strategy to national or regional development has received a very strong opposition (Friedmann, 1975, Faber & Seers, 1972; and Mesarovic & Pestel, 1974). This opposition arises from (1) the application of the concept is copied and used from the Western strategies in an indiscriminate manner without modification to suit the socio-economic development pattern of the countries, and (2) the use of the strategies as location for planned development instead of integrated national or regional urban development (Richardson and Richardson, 1975; and Conroy, 1973). In other developing countries, the strategies of growth pole are accepted and integrated into national developing policies in national planning documents and planning legislations (Barkin, 1978; and Sawers, 1978). In these countries the strategies have either been applied as decentralization policy in both medium size city levels and in small cities in rural areas to provide a driving force for regional development, in particular the reduction of regional disparities, to cope with polarization phenomenon of primate cities, or as strategic public investment policy in the establishment of industries in potential core regions or rural areas to cope with rural-urban migration and regional disparities.

In either case, emphasis is placed on the creation of industrial employment either in agricultural processing industries producing food for export or for the home market or a considerable number of small-scale industries, smaller workshops and factories that can act as feeder industries for a number of activities in the large urban centres.

Case histories of many cities in some developing countries with population ranging between 100,000 and 500,000 show that they are highly dependable on their hinterlands for agriculture small-scale industry (Ho, 1979; Sundaram, 1979; and Gulick, 1967).

In centres for small-scale industry, for example, Taiwan presents some cases where medium size or small cities set up as growth-centres support a substantial number and variety of manufacturing establishments. Ho (1979) points out that between 1930 and 1956 industrial employment increased by nearly four percent a year in Taiwan's seven cities, and between 1956 and 1966 it increased by about 5.6 percent a year in small cities outside Taipei metropolitan area. In 1966, Taiwan, Kaohsiung, Taichung, and 23 urban townships adjacent to these medium size cities had 23 percent of Taiwan's employment in manufacturing and eight smaller cities had an additional ten percent. Ho argues from his

review of experience in Taiwan that a decentralized pattern of industrialization based on medium size and small cities in rural areas improved non-agricultural employment opportunities for rural households by allowing them to commute to manufacturing jobs in nearby cities and still engage in farm activities on weekends and created other linkages with small commercial, service, and repair establishments in rural towns, making it possible for small business to develop in the farming communities. Decentralized industrialization created employment and entrepreneurial opportunities for rural people, giving them more income to spend on manufactured goods produced in growth centres outside the large urban areas, and making the ruralities to remain in the rural regions (Ho, 1979: 90-92). This suggests that growth centre offers alternative destinations for migrants, strengthens regional settlement hierarchies, gives regions more demographic stability, and stimulates development of rural regions.

### AGROPOLITAN DISTRICT

Another interesting concept to develop the rural regions of developing countries is that of the "agropolitan district" (Friedmann and Douglas, 1975). This approach is quite in contrast with the growth pole concept. Friedmann and Douglas argue that growth centre simply means an urban industrial strategy, and instead suggest that elements of urbanism should be introduced into rural areas via agropolis or "cities-in-the-fields" approach. This approach involves the creation of a spatial unit larger than the village, named the "agropolitan district." The district will supply services, will provide off-farm jobs, and will be self-governing. In normal circumstances, the agropolitan district would have an average population density in excess of 200 persons per square kilometer would contain a major town of 10,000-25,000 with a commuting radius of 5-10 kilometers (walking or cycling distance). Most of the labour force would be agricultural but there would be some small-scale light industry, agro-processing and agro-supplying industries, and a variety of service activities. The functions of the district would be financed by retaining local savings, the substitution of volunteer work for taxes, the transfer of capital from a regional capital city to rural areas, and changing the internal terms of trade in favor of agriculture.

The two major differences between the growth pole and the agropolitan district are: (1) the former is ideally set up in a national or regional urban strategy, whereas the latter aims to resist urbanization, and (2) the growth centre strategy is very selective spatially with the chances of success declining as the number of designations increase, the agropolitan district approach calls for an even scatter of a large number of districts. It is unclear how the districts would be created — whether

by selection of certain villages for expansion or by establishment of new rural towns. The implementation issues have not been properly taken care of by the proponents of the agropolitan district approach.

### GROWTH CENTRE IN RIVERS STATE PLANNING

In 1980, as indicated earlier, the Rivers State Government embarked upon the development of seven growth centres.<sup>3</sup> The purpose of the centres, "is to provide alternatives to the over growth, congestion and sub-urban sprawl of Port Harcourt by creating new moderate size as growth poles in which people can have good homes in healthy and pleasant surroundings near their places of work with urban services and cultural facilities... To give them priority in public works, developing them as industrial centres, and developing them as alternative destination for migrants to Port Harcourt. This is a major and necessary element in the State's regional planning policy..." (Ndiomu 1961:1). This is not to say that Port Harcourt is too large. It is a relatively medium size city of less than one million in population (Table 2). It accounts for only about 12.5 percent of the State's population but its income distribution is very inequitable (Sokari-George, 1985).

TABLE 2. PORT HARCOURT: POPULATION GROWTH 1915-1983

Year	Population
1915	5,000
1921	7,185
1931	27,000
1934	20,000
1944	30,200
1948	35,000
1953	73,300
1963	179,653
1967	183,000
1973	231,000
1982/83	911,731

Sources: Ogionwo, W. ed. *The City of Port Harcourt*, Heinemann Educational Books, Ibadan, p. 73, 1979

Salau, A. T. *Nigerian Cities*, Hodder and Stoughton, London, 1984

It appears, however, the Rivers State Government has professed to have a growth pole strategy, it has been more nominal than real. The discussion here will deal with what type of growth centres might be implementable in Rivers State rather than with evaluation of extant

<sup>3</sup> The judgments for this part of the study were formed in 1984 while the author was preparing a course on National and Regional Planning in Nigeria. It should therefore be stressed that the next reflects personal observation of the author and does not in anyway represent the views of the Government of Rivers State. Apart from official government documents, the main information inputs for this study are of an informal nature. This explains the very limited references.



policy. An attempt will be made to suggest a strategy that helps to achieve regional spatial objectives and that is complementary with emphasis on rural development.

In the first instance, the seven centres designated, none of them had municipal status because their sizes are far less than 70,000 in population and even if they are fully developed to the targeted population figure of 50,000 each they would not acquire the municipal status. Irrespective of none municipal status, they could either be chosen on their individual economic merits (i.e., potential for industrial development) or they could be chosen for purely political reasons.

If either of them is correct, it made little or no sense in terms of a regional spatial strategy. For example, two of the designations (Woji and Obigbo are within three and seven kilometer distance and 3,000 and 5,000 in population, respectively) are too close to Port Harcourt to maximize returns on scarce resources and have no potentialities for future growth. Second, because of their population sizes and the proximities to Port Harcourt, Woji and Obigbo must not be given the status of growth centres. After all, Port Harcourt is still growing rapidly and this means Woji and Obigbo will soon be swallowed up to reinforce metropolitan polarization rather than to undermine it. Third, different levels of growth centre are needed for different purposes. A regional growth centre is to stimulate decentralization from the largest city or to stabilize a region's population. These indicate varying urban sizes and different selection criteria, but most important, they place growth pole selection with the consideration of urban hierarchy.

Other centres such as Abua, Bori, Boro, Ekeremor and Ogbia have population of 10,000, 7,000, 2,000, 3,000 and 8,000, respectively; are all within 60-80 kilometers and have no municipal status. They are neither of medium size (even if they have acquired the targeted population figure of 50,000 each) nor far enough from Port Harcourt to be its competitive pull or as counterweights but are close enough to benefit the agglomeration of Port Harcourt's economics.

Boro, Ekeremor, and Ogbia are located along Rivers Nun, Farcados, and Kolo, respectively. During high tides the rivers overflow their banks and the towns are always completely flooded. Again, the three towns (Boro, Ekeremor, and Ogbia) are all located on marshy or swampy grounds unsuitable for further development.

The designation of growth centres is a good idea in the right direction but as indicated, the selection of the seven centres were wrong and for a State Government alone to embark on such number of projects is too much for effective implementation and in view of resource constraints and scarcity of infrastructure capital. A developing nation

with these constraints cannot singularly carry on a project of seven growth centres at a time much less a State Government in developing country in Africa.

Spatial considerations suggests that if a major centre were to be established it should be in a medium size city. Apart from Port Harcourt there is no other metropolitan centre in Rivers State. This means that the state is still predominantly rural. However, there are cities of different sizes from different local government areas that can be considered as growth poles or catchment centres. For example, Buguma City the second largest community in Rivers State has a population of about 120,000, Abonnema about 90,000, Bakana about 70,000, and Tombia about 65,000; all are in Degema Local Government Area (DELGA). In Bonny Local Government Area (BLGA), Bonny has a population of about 85,000, Opobo Town about 70,000, and Ngo about 60,000. These cities or towns are all in the Riverine area of the State, and except Bakana are all 120-210 kilometer range from Port Harcourt. Furthermore, these cities or towns are all unconnected by road network because of difficult terrain of the area.

If the Government of Rivers State actually wants to develop some growth centres to stimulate decentralization in its rural areas and to minimize the migration to Port Harcourt, consideration should be given to urban hierarchy in the selection of the growth centres, and the number of centres must also be reduced to two small cities in two local government areas at a time for effective implementation. Bonny and Degema Local Government Areas can qualify for the two centres because they have some medium size and small cities to merit the growth pole status.

#### BONNY LOCAL GOVERNMENT AREA (OLGA)

Although OLGA has a difficult terrain, a major growth centre in the area can easily be established. The local government is endowed with untapped natural resources, it has substantial agricultural potential, it contains about 30 per cent of the state's population, and it has a rapid population growth rate of 5.2 percent yet, there is no major or small-scale industrial activity and lacks a major urban centre. This lack of activity has contributed to massive migration northwards to Port Harcourt (See Figure 1). The massive migration, however, can be alleviated if an urban centre nearer home is set up to accommodate the northward bound migrants. An expansion of one of the towns (Bonny, Opobo Town, and Ngo) presumably Bonny, because it is the headquarters of the local government area and it has a population of about 85,000 is necessary to attain urban-rural balance. Since local migrants to this centre will easily be able to contact their rural origins as compared with migrants

to Port Harcourt. The rural-urban contacts in OLGA can be an important vehicle of development diffusion, mainly as an instrument for raising agricultural productivity.

On grounds of interregional equity, priority should be given to OLGA since the area lags in infrastructure and services but has unexploited natural resource. The area, because of the difficult terrain, has no road network to the mainland except by speedboats, health services are very poor, and there is no electricity connecting the national grid. But Bonny has oil fields and oil terminal, glass sands, and fibre processing while Ngo has copra. Glass sands, fibre processing, and copra have not been fully exploited because of none availability of infrastructure and several hectares of coconut farm is neglected or abandoned since the end of the country's civil war in 1970. This, if proper care is take, can bring about foreign exchange earnings. It is also said that infrastructure and services are functionally related to the degree of development of regional urban hierarchy. In other words, if infrastructure and services are developed in OLGA, they will strengthen the area's larger towns and will improve the general welfare level of the population in both the rural and urban areas.

A further advantage of Bonny is that its industrial potential is substantial. Recently, the Federal Government of Nigeria has completed arrangements to build a liquefied natural gas plant at Bonny to process gas for both domestic use and for export. This shows that Bonny has economic potential and to promote Bonny, would automatically increase economic and social flows between the southeast of the state and Port Harcourt, and would benefit the neighboring communities such as Ogoni, Kono, and Bori. The designation of Bonny as a growth centre and subsequent priority to the city in the allocation of infrastructure and industrial decentralization efforts would strengthen a linear development axis from Port Harcourt through Onne (where the petro-chemical complex is billed to be sited and where the National Fertilizer Company of Nigeria will start production in 1987) to Bonny.

#### DEGEMA LOCAL GOVERNMENT AREA (DELGA)

Just as OLGA, the cities and towns in DELGA are all unconnected with the mainland because of the difficult terrain of the Riverine area. However, if OLGA is a suitable area for a growth centre, there is a stronger case for giving priority to DELGA. It is larger in area than OLGA (see Figure 1), some of its cities or towns are twice larger than the towns in OLGA, and it contains about 45 per cent of the State's population.

Buguma City, one of the cities, has a population of about 120,000. It is the capital of Kalabari tribe in DELGA and has an agglomeration

of about 500,000 population. Although Buguma City is not the administrative headquarters of the local government area, it is an ancient city with a unique location and offers several advantages, such as a potential trading centre and diversification of small-scale industrial structures like textiles, fish-based industries, boat building (speedboats), government craft centre, and has some prospects as a tourist centre. Buguma City has oil wells and its hinterland has substantial potential for rice cultivation which is undeveloped. This and others could be developed as rural industrial base which would strengthen Buguma City to act as a counterweight to Port Harcourt and bolster the regional urban hierarchy of the state. There is a good supply of skilled labor and low income housing by provincial city standard. It has a giant electric generator to serve the citizens' activities and because of its size and the small-scale industries in the community, plans are in advance stage by the Federal Government of Nigeria to connect the national electric grid.

Another advantage to Buguma City is its neighboring town — Abonnema. Abonnema has about 90,000 in population, used to be a commercial and seaport town. With the closure of the port during the 1960's (in the middle of the Nigerian Civil War) the commercial activities had ceased to function. In order to limit the growth of Port Harcourt, the seaport at Abonnema should be reopened. As it is well-known, ports are indispensable for export oriented industries and industries with a high import content. Compared to ports, internal transportation costs are less significant as locational factors since Rivers State is a small state within a country with a somehow well-developed transportation network. Second, Buguma City, with an agglomeration of nearly 500,000 population, is a potential counterpole to Port Harcourt, serving as a partial central place for Brass Local Government Area (BALGA). Third, with a seaport, Abonnema will enjoy locational advantage of high accessibility to the neighboring countries of Cameroun, Equatorial Guinea, and Gabon, a big market as well as a source of capital. Similarly, a road connecting Degema (the administrative centre of DELGA) and the mainland would strengthen the prospects of Buguma City for trade and for the tourist industry.

### CONCLUSION

The growth pole strategies adopted in Rivers State of Nigeria did not merit the name because the designations were insufficiently selective, the centres were too small to be integrated into an overall strategy for the state as a whole, and the implementation was very ineffective. This paper has therefore suggested an internally consistent strategy for correcting the imbalances between the mainland and the Riverine areas of the State, for promoting a viable regional urban development policy,

and for increasing the interaction between the urban and rural areas. It is believed that the recommended strategy is compatible with the accepted policy goals of slowing down the growth of Port Harcourt and continuing the attention given to agriculture and rural development.

### REFERENCES

- Barkin, D. 1978. "Confronting the Separation of Town and Country in Cuba," 317-37, in W.K. Tabb and L. Sawers, eds. *Marxism and the Metropolis*. New York: Oxford University Press.
- Conroy, M. E. 1973. "On the Rejection of 'Growth Center' Strategy in Latin American Region Development Planning." *Land Economics* 49: 371-80.
- Faber, Mike and Seers, Dudley. 1972. eds. *The Crisis in Planning*, 2 Vols. London: Chatto and Windus.
- Friedmann, John. 1975. "Specific Recommendations on Regional Planning in the Rural-Urban Context in Thailand," mimeographed (Memo No. 6 to the NESDP, Bangkok, March).
- Friedmann, John and Douglas, Mike. 1975. "Regional Planning and Development. The Agropolitan Approach," in UNCRD, *Growth Role Strategy and Regional Development Planning in Asia*. Nagoya, Japan: United Nations Center for Regional Development.
- Gulick, John. 1967. *Tripoli: A Modern Arab City*. Cambridge: MA. Harvard University Press.
- Ho, Samuel, P. S. 1979. "Decentralized Industrialization and Rural Development: Evidence from Taiwan," *Economic Development and Culture Change* 28 (October) 77-96.
- Mesarovic, Mihajlo and Pestel, Eduard. 1974. *Mankind at the Turning Point: The Second Report to the Club of Rome*. New York: E.P. Dutton.
- Ndiomu, B.B.A. 1981. "The New Towns Development Programme in the Rivers State: Its Rationale, Economic Significance, and Achievements in Rivers State Development Programmes, Government of Rivers States, Port Harcourt, Nigeria, 1961.
- Richardson, H. W. and Richardson, M. 1975. "The Relevance of Growth Center Strategies to Latin America." *Economic Geography* 51:163-78.
- Salau, A. T. 1984. *Nigerian Cities*, Hodder and Stoughton, London.
- Sawers, L. 1978. "Cities and Countryside in the Soviet Union and China," 338-64, in W. K. Tabb and L. Sawers, eds. *Marxism and the Metropolis*, New York: Oxford University Press.
- Sokari-George, E. 1985. "The Migration Effects on Over-Urbanization and their Planning Implications in Nigeria," *A Working Paper*, (Rivers State University of Science and Technology. Port Harcourt).
- Sundaram, K. V. 1977. *Urban and Regional Planning in India*. New Delhi: Vikas.

## NEWS ITEM\*

### ONLY 1.5 MILLION HAS. OF FOREST LEFT

by

EMI SD. PEREZ

Over 14 million Filipinos dependent on upland areas for livelihood have pushed deeper into once forest areas which have drastically dropped from 7.5 million hectares in 1975 to only about 1.5 million last year.

The uncontrolled denudation of forests during the past decade both forced and encouraged upland farmers to take over the deforested lands as they searched for more fertile lands on which to grow their crops.

This was the assessment by the Ministry of Natural Resources (MNR) of the impact of the devastation of the country's forest during the 10-year period from 1975 to 1985.

MNR Deputy Minister Dante Sarraga said the 1975 inventory showed 7.5 million hectares of forest still intact. In 1985 Sarraga bared, there were roughly only 1.5 million hectares left.

The MNR deputy chief attributed the heavy damage to the country's forests to uncontrolled logging. Despite the laws on selective logging, which could have abated the abuse of Philippine forests, destruction persisted such that today, only over one million hectares remain.

Forest abuse adversely affected the livelihood of the upland population, who eke out a living in the forests, according to Sarraga.

Timber concessions granted to logging companies have deprived them of their settlements, Sarraga said.

He revealed that the MNR's thrust is to reforest, with the help of displaced forest occupants, 100,000 hectares of denuded forests left by unscrupulous loggers.

Stewardship contracts will be given to them under a group or cooperative reforestation scheme. Under this program, upland families plant trees and make use of the land for short term crops.

Sarraga said the six-year program of the new government aims to replenish 600,000 hectares of logged over forest lands. He added that current efforts are limited by the MNR's meager resources allocated to reforestation.

---

\* Reprinted from  
Philippine Daily Inquirer  
3 November 1986

**business begins**

**with the printed word. . .**

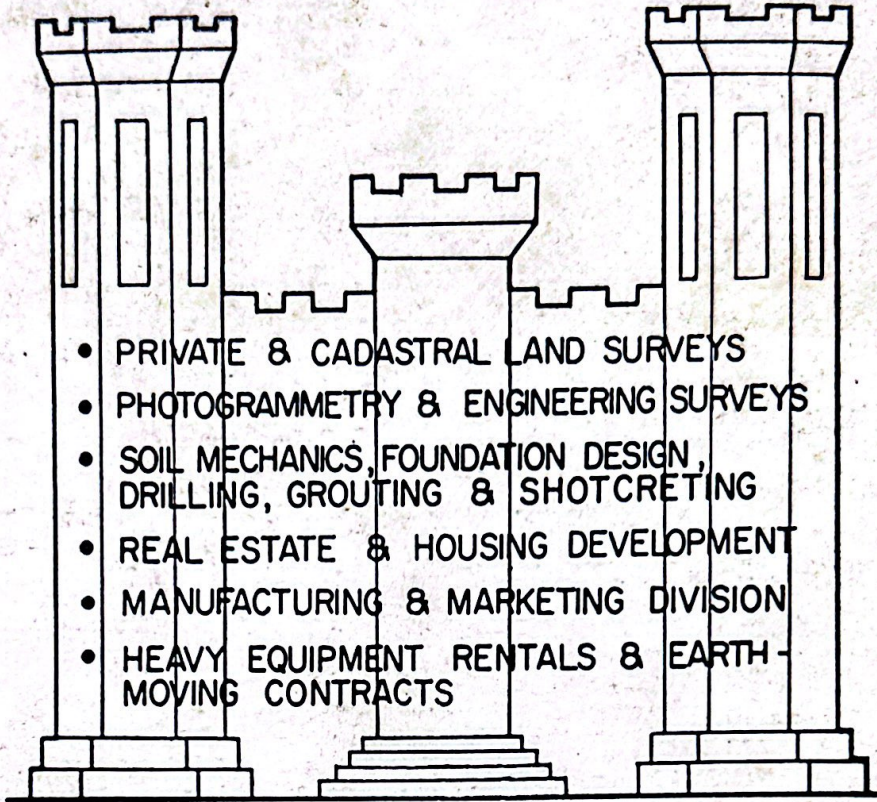
You start with your favorite newspaper to keep you up-to-date. Through the day, magazines, reports and documents go with the progress of your work. But, as we know it, business could not exist for a day without the printed word. And of course, you always prefer better printed words. You have this quality printing at . . .



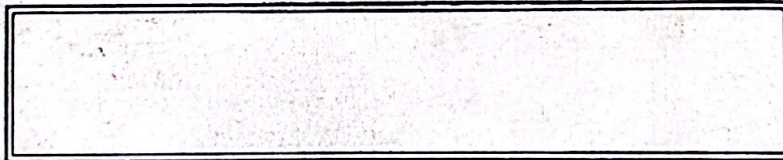
**BOOKMAN, INC.**

**OFFSET AND LETTERPRESS PRINTER • PUBLISHER  
• BOOK MANUFACTURER**

373 Quezon Avenue, Quezon City  
Tel. 712-48-68 • P.O. Box 709, Manila .



- PRIVATE & CADASTRAL LAND SURVEYS
- PHOTOGRAMMETRY & ENGINEERING SURVEYS
- SOIL MECHANICS, FOUNDATION DESIGN, DRILLING, GROUTING & SHOTCRETING
- REAL ESTATE & HOUSING DEVELOPMENT
- MANUFACTURING & MARKETING DIVISION
- HEAVY EQUIPMENT RENTALS & EARTH-MOVING CONTRACTS



**CRUZ & CO., INC.**  
**ENGINEERS · SURVEYORS · CONTRACTORS**

Telephones: 99-87-26  
99-87-27  
99-87-28  
99-87-29  
97-51-11  
97-52-11  
97-53-11

800 E. DE LOS SANTOS AVE.  
QUEZON CITY, PHILIPPINES

Mailing Address: P. O. BOX 3418, MANILA  
Cable Address: FEFCRUZ, MANILA