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**ECONOMIC COMMISSION FOR AFRICA**

**APPROACHES TO THE MANAGEMENT OF THE NEXUS:**  
**BEST PRACTICES**

UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA

**Food Security and Sustainable Development Division**

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BEST PRACTICES**

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## I. INTRODUCTION

1. Population, environment and agricultural development constitute an inter-linked, mutually-reinforcing paradigm which affects the level of food insecurity and the depth of poverty in a developing region such as Africa. Apart from chronic food insecurity and acute poverty, Africa is faced with other daunting threats. These include escalating population growth, widespread malnutrition, inadequate sanitation, and scarcity of clean water, air pollution and severe land degradation.

2. These daunting threats have stemmed mainly from the inability of the region's traditional systems to cope with the requirements of its growing population. The traditional systems or practices were appropriate at the time when the size of the region's population was much smaller than it is now. As the region's population commenced growing at an accelerated rate due, primarily, to a decline in mortality and to a rise in fertility rates the situation changed totally.

3. Prior to the 1950s, for instance, the practice of shifting cultivation and transhumant pastoralism did not pose a problem. There were plenty of land and water resources in the region at that time. Consequently, it was relatively easier for farmers to leave a plot of land fallow for a long time and cultivate another plot elsewhere. Likewise, it was also easier for nomads to move from place to place in search of pasture and water for their herds. With the rapid growth of the region's population, the stress on these resources has increased.

4. The mounting demand for food, fuel and housing brought about by the region's growing population has necessitated a massive exploitation of its natural resources including land, water and forests with this resulting in landlessness, fragmentation of land holdings, protracted land disputes, deforestation, soil degradation, water and air pollution, loss of biodiversity and disruptions in overall agro-ecological systems. Paradoxically, all these adverse developments have interacted with each other and contributed to the region's low agricultural productivity, widening food insecurity, acute poverty and high fertility particularly in rural areas.

5. The most prominent factor which has aggravated the situation is the high fertility occurring among the rural poor, who consider a larger number of children at the household level as a hedge or insurance against future economic problems. Despite the negative impact of the AIDS pandemic and the gradual adoption of family planning measures at the country level, the region's population continues to swell at a rate of about 3 per cent annually. Absolute increase in population over the period 1990-2025 in sub-Saharan Africa alone is projected to be in the vicinity of 800 million.<sup>1</sup> This is likely to lead to an even lower agricultural productivity, rising poverty and food insecurity and intensified resource depletion as well as environmental degradation.

6. Current trends suggest that environmental degradation such as soil erosion, desertification and deforestation is undermining the very resources on which many African farmers and their families depend for expanding agricultural productivity. Resource depletion (particularly land degradation) is already placing serious bounds

on food security in several countries of the region. More so in those countries where population densities tend to be high. According to the United Nations Environment Programme, the land prone to desertification in sub-Saharan Africa is estimated at 6.9 million km<sup>2</sup>. This is equivalent to 23 per cent of the world total. It is understood that more than a quarter of the region as a whole is presently in the process of becoming useless owing to land degradation.<sup>2</sup>

7. Environmental degradation, exacerbated by swelling population growth, has had a negative impact on the region's agricultural performance. Overall food production in the region since the early 1980s has grown by almost 30 per cent. The rate of annual growth in per caput terms has, however, not exceeded 1 per cent. Sub-Saharan Africa had a cereal self-sufficiency ratio of 97 in 1969/71. During the period 1969/71-1988/90, this ratio collapsed to 86. The situation for North Africa was even worse. The sub-region's cereal self-sufficiency ratio flagged from 87 in 1969/71 to 73 and 65 in the year 1979/81 and 1988/90 respectively.<sup>3</sup> As shown in table 1 there has been little or no improvement in the food situation since 1990.

Table 1: Food and agricultural indices for Africa over the years 1990-1998 (%)

Production	1990	1995	1996	1997	1998
Agricultural Production (total)	98.3	109.7	120.9	117.1	119.7
Agricultural production (per caput)	98.4	96.0	103.1	97.2	96.8
Food Production (total)	98.3	110.5	121.6	117.2	120.2
Food production (per caput)	98.3	96.7	103.7	97.3	97.2

Source: ECA, Africa: Demographic, Environmental and Agricultural Indicators, ECA/FSSDD/CSD/99/2, December 1998.

8. Owing to this inadequate food and agricultural production, the number of poor and food insecure people has increased. Close to 50 per cent of the region's population is now reckoned to be poor while half of this is believed to be food-insecure. The population faced with chronic malnutrition is estimated at 30-40 per cent. Trends in most countries of the region suggest that the situation is likely to deteriorate. By the year 2010 the number of food-insecure people is anticipated to reach a level of 260 million. Many of these will suffer and die from diseases associated with hunger and malnutrition.

<sup>2</sup> ECA, Gender and Sustainable Development in Africa: The Nexus of Food Security, Population, Environment and Human Settlement, paper presented to the Regional International Conference on Women and Development, Abuja (Nigeria), 1997.

9. In order to reverse this unhealthy trend, it has now been accepted that the interactions, synergies or inter-linkages of the three sectors of population, agriculture and environment should be looked at and carefully examined based on a holistic approach in what is known as a "nexus" framework. As stated earlier the three sectors operate synergetically with developments in one sector negatively or positively affecting developments in the other sectors. How are these sectors operating or interacting with each other? What are the critical nexus problem areas? How are these identified or tackled?

10. The objective of this publication is precisely to help find appropriate answers to these and other questions by assisting African countries in improving their comprehension, analysis and management of related nexus issues based on best practices drawn from countries within and outside Africa. It seeks to provide available information on selected best practices and highlights the lessons learned.

11. It has three chapters. Having provided introductory information in chapter I, it discusses in chapter II best practices along with the lessons learned from these under the three thematic areas making up the nexus. These are agricultural transition, demographic transition and stewardship of the environment with technology transfer being a cross-cutting theme subsumed in the chapter. It winds up its discussion in chapter III by making a few, concluding remarks.

## **II. BEST PRACTICES IN THE MANAGEMENT OF THE NEXUS**

### **2.1 Agricultural transition**

#### **(a) Iraq**

##### **(i) Land reclamation and sand dune fixation**<sup>4</sup>

12. In Iraq, a programme of land reclamation was launched by constructing open drains to draw excess irrigation water from farmlands. These drains discharged the saline water into a number of open inland depressions known as evaporators. During the period 1965-1970, the programme was intensified by the construction of a major drain (Al Masab Alaam) that would carry the water from all the smaller drains, from north of Baghdad to the Arabian Gulf. This was not only intended to improve the efficiency of the drainage system, but also to reduce the drudgery of managing the numerous open evaporators scattered in central Mesopotamia.

13. A few years later it was realised that a second major drain was needed and this led to the construction of river Saddam in 1992. These two major channels were estimated to drain a total area of 6 million donum (1.5 million hectares) of irrigated land. In addition to drainage, the two channels would improve river transport and provide substantial fisheries. The total agricultural land that has so far been reclaimed is about 625,000 hectares and the programme is still in progress.

14. While the main canals were being dug, a new problem was observed. The mobile dunes buried the canals as soon as, or even before, the digging was over. This led the government to initiate a parallel programme known as the "sand dune

stabilisation project" to protect the drains and to support the land reclamation programme.

15. The process of sand dune stabilisation is accomplished by first covering the mobile dunes with clay soil 20-30 cm thick, then planting tree seedlings propagated in nurseries. Growth of natural vegetation cover is also encouraged by protecting the dunes against grazing and occasionally supporting them by spreading the seeds of indigenous grasses and herbs. Some attempts were made to fix mobile sands with petroleum products at the earlier stages of the project, but these proved unsuccessful because of the fast disintegration of the by-products which inhibited plant growth. The total area of dunes arrested within the project is estimated at 20,000-25,000 hectares whereas the area of planted shelterbelts is about 3750 hectares, using 6 million tree seedlings. Moreover, the project has been able to provide irrigation water for 87,500 hectares.

16. The uncontrolled and indiscriminate tree-cutting that has prevailed in the project area for decades or centuries and the use of shrubs for domestic fuel have contributed immensely to the process of land degradation. The Iraqi government has displayed a growing concern over this issue and has taken steps to arrest and reverse its undesirable consequences. These include:-

- Fencing of several grazing sites with a view to enhancing the recovery of the natural vegetation,
- Afforestation and establishment of shelter belts, and
- Sand dune fixation.

17. A considerable portion of the country's oil revenue has been earmarked for expanding and modernising irrigated and rainfed farming. Land tenure regulations have also been formulated. According to these regulations, farmers must agree not to cut trees growing on their plot; to plant new trees at the rate of one tree/"donum" per year; not to use heavy machinery; not to permit entry of animals into the plot; not to exceed the tenancy share of irrigation water; and not to sell crop residues for the purpose of grazing without permission from project authorities. The regulations provide for a penalty of ID 2000 for each tree destroyed by offenders while repeated offences may lead to eviction from the plot.

## **(ii) Lessons learned**

18. It is absolutely essential for a programme of this nature to be based on a comprehensive, detailed study of the area under consideration. If such an in-depth, all-embracing study had been undertaken initially, the new problem of the mobile dunes burying the canals would not have arisen.

19. Moreover, there is a dire need for changing the heavily "top down" approach to programme formulation and implementation. The evidence confirming farmers' involvement in the programme at all levels is scant. Another problem also noted is the delay in launching the programme. By the time the programme came into being the area under consideration had already been eroded. By then a large number of trees and shrubs had been devastated.



20. It is not enough to formulate suitable legislations. It is also important to ensure that the legislations are enforced effectively. For this purpose reliable follow-up mechanisms should be established and employed without any delay. The land covered by the programme has been degraded and rendered useless due, partly, to the poor enforcement of existing legislations. Even if there are new legislations there is no guarantee that these will be enforced on a sustained basis.

**(b) Madagascar**

**(i) Promotion and dissemination of nutritional cooking<sup>5</sup>**

21. The Equipe féminine d'éducation nutritionnelle (EFEN, the Women's Team of Nutritional Education) has pioneered the promotion and dissemination of nutritional cooking in Madagascar. Its objective is to show women that every family can eat nourishing dishes with cassava, breadfruit, corn and other staple foods. More so as rice is increasingly becoming scarce or expensive. First, women receive training in nutrition and diet from the Ministry of Health. Later they create their own recipes with products found locally. These recipes are based on the three, essential food groups: cereals, tubers and fats; meat, milk, eggs and pulses; and fruit and vegetables. Rural women are more inclined to be interested in altering the family diet when there are savings to be made.

22. According to the EFEN, soup can be made with cassava or corn by adding some meat, garlic, cabbage and salt. With this soup what is needed is a small quantity of meat to make it appetising whereas enough rice for the same meal costs four times as much money as that needed for the meal. Apart from the economic aspect, rural women also like recipes for dishes similar in flavour to traditional foods.

23. Another agency known as Fifamanor (Malagasy-Norwegian Stockraising and Agriculture Agency) also initiated a nutritional training programme in 1983 with wheat, milk and potatoes. The programme was launched in a region called Vakinankaratra where wheat, barley, potatoes and temperate fruits are grown widely by rural women who do not know how to use wheat in their cooking except in the form of flour.

24. Earlier the agency had attempted to teach rural women how to make yoghurt, cheese, bread and French fries, but this did not work as some of the ingredients and the equipment needed were very expensive. Moreover, the preparations were time-consuming and far from the taste of consumers.

25. Realising this, the agency taught the women how to make soup with wheat rather than bread. The recipe was adopted by more than 450 families. Since the grain is not reduced to flour, time is not wasted on milling. The women grind the wheat themselves. They add a little meat, potatoes, tomatoes and onion to the grain and the soup is ready after a few hours' cooking. This dish has almost the same flavour as a traditional highland dish known as varyaminanana, soup made with rice, meat and cabbage.

## **(ii) Lessons learned**

26. Three lessons can be drawn from the recipes developed in Madagascar. The first lesson is that when a staple food like rice is very expensive or unavailable, locally-grown, cheaper crops can be used as substitutes. The other lesson is that when preparing such a food item care should be taken to ensure that it is acceptable to consumers and is within their reach in terms of affordability. Still another lesson is that food preparation recipes should not be time-consuming. More so in rural areas where women have multifarious activities such as soil preparation, weeding, harvesting, water-fetching, cooking and fuel-wood gathering. The recipe for preparing soup with wheat ground at home is obviously less time-consuming than baking bread with milled wheat flour.

## **(c) Zimbabwe**

### **(i) Miracle in Zimbabwe's smallholder sector<sup>6</sup>**

27. Recent changes in government policies appear to pay increased attention to the smallholder sector in communal areas. These changes in policies have been reinforced by institutional reforms favourable to the smallholder sector. It is argued that for technological innovations to make any meaningful impact, they should go hand in hand with institutional innovations. With some measure of success, Zimbabwe's smallholder sector has moved in that direction. In this context, five prime movers need to be developed and co-ordinated to achieve sustainable agriculture and these are:-

- New technology produced by public and private investments in agricultural research or imported from the global research system and adapted to local conditions;
- Human capital in the form of professional, managerial and technical skills produced by investment in schools, agricultural colleges, faculties of agriculture and on-the-job training and experience;
- Sustained growth of biological capital (genetic, husbandry and improvements of crops and livestock, forests, etc.) and physical capital investments in dams, irrigation schemes and roads;
- Improvements in the performance of services such as marketing, credit, research, extension and settlement; and
- Favourable economic policy environment and political support for agriculture.

28. The government of Zimbabwe recognised the importance of these prime movers and tried to develop and co-ordinate them for growth in the smallholder sector. This called for investment of large sums of money and political will to redistribute wealth more equitably. Financial investments in agriculture as a proportion of total government expenditure did not increase significantly. However, a major portion of resources received in the form of aid following the 1992-93 drought included crop packs (seed and fertiliser) to be used in the 1993-94 planting season. The bulk of the resources allocated to agriculture, which had historically benefited white large-scale

farmers, were diverted to the smallholder sector. It was largely used to strengthen agricultural institutions in order for them to be more effective in the delivery of services to the smallholder sector.

29. The institutional reform already undertaken involved first merging separate agricultural institutions, which had provided services according to race, and then expanding the services to reach a larger number of black farmers. The extension department for white farmers, for example, was merged with the extension department for black farmers to form the department of agricultural and technical extension. The Land Bank was converted into the Agricultural Finance Corporation, which later became the first formal institution to lend to smallholder producers. The corporation has been designed to service both smallholder and large-scale commercial farmers. New technology produced by public and private resources has been made available to these institutions for expansion and restructuring to be able to better serve the smallholder sector.

30. Some of the greatest impacts on the government's efforts to ameliorate services to the smallholder sector have been felt in the areas of agricultural credit, extension and marketing. The policy of providing financial services has been upheld. Most of the loans granted to smallholders have been used for the purchase of such inputs as certified seeds and fertilisers. The purchase of fertilisers by smallholders has increased substantially. Moreover, more than 90 per cent of smallholder producers now use hybrid seed. When the Agricultural Finance Corporation experiences serious financial problems due to high rates of defaults or transaction costs, which cannot be covered by subsidised interest rates because of reduced government support, it explores ways of minimising these costs while still reaching many farmers. It also strives to reach disadvantaged farming groups such as women.

31. The grain and cotton marketing boards have expanded their network in communal areas to try and provide access to markets or marketing outlets to all smallholder farmers with the potential to produce surplus for sale. The Grain Marketing Board (GMB), which had a monopoly in the purchase of maize and other controlled grains until a few years ago, has increased the number of its marketing outlets in communal areas. It has set up more than 55 buying points, 13 of which are mobile. At the same time, private investors have established GMB authorised, approved buyer facilities and farm-to-market transport operations. Small shopkeepers registered with GMB to purchase crops and some small farmer organisations operated trucks to transport farm produce to markets and agricultural inputs to farms.

32. The number of cotton marketing depots has also risen with some of these located in, or adjacent to, communal areas. Many shopkeepers have begun stocking seeds, fertiliser, insecticides and equipment. Stores in the urban centres have established rural outlets. Fertiliser and agro-chemical companies have begun promoting inputs in village-based sales and demonstrations. Greater quantities of inputs have been purchased by smallholders. Seed cotton purchases have expanded tremendously. Along with these, there have been pronounced improvements in road network. Consequently, the marketing of maize and cotton has registered an upward trend.

33. The department of agricultural and technical extension services has responded to the new policy thrust by increasing the number of extension workers in the smallholder sector. It has reduced the extension density (extension-worker-to-farmer ratio) from 1 for 1000 to 1 for 800. This has been made possible through the expansion of existing agricultural colleges and the opening up of new ones to produce larger numbers of qualified people of both genders. In addition to improving the extension worker-to-farmer ratio, it has introduced new extension approaches that are more responsive to the smallholder situation.

34. Extension workers are able to reach more farmers by taking the group approach to delivering services. Such approaches as field days where farmers learn from higher performing farmers in their own environment have been effective. The Master/farmer approach in which organised groups of farmers embark on some formal training programming has been widely used. At the end of a training programme covering given topics successful farmers are provided with certificates. Most of the new approaches are geared towards adapting to the farmers' situation and are, therefore, participatory.

35. The Zimbabwe Farmers' Union performs a number of functions for its members. Its advocacy role has enabled smallholder farmers to provide inputs into the policy-making process. As a pressure group, it is listened to because it represents quite a large proportion of the voting constituency. It has strength in numbers. In terms of national food security, it has become a key institution because of its constituency's contribution towards total production of staple grains. It is, therefore, a key player in the formulation of agricultural policies. It also operates a division which provides market information, identifies market outlets and facilitates the transportation of produce and inputs.

## **(ii) Lessons learned**

36. There should be a political will and a genuine commitment on the part of the government to understand the problem of small farmers. Once these problems are well understood, appropriate policies should be carried out and enforced at all levels. The policy strategy adopted must be backed by effective institutional reforms and resource allocations with a particular focus on facilitative services such as agricultural credit, extension and marketing. In all these strategies farmers' participation and managerial capabilities prove to be critical factors.

## 2.2 Demographic transition

### (a) National commitment to the satisfaction of unmet needs for family planning<sup>7</sup>

#### (i) Bangladesh and Pakistan

37. Millions of women would prefer to avoid becoming pregnant either right away or forever, but they are not using contraception. These women have an "unmet need" for family planning. Twenty years ago, Bangladesh and Pakistan were similar in women's stated reproductive preferences, levels of unmet need, and contraceptive prevalence. Before 1971, in fact, the two constituted just one country, with a common population policy and a single family planning programme. By the early 1990s, however, the level of unmet need in Bangladesh was 18 per cent while in Pakistan the level was 32 per cent. Contraceptive prevalence in Bangladesh was 45 per cent compared to 12 per cent in Pakistan. Table 2 provides more information on this not only for Bangladesh and Pakistan, but also for other countries of the world including Africa.

Table 2: Unmet need, demographic and health surveys (1985-1994)

Region, country & year of survey	Number with unmet need (in thousands)	% of MWRA with unmet need			% of MWRA using contraception		
		Total Limiting	Spacing		Total Limiting	Spacing	
<b>Africa</b>							
Botswana 1988	27	27	19	7	33	18	15
Burkina Faso 1992-93	522	33	24	9	16	11	5
Burundi 1987	201	25	18	7	9	6	3
Cameroon 1991	347	22	17	4	16	11	5
Ghana 1994	759	33	24	9	20	11	10
Kenya 1993	1,101	36	22	13	33	10	23
Liberia 1986	131	33	20	13	7	4	3
Madagascar 1992	551	32	17	15	17	6	10
Malawi 1992	498	36	26	9	13	7	6
Mali 1987	435	23	17	6	12	8	4
Namibia 1992	22	22	15	7	29	11	18
Niger 1992	243	19	16	2	5	4	1
Nigeria 1990	3,928	22	17	5	6	3	3
Rwanda 1992	332	37	24	13	21	10	11
Senegal 1992-93	350	29	23	7	7	4	3
Sudan 1989-90	940	25	18	7	9	5	4
Tanzania 1991-92	1,065	27	19	8	10	6	5
Uganda 1988-89	707	27	20	7	5	2	3
Zambia 1992	368	31	23	8	15	9	6
Zimbabwe 1994	207	15	9	6	48	27	21
<b>NEAR EAST &amp; NORTH AFRICA</b>							
Egypt 1992	1,818	22	7	15	47	8	39

<sup>7</sup> Population Reports, Volume XXIV, Number 1, Series J, Number 43, September 1996, Published by the Johns Hopkins School of Public Health, Baltimore, USA.

Region, country & year of survey	Number with unmet need (in thousands)	% of MWRA with unmet need			% of MWRA using contraception		
		Total Limiting	Spacing		Total Limiting	Spacing	
Jordan 1990	110	22	10	12	40	12	29
Morocco 1992	650	20	9	11	42	14	27
Tunisia 1988	217	20	11	9	50	14	36
Turkey 1992	1,062	11	4	8	63	12	51
<b>ASIA</b>							
Bangladesh 1994	4,400	18	10	8	45	11	34
India 1992	31,005	20	9	11	41	3	37
Indonesia 1991	4,427	14	8	6	50	19	31
Nepal 1991	970	28	12	15	23	1	22
Pakistan 1990-91	5,738	32	17	15	12	2	10
Philippines 1993	2,512	26	13	13	40	9	31
Sri Lanka 1987	332	12	7	5	62	13	49
Thailand 1987	999	11	6	6	66	16	50
<b>LATIN AMERICA</b>							
Bolivia 1994	235	24	6	17	45	11	35
Brazil 1986	3,034	13	5	8	66	18	48
Colombia 1990	545	12	4	7	66	20	46
Dominican Rep. 1991	171	17	9	8	56	11	46
Ecuador 1987	411	24	11	13	44	12	33
El Salvador 1985	182	26	14	12	47	8	39
Guatemala 1987	382	29	16	13	23	5	18
Mexico 1987	3,133	24	11	13	53	14	39
Paraguay 1990	395	15	8	7	48	24	25
Peru 1991-92	471	16	4	11	59	14	45
Trinidad & Tobago 1987	32	16	8	8	53	19	34

Source: Population Reports, Ibid, P.7  
MWRA=Married women of reproductive age.

38. Since 1971, the two countries have followed quite different demographic paths. In Bangladesh successive surveys have reported rapid increases in contraceptive use and declines in unmet need. Surveys in Pakistan have repeatedly attested to a huge, latent demand for fertility regulation. Differences in economic development do not explain these divergent paths.

39. Pakistan ranks above Bangladesh in most development indicators and thus, other things being equal, might be expected to have a more widespread use of family planning. But other things have not been equal. In particular, the national family planning effort has been much stronger in Bangladesh than in Pakistan, which spends much less on family planning compared to the former. Pakistan also gets little for its money as its programme has been poorly run and lacks high-level political support.

40. In Bangladesh the situation is different. National and community leaders have supported family planning, attracted substantial external funding because of their commitment and helped contraceptive information and services expand across the country. Family planning is increasingly becoming a community norm.

**(ii) Indonesia, Thailand and the Philippines**

41. Comparing Indonesia and Thailand with the Philippines reveals much the same story. In the 1970s, the three countries had similar levels of unmet need while contraceptive prevalence was higher in the Philippines than in Indonesia or Thailand. By the 1990s contraceptive use had risen substantially in Indonesia and Thailand far surpassing the level in the Philippines. In Indonesia and Thailand levels of unmet need for family planning are among the lowest in the developing world, at 14 per cent and 11 per cent, respectively. In the Philippines the level of unmet need, at 26 per cent is among the highest in the world.

42. The explanation for this unexpected outcome lies well beyond the realm of statistical evidence, but almost certainly involves the intertwined factors of religion and government policy. In Indonesia and Thailand governments have supported and promoted family planning for the past 20 years. In the Philippines fluctuating government policies have made it difficult until recently to sustain a strong family planning programme.

**(iii) Lessons learned**

43. For any country to be effective in its family planning programme and to fully satisfy unmet needs, at least five, crucial factors should be borne in mind. First, there should be a strong political support at the highest possible level. Second, every effort should be made to improve the management of the programme. Third, to the extent practicable, community leaders must be involved in the programme. Fourth, information on the utility or advantages of family planning should be disseminated as widely as possible and efficient mechanisms for a country-wide distribution of contraceptives should be established. Fifth, the country's political support must be reflected in increased resource allocations, which may be supplemented by donor assistance.

**(b) Post-abortion care programming <sup>8</sup>**

**(i) Bolivia, Nigeria, Malawi and Zimbabwe**

44. In Bolivia, where maternal mortality is extremely high and few people use effective contraception, reproductive health including family planning and post-abortion care services has been a taboo subject. Until recently, health workers have been unable to describe reproductive health problems in a language that was acceptable to government officials and the public. Then post-abortion care programmes began referring to "complications of unsafe abortion" to draw attention to the serious health consequences of unsafe abortion. In this way they began to gain the necessary support from policy-makers and the public for solving reproductive health problems.

45. In Nigeria post-abortion care has been integrated into the routine ob-gyn internship and residency programmes in 12 teaching hospitals. Integrating instruction in post-abortion care into the framework of the hospital training system has made it easier for participants to learn and to train others. New physicians viewed post-abortion skills as a normal and mandatory part of their medical training. A 1990

evaluation showed that most people who had trained others, after learning about post-abortion care themselves, were working in teaching hospitals where they were authorised and expected to share their knowledge.

46. When trainers from the Zimbabwe National Family Planning Council, the largest family planning service delivery organisation, attended a special course in post-abortion family planning they were surprised to learn that, despite their experience in family planning counseling, they needed new skills for, or approaches to, talking with women who had experienced post-abortion complications. While women seeking family planning usually are considered "clients" women treated for complications of unsafe abortion instead are "patients" with medical concerns that seldom arise in a typical family planning counseling situation. When counseling these patients, service providers should help the women identify the reason for their unintended pregnancy in order to help them avoid another one.

47. In Malawi a local physician initiated post-abortion care programming by convening a national group representing health professionals, donor agencies and the Ministry of Health to review the problems of unsafe abortion and to propose an approach to resolving them. He presented data that met the concerns of policy-makers and also addressed the training and service delivery issues that were important to health care providers. As a result, the planning team was able to agree on a post-abortion care strategy that addressed people's concerns.

## **(ii) Lessons learned**

48. The lessons learned from the cases of Bolivia, Nigeria, Zimbabwe and Malawi are very instructive. The first step in a post-abortion care programme is the capacity to describe the issue of unsafe abortion accurately. Most people wish to have some assistance in understanding the need for treatment of complications of unsafe abortion. Many people feel uncomfortable discussing the topic of abortion, especially when legal restrictions on abortion exist. Using words that clearly describe post-abortion complications as a public health problem can lessen public sensitivities by focusing attention on how to improve people's health. To be brief, the use of an accurate and convincing language that works for the local setting is crucial.

49. Second, before creating a new administrative structure for post-abortion care training or service delivery, it is appropriate to explore whether existing systems or programmes could be adapted. Incorporating post-abortion care into an existing infrastructure often helps providers integrate it with their other work and helps sustain delivery of training and services. In short, it is appropriate to work, as much as possible, within an existing system or programme.

50. Third, one of the biggest challenges of post-abortion care for family planners is learning to recognise the differences between post-abortion family planning and family planning provided on a regular basis. While the typical family planning client is healthy, a woman who has just experienced an abortion may be physically ill, in great pain and under emotional and physical stress. Service providers should adapt their counseling accordingly.



51. Right from the start, all those having a stake in post-abortion care programme or in opposing it should be provided with adequate information as in the case of Malawi. Suggestions and concerns from the stakeholders should be expanded to include government officials and colleagues from related departments or health centres. When organising a local programme within a hospital department or clinic, the entire staff should be informed of the planned changes and of their expected involvement in the new activity.

**(c) Model family planning drive<sup>9</sup>**

**(i) Zimbabwe**

52. Zimbabwe's family planning programme has been described as the most successful in southern Africa and among the most effective on the continent. In 1988 some 43 per cent of married women used contraceptives, up from 14 per cent in 1979. This rate contrasts with an average 10-15 per cent contraceptive use throughout sub-Saharan Africa.

53. Progress has not come easily. At independence in 1980 the new government inherited a family planning programme that had earned a bad reputation among blacks. While coercing the black population to practise birth control, often sterilising women without their knowledge or consent, the previous white minority government had actively encouraged white immigration. The new government had the tough job of changing the popular perception of family planning without destroying the sound infrastructure.

54. The new emphasis was on persuasion and the goal shifted from limiting family size to spacing births for maternal and child health. The rationale behind this was the conviction that child spacing would not stop anyone from having children, but facilitate family planning. Although donors help fund Zimbabwe's family planning, the government puts in much more. Government allocations currently cover 75 per cent of the costs of the Health Ministry's family planning programme and over 50 per cent of the expenses of the Zimbabwe National Family Planning Council. According to the US Agency for International Development, no other African family planning programme receives such a high proportion of its funding from government.

55. As economic difficulties mounted in the mid 1980s, the government's emphasis shifted from child spacing to limiting family size. The government began linking population growth with economic health, calling for smaller families the economy could support. The large resource support to family planning is also backed by a strong political commitment. This is adequately reflected in the government's decision to establish community-based distributors of contraceptives and condoms at nominal prices.

**(ii) Lessons learned**

56. The Zimbabwe's family planning programme has been based on prudent, flexible decisions. Shortly after independence it was based on spacing births. At that time

the country's population was relatively smaller and economic problems were not as grave as they are now. Another feature of the programme was its susceptibility to subsequent changes. When economic difficulties tended to be serious due to an increased population growth, the programme's focus shifted from spacing births to limiting family size.

57. Another characteristic of the programme worth noting is the country's commitment to family planning as reflected in its resource allocations. As stated earlier, practically 75 per cent of the programme's costs and 50 per cent of the expenses of the country's National Family Planning Council are covered by the government. This is in addition to donors' funding. It should also be noted that a major factor which has contributed to the success of the programme is the persuasive rather than coercive strategy the government has used to disseminate family planning information and to distribute contraceptives through community-based distributors.

## **2.3 Stewardship of the environment**

### **(a) Waste recycling scheme<sup>10</sup>**

#### **(i) Singapore**

58. In the 1960s and early 1970s, when Singapore was at its infant stage of economic development, reuse and recycling were a way of life and many eked out a living by retrieving recyclables from the waste stream. Recycling then was done for economic reasons rather than for environmental reasons. The organic content of the kitchen waste was collected as "swill" for animal feed. Plastics were a rarity. Glass bottles were returnable and seldom entered the waste stream. The cans were washed and used as containers or collected as scrap metal. In short, waste was a tradable commodity.

59. In the 1970s, rapid industrialisation and economic growth brought about a higher standard of living and along with it the trappings of a throwaway mentality which saw a rise in the amount of materials consumed and waste generated. The anonymity enjoyed in using shared rubbish chutes in high-rise housing makes waste dumping by households convenient and easy.

60. Waste recycling became more cumbersome, less sustainable and increasingly geared to industrial waste. High-rise public housing made separation of wastes at source difficult as waste was thrown down common refuse chutes. The mechanisation of the waste collection service such as using compaction vehicles and containers added further hindrance to the retrieval of valuable resources from domestic waste.

61. In the 1990s, the substantial amount of domestic and trade waste collected and the increases in overall disposal cost due, mainly, to increases in costs of disposal by incineration, generated a need to boost the level of recycling of domestic waste, particularly in residential areas such as public housing estates.

62. In Singapore to-day, certain types of domestic, trade and industrial waste materials are already being recovered by private contractors and individuals for recycling locally or for export. Wastes of economic value such as waste paper metals, old clothing and rags are being collected by contractors and 'rag and bone' men from households, trade and industrial premises.

63. The Ministry of the Environment, which prior to 1990 left recycling largely to the private sector, took a more proactive stand by establishing a Waste Minimisation Department. By 1995 the department had assisted in the setting up of a total of 1255 'in-house' waste recycling centres in hotels, hospitals, schools, offices, factories, clubhouses and residential buildings.

64. Apart from promoting 'in-house' waste recycling schemes, the department has also set up 58 public recycling centres across the island with the sponsorship of a private sector organisation. The public recycling centres were set up in suitable central locations to enable the public, especially people living in housing estates nearby, but without a recycling scheme to participate in waste recycling. Each centre acts as a recyclable waste collection centre where the public can have easy access to deposit dry, recyclable waste into bins or containers for paper, plastics and cans. Table 3 shows the location and number of recycling centres in Singapore.

Table 3: Location and number of recycling centres in Singapore

Type of establishment	Number of recycling centres				
	1991	1992	1993	1994	1995
School	45	148	219	245	325
Condominium	28	52	119	160	188
Town council estate	3	6	87	92	340
a/ Private housing	2	4	10	14	14
estate	68	144	182	203	205
Office	28	86	87	92	92
Hotel	39	84	84	86	91
Others (e.g. factories, clubs, hospitals)	50	58	58	58	58
Public recycling centre	263	582	846	950	1313
Total					

Source: Ministry of Environment (1991-95)

a/ Refers to the number of housing blocks.

**(ii) Lessons learned**

65. The experience of Singapore is very useful to Africa. Particularly so for countries with rapidly growing population such as Nigeria and Ethiopia. The most important factor worth noting is the effort made by people in Singapore to separate re-usable waste materials from non-usable waste materials and to make the former a source of income for some segments of the country's population in the 1960s and early in 1970s. Another factor also important in Singapore's efforts is the privatisation of waste disposal practices and the parallel strengthening of the public sector for this purpose.

66. In several African countries the practice of collecting and disposing of waste is largely left to the public sector, which seems to have difficulties in coping with the problem. African countries may be in a position to minimise these difficulties by emulating the types of institutional mechanisms set up in Singapore. Examples of these are waste minimisation departments within the Ministry of Environment, in-house waste recycling centres and public waste recycling centres.

**(b) Building on age-old tradition**

**(i) Africa's Sahel<sup>11</sup>**

67. Farming success stories are as scarce as lush pastures in the broad swath of African dryland known as the Sahel. However, with the help of two British non-governmental organisations, three far-flung communities in the belt of an arid country under the Sahara are holding back the desert and raising their income. The Save Our Soil Sahel and Farm Africa have identical approaches to development in the African arid zone and these are:

- Aid must be based on the traditional systems of local people;
- Projects and staff must be flexible and adapt to changing needs; and
- Africans must design and implement projects themselves.

68. The Sahel is a mix of varying degrees of desert and dryland, difficult and delicate environments to live in. Yet over the centuries millions of people have evolved sustainable ways of life there. The necessary balances between man and nature have been thrown off kilter in the last two decades by recurring drought, increased population, civil unrest and inappropriate policies, all leading to severe food shortages and land degradation. From table 4 it is transparent that the Sahel is the most degraded subregion of Africa.

<sup>11</sup> CERES. The FAO Review. no 46. Vol. 26. No.2. March/April 1994.

**Table 4:** Extent of soil degradation in the major subregions of Africa including the Sahel in the early 1980s (million hectares)

Subregion	Total productive dryland		Productive dryland types					
			Range land		Rainfed cropland		Irrigated land	
	Area	%	Area	%	Area	%	Area	%
Mediterranean Africa:	101	83	80	85	20	75	1	40
Southern Africa	304	80	250	80	52	80	2	30
Sudano sahelian	473	88	380	90	90	80	3	30

Source: ECA, Gender and Sustainable Development in Africa, OpCit, 1997.

69. In western Africa, the Dogon and Bobo People of Mali have a tradition of soil and water conservation, and have long used organic manure. During the last two decades, though, these time-tested farming methods were dropped as "old-fashioned". Now with the encouragement of SOS Sahel, people are reclaiming those ancient approaches, along with new techniques which enhance the old.

70. Across their sloping fields farmers now build "deguettes" or low rock bunds and bigger, half-moon-shaped micro-catchments also made of stones. The crescents are built across slopes, the points facing downhill, lessening erosion and catching water which slowly infiltrates the soil rather than running off to accumulate at the bottom of the slope.

71. Within the protective inner, semi-circle of each crescent farmers make small planting holes called "zais". Into these they drop a handful of compost made of kitchen and other organic waste, then plant millet or trees. More reliable crop yields have resulted from this anti-erosion/water conservation method. Food has increased in several villages. Perhaps most promising for the Sahel, this technique has helped farmers crop previously abandoned land.

## **(ii) Lessons learned**

72. The technique of using the "diguette" has two advantages for African countries. The first of these is its capacity to prevent erosion by holding the soil and by checking the downhill flow of the water. The bunds used traditionally in Africa hold the soil, but not the water. The other advantage is the use of "zais" as a technique for planting crops or trees, which also helps to stem further soil and water erosion. In addition, this practice can expand food and fuel-wood availabilities.

## **(c) A World Bank/Nigerian government funded afforestation project**<sup>12</sup>

### **(i) Desertification/land degradation control in Northern Nigeria**

73. In Northern Nigeria there is widespread land degradation, mainly attributed to deforestation, as well as soil and water erosion. Increasing agricultural intensity and

livestock over-grazing, combined with rising demands for fuel wood, have led to a rate of deforestation estimated to be 3.5 per cent, one of the highest in the world. In Jigawa state, for example, the area of land used for intensive agriculture increased from 36.8 per cent to 69 per cent over the period 1978-1992 while undisturbed forests decreased from approximately 1.1 per cent to 0.01 per cent. Table 5 portrays the forest cover and deforestation in Nigeria during the years 1990-1995.

Table 5: Forest cover and change in Nigeria for the year 1990-95

	1990	1995
Total forest area (1000 ha.)	14,387	13,780
Average rate of deforestation (%)	1.6	0.9
Natural forest cover (1000 ha.)	14,236	13,629
Rate of reforestation (%)	3	3

Source: ECA, Africa Demographic, Environment and Agricultural Indicators, Op cit, 1999.

74. With a view to stemming environmental degradation including deforestation, a World Bank/ Nigeria-funded afforestation project was implemented in Northern Nigeria from 1988-1996. Although twelve states participated in the project, Kano and Jigawa states were the most successful. The project used an integrated, multi-dimensional approach to achieve its environmental objectives. In this context, the main bio-physical strategies of seedling production and shelter-belt establishment were combined with social forestry. Training was also provided for project staff to strengthen project implementation and management. After the mid-term review, the project recognised the need for a more bottom-up approach and increased community participation in project planning and implementation.

75. A high-level of success was achieved by both states. Using effective strategies, the project scored commendable achievements (table 6), which enhanced its overall impact and contributed to the sustainability of the afforestation efforts. It had a positive impact on both the bio-physical and socio-economic environment. Afforestation targets were achieved through shelter-belts and woodlots. Increased crop yields were experienced on farms protected by shelter-belts and windbreaks and through the integration of agroforestry in the woodlots.

76. In addition, a high-level awareness developed among policy-makers, school teachers and students and the rural population with regard to deforestation and desert encroachment and the need for fuel wood conservation. Increased income was realised from orchards and woodlots. The supply of fuel wood has increased because of the woodlots and shelter-belts. Further, improved nutrition and health were reported by participating schools and families through increased consumption of fruits. Table 6 referred to above provides an overview of the strategies employed by the project and its overall achievements.

**Table 6: Overview of strategies employed by the project and its overall achievements**

Strategies	Overall achievements
<ul style="list-style-type: none"> <li>• Implementation of integrated, multi-pronged approach to re-afforestation combining shelter-belt, windbreak, woodlot and orchard creation with natural regeneration;</li> <li>▪ Forestry management structures through policy and institutional development;</li> <li>▪ Soil stabilisation through increasing overall vegetative cover and reducing wind speeding;</li> <li>▪ Implementing afforestation activities to increase fuelwood and construction timber supplies and provide additional fodder;</li> <li>▪ Raising agricultural productivity through shelter-belt development, community planting and agro-forestry work;</li> <li>▪ Community mobilisation and involvement in afforestation activities through:               <ul style="list-style-type: none"> <li>▪ Incentives to key contact farmers in return for their involvement in project activities and outreach activities including youth foresters clubs in schools;</li> </ul> </li> <li>• Awareness-raising on the benefits of the project and dissemination of extension information;</li> <li>▪ Controlling access to shelter-belts by livestock and wood gatherers through a system of forest guards.</li> </ul>	<ul style="list-style-type: none"> <li>• Approach actively supported by all levels of government through extension and training inputs and credit schemes;</li> <li>• Integration of government bodies catalyzed through project activities;</li> <li>• Acceptance of the approach by conservative regional leaders, the Emirs;</li> <li>▪ Local decision-making control established and accepted by authorities;</li> <li>• Development of new federal policy for a decentralisation of power over land resources to community level;</li> <li>▪ Replication by other farmers because of the demonstration effect;</li> <li>▪ Spin-off benefits to the wider community in terms of housing stock improvements from the greater availability of construction materials;</li> <li>▪ Increased community-driven water supplies and regional nutritional benefits from the consumption of fruits.</li> </ul>

**Source:** Extracted and condensed from the various sections of the UNEP paper referred to under No. 11

## **(ii) Lessons learned**

77. During project implementation, both Kano and Jigawa states demonstrated a keen interest in self-evaluation and were able to apply the lessons learned at mid-term to modify and improve the project, particularly in terms of community participation and the participation of women. This is an important lesson.

78. Another key lesson is that it is necessary to identify and involve stakeholders also in planning and implementation in order to create a sense of ownership and to ensure support for implementation and sustainability of the afforestation efforts. While there was a limited community participation in the design of the project, the emphasis was on encouraging beneficiaries to participate in planning and implementation following the mid-term review. Related to this was the realisation by the project that providing cash and material incentives for participation was not effective in ensuring lasting farmer support of afforestation activities.

## **2.4 Transfer of technology**

### **(a) Practical aspects of food processing**

#### **(i) Intermediate technology training in food processing in Sri Lanka<sup>13</sup>**

79. In 1991, a training programme in food processing came into being within the International Centre for the Training of Rural Leaders in Yodhagama. The objective of the programme was to enable poor people particularly women engaged in micro and small-scale food processing to develop skills and increase their access to information. The number and profitability of small-scale food processing business in Sri Lanka was expected to increase thereby stimulating rural employment, self-sufficiency and entrepreneurial activity. The types of training dispensed by the centre depended on the needs of participants and these were indicated below:

- The annual training of trainers course was a combination of business development and food technology, using a mixture of classroom sessions as well as follow-ups and practical work in the field. It was a five-week residential course conducted in three phases with intervals to allow the trainees to use knowledge gained in their work.
- Short courses on specific technologies or product areas were conducted for small-scale entrepreneurs and the training package was specifically designed to suit the requirements of requesting organisations/entrepreneurs.
- One-day courses for entrepreneurs focused on specific technological processes and products. Participants also had direct access to available resources and services including logistics.

80. The training courses laid emphasis on the needs of small-scale agricultural producers and food processors with a view to increasing their productivity and

<sup>13</sup> Appropriate Technology Training for Flexibility, Volume 25, Number 3, December 1998, Intermediate Technology



income. Most of this production was seasonal; so the training stressed adding value to agricultural products and strengthening the capability of small agricultural producers to negotiate in the market. As a result of the training, some trainees were able to develop special skills in the making and marketing of such local food items as jujubes, batto, rulang toffee and milk toffee.

81. Working with universities and academic institutions provided an opportunity to influence future decision-makers to pay adequate attention to small-scale food and agro-processing. Initially working with students was difficult as they expected to learn about new, sophisticated technology. They sometimes felt that the small-scale technologies used by rural communities were old-fashioned while the trend was towards more sophistication. Once convinced, however, they were often highly committed to the promotion of appropriate technologies.

## **(ii) Lessons learned**

82. One of the most significant lessons learned is that, for any training programme to be effective, support and follow-up are absolutely essential. Trainers need support particularly just after they have acquired their new skills. If they run into problems, they can easily become disheartened and demoralised, thinking that they cannot handle the task.

83. Another lesson learned is that, for any training in food processing to thrive and succeed, it should focus on women. More so as participating in a training programme may be difficult for women owing to domestic responsibilities, cultural barriers and logistical bottlenecks. The difficulty will be even more serious if a course is offered by a man, if it is held in an inconvenient place, if it is problematic to travel to, or if the timing does not fit in with women's activities. For purposes of timing, rural women may need to be approached at home or at their places of work or in their villages.

84. Still another lesson is that the training combines the technical aspects of food processing with packaging, storing and transporting. Most food-processing training programmes stress recipes i.e. the preparation of the product is demonstrated and the instructions or quantities necessary to produce the recipe commercially given out. This is not enough for the expansion of food processing technologies. The combined training programme is, therefore, very useful.

## **(b) New technique for controlling weed and for expanding yield**

### **(i) Farmers embrace a creeper in Benin<sup>14</sup>**

85. Farmers in southern Benin have found the best way to deal with their biggest problem, a grass weed, is to smother it with another plant, a ground creeper. And in doing so, they have taught re-searchers once again the valuable lesson that working with farmers rather than for them is the key to increasing production.

86. The problem arose in the mid-1980s. The traditional farming system with a long fallow period had collapsed because of pressure to produce more food. The

ultimate result was a drop in production because soil fertility took a nosedive. As soils degraded, fields became infested with the grass weed, impreta cylindrica, known as spear grass, and were then abandoned.

87. Researchers at the Institut national des recherches agricoles du Bénin joined forces with the International Institute of Tropical Agriculture based in Ibadan (Nigeria) in looking for a leguminous cover crop to improve soil fertility. They selected mucuna pruriens, the velvet bean brought in from Latin America.

88. Mucuna, an annual leguminous, ground-creeping plant, produces a lot of growth, and when it dies down during the dry season, it leaves behind large amounts of organic matter. Initial trials in 1988 and 1989, showed that, if maize is planted into this thick mulch at the beginning of the next rainy season, grain yields more than double. The maize crop benefits because the mucuna debris provides nitrogen and helps the soil retain more rainfall.

89. Demonstration plots with farmer produced some sensational increase in yields as much as ten-fold. But that did not convince most farmers to plant mucuna. They were not interested in a crop that yielded no food.

90. Some farmers did persist with mucuna, however, because they saw its potential in another more important direction. They found it could eliminate imperata grass from badly infested fields. If they cut down the grass just before the rains and then planted mucuna, the creeper had the chance to outgrow the imperata and smother it. In its research for light through the thick carpet of mucuna, the imperata uses up its root reserves and by the end of the season there is very little left in the field. Next season maize can be planted into the mucuna mulch.

91. That finding, spread from farmer to farmer by word of mouth, was enough to get more people to plant mucuna. Because imperata does creep back within three to four years, farmers will have to re-introduce mucuna periodically to suppress the imperata once again and this also ensures that soil fertility is maintained. So in a roundabout way, the researchers have achieved their objective.

92. Experience has shown when maize follows mucuna, yields are increased. Some farmers have got yields of 2000 kilogrammes per hectare; others have seen yields treble. But mucuna only supplies organic matter and nitrogen; so it may be necessary to apply phosphorous and potassium if these nutrients are deficient.

## (ii) Lessons learned

93. An important lesson learned from these findings is that it is always advisable to develop new technologies in close collaboration with farmers. Another lesson also learned is the need for combining, where necessary, biological and chemical techniques for the purpose of controlling weeds and for expanding crop yields. The findings also suggest the possibility of exploring new research frontiers in the development of biotechnology aimed at enhancing soil fertility, raising agricultural productivity and reversing environmental degradation.

**(c) Motorized milling scheme**

**(i) Senegalese women proving their mettle in mechanised rice milling<sup>15</sup>**

94. A recent FAO project in Senegal has shown that women are as good as men with engines, by demonstrating that a mechanised rice milling business can be handled successfully by them under their own management. To make sure that men would not be tempted to take over the mill, efforts were made to make its size very small. To discourage fraud attempts were made to introduce a ticket system for milling service payments. This approach enabled the women to get thoroughly acquainted with their machine and to develop the required technical and managerial competence without male interference.

95. Transforming paddy into white rice is often done by hand-pounding it with pestle and mortar, which is time-consuming and heavy work requiring several hours a day. A group of women from the isolated village of Doué had signaled the need to diminish their workload, which included economic activities such as vegetable gardening, rice culture and animal herding.

96. The group's initial commitment was assured by insisting that, from their own means, they erect a lockable shed for the mill and put up a revolving fund to cover expenses for six months. In return, the project would provide a mill on loan, train the women in maintenance, operation and management of the mill; monitor operations; and supply any additional assistance when required. Within 10 days the shed was built and the revolving fund scraped together. To avoid provoking village men by excluding them completely, the women diplomatically engaged a man for daily mill operations.

97. Technical training was provided for the "millers committee" in such areas as engine functioning and maintenance, adjustment of mill to paddy quality and the use of an engine logbook. In addition, the committee was shown how to run financial operations and to keep logbooks for spare parts, fuel and funds. In a nut shell, all the women were involved in the day-to-day management and operations of the mill. The women proved to be very competent in these activities. They were equally competent in the maintenance of the mill on schedule. They had a better 'ear' for the engine and, when problems arose, they arranged for a mechanic to resolve these.

**(ii) Lessons learned**

98. The key to success in the mechanisation of women's work is to ensure that it remains their own work. The mill used by the women was not only very small in size, but it was also unattractive to men. This being the case, the women got themselves well organised and started running the mill independently without undue reliance on men even for such a highly technical operation as the regular maintenance of the mill's engine. This is a critical lesson.

99. Another lesson learned is the fact that the women's involvement in the milling activities built up confidence in themselves and enhanced their agricultural income.

Even domestic animals benefited from rice by-products thus reducing the amount of grazing in the field. The contribution of this to environmental conservation is too obvious to require further elaboration.

### **III. CONCLUDING REMARKS**

100. As stated at the outset the principal objective of this publication is to identify useful information on best practices in some countries within and outside Africa and to disseminate it to other African countries for practical application. Implicit in this is, of course, the need for a certain amount of parallelism in terms of overall development conditions between the countries where the practices have been identified and the countries which are likely to apply them. In other words, there must be similarities among the countries in order for the identified practices to be relevant, realistic and applicable.

101. Every effort has been made to identify and select the best practices with these issues in perspective. All the same, it may be naïve to harbour the feeling that even these practices, once identified, can be replicated and applied ready-made. They have to be adapted to local beliefs, mores and values.