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## COUNTRY AND INTERCOUNTRY PROGRAMMES AND PROJECTS

### Consideration and approval of country programmes

#### FOURTH COUNTRY PROGRAMME FOR BURMA

#### UNDP assistance requested by the Government of Burma for the period 1982-1985

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<sup>1/</sup> The previous country programmes for Burma were issued under the document symbols DP/GC/BUR/R.1 - DP/GC/BUR/R.3

INTRODUCTION

1. The Fourth Country Programme (FCP) of Burma, covering the calendar years 1982-1985, is the result of a programming exercise carried out by the Government and UNDP. The Government was represented by the Foreign Economic Relations Department (FERD) of the Planning and Finance Ministry, in consultation with the various sectoral ministries, departments and agencies. As the Government considered that neither special sectoral studies nor agency programming missions would be necessary for the exercise, UNDP relied on representatives of the United Nations system in the country; advisory services in programming FCP resources were also provided by visiting staff from the headquarters and/or regional offices of the International Labour Organization (ILO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Civil Aviation Organization (ICAO), the United Nations Conference on Trade and Development (UNCTAD) and the Food and Agriculture Organization of the United Nations (FAO).

2. A joint project-by-project review of the Third Country Programme (TCP) was conducted in October 1980 for the double purpose of expanding the 1982 project pipeline (see below) and considering the implications of TCP implementation for FCP. Following this TCP review, the Government invited concerned ministries to submit project proposals for UNDP assistance. In February 1981, the resident representative prepared an independent assessment of TCP to enhance the effectiveness of the programming exercise and reduce problems in FCP. The assessment, together with his note on FCP, was circulated among Government officials to provide an informal basis for discussions. An important element in the actual programming exercise was the Government document, "Five Year Development Programme, 1980/81 to 1984/85", which had been prepared for the World Bank-organized Burma Aid Group and highlighted development priorities as well as listing technical assistance requirements.

3. The FCP period (1982-1985) does not correspond exactly with the third programming cycle (1982-1986) of UNDP. The first year of FCP, 1982, overlaps with the last year of TCP. The period 1982-1985 was chosen to ensure the country programme's synchronization with and integration in the Fourth Four Year Plan (FFYP) (1 April 1982 - 30 March 1986). While formulation of FCP preceded that of FFYP, the latter's basic policies were already well known. A significant advantage of FCP is that Government obligations for all UNDP projects are fully incorporated in FFYP. The Government can therefore fully guarantee the availability of adequate counterpart funds for FCP projects.

4. The UNDP resources taken into account for programming are US\$78.42 million, calculated as follows: the 1982-1986 Indicative Planning Figure (IPF) amounts to US\$102 million. Eighty per cent of this, or US\$81.6 million is currently estimated as available. The proportionate share of this figure for the period 1982-1985 is US\$65.28 million. With a carryover of US\$70,000 from the second cycle, the figure is US\$65.35 million. Addition of an adequate programming allowance of 20 per cent results in a total of US\$78.42 million in programmable funds. Commitments for ongoing programmes amount to US\$11.26 million; newly programmed funds amount to US\$65.18 million, leaving a small programme reserve of US\$1.98 million.

5. FCP contains 89 projects, of which 30 are ongoing. Of the 59 projects, designated as new, 25 originated from TCP reviews, especially that of October 1980. At that time, with the TCP still expected to run until the end of 1982, some projects had been slow in materializing; and given the anticipated 150 per cent rise in IPF resources available from the end of 1981, a larger pipeline for 1981-1982 was needed. Thirty-four new projects were proposed after the October 1980 TCP review, most of them large-scale (ten with allocations in the order of US\$2 million or more), reflecting the Government's policy of concentrating available funds on a small number of large-scale projects with concrete objectives. Very few of these new projects can commence before late 1982 because of the time needed for project preparation.

6. The basic policies reflected in both FFYP and FCP are derived from Burma's 20-year long-term plan (1973/74 - 1993/94), the principal objectives of which are: (a) to raise the standard of living of all nationalities of Burma to twice the level prevailing in 1973/1974; and (b) to shift the development orientation of the country's predominately agricultural economy to an agriculture-based industrial economy.

7. Short-term development strategies aim at resolving the following interrelated problems:

- (a) low per capita (GDP) (at present in the order of US\$150);
- (b) the predominantly agricultural structure of the economy;
- (c) low productivity in the primary producing sectors of agriculture, forestry and mining, which results from inadequate infrastructure and in the underemployment of manpower and other resources and requires accelerated investments; and
- (d) exports which concentrate on primary producing sectors and thus require diversification.

8. The introduction of programmes in health and education, especially at the grassroots level, exemplifies the Government's concern with the personal well-being of the Burmese people.

9. The Government's basic strategy in the programming exercise was to ensure that UNDP inputs would respond to specific development objectives and policies. No attempt was made to distribute IPF funds over the entire range of FFYP priorities. Rather, a selective approach was followed to avoid the scattering and undue dissipation of resources. The programme thus consists mostly of large-scale projects conceived to produce concrete results over the short-to-medium term. The agricultural sector remains appropriately dominant; aside from the relatively large input for transport and communications, other sectors receive a fairly even distribution of resources. In contrast to the previous country programme, there is a considerable increase in the health sector, both absolutely and in relation to the size of the programme.

10. In conformity with the Government's wishes and development perspective, equipment represents a significant portion of the overall programme; however the intention of the Government is to not exceed a 50 per cent equipment allocation on average. The Government wishes to ensure that each project, as an integrated developmental undertaking, consists of the most suitable mix of expertise, training and equipment in order to fulfill its specific development objectives. Feasibility studies also form a prominent part of the programme, particularly in the industrial sector, for water-related projects and the identification of projects with external investment potential.

11. The country programme strongly reflects the Government's preoccupation with concerns which have recently been considered in international fora. The International Drinking Water Supply and Sanitation Decade (IDWSSD) has stimulated the formulation of national plans. As discussed below under health and natural resources, (water) the country programme contains many projects in support of water development and IDWSSD activities, the relations between internationally developed strategies of health and national plans are also explained under health. With respect to food production, Burma is making big strides forward. UNDP assistance has contributed much of the initial basis for this successful development and continues to support national efforts. A national food strategy as recommended by the World Food Council is being prepared. Careful resource planning in such sectors as forestry, fisheries and wildlife conservation, all with UNDP assistance, are in accordance with international concern for the environment.

12. Continuous programming is incorporated in FCP, but not in the sense that funds have been set aside for certain sectors, with individual projects to be identified in later years. With a programme period of four years, and an average lead time for project preparation of two years, all projects have to be identified from inception of the country programme. The programme should be seen as a project flow which is continuously adjusted in year-to-year decisions. Much of its first part has been formulated during reviews of earlier years: Continuous programming finds expression chiefly in the existence of a reserve list of projects (Category II Annex II), which will be considered at the annual country programme review on the basis of the availability of funds. It is also intended to decide from time to time on the postponement, reduction or abolishment of ongoing projects, and their replacement by Category II projects. The most important criterion in this regard will be project performance. Slow-starting and under-achieving projects will be subject to consideration for replacement. In fact, a principal criteria of the Government in allocating FCP resources to various ministries was the absorptive capacity and implementation capability of Government co-operating agencies, as observed during TCP. This element will remain under continuous evaluation.

13. FCP is closely interwoven with other multilateral and bilateral aid programmes. The United Nations Children's Fund (UNICEF), which apart from UNDP operates the largest United Nations programme in Burma, is heavily involved,

together with the Australian Government, in the development of drinking water. UNDP projects on water are closely connected with the UNICEF programme and both groups have been included in an IDWSSD master plan. In the same way, UNDP and UNICEF projects in the health sector are both integrated in the People's Health Plan (see page 18). In education, the third major activity of UNICEF, there is complementarity: UNDP is active in secondary and post-secondary, UNICEF in primary education. The regular programme of the World Health Organization (WHO) is connected with UNDP activities in the same way. The objectives and strategies for the WHO Health for All by the Year 2000, concentrating on primary health care, have been direct sources for the country's health programming (page 18). The WHO regular programme and UNDP-financed projects executed by WHO are all connected with these objectives. FAO has been active in the country with its Technical Co-operation Programme (TCP), with several TCP projects resulting in UNDP-financed follow-up. In fact, this valuable programme has been the mechanism for most UNDP/FAO project identification in recent years. This Country Programme gives in the appropriate places (pages 7-8, 10, 12, 21-22 and 26) details of the many close connexions between UNDP projects and World Bank and Asian Development Bank (AsDB) financing. These concern pre-investment activities as well as technical assistance provided in support of loan and credit operations as, inter alia, reflected in the umbrella-type projects.

14. Connexions with bilateral programmes are growing. Some UNDP projects have been of the "multi-bi" type, with funds-in-trust provided by bilateral donors. At least one major bilateral project, a fertilizer plant, was identified by a UNDP Study. UNDP projects for IDWSSD are expected to result in bilateral investments. Now that so many more projects have been identified beyond UNDP funding permits to undertake, it is expected that bilateral resources can either finance entire projects on the reserve list or enhance UNDP possibilities by multi-bi arrangements.

15. Finally, Burma has participated in a number of regional UNDP-supported projects and will continue to do so during FCP. The main areas of action have been training and short-term missions, principally in agriculture, health, education, telecommunications, postal services and meteorology. These activities were often complementary to country projects.

#### NATIONAL DEVELOPMENT OBJECTIVES AND PROGRAMMES TO BE SUPPORT BY UNDP

##### A. Agriculture, forestry, livestock and fisheries

16. Agriculture dominates the Burmese economy, accounting for nearly 40 per cent of GDP over 60 per cent of the raw materials for industrial production, almost 70 per cent of employment, and 85 per cent of exports. The national 20-year development plan (1973-1993) foresees an annual growth rate of 5.9 per cent in GDP and 4.8 per cent in agriculture. Since 1976, an annual growth of approximately 6 per cent has been realized for both. The revitalization of

agriculture which made this possible has been a major achievement, but the sector still operates considerably below capacity. Thus in FFYP, as in the three preceding Plans, agriculture remains the first priority, both to meet domestic demands and to increase export earnings.

(a) Plant production and protection

UNDP allocations:	ongoing projects	-	US\$ 1,353,000
	new projects	-	US\$ 4,423,700

17. Crop production contributes 72 per cent of Burma's agricultural output, of which paddy accounts for more than half. Smallholders of ten or less acres occupy most agricultural land, growing rice as their main crop. Declared objectives for agricultural production are: (i) to reach self-sufficiency in food; (ii) to expand the raw material base for domestic agro-allied industries; and (iii) to maximize foreign exchange earnings. To realize these goals, a strategy was designed to increase the per-acre yield of high-potential crops, first in selected areas, then throughout the country, both by extension and by multiple-cropping. The strategy was first applied to rice, with the introduction of high-yielding varieties (HYVs) as well as improved cultivation, harvest and post-harvest practices.

18. The HYV intensification programme aims at comprehensive coverage in selected townships. Starting with two townships in 1977/1978, the number increased to 72 in 1980/1981, and for 1982/1983 the total planned is 150 out of the existing 314 townships. In addition to supplying material inputs and services, the Government mobilizes voluntary labour at critical stages in the production process, while providing leadership and supervision at various levels of political, administrative and social organization. As a result of this grassroot action, the output of rice rose in 1980 to 13.1 million tons from an annual average of less than 8 million tons in the early 1970s. The HYV programme is being enlarged to include such other crops as cotton, wheat, maize and oilseeds (principally sessamum, ground-nuts and sunflower) to overcome a perennial shortage in edible oil.

19. In preparation and support of these programmes, UNDP/FAO has provided assistance in the development of HYVs since 1974, initially through the five-year project, Strengthening the Agricultural Research Institute at Yezin (BUR/72/003), which established programmes and production-oriented research, introduced improved varieties and cultivation practices and trained staff for the newly-relocated Institute. These activities were continued and amplified under three new UNDP projects (Seed Development (BUR/77/008), Crop Development (BUR/77/009), Cotton Development (BUR/78/001) and an ongoing rice development project under bilateral assistance (International Rice Research Institute/Canadian International Development Agency).

20. Activities for all these projects continued into the present country programme period and are to be followed-up with three new projects which group various crops according to their role in the Government's economic strategy. The project, Foodcrop Development (BUR/81/006), will help improve cultural practices and varietal development in food legumes, sorghum, millet, medicinal plants, fruits and vegetables. Industrial Crops Development (BUR/81/005) will cover cotton, jute, other fibres and sugarcane. The Development of Plantation Crops (BUR/81/008) will address itself to rubber and oil palm in particular, following upon the assistance provided under Rubber Rehabilitation (BUR/78/011), which started in TCP via connexion with a World Bank loan. The groundwork laid for edible oil seeds will be followed-up by a production-oriented programme financed from bilateral sources.

21. The departure from traditional varieties with their long-developed resistance to pests and the intensification of production increases susceptibility of crops to insect damage and plant disease. The UNDP/FAO project, Plant Protection (BUR/79/001), commenced in 1980 and will be expanded in conjunction with the development of new varieties under a follow-up project, Plant Protection and Quarantine (BUR/81/007), starting in 1983. The present project is helping to create a plant protection service, which systematically collects data about pests and diseases and disseminates new control methods. A network for the control and prevention of pests is being established through the training of extension workers; its first successes are already evident.

(b) Forestry

UNDP allocations: ongoing projects	-	US\$ 3,322,000
new projects	-	US\$ 2,857,000

22. Burma's forests, which cover 57 per cent of the total land area, represent both a valuable natural resource and a major export commodity. Timber currently accounts for 25 per cent of the total value of exports. The country is estimated to have about 75 per cent of the world's teak reserves and large reserves of other marketable hardwoods. As these resources are underutilized, the Government has recently increased timber harvesting. World Bank and Asian Development Bank (AsDB) loans amounting to US\$93 million have been used to intensify the logging of teak in central and lower Burma. Production and exports have risen rapidly, but an optimum level of exploitation has not yet been reached. To lay the basis for systematic expansion of the sector, UNDP assistance is concentrating on three areas of activities: basic research, forest inventory and staff training.

23. Prior to independence in 1948, virtually all research related to Burmese forests and timbers was conducted in India. Subsequently, rudimentary research was carried out at a laboratory within the Burma Forest Department at Rangoon. Commencing in 1978, with UNDP assistance under the project, Establishment of a Forest Research Institute at Yezin (BUR/72/004), the existing Research Division of the Forest Department was developed into a national institution, capable of

providing technical information on a broad range of forest and forestry-related matters. A phase II project, Forest Research Institute at Yezin (BUR/81/009), will assist in expanding the scope or research and other aspects of management and utilization through provision of consultancy services and equipment.

24. For better decision-making and practical field management, the Government needs adequate and continuous information about forest conditions throughout the country, covering such factors as: the quantity and distribution of timber resources by species, size and quality; rates of production, growth and change; and the soil and water resource support of production. The UNDP assistance in FCP is contributing towards establishment of an organization to carry out a National Forest Inventory and Survey (BUR/79/011). Under this project, professional and technical staff are to be trained in modern forest survey and inventory techniques; data and maps will be produced for nearly 30 per cent of the country's total forest area.

25. The rapid influx of modern machinery and equipment procured with external loans and grants has escalated the demand for highly skilled technicians. With the exception of a Forest Ranger's Training School, Burma at present has no vocational training facilities in forestry and forest industries. An ongoing project, Technical Support for Forest Exploitation (BUR/78/012), is providing overseas training in a wide variety of forestry-related activities, in conjunction with work being carried out with World Bank support. UNDP/FAO will provide further Assistance in Forestry and Forest Industries training (BUR/81/001) towards the establishment, expansion and modernization of Vocational training facilities through the Forest Department and the State Timber Corporation.

26. Burma's natural environment, including forests and wildlife, have suffered less damage than that of neighbouring countries. Nevertheless, the continued agricultural expansion and utilization of forests pose increasing threats to the environment, which requires systematic protection. UNDP is assisting the national effort with the project, Nature Conservation and National Parks (BUR/80/006). This project is establishing a Division of Nature Conservation and National Parks, preparing legislation, establishing an environmental education centre and one pilot national park, and making preparations for other parks and sanctuaries.

27. One of the most serious problems affecting forestry management is the destruction caused by shifting cultivators and fuel wood foragers. This leads to denudation of forest cover, soil erosion and siltation, which not only affect reservoirs and other infrastructure works, but also magnify the devastation resulting from floods, droughts and sedimentation. The UNDP/FAO project, Integrated Watershed Management and Dryland Improvement (BUR/81/003), will assist the Government in improving agricultural land productivity and irrigation and hydropower systems through intensive forest and catchment management. It will also promote effective land use in Burma's Dry Zone to halt further degradation of the fragile ecosystem.



(c) Livestock

UNDP allocation:	ongoing projects	-	US\$ 1,071,000
	new projects	-	US\$ 2,359,200

28. Although its direct contribution to GDP is small, livestock has always played a critical role in Burmese agriculture and forms an integral part of the rural economy. It furnishes almost all draft power for land cultivation and rural transport as well as protein for human consumption and natural fertilizers for field crops. While in the past the traditional small farmer crop-livestock combination provided an adequate system for agricultural development and food supply, the dietary requirements of a rapidly increasing population have accelerated the need for increased livestock production.

29. World Bank assistance has helped to set up a Government dairy farm and piggery, a modern milk processing plant, and an effective field artificial insemination scheme and to improve veterinary services. With Japanese bilateral assistance, a pig and poultry farm has been established for training in intensive production and management. Such external assistance was initially designed to improve the Government infrastructure servicing the livestock industry with emphasis on areas offering potential for a rapid rate of return, while the largest component of the sector draft and meat producing ruminants in the hands of Burmese farmers remained largely undeveloped. Concentrated efforts are now under way to increase the output of draft and meat-producing animals through the utilization of wasteland resources and more efficient production at the smallholder level.

30. Model livestock villages were set up in 1977 under a World Bank project in which better veterinary and animal production services were provided. In 1980, the Government further developed the concept of model agriculture and livestock villages to resettle farmers, Government officials and ex-army personnel who will engage in intensive poultry and pig production. Some thirty such villages are to be established throughout Burma.

31. Several new UNDP/FAO projects are designed in support of the Government's programme. Pig and Poultry Production (BUR/81/015) will provide technical assistance to one of the model apiculture and livestock villages. The UNDP/FAO project, Livestock Industries Development (BUR/74/015), which complements the earlier World Bank assistance, provides substantive support for the improvement of grazing livestock through: the establishment of centres for research, development and training (one each for cattle, buffalo and sheep/goats); the improvement of rangeland grazing-areas; and the development of animal production extension services.

32. A new project, Small Farmer Animal Production Extension Development (BUR/81/013), will begin to shift the emphasis of UNDP/FAO support towards improving small farmer animal production. The project is to improve animal

production extension services by advising small farmers on forage and pasture development, economical livestock rations and feeding systems, local medicinal plants and agriculture by-products. The ongoing UNDP/FAO project, Development of Animal Virus Vaccines (BUR/80/001), is establishing a National Foot and Mouth Disease Epidemiological laboratory and examining the feasibility of large-scale foot and mouth disease vaccine production through application of the technology already developed for the large-scale production of hog cholera vaccine.

33. With UNDP/FAO assistance, the Government has successfully undertaken the project, Development of Cottage Industries for Beekeeping (BUR/78/013), which is the result of a study on beekeeping carried out in 1979/1980 under the FAO TCP. Apart from yielding honey, beekeeping helps crop production through better pollination; more importantly, it provides good substitute income for poppy cultivation in areas where opium production is a problem. The follow-up project, Beekeeping II (BUR/81/012), will continue to promote apiculture by demonstration, training and extension work. Another FAO-executed project aiming at commercial exploitation as well as conservation is Crocodile Management and Research (BUR/81/002). A natural resource base is needed for obtaining hatchlings and, in a later stage, for genetic stock reserve. Therefore, before a commercially successful crocodile-skin industry can be created, it will first be necessary to ensure the continued survival of the crocodile population itself. Thus the project will establish a crocodile sanctuary and production farms and assess the suitability of other areas for similar development. It will also set up research and advise on skin preparation, grading and marketing.

(d) Fisheries

UNDP allocations:	ongoing projects	-	US\$ 628,000
	new projects	-	US\$ 1,290,200

34. Burma possesses extensive fishery resources, which the Government wants to exploit. Under the preceding Four-Year Plan, the marine fleet was improved, expanded, better equipped and a fisheries infrastructure was installed. FFYP aims at the exploitation of inland, coastal and offshore fisheries for domestic consumption and for export. By 1986, it is hoped that 20 kilograms of fish protein per capita will be available to improve the national diet. This will require an additional annual production of approximately 130,000 tons. Also planned is the export of some 30,000 metric tons of fish and prawns to earn foreign exchange.

35. The ongoing UNDP/FAO project, Marine Fisheries Resources Survey and Exploratory Fishing (BUR/77/003), has determined the marine biomass within the 200-mile exclusive economic zone (EEZ) of Burma for long-term planning. In the FCP period, the project will continue to refine these estimates and advise on improved fishing gear and methods. It will also help the Government set up a Marine Fisheries Research and Survey Unit. Another ongoing UNDP project helps establish and operate the Institute of Fisheries Technology (BUR/78/014), by

providing equipment, expertise and training. During FCP, it will help establish the Training Institute in Rangoon, which primarily trains for modern large-scale fishing, and three new Fishermen Training Centres along the coast to extend technical know-how and improve the proficiency of artisanal fishermen. These projects are supported by the Governments of Norway and Denmark, respectively.

36. Fish breeding in lakes caused by flood waters is the main source of leasable fisheries. These already account for more than half the production of fresh water fisheries but can produce much more. UNDP will assist the Government to raise production through the project, Fisheries Statistics Inventory Survey and Improvement of Leasable Fisheries (BUR/81/011). The project will also help develop inland fisheries services and review existing fisheries legislation to ensure resource conservation. Prawn production in the main delta and coastal areas receives much attention. For this, the UNDP/FAO project, Fresh Brackish Water Prawn Culture (BUR/81/010), will introduce improved hatchery techniques and establish small farm production.

(e) Agricultural education

UNDP allocations: new projects - US\$ 5,513,400

37. Since 1973, UNDP has been providing assistance for the centralizing of higher agricultural education in Burma into a single institute on the pattern of a university. The first UNDP/FAO project, (BUR/71/521), helped to establish the Institute of Agriculture at the new campus at Yezin through curriculum development, farm planning, provision of infrastructural equipment and staff training. The follow-up project, Strengthening of Agricultural Education (BUR/80/002), will support and strengthen under-graduate and post-graduate teaching and practical training. The Institute of Animal Husbandry and Veterinary Science as well as the Forestry Department, now in the Rangoon area, are still to be transferred to Yezin to complete the Strengthening of the Institute of Agriculture, Veterinary Science and Forestry (BUR/81/014). This second project will help to relocate both the Institute and the Department at Yezin; it will also cover additional activities relating to the three major institutions as well as town-planning and the extension of basic amenities to the Yezin campus.

B. Transport and communications

(a) Civil aviation

UNDP allocations: new projects - US\$ 3,686,400

38. Inland water transport and road and railway systems serve certain areas, but the nature and pattern of Burma's watercourses and mountainous terrain make conventional surface transport to all areas neither possible nor economically viable. Air transport thus provides the most convenient link to many of Burma's

communities. Furthermore, practically all air services connecting Europe and the Middle East with East and South-East Asia traverse its airspace, imposing heavy responsibilities on a country which itself participates in only a small fraction of the traffic. Of the more than 650 international aircraft flying over Burma every week, only 20 land at Rangoon; at peak periods, moreover, traffic tends to pass in waves of more than 20 aircrafts per hour. The Department of Civil Aviation (DCA) has to ensure the safety and regularity of all commercial air transport within Burma's airspace. A UNDP/ICAO project nearing completion, Modernization and Strengthening of Selected Civil Aviation Facilities (BUR/77/005), has assisted the Department. Specifically, it has helped install and operate new aerodrome and approach-control radio-communications equipment, establish an Aeronautical Information Service Division, equip a workshop for communications facilities and upgrade the competence of selected administrative and operational personnel.

39. UNDP will continue to support Government efforts to upgrade facilities and services to international standards. The largest new project in this sector, Civil Aviation Development (BUR/81/004), will provide more navigational aids and the training to handle them, as well as for costs for flight calibration at regular intervals. Regular air traffic control (ATC) training will be instituted. All this will modernize the country's ATC system and enhance the safety of flight operations over and within Burma. Improved services are expected to produce additional revenue from overflying fees.

(b) Roads

UNDP allocations: new projects - US\$ 5,048,300

40. Roads provide Burma's overwhelmingly rural population with access to a broad spectrum of goods, services and social amenities and are indispensable for agricultural development. In recent decades Burma's road network has been poorly maintained, with the result that annual transport costs are between US\$15 to US\$30 million higher than necessary. Even less effort has gone into structural improvements and expansion, so that road transport has become a major bottleneck for development in general and for agricultural expansion in particular. The Government intends to develop a capability in road planning, design, construction and maintenance and to introduce appropriate methods, materials and equipment in conjunction with research and manpower training.

41. Under the project, Road Research and Development (BUR/81/021), UNDP will provide assistance in transport planning, road design, research in and the testing of roads and road materials, a pilot plant for asphalt emulsions, and the application of appropriate technology to develop machinery and tools which can be assembled or partly manufactured locally.



the equipment. Complementary to the second IDA credit, UNDP approved phase II assistance to the project, Telecommunications and Postal Training Centre (BUR/78/007). To consolidate the achievements of these two projects, the Centre will receive further UNDP support in the FCP period under the project (BUR/81/016). The ongoing project, Assistance in the Development of Telecommunications Systems (BUR/78/016), is providing PTC with technical expertise for drawing up specifications, evaluating bids and conducting acceptance testing for IDA-financed equipment. It is also assisting PTC in planning, development and operations as they relate to implementation of the IDA-financed projects.

ii) Postal services

46. In Burma's communications network, postal services have thus far received the least attention. The lack of a proper development strategy with articulated objectives has kept postal services below the targets and international standards of the Universal Postal Union (UPU). Accordingly, the UNDP/UPU project, Strengthening of Postal Administration (BUR/80/008), will assist in producing a strategy for achieving UPU targets in the conveyance and delivery of mails, the extension of postal facilities in urban and rural areas and the upgrading of postal management.

47. Basic postal training already commenced in July 1978 under a separate programme of UNDP assistance to the new Telecommunications and Postal Training Centre. The subjects covered were postal management and international accounting. One aspect of the project (BUR/78/007) mentioned above is postal training, particularly of qualified supervisors and postal officials.

(d) Meteorology

UNDP allocations: ongoing projects	-	US\$ 20,000
new projects	-	US\$ 282,200

48. Meteorological services in Burma are rendered by the Department of Meteorology and Hydrology. It operates forecast centres throughout the country for general weather forecasting for aviation and for hydrological purposes. Early warning against tropical cyclones and floods is an important protective task of the Department, which is an important link in the regional network of cyclone warning. Burma is a member of the Panel on Tropical Cyclones, which is supported by regional UNDP projects.

49. Under the TCP project (BUR/74/042), UNDP financed the installation of a storm warning radar on the Arakan coast, overlooking the Bay of Bengal, as well as training and advice regarding its operation. The ongoing project, Improvement of River Flood Warning/Forecasting Systems (BUR/78/020), is upgrading the system of hydrological measurements and computerized data interpretation and providing equipment, training and expert services. A crucial task of meteorology is to

generate information in support of agriculture: climatic data as a basis for long-term agricultural planning, and accurate weather forecasts for day-to-day farm work. The UNDP project, Agricultural Meteorology (BUR/80/016), helps the Department to organize specialized services in this respect, using the best available technology.

### C. Human resources and manpower development

#### (a) Education

UNDP allocations: ongoing projects - US\$ 982,000  
new projects - US\$ 3,686,400

50. All Burmese citizens are assured access to free education through the middle school, after which secondary and higher education may be pursued at a nominal cost. With a 90 per cent crude enrollment rate in primary schools, Burma's basic educational system compares favourably with that of most countries at the same GDP. As 40 per cent of Burma's 33 million people are under 15 years of age, the expansion of educational facilities to meet enrollment demands is a considerable challenge.

51. The guarantee of educational opportunities has placed great strain on the capacity to deliver quality education at the secondary and higher levels. One fifth of Burma's five million students are enrolled in secondary classes which annually produce a large number of graduates qualified for university matriculation. The number had already reached an annual average of 32,000 by the mid-1970s. Secondary and post-secondary classes are very large and the average student-teacher ratio at the university level has doubled in the last fifteen years. A University Correspondence System offering a core curriculum in the arts and sciences has been the recourse of the majority of qualified applicants and its participants comprise about half of the 143,000 students enrolled in institutions of higher learning.

52. The education system is strongly oriented towards traditional curricula. Diploma institutes for technical and vocational training, for example, form a small part of the System: in 1979/1980, only 3,500 students were enrolled in the five Government Technical Institutes, and 19,500 attended secondary-level vocational training classes. With such structural shortcomings and with traditional education itself under pressure because of the large number of entrants, the system has difficulties in fulfilling its task to foster economic and social development.

53. The Government has recently accorded high priority to measures for improvement. In the FFYP period, an explicit policy has been established to raise the level of higher education to a standard comparable with those of more developed countries. The teaching of English from the primary level is being

re-introduced to facilitate access to technologies required in the development process. Also, the capacity of institutes for specific technical skills is to be increased. In the FCP period UNDP aims to help the Government make higher-level education more practical and responsive to the needs of development.

54. To encourage the training of technicians, in 1977, the Government established regional colleges which substitute for the first two years at other institutes of higher learning. Upon completion of the second year, which is exclusively for technical courses, students can choose on-the-job training for subsequent employment or apply for admission to the various universities and institutes to continue with their academic programmes. The UNDP project, Development of Regional Colleges (BUR/78/002), provided support services as well as advice and equipment for the technical courses. These courses have now been removed from the regional colleges and the project has been redirected accordingly, to secondary and post-secondary technical training.

55. UNDP will help establish a multi-purpose Universities' Centre for Instrumental Analysis (BUR/81/019) to facilitate teaching and research in the multi-disciplinary aspects of physics, chemistry, engineering, biological and earth sciences. The Centre will be located at the Rangoon Arts and Science University (RASU), but it will also be available for use by the various institutes of higher learning and Government departments.

56. The ongoing UNDP/United Nations Industrial Development Organization (UNIDO) project, Strengthening the Production Orientation and Technical Extension Services at the Rangoon Institute of Technology (RIT)(BUR/74/022), has established foundry and fabrication and electrical workshops which have enabled RIT students to gain practical experience in the proto-type manufacture of machinery parts, small machines and tools. A related new UNDP project will assist in Upgrading and Strengthening of the Electrical Engineering Laboratory at the Rangoon Institute of Technology (BUR/81/020). Under the ongoing project, the Electrical Laboratory has undertaken the design, manufacture, testing and repair of appliances, as well as the assembling of certain products produced in the foundry and fabrication shops. However, the existing facilities have proven quite inadequate for teaching, especially in the rapidly changing field of electronics.

57. UNDP is also providing assistance under the project, Strengthening of Marine Science Teaching and Research at Moulmein College (BUR/74/017), aimed at upgrading the country's only marine biology department from an academic into a teaching centre with a practical orientation. The results of the research are being communicated to organizations actually engaged in the extraction and processing of marine products.



(b) Co-operatives

UNDP allocations: ongoing projects	-	US\$ 730,000
new projects	-	US\$ 2,293,100

58. Although the value of goods, services and trade handled by co-operative societies has risen sharply in recent years (from US\$7.6 million in 1962 to US\$77 million in 1980), the relative share of the sector, in comparison with the State and private sectors, has grown only from .7 to 3.5 per cent. Given the 20-year plan target of having the co-operative sector account for 33 per cent of national production and 50 per cent of total agricultural production by 1994, a major effort is required to expand co-operative activities. The best prospects for such development lie in rural areas, which would fit well with Government efforts to curb rural-urban migration, diversify the rural economy, expand productive employment and improve rural incomes. In 1980 there were already 12,557 village co-operatives with a membership of nearly 4.5 million.

59. Earlier co-operative societies served mainly to distribute consumer goods and the emphasis of the sector still lies on domestic trade. In recent years, however, the Government has encouraged co-operative involvement in the primary production and supply of essential goods. In the FCP period, attention will be paid to the expansion of co-operative activities in agriculture, livestock, fisheries, forestry, mining and small-scale industries, as well as in construction, transportation, health services, credit-financing and trade.

60. For this, the entrepreneurial knowledge and skills of co-operative enterprises require upgrading. Accordingly, the Ministry of Co-operatives is establishing a Co-operative Management Services (CMS) to provide training and management advisory services. UNDP will assist the Government in establishing CMS under the project (BUR/79/010). Apart from management training and advice, the project will prepare feasibility studies in consumer, industrial, agricultural and fisheries co-operatives. At the same time, the Ministry is strengthening its own Co-operative Technology Department, which gives technical and economic advice to industrial co-operatives. The Department is to carry out feasibility studies and project identification and planning, based on the system approach, and to promote appropriate technological methods. The UNDP/ILO project, Small-Scale Industrial Development in the Cooperative Sector (BUR/78/015), will help the Department to select small industries suitable for co-operatives. Three industry/commodity groups will actually be developed under the current project, and the results will be evaluated for application in other trials. Another UNDP project, Co-operatives Institutes (BUR/81/018), will help establish an institute near Rangoon to produce competent managers and technicians for the co-operative movement. The institute will eventually provide teaching, research and extension as well as technical and economic consultancy services and act as a focal point for all co-operative training institutes in the country.

#### D. Industry, science and technology

UNDP allocations: ongoing projects	-	US\$ 50,000
new projects	-	US\$ 8,385,400

61. Burma's development has been significantly influenced by the historical decision to push for industrialization. The manufacturing sector was almost completely agriculturally based prior to 1962, when the Government began to establish a range of basic industries for import substitution. These basic industries absorbed resources at the expense of the primary sectors and were unable to generate the net output, export earnings and employment needed to sustain the economy. Thus in the early 1970s the Government re-established the priority of industries based on the country's own raw materials, especially those from agriculture. Support for expanding agriculture was also an important criterion for the selection of industries (e.g. fertilizer).

62. In recent years, largely with the assistance of bilateral donors factories have been built for urea fertilizer, textiles, paper and tyres. AsDB has financed processing plants for sugar, rice and jute. Japan, the primary bilateral donor in this sector, has financed the expansion of a cement mill and oil refineries. Indispensable import products such as tractors and vehicles are now produced in local assembly plants to reduce foreign exchange costs and increase value-added tax revenues inside Burma.

63. FFYP also takes due account of the rich resource base available for such industries as wood and paper, mining, fertilizer, textiles, fisheries and food processing. Special attention will be given to raising capacity utilization and output in selected existing industries, particularly those related to agricultural, forestry, mineral and other products with an export potential.

64. In the FFYP period, the Government plans to expand the pulp and paper industry by utilizing local raw materials such as bamboo, tropical woods and agricultural residues. UNDP, under the project, is assisting in the Establishment of a Pilot Plant for Pulp and Paper Research and Training in Tropical Raw Materials (BUR/77/004), UNDP assists in creating facilities in the Central Research Organization (CRO) to help the paper industry develop a full range of products. Training is provided to CRO research staff and existing and prospective mill personnel.

65. Production in a number of petroleum-related activities, including urea for fertilizer, is at full capacity. Total production will be increased from 400 to 1,000 tons per day when a third urea fertilizer plant is completed in 1983 or 1984. Burma's refining capacity presently falls short of domestic needs, but two ongoing bilaterally-assisted refinery projects will double its capacity. UNDP will continue to assist in consolidating the training capacity for the new fertilizer plant and oil refineries under the project, Expansion of Training in Petro-Chemical Industries Phase II (BUR/79/006) and its follow-up (BUR/81/024).

66. Whereas fertilizer production is being put on a local basis, the supply of pesticides for agriculture still relies entirely on outside sources. This often means importing bulky dilutants (up to 95 per cent of the formula) at great expense. These dilutants, however, are locally available in abundance. UNDP will therefore help to promote the use of local materials in support of both the agricultural and health sectors under the project, Establishment of a Pilot Plant for Pesticides Formulation (BUR/80/011).

67. The UNDP-assisted project, Technical Feasibility Studies in Support of the IDWSSD (BUR/80/015), will be undertaken for facilities to produce materials used for drinking water distribution, such as plastic pellets, plastic and steel pipes, pumps, engines, electric motors, water meters and cement. The project, Feasibility Study Project (BUR/81/022), will cover a wide range of subjects, from the renovation of various existing mills to the establishment of a new asbestos-cement plant.

68. The Burma Pharmaceutical Industry (BPI) manufactures a broad range of products including pharmaceutical, cosmetic and toiletry items. The range of pharmaceutical products has to be expanded to provide the medicines required under the People's Health Plan without an excessive outflow of foreign exchange. The project, Master Plan for the BPI (BUR/79/009), is to generate in a co-ordinated manner projects for medicine production that could be sponsored by bilateral or other multilateral donors. Major BPI products are the vaccines and sera required by the Health Department in the expanded Health Immunisation Programme. UNDP will assist in improving the manufacturing, quality control, cold storage and animal breeding facilities of BPI under the project, Development of the Biological Division of the BPI (BUR/81/023).

69. Computers introduced to Burma through UNDP assistance under the project, Universities' Computer Centre (BUR/70/515), are now in use in a number of other UNDP-assisted projects dealing with river flood warning, water management, Government economic planning, social security and vocational education. Burma's centrally planned economic system is based on annual, four year (short-term) and twenty year (long-term) planning. Each segment is composed of regional plans covering the fourteen States/Divisions and sectoral plans for various ministries. Formalization of each requires approvals at many different levels, such as townships and States/Divisions, Government Ministries and Councils and, finally, by the supreme legislative body itself. The present planning process therefore involves, inter alia, the collection, storage and transmission of a large volume of proposals and counter-proposals as well as the review of these documents by various agencies with regard to consistency, feasibility and the desired socio-economic goals. The entire process for each planning exercise must be completed within a four-month deadline. UNDP assistance under the project, National Centre for Computing Development (BUR/79/005), will help various Government departments and corporations improve data systems required for the preparation and monitoring of national development plans. This, in turn, should facilitate better decision-making.

E. Health

UNDP allocations: ongoing projects	-	US\$	21,000
new projects	-	US\$	8,570,600

70. Approximately 653 hospitals, 213 dispensaries, 60 urban and 12,000 rural health centres serve the health needs of Burma's 33 million people. There are 7 hospital beds, 2.1 doctors and 1.3 professional nurses per 10,000 inhabitants and one midwife per 1,000 expectant mothers. For traditional medical services, there are 61 dispensaries and 1.5 registered practitioners per 10,000 inhabitants. However, the majority of doctors and nurses serve in urban areas, which constitute only 20 per cent of the country; therefore, a more equitable distribution of services to the rural community has become a prime goal in the health sector, along with the corollaries of community participation, self-reliance and resource mobilization at the local level.

71. The People's Health Plan for 1982-1986 identifies the nature, magnitude and priorities of Burma's health care problems and contains detailed plans for five broad programme areas: community health care, hospital care, disease control, environmental health and support services. The community health care programme aims to expand and improve services to rural communities, particularly for maternal and child care, drawing upon voluntary workers, practitioners of traditional medicine and simple health technologies. The hospital care programme calls for more and better hospital services, including rehabilitation for the disabled and special care services for emerging health problems. Goals for the environmental health programme are to: (a) increase the safe water supply and sanitary latrine facilities by 12 per cent each in rural areas over the five year period; (b) control environmental pollution; and (c) improve food hygiene. Disease control strategies are to: (a) prevent and contain major communicable diseases through maximizing epidemiology surveillance and follow-up action; (b) expand the coverage of immunization to 72 townships; and (c) reduce vector-borne disease through vector control. Support services encompass four sub-programmes which seek to: (a) upgrade laboratory services and improve food and drug control; (b) expand health education for community involvement; (c) train health personnel; and (d) provide logistical support for distribution of medical supplies and maintenance of equipment.

72. Burma's institutions for training health manpower are under several different authorities. The Government has proposed to bring the institutions together in one National Institute of Health Sciences. UNDP will assist the Government in this under the project, Planning and Manpower Development for Primary Health Care and Basic Health Services (BUR/78/009), which will set up a unit for this purpose. It will also devise and implement the training of instructors for basic health services throughout the country as well as the methodologies for a multi-disciplinary team approach to community health.

73. A related UNDP/WHO project will assist in Strengthening the Nursing Division (BUR/81/026), of the Health Department in order to extend the outreach of basic nursing care. In 1977 the nurse-population ration was 1 to 5,200, and the nurse-doctor ratio 1 to 1. The Government intends to double the number of multi-purpose nurses-midwives in five years. Administrative competence and training would be upgraded in nursing and midwifery schools throughout the country as well as in the Nursing Division itself.

74. Modern medical services reach only 15 per cent of the 80 per cent of the population which lives in rural areas, thus the people largely depend upon practitioners of traditional medicine. There are an estimated 33,000 non-qualifying unregistered practitioners and some 11,000 who are institutionally trained. Since 1962, the Government has taken formal steps to assist the rational application of traditional medicine, the best elements of which are now being integrated into primary health care so as to narrow the gap in coverage between rural and urban areas. This effort calls for better institutional training, the equipping of existing dispensaries, and the establishment of additional ones.

75. The UNDP/WHO project, Development of Traditional Medicine Manpower (BUR/78/019), seeks to improve Burma's only Institute of Traditional Medicine and the country's two traditional medicine hospitals. Under this project, also 49 existing traditional medicine dispensaries will be equipped, 13 new ones established and manpower training and research will be undertaken.

76. Burmese indigenous medicine features many cheap, effective remedies for various diseases. To reduce the dependence on imported medicine and to save foreign exchange, the Government wishes to evaluate traditional medicine in the light of modern science, so as to promote beneficial practices and discourage harmful ones. Efforts will be directed in this regard to the project, Standardization, Pharmacological and Toxicological Evaluation of Traditional Drugs and Herbal Medicine (BUR/81/028) as a follow-up to (BUR/78/019).

77. In 1979, only 13 per cent of Burma's rural population of 26 million had access to safe water sources and about 5 per cent to safe methods of human waste disposal. Of some 280 towns (excluding Rangoon), only 12 per cent had access to safe water systems. Seasonal problems exacerbate the situation. In the dry season, even polluted water may be scarce, while in the rainy season waste materials spread uncontrolled in flood-prone areas. As a result, diseases associated with an unsanitary environment are among the top two or three causes of morbidity; in both urban and rural areas, a 70 to 95 per cent incidence of intestinal parasites has been observed (1976). A high priority in the Government's health programme is the provision of a safe water supply and sanitation facilities for 50 per cent of its population by 1990. The UNDP-financed project, Identification Study for Village Community Water Supply and Sanitation (BUR/79/008), will collect data on the actual provision of water and sanitation facilities in villages as a basis for planning for IDWSSD.

78. Several programmes to improve rural water supply and sanitation are already under way, including one to provide safe water through tube-wells in the dry zone that is expected to benefit over 2 million people and another for construction and improvement of dug-wells and latrines, executed through community resources. With the completion of these programmes in late 1982, the rural population served should increase to about 21 per cent for safe water and 30 per cent for sanitary waste disposal. Consequent to a UNDP-assisted feasibility study, a programme of investment for the Rangoon City Water Supply was undertaken with loans totalling over \$22 million from AsDB and the Organization of Petroleum Exporting Countries (OPEC). Technical assistance from AsDB and UNDP was also provided for the design of the first stage water supply system for Mandalay, Burma's second largest city.

79. During the FCP period the UNDP/WHO project, Development of Urban Water Supply and Sanitation (BUR/81/037), will prepare pre-investment water studies for a number of smaller urban centres and at the same time provide training for a capability within the Government to carry out future studies for other towns. Another project in support of IDWSSD is Strengthening the Capability of the Health Education Bureau (BUR/81/027). The Bureau will be the centre for health education campaigns, especially in the villages, on water and sanitation systems. This education will emphasize the importance of personal hygiene and proper use of water and sanitation installations and build up community participation in their operation and maintenance.

80. Although there are no precise statistics on the extent of Burma's disabled population, it is generally conceded that about 10 per cent of its population of 33 million suffers from physical or mental impairment, a figure which coincides with WHO estimates on the international incidence of disability. Following the United Nations International Year of the Disabled Persons, UNDP is assisting the Government through twin projects executed by WHO and the ILO in the development of health special education and vocational services for the physically handicapped. As these services are now mainly confined to the urban areas, there is an urgent need to develop a comprehensive programme for extending them to rural communities.

81. The WHO-executed project, Training and Rehabilitation of the Disabled (BUR/80/017), will introduce on a pilot scale a system of community-based services to prevent disability, identify cases in need of assistance, and carry out local rehabilitation. This system is intended ultimately to cover the entire country. The project will also introduce the production of prosthetic and orthotic appliances using appropriate technology and improve facilities at such referral centres as the Hospital for the Disabled at Rangoon. The Hospital and neighbouring institutes (see below) will be developed into a national Institute for Disability Prevention and Rehabilitation to direct country-wide activities. Four additional centres, two of them for the rural population are to be established in outlying areas.

82. Apart from two schools each for the blind and the deaf, which offer limited skill-training, the Rangoon Vocational Rehabilitation Centre annex to the Hospital for the Disabled has the only training facility in Burma for disabled adults. It has a capacity of only 100 (75 residential trainees) and consequently enrollment for its four one-year training programmes is quite limited. There are no facilities for vocational evaluation, selective job placement or follow-up. The main thrust of the ILO-executed project, Training and Rehabilitation of Disabled Persons (BUR/80/017), will be directed towards improving and strengthening facilities at the Centre for the assessment, vocational training and placement of disabled persons.

83. The West Bank of the Irrawaddy River is an area of rapid industrial growth based primarily on petroleum and natural gas reserves. In this future industrial heartland of Burma, the population and labour force are growing more quickly than average. Health and social welfare facilities have not kept pace with the demands generated by demographic and industrial growth. Therefore, with UNDP/WHO assistance, the Government has mounted the programme, Strengthening of Health Services (BUR/74/026), for workers and their families. It includes occupational health, environmental sanitation, prevention and curative facilities and primary health care in factories. UNDP/WHO assistance will continue in the FCP period under the leadership of a country-wide national project manager (BUR/81/038), and this scheme will become the focal point of governmental involvement in occupational health.

84. Under the UNDP/WHO project, (BUR/74/027), a Food and Drug Quality Control Laboratory was established at the National Health Laboratory in Rangoon. UNDP will provide further assistance in FCP under the project, Development of Food and Drug Control Infrastructure (BUR/81/029). This project is intended to expand the laboratory service into a full-fledged food and drug inspectorate based on enforcement legislation. Training in quality control for food experts will be a side-benefit.

85. A WHO-executed project, is foreseen for Strengthening of the Post-graduate School of Preventive and Tropical Medicine (BUR/81/025). With the exception of two full-time staff members, the faculty now consists of part-time staff: to achieve the ultimate objective of being qualified to a master's degree in public health, five separate full-staffed departments need to be established. The Government will undertake to provide the permanent full-time staff for these departments, while UNDP will furnish expertise in health administration and medical education as well as equipment. The school will also train nurses and other para-professionals in public health, as well as undergraduate medical and dental students in community medicine.

## F. Natural resources

86. Despite continuing efforts to develop Burma's vast physical and natural resources, only a small portion has yet been surveyed and exploited. Apart from valuable reserves of arable land, forest and marine life, its endowments include mineral supplies and ample water resources for power generation, drinking supply and irrigation.

### (a) Mining

UNDP allocations: new projects - US\$ 3,398,100

87. The export of minerals once contributed one third of Burma's foreign exchange earnings; yet the output of minerals declined in absolute terms, as a percentage of GDP, to around one per cent in 1970. Production has recovered to the extent that minerals now account for 15 per cent of total exports, and the mining sector - particularly metals, precious stones and petroleum products - ranks third in importance as a supplier of export items. The Government now aims to expand the production of raw mining materials for existing and new domestic industries. Further expansion of the sector depends now upon new discoveries and the effective exploitation of known deposits. UNDP contributions to the mining sector during the FCP period will be in the area of rehabilitation and modernization as well as institution-building and technical training.

88. The Bawdwin Mine in northeast Burma is the country's main producer of lead, zinc and silver. Mining here dates from the fifteenth century; systematic exploitation started in 1909. Underground workings now produce one fourth the pre-war ore tonnage and one tenth the metal content. Deterioration of the ground conditions and exhaustion of rich easily accessible ore have caused this decline. Open-pit mining, a new development, is producing approximately 200,000 long tons per year, but at much lower grade which contain oxidized ores. New sources of ore will be explored under the project, Assistance in the Proving of Ore Resources at the Bawdwin Mine (BUR/81/031), in which sophisticated geophysical techniques will be used to delineate targets for follow-up drilling. The project will also carry out drilling from underground into zones with presumed ore resources.

89. Systematic large-scale mining of tin and tungsten in the Tenasserim Division of southern Burma also started at the beginning of this century. Output peaked at 9,016 tons of mixed concentrates in 1939 and was down to less than 3,000 tons in 1970. Production seems possible at the pre-war level. The Government proposes to intensify mining by the recovery of alluvial tin deposits, which give quick returns. An earlier UNDP project confirmed economic tin deposits on-shore and resulted in World Bank investments. Since then exploration has moved offshore. A drill-barge in the Tenasserim coastal-region (BUR/73/017) was put



into operation in the Tenasserim coastal-region under previous joint UNDP/Canadian International Development Agency (CIDA) assistance. The Government now does the drilling on its own, but UNDP assistance continues under the project, Offshore Exploration for Tin (BUR/73/017), to provide support services, including marine geophysical surveying, geological mapping and more equipment. The project aims to find new reserves which can be mined with existing dredging technology and equipment.

90. The Department of Geological Survey and Exploration (DGSE) is responsible for geological mapping, exploration and appraisal of all minerals except oil. It does this with inadequate workshops and laboratories. Under the UNDP-financed project, Strengthening and Expansion of Laboratory and Workshop Facilities at the DGSE (BUR/81/030), modern chemical and geological laboratory facilities and a drilling workshop will be established. The new drilling workshop will carry out repair and maintenance of DGSE drilling equipment as well as the rehabilitation and recommissioning of at least 20 of the 26 drilling machines unserviceable at present.

(b) Water

UNDP allocations: new projects - US\$ 3,613,600

91. Activities to be undertaken in Burma in the context of IDWSSD are highlighted in the introduction and in the health sector. The Government gives priority to supplying safe drinking water to its approximately 65,000 rural communities and to selected towns. A first target is to supply 50 per cent of the population by 1990, including approximately ten million inhabitants of rural areas. Of the latter, six million are to be served by tube-wells and four million by shallow dug-wells adequately protected against pollution and by surface-water reservoirs, gravity and other schemes.

92. The systematic development and rational use of water can have striking effects on other areas of the economy. Only an estimated 25 per cent of the country's hydropower potential has so far been utilized. River control can lead to better use of Burma's 5,000 miles of inland water-ways. Water control is no less important for agriculture. The monsoon rains have traditionally supported steady crop-yields, yet water has been the major constraint for further agricultural development. The two extremes of monsoon flooding and the baking of fields in the dry season preclude rainfed multiple cropping. Irrigation is therefore considered the key to crop intensification. In this respect considerable potential exists. Twelve per cent of the total sown acreage is now under irrigation; out of this only 14 per cent is double-cropped.

93. Full utilization of HYVs also depends on better water management. The Government accordingly is placing emphasis on multi-purpose dams for generation

of electricity and irrigation of large areas for paddy and other crops. Assistance from both the World Bank and AsDB has been obtained for this purpose as well as for pump irrigation from the rivers. At the same time, work started on development on ground-water resources in the Dry Zone is expected to lead to large-scale investment projects. UNDP-financed studies, mostly under umbrella projects (see Section I - Multi-Sectoral Projects), have identified and continue to identify irrigation and power investment projects.

94. Water resource planning has hitherto been scanty, sporadic and project-oriented, partly because there is no single central water co-ordinating body. Earlier UNDP/United Nations assistance under the project (BUR/74/039) prepared the groundwork for the project, Water Resources Management and Development (BUR/79/007), which will: (a) strengthen the Government's capabilities in water management and planning through advisory services and training; (b) establish a central water resources data bank; (c) carry out hydroelectrical analysis with Government agencies for the preparation of project reports; and (d) promote the planned co-ordinated development of water resources.

95. Ground water is practically the only source of water in the Dry Zone of Central Burma, where the yearly rainfall is less than 40 inches (1000 centimetres) and potential evaporation exceeds 100 to 120 inches, as well as in hard rock areas. It is also important in the Irrawaddy Delta, which is flooded by brackish water for months on end. Drilling has already taken place in the Dry Zone and is now progressing at an accelerated pace under a project funded by UNICEF and bilateral sources to provide potable water for villages in the zone by tube-wells; however, hydrogeological conditions are known only locally in certain areas. UNDP is therefore helping the Government obtain comprehensive knowledge of hydrogeological conditions in the country, through the project, Hydrogeological Mapping and Investigations in Support of the IDWSSD (BUR/81/014). This will allow for national planning of IDWSSD, especially as regards the use of proper drilling equipment, selection of drilling sites, depths to be reached, aquifers to be tapped, salty horizons to be sealed off and well design.

#### G. Cultural and social services

UNDP allocations: ongoing projects	-	US\$ 202,000
new projects	-	US\$ 2,544,400

96. Burma's 33 million people are presently serviced by one Rangoon-based AM radio station, capable of relatively wide coverage, and one television station, reaching approximately 2,000 sets within 50 miles of the capital. Thus, virtually the entire population receives information audio-visually via cinema projection. The Government depends upon the film medium to convey instructional messages in health, education and agriculture. Most of the population has access to films only through the Information Ministry's twenty mobile units which visit each audience (sometimes as many as 5,000 at one outdoor performance) about once a year. In many cases, these mobile shows must be transported by bullock carts or mules.

97. At present, almost all film production in Burma is in 35 millimetre (mm) black and white (b/w) film. The 35 mm colour format which is coming into use throughout the world is too expensive for the country. A UNESCO mission recommended a switch to a standard format of 16 mm - first b/w; later colour - with modern equipment and techniques. This format film is cheaper, the equipment can be moved around easily and even small communities can obtain their own installation at little cost. During the transition, it will be necessary to extend the productive life of the out-dated 35 mm equipment. The mission formulated a phased plan for this under the project, the Modernization of Film Production (BUR/78/021). Under the follow-up (BUR/81/033), further modernization of film-making and film-dissemination is envisaged as well as development of centralized laboratory and maintenance facilities.

98. The Government also wishes to expand and improve recently established television broadcasting in order to raise educational and cultural standards as well as ensure active and effective popular support for national development schemes. The Information and Broadcasting Department, which is responsible for television, does not have adequately trained engineering or programming personnel. It particularly needs qualified engineers for equipment maintenance and repair. As no local training institutions exist in these fields, selected engineering and programming staff are acquiring the necessary skills abroad, under the UNDP/ITU project, Television Broadcast Engineering and Programming (BUR/80/018), which is being executed with the co-operation of UNESCO. To build up a fully competent core staff, the project will also provide in-service and on-the-job training.

99. Burma has a vast accumulation of official records scattered throughout the country, some dating back to 1853. In 1972 the Government instituted the Department of Archives as the central depository system which is responsible for the restoration and conservation of old documents. The Department has been preoccupied with setting up its infrastructure and has not yet been able to draft a National Archives Act or introduce systematic administration and management of records. Over 30,000 volumes have so far been collected and a vast amount of additional non-current records from public bodies is anticipated. Important and fragile documents are to be micro-filmed and stored under climate-controlled conditions. The Department has constructed a depository building and acquired microfilm equipment. Plans are underway for restoration, repair and photographic laboratories. The UNDP/UNESCO project, Strengthening of National Archives (BUR/78/005), is intended to strengthen the Department in such areas as the establishment of systems for (a) handling and storage of fragile materials; (b) administration and management of records; (c) reproduction and duplication of archival documents; and (d) improved retrieval. The project will also contribute to the drafting of a National Archives Act and provide training to managerial archival and technical staff.

100. Burma's rich and splendid past is reflected in a wide range of monuments and artifacts found throughout the country but especially in the ancient capital of Pagan, constructed between the tenth and twelfth centuries. Some 5,000 pagodas of varying sizes and importance remain, many of which were seriously damaged or partially destroyed in the devastating earthquake of July 1975. Superficial



103. In 1978, a mission of the International Trade Centre (ITC) identified Burma's most immediate needs for trade promotion. The systematic and regular supply of trade information was considered a first priority for export planning. The UNDP-financed project, Trade Promotion and Market Development (BUR/79/004), will thus establish a Trade Information Service (TIS) and provide training for Government and State Trade Corporation officials. TIS is to give marketing information to all the country's exporting institutions. The project will establish a well-equipped Trade Documentation Unit, draft an operations manual for TIS, collect information for analytical reports on selected products and target markets, produce a "Buyers Guide to Burmese Products" and train TIS staff in documentation and market research.

104. A promising export product is processed fish. Since fresh fish is so perishable, 75 per cent of the production must be processed in various ways. Shrimp paste and sauce are staple foods of the Burmese people, second only to rice in the national diet. They are processed by small operators in coastal areas, then transported to plants in the Rangoon area for finishing and packaging. Present production capacity of the Trade Ministry's factories is 27,333 tons of shrimp paste and 7,715 tons of shrimp sauce annually. In the FFYP period, the Government wishes to construct a modern shrimp paste and sauce complex as well as procurement centres in four coastal townships. Export targets of 1930 tons and 1610 tons are considered feasible. The project, Product Development and Market Study for Shrimp Paste and Shrimp Sauce (BUR/81/034), will assist the Government in the further development of this sector.

#### I. Multisector projects

UNDP allocations: ongoing projects	-	US\$ 1,118,300
new projects	-	US\$ 5,554,800

105. For sometime now, the UNDP programme has featured umbrella projects, which finance feasibility studies in various sectors by outside consultants when domestic capability is lacking. In Burma, it has been found administratively convenient to combine the sub-projects in block allocations for execution by the World Bank and AsDB, which are also the principal candidates for follow-up investment to the studies. The World Bank-executed projects, Programme of Pre-investment and Investment Assistance (BUR/74/024), consisted of nine sub-projects in such fields as power development, fertilizer production, rubber rehabilitation, seed multiplication and distribution, ground-water exploration and integrated agricultural development.

106. The success of this first umbrella project in ensuring investment follow-up prompted the Government to include another umbrella project, Multi-sector Programme of Project Preparation (BUR/79/003), for World Bank execution in TCP. Four sub-projects were identified; namely, Fisheries in the Irrawaddy Delta, Ground water Exploration and Pilot Development (phase II), Rangoon Port Expansion and Paddy Storage, the latter three of which continue into FCP. A similar project executed by AsDB, Technical Assistance Programme (BUR/78/028), was also included in TCP to finance feasibility studies for its loans. Under it studies have been undertaken in pump irrigation for area development, irrigation and

hydropower and road improvement. The first study has already resulted in a loan. UNDP has set aside FCP funds to cover as yet unspecified Feasibility Studies to be carried out in collaboration with the World Bank, AsDB, UNDP and others.

107. The UNDP/United Nations Conference on Human Settlements (UNCHS) project, Rangoon City and Regional Development (BUR/80/005), is included in FCP. Rangoon, largest city and seaport, is the political, social, economic and cultural centre of Burma. Almost all imports and exports pass through it and half the industries are located here. Its planning requirements are therefore quite unique. The project will: (a) define the role of Rangoon and its subregion in the national socio-economic framework; (b) investigate the local economy, housing, sanitation, communications and social facilities; (c) suggest strategies and guidelines for action plans and capital budget; and (d) train the staff of the existing urban and regional planning institution.

FINANCIAL SUMMARY

A. <u>Resources</u>			
(a) <u>IPF and other resources</u>			
	(i)	Illustrative IPF for programme period	81.60
	(ii)	Carry-over from previous IPF cycles	.07
	(iii)	Other resources	-
	(b)	Provision for adequate programming	13.07
			<u>94.74</u>
B. <u>Use of resources</u>			
(a) <u>Programmed</u>			
	(i)	Ongoing projects	11.26
	(ii)	New projects and new phases included in the country programme	65.18
	(iii)	Earmarked for specific objectives and activities for which projects are to be worked out (continuous programming at a later stage)	-
			<u>76.44</u>
	(b)	Reserve	1.98
	(c)	Unprogrammed balance <sup>a/</sup>	16.32
			<u>94.74</u>
		TOTAL	<u>94.74</u>
C. <u>Financial distribution of programme, by sector</u>			
	<u>Sector<sup>b/</sup></u>	<u>Ongoing projects</u>	<u>New projects</u>
		\$	\$
02	General development issues, policy and planning	1.12	9.09
03	Natural resources	-	7.01
04	Agriculture, forestry and fisheries	6.37	10.93
05	Industry	0.94	6.87
06	Transport and communications	0.84	9.53
07	International trade and development finance	0.21	0.15
09	Human settlements	-	0.56
10	Health	0.02	7.46
11	Education	0.27	7.36
12	Employment	0.55	0.45
13	Social conditions and equity	-	1.11
14	Culture	0.20	2.54
15	Science and technology	0.74	2.12
	<u>GRAND TOTAL</u>	<u>11.26</u>	<u>65.18</u>
			<u>76.44</u>

<sup>a/</sup> Representing 20 per cent of the illustrative IPF which has not been taken into account for programming in accordance with the Administrator's instructions contained in UNDP/PROG/FIELD/111; UNDP/PROG/HQTRS/126.

<sup>b/</sup> According to ACC classification.

## CATEGORY II PROJECTS

<u>No.</u>	<u>Title</u>	<u>Proposed Expenditure</u> \$
1.	Food Crop Development, Phase II and Cotton	3,000,000
2.	Organic Recycling and Biofertilizer	800,000
3.	Agricultural Training and Extension Training for States and Divisions	700,000
4.	Nature Conservation and National Parks, Phase II	1,000,000
5.	Forest Industries Training, Phase II	1,000,000
6.	Livestock, Phase II: Animal Production Research Development	3,000,000
7.	Milk Collection Project	750,000
8.	Establishment of Radio Monitoring Facilities	247,000
9.	Development of Technician/Technology Training	4,000,000
10.	Strengthening of Institute of Economics	3,007,000
11.	Upgrading and Strengthening of Science Laboratories at Arts and Sciences Universities	2,266,500
12.	Manpower Development Survey	173,300
13.	Strengthening of Medical Education	2,044,000
14.	Workers' Health Project	2,000,000
15.	Development of Virology Centre	748,600
16.	Reinforcement of Instrumentation Division, Department of Medical Research	1,100,000
17.	Technology Development Centres Project	4,964,010
18.	Developing and Strengthening of Information Services	1,351,000
19.	Follow-up to Training and Rehabilitation of the Disabled	1,500,000
20.	Social Security Development	488,000
21.	Hotel and Tourism Training Centre, Phase II	1,810,000
22.	Project for Agricultural and Farm Produce Trade Corporation	2,681,000
23.	Television Training Project	1,740,000
24.	Telecommunications Test and Development Centre	819,000
25.	Preparation of a Regional Development Centre	250,000
	Total	<u>41,439,410</u>