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Conservation measures could cut domestic energy bills by as much as 80 per cent.

Two energy and electricity information and advisory centres, set up by the ministry in Amman and Aqaba, offer a free advisory service on all aspects of energy conservation. New centres are planned for regional towns. In addition, the ministry has been asked to advise other developing countries about ways of setting up similar schemes.

Better balance sought for agriculture

THE challenge facing agricultural planners is to bring the dual structure of a sophisticated irrigation system in the Jordan Valley and a traditional rainfed system elsewhere into a better balance in terms of investment, production and farm income.

Government attention has been increasingly focused on this issue by a combination of problems. They include: overproduction of vegetables in the Jordan Valley; low production of grains and meat; a steady drift of people from the land in rainfed areas, and a 1986 food import bill which, although 11 per cent down on the previous year, was still a hefty JD 134.3 million ($391.5 million).

The current five-year plan aims to increase average annual net income from agriculture to JD 138.1 million ($402.6 million), from the JD 97 million ($282 million) achieved in 1981-85 – a total increase of 45.6 per cent, at an average growth rate of 7.8 per cent a year. The plan calls for government spending of JD 117 million ($341.1 million) to be supplemented by private investment of JD 220 million ($643 million). This goal seems realistic, given that private-sector investment in 1981-85 reached JD 140 million ($408 million), or 105 per cent of target; government investment, at JD 42 million ($122 million), was only 43 per cent of planned expenditure.

In the new plan, the largest individual government investments, excluding dams and irrigation projects, are targeted for the rainfed area, which in the past has tended to take second place to the Jordan Valley. A total JD 19.2 million ($55.3 million) has been allocated to a national agricultural research and extension network. This is designed to focus attention on farmers' needs, and to speed the introduction of established technology that could boost grain yields by at least 50 per cent, agronomists say.

A further JD 22 million ($64 million) has been earmarked for the Zarqa river basin project, to introduce soil conservation measures and improve land use in an area suffering serious soil erosion. The project, which is regarded as a pilot scheme for the entire rainfed area, should see the introduction of more productive grain growing techniques. In addition, there is likely to be a shift back to the traditional areas of livestock and fruit production in more marginal zones, where cereals have been introduced largely in response to population pressure and the growth of urban markets.

Higher red meat production is another priority for the rainfed areas and several projects have started up. These include a Jordan Co-operative Organisation (JCO) scheme to set up five sheep-fattening stations, and specialist sheep and goat breeding farms; an integrated rangeland development project in the Hammad basin area of the northeast; continuing general rangeland improvement, and the introduction of forage crops to boost local fodder supplies.

Despite the emphasis on red meat production, Agriculture Ministry targets are modest. Fifty per cent self-sufficiency is regarded as a realistic target.

The family farms of the rainfed areas offer limited scope for private investment of the kind that has flowed into the Jordan Valley in the past 10 years. But the government has had few problems attracting investors to the desert areas in the south, where, since 1986, it has been leasing land for irrigated wheat and fodder cultivation for nominal annual fees. With development costs estimated at JD 200 ($576) a dunum, the 500,000 dunums (50,000 hectares) leased to date should generate investment of around JD 20 million ($57.6 million) in the next two to three years.

Marketing problems

The poultry industry has been a success in production terms, reaching self-sufficiency in meat and winning an export market in eggs. However, marketing problems have reduced profitability, and responsibility for overall organisation of the industry has been placed with a new state venture, the Arab Company for Animal Wealth. The company's first move was to build an integrated slaughterhouse to serve the Amman area. It plans to set up smaller units in regional centres.

Given the increased interest in cereal and red meat production, the Jordan Valley — centre of vegetable production, and major recipient of government and private-sector agricultural investment — appeared set for something of an eclipse. By the early 1980s, regular gluts, and gloomy predictions of increasing water shortages, were already taking the shine off what had been Jordan's greatest agricultural success story.

By 1985, the need for around JD 4 million ($11.5 million) a year in subsidies for valley farmers unable to sell their tomato crop forced the government to act. The Agriculture Ministry introduced a cropping system that has steadily reduced the acreage devoted to tomatoes, egg plants, cucumbers and pumpkins — all of which were regularly overproduced — and expanded the area growing potatoes, onions and cereals.

The next step was to reorganise the Agricultural Marketing & Processing Company (Ampco) as a wholly government-owned venture with the job of regulating the vegetable market. With regular production from its Jordan Valley tomato processing plants, Ampco turned its attention to finding export markets for valley crops.

The company's success in this area, and the recent revival of the Al-Wahdeh dam project (formerly the Maqarin dam), have revived the valley's prospects.

Vegetable exports to West Europe are projected at 6,000-7,000 tonnes in 1987/88, against 400 tonnes in 1986/87; in addition, agreements with various East European countries are being discussed. Ampco director-general Ghazi Abu Hassan says sales to West Europe could reach 18,000 tonnes, but transport problems and the need to ensure quality have kept exports down this year.

Ampco is also expanding its processing activities, with contracts signed for the supply of a plant to produce cans for tomatoes and citrus fruit, and for a citrus processing factory. Cold storage is being set up to handle steadily increasing potato and onion production.

Ampco is now trying to encourage valley farmers to grow carrots, beets and swedes, all of which are still imported in considerable quantities, Abu Hassan notes. This is in line with a prime ministerial directive that Jordan should "eat what it grows, and grow what it can."

The Al-Wahdeh dam agreement signed with Syria in August should ensure the valley's water supply. The Jordan Valley Authority is already pushing ahead with smaller dam projects designed to expand the irrigated area and regulate water supplies. However, Al-Wahdeh has always been considered the key to the area's long-term viability.

The dam, which will be 100 metres high, is estimated at around $230 million. Funding will be provided by Jordan, although Syria will take some of the water and 75 per cent of the electricity it generates. The dam should allow the valley's irrigated area to be expanded to around 500,000 dunums, from 350,000, plus more regular summer cropping.

Assuming export markets continue to expand, and given an annual population increase of nearly 5 per cent, the increased production will not be wasted.

However, the dam project does not settle the question of where the country's agricultural priorities should lie. For JCO director-general Mreiwad al-Tal, the answer is clear. Jordan, he says, should forget about trying to compete abroad and concentrate on the only market it can guarantee — its own. Only meat, fodder and wheat production should be expanded, to reduce food imports and create more rural employment opportunities. "We need agriculture to employ people, not agribusiness to make a profit," Al-Tal says.

Education and health: reform gathers pace

HEALTH and education have been allocated a total of JD 215 million ($619.6 million) in the current five-year plan (1986-90). The emphasis in both sectors will be to ensure a more equitable spread of services countrywide, and to improve quality and efficiency.

Basic indicators are good: one-third of the population is enrolled in school, with a rate of 68.2 per cent for the secondary cycle, between age 15-17, and 22 per cent for university. Health standards are rising steadily — infant mortality declined to an estimated 60 for every 1,000 births in 1984, against 151 in 1961; life expectancy increased by more than 20 years in the period. The government aims to bring education more closely into line with economic needs and to rationalise healthcare provision.

A two-year assessment of the education system culminated in a national conference in November 1986, when 300 government officials and education sector leaders produced a three-phase plan for reform. Education Minister Touqan Hindawi aims to introduce the initial measures by the end of 1987.

World Bank support

The weaknesses of the education system are well known. They include a poor curriculum, inadequately trained teachers, a shortage of teaching materials and poor facilities. The Education Ministry is already working towards their solution, sending a team to Washington in October to discuss a $40 million World Bank loan for a $108.6 million project.

The bank has been involved in previous education programmes, providing a total of $114 million in loans for six projects since 1972. All were essentially concerned with school building. Under the new scheme, around $20 million will be spent on improving the system's "software." This includes in-service training for around 30,000 teachers over the next nine years, improvements in the availability and use of training materials, and the introduction of new vocational programmes in schools and community colleges.

However, the bulk of the money — $70 million — will be spent on building 58 elementary schools with places for 65,000 children. These will mostly replace existing overcrowded and unsuitable rented premises.

School building allocations will remain high during the five-year plan period, as the ministry struggles to keep pace with growing student numbers, and to replace the 35 per cent of rented buildings with purpose-built schools. The ministry's budget for school building and upgrading has been set at $123.9 million.

The authorities aim to channel 40 per cent of secondary students into vocational education. The number of students in this field rose to 29,026 in 1984/85, against 14,001 in 1980/81, but this still represents only 27.1 per cent of those at the first secondary level. Secondary school leavers without vocational training often have difficulty finding employment.

Moves to tie the education system more closely to economic needs are evident at the tertiary level with the late-1986 establishment of the Jordan University of Science & Technology (JUST). The university's president, Kamel Ajlouni, wants JUST to concentrate on postgraduate work and task-oriented research, and is hoping to set up strong links with industry. He says it is indicative of the shortage of specialised personnel that 50 per cent of the university's engineering faculty will have to be hired from abroad, although several hundred engineers, educated only to BSc level, are unemployed.

The Kuwait-based Lebanese Construction & Contracting Company (Solico) in October won a JD 13.7 million ($40 million) contract to build the medical faculties complex (MEED 31:10:87). Facilities include medical, dentistry, pharmacy, nursing and allied health services. Work is expected to begin before the end of 1987; completion time is 1,000 days. Solico has already built JUST's engineering faculties complex in a JD 38.8 million ($111 million) contract. The Saudi Fund for Development has lent JD 6.5 million ($19 million) for the medical sciences building; the government will provide the balance.

The health sector is facing fundamental