ABSTRACT

The present work is an attempt to analyse the regional imbalances in the levels and growth of agricultural productivity in Iran. Conceptually productivity is viewed as the ratio between output and input or in other words, it is the ratio between the amount produced and the amount of resources used in the course of production.

The Caspian Sea forms the central part of its northern boundary. Azerbayejan (an independent state) and Armenia lie on the west of the Caspian Sea and Turkmenistan on the east. The Persian Gulf lies on the south and furnishes access to the sea routes of the world. Northern half of the upper boundary of the country's eastern part is shared with Afghanistan and less than the half of the lower part is shared with Pakistan. On the west its major portion forms a common boundary with Iraq and only a small part on the extreme north-west adjoins Turkey.

It extends from $44^05'\ E$ longitude to $63^018'\ E$ longitude and $39^047'\ N$ latitude to $25^03'\ N$ latitude, comprising twenty-three states with a geographical area of 1648195 Km.$^2$ Of the total surface area of 165 million hectares 17.50 million hectares (10.61 per cent) is under cultivation out of
which about a half at anyone time is under fallow.

In general, Iran is part of a large plateau that was formed by the upliftment and folding effects. About 90 per cent of the Iranian land is situated within the bounds of plateau. Iran has two big deserts: Dast-e-Kavir or Northern Desert and Dast-e-Lut or Southern Desert.

The physical setting of the country is such that three different climatic conditions can be seen in the various regions. The Caspian Sea area has a humid climate with over 1600 m.m. annual rainfall, the mountainous regions are semi-arid and central desert regions are dry with only 75 m.m. rain at Yazd and about 60 m.m. at Zahedan. Rainfall variability increases from norther-west to south-east. It is less than 10 per cent in the north and around 50 per cent in the south. Temperature may drop to -36°C at high altitudes and summer maximum at places rises to 54°C.

Physically there is a great contrast between the north and the south. There are large dry-farming areas in the north-west and north-east, this is not true of the middle and south. Irrigation plays a vital role in agricultural prosperity in the central and southern Iran and are vital in Esfahan, Yazd and Kerman.

Over half of the Iranian soil is covered by the mountain, 25 per cent by the deserts and less than
25 per cent remains available for agriculture. The main limitations of Iranian soils are salinity, alkalinity, water-logging, steepness of the slope and high altitude.

Most of the Iranian rivers are short of adequate water and the only navigable one is the Karun river. The Iranian rivers run along the four main basins of the Caspian sea, the Persian Gulf and the Gulf of Oman, the lake-urmiyeh and the continental discharge bodies.

The present study is based on available statistical informations. No case study has been made because the author did not get an opportunity to visit Iran due to war and all time volatile situation in the region during study period. However, the writer did make efforts to obtain some information through questionnaire and interviews with Iranians in Aligarh who are connected with farming and correspondence with some teachers in Iranian Universities. Some elements of biase on the part of the information can not altogether be ruled out although checks and cross-checks were made to verify the information.

The present study is confined to the state-wise linear growth in area, production and yield of major crops*

* Wheat, barley, rice, pulses, oil-seeds, potato, sugar-beet, onion and cotton.
and measurement of agricultural productivity and its growth trend of the 23 states of Iran from 1976-77 to 1984-85. The unit selected at state level was due to non-availability of data at micro-level. The data at micro-level are not available even in unpublished form.

In 1984 there were 16626 deep-wells, 42546 semi-deep-wells, 18388 qanats (Subterranean canals) and 8193 springs discharging 30369 million m$^3$ of water per annum. There were 22 reservoir dams in 1983. Command area of these dams was 0.94 million hectare. Total irrigated area was 5.50 million hectares (31.43 per cent).

Iran began importing large quantities of food-stuffs after 1960 owing to rapid population growth and decline in the agricultural production. In 1984-85 Iran imported 4.90 million tonnes of cereals at an estimated cost US $ 930 million.

Decline in production after 1962 was mainly due to misconceived land reform programme of the Shah. The Islamic Republic of Iran realized this fact and took special heed of the agricultural sector.

Wheat is the dominant crop in Iran. It occupied 6.20 million hectares in 1984-85 followed by barley 2.10 million hectares and rice 0.48 million hectare. Yield of wheat in 1984-85 was 1070.38 kg/hectare, Barley 1102.21 kg/hectare.
and rice 3730.53 kg/hectare. Wheat and barley together occupied over 80 per cent area and rice about 5 per cent. Other important crops are pulses, oil-seeds, potato, sugar-beet, onion and cotton.

Investment on agriculture and water resources and loans granted by different agencies gradually increased. Consumption of fertilizer has increased substantially. It was around 165 kg/hectare during 1984-85, while new varieties of seeds are confined to only sugar-beet and cotton. The use of tractor is much encouraged but other modern implements are confined to big farmers. Migration from villages to cities is one of the important factors contributing towards decline in agricultural growth.

In the pre-revolution period all crops except potato showed decrease in area. Decrease in yield occurred in rice and cotton. All other crops showed an increase in yield. In the post-revolution period areal position strengthened in most of the states while increase in yield is not satisfactory. States which had poor base level in yield had high percentage annual growth in yield.

In the foremost chapter of the study methodological framework has been discussed in detail. There are various methods and techniques to measure the agricultural productivity. Most of them are partial measures of
agricultural productivity. In this study five methods of agricultural productivity have been used for the evaluation of agricultural productivity. These methods are (i) Shafi's productivity index method (ii) Yang's crop yield index method (iii) Output per hectare of cropped land (price-weight) (iv) SNU per hectare and (v) SNU per person. All of the above methods except SNU/hectare show close proximity with each other. The highest correlation exists between Shafi's productivity index and Yang's crop yield index. This indicates that both the methods have nearest common approach.

All the productivity indices individually and collectively barring SNU/person denote a high or very high productivity in the central region of the country for the most part around which exist a medium productivity zone. Beyond this zone lies the zone of low productivity with the exception of the coastal states of the Caspian sea and extreme north-western provinces of East and West-Azerbayeijans. The entire south-eastern part tapering towards central part and all the coastal states of the Persian Gulf comprising the central province show low SNU/persons. The states having high and medium level of SNU/person are mainly situated in the north, north-west and north-east with a major concentration of states having high SNU/person in the north and west and medium SNU/person in the north-west, north-east and few pockets in the central region of Iran.
As far as growth in the level of productivity is concerned most of the states from medium and low productivity levels show increasing trend in productivity as compared to high productivity level. Only food-grains show an increasing trend in all of the very high and high productivity states. Only few states from medium and 50 per cent from low productivity states show an increasing trend.

Inter-state disparity in agricultural productivity shows a declining trend in all of the measures except food-grains and cash-crops where an increasing trend is followed.

Except some anomalies regional pattern of agricultural productivity by all measures except SNU/person are positively correlated with input variables. SNU/person and productivity of un-irrigated crops are mainly correlated with rain-fall. With other input variables SNU/person is negatively correlated but correlation is feeble. Productivity levels and growth rates are depicted by diagrams also.

The writer despite limitations has succeeded in demonstrating regional variation in the levels and growth of agricultural productivity in Iran.

The writer has also made an attempt to measure additional output in terms of total production and also in terms of SNU/person if the productivity of medium and low...
productivity regions are raised to high productivity and very high productivity levels. To achieve this goal certain suggestions are made in the conclusion.

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