


Research Article

Olive Culture Promotion and Financial Sustainability: A Study of University College Zhob, BUIITEMS

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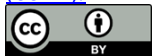
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ABSTRACT

This study examines the impact of promoting olive culture on the economic empowerment and financial stability of University College Zhob, BUIITEMS, and its broader benefits to Pakistan. The initiative aims to convert marginalized land into an olive cultivation venture, enhancing both the aesthetic and economic value of the institution. By fostering research and innovation in olive culture, the project has the potential to significantly reduce edible oil imports and generate foreign exchange. This study highlights how olive cultivation can contribute to the financial sustainability of an educational institution and support regional and national economic development. The study adopted narrative description of the nature of economic gains by following intrinsic case study approach. Starting from the production perspective and expectation to economic gains of olive orchard is optimum. The study findings are very much comprehensive in support of economic gains of the olive project at UCoZ territory in future by mixing agriculture techniques and advancement.

KEYWORDS

Olive culture, economic empowerment, financial sustainability, educational institutions, olive cultivation, research and innovation, University College Zhob, BUIITEMS, Pakistan

1 | INTRODUCTION

To promote olive culture while also making sure it can make money, need to find a happy medium between the monetary benefits and the socio-ecological values, and need to use sustainable practices. According to studies, there is a balance to be struck between the monetary benefits and the social and environmental benefits of intensifying olive growing. Organic groves are the best option since they have a high level of public admiration, a wealth of biodiversity, and economic worth that is on par with intensive plots (Simon et al., 2024). Innovative and technological solutions based on agroecological principles aim to enhance sustainability in the olive oil industry through agroecological approaches, such as those promoted by the Sustain olive initiative (Aicha et al., 2022). Choosing drought-resistant olive varieties, using effective irrigation methods, and encouraging eco-friendly practices like green covers and organic mulches can help regions that cultivate olives deal with the effects of climate change (Alejandro et al., 2024). In the olive culture sector, it is known to boost competitiveness. This is due to the fact that sustainable tourism promotes sustainability, which in turn helps the industry gain a competitive edge in

meeting society's and the environment's evolving needs (Mouna et al., 2021). Additionally, manufacturing companies can improve their financial performance and social responsibility by fostering a sustainable culture. This highlights the importance of integrating sustainability practices into organisational culture for overall success (Cristina et al., 2021).

The olive (*Olea europaea* L.) is an evergreen tree of significant cultural, nutritional, and economic importance, primarily grown for oil extraction, table purposes, and pickles (Moutier & van der Vossen, 2001). It belongs to the *Oleaceae* family, with 600 species of 30 genera found across all continents except Antarctica. The olive tree flourishes in deep fertile to semi-fertile soil and temperatures ranging from 5° to 45°C, with winter rest periods of 60-80 days and mild winters being ideal for optimal production (Bartolucci & Dhakal, 1999; Nicholas, 2011; Muhammad, 2023; Eugenia et al., 2019). Olive oil, rich in antioxidants and phenolic compounds, is highly valued for its nutritional and medicinal properties (Bucciantini et al., 2021; Michalopoulos et al., 2020). Pakistan, despite its potential, is not a major olive-producing country. On the other hand, recent trends indicate increasing adaptability and interest among farmers, which could significantly reduce edible oil imports and boost exports (S. Ali et al., 2024). With suitable conditions for olive cultivation, Pakistan is poised to become a significant player in the olive industry (Ali et al., 2024). The main research question for this study is to examine how promoting olive culture contributes to the economic empowerment and financial stability of an educational institution, as well as its broader benefits to the country (Abad-Segura & González-Zamar, 2021). The initiative to grow olive trees and promote olive culture in an educational institution stems from two primary reasons: enhancing aesthetic value and contributing to economic empowerment (D'Onofrio et al., 2020). Olive trees, being perennial, fulfil these purposes effectively. Moreover, research and innovation in olive culture can help reduce edible oil imports and increase foreign exchange earnings.

Balochistan, Pakistan's largest province, has immense potential for economic development. Universities in Balochistan can play a crucial role in tapping into these untapped resources through research and innovation. By exploring regional potentials, universities can not only meet their financial needs but also contribute to the country's economic growth. This case study focuses on transforming marginalized land at University College Zhob, BUIITEMS, into an olive cultivation venture to support financial sustainability and future academic and research initiatives. The University College of Zhob is a sub campus of Balochistan University of Information Technology, Engineering and Management Sciences, BUIITEMS. The establishment of University College of Zhob, BUIITEMS was a project of the Government of Pakistan in the Public Sector Development Program 2016-2017. The principal objective of this project is: Provision of quality education to the students of Zhob and the region. This objective will be achieved in two stages: first: Provision of necessary facilities at a temporary building to initiate classes. Furthermore, in the second stage, provision of infrastructure and allied facilities at permanent campus. At the first stage necessary facilities to initiate classes have been provided and classes are started from 10th of April 2018. The existing interim setup of the University College is located at Sambaza Road Appozai, Zhob. In the interim setup at present BS programs are offering in the department of Management Sciences, Economics, Education, and Computer Sciences. The University College of Zhob campus is being built on 180 acres at Kili Hassanzai Shin Ghar Road, Zhob. The land is donated by the community free of cost. In the first phase first phase along with the boundary wall, academic block, administration block, medical center, library, cafeteria, boy's hostel, girl's hostel, faculty lodges, gym, internal roads and playground will be built. The Olive is locally named as Zytoon in Urdu, Showan in Pushtu, Khat in Brahavi, Jaitoon in Punjabi, and Kow in Sindhi/Saraiki. Pakistan is not an olive producing country, however, there is a lot of potential for olive cultivation and its adaptability by the farmers is increasing with a higher rate. If these trends are continued very soon Pakistan not only substitute a major portion of its edible oil import bill but also increase its exports. During the mid of last century, several varieties of olive planted in Kashmir, Harnai, Zhob, Peshawar, Swat, Rawalpindi, Sargodha, and Jhelum districts.

Hence, wild olive (*Olea Cuspidata*) is found in Indo-Pak sub-continent and there are more than 80 million *Olea cuspidata* plants found in Pakistan but not cultivated on commercial scale. In 1986, the first time, edible olive trees have been planted in Pakistan under a project "Fruit, Vegetable and Olive Project" funded by Italian Government. In Balochistan, 120,000 olive trees are being planted under a campaign launched by PARC, and being a part of campaign, the olive plantation will cover 14,000 acres. In Pakistan about 15.4 million hectares is suitable for olive cultivation. All these figures indicate tremendous socioeconomic benefits waiting to be capitalized with government and donors' thoughtful investments (Akhtar et al., 2021). Furthermore, Pakistan has been identified favorable country for olive cultivation and soon become a member of the International Olive Council (IOC) and will be among the biggest Olive producing countries in the next few years. This initiative will not only reduce import bills but also

earn foreign reserves through the export of olive oil. There is a huge untapped land identified as productive for the Olives, so Government is facilitating the farmers for taking it to its maximum potential (Weber et al., 2020).

The terrain of the district Zhob consists of mountains and valleys ranging in ground elevation from 930-2,658 meters above MSL (Mean Sea Level). Zhob has a semi-arid climate, and its rainfall is just high enough to avoid the arid climate category found at lower elevations. In autumn, the weather becomes very dry, and the chances of frost are less. The rainy season is mostly in the months of June, July and August accompanied by thunderstorms from July to September as a result of diversions of monsoon winds westward from Punjab. The hilly areas at higher altitude receive snow fall during winters; however, dust storms blow in summer and winter. The geography and climate of the district is ideal for olive cultivation. This research underlines the main question that:

RQ1 does UCoZ olive project will bring financial gains at a comprehensive scale? Recognizing the importance of trees for an educational institution and the current financial constraints affecting higher education in the country, UCZ intends to achieve financial self-sustainability in future by promoting olive cultivation and growing olive Plants. Furthermore, through research and innovation in this emerging sector, the country's food security could be promoted. Based on these overarching objectives, specifically, this paper aims to analyze how promoting olive culture will contribute to the financial sustainability of University College Zhob, BUTEMS.

2 | LITERATURE REVIEW

According to the research conducted by Akhtar et al. (2023), "Revitalising Olive Agriculture in Punjab, Pakistan: Unleashing Potential Beyond Marketing and Production Constraints" was evaluated. Olive growers in Pothohar, Punjab, Pakistan confront serious problems with production, according to their research. These include high labour wages, a lack of skilled personnel, high nursery fees, and inadequate water supply. A lack of knowledge about the olive market, insufficient space for storage, and a high rate of fruit loss during harvest are the three biggest marketing obstacles that olive growers encounter. In their study on the "Economics and Marketing of Olive in Punjab, Pakistan," Akhtar et al. (2021) found that olives are a profitable crop. They calculated a benefit-cost ratio of 2.20, a net present value of Rs. 263,338.00, and an internal rate of return at a 10% discount rate of 31%. Above all else, the data demonstrated that the route employing the fewest intermediaries achieved superior performance compared to the one employing the most.

Jan et al. (2021) documented that olive production and cultivation in Pakistan started a decade ago, in addition to reviewing the nutritional requirements of olives (*Olea europaea* L.) in the Pothwar Region of Pakistan. Farmers often fail to fertilise olive orchards with the recommended amounts. Furthermore, it was found that olive plantations in Pakistan are an attempt to lessen the country's dependency on imported olives, boost local output, and lessen the impact of climate change. There is no set schedule for the application of fertiliser by Pakistani farmers. Olive oil, jams, pickles, and squash are just a few examples of the value-added commodities that growers are scrambling to produce in response to increasing consumer demand. Farmers are become more competitive as a result of the increasing demand. You can get the most out of your fertiliser by timing, sourcing, and applying it correctly. In December, apply the first dose of nitrogen, phosphorus, and potassium fertiliser to the soil. The second dose is recommended to be taken in May or June, and the third dose in September. Late February or early March is the ideal time to apply foliar treatments. Haq et al. (2021) and Antonio et al. (2021), in their comprehensive assessment of "Techniques for micro-propagation of olive (*Olea europaea* L.): A systematic review," state that cuttings and air layering are the conventional ways for vegetative reproduction of olives. Some species of woody plants, like olives, are hard to root. However, a total success rate of 25 to 30 percent for nursery plants was achieved, and the majority of plants remained infected with various illnesses. However, when grown under controlled conditions throughout the year, micro propagated olive plants are resistant to viruses and diseases.

There were two studies that looked at the "Adaptability, Agronomic and Yield Performance of Exotic Olive (*Olea Europaea*) Cultivars in Pothwar Region of Pakistan." The first study was by Iqbal et al. (2020), while the second was by Julia and Puschunder (2020). The study found that in the Pothwar region of Pakistan, the five olive types with the highest oil and fruit yield were Coratina, Gemlik, Moraiolo, Nabali, and Hamdi. According to Slobodova et al. (2023), "Genetic diversity of common olive cultivars" was that which was studied. *Olea europaea* L. is one of the most noteworthy trees in the Mediterranean basin and the first species to be cultivated, according to their research. Due to the high monetary value and beneficial nutritional characteristics of olive oil, which places olives sixth

among the world's most significant oil crops, their production is currently increasing beyond their original Mediterranean area to other regions of the globe. Strategy for financial sustainability of UCZ, education and human capital formation are the only sustainable means to poverty elimination (Olowookere et al., 2022). Socioeconomic progress, therefore, is impossible to attain without education. Ali et al. (2018) found that when a society's intellect, skills, and imagination are put to use, it boosts economic growth and produces a lot of human capital. Among education's many positive outcomes are the following: better health, the elimination of poverty and other types of inequality, and the promotion of efficient government in implementing economic and social policies (Coccia, 2021). The mission of Balochistan University of Information Technology, Engineering and Management Sciences (BUIITEMS), which has been around since 2002, is to advance contemporary STEM education. In addition, the province's least developed districts are now part of BUIITEMS's service area. A BUIITEMS satellite campus, University College Zhob (UCZ) signifies a giant leap towards even greater prosperity.

The establishment of University College Zhob, BUIITEMS was a Public Sector Development Program 2016-2017 project of Pakistan Government aiming to provide quality education to the students of Zhob and the region. The campus of the University College Zhob is being built on 180 acres at Kili Hassanzai on Shin Ghar Road, Zhob. The current expenditures of the campus have been covered by the project, and gradually the expenditures are shifting to the Balochistan government. Due to financial constraints, funds are diminishing from both provincial and federal governments towards higher education. Moreover, as Zhob region is among the 20 poorest districts of Pakistan (Saboor et al., 2015). These financial constraints and the suitability for the campus through the promotion of Olive Culture. Therefore, from the very beginning, along with construction of buildings, olive plantation was started on the campus site. Plantation and Business Plan, according to the campus master plan, all buildings and associated facilities for future phases occupy 100 acres of land. Additionally, there are 80 acres of marginal land available for olive cultivation, as depicted in Figure 1. At present, about 5000 olive trees have been planted with trickle irrigation system. Negotiations for subsequent phases of tree planting are nearing successful completion. By the end of 2025, our target is to achieve plantation 13,500 olive trees. In addition to their aesthetic and economic values, olive trees are environmentally friendly and effective in combating global warming. Hence, the Olive plants have an extraordinary ability to capture carbon dioxide from the atmosphere and store it in the soil (Connor, 2005). In future the Olive trees will be registered for carbon credits and about 40 trees of olive can produce one carbon credit worth of 20 dollars. Furthermore, it is worth noting that olive cultivation can be a long-term investment, as olive trees can take several years to reach maturity and begin producing olives in significant quantities for centuries. Alongside growing olive trees, the plan includes the installation of a processing unit, establishment of analytical and pathological labs, processing of olive byproducts, and raising an olive nursery. Furthermore, through the establishment of an olive trading company, the campus aims to produce olive products not only for local consumption but also for export.

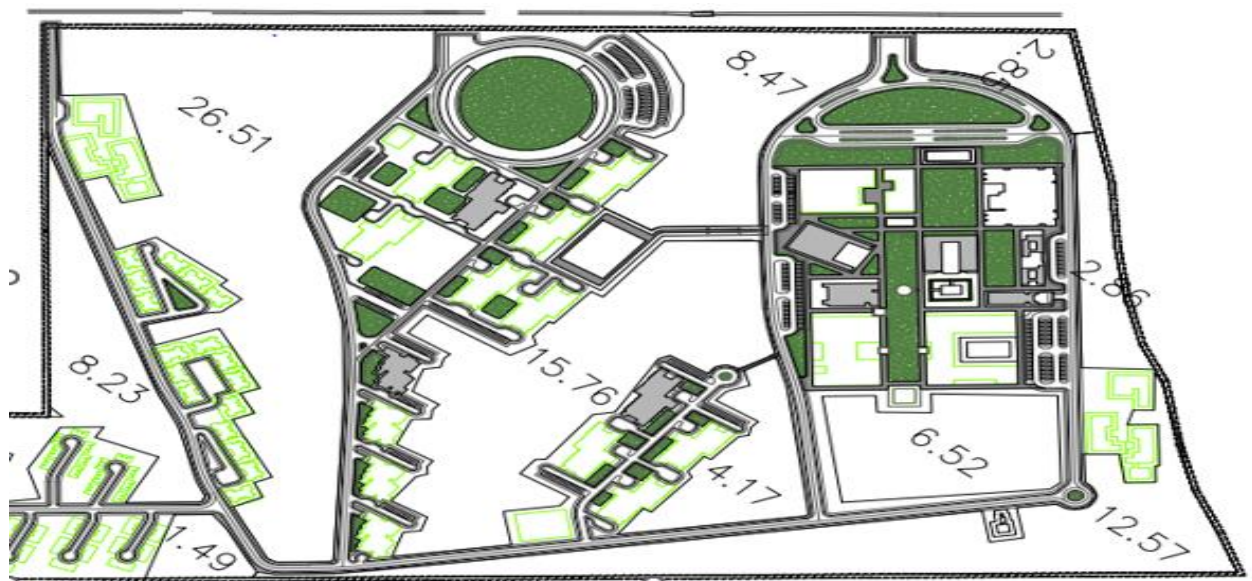


Figure 1: Theoretical Framework

3 | METHODS

This article looks at case study research strategies, such as the various epistemological strands that influence the specific case study type and methodology used in the field, the variables that can make case study research more successful, and the controversy surrounding a case study's ability to produce theoretical claims with wider applicability. This essay's main goal is to pique readers' interest and motivate them to offer a little of their own in order to enhance the case study approach's originality and distinctiveness. Considering economic and agriculture based expected output of olive project, this study aimed at narrative description of the nature of economic gains. Research considered "Olive Project" at University College Zhob (BUIITEMS) by adopting an intrinsic case study approach and performed experts' interview to investigate the uniqueness of the findings for the UCoZ economic strategy design. Narrative analysis is being part to create tale expert's agro-olive past experience that stem outcome of the case study. Starting olive production perspective, expected output per tree is consider for narration at open field or places like educational institute. Second, we gave contemplation to expected economic gains of olive orchard to answer the study questions.

4 | FINDINGS

According to the experts, if once you grow an olive orchard it will give you production for thousands of years. As Olive is a perennial tree it can be grown successfully alongside the crop fields, at schools, colleges, universities, and parks. Keeping this in mind, Olive culture is promoted at University College of Zhob, BUIITEMS, along with aesthetic value it can ensure the financial stability of the campus. The detailed financial analysis of the olive orchard of the University College Zhob, BUIITEMS, is shown in table 1 and 2. On 14th of August 2022 Olive tree plantation campaign was started and in the first phase 4350 Olive plant were planted subsequently by the end of this year 5000 trees will be planted. Moreover, with the support of Pakistan Oilseed Department (POD) and Higher Education Commission of Pakistan (HEC), by the end FY 2024-25 the Plantation target of 13500 Olive trees will be achieved.

Table 1

Financial analysis with average Eexpected production of Olive fruit per tree

Year	Unit	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Income from olive oil (Rs. Million)	-	-	-	-	7.83	15.66	23.49	60.75	145.8	186.3	210.6
Campus Budget (Rs. Million)	-	65.35	80.24	93	143.04	175.53	229.73	294.24	339.1	383.19	411.8
Fee collection Income (Rs. Million)	-	7	19.44	20	25	32	37.36	42.91	48.47	54.02	59.58
Own Resources Income (Rs. Million)	-	7	19.44	20	32.83	47.66	60.85	103.66	194.27	240.32	270.18
Own Resources (OR) in Budget	%	10.71	24.23	21.51	22.95	27.15	26.49	35.23	57.29	62.72	65.61
Olive income in OR	%	0	0	0	5.47	8.92	10.22	20.65	43	48.62	51.14

The Olive tree starts production after three to four years of plantation and subsequently its production will increase in the coming years. After nine years the average production of an Olive tree is about 23 kg, and it has a productive life of centuries (SMEDA, 2017). The financial analysis of the olive orchard with average yield for nine years is given in Table 1. It is worth mentioning that after nine years its per tree yield will increase gradually. Column two shows the number of trees planted so far and the plan of tree plantation. Such as, the tree plantation was started on 14th of August 2022, and by at end of financial year 2022-23, 4350 trees were planted. Whereas, by the end of 2023-24 and 2024-25 the target of 5000 and 13500 trees will be achieved, respectively. Based on average yield, column three shows the total expected production from the olive orchard, which will be 351,000 kg of olive fruit in the ninth year. The oil content varies from 20 to 29 percent for olive, however, if we take oil content at 20 percent, the expected oil production will be about 70,200 liters, the stream of expected production are shown at column four.

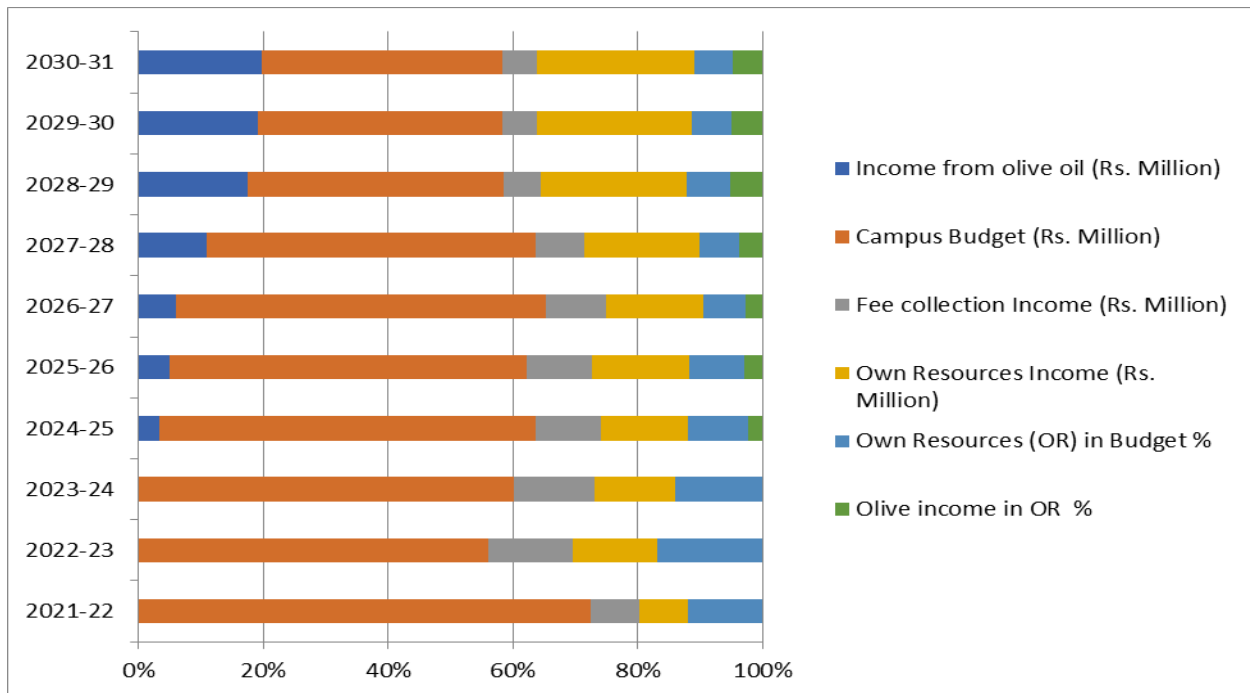


Figure 1: The Estimation of Expected Collections

Hence, with a market price of Rs. 2500 per liter, the expected stream of income shows at the column five. Columns six and seven show the budget of the campus and expected income other than olive orchard that the campus is expected based on its activities till its inception. The total income that campus is expected from own resources can be seen in column eight. Whereas column nine and column ten show the percentage of income from own resources and percentage of income from olive orchard, respectively. On getting average production from the olive orchard, in the year 2028-29, the campus would be able to fulfill more than 50 percent of its budgetary expenditures and this share enhance by the passage of time. At the ninth year of production, the campus would be able to meet about 66 percent of its expenditures and 51 percent of the revenue would be coming from olive orchard. Furthermore, with improved cultural practices, there are possibilities to increase the per-tree production of olive plants. For instance, the yield potential for a nine-year-old tree is about 40 kg. (Reference). Hence, with the yield potential of 40 kg, the income stream for the campus from Olive orchard can be seen in Table 2. Hence, with improved agricultural practices, after the ninth year of production, the campus could be able to meet about 74 percent of its expenditures from own resources and in these own resources about 60 percent of the revenue would be coming from olive orchard. Furthermore, this income will increase at higher rates in the forthcoming years.

Table 2

Financial Analysis of Olive orchard with yield potentials after improved agricultural practices

Year	Income from Olive	Budget	Fee collect-ion	Income from own Resources (OR)	% Age OR in total budget	%Age of Olive income in OR
2021-22	-	65.35	7.00	7.00	10.71	0.00
2022-23	-	80.24	19.44	19.44	24.23	0.00
2023-24	-	93	20.00	20.00	21.51	0.00
2024-25	2.18	143.04	25	27.175	19.00	1.52
2025-26	10.88	175.53	32	42.88	24.43	6.20
2026-27	23.93	229.73	37.36	61.29	26.68	10.41
2027-28	38.59	294.24	42.91	81.50	27.70	13.12
2028-29	155.25	339.10	48.47	203.72	60.08	45.78
2029-30	195.75	383.19	54.02	249.77	65.18	51.08
2030-31	236.25	411.80	59.58	295.83	71.84	57.37
2031-32	270.00	454.09	65.14	335.14	73.80	59.46

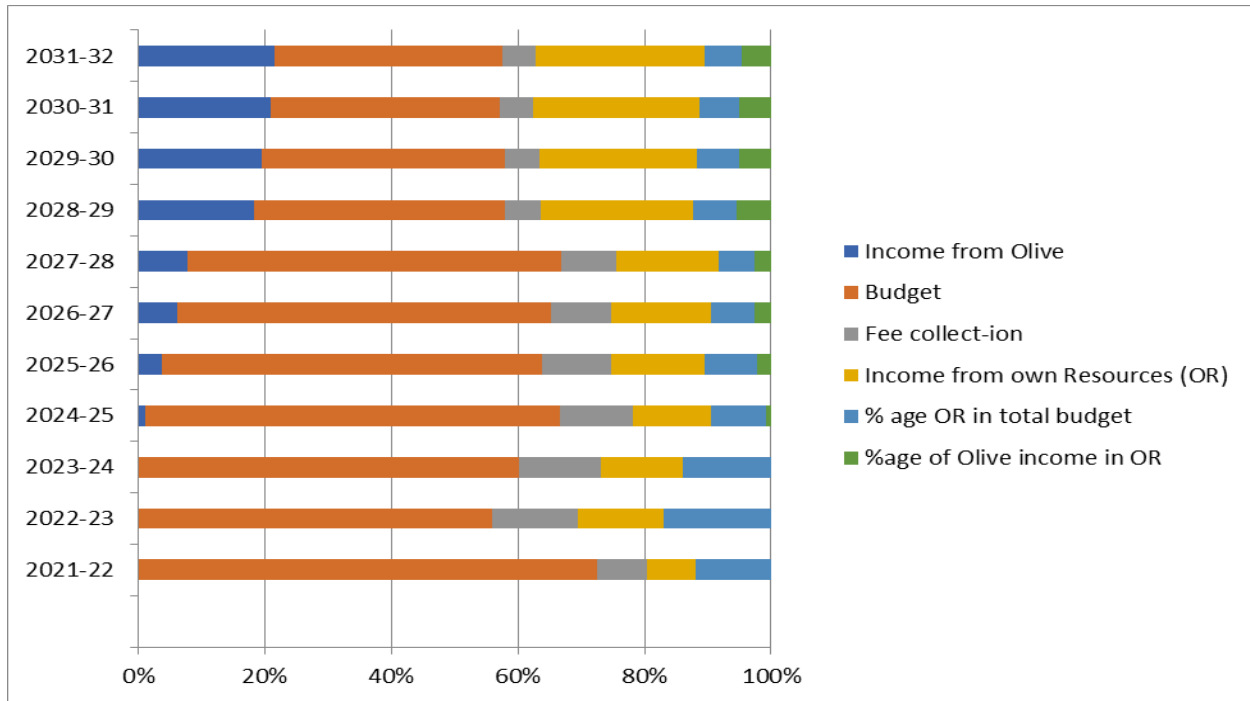


Figure 2: The estimation of expected collections under agriculture practices

5 | DISCUSSION AND CONCLUSION

In the recent past Pakistani public universities are facing financial constraints due to rising costs and declined government funding. The previous paradigm, which depended on funding from the government, is no longer viable. It's time to reconsider how universities are funded so that they can continue to be essential to the growth of the nation. The financial crisis is complicated, but there are a few things you can do to help. Diversifying revenue streams through raising tuition, requesting donations from alumni, and commercialising research is an important tactic. The production of olives is rising in North of Balochistan, which is noteworthy for the revenue generating by the organisation. University College Zhob (BUIITEMS) started working on 10th April, 2018 and now came with a ground breaking idea of campus olive production and oil extraction as source of budgeting campus activities. This study is based on the anticipated income, which was obtained based on the financial estimation and the grounding strategy that was obtained. Regarding olive cultivation, the amount of money that may be made per acre can vary substantially depending on a number of different factors. This is because olives are difficult to cultivate. The location and topography of the land, the quality of the soil, the variety of olives that are being farmed, the weather conditions, and the efficiency of the farming and harvesting techniques that are being applied are all elements that are included in this category. Considering that the Zhob environment is favourable to olive development, it is feasible that, with the implementation of improved agricultural methods, production potential can be easily realized. This is because the Zhob environment is friendly to olive growth. Note that the revenue that would be made from the sale of carbon credits is not included in this revenue. This is an important point to keep in mind. This is because the deal for the sale of carbon credits has not yet been finalized. This is the reason for this situation currently. In addition to this, the positive externalities that would be created for the environment would be so overwhelming that they would be overwhelming. This research is limited to the yield of the olive project of District Zhob, which can be extended by the estimation of yield by other projects in the area and Balochistan as whole. The future work can base from the stem by incorporating financial ratio analysis by the documentary evidence from the financial data of other olive projects.

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