



ALBANIA

Mustafa Ege Seker
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1. General Country Profile

Albania's General Country Profile reveals a nation at a crossroads, balancing its rich historical legacy with modernization and sustainable development demands. The country boasts a strategic geographic location, diverse natural resources, and a resilient cultural identity. However, some grave concerns stifle its progress toward more balanced growth and long-term stability.

Demographic contraction is among the most pressing worries driven by high emigration and low birth rates. Albania has been experiencing a steady exodus of young, educated individuals seeking better opportunities abroad over the past decades. The brain drain reduces the workforce and exacerbates the problem of an aging population, placing additional stress on social services and economic productivity. Projections indicate that Albania's population could go down to 2.1 million by 2060, a trend that threatens the socioeconomic fabric of the nation.¹ To end this trend, policies are necessary to motivate families to give birth to more children, increase living standards, and ensure that Albanians can thrive within their homeland rather than emigrate.

A second fundamental challenge lies in urbanization and territorial imbalances. While cities like Tirana have undergone rapid development, the rural regions are underdeveloped, with inadequate infrastructure, little economic activity, and minimal access to essential services. The urban-rural disparity continues to drive inequality and internal migration, which further pressures the urban centers. The lack of official urban planning has led to informal settlements, inadequate housing, and insufficient public services in rapidly developing cities. These disparities must be closed through integrated spatial planning, investment in rural infrastructure, and balanced regional development policies.

Albania's economic prospects show potential as well as vulnerability. The economy is service dominated, with an increasing contribution from tourism. Yet over-reliance on low-value activities, trade deficits, and external sources such as remittances from the diaspora expose the economy to vulnerability. Unemployment remains an issue, particularly among young people and women, who are marginalized from the labor market due to skill mismatch and limited employment opportunities. Vocational training programs, entrepreneurship, and economic diversification must be strengthened for a more robust and inclusive economic environment.

Albania has dramatically improved infrastructure, such as roads, telecommunications, and energy. However, rural and secondary roads still face poor maintenance, limiting connectivity and economic development in peripheral regions. Similarly, while innovation in digital

technologies offers promising solutions for healthcare, education, and governance, rural areas lack a stable internet connection, widening the digital divide. Investing in smart infrastructure, renewable energy, and digital inclusion can help Albania achieve its full potential and adhere to European Union standards.

Culturally, Albania stands out for its unique blend of traditions shaped by centuries of foreign occupation and local resistance. However, preserving this heritage while embracing modernity is a delicate balancing act. Efforts to promote cultural tourism and preserve historic landmarks must be achieved alongside efforts to stimulate innovation and embrace global trends. Lastly, eliminating gender disparities and ensuring equal access to education and employment opportunities will be key to achieving a more balanced society.

Finally, Albania's EU integration aspirations underline the importance of reforms in governance and consolidation of institutions. Corruption, judicial inefficiency, and political instability remain obstacles to transparency and accountability. Consolidating the rule of law, generating public trust in institutions, and aligning national legislation with EU standards will guarantee Albania's place in the international arena.

In conclusion, Albania's General Country Profile reveals the country's opportunities and challenges. Albania can unlock the door to sustainable growth and improved quality of life for its citizens by addressing demographic downturn, regional disparities, economic vulnerabilities, and infrastructural deficits. At the same time, leveraging its cultural heritage, strategic location, and natural attractiveness will enable Albania to be a vibrant player in the region and beyond.

1.1. Geography and Population

Albania, officially known as the Republic of Albania, is a country located in Southeastern Europe on the Balkan Peninsula. To the west, it is bounded by the Adriatic and Ionian Seas, to the northwest by Montenegro, to the northeast by Kosovo, to the east by North Macedonia, and to the south by Greece.^{2,3} The country holds a total surface area of 28,748 square kilometres and is home to approximately 2.8 million people as of 2022, with an estimated population density of 97 people per square kilometer (Figure 1).^{1,2,4} The capital and largest city, Tirana, is home to approximately 600,000 people and has a high population density of 502 people per square kilometer.² The 11 administrative municipalities are divided economically and socially.⁵ Historically, population growth picked up in Albania after World War II, though now

the figures have been severely cut back by rising levels of emigration, mainly amongst the younger generations and those who have pursued advanced education¹.



Figure 1 Map of Albania⁴

The population is projected to decrease to 2.1 million in 2060.¹ The population structure relies on a youth population, with high numbers below 20 years old, and a rural-based population as about two-fifths reside in rural areas. Albania has had a high birth rate traditionally, but it has declined during the past decades, and the country follows a pronatalist policy.⁶ Despite these population issues, Albania is a World Bank upper-middle-income country.²

Albania's geography plays a significant role in shaping its landscape and economy. The country has a diverse topography, including mountains with rugged terrain, extensive coastlines, and rich karst regions. It is part of the Dinarido-Albano-Hellenic wrinkle belt, which is responsible for making its topography mountainous, particularly in the north-east and south-west regions, where rocks are composed from the Paleozoic to Quaternary periods.⁷ The Albanian Alps, part of the Balkan Alps, have a unique landscape of woods, meadows, and rivers, offering tourism opportunities due to nature and cultural heritage.⁸

The 450 km Adriatic and Ionian Sea coast is divided into specific geomorphic sectors, like the northern extension of the Dalmatian coast and the tectonically influenced southeastern escarpments.⁹ The varied coastline is the foundation for tourism, a significant economic factor, with some regions staying unexploited and having high-quality touristic potential.¹⁰ The karst landscape covers about 24% of Albanian territory and is critical in water resources, hosting 80% of the population and facilitating hydroelectric power production.¹¹ The Mediterranean-

Continental climate also contributes to the country's touristic and agricultural appeal, as regions like Shkodra have diversified relief geography and an excellent climate.¹² The Albanian Riviera, a part of the Blue Corridor, is a key area for sustainable tourism growth, focusing on cultural and heritage values.¹³

Albania's Population density strongly influences urban and rural development, generating a dynamic interaction between migration, urbanization, and socioeconomic issues. The 2014 territorial reform that merged former municipalities with rural territories has led to more concentrated population in new administrative units, again creating resource management and sustainable development issues.¹⁴ Urbanization, particularly in Tirana, has been rapid and unplanned, leading to informal settlements, inadequate waste management, and poor infrastructure.^{15,16} This urbanization is triggered by internal migration from rural areas, where economic failure and infrastructural lack propel the population to cities like Tirana, triggering socio-spatial reorganization and cultural mixing.^{17,18}

The Tirana-Durres corridor is this phenomenon, where impressive population movement due to enhanced economic opportunities and infrastructure, albeit reduced in recent years.¹⁹ Conversely, rural communities are emptied, leading to economic and social decline, as seen in the municipality of Dropull, where attempts are being made to build these communities through sustainable tourism and infrastructure development.^{20,21} The lack of official urban planning has resulted in spontaneous settlements and inadequate public facilities, calling for urban retraining and more coordinated development of new cities with old city centers.²²

Population trends and projections in Albania show a complex mix of declining population growth and rapid aging due to migration (See Figure 2), fertility, and mortality rates. Albania has suffered dramatically since the 1990s through massive population shifts, with increased emigration levels and fewer people giving birth to children, translating to an overall average yearly negative growth rate of -0.7% from 2031.¹⁶ Post-socialist socioeconomic changes have hastened Albania's demographic transition from high to low mortality and fertility rates, resulting in a sharp decrease in population growth and an increase in the elderly population.^{1,16}

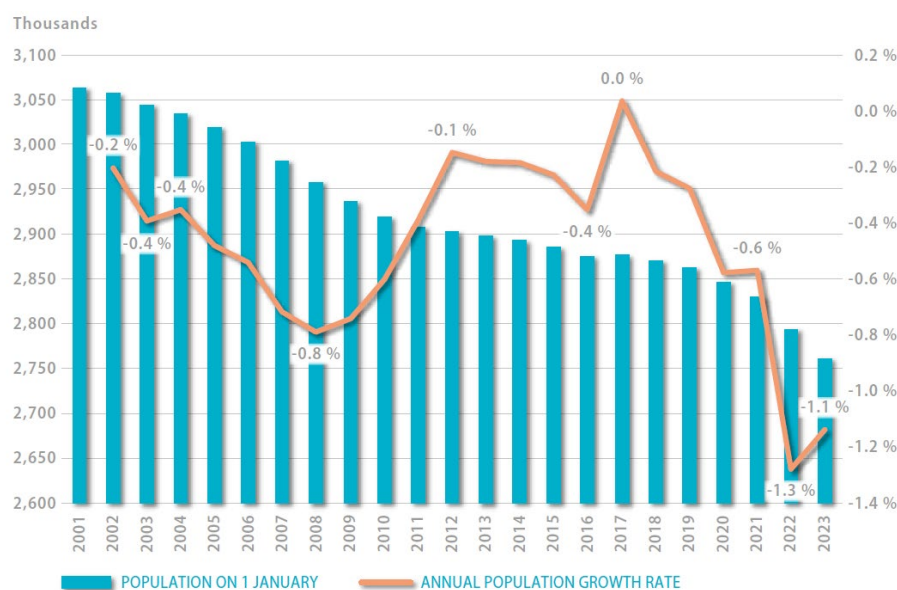


Figure 2 Population trends, 2001-2023 (on January 1)²³

The demography of the elderly, with a 0.5% per annum growth for those aged above 65, poses a challenge to care systems and family structures, as traditional extended family structures are being challenged by the diversity of living arrangements.^{16,24} This demographic aging is one of a broader trend within nations in the Balkans with a greater ratio of elderly populations to young generations, thereby necessitating policy interventions to fight against the socioeconomic implications.^{23,25}

The decline in fertility, from over six children per woman in the middle of the 20th century to today's about three, together with increasing life expectancy, helps to highlight the need for comprehensive policies to manage the demographic transition and its implications for Albania's future.^{6,26} The trends help to highlight the urgent need for Albania to embrace policies addressing migration, fertility, and aging to cushion against adverse impacts on its socioeconomic reality.²⁷

Albania's cultural heritage, demographic patterns, and natural features individually and jointly shape its national identity and socioeconomic profile. The country is facing critical challenges of urbanization, an aging population, and sustainable development, and inclusive policies are imperative to ensure future growth and stability. Despite these challenges, Albania's natural attractiveness and rich cultural heritage underpin its economic policies, particularly tourism and the management of natural resources.

1.2. History And Culture

The culture and history of Albania are deeply rooted in its geographical and historical context, marked by a sequence of invasions and cultural interactions that have shaped its identity. Historically belonging to Illyria, Albania was annexed into the Roman Empire as province Illyricum by 168 BC. It was later part of the Byzantine Empire, with widespread Latin influence on its language and culture.^{28,29} The arrival of Slavic peoples in the Balkans during the early medieval period introduced a cultural shift, with Albania serving as a battleground for influence among the Byzantine, Venetian, and later Ottoman empires.³⁰ The 14th-century Ottoman occupation was met with fierce resistance, represented by national hero Gjergj Kastrioti, or Scanderbeg.^{28,30} Despite the Ottoman rule, persisting until the early 20th century, Albania was preserved distinct in terms of its national identity, to some extent, by protecting its language, one of the principal elements of national identity.^{31,32}

The National Renaissance of Albanians in the 19th century was mainly responsible for affirming a sense of national identity and cultural awakening, which all led to the Declaration of Independence in 1912.³³ This period of reawakened cultural activity was when lots were added to literature, art, and education to modernize and achieve cultural equivalence to Western Europe. Cultural development was also witnessed during the interwar years with efforts to eliminate illiteracy and promote arts like music, drama, and sculpture.³⁴ The Albanian cultural setting is characterized by a blend of indigenous traditions and the impact of various empires that have ruled the nation, resulting in a vibrant cultural heritage of traditional arts, clothing, and architectural patterns. Albania has been considered a borderland nation, culturally more Eastern due to Ottoman influence, yet geographically Western, which has led to its diversity.³⁵ Albanian, split between its Gheg and Tosk variants, is the living testament of Albania's compound social and cultural history, aided by the communistic imposition of artificial standardization of languages.³¹ History and culture in Albania are evidence of endurance and potential to integrate mixed elements without altering national identity.

Albanian identity has been dramatically shaped by its geographical location and ancient exchanges, where it lies at the crossroads of the East and West. Historically, it was part of Illyria, where Roman and Byzantine rule existed, and it left an authoritative Latin mark in Albanian culture and language.^{28,30} Subsequent Slavic invasions and Venetian-Adriatic hegemony diversified further the cultural complexion.³⁰ Five centuries under Ottoman Empire authority introduced enormous amounts of cultural inflows such as architecture, dressing, and Islam that are an integral part of Albanian culture amid resistance and Islamization of most of

the population.³⁶ This time also witnessed the emigration of Albanians to Italy, mixing cultural influences even more.²⁸

The 19th century was the time of a renewed Western European interest in Albania, fueled by Romanticism and political interests. It emphasized Albania's distinctive cultural and ethnological elements, including its language, folk art, and traditional crafts.³⁵ The 20th century saw a time of isolation under communist rule, which was characterized by the construction of numerous bunkers, now a historical reminder of Albania's complex past.³⁷ Despite all these diverse influences, modern Albanian identity is mainly secular, founded on Illyrian origin, historical figures, and linguistic uniqueness, rather than religious affiliation.³⁸ This secular identity has created a culture of religious tolerance, with Islam, Catholicism, and Eastern Orthodoxy existing together in harmony, a testament to Albania's position at the crossroads of great cultural and religious empires.³⁹ Albania's cultural heritage is thus a rich mosaic of its strategic geographical position and the numerous historical encounters that have shaped its society over centuries.

1.3. Government and Legal System

The Albanian government and legal system have experienced great transformation, particularly following the demise of communism in 1991. The country transitioned from socialism to a democratic form of government, reaching its peak by adopting a new constitution in 1998, the foundation of its legal system.^{40,41} The Albanian legal system is based on the civil law tradition, with its initial civil code adopted in 1929, signifying a shift from Ottoman influences on European legal identity.⁴² The Constitution guarantees human rights and enshrines international law in domestic law, providing a foundation for protecting individual rights.⁴⁰

The party system is competitive and often leads to coalition governments, whereas local elections mirror national political trends. The recent electoral reforms, including the 2020 electoral code revisions, aim to limit political instability and consolidate democratic processes.⁴³ The judiciary has also been reformed to combat corruption, such as establishing the Special Tribunal against Corruption and Organized Crime, whose efficiency is still monitored.⁴⁴ The local government is structured in municipalities and districts, following territorial adjustments that need constitutional amendments to align with the law on local self-government.⁴⁵

Albania's desire to join the European Union has motivated reforms in administrative justice to promote judicial independence and efficiency in line with EU requirements.⁴⁶ The State is also

central in coordinating the shift from socialism to capitalism, emphasizing equal resource distribution and social welfare, despite some difficulties in realizing these ideals.⁴⁷ The secular State is liberal in treating religious communities, ensuring their rights and independence from past Ottoman institutions, for the benefit of national unity and social cohesion.⁴⁸ The Albanian government and legal system are a balance of historical evolution, democratic alignment, and ongoing reforms to entrench the rule of law and governance.

The influence of the European Union on the Albanian legal system has been tremendous, driven primarily by Albania's aspiration to join the EU as a member state, for which it needs to align its domestic legislation with the EU *acquis*. This began with the 2006 Stabilisation and Association Agreement (SAA), which obliges Albania to approximate its legislation to EU standards.^{49–51} The EU's transformative power in Albania is evident through its impact on structural reforms, particularly in the justice field, where the EU's conditionality has effectively driven change.⁵² The justice system reform, together with the vetting of judges and prosecutors, is a part of Albania's EU accession talks to have an uncorrupted judiciary and ensure the rule of law.⁵³ Implementing EU law in Albania is difficult due to weak bureaucratic institutions and insufficient human resources, making everyday application and enforcement hard.⁵⁴ Despite these challenges, Albanian courts have been 'Euro-friendly' in their practice, applying EU law as a persuasive authority even before full accession.⁵⁵ The European Court of Human Rights has also impacted Albania's judicial reforms, with several cases indicating the importance of independence and impartiality in the judiciary.⁵⁶ Moreover, reducing the number of courts due to a new judicial map has raised alarms about access to justice, one of the EU's founding principles, which signals that Albania needs to increase its judicial capacity to align with EU standards.⁵⁷ While the EU has been instrumental in driving legal reforms in Albania, the process is still underway. Long-term efforts are required to address implementation deficits and align with EU standards.⁵⁸

Albania is a constitutional republic with a parliamentary system, and its capital is Tirana. The President is the Head of State but exercises mainly ceremonial duties and is elected by Parliament. The Prime Minister, as the Head of Government, is appointed by the President on the advice of the party or the coalition of parties with the majority of parliamentary seats after each election. It is a multi-party government based on the principle of separation of legislative, executive, and judiciary power. The legislative authority lies with the Parliament of Albania, which is entitled to pass laws, call a referendum, approve the state budget, monitor and censure the government, and approve the cabinet. It is a unicameral legislature composed of 140 members elected to four-year terms. A speaker heads it and operates according to the rules set

by its members. Executive authority is vested in the Council of Ministers, comprising the Prime Minister, Deputy Prime Minister, and respective ministers. The judiciary, which has the authority to adjudicate, interpret, and implement Albania's laws, is overseen by the High Council of Justice. The judiciary comprises a Constitutional Court, a Supreme Court, and Appellate and District Courts.⁵⁹

The Constitution of the Republic of Albania, adopted in 1998 and amended several times since then, establishes the principle of decentralization of power and local autonomy of the Albanian local government (Article 13). There are two tiers of local government: the municipalities (bash/bashkitë) and the counties (quark/quarks). According to Article 108 of the Constitution, the municipalities and communes are the basic units of local governance and are provided with both representative authority - municipal councils (këshill/ këshilli bashkiak) - and executive authority – a mayor/ head (kryebashkiak/kryebashkiaku) – which are elected every four years. These local representatives exercise various functions such as territorial planning, urban planning, public works, and housing for their administrative territory. Counties are not fully independent units since they are not directly elected by universal suffrage. They take their origin from their constituent municipalities. The Constitution in Article 110 stipulates that counties consist of "several basic units of local government with traditional, economic and social ties and joint interests.". They formulate and realize territorial policies and correlate them with national policies. The county's representative organ is the county council (këshill/ këshilli i qarkut), to which the municipalities send members proportionally to their population. The mayors of municipalities always belong to the county councils, and, if necessary, more members can be elected from among the councilors of each municipal council.⁵⁹

Counties are vested with fewer competencies than municipalities. Their primary function is to coordinate and harmonize the national policies with municipalities without hierarchical supervision. Counties can also provide services delegated by the central State and municipalities through an agreement.⁶⁰ A prefect (Prefekti) is nominated by the Prime Minister and the Council of Ministers for each county to serve as the representative of the State to the Prefecture (Prefektura). Prefects oversee the implementation of the State's regional policy. This administration is concurrent with the county councils; the prefectures have their budget and are accountable to the national government, not the county councils. Other local representations of state ministries and agencies are generally in the county administrative capitals. Although constitutionally part of the local government system, counties combine national and local functions. They are often used as de facto "regional level" administrative units of Albania. Parliament reorganized the local government in 12 counties (quarks) and 61 municipalities in

2014, reducing the number of municipalities. Local government functions are also detailed in Law No. 139/2015, "On Local Self-Governance," and Law No. 68/2017, "On the Finances of Local Self-Governance." The municipalities may comprise administrative units headed by appointed administrators, towns (qytete), and villages (fshatra). There are 369 administrative units, 58 towns, and 2,998 villages within the 61 municipalities. Neighborhoods and villages are municipal districts formed in urban settlements with over 15,000 inhabitants and rural settlements with over 200 inhabitants, respectively.⁵⁹

The Constitutional Court of Albania will play an essential part in ensuring the separation of powers in Albania through its role as a guardian of the Constitution and a guarantor of the balance between the legislative, executive, and judiciary. Established in 1992, the Court has evolved through profound reforms, primarily Constitutional Reform 2016, to solidify its independence and effectiveness.^{61,62} The principal function of the Court is the interpretation of the Constitution, resolving constitutional disputes, enforcing the rule of law, and protecting fundamental rights and freedoms.^{63,64} It has authority over the constitutionality of normative acts, checking the conformity of laws and administrative acts to constitutional requirements.⁶⁵ Independence of the judiciary, one of the foundations of the separation of powers, is vital to the Court's ability to act independently and without political interference.⁶⁶ There remain concerns, particularly within the appointment of judges, which has been a source of tension between political institutions, such as the President and Parliament, and has affected the Court's functionality.⁶⁷ Despite these constraints, the Court's role in invalidating laws violating the European Convention for the Protection of Human Rights demonstrates the Court's commitment to aligning national laws with international standards.⁶⁸ The Court's efforts at political neutrality and avoiding politicization in its constitutional interpretations also strengthen its role as a neutral arbiter in the Albanian legal system.⁶⁹

1.4. Economy and Employment

Albania has undergone impressive economic growth since 1998, with an average real GDP growth rate of 7%.⁷⁰ Despite the global and regional economic crises, including the Eurozone crisis, the Albanian economy had an impressive rebound, with economic growth rates of 8.9% in 2021 and 4.8% in 2022.⁵⁹ This was fueled by dramatic rebounds in the tourism and construction industries after the COVID-19 pandemic and the earthquake in 2019.

Since 2000, unemployment has lowered, though long-term issues remain in the labor market.⁷⁰ Unemployment continues to be above 10%, with women and youth experiencing higher rates.

For example, youth unemployment peaked at 27% in 2021, over twice the average of the remainder of the labor force (Figure 3).⁵⁹ Price stability has risen, resulting in a more stable economic climate.

The Albanian lek has appreciated against the euro, which has reduced the competitiveness of exports and increased import costs. Despite improvements in the deficit-to-GDP ratio, the trade balance still shows weakness in the economy. Foreign direct investment (FDI) and remittances from Albanians living abroad continue to alleviate trade deficits.^{70,71} Efforts to increase exports, particularly in the textile, footwear, and energy sectors, have been ongoing but require enhancements in logistical infrastructure and technological innovations.

Gross external debt has fallen by around 20% of GDP.⁷⁰ Demographic trends, however, pose a challenge to the labor market and overall economic stability. Large-scale emigration since the 1990s has caused more than 600,000 Albanians to reside outside the country, mainly in Greece and Italy.^{1,72} This migration has caused brain drain and remittance flows, supported household incomes but constraining skilled labor availability.¹ As of January 1, 2023, the population was estimated to be 2,761,785, down from the Census figure recorded in 2011 of 2,821,977.⁵⁹

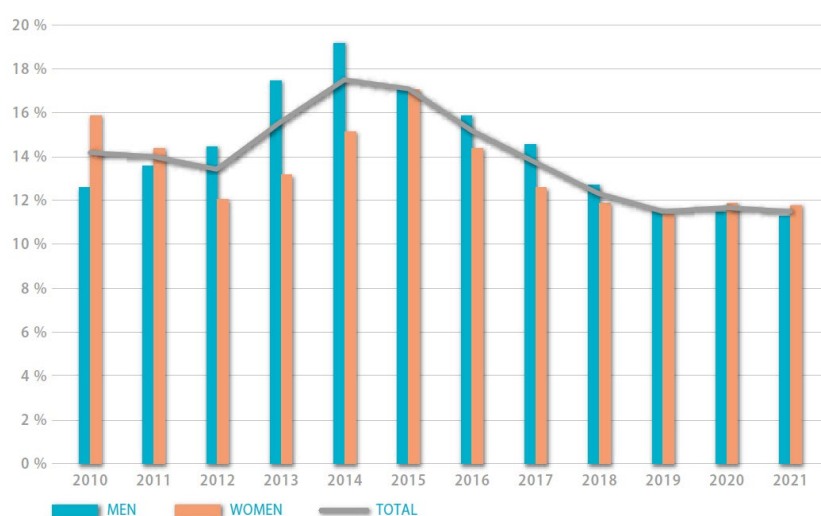
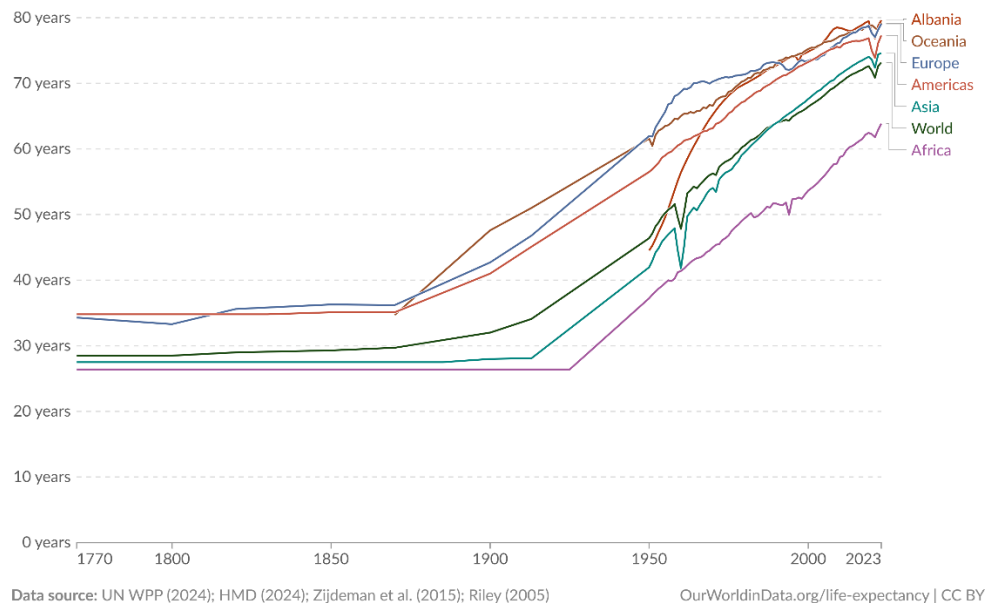


Figure 3 Unemployment rates, 2010-2021²³

The 2021 life expectancy⁷³ in Albania was 76.5 years (see Figure 4), with wide regional and gender disparities. The highest male life expectancy was in Kukës (77.4 years) and the lowest in Gjirokastër (70.0 years). For women, it was highest in Tirana (81.6 years) and lowest in Gjirokastër (74.2 years).⁵⁹ The median age is 38.8 years, and the population is rapidly aging, particularly among females.

Life expectancy

The period life expectancy¹ at birth, in a given year.



1. Period life expectancy Period life expectancy is a metric that summarizes death rates across all age groups in one particular year. For a given year, it represents the average lifespan for a hypothetical group of people, if they experienced the same age-specific death rates throughout their whole lives as the age-specific death rates seen in that particular year. Learn more in our articles: ["Life expectancy" – What does this actually mean?](#) and [Period versus cohort measures: what's the difference?](#)

Figure 4 Life expectancy of Albania⁷³

Western media traditionally portray Albania as isolated and mysterious, a stereotype that has existed for almost one century.⁷⁴ In contrast, Albania is painted as a multi-religious state with virtually no religious distinctions.⁷⁵ Albania is rich in civil engineering heritage, including UNESCO World Heritage sites and ancient buildings of the Illyrian, Greek, and Roman epochs.⁷⁶

The Albanian economy significantly relies on the services sector, which accounted for around 48% of GDP in 2020-2021. This is followed by agriculture, accounting for 18% of GDP and employing 34% of the workforce in 2022.⁵⁹ Wheat, maize, grapes, and livestock are the key crops. Agriculture, although important, remains labor-intensive and low-value-added. Women constitute 40% of the rural labor force, often working in the informal economy, with limited access to cash and training facilities.

Tourism has become a cornerstone of Albania's economic growth. Dubbed the "hidden gem of the Balkans," Albania combines beautiful coastlines, historic landmarks, and rich cultural experiences. Government efforts to advance sustainable tourism have resulted in rising tourist numbers and extensive investments in hospitality infrastructure. However, environmental issues and seasonal variations in demand threaten the sector's long-term viability.

The participation rate of working-age people (15-64 years) in labor is 68.2% for men and 53.8% for women. Youth face critical employment challenges via skill mismatches and low-quality employment opportunities.^{59,77} The National Employment Service (NES) is crucial in the fight against unemployment via job intermediation and vocational training.⁷⁸ However, job matching and skill formation are still issues. Initiatives aimed at aligning schools' curricula with market demands are crucial to creating a qualified and responsive workforce.

Though the World Bank categorizes Albania as an upper-middle-income economy, Albania's per capita GDP is still under world and EU averages. Structural vulnerabilities constrain economic growth, including dependence on low-value sectors and a trade deficit.⁶⁰ Furthermore, trade and FDI are revealed to be long-run related to economic growth, where trade is positively correlated with FDI inflows.⁷⁹ The appreciation of the Albanian lek about the euro has negatively impacted exports and pushed consumer prices.⁷¹ Okun's law describes how macroeconomic indicators such as inflation and unemployment influence growth.⁸⁰ EU accession processes emphasize governance reforms, institutional quality, and competitiveness.⁸¹

Albania's economic landscape is characterized by robust growth, ongoing emigration, and structural challenges. While Albania has made strides in economic stability and infrastructure development, trade deficits, unemployment, and skills imbalances persist. Strategic policy responses promoting inclusive growth, jobs, and EU integration will be critical to underpin sustainable development. Investments in education, digitalization, and green technology can also strengthen Albania's competitive edge in regional and global markets.

1.5. Physical and Technical Infrastructure

Albania's physical and technical infrastructure reflects a complex interaction between historical evolution, socioeconomic changes, and persistent efforts toward modernization. Of particular interest is the fact that the country has made significant strides since the late 1990s in developing its transport networks, telecommunications, energy supply, and cities to support economic growth and meet European Union (EU) standards.^{70,76}

Albania's civil engineering heritage can be traced to the Roman, Greek, and Illyrian periods, with medieval castles and fortifications giving richness to its history. After independence from the Ottoman Empire, infrastructure development became essential to nation-building.⁷⁶ The communist government of Enver Hoxha made its physical impact on the nation's landscape by

building approximately 200,000 bunkers as its national defence system.⁸² These structures remain iconic, representing a unique military architecture.

Modern roadway infrastructure has seen impressive advancements with major highway projects⁸³ (Figure 5), such as the Tirana-Durres and Tirana-Kukes routes, improving transport efficiency and supporting trade and tourism.⁵⁹ Secondary and rural roadways, however, often remain in poor condition, posing barriers to connectivity and requiring substantial financial investment.⁸⁴ Traffic congestion in major tourist hotspots like Lezha further underscores the need for advanced traffic management systems and integrated urban planning.⁸⁵



Figure 5 Tirana and Elbasan Highway

The significance of tourism, especially in areas such as Shengjin, makes the necessity for technological innovation, including Internet of Things (IoT) integrated traffic management systems⁸⁵, more pronounced. Smart road infrastructure incorporating digital technology, including sensors and traffic lights, presents credible solutions to mitigating traffic congestion and enhancing traffic safety.

Albania's telecommunications market has registered significant advances, with internet penetration covering 82% of the population as of 2023.⁵⁹ Broadband network and 5G technology investments are in progress, promoting digitalization. Rural regions continue to have limited access to stable internet connections, hindering digital inclusion.⁸⁶ Closing this gap is vital for economic engagement and innovation.

Albania highly relies on hydropower, which produces approximately 97% of electricity.⁷⁰ Although renewable energy sources are advantageous, climate variability endangers energy security. To surmount these deficiencies, the country diversifies its energy mix through investment in solar and wind projects.⁸⁷ Infrastructure projects like the Trans Adriatic Pipeline (TAP) also increase Albania's regional energy integration.

Urbanization, particularly in Tirana, has changed the nation's urban landscape. Significant investments in housing estates, commercial properties, and public places have rendered the city modern in outlook⁷⁵. Informal settlements and poor infrastructure in peri-urban areas remain a concern. Improved waste management, water supply, and sanitation require continued attention.⁸⁸

Myopic decision-making is one of the most significant obstacles to developing infrastructure in Albania, often delaying essential projects and compromising the quality of construction.⁸⁹ Road infrastructure has historically been underserved by investment and ineffective asset management, resulting in poorer maintenance quality than other Balkan nations. Performance-based contracts have been introduced to improve the quality of national roads but continue to be an issue for regional roads.⁸⁴

Foreign investment is required to develop Albania's infrastructure. The Netherlands and Italy have targeted their investments in transport infrastructure due to Albania's geographical position and political stability despite bureaucratic issues.⁹⁰ New financing instruments like Land Value Capture are being studied to fund urban infrastructure development in fast-transforming zones such as the Tirana-Rinas corridor.⁹¹

Consolidating technical infrastructure systems that include physical and digital networks is increasingly prominent in enabling effective service delivery. Using cyber-physical systems (CPS) and socio-technical perspectives is paramount in improving infrastructure operation and resilience.^{92,93} Moreover, the system-of-systems (SoS) approach emphasizes the importance of managing interconnected infrastructure systems to address the issues of complexity and uncertainty.⁹⁴

Attempts at developing Albania's physical and technical infrastructure are aligned with its trajectory of integration into the European Union. Reforms in legislation and strategic investment are needed to align development with European standards.⁵¹ By addressing infrastructure deficiencies and instituting sustainable policies, Albania can stimulate economic development and enhance its competitive standing in the EU.⁷⁹

Additionally, Albania's tourism sector faces significant challenges due to a lack of infrastructure, particularly regarding logistics and accessibility, which limits the sector's potential for growth.⁸⁸ Addressing these challenges through strategic investments in transport and logistics infrastructure will be key to promoting sustainable tourism growth.

Energy infrastructure development remains a top priority. Strategic management, particularly in the electricity sector, is necessary to bring private investment and harmonize with EU

standards.⁸⁷ Public-private partnerships can also be solidified to construct the resilience and capacity of the sector.

The circular economy transition, as outlined in the Green Agenda for the Western Balkans, presents a way forward for Albania towards sustainable development⁶⁰. However, inadequate infrastructure and limited financial resources remain significant obstacles to advancement. The government of Albania and international organizations are collaborating to establish frameworks conducive to sustainable approaches and developing infrastructure.

In Tirana, addressing transport problems by implementing strategic measures such as optimizing traffic and improving public transport will accelerate socio-economic growth and improve urban livelihoods.⁸⁸ Integrating physical and virtual infrastructures using data-driven solutions will continue to urbanize Albania's cities and boost economic resilience.

In conclusion, Albania's infrastructure networks benefit from planned coordination, technological innovation, and strategic investment. By leveraging emerging technologies, developing smart infrastructure, and addressing long-standing problems, Albania can unlock future growth potential and attain sustainable economic and societal development.

2. National Health Sector

Albania's healthcare system faces profound reforms to enhance service quality, access, and sustainability. The modernization of the health insurance system (HIS) is at the forefront of the reforms, and its role is pivotal to rendering healthcare financing efficient and sustainable. To this end, Albania is set on expanding its revenue sources. These consist of direct and indirect taxes, social security contributions, voluntary health insurance, and user fees for some services.⁹⁵ The nation aims to establish a more stable financial base for its health system by diversifying the money raised.

The second key priority area of health sector reform in Albania is strengthening primary health care (PHC). Pilot programs have been introduced to experiment with new healthcare service delivery models at the community level. The pilots are intended to enhance the management of services, increase the engagement of communities, and generally enhance the quality of care. The preliminary outcomes from the pilots are encouraging, with increased rates of utilization of services and improved patient outcomes. This success shows that expanding these efforts nationally could significantly affect the population.⁹⁶

Parallel to PHC reforms, Albania is also attempting to align its healthcare system with the European Union's. Among the significant steps in this direction has been the establishment of a National Health Service, focused on simplifying delivery and financing for services.^{97,98} Another significant achievement is the publication of National Health Accounts (NHA), which offer detailed information about how funds flow through the health system. This enables policymakers to make evidence-based decisions and benchmark Albania's health spending against the global standard.⁹⁹

The Albanian health insurance system is also undergoing reform to provide greater financial autonomy and efficiency. Legislation reforms are also being implemented to give the system greater autonomy so that it may function more efficiently. The compulsory health insurance scheme based on mutual contribution and solidarity is evidence of the government's commitment to social justice and equality.¹⁰⁰ It is designed to be universal coverage so that all citizens may be provided basic health services.

Overall, Albania's health sector is being revamped. With improved financing arrangements, more substantial primary care, and alignment with international standards, Albania is taking steps towards creating a healthcare system that is equitable, efficient, and responsive to the population's needs. Insofar as there are still challenges, these reforms are a significant step in the right direction towards better health outcomes for all Albanians.

2.1. National Health Care Profile

Albania's national health system is dynamic, influenced by its history, structural issues, and continuous reforms. The country's health profile illustrates a distinct mix of the old systems during the communist era and the recent reforms to align with European Union (EU) standards. The change has been marked by merging the Bismarck and Beveridge models through a hybrid health insurance model founded upon social justice, equality, and universal coverage.^{100,101}

The government of Albania has been diligently reforming its health sector to meet EU standards. The core areas of concern are the strengthening of medical education, improving the financing mechanisms for healthcare, and enhancing service delivery in primary care and hospital care.^{97,98} Among the most significant steps in this regard has been the creation of a National Health Service (NHS) to consolidate financing and strengthen coordination across levels of care. The NHS plays a pivotal role in unifying all healthcare financing within one agency, decreasing fragmentation, and equitably promoting access to services.⁹⁷

The Health Insurance Institute (HII) constitutes the nucleus of Albania's health financing strategy. It finances primary healthcare activities such as physician compensation and essential pharmaceuticals and represents the linchpin in the government's plan to integrate healthcare financing. The HII functions in a mixed system, including compulsory employer and employee contributions, voluntary health insurance, and fees for part of the services. However, despite these efforts, the system faces financial unsustainability and inefficiency. For example, out-of-pocket payments remain a significant burden to most households, particularly those in low-income brackets. Informal payments, which are a legacy of the Soviet "Semashko" model, also add to this burden, with the potential to impoverish vulnerable populations.¹⁰²

In responding to these challenges, recent pilot interventions funded by external donors such as USAID have emphasized strengthening primary healthcare. The pilot interventions have aimed at introducing integrated approaches to service delivery, promoting the role of the community, and catalyzing data use for decision-making. Early effects of the interventions are encouraging with improved use of primary healthcare facilities and quality of care.⁹⁶ However, systemic inefficiencies persist, and studies reveal that a significant portion of primary healthcare workers' time is wasted, undermining the overall system's performance.¹⁰³

Albania is undergoing a demographic transition in the form of an aging population, improved life expectancy, and an increasing number of non-communicable diseases (NCDs), like cardiovascular disorders and diabetes. Life expectancy at birth in Albania was 78.5 years in

2019, slightly better than that of another post-communist state, Poland, at 78.1 years.¹⁰⁴ This good news is, nonetheless, attended by increasing public health issues. NCDs are now the primary driver of mortality cases, and specific interventions are needed to tackle risk factors like unhealthy diet, lack of physical activity, and tobacco use.¹⁰⁵

The "Health Strategy, Albania 2021-2030" provides a well-rounded plan for addressing these concerns through NCD prevention, promotion of health, and enhanced governance. Action plans within this strategy highlight the requirement for enhanced resource allocation, maternal and child health care, and interventions to decrease socioeconomic inequalities in health outcomes.¹⁰⁵ Regardless of such initiatives, underlying systemic problems like corruption and emigration of medical professionals remain to slow development. Corruption discourages trust in the public healthcare system, whereas loss of medical personnel worsens staff shortages, especially in rural settings.¹⁰⁶

Gender inequalities are another key feature of Albania's health profile. There is evidence that multimorbidity is higher among Albanian women than men, mirroring general inequalities in health status. Underlying these inequalities are socioeconomic factors such as restricted access to the education system and labor market and cultural attitudes favouring male over female health.¹⁰⁷ These disparities need to be addressed by policy interventions specifically designed to respond to the needs of women and other vulnerable groups.

Albania's healthcare system stands at a junction between inheriting its communist past and being subjected to modernization and EU integration pressures. Although significant strides have been made in primary healthcare reform and strategic planning, issues of financial sustainability, inefficiency, and gender disparity persist. Initiatives like the introduction of National Health Accounts (NHA) and the upcoming Demographic and Health Survey offer opportunities to improve the governance of health systems and align Albania's indicators with those of the world.^{99,108}

2.2. National Health Care Structure

The country's national healthcare system is a multifaceted blend of historical legacies, current reform efforts, and efforts to achieve conformity with the European Union (EU) level. Based on the Soviet "Semashko" model focusing on state ownership and public provision, the Albanian health system has evolved dramatically during the last thirty years. They plan to enhance the system by incorporating Bismarck and Beveridge model elements, forming a hybrid health insurance system that balances contributions, solidarity, and state financing.

Despite all this, inefficiencies, budgetary limitations, and inequalities in access remain. It examines Albania's health care system in-depth, outlining its origins, present reforms, primary health care programs, infrastructural issues, and vision.

The backbone of the Albanian health system is the Soviet "Semashko" model prevailing in the days of communism. The model had health services provided by the state, universally available, and served through a state-run centralized public network of institutions. Though the system was expansive in its reach, it was plagued with inefficiency, absence of innovative practice, and financial shortfall. With the end of communism in the early 1990s, Albania shifted towards a decentralized and modernized healthcare system. The transformation entailed adopting aspects of the Bismarck and Beveridge models standard in European health systems. The Bismarck model, of German origin, emphasizes mandatory health insurance funded through payroll contributions from both employees and employers. In contrast, the Beveridge model of UK origin relies on government funding through taxation. Adopting a composite approach, Albania aims to create a sustainable financing system that offers broad coverage and increases equity.¹⁰¹ Introducing a compulsory health insurance scheme is an example of a hybrid design, funding the population based on contribution and solidarity principle.^{95,100} Despite how much these reforms have been introduced, elements of the Semashko model continue to exist in the state ownership of public healthcare facilities and general tax revenue being used to fund secondary and tertiary care.¹⁰² This heritage generates inefficiencies and costly out-of-pocket expenditures, which heavily impact families.

Primary health care (PHC) is an essential part of Albania's healthcare reform policy, with an emphasis on family medicine, community involvement, and quality improvement. The Albanian government has undertaken several steps to strengthen PHC services, including introducing a preventive check-up program for non-communicable diseases (NCDs) such as hypertension and diabetes. The program has improved detection rates and increased awareness of chronic diseases among the population.^{107,109}

International efforts have also been effective in strengthening PHC services. For example, the Partners for Health Reformplus Project tested an integrated model of PHC service delivery in two districts. The model involved family medicine training, facility-based health information systems, and community mobilization. The pilot showed improvement through higher use of PHC facilities and lower bypassing of the facilities for specialist care.⁹⁶ These achievements highlight the potential for nationwide, wider application of such programs.

There are still problems, however. Critics say that widespread screenings for health, although positive, are not always cost-efficient or effective.¹¹⁰ Such problems must be addressed by

properly planning and utilizing resources so that preventive programs yield the desired effect without overburdening the health system.

Albania's healthcare system is less efficient, less accessible, and worse funded than most European nations. Albania's expenditure on health is significantly below the EU average, and the state budget covers only 48.4% of the expenses.¹⁰² This deficit results in huge out-of-pocket and informal payments, which are bound to push families into poverty and increase disparities in healthcare access. In contrast, most European countries possess robust systems with universal coverage and controlled access, rendering healthcare a social right.¹¹¹

Inequalities in health infrastructure are present in Europe as well. Areas with greater concentrations of hospital beds and doctors are more recipients of foreign direct investment, implying the role of resource distribution.¹¹² Albania has the added disadvantage of a poor health information system that does not support proper governance and policy-making. The government has initiated programs like the Demographic and Health Survey (DHS) to address this issue and promote data collection and utilization.¹⁰⁸

Healthcare infrastructure modernization efforts involve upgrading public-private partnerships and medical education. These are components of extensive reforms aimed at meeting EU standards and improving the quality and efficiency of healthcare services.^{98,113} However, parity with other European nations is a challenge, particularly with the low rate of public expenditure on healthcare and the persistence of inefficiencies.¹¹⁴

Albania's healthcare system is strongly linked to the country's overall social protection system, which comprises social insurance and assistance. The compulsory health insurance scheme provides coverage of several services, ranging from public health and hospital care to pharmaceuticals.¹⁰⁰ Financial autonomy is at the center of this scheme, and proper legislative changes are needed to guarantee budgetary independence and effectiveness in health service spending.¹¹⁵

The social security system plays a major role in providing health services as an extension of its overall mission to cater to vulnerable groups. However, the fulfilment of such endeavours is continuously thwarted by inherent challenges like corruption and the brain drain of health professionals, which exacerbate the lack of human resources for healthcare, especially in rural communities.¹¹⁶

Albania's health system is at a turning point (Figure 6), struggling to balance historic influences with current reform initiatives. While significant progress has been made regarding primary healthcare reform and strategic planning, financial sustainability, inefficiency, and inequity in access persist. Initiatives such as the introduction of National Health Accounts (NHA) and the

upcoming Demographic and Health Survey offer ways to improve health system governance and align Albania's indicators with international standards.



Figure 6 Albanian Health System¹¹⁷

The outcome of Albania's health reforms will, in the end, rely on sound governance institutions, continued political commitment, and collaboration with external partners. By meeting the challenges ahead and building on current efforts, Albania can create a healthcare system that is equitable, effective, and responsive to the population's needs.

2.3. Impact of COVID-19

The pandemic of COVID-19 affected the healthcare system in Albania, both healthcare operations and the mental health of healthcare professionals and the population at large. Health emergency operations in Albania were initially hospital-based, with few responses to COVID-19 calls. By 2021, the operations were focused on reinforcing territorial health assistance, minimizing hospital transfers, and maximizing on-the-spot medical visits and therapies.¹¹⁸ Pre-hospital and in-hospital Emergency Medical Services (EMS) integration enabled this, which enhanced coordination and response.¹¹⁹ Telemedicine and digital health solutions, including telepsychiatry and remote monitoring, have played a central role in ensuring the continuity of healthcare provision with fewer face-to-face visits.¹²⁰

However, the abrupt shift to virtual care was not challenge-free, especially in integrated behavioral health care, since effective communication and managing heightened service demand were serious challenges.¹²¹ Albanian nurses showed resilience and commitment, following safety guidelines and ensuring professional relationships amidst challenges like workload variability and compensation discontent.¹²² The pandemic necessitated the restructuring of dental services, with a tremendous volume of surgical and dental emergencies because of the shutdown of regular dental clinics.

This led to an increase in the number of emergency presentations and operations.¹²³ In the rural population, the pandemic only led to the temporary interruption of social and health services, which reflects resilience among rural populations.¹²⁴ The pandemic worsened mental health among healthcare personnel, with high rates of anxiety, depression, and stress noted. Notably, younger healthcare professionals and those in direct contact with COVID-19 patients were impacted.^{125,126} More mental health distress, encompassing anxiety and depression, daunted the Albanian population during quarantine status. Women and Albanian residents had more depression.¹²⁷ Albania implemented several action plans for pandemic preparedness, which helped maintain health indicators and effectively manage the pandemic's impact.¹²⁸

COVID-19 was prevalent in Albania, and the most affected region was Tirana. The pandemic peaked in February 2021, with a high incidence rate.¹²⁹ From July to December 2020, SARS-CoV-2 seroprevalence in Tirana increased sharply, revealing extensive exposure.¹³⁰ The Albanian government instituted legislative responses, such as the state of emergency, to control the pandemic. However, these actions occasionally gave rise to confusion and were perceived as excessive.¹³¹ These strategic adjustments refer to Albania's pursuit of European standardization of the healthcare system, with flexibility and territorial health strengthening being prioritized in managing public health emergencies.^{118,119} Despite these adjustments, difficulties continue, especially for infection prevention and control (IPC) in healthcare facilities, where limited infrastructure and resources continue to prevail.

The sustainability of these changes over the long term depends on ongoing investment in digital infrastructure, staff training, and IPC protocols, as well as on facilitating collaborative action across healthcare stakeholders to promote system resilience and equity. The COVID-19 pandemic led Albania to adjust its health sector responses, prioritizing territorial and mental health responses. Although the health system was discovered to be strong, especially in rural settings, the mental wellbeing of health workers and the overall population was a priority area that required attention. The long-term impact of COVID-19 on health systems, including the Albanian one, is complex, with both an effect on patient wellbeing and health infrastructure.

3. National Radiology Profile

The Albanian National Radiology Profile outlines a comprehensive picture of a transforming health system where imaging technologies contrast with lingering issues. Over the past decade, Albania witnessed unprecedented radiology staff and infrastructure growth, augmented healthcare provision, and cutting-edge technologies. Even with these advances, most system issues remain, such as inefficiencies within the healthcare system, limited resources, and disparities in access to quality care.

This article outlines the current state of radiology in Albania, analyzing its weaknesses, strengths, and potential areas for improvement and comparing them with European standards. By closing the infrastructure, education, and public health awareness gaps, Albania can improve diagnostic precision, patient outcomes, and the overall quality of radiological services. Even though occupational radiation exposure rates remain within safe limits, the increasing trend calls for stronger training programs and reinforcement of protection practices among radiology staff. The radiology infrastructure in Albania also faces several challenges in patient care. Among them is the fact that the lack of appropriate health data communication hinders the integration of radiological services with other hospital departments. The long-term adoption of the Fast Healthcare Interoperability Resources (FHIR) standard is being looked into to overcome this limitation, as improved interoperability is important for better treatment planning and decision-making capabilities.¹³²

Broader systemic problems, such as unofficial remunerations and inadequate health coverage, make the health environment more complex, further deteriorating care inequities. These issues predominantly impact low-income groups, deterring them from accessing higher-level radiological care.¹³³ New efforts in enhancing healthcare provision via telemedicine, particularly in teleradiology, hold promise by lessening unnecessary referrals of patients to tertiary facilities and improving access to specialized care.¹³⁴ Nonetheless, the continuity of these initiatives will be based on surmounting infrastructural and financial underlying issues. Second, radiology informatics must receive particular focus since existing systems are beset by metadata quality and interoperability issues. By enhancing these, inter-organization workflows will be facilitated, and collaboration and patient management will become easier.¹³⁵ Implementing national diagnostic reference levels (DRLs) would simplify practices and bring Albanian radiology standards closer to those of other European countries. We note a mixed picture when comparing Albania's radiology profile with the rest of Europe. On the bright side,

advances in medical imaging, particularly in dental radiology, have been remarkable. Modalities such as ultrasound and fine needle aspiration biopsy (FNAB) have enhanced the management of thyroid nodules, improving the lives of many, especially women with thyroid nodular disease.¹³⁶ On the other hand, systemic issues linger.

The absence of agreed protocols for optimum treatment and the lack of a National Cancer Registry are some of the reasons thyroid cancer patients have high mortality rates despite a commendable 5-year survival rate of 97%.¹³⁷ Results in the neighboring Montenegro show that patients' doses in diagnostic radiology are predominantly below European reference values except for chest radiography, pointing to areas where the practice may be optimized.¹³⁸ These deficiencies must be tackled to enhance the diagnostic prowess of Albania and advance patient outcomes.

Another crucial consideration is public awareness of health. Limited public knowledge about health risks in Albania, such as radon exposure, presents challenges for implementing preventive measures and, by extension, achieving better health outcomes.¹³⁹ Greater awareness of radiation protection and other health risks could encourage greater public trust and engagement in health services.

Albanian radiology professionals face specific challenges and opportunities influenced by socioeconomic conditions and technological progress. As it suffers from high unemployment and a mismatch between the skills of young people and the labor market's needs, it urgently needs education and vocational training reforms to equip future radiology professionals with the appropriate skills.¹⁴⁰ Competency-based education and improved vocational education and training (VET) courses can provide students with practical skills necessary in the changing labor market.¹⁴¹

Continuing professional development is critical, given the rapid pace of advances in radiotherapy and medical imaging. Using active learning techniques and offering courses for lifelong learning can help radiologists stay current with emerging technologies and best practices.¹⁴² Additionally, greater collaboration among private sector companies and educational institutions can help improve radiology professionals' training and preparedness in Albania. Albania's advancements in medical imaging, as reflected in the National Radiology Profile of Albania, demonstrate an interrelated connection with persistent systemic challenges. Albania has witnessed noteworthy growth in its radiology infrastructure and personnel over the past decade, driven by technology adoption and healthcare delivery improvements. However, with these gains are inefficiencies in the healthcare system, shortages of resources, and disparities in access to high-quality care. This paper presents the current state of radiology in

Albania, its status, challenges, possible improvements, and comparison with European standards. By bridging infrastructure, education, and public health awareness gaps, Albania can enhance diagnostic accuracy, patient outcomes, and the overall quality of radiological services.

Also, systemic problems like under-the-table payments and a lack of health insurance coverage exacerbate inequalities in healthcare access. These difficulties especially affect low-income populations, hampering their access to specialized radiological service.¹³³ Efforts that optimize the provision of healthcare via telemedicine, particularly teleradiology, have demonstrated value by reducing unnecessary referrals of patients to tertiary facilities and enhancing access to specialist services.¹³⁴

Despite that, their feasibility is based on overcoming inherent economic and infrastructural limitations. Radiology informatics also needs attention since current systems lag in terms of metadata quality and interoperability. Improvement in these aspects would enable enterprise workflows beyond organizational borders, enabling seamless collaboration and better patient management.¹³⁵ National diagnostic reference levels (DRLs) would also help optimize practice and bring Albania's radiology standards in line with those of other European countries. The radiology profile in Albanian is a mix compared to others in Europe. On the brighter side, breakthroughs in medical imaging—most notably dental radiology—spell significant improvement. Ultrasound, along with fine needle aspiration biopsy (FNAB), has also improved the diagnosis of thyroid nodules, and this has therapeutic implications for quite a large percentage of the populace, women mainly who present with thyroid nodular disease.¹³⁶ Then, however, system issues persist.

Lack of guidelines for optimum treatment as recommended and no National Cancer Registry are elements that escalate thyroid cancer patient mortality rates even though there is a very high 5-year survival rate of 97%.¹³⁷

Research in nearby Montenegro also shows that patient doses in diagnostic radiology are mostly less than European diagnostic reference values, except in chest radiography, suggesting opportunities for practice optimization.¹³⁸ These shortcomings should be surmounted to advance Albania's diagnostic efficacy and patient outcomes.

Public health awareness is another issue. The Albanian population's limited awareness of health hazards, such as radon exposure, becomes an obstacle to implementing preventative policies and achieving improved health status.¹³⁹ Raising awareness of radiation protection and other health hazards can enhance public trust and active participation in healthcare interventions.

Socioeconomic conditions and technological advances test and challenge Albanian radiology professionals. High youth unemployment and low skill levels require education and vocational training reforms to prepare the next generation of radiology professionals with high-level qualifications.¹⁴⁰ Competency-based curricula and improved vocational education and training (VET) can prepare students with work-related skills focused on employer needs.¹⁴¹

As medical imaging and radiotherapy technologies rapidly evolve, continuing professional development is equally crucial. Active learning methods and lifelong learning courses can teach radiologists about technological innovations and best practices.¹⁴² Partnerships between academia and private industry can also enhance training quality and align it with actual needs. A synthesis of sustainable strategies in radiology offers a platform for professionals to lead green initiatives in medicine. Global dialogue calls for reducing the carbon footprint in medical imaging, allowing Albania to adopt green technologies and assist in meeting global sustainability goals.¹⁴³ The status of radiology in Albania is interconnected with Albania's economic and infrastructural development in general. Albania's tourism potential, which is backed by its extensive coastline and historical monuments, underlines the necessity for a sustainable national transportation system that aligns with environmental standards.¹⁰ The civil engineering history of the country, encompassing structures from various epochs, makes Albanian cultural and economic life richer.⁷⁶

Economic growth is also promoted by the progress in implementing the Small Business Act for Europe, which emphasizes the contribution of small and medium-sized enterprises (SMEs) to innovation and employment.¹⁴⁴ Public health initiatives, such as iodine prophylaxis, are committed to reducing health status regardless of regional differences.¹⁴⁵ All these factors provide a good setting for developing radiology services and integrating them into Albania's multi-sectoral development plan. Albania's National Radiology Profile has both successes and challenges. The nation has expanded its radiology staff, adopted new imaging modalities, and prioritized job safety. However, it is afflicted by systemic inefficiencies and a lack of resources. These must be tackled by focused policy reform, investment in infrastructure and education, and raising public health awareness. By aligning with European standards and adopting sustainable practices, Albania can improve diagnostic accuracy and patient outcomes and establish itself as a regional leader in healthcare innovation.

3.1. Radiology Workforce

The Albanian radiology profession (Figure 7) is dynamic and plays an important role in the country's healthcare system. Nevertheless, it has serious challenges, including occupational

exposure, human resource development, organizational inefficiencies, and technology barriers. These need to be addressed through strategic planning, investment in education and infrastructure development, and adherence to international standards. This report looks at the core factors influencing the radiology workforce in Albania, such as staffing numbers, skill mix, challenges, and opportunities for improvement.



Figure 7 The first 128-slice CT scanner room to 'Shefqet Ndroqi' hospital in Tirana¹⁴⁶

Radiation occupational exposure is a significant concern for radiology professionals in Albania. Between 2016 and 2020, there was a significant rise in dental and diagnostic radiology staff due to a growing demand for radiological services. During this time, occupational exposure doses rose but remained far below the International Commission on Radiological Protection (ICRP) recommended safety levels. Collective annual effective exposure doses for dental personnel ranged from 26.84 man-Sv to 70.14 man-Sv, while diagnostic radiology personnel had doses between 240.99 man-Sv and 358.03 man-Sv.¹⁴⁷ These statistics reflect Albania's commitment to safeguarding its radiology staff according to international standards.¹⁴⁸

Despite these advancements, continuous monitoring and adherence to safety precautions must be maintained. Even within secure limits, the rising trend in occupational exposure underscores the necessity for more in-depth training courses and rigorous implementation of protective practices to ensure radiology professionals' safety. Encouraging an effective safety culture

through continuous education can reduce risks and ensure long-term adherence to international standards.¹⁴⁹

Workforce development is necessary for Albania's vision of modernizing the healthcare sector and promoting economic growth. The radiology career has grown exponentially, with diagnostic radiology professionals numbering from 196 in 2016 to 332 in 2020.¹⁴⁷ The growth indicates more general trends in the Albanian labor market, as it moves towards becoming an open economy with a premium on specialized skills.²⁷

However, there are ongoing issues to address in aligning education outcomes with labor market needs. The STEP Employer Survey cites the necessity of technical, cognitive, and socioemotional skills to respond to labor market demands.⁷⁸ Despite increased laborers, skill shortages are a key impediment to sustainability. The training and educational institutions must adjust to provide students with skills to align with industry demands. Moreover, changes in the population, such as a declining population, increase workforce sustainability, necessitating specific policy measures.²⁷

Developing competency-based curricula and enhancing vocational training and education (VET) courses should be Albania's priority to bridge these gaps. Cooperation between institutions of learning and the private sector can improve the quality of training and align it with the requirements of the actual world.¹⁴¹ Given the rapid development of radiotherapy and medical imaging technology, professional continuing education is also essential. Active learning methodologies and lifelong learning programs can help radiology professionals remain up to date with technological advancements and optimal practices.¹⁴²

Organizational inefficiencies and technology limitations further complicate the operation of radiology departments in Albania. Poor communication among radiologists and other medical specialists can negatively impact patient care, and customized solutions must enhance interprofessional collaboration within healthcare settings.¹⁵⁰ Appropriate interdepartmental communication is significant for optimizing treatment planning and decision-making.

Technological limitations enhance these complications. The Albanian healthcare system sometimes lacks modern radiographic equipment and employs outdated equipment. Routine diagnosis procedures are complicated, and medico-legal issues are more complex.¹⁵¹ Radiologists are sometimes under external pressure to modify reports in some cases, which compromises the integrity of their work.¹⁵² To meet these needs, heavy investment in high-tech radiographic equipment and digital technologies such as artificial intelligence (AI) and telemedicine must be undertaken to enhance diagnostic accuracy and expand access to specialist services.

In addition, creating an innovative culture and adapting medical education to integrate active learning practices can provide radiology practitioners with the competencies they need to perform well in the changing technological environment.¹⁴² Albania can improve its radiology services' safety and efficiency by adopting these practices.

The Albanian radiology workforce is changing, with a greater focus on personal fulfilment and flexible work-life balance.¹⁵³ This change affects workforce structures and interactions and emphasizes policies that enhance professional and personal aspirations. Equal opportunities should be provided to all professionals, particularly women and underrepresented minorities, to shape a diverse and inclusive workforce.¹⁵⁴

Advances in occupational safety, workforce skills, and organizational reforms characterize the Albanian radiology profession. Nonetheless, skill deficits, technological constraints, and insufficient interdepartmental collaboration remain. Their resolution will be contingent upon collective effort by policymakers, educators, and healthcare professionals. With investment in technology, encouragement of interprofessional cooperation, and sustainability focus, Albania can develop a strong and resilient radiology profession that guarantees high-quality service while facilitating healthcare and economic development in the nation.

3.2. Training and professional representation

Professional associations and radiology training are among Albania's efforts to move towards modernization of the health system and harmonization with international standards. Although there has been much progress in the number of radiology professionals and the quality of professional training programs, challenges such as technological deficits, insufficient resources, and underrepresentation of certain groups still exist. Here we explore the central elements of Albanian radiology training, how it is aligned with global trends, challenges to trainers and trainees, and how it supports health infrastructure. These elements can be improved to improve the quality of radiology training in Albania and healthcare in general.

Radiology has increased in Albania, with more specialists focusing on workplace safety. Between 2016 and 2020, the number of dental and diagnostic radiology workers under supervision increased significantly, reflecting growing demand for specialist skills.¹⁴⁷ This reflects global trends in radiology education, where training programs increasingly incorporate Global Radiology Training (GRT) to enhance access to medical imaging services and education worldwide.¹⁵⁵

Albanian radiology education addresses specific health issues, such as broadening diagnostic service coverage and equipping primary healthcare professionals with the ability to respond to the mental health status of youth.¹⁵⁶ This reflects a general trend in Albanian tertiary education aimed at building professionals capable of addressing society's demands, especially in medicine.¹⁵⁷ Including community outreach and standardized protocols within training, procedures highlight the necessity of contextualizing learning in local environments and conforming to international best practice standards.

Representation within radiology is also a critical element of professionalization. Globally, there has been minimal progress in improving female and underrepresented minority representation levels within the radiology specialty.¹⁵⁴ This highlights the necessity of diversity and inclusion in professional training programs, allowing Albania to embrace European Union (EU) standards and practices. Offering equitable opportunities for all professionals is also required to construct a diverse and inclusive radiology workforce.

Despite these developments, radiology education in Albania is hindered by numerous challenges that undermine its effectiveness and sustainability. One of the primary challenges lies in the lack of technological infrastructure and facilities, which limits the delivery of quality education. Using outdated equipment and the inability to access state-of-the-art imaging modalities inhibits training and clinical practice.¹⁵¹ This challenge is further fuelled by Albania's chronic socio-economic transitions and efforts to surpass the legacies of its communist heritage.¹⁵⁸

The pandemic of COVID-19 added to the existing challenges, which included trainee safety gaps, education quality gaps, and wellness gaps. Trainees struggled to access personal protective equipment (PPE), experience virtual learning environments, and deal with burnout and social isolation.^{159,160} These calls for enhanced support systems and hybrid learning models that combine in-person and distant teaching.

Environmental concerns are also being viewed as a problem in radiology training. The environmental impact of training programs, particularly related to travel and resource use, necessitates the implementation of sustainable practices.^{143,161} Applying environmentally friendly practices such as reducing carbon emissions and promoting green technologies can minimize these effects and align with global sustainability goals.

Radiology training is at the forefront of building Albania's healthcare infrastructure by tackling interoperability, education, and emergency preparedness areas. Interoperability standards like Fast Healthcare Interoperability Resources (FHIR) are being adopted to improve data exchange and interoperability between radiology departments and hospital services.¹³² Greater

interoperability enables seamless communication and decision-making, ultimately improving patient care.

Albania's health sector is being reformed to comply with EU requirements, highlighting the necessity for better medical education, such as radiology training.⁹⁸ Teams trained to manage emergencies involving radioactive materials are provided, ensuring safety and security within health facilities.¹⁶² Preparations such as these are essential in coping with radiological accidents and ensuring public health.

Interprofessional practice is also a pillar of radiology training. An interdisciplinary team of practitioners, comprising radiologists, technologists, and administrative staff, works together to fill gaps in radiology access and improve healthcare delivery.¹⁶³ Value philosophy, including appropriateness education and consultancy training, is becoming an integral part of training programs to reduce wasteful practice and maximize value in healthcare.¹⁶⁴

Establishing an efficient information infrastructure in radiology is crucial for effective cross-organizational operations. Semantic standardization and high-quality metadata enable streamlined data exchange and logistics management, leading to effective healthcare operations.¹³⁵ With interoperability and enhanced education standards, radiology training enhances an effective and efficient healthcare system.

Radiology training and professional associations in Albania are fundamental components of the Albanian healthcare system, complementary to global trends and local needs. Despite significant advancements in increasing the radiology workforce and enhancing training programs, technology limitations, lack of resources, and underrepresentation remain challenges. Addressing them requires a coordinated effort by policymakers, educators, and medical practitioners. Through investing in technology, fostering teamwork, and focusing on sustainability, Albania can establish a robust and sustainable radiology workforce that can deliver quality care and serving the country's healthcare and economic development goals.

3.4. Equipment inventory and distribution

Albania's distribution and stock of radiology machines are both a blend of advancements, discrepancies, and systemic faults. While Albania has progressed significantly in embracing new imaging technologies and establishing monitoring systems, there remains a significant discrepancy in unequal access, quality management, and maintenance policy. This paper addresses the most critical aspects of Albania's radiology infrastructure, such as types of equipment, urban-rural disparities, procurement and maintenance concerns, and the roles of

monitoring systems. In terms of these areas, Albania can further enhance radiological services to promote a healthier life in the country.

The radiological units of Albania boast diverse imaging equipment that caters to diagnostic and treatment needs. Plain film radiography, ultrasound, mammography, and Cone Beam Computed Tomography (CBCT) are among the most common devices in hospitals and clinics. More often employed in dental clinics is CBCT, providing three-dimensional high-resolution images of teeth, jaws, and their associated structures with numerous advantages compared to two-dimensional techniques like intraoral and panoramic radiography.¹⁶⁵

Ultrasound and plain radiography are widely used, particularly in diagnosing aortic aneurysms. Studies have shown that ultrasound is more sensitive than radiography in detecting certain cases, highlighting its value in everyday clinical practice. The combination of ultrasound and mammography enhances diagnostic accuracy in the detection of breast cancer and the identification of high-risk patients.¹⁶⁶

New devices like adaptive control X-ray tubes are also being integrated into clinics. The machines modulate filament and anode voltages based on measured current values and user inputs, improving the accuracy and safety of radiological interventions.¹⁶⁷ However, access to sophisticated technologies like Intensity-Modulated Radiation Therapy (IMRT) and Image-Guided Radiation Therapy (IGRT) remains restricted, reflecting broader socio-economic constraints.¹⁶⁸

The Albanian Radiological Monitoring Network, launched in 2004, is key to ensuring radiological service safety and efficiency. Five radiological monitoring stations nationwide make up this network, which has the potential to monitor online environmental dose rates and respond to emergencies should there be accidents involving radiation near borders.¹⁶⁹ Such systems are useful in preserving human health and international radiation protection rules.

Quality assurance and control of radiology equipment are also important. Current European standards, like those in Albania, may be outdated, and new standards must be developed to ensure the safe and effective use of radiological equipment.¹⁷⁰ Occupational and medical exposures to radiation in Albanian hospitals, including the Gjirokastra regional hospital, are being scrutinized to fulfil international standards based on the national radiation protection program.¹⁴⁸ These operations indicate the importance of well-documented quality assurance practices in guaranteeing patient safety and effective functioning.

The availability of radiology devices in Albania is disproportionately concentrated in urban regions, with the capital city, Tirana, being the most prominent example. This reflects past patterns of rural-to-urban migration and economic growth cantered on industrial clusters such

as the Durres-Tirana-Elbasan triangle.^{171,172} Urban areas enjoy increased exposure to high-end imaging modalities and specialist medical care, while rural regions struggle to access even primary radiological facilities.

This imbalance can reflect more general issues in other regions, such as Sub-Saharan Africa, where rural communities might not enjoy required medical imaging.¹⁷³ In Albania, rural privatization and land allocation have put property rights and economic activity ahead of the development of healthcare infrastructure.^{174,175} The transition from a centrally planned to a market economy has also aggravated uneven development, and the rural areas lag in medical resources and services.¹⁷⁶

Alleviating these inequities is crucial to responding to public health challenges, such as indoor exposure to radon, which requires wide geographical area coverage for realistic evaluation and abatement.¹⁷⁷ To achieve radiology service access equity, policy measures should be redistributed toward resource and health infrastructure enhancement for disadvantaged areas. Their technicality, cost, and technical requirements make acquiring and maintaining radiology equipment challenging in Albania. Acquisition, installation, and maintenance of radiological equipment require proper planning and management to fulfil manufacturer standards and quality care.^{178,179}

Health technology management (HTM) and clinical engineering are at the center of addressing these problems. Albanian integration into the European Union has launched healthcare informatization reform and medical equipment maintenance policy formation.¹⁸⁰ Effective maintenance management entails distributing resources, quality assurance, education, and prevention through corrective, time-based, and condition-based maintenance.^{179,181}

Economic factors further complicate procurement procedures. Competitive practices and innovative structures, such as Managed Equipment Services (MES), are lucrative and organizational benefits by distributing the risks among buyers and sellers.^{182,183} Complete maintenance contracts, such as those in the UK, focus on the financial implications of maintenance, which can rival buying new equipment expenses.¹⁸⁴ The lack of access to finances and training remains the bottleneck, pointing to the need for adequate supervision, information dissemination, and investment in maintenance programs.¹⁸⁵

A combination of progress and ongoing challenges characterizes Albania's inventory and distribution of radiology equipment. At the same time, adopting the newest imaging technologies and establishing sound monitoring systems, disparities in city-countryside access, poor-quality assurance practices, and wastage in the maintenance process makes the system weak. With policy interventions that target specific barriers and investments in sustainable

solutions, Albania can break through these bottlenecks to create a more equitable and efficient radiology infrastructure. Ensuring universal access to high-quality radiological examinations is essential for health gain and sustained social and economic development.

3.5. Regulation and Policy

Notwithstanding the improvement achieved, Albanian radiology policy and regulation are subject to several complex challenges:

Integration into EU Standards; Synchronizing the national law with the European Union's *acquis* is sophisticated and resource-draining. Total reform of domestic laws is necessary for aligning laws at the local level with the EU standard, requiring strong political will and available funds.⁴⁹ Being a transition economy, Albania lacks adequate resources for the allocation required to attain EU compliance to its full extent.

Economic Restraints; Tax evasion remains a key issue, undermining the state's ability to fund public services, including health and radiology. VAT evasion equals 16–20%, and profit tax evasion equals 38%, notably constraining public investment in central sectors.^{186,187} Budgetary limitations constrain the development of quality regulatory systems and the procurement of advanced radiological technology.

Technological Limitations; The lack of technological support in the health sector poses a significant challenge to radiology growth. Insufficient resources for health services exacerbate the technological gap, making it difficult to set up standard systems for radiation dose reporting and monitoring.¹⁵¹ Additionally, the poor safety culture makes it even more challenging to implement effective monitoring measures.¹⁸⁸

Workplace Stress and Job Satisfaction; Radiologists in Albania suffer extremely high pressure from hospital managers and regulatory pressures, which affect their job satisfaction and the quality of radiological services.¹⁸⁹ Workload pressures and expectations cause stress that can undermine patient care and morale.

Foreign Direct Investment (FDI) and Research Development; Albania's political and economic infrastructure stifles attracting foreign direct investment (FDI) towards augmenting the ability to research and develop. Short of adequate FDI, Albania does not innovate and adopt cutting-edge radiological technology, which widens the gap between its health system and others of advanced nations.¹⁹⁰

Albania's effort to align itself with international radiology standards is commendable. As per IAEA guidelines, steps towards monitoring occupational radiation exposure and

implementing web-based quality assurance systems reflect a strong desire to align with international standards.^{147,148} Public accounting reforms and public accountability strategies overall indicate Albania's willingness to align its practices with international standards.¹⁹¹

These laws collectively ensure Albania's radiology sector adheres to international standards, shielding workers and patients from radiation. Prioritizing compliance and safety, Albania paves the way for a sustainable and effective radiology system.

Professional associations occupy the core of policymaking in Albanian radiology. They promote the profession, influence public policy, and settle problems within the profession. Like other nations' professional societies, Albanian professional societies lobby for equal access to good quality radiological services.^{192,193}

Advocacy and Policy Influence; Professional societies advocate for informed public policies that affect radiology, from screening protocols to work-hour regulations. Their involvement in the legislative process ensures that radiological methods consider patient needs and professional standards of practice.¹⁹³

Meeting Workforce Challenges; The shortage of academic radiologists and increasing workloads require good planning and leadership. Professional societies address these challenges by collaborating with trainees and senior practitioners, ensuring a strong future for the specialty.¹⁹⁴

Research and Communication; Professional associations become reliable information providers by conducting extensive research and presenting findings to policymakers. This enhances their credibility and influence in radiology policy formation.¹⁹⁵

Overall, professional associations in Albania are significant in shaping radiology policy through advocacy, leadership, and collaboration, ensuring that the profession is developed and keeps up with emerging challenges.

Albanian regulation and policy on radiology are the pillars of the country's plan for ensuring the safe and effective use of radiologic technology. While there have been notable advances in monitoring occupational radiation exposure, regulation of medical devices, and adherence to international norms, economic constraints, technological limitations, and workforce overload are the challenges that face the country. Addressing these issues requires collective measures to transform the legal frameworks, improve fiscal policies, and invest in information technology infrastructure. Professional associations play an important role in policymaking and advocating for the profession, securing the radiology practice in Albania to continue expanding and developing against emerging challenges. With the implementation of definite plans,

Albania can create a well-established and sustainable radiology framework safeguarding healthcare professionals and patients.

Conclusion

Radiology in Albania is now a part of the health system, reflecting significant progress and highlighting areas where greater attention needs to be directed. Occupational exposure to radiation among dental and diagnostic radiology workers has been tightly controlled in the past few years, reflecting more individuals and their exposure levels. However, these levels are still well below international limits for protection, registering the achievement of Albania's radiological protection legislative system.¹⁴⁷ Using sophisticated imaging techniques, such as mammography and ultrasound, has seen diagnostic performance raised in breast cancer detection, with research verifying that dual-modality use provides better results, particularly when matched to patient groups.¹⁶⁶ Besides, facilities like the regional hospital in Gjirokastra have facilitated country-level radiation protection by harmonizing occupational and patient dose measurements with international standards.¹⁴⁸ This reflects Albania's emphasis on using radiology as a core part of healthcare in the modern era.

Telemedicine use also reflects Albania's efforts to apply technology in healthcare provision. Radiology has been the target of initial teleconsultations, improving access to specialized care, especially in underprivileged regions.¹⁹⁶ The technology revolution remedies geographical disparities and positions Albania to meet the demands of a rapidly evolving healthcare setting. Challenges persist, however, most significantly in the area of medical education. Aligning medical training programs with European standards remains a priority to ensure that radiologists and other healthcare professionals possess the skills to maintain and promote the development of the field.¹⁵⁸ Ongoing investment in education and technology is required to capitalize on achievements and close existing gaps.

Aside from radiology, Albania's health sector is experiencing an overall shift based on demographic and system-based reforms. The population is also aging, with rising life expectancy⁷³ and falling fertility rates, which leads to rising incidence of non-communicable diseases (NCDs), such as cardiovascular diseases, cancer, and diabetes. The Albanian government has thus developed strategic documents like the "Health Strategy, Albania 2021-2030" and NCDs and health promotion action plans.¹⁰⁵ They all demonstrate an affirmative approach toward satisfying the changing healthcare needs of the population.

Even so, system inefficiencies and disparities are bottlenecks for progress. Despite progressing toward modernization, the healthcare insurance system has to contend with informal labor markets, weak administration capacities, and missing consultation coverage.^{95,197} Out-of-pocket spending remains a heavy burden to the majority, particularly low-income people, exacerbating

economic inequalities and limiting access to care.⁹⁶ Hospital financing, which is traditionally based on historical expenditures, is gradually shifting towards performance-based systems, but this ought to be well implemented and planned.¹⁹⁸

The health sector also has been lacking in action to tackle salient social issues, including girl and woman abuse, emphasizing the need for combined health and social care interventions.¹⁹⁹

Future actions, including the National Demographic and Health Survey (DHS), are constructed to support governance and provide equal health data, which is valuable for evidence-informed policy-making and European Union accession conformity.¹⁰⁸ These programs demonstrate Albania's commitment to modernizing its health system and raising its services.

Albania has developed enormously well in radiology and medicine, with features including enhanced radiation protection, diagnostic equipment, and telemedicine use. However, ongoing challenges in medical teaching, health insurance provision, and systemic inefficiency indicate the need to continue working towards comprehensive reform. By addressing these challenges through detailed planning, robust implementation strategies, and alignment with European standards, Albania can continue improving the quality of its healthcare services and providing equal access to all. The future requires collaboration between policymakers, healthcare providers, and stakeholders to close the existing gaps and create a patient-centred, resilient health system.

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