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# The Impact of Judgments *P Spain v Commission (Kosovo)* on Kosovo EU Membership

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## Abstract

On 17th January 2023, the Court of Justice delivered its judgment in *P Spain v Commission (Kosovo)* case. The CJEU ruled that despite the EU's non-recognition of Kosovo as a State, Kosovo may participate in an EU agency as a third country under the obligations laid down in Article 35 (2) of BEREC Regulation. The judgment is significant because clarifies the relations of Kosovo with the EU, more specifically the ability of third countries to participate in EU agencies. This article analyses the European Union Court of Justice judgments *P Spain v Commission (Kosovo)* and the impact on the future accession of Kosovo to the EU. The paper argues that while these judgments have a positive effect on consideration of Kosovo as a "third country" to join EU bodies and agencies, still non recognition of Kosovo as an independent state by the 5 EU Member States is an obstacle to advance further the perspective of European integration due to fulfilment of state recognition as required by Article 49 TEU.

**Keywords:** CJEU, Kosovo, third country, third state, EU Regulatory Bodies, EU Accession.

## 1. Introduction

Kosovo signed the SAA on 27 October 2015 and entered into force on 1 April 2016 (hereafter SAA with Kosovo). The SAA with Kosovo is signed between the European Union and the European Atomic Energy Community, of the one part, and Kosovo\*, of the other part. Unlike previous SAA signed with other WbC where EU Member States were part of the agreement, in this case EU member states are absent due to lack of recognition by 5 member states. This is reinforced in Article 2 stating that:

"None of the terms, wording or definitions used in this Agreement, including the Annexes and Protocols thereto, constitute recognition of Kosovo by the EU as an independent State nor does it constitute recognition by individual Member States of Kosovo in that capacity where they have not taken such a step".

The SAA with Kosovo aims to establish relationship with the EU based on reciprocity and mutual interest. This in turn, would allow Kosovo to further strengthen and extend its relations with the EU (Recital 2). The SAA with Kosovo covers wide areas that requires Kosovo to harmonise domestic law in line with EU *acquis*. According to Article 74 (1) of the SAA with Kosovo, considered as approximation clause, Kosovo shall endeavour approximate domestic legislation and to ensure the proper implementation and enforced.

Article 111 of the SAA with Kosovo lays down rules on the electronic communications networks and services. This provision provides the obligation for Kosovo to strengthen cooperation between Kosovo and European Union in the area of the electronic communications networks and services. The final goal is the adoption by Kosovo of the EU *acquis*. Approximation shall be done within 5 years after the entry into force. A particular attention will be paid to ensure and strengthen the independence of the

relevant regulatory authorities.

After development of the EU Digital Single Market which has contributed to the development of businesses, job growth, promoting innovation and improvement of citizens' quality of life, on 6 February 2018, the Commission launched the "Digital Agenda for the Western Balkans" (Commission 2018a, p. 14). The initiative intended to include the Western Balkan countries to benefit from digital tools and to ensure prosperity for their citizens. The Communication sets out main areas to be covered by the "Digital Agenda for the Western Balkans". In the end the Commission recommended certain actions to be taken to develop the digital society and to align domestic legislation of WBC in line with the EU *acquis*.

On 22 June 2018, the Commission issued a working document titled "Measures in support of a Digital Agenda for the Western Balkans" (Commission 2018b). One of these actions was incorporation of the existing national regulatory bodies into existing regulatory bodies or expert groups such as the Body of European Regulators for Electronic Communications (BEREC). Concerning the incorporation of national regulatory authorities into BEREC, Commission stated that:

"a closer relationship between EU and Western Balkans NRAs will help bring regulatory practice in the region closer to the Union [...]. While four out of six Western Balkan economies are currently observers of BEREC, the BEREC Board agreed to work more closely with all six NRAs of the region. This will still be possible under the revised BEREC Regulation" (Commission 2018b, p. 16).

The revised BEREC Regulation was adopted on 11 December 2018 (hereafter BEREC Regulation). BEREC Regulation established the Body of European Regulators for Electronic Communications which replaced and succeeded the Body of European Regulators for Electronic Communications established by Regulation (EC) No 1211/2009. Article 35 of BEREC Regulation provides the possibility of BEREC to cooperate with Union bodies, third countries and international organisations. According to Article 35 (2) of the BEREC Regulation, the Board of Regulators, the working groups and the Management Board are open to the national regulatory authorities of third countries which have an agreement with the EU.

As Kosovo has entered into agreement with the EU and in compliance with goals set out in the "Digital Agenda for the Western Balkans", on 18 March 2019, pursuant to Article 35 (2) BEREC Regulation, the Commission adopted a decision on the participation of the Kosovo Regulatory Authority in the Body of European Regulators for Electronic Communications (BEREC). In Commission view, the SAA fulfilled cumulative conditions, "agreement to that effect", as Article 35 (2) BEREC Regulation requires.

Pursuant to the Commission decision, allowing Kosovo to take part at BEREC, Spain, as one of the hard non-recognizers of Kosovo independence, challenged the validity of the decision before the General Court and then appealed the decision to the Court of Justice. By adopting a doctrinal legal research methodology, this article analyses the both these judgments (*T-370/19* and *C-632/20*) *P Spain v Commission (Kosovo)* and discuss the impact on the future accession of Kosovo to the EU. The paper argues that while these judgments have a positive effect on consideration of Kosovo as a "third country" to join EU bodies and agencies, still non recognition of Kosovo as an independent state by the 5 EU Member States is an obstacle to advance further the perspective of European Integration due to fulfilment of state recognition as required by Article 49 TEU.

The paper is composed by this introduction and three sections. The second and third section discuss the judgment of the General Court and Court of Justice. The fourth section comments and analyses the impact that these judgments will have on Kosovo

accession to the EU.

## 2. Judgment of the General Court (T-370/19) *K Spain v Commission*

In the judgment *Spain v. Commission* of 23 September 2020,<sup>1</sup> the General Court decided on three issues. The first issue concerned whether Kosovo could be considered as a 'third country' in the light of the BEREC Regulation. The second issue questions whether the SAA with Kosovo could be considered an 'agreement' as Article 35(2) of the BEREC Regulation requires. The third issue questions whether the Commission infringed Article 35 of BEREC Regulation in so far as the Commission departed from the established procedure for the participation of NRAs of third countries in BEREC. These three questions will be examined briefly below.

### *i. Kosovo as a "third country" in the light of BEREC Regulation*

In the first plea, Spain argued that Kosovo is not legally a 'third country'. Therefore, the necessary conditions for NRA Kosovo to participate to BEREC is not met.<sup>2</sup> Article 35(2) of the BEREC Regulation clearly states that only NRAs of 'third countries' are entitled to participate in BEREC. According to Spain, the Commission decision has considered Kosovo as a 'third country', even though it had no legal basis for doing so. In answering the first plea in law, the General Court examined the concept of 'third country' within the meaning of Article 35(2) of BEREC Regulation and assessed whether 'third country' is equivalent to 'third State' as Spain claimed. As a first step, the General Court noted that the lack of definition of the 'third country' in EU primary and secondary law, including BEREC Regulation.<sup>3</sup> The TFEU uses both 'third countries' and 'third States'. However, provisions concerning EU external relations use the term 'third countries' due to the fact that international society is made up of 'States' and with entities 'other than States'.<sup>4</sup> Furthermore, the General Court noted the fact that the EU has entered into contractual relations with Kosovo. This contractual relationship, based on Treaty provisions dealing with EU external relations, has to be interpreted broadly, allowing the European Union to enter into the relationship with Kosovo.<sup>5</sup> Also, the General court acknowledged that recognising the capacity to conclude an agreement under Article 217 TFEU does not mean recognition of Kosovo by the European Union as an independent State. As a conclusion, the Court ruled that the concept of 'third country' within the meaning of Article 35(2) of BEREC Regulation cannot be equated with that of 'third State', as the Kingdom of Spain's submitted. Kosovo is considered a 'third country' within the meaning of Article 35(2) of BEREC Regulation. The Commission did not infringe that provision.

### *ii. infringement of Article 35 of BEREC Regulation as there is no 'agreement' to allow NRA of Kosovo to participate in the BEREC*

By the second plea, Spain argues that the Commission has infringed Article 35 (2) of BEREC Regulation since there is no 'agreement' to allow NRA Kosovo to participate in BEREC. Spain considers that Article 111 of the SAA with Kosovo envisages the strengthening of cooperation to enable Kosovo to adopt the EU *acquis* in the telecommunication sector. In the Spain view, Article 111 of SAA with Kosovo does not provide the participation of NRA Kosovo to BEREC.

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<sup>1</sup> Judgment of 23 September 2020, *Spain v Commission*, T-370/19, ECLI:EU:T:2020:440, paras 21-26.

<sup>2</sup> *ibid*, paras 21-26.

<sup>3</sup> *ibid*, para 28.

<sup>4</sup> *ibid*, paras 29-31.

<sup>5</sup> *ibid*, para 32.



To answer this plea, the General Court examined the scope of the concept of “agreement with the Union to that effect”, as stipulated in Article 35 (2) of BEREC Regulation and whether Article 111 of SAA with Kosovo falls within that concept. According to Article 35 (2) of BEREC Regulations requires two conditions to be fulfilled: i) the existence of an ‘agreement’ between the third country and the EU and ii) the agreement must have been entered into effect. Concerning these two issues, the General Court analysed the nature of the SAA and the object and purpose of Article 111 that seeks to harmonise Kosovo domestic legislation with the EU *acquis* in the area of electronic communications and services. The General Court concluded that Article 111 of the SAA with Kosovo is an agreement “to that effect”, within the meaning of Article 35(2) of BEREC Regulation.<sup>6</sup>

*iii. infringement of Article 35 of BEREC Regulation as the Commission departed from the established procedure allowing NRA of Kosovo to participate in BEREC*

By its third plea, Spain submits that Commission has infringed the Article 35 (2) of the BEREC Regulation in so far as it unilaterally established ‘working arrangements’ for the participation of the NRA of Kosovo in the BEREC.

The General Court examined the procedure for determining working arrangements applying to the participation of NRAs of third countries in BEREC. Relying on the Art 16 TEU and settled case law, the General Court concluded that Commission had the power to decide on the participation of NRA Kosovo in BEREC.<sup>7</sup>

### **3. The CJEU’s Judgment in Case C-632/20 P Spain v Commission (Kosovo)**

Again, the Kingdom of Spain appealed the case to the Court of Justice claiming: i) to set aside the General Court judgment; ii) rule on the action for annulment and annual the decision at issue; and iii) order the Commission to pay the costs.<sup>8</sup> Spain’s grounds of appeal are grouped into two main questions. The first question asked whether Article 35 (2) of the BEREC Regulation reading together with Article 111 of the SAA with Kosovo permits the participation of the NRA of Kosovo in the work of BEREC. The second question addressed whether the Commission enjoyed the institutional competence to adopt a decision allowing NRA Kosovo to participate at BEREC.

Concerning the first questions, the main grounds of appeal by Spain were as follows:

- i. an error of law in the interpretation of the concept of ‘third country’;
- ii. an error of law in the interpretation and application of Article 111 of the SAA with Kosovo, in conjunction with Article 35 of BEREC Regulation, and
- iii. an error of law in the interpretation of those provisions, since the cooperation precludes NRA Kosovo to participate in BEREC.

Spain maintained the position that the term ‘third country’, as used in the TFEU and in the BEREC Regulation, does not have a broader or different meaning from that of the term ‘third State’. Furthermore, Kingdom of Spain criticized the General Court position relying sole on the provisions of the TFEU relating to third countries.

Like the General Court, the Court of Justice did not uphold the distinction between ‘third States’ and ‘third countries’.<sup>9</sup> More particularly, the Court of Justice argued that the concept ‘third States’ and ‘third countries’ have been used interchangeable in many provisions of the TEU and TFEU. The Court of Justice noted that these concepts

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<sup>6</sup> *ibid*, para 55.

<sup>7</sup> *ibid*, para 82.

<sup>8</sup> Judgment of 17 January 2023, *Spain v Commission*, C-632/20 P, ECLI:EU:C:2023:28, para 29.

<sup>9</sup> *ibid*, para 38.

are used interchangeably in some languages of version of the Treaties. In the end, the Court of Justice found that the GC's reasoning was erroneous (para 47).

Then, the Court of Justice analysed whether the term 'third countries' as stipulated in Article 35 (2) of the BEREC Regulation could encompass Kosovo. The Court found that for the purpose of ensuring the effectiveness of Union law, an entity not recognized as a sovereign State should be treated as a 'third country' within the meaning of that provision "while not infringing international law" (para. 50). The Court of Justice relied on the ICJ Advisory Opinion where the ICJ held that Kosovo's unilateral declaration of independence "did not violate international law, UNSCR 1244/1999, or the applicable constitutional framework".<sup>10</sup> The Court of Justice argued that this conclusion does not affect the individual positions of the EU Member States that do not recognize the independence of Kosovo. The Court of Justice went on arguing that Commission's decision concerning the participation of the NRA of Kosovo in BEREC expressly states that the designation 'Kosovo' is without prejudice to positions on status, as the first footnote to the decision indicates.<sup>11</sup> The same approach has been asserted in the 17th recital and in Article 2 of the SAA with Kosovo.

Concerning the issue of integration of third countries, specifically NRA Kosovo, into BEREC scheme. Article 35 (2) of the BEREC Regulation stipulates that participation in the BEREC agency requires the existence of two cumulative conditions: i) an agreement between the third country and ii) the EU "to that effect".<sup>12</sup> In the same vein like General Court, the Court of Justice noted the fact that the Union has entered several international agreements with Kosovo, "thus recognizing its capacity to conclude such agreements".<sup>13</sup> Article 111 of the SAA with Kosovo provides for cooperation between the EU and Kosovo in the area of electronic communications. This is consistent with the objective of cooperation with third-country NRAs pursued by Article 35(2) of BEREC Regulation.<sup>14</sup> In the Courts' view, Article 111 of the SAA with Kosovo is sufficient for NRAs to participate in BEREC. The Court of Justice concluded that Article 111 of the SAA with Kosovo covers the arrangement with Kosovo.<sup>15</sup>

In relation to the second question, the Kingdom of Spain relied on two grounds of appeal as follow:

- i) an error of law in the interpretation of those provisions, in so far as the cooperation referred to does not include participation in BEREC; and
- ii) an error of law in so far as the judgment under appeal concluded that Article 17 TEU constituted a valid legal basis for adopting the decision at issue.

The Court of Justice found that the Commission lacked the institutional competence to unilaterally draw up working arrangements to allow the participation of the NRA of Kosovo in the work of BEREC. The Court of Justice set the judgment under appeal aside and annulled the relevant decision, while maintaining its effects until its replacement by a new act.<sup>16</sup>

#### **4. Comment and Conclusion**

This case provides an interesting contribution for both international public law and the EU law. From the perspective of international public law, in this case, the CJEU rules on the difference between states and countries as international law actors. This

<sup>10</sup> *ibid*, para 51.

<sup>11</sup> *ibid*, paras 52 and 66.

<sup>12</sup> *ibid*, para 54.

<sup>13</sup> *ibid*, para 55.

<sup>14</sup> *ibid*, para 70.

<sup>15</sup> *ibid*, paras 56-59.

<sup>16</sup> *ibid*, paras 96-140.

judgment raises valid points that could steer a discussion on how the states and countries interact under international law (Istrefi 2020).

From the perspective of EU external relations, this case has an importance for two reasons. Firstly, it is the first case pronouncing the differences between a 'State' and a 'country'. The CJEU judges held that Kosovo can be considered as a "third country". Coming to this conclusion, the judges limited themselves only to the interpretation of EU primary and secondary legislation through a teleological interpretation.<sup>17</sup> Based on the general scheme and the purpose of the rules,<sup>18</sup> the CJEU argued that the concept of 'third country' has a broader scope than the notion of "third state", and that Kosovo could fit in the category of "third country".<sup>19</sup>

Secondly, this judgment shows the relations between the EU, EU Member States and Kosovo. The EU and 5 EU Member States have not recognized Kosovo as an independent state (Armakolas & Ker-Lindsay 2020). Spain, as the strong opponent of Kosovo recognition among the five EU Member States due to internal policy (Ferrero-Turrión 2020, pp. 215-235), brought an action for annulment before CJEU. In addition, four other EU member states - Cyprus, Greece, Romania and Slovakia - hesitate to recognize Kosovo as an independent state. Nevertheless, three EU members that have not recognised Kosovo, respectively Greece, Slovakia and Romania, have been fairly engaged with Kosovo (Armakolas 2020, pp. 123-146; Nič 2020, pp. 147-171; Ivan 2020, pp. 173-192).

Considering Kosovo as a 'third country' by the CJEU raises further question concerning the future accession of Kosovo to the EU. In these decisions, the CJEU emphasized that EU has entered into contractual relations with Kosovo, not as an independent State. This is confirmed in Recital 17 and further elaborated in Article 2 of the SAA with Kosovo.

By entering into contractual relations, the EU acknowledged the capacity to conclude international agreement with third countries.<sup>20</sup> On the other hand, the SAA with Kosovo differs from other SAAs signed with WbC. While in the case of other 5 WbC the SAA has been signed both by the EU and EU Member states, in the case of Kosovo has been signed only by the EU. This is due to the fact that 5 EU Member States have not recognized yet Kosovo as an independent state. However, Article 2 of the SAA with Kosovo contain similar objectives like other SAAs signed with WbC, including the harmonisation of domestic law in line with the EU acquis:

As stipulated in recital 2 of the SAA with Kosovo, the final aim is integration into the EU once Kosovo implements the accession criteria decided by the European Council in Copenhagen on 21-22 June 1993 (part 7 A (iii), p. 13). Article 49 of the TEU stipulates that any European State which respects certain values that are common to EU Member States and promotes them may apply to become a member of the Union. As can be seen, Kosovo non recognition as an independent state is problematic. The first condition, being a state, is not fulfilled because both EU and EU member states have not recognized yet. Thus, despite having an association agreement which aims accession of Kosovo to the EU, Kosovo non recognition as an independent state raise questions on the EU membership perspective.

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<sup>17</sup> Judgment of 17 January 2023, C-632/20 P *Spain v Commission*, paras 39-46.

<sup>18</sup> Judgment of 9 July 2020, *Naturschutzbund Deutschland - Landesverband Schleswig-Holstein*, C297/19, EU:C:2020:533, para 43; Judgments of 26 January 2021, *Hessischer Rundfunk*, C422/19 and C423/19, EU:C:2021:63, para 65.

<sup>19</sup> Judgment of 17 January 2023, C-632/20 P, *Spain v Commission*, para 53.

<sup>20</sup> *ibid* para 32; Judgment of 23 September 2020, *Spain v Commission*, T-370/19, para 55.

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# Reinforced concrete elements under shear force according to Albanian norms

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## Abstract

In this study, the author presents the findings derived from analyzing the bearing capacity of reinforced concrete elements subjected to shear force action. A reinforced concrete beam, designed according to Albanian Norms, is utilized as the chosen element and assessed using two distinct methods: the Rupture Design Method and the Limit State Design Method. The paper begins with a theoretical presentation of the problem, followed by a comparison based on numerical solutions obtained from both design methods. Conclusions drawn from the analysis are discussed, along with recommendations provided at the end of the study, offering valuable insights into the design and assessment of reinforced concrete elements under shear force action.

**Keywords:** Albanian Norms, Rupture Design Method, Limit State Design Method, reinforced concrete elements, shear force action.

## 1. Introduction

The design of reinforced concrete structures in Albania has evolved over time and is carried out according to established technical norms, utilizing three primary methods (Negovani & Verdho, 1973):

- Allowable Stress Design Method or Classic Method;
- Rupture Method;
- Limit State Design Method.

The Allowable Stress Design Method, also known as the Classic Method, is commonly employed for designing motorways, railways, and hydrotechnical structures where cracking is not permissible. In contrast, the Rupture Method is typically utilized for industrial and civil building design. The Limit State Design Method is applicable to a wide range of reinforced concrete structures, including prestressed concrete structures (Negovani & Verdho, 1973; Instituti i Teknologjisë së Ndërtimit, 1991). This method is currently the standard practice in Albania.

In addition to bending moment calculations, engineers must also determine the bearing shear force in reinforced concrete elements. Comparing the results of the bearing shear force calculations for the same element using both the Rupture Method and the Limit State Design Method reveals the advantages of employing the latter over the former.

# 1. Design Methods of Reinforced Concrete Elements According to Albanian Norms

## 1.1. Symbols according the two methods

The symbols listed below pertain to the Allowable Stress Design Method (Instituti i Teknologjisë së Ndërtimit, 1987). Only differing symbols are shown, while identical symbols have been omitted.

$R_{cc}$  = Design Concrete Compression Strength,  $\{R_p\}$ ;

$R_{ct}$  = Concrete Tensile Strength,  $\{R_t\}$ ;

$a_{sw}$  = Reinforced steel area of one of the stirrup legs,  $\{f_{ast}\}$ ;

$n$  = Number of stirrup legs,  $n = 2, 3, 4, \dots$ ;

$A_{sw}$  = Reinforced steel area for one stirrup,  $A = n \times a_{sw}$ ,  $\{F_{ast} = n \times f_{ast}\}$ ;

$A_{sinc}$  = Inclined reinforced steel area,  $\{F_{a0}\}$ ;

$s_w$  = Distance between stirrups,  $\{a_x\}$ ;

$Q_b$  = Concrete Shear Strength,  $\{[Q_b]\}$ ;

$Q_{sw}$  = Stirrups Shear Strength,  $\{[Q_{st}]\}$ ;

$Q_{Asinc}$  = Inclined reinforcement shear strength,  $\{[Q_0]\}$ ;

These symbols are used to represent various aspects of the Allowable Stress Design Method when designing reinforced concrete structures. By employing these symbols, engineers can effectively communicate and calculate the necessary properties for designing safe and efficient structures.

## 1.2. Rupture Method

In Albania, the Allowable Stress Design Method, also known as the Classic Method, is the oldest and most established method for designing reinforced concrete structures. In a flexural reinforced concrete element, normal stresses coexist with tangential stresses. For a homogeneous element, tangential stresses can be calculated using the following formula:

$$\tau = \frac{Q \times S}{I \times b} \quad (2.2.1)$$

where:

$\tau$  = Tangential stress;

$Q$  = Shear force;

$S$  = Static moment of the surface over the fibers where the tangential stresses are calculated, relative to the neutral axis;

$I$  = Moment of inertia relative to the neutral axis;

$b$  = Cross-sectional width;

By using this formula, engineers can determine the tangential stresses in a flexural reinforced concrete element, allowing them to design structures that can safely withstand the forces applied to them.

For concrete elements in order to determine the maximum tangential stresses is used (2.2.2):

$$\tau = \frac{Q}{b \times z} \quad (2.2.2)$$

$$z \approx 0.9 \times h_0 \quad (2.2.3)$$

where:  $h_0$  = Cross section effective depth.

Main stresses are given:

$$\sigma_{cr} = \frac{\sigma}{2} \pm \sqrt{\frac{\sigma^2}{4} + \tau^2} \quad (2.2.4)$$

The inclination versus the horizontal axis is:

$$\operatorname{tg}2\alpha = -\frac{2\tau}{\sigma} \quad (2.2.5)$$

The primary concern in designing reinforced concrete structures is the tensile stresses, as concrete has low tensile strength. At the neutral axis, where the normal stress ( $\sigma$ ) is zero, the critical stress ( $\sigma_{cr}$ ) is equal to the tangential stress ( $\tau$ ) and the angle ( $\alpha$ ) is  $45^\circ$ , resulting in  $\sigma_{cr} = \pm \tau$ .

For a safe and efficient design, the following condition (2.2.6) must be fulfilled:

$$\sigma_{cr} \leq \frac{R_{cc}}{7} \quad (2.2.6)$$

where:

$\sigma_{cr}$  = Critical tensile stress;

$R_{ct}$  = Concrete tensile strength;

If this condition is not satisfied, the cross-sectional dimensions or the concrete strength must be increased to ensure the structural integrity of the reinforced concrete element. By fulfilling this condition, engineers can design reinforced concrete structures capable of safely withstanding the tensile stresses they encounter.

If condition (2.2.7) is fulfilled, then there is no need to check the element shearing strength.

$$\sigma_{cr} \leq \frac{R_{ct}}{K_1} \quad (2.2.7)$$

where:  $K_1 = 2.2$  is the security ratio according to the normative.

Unlike many European Norms, Albanian Norms consider not only the contribution of stirrups and inclined reinforcement but also the role of concrete in the shear strength of the element. Let us examine an element with a rectangular cross-section, having dimensions  $b \times h$ . The main stresses supported by the concrete are as follows:

$$\sigma_{cr} \leq \frac{R_{ct}}{K_1} \quad (2.2.8)$$

Values of  $R_t$ ,  $R_{p,1}$ , are given from the normative in accordance with the concrete grade. Shear strength of stirrups, expressed in length unit is:

$$[q_{st}] = \frac{n \times f_{a,st} \times [\sigma_{II}]}{a_x \times K} \quad (2.2.9)$$

where:

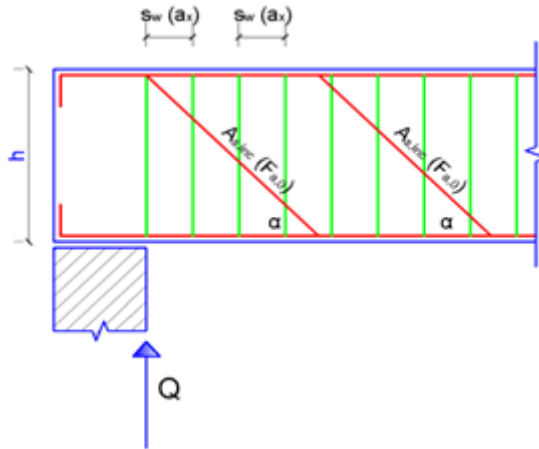


n = number of stirrup legs;

$[\sigma_s]$  = allowable stresses in the reinforcing steel.

Main stresses supported by the stirrups are as follows:

$$\sigma_{cr} = \frac{n \times f_{a,st} \times [\sigma_a]}{b \times a_x} \quad (2.2.10)$$



*Figure 1. Stirrups and inclined reinforcing in a beam*

Shear strength of inclined reinforcement:

$$[Q_0] = F_{a,0} \times \frac{[\sigma_a]}{K} \times \sin \alpha \quad (2.2.11)$$

where:  $\alpha$  = Inclination angle of the inclined reinforcement, usually  $45^\circ$ .

### 1.3. Limit State Design Method

According to Albanian Norms (Verdho & Mukli, 1996; Instituti i Studimeve dhe Teknologjisë së Ndërtimit, 1987, 1991):

$$\tau = \frac{Q}{b \times h_0} \quad (2.3.1)$$

Minimum shear strength of concrete is:

$$Q_{c, \min} = \varphi_c \times b \times h_0 \times R_{ct} \quad (2.3.2)$$

$\varphi_c$  = coefficient taking in consideration the factors affecting the concrete work, usually  $\varphi_b = 0.6$ ;

$R_{ct}$  = Concrete Tensile Strength.

If condition (2.3.3) is fulfilled, then there is no need to check the element shearing strength.

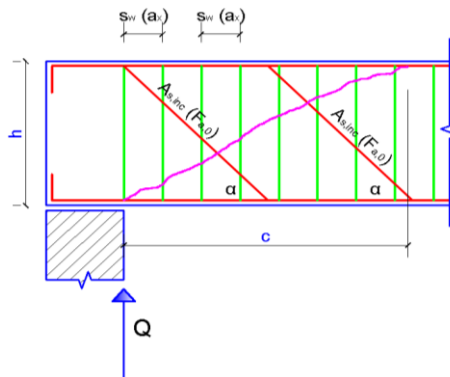
$$Q \leq Q_{c, \min} \quad (2.3.3)$$

Condition (2.3.4) must be fulfilled, if not, the cross section dimensions or the concrete class must be increased.

$$Q \leq 0.25 \times b \times h_0 \times R_{cc} \quad (2.3.4)$$

If condition (2.3.5) is fulfilled, the element must be designed from shear force:

$$Q_{c, \min} < Q \leq 0.25 \times b \times h_0 \times R_{cc} \quad (2.3.5)$$



**Figure 2. Shear crack on a beam support**

For a random inclined crack, with a horizontal length “c”, the following condition must be fulfilled:

$$Q \leq Q_c + Q_{sw} + Q_{Asinc} \quad (2.3.6)$$

$$Q_c = \frac{\varphi_{c2} \times b \times h_0^2 \times R_{ct}}{c} \quad (2.3.7)$$

where:

$Q_c$  = Shear Concrete Strength;

$\varphi_{b2}$  = Coefficient, usually  $\varphi_{b2} = 2$ .

$$Q_{sw} = (n \cdot a_{sw} \cdot R_{sw} \cdot c) / s_w \quad (2.3.8)$$

where:  $R_{sw}$  = Reinforcing Steel Shear Strength,  $R_{sw} = 0.8 \times R_s$ .

$$Q_{Asinc} = \Sigma A_{sinc} \times R_{sw} \times \sin\alpha \quad (2.3.9)$$

The most dangerous cut, with a minimum shear strength have a horizontal length “ $c_0$ ”, is given:

$$c_0 = \sqrt{\frac{(\varphi_{b2} \times b \times h_0^2 \times R_{bt}) \times s_w}{n \times a_{sw} \times R_{sw}}} \quad (2.3.10)$$

If we substitute (2.3.10) in equations (2.3.7) and (2.3.8), we will have:

$$(Q_c + Q_{sw})_{min} = \sqrt{\frac{(4 \times \varphi_{b2} \times b \times h_0^2 \times R_{bt}) \times (n \times a_{sw} \times R_{sw})}{s_w}} \quad (2.3.11)$$

## 2. Calculations results of flexural reinforced concrete elements

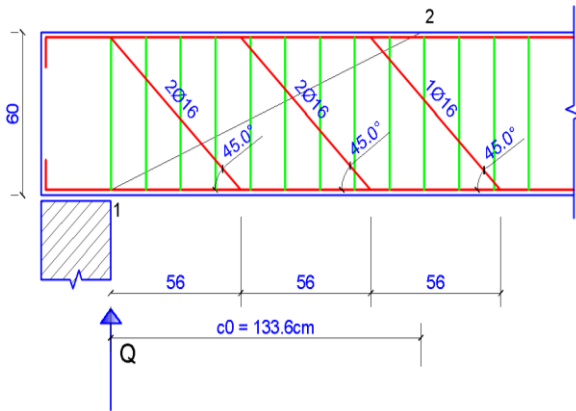
### Numerical example

We will analyze a beam under flexural action with a rectangular cross-section measuring  $b = 30$  cm and  $h = 60$  cm. Additionally,  $a = a' = 4$  cm, and  $h_0 = h - a = 60 - 4 = 56$  cm.

For the Rupture Design Method, the concrete class is M300 (cubic resistance), with  $R_p = 250 \text{ daN/cm}^2$  and  $R_t = 23 \text{ daN/cm}^2$ . The steel class is S5, with  $\sigma_{\pi} = 3,500 \text{ daN/cm}^2$ .

For the Limit State Design Method, the concrete class is B30 (cubic resistance), with  $R_c = 160 \text{ daN/cm}^2$ . The steel class is Ç.5, with  $R_s = 2,400 \text{ daN/cm}^2$  and  $R_{sw} = 1,920 \text{ daN/cm}^2$ . The stirrups are  $\Phi 8$ , with  $s_w (a_x) = 15 \text{ cm}$  and  $n = 2$ . Inclined reinforcement is as shown in the figure.

The shear strength of the beam is calculated using both methods.



*Figure 3. Beam support reinforcement*

### a) Limit State Design Method

Using (2.3.10), (2.3.7), (2.3.8), (2.3.11), we can find:  $c_0 = 133.6 \text{ cm}$ ,  $Q_c = 17.143 \text{ daN}$ ,  $Q_{sw} = 17.139 \text{ daN}$  and  $(Q_c + Q_{sw})_{\min} = 34.282 \text{ daN}$ .

Crack 1 – 2 is the most dangerous. Its horizontal length is  $c_0$ . In this crack there are in total  $5\Phi 16$ , so  $\Sigma A_{sinc} = 10.05 \text{ cm}^2$ . Using (2.3.9) we have  $Q_{Asinc} = 13.644 \text{ daN}$  and  $Q_c + Q_{sw} + Q_{Asinc} = 17.143 + 17.139 + 13.644 = 47.926 \text{ daN}$ .

### b) Rupture Method

For crack 1 – 2, using (2.2.2), (2.2.3) and (2.2.8) we have:  $Q_c = \frac{R_t}{K_1} \times b \times 0.9 \times h_0 = 15.807 \text{ daN}$ .

Beginning from (2.2.9) we find the shear strength of stirrups  $Q_{st} = q_{st} \cdot c_0 = 15.586 \text{ daN}$  (2.4.1)

Using (2.2.11) we have  $Q_c = 12.434 \text{ daN}$ .

Total Shear Force is  $Q_c + Q_{st} + Q_0 = 15.807 + 15.586 + 12.434 = 43.827 \text{ daN}$ .

The concrete shear strength calculated using the Limit State Method is higher than the respective shear strength calculated using the Rupture Method (+ 8.4 %).

The stirrups' shear strength calculated using the Limit State Method is higher than the respective shear strength calculated using the Rupture Method (+ 10 %).

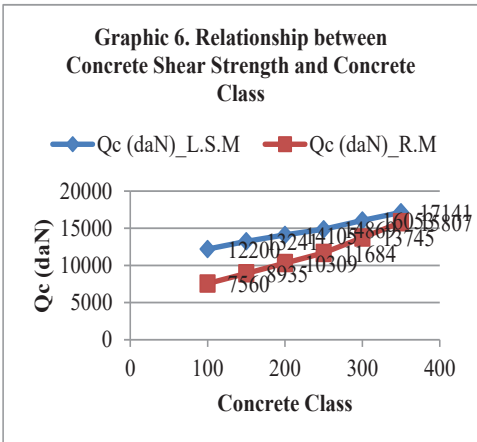
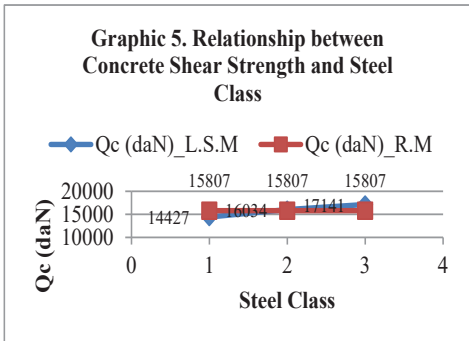
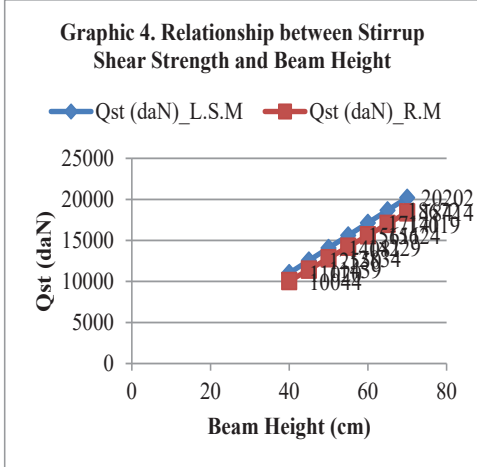
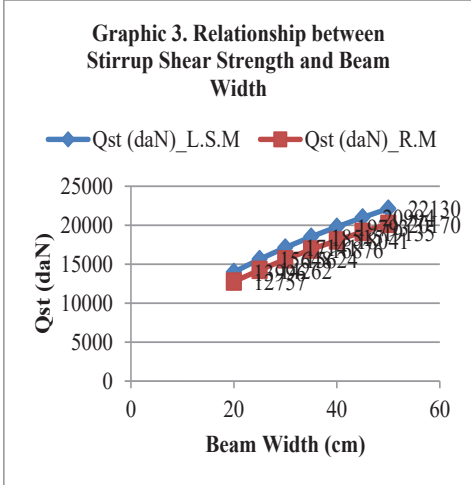
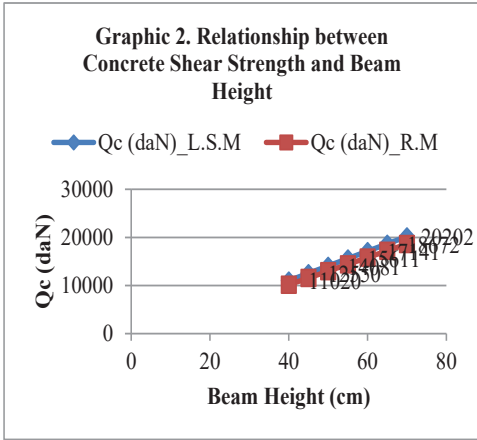
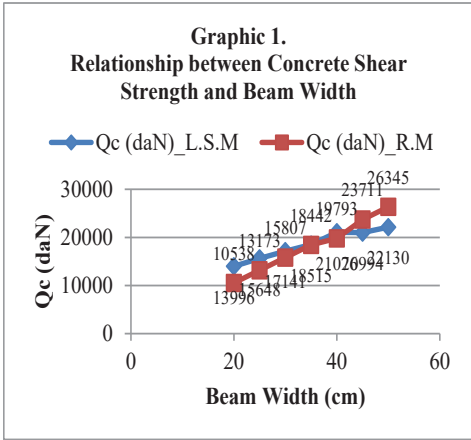
The inclined reinforcement shear strength calculated using the Limit State Method is higher than the respective shear strength calculated using the Rupture Method (+ 9.7 %).

The total shear strength calculated using the Limit State Method is higher than the respective shear strength calculated using the Allowable Stress Design Method (+ 9.3 %).

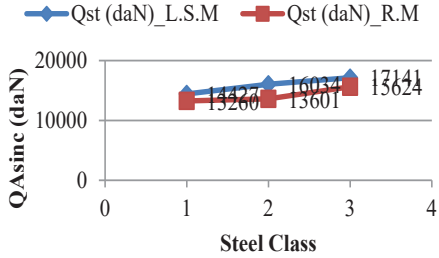
### **3. Analysis of calculations results**

To enable a fair comparison of the calculation results, the analysis is conducted under identical conditions. The same concrete and steel class is used in both Rupture Design Method and Limit State Design Method. Additionally, the quantity of inclined reinforcement, the diameter of stirrups, the distance between stirrups and the cross-section dimensions are kept the same for both methods.

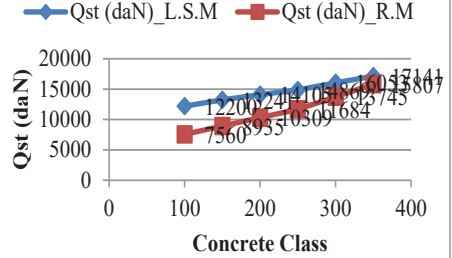
The graphical representation illustrates the relationship between the shear strength of concrete, stirrups, inclined reinforcement, total shear force, and various factors such as cross-section width and height, allowable stresses of concrete, reinforcing steel, and inclined reinforcement, distance between stirrups and quantity of stirrups reinforcement.



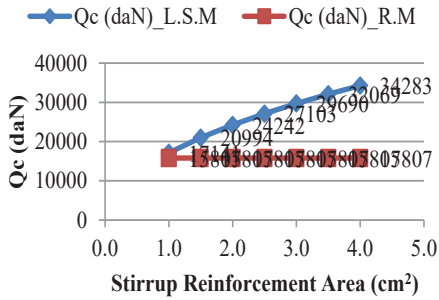
**Graphic 7. Relationship between Stirrup Shear Strength and Steel Class**



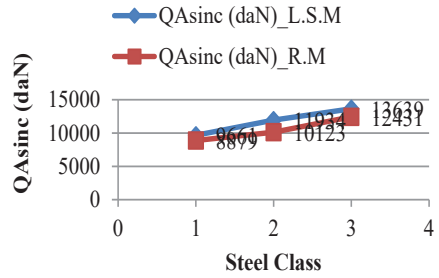
**Graphic 8. Relationship between Stirrup Shear Strength and Concrete Class**



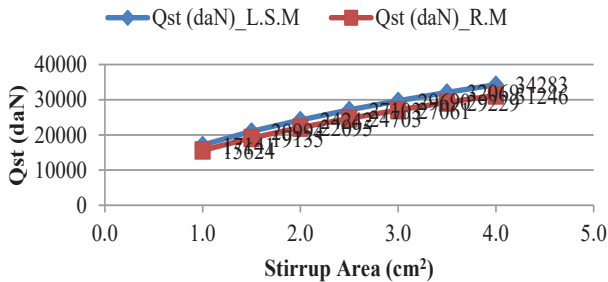
**Graphic 9. Relationship between Concrete Shear Strength and Stirrup Reinforcement Area**



**Graphic 10. Relationship between Inclined Reinforcement Shear Strength and Steel Class**



**Graphic 11. Relationship between Stirrup Shear Strength and Stirrup Area**



## Conclusions

- In this study, the comparison of shear strength calculation results of a reinforced concrete element using Rupture Design Method and Limit State Design Method was performed. The analysis showed that the shear strength calculated with the L.S method was higher than the one calculated with Rupture method for all cases, which was expected since the L.S method considers the concrete and reinforcing steel beyond the elastic phase.
- Furthermore, it was observed that increasing the cross-section width had a significant effect on the shear strength of concrete calculated with both methods. When the width was increased 2.5 times, the concrete shear strength was increased by 1.58 times. On the other hand, increasing the cross-section height affected the concrete shear strength similarly to the width, but had a greater effect on the concrete shear strength.
- It was also found that increasing the width or height did not directly affect the shear strength of stirrups or inclined reinforcement. However, the increase in width or height led to an increase in " $c_v$ " which indirectly affected the shear strength of stirrups and inclined reinforcement.
- Overall, the results of this study provide useful information for the design of reinforced concrete elements, as they show how different factors affect the shear strength of concrete, stirrups, and inclined reinforcement. Further research is needed to explore the impact of other factors, such as concrete and steel classes and the number of stirrups reinforcement, on the shear strength of reinforced concrete elements.
- Height increasing does not directly affect  $[Q_0]$  and  $Q_{As,inc}$ , but increasing " $h_0$ " can potentially include more reinforcing inside the cut considered, leading to an indirect increase in  $[Q_0]$  and  $Q_{As,inc}$ .
- Increasing steel tensile strength or  $[\sigma_a]$  does not affect  $[Q_b]$  calculated by the rupture method, as shown in Graphic 5.
- Increasing  $R_s$  increases  $Q_b$  because " $c_0$ " decreases, as shown in Graphic 5 and equations (2.3.10), (2.3.7). Changing steel type from 1 to 3 increases  $R_s$ .
- When  $R_s$  is increased 1.8 times, " $h_0$ " decreases by 1.18 times, and  $Q_b$  increases by 1.18 times.
- Increasing  $[\sigma_a]$  or  $R_s$  increases  $[Q_{st}]$  and  $Q_{sw}$  as shown in Graphic 6.
- Increasing  $[\sigma_a]$  or  $R_s$  increases  $[Q_0]$  and  $Q_{As,inc}$ , as shown in Graphic 7. The effect is almost the same for  $[Q_{st}]$  and  $Q_{sw}$  with almost parallel diagrams.
- Increasing concrete grade increases  $[R_{bt}]$  and  $R_b$ , as shown in Graphic 8.
- Increasing concrete grade does not directly affect  $[Q_{st}]$  and  $Q_{sw}$ , but it increases " $h_0$ " and thus increases  $[Q_{st}]$  and  $Q_{sw}$  as shown in Graphic 9 and equations (2.3.8), (2.3.10), and (2.4.1).
- Increasing concrete grade does not directly affect  $[Q_0]$  and  $Q_{As,inc}$ , but increasing " $h_0$ " can potentially include more inclined reinforcing inside the cut considered, leading to an indirect increase in  $[Q_0]$  and  $Q_{As,inc}$ .
- Increasing stirrup reinforcing or fast does not affect  $[Q_b]$  calculated by the rupture method.
- Increasing  $A_{sw}$  increases  $Q_b$  because " $h_0$ " decreases, as shown in Graphic 10 and



equation (2.3.10).

- Increasing  $A_{sw}$  by four times leads to a decrease in " $h_0$ " by two times and an increase in  $Q_b$  by two times.
- Increasing fast or  $A_{sw}$  affects  $[Q_{st}]$  and  $Q_{sw}$  in the same way, as shown in Graphic 11.
- When fast or  $A_{sw}$  are increased by four times,  $[Q_{st}]$  and  $Q_{sw}$  increase by two times.
- Increasing fast or  $A_{sw}$  affects  $[Q_{st}]$  and  $Q_{sw}$  in a similar manner, with almost parallel diagrams.
- Increasing fast or  $A_{sw}$  does not directly affect  $[Q_0]$  and  $Q_{Asinc'}$ , but it decreases " $c_0$ " and may include more inclined reinforcing inside the considered cut, potentially decreasing  $[Q_0]$  and  $Q_{Asinc'}$ .

In conclusion, transitioning from the Rupture Design Method to the Limit State Method for shear force design, according to Albanian Norms, reduces the required amount of reinforcing and concrete, resulting in cost savings.

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# Outrigger Systems as a practical solution for reducing high-rise buildings construction costs in earthquake-prone regions

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## Abstract

This study explores the potential benefits of using outriggers in constructing high-rise buildings in earthquake-prone areas. Seismic zones pose various challenges for construction, including the need to withstand the forces exerted by seismic activity and high costs. Outriggers offer a practical solution to these challenges by redistributing seismic forces, improving the seismic performance of high-rise buildings, and reducing overall construction costs.

To provide a detailed analysis of the advantages of outriggers, this paper delves into the mechanism by which they achieve these outcomes. It outlines the various types of outriggers and their functions, highlighting their ability to enhance the structural integrity of high-rise buildings.

In addition to their functional benefits, outriggers can also enhance architectural design. By reducing the number of internal columns required, outriggers allow for greater flexibility in designing open floor plans, providing a modern aesthetic and greater design options.

In order to substantiate the efficacy of outriggers, this paper provides a detailed examination of case studies of high-rise buildings constructed with and without outriggers. By comparing the cost, seismic performance, and architectural design of both approaches, these case studies demonstrate the tangible benefits of incorporating outriggers into high-rise building construction.

In conclusion, outrigger systems offer a practical and efficient solution to the challenges of constructing high-rise buildings in earthquake-prone regions while reducing construction costs. The benefits of outrigger systems make them an attractive option for developers, ensuring that high-rise construction can be both safe and cost-effective.

**Keywords:** Outrigger Systems, practical solution, high-rise buildings construction costs, earthquake-prone regions.

## Introduction

High-rise buildings have become increasingly popular in urban areas around the world, providing a solution to the problem of limited space in densely populated cities. However, the construction of high-rise buildings in earthquake-prone areas presents unique challenges due to the potential for seismic activity to cause significant damage and even collapse.

High-rise buildings in earthquake-prone regions face a unique set of challenges that can significantly increase their construction costs. One of the most important of these challenges is the need to ensure structural stability and resistance to seismic activity, which typically involves complex and expensive engineering solutions. In recent years, however, a new approach has emerged that has the potential to reduce these costs while still maintaining the necessary levels of safety and stability. This approach is based on the use of outrigger systems, which are external structures that connect a building's core to its perimeter and provide additional stability and resistance to lateral forces.

The purpose of this paper is to examine the use of outriggers as a means of reducing

the cost of high-rise building construction in earthquake-prone areas while improving seismic performance and architectural design. Additionally, the paper will present case studies of high-rise buildings constructed with outriggers and provide a comparative analysis of the cost, seismic performance, and architectural design of high-rise buildings with and without outriggers.

High-rise buildings are designed to withstand various loads, including gravity loads, wind loads, and seismic loads. In earthquake-prone areas, seismic loads can cause lateral forces that put stress on the building's structure. To address this issue, engineers use several strategies to enhance the building's stiffness and reduce its vulnerability to earthquakes. One of the most effective methods is the use of outriggers.

Outriggers are horizontal structures that extend from the central core of a building to the perimeter columns. They are typically made of steel or reinforced concrete and designed to enhance the building's lateral stiffness and resistance to seismic loads. The primary function of outriggers is to transfer the lateral loads from the perimeter columns to the core of the building. By doing so, outriggers reduce the demand on the core and prevent the formation of irregularities that can lead to structural damage or failure during an earthquake.

Outriggers can be configured in different ways, depending on the design and the intended purpose. Some types of outriggers are belt trusses, diagonal braces or structural walls, etc.

Belt trusses are structures that connect the perimeter columns at different levels in the building. They typically span the full width of the building and provide additional stiffness to the structure. This study implemented belt truss outriggers, which were utilized in a 33-storey office building and positioned at various levels.

## **I. Methodology**

In addition to cost savings, the use of outriggers in high-rise buildings can also lead to improved seismic performance. This section examines the mechanism of improving seismic performance through outriggers and provides a comparative analysis of the seismic performance of high-rise buildings with and without outriggers.

Outriggers work by connecting the core of the building to the perimeter columns using diagonal braces. These braces act as shock absorbers, distributing the forces generated by seismic activity throughout the building.

The outriggers also increase the stiffness of the building, allowing it to better resist lateral loads generated by earthquakes. This increased stiffness reduces the building's deflection during an earthquake, improving occupant comfort and safety.

According to research findings, the incorporation of outriggers in high-rise building construction has been proven to enhance seismic performance when compared to buildings that do not utilize this structural feature.

In the present comparative study, a 33-story office building measuring 117m in height was analyzed using six different structural models. These models were developed to assess the performance of the building with and without outriggers, which were strategically positioned at different levels within the structure. The primary objective of the study was to evaluate the effectiveness of outriggers in reducing construction costs while maintaining structural integrity and stability.

The planimetric measurements of the building are 39 meters in length and 38 meters in width, while the core's dimensions are 7 meters in length and 6 meters in width. The floors of the building, with a height of 3.5 meters, were intentionally designed with a ground floor elevation of 5 meters, with an axial distance of 8 meters, and a core positioned at the center of the building. The structural modeling process took

into account both dead and live loads of 3kN/m<sup>2</sup>, and seismic parameters specific to the city of Tirana, Albania, were also integrated into the design of the structural models.

The subject structure is primarily composed of reinforced concrete, with the inclusion of steel outriggers. During the calculation process, the dimensions of the individual structural elements were duly considered. Specifically, the columns feature cross sections measuring 1000x1000, whereas the beams possess cross sections measuring 400x600. As for the outriggers, they are constructed using HEM 300 steel profiles.

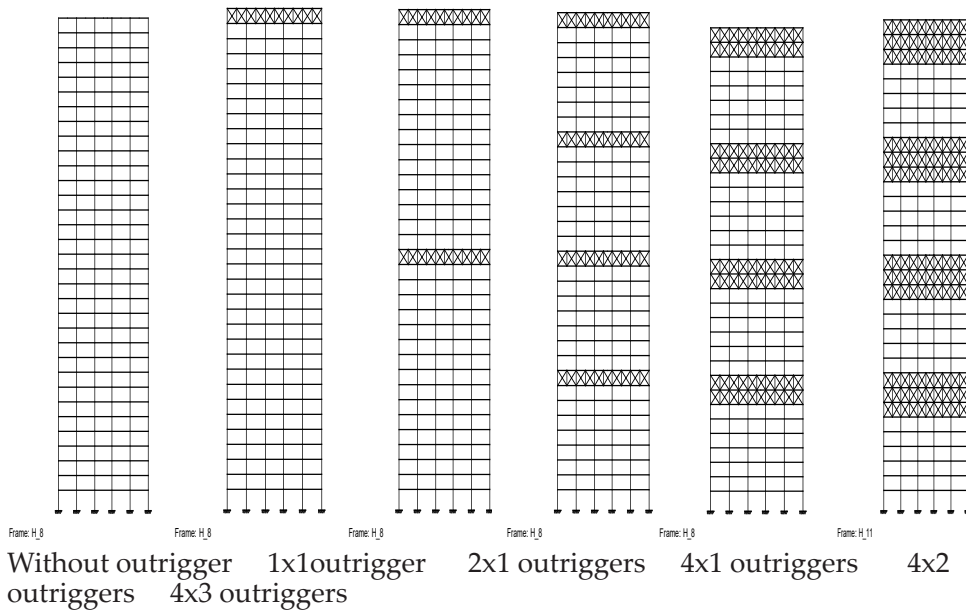


Figure 1: Variation in number of outriggers in structural models of 33 storey building

The structural models were subjected to analysis using the linear static method. The parameters considered for this comparative study are lateral displacement, storey drift and fundamental period of vibration under seismic loads.

The modal analysis based on linear theory is utilized to perform calculations for each model. The response spectrum function, in accordance with Eurocode 1998, is defined. Specifically, the response spectrum curve selected pertains to Type C soil category and the importance class chosen for ordinary buildings is II, with a damping value of 5%. To account for any accidental torsional effects in the structure, an eccentricity of 0.05 is incorporated. Furthermore, the Square Root of the Sum of the Squares (SRSS) method is employed to combine the responses of various modes.

## II. Results and Discussion

### A. The displacement

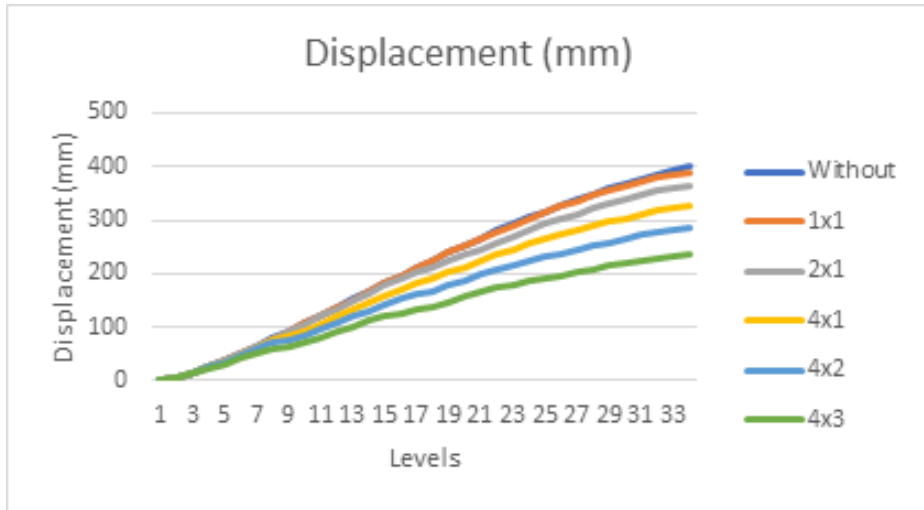


Figure 2: The displacements at each level for all the models

| Model              | Displacement (mm) | Change displacement (mm) | %Change displacement | Percentage change as compared to the model without outriggers |
|--------------------|-------------------|--------------------------|----------------------|---|
| Without outriggers | 399.74            |                          |                      |   |
| 1x1 outrigger      | 389.33            | 10.41                    | 2.60%                | 2.60%   |
| 2x1 outriggers     | 363.99            | 25.34                    | 6.51%                | 8.94%   |
| 4x1 outriggers     | 326.47            | 37.52                    | 10.31%               | 18.33%  |
| 4x2 outriggers     | 283.85            | 42.62                    | 13.05%               | 28.99%  |
| 4x3 outriggers     | 236.02            | 47.83                    | 16.85%               | 40.96%  |

Table 1: Maximum displacement at the roof level

The information displayed in both Table 1 and Figure 2 clearly demonstrates that the incorporation of outriggers at different heights along the building leads to a decrease in lateral displacements.

The inclusion of a single outrigger at the top of the building yielded a 2.6% reduction in top storey displacement. However, as the number of outriggers increased, the subsequent reduction in displacement was found to decrease gradually. The incorporation of a second outrigger at both the top and mid-height levels resulted in a further reduction of 8.94% in displacement, and this percentage reduction continued to decrease with the addition of more outriggers. The utilization of four outriggers resulted in subsequent percentage reductions of 18.33%, 28.99%, and 40.96%, respectively.

## B. Storey drifts

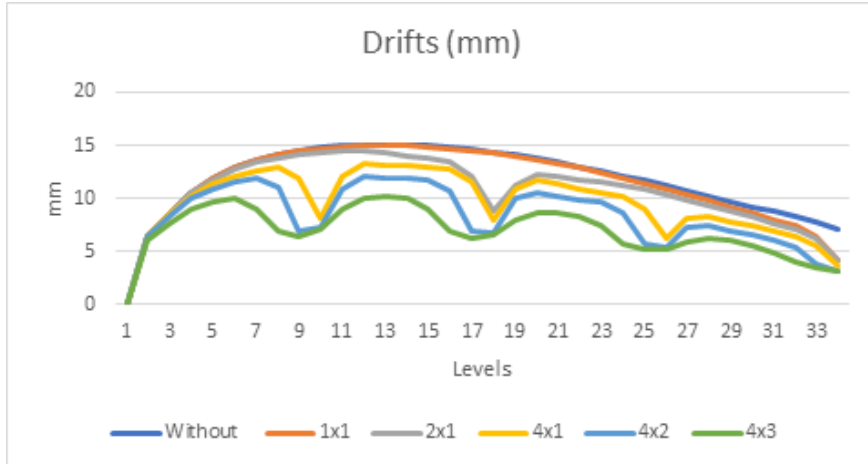


Figure 3: The variations in drift observed across all models at each level

Upon analysis of Figure 3, it is evident that an increase in the number of outriggers results in a notable decrease in drifts. The data also indicates that floors where outriggers are employed exhibit a significant reduction in drifts compared to the intermediate levels between the outriggers.

Further inspection of Figure 3 reveals that the incorporation of additional outriggers at various heights has a more significant impact on reducing drifts than the implementation of grouped levels of outriggers.

Nevertheless, it is crucial to consider that an increase in the number of outriggers leads to a rise in the cost of the outriggers themselves. Therefore, finding a balance between the positioning of outriggers to meet norms' requirements concerning drift values and cost implications is a case-by-case evaluation that is necessary in concrete projects.

## C. Fundamental Period

Additionally, the fundamental period of vibration under seismic loads was also determined for the aforementioned structure.

| Model             | Fundamental time period (sec) | Change in (sec) | Change in % | Percentage change as compared to the model without outriggers |
|-------------------|-------------------------------|-----------------|-------------|---|
| Without outrigger | 4.4808                        |                 |             |   |
| 1 x 1 outrigger   | 4.4577                        | 0.0231          | 0.52%       | 0.52%   |
| 2 x 1 outriggers  | 4.2935                        | 0.1642          | 3.68%       | 4.18%   |
| 4 x 1 outriggers  | 4.0535                        | 0.24            | 5.59%       | 9.54%   |
| 4 x 2 outriggers  | 3.7659                        | 0.2876          | 7.10%       | 15.95%  |

|                  |        |        |       |        |
|------------------|--------|--------|-------|--------|
| 4 x 3 outriggers | 3.4256 | 0.3403 | 9.04% | 23.55% |
|------------------|--------|--------|-------|--------|

Table 2: Fundamental time period for all models

The addition of outriggers at the top and mid-height levels results in a more rigid structural configuration, leading to a significant reduction in the structure’s time period. However, introducing additional outriggers at these locations results in a proportional decrease in the time period. This implies that while the structure gains stiffness with the addition of outriggers, the increase in rigidity or decrease in fundamental time period is not substantial.

### C. Cost Reduction through Outriggers

One of the main advantages of using outrigger systems is the potential to reduce the number and dimensions of columns in high-rise buildings. This reduction in the number of columns not only saves on material costs but also allows for more efficient use of space within the building

To demonstrate the cost savings associated with outrigger systems, a comparative analysis of six models with and without outriggers conducted. Our analysis considered various structural design factors, such as material costs, labor costs, and construction timelines. We also factored in the potential benefits of outrigger systems, such as reduced column dimensions and increased usable floor space. The results showed that high-rise buildings with outriggers had significantly lower construction costs compared to those without outriggers, while still maintaining the required levels of safety and stability.

In addition to the direct cost savings associated with the use of outriggers, there are also indirect cost savings that can be realized. For example, the improved structural performance of buildings with outriggers can lead to reduced maintenance costs and increased lifespan of the building, resulting in additional long-term cost savings.

Overall, the use of outriggers can provide significant cost savings in high-rise building construction through the reduction in steel usage and the number of columns required, as well as through the overall improvement in structural performance.

Additionally, outrigger systems can be used to increase the height of a building while reducing the amount of structural material required, further reducing costs.

### D. Improved Architectural Design through Outriggers

Outriggers are not only functional but can also improve the architectural design of high-rise buildings. In this section, we will discuss how outriggers can enhance the design of high-rise buildings.

1. Outriggers can reduce the number of columns needed to support the building, allowing for larger open floor plans.

2. Outriggers can be designed in various shapes and sizes, offering architects more design options to create unique and visually appealing structures. The addition of outriggers can also break up the monotony of a tall, rectangular building, adding interest to the building’s exterior. Outriggers can be designed to complement the building’s overall architectural style, creating a cohesive and harmonious design.

Overall, outriggers can offer architects more design options while also improving the structural and seismic performance of high-rise buildings.

## Conclusion

In summary, this study has examined the utilization of outrigger systems in constructing high-rise buildings situated in earthquake-prone areas.

The use of outriggers in high-rise building design offers significant advantages that can positively impact the construction industry.

1. **Improved Structural Integrity:** Outriggers help to improve the stiffness and stability of a building, reducing the risk of damage from wind and earthquakes. The analysis found that the building with outriggers had significantly lower inter-story drift during an earthquake than the building without outriggers. This improved seismic performance was primarily due to the increased lateral stiffness provided by the outriggers.
2. **Cost Reduction:** By using outriggers, it is possible to reduce the amount of materials needed for the structural system of the building, resulting in cost savings. The use of outriggers can also reduce the need for costly seismic retrofitting of existing buildings in earthquake-prone regions, as the addition of outriggers can improve the building's seismic performance without major modifications to the existing structure.
3. **Increased Architectural Flexibility:** Outriggers provide architects with greater flexibility in designing tall buildings, allowing for more creative and innovative designs.

Overall, this study has demonstrated that outrigger systems are a practical and effective solution for constructing high-rise buildings in earthquake-prone areas.

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## Dino Buzzati's literature and the elements of magical realism in his works

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### Abstract

This study is focused on the literature of the Italian writer Dino Buzzati, specifically on his first novels "Barnabo of the mountains" and "The secret of the Old Woods", as well as on the journalistic articles where the author's allegory stands out in dealing with issues concerning life, death and mystery of human existence.

This study will show how these works of Dino Buzzati are characterized from two conflicting points of view: one based on the rational way of seeing reality and the other on the acceptance of the supernatural as a prosaic reality. Magical realism differs from primary pure fantasy in that it takes place in a normal, modern world with authentic descriptions of human life and society.

Magical realism sets out to affect the paradox of the union of opposite things. Thus, he puts life and death in the same room, the pre-colonial past against the post-industrial present. Magical realism is characterized by two conflicting points of view: one based on the rational way of seeing reality and the other on the acceptance of the supernatural as a prosaic reality. Magical realism differs from primary pure fantasy in that it takes place in a normal, modern world with authentic descriptions of human life and society. These elements are immediately noticeable in the first works of Dino Buzzati, they characterize his narrative and literary style.

**Keywords:** Buzzati, magical realism, allegory, supernatural, human life.

### Introduction

Mountains of Val Morel, tall creatures that look at the silence, feel the wind that touches the deepest caves, below them the people who stare at them, go their own way or fall in love forever. The untouched ground under their feet, the nods of greetings to passers-by in the village, the houses that enclose stories of life inside, the children full of joy, by the fire, and the old grandfather among them who tells stories...

Dino Buzzati was born on October 16, 1906 in Belluno, in a world like this, inside the nineteenth-century villa owned by the family. But for most of the year the Buzzati's family reside in Milan, in the house in Piazza San Marco 12. Their father, Giulio Cesare Buzzati, was a professor of international law at the University of Pavia and at the Bocconi University in Milan. His mother, Alba Mantovani, was a descendant of a noble family, and sister of the man of letters and writer Dino Mantovani.

From his youth the future writer manifested interests, themes and passions to which he will remain faithful throughout his life (poetry, music). Precisely in the years of his childhood the suggestions linked to the place of origin and those deriving from the city environment overlap in Dino Buzzati. "The strongest impressions I had as a child belong to the land where I was born, the Belluno Valley, the wild mountains that surround it and the very close Dolomites. An overall Nordic world to which has been added the heritage of youthful memories and the city of Milan where my family has always lived in winter" (*Buzzati's free man seeks a uniform to overcome fear*, in «Il

Giorno», May 26, 1959).

And the Milan discovered in the early years is the one to which Buzzati will always remain faithful: the district that extends between via San Marco and the Pontaccio, between Corso Garibaldi and piazza Castello. On holiday in San Pellegrino, he made two mountaineering campaigns in June and September. On the ascent of Cima Piccola di Lavaredo, the guide Giuseppe Quinz, from Misurina, is with him and Buzzati collects ideas for his first novel while hiking and climbing. In a certain moment, he writes in his diary:

*"I am thinking of the story of 'Barnabo of the mountains', which is waiting to be written. Here is first the road that goes up towards the valley, in the evening and the tiredness of young Barnabo; better pass beyond – the night, the distant fire, the sound of the seven harmonics. Life in the upper house, the hunt, the captive crow, the storm and the story of what had been. The guard at the powder magazine, the grey afternoon and the spirits, the last old spirits of the mountain"*<sup>1</sup>.

Buzzati grows up in this magical environment, the surroundings of San Pellegrino are filled with gothic legends, the space and nature that expands in the young boy's imagination creates the perfect spell.

Then there is also daily life. Buzzati grows and develops its literary physiognomy in a very eventful historical and artistic panorama in Italy after the First World War. He sees the birth of a new political faith, fascism, which begins to establish itself in all the mechanisms of common existence. Many well-known artists and writers join the party, there is a clear attempt to develop the philosophical roots of this movement, which slowly growing, manifests itself in the real guise of a dictatorship that controls and supervises individual and collective life.

It will first be noted that any intention, even if only partially polemical, against the govern powers at the time could hardly give rise to explicit attacks or criticisms, given the existence of various and very effective censorship tools, in a profoundly authoritarian regime.

*"We cannot forget that then there was the bread card; from the painter to the clerk everyone had to have it. There was the journalistic card, and the "literary card" - inevitable passports for any public expression. The black shirt opened all doors. Now, Buzzati managed to get published, and immediately. And he too wore a shirt, like so many others. One cannot help but notice such coincidences, nor can one avoid interpreting them in a historical key."*<sup>2</sup>

But this is the attitude of many great writers born and lived under dictatorships. In Eastern Europe, during the communist dictatorships there were some great intellectuals, artists and writers who chose the allegory, the metaphor, the symbol, the "fantastic" genre, to strike and symbolically bring out the freedom of the human soul, creating works that apparently could seem devoid of any link with reality. Thus also in Buzzati's first two novels, "Barnabo of the mountains" and "The secret of the Old Woods" we see that any contemporary historical reference is missing, it seems that the events, the history, the problems, are very different from what happened in Italy in the 1930s. A careless reading of these two novels can make us think that they are two fairy-tale themes, which follow a well-defined pattern, like the one described by Vladimir Propp, in "Morphology of Fairy Tales." On this occasion we must try to

<sup>1</sup> Buzzati, D., (2010), *Le notti difficili*, Oscar Mondadori, Roma, p. XIV.

<sup>2</sup> Panafieu, Y., (1982). 'Aspetti storici, morali e politici del discorso sull'impotenza'. Dino Buzzati. A cura di Alvise Fontanella. Firenze: Leo S. Olschki Editore. cit., p. 31.

understand what, of the forced or desired conformism, or of a possible and secret dissent, is affirmed in these texts where formally the story seems absent, but where a more acute look can perhaps observe correspondences, with the climate of the time.

## 1. Magic realism: history and theory

Dino Buzzati is one of the Italian writers most associated with the literary movement of magical realism. Before asking ourselves whether this is true or not, we must first of all note the paradox of the name “magical realism”, a paradox which in part gives this narrative genre its identity. When we read a story that contains a situation that is described as real, but combined with magical elements, we may think about “magical realism”. The term was first introduced by Franz Roh in 1925, who used it to characterize his paintings. Franz Roh said about it: “We look through them with a new gaze”<sup>3</sup>. Roh described magical realism as a form through which “our real world re-emerges before our eyes, washed in the clarity of a new day”<sup>4</sup>. Magical realism is in everything we do. Luis Leal noted that “[...] magical realism serves to express not to evoke emotions.”<sup>5</sup> The purpose of magical realism is to show the world that there are different ways of viewing art and literature. Not everyone has their eyes pointed in the same direction. Leal defines magical realism as an “attitude to reality” which contains “the discovery of mysterious relations between man and his circumstances”<sup>6</sup>.

Magical realism sets out to affect the paradox of the union of opposite things by pushing life and death in the same room, the pre-colonial past against the post-industrial present. Magical realism is characterized by two conflicting points of view: one based on the rational way of seeing reality and the other on the acceptance of the supernatural as a prosaic reality. Magical realism differs from primary pure fantasy in that it takes place in a normal, modern world with authentic descriptions of human life and society.

According to Angel Flores, magical realism involves the fusion of the real with the fantastic, or as he himself defines: “a fusion of realism and fantasy”. According to Ray Verzasconi, magical realism is “an expression of New World reality that ultimately mixes the rational elements of European super-civilization with the irrational elements of primitive art”. Gonzales Echegarria believes that “magic realism offers a vision of the world that is not based on physical or natural laws or on the objective reality of things”.

However the world of fiction is not separated from reality and vice versa. The writer must have an ironic distance from the magical point of view of the world, so as not to compromise reality. At the same time the writer must respect the “magic”, because otherwise it dissolves into a simple fairy tale or a total fantasy, out of reality instead of being synchronized with reality.

All the “strange” or fantastic facts and events that are narrated are taken for granted that they are true, there is no strict need for the author to explain and convince the reader of what is happening. If there were such an attempt, the magic would vanish and the supernatural world of things would become a kind of perjury.

The “magic” of magical realism must be natural, inexplicable and uncontrollable.

<sup>3</sup> Zamora, L.P. and Faris, W.B. eds., 1995. *Magical realism: Theory, history, community*. Duke University Press.

<sup>4</sup> Evenson, B. (1998) “Magical Realism,” *New York Review of Science Fiction*.

<sup>5</sup> Zamora, L.P. and Faris, W.B. eds., 1995. *Magical realism: Theory, history, community*. Duke University Press.

<sup>6</sup> *Ibidem*.

Those who find themselves in the midst of magical events are not wizards or initiators of something fantastic – they simply exist in a world, described in realistic terms, where magic is a part of reality and is told as such. “When something can happen, nothing matters.” (a phrase originating from H. G. Wells, which explained why he rigorously based his stories in reality.)

The characters almost never notice that there is anything unusual about the fantastic events happening around them. The reader feels things as in his real-life dimension, it’s just that the facts are a bit strange and the characters don’t realize this strangeness. In short, we have a “real” world and “realistic” characters.

So what is magical realism? A way of telling stories from the perspective of people who live in our world and experience a reality other than what we call objective reality. If there is a ghost in a magical realism story, the ghost is not a fantastic element but the manifestation of the reality of people who believe in ghosts and who have “real” contact with them. It is the transformation of the “ordinary everyday into something fantastic and unreal”.

“It is an attitude towards reality that can be expressed in popular or sophisticated ways, in elaborate or rustic styles, in closed or open structures. [...] the author confronts reality and tries to free it, to discover what is mysterious in things, in life, in human behavior. [...] Magical realism does not try to copy the surrounding reality... or to upset it...but only to measure the mystery that breathes behind things”<sup>7</sup>.

It is natural then that a writer creates a world through process of writing which, afterwards, still exists and can no longer be neglected and the protagonist-author, in the end, truly achieves the reconquest of the original way of making literature (with the invention of primeval myths) and simultaneously, to be a witness and protagonist of those same myths created by literary fiction.

The fantastic is then “the space in which the mythopoetic power of literature is most fully exercised: precisely by inventing other and different worlds, which inevitably exist afterwards, but also recovering the underlying seriousness of that game which is literature. [...] Only to the writer the myth and the primordial nature are revealed, not to ordinary people: only to him is allowed to travel the mysteries of the night and the moon, to make the journey back to the origins. In short, the fantastic is the true and authentic dimension of literature”<sup>8</sup>.

If we now return to the novels of Dino Buzzati, and above all to his first two literary works, “Barnabo of the mountains” and “The secret of Old Woods”, the critics note the fantastic, almost fairy-tale feeling of these two literary works, where the reality becomes magical.

Buzzati himself repeated his magical-fantastic dimension in the interview granted to Yves Panafieu, enunciating the rules he had followed in drafting his short stories: “When I tell something of a fantastic nature, I have to try my best to make it plausible and evident. And when I say I, I really mean any other writer of the fantastic type. For this reason, in my opinion, the fantastic thing must be brought as close as possible to the news. The right word is not “banalize”, but in short it is a bit like this. I mean that for a fantastic story to be effective, it needs to be told in the simplest and most practical terms. Indeed, almost bureaucratic.”<sup>9</sup>

<sup>7</sup> Zamora, L.P. and Faris, W.B. eds., 1995. *Magical realism: Theory, history, community*. Duke University Press, p.119.

<sup>8</sup> Squarotti, G.B., (1981). Landolfi o il potere della letteratura, in “Rapporti”, n 22-23 p.13.

<sup>9</sup> Buzzati, D. and Panafieu, Y., 1973. *Dino Buzzati: un autoritratto*. A. Mondadori, p.49.

The polish (or the secret) of his page lies in the almost trivialization of the fantastic, that is, in overturning the glove of the chronicle, slightly pushing, with the minimum stylistic and conceptual artifice, the real datum on the precipice of the unreal, the generic moment on the generic query.

“My fantasy –repeated Buzzati – is a game”.

This game can be glimpsed from Buzzati’s first novel, “Barnabo of the mountains”. The protagonists of this novel are like shadows walking in a world where everything is destined to change. Buzzati’s inventive procedure allows the creation of narrative situations where indifference, apathy and the stagnant repetition of everyday life intend to capture underground revelations and apparitions, extraordinary events. It is enough to scratch a little deeply with the nail and the extraordinary becomes the common figure of reality, its hidden and eloquent epiphany. Speaking of “fantastic narration” for Buzzati is legitimate as a distinction from the common meaning that the term “realism” has assumed and the use commonly made of it in critical-literary jargon; a distinction that should be accepted as long as one bears in mind that the task of “fantasy” (creator of the fantastic) is not to construct unreal designs of worlds and adventures, but to make reality rise in all its contradictions, in all its threats and promises, in the infinite possibility of solutions.

## **2. Barnabo of the mountains**

In Dino Buzzati’s debut novel, the core of the imagination that will inspire the writer’s next work is condensed: the boundless love for the mountains, the feeling of time, the magical bond between man and nature, the solitude of modernity. And the unshakeable shadow of death...

Barnabo, the protagonist of Dino Buzzati’s debut novel, *Barnabo of the mountains* (Oscar Mondadori, reprint 2017) is a young forester. Always with the rifle over his shoulder, but without firing a shot, he walks the paths of the Grave valley every day to defend the area from bandits. In leisure hours, while his friends celebrate and look for girls, he looks absorbed at the tops of the trees beyond the walls of the houses. Because his way of celebrating life is contemplation: making one’s gaze into a Temple, in which the overlying Reality takes the form of waiting and becomes sacred. One day the head of the guards is killed. Later the bandits attack the powder magazine in the mountains and steal the ammunition amassed in that shelter absurdly hidden among the rocks. Barnabo, who was returning from a futile hunt for the assassins, watches the assault from afar without intervening. He was afraid and will be kicked out of the Corps. He will have to resign himself to leaving and looking for a new job in the plains, on a cousin’s farm, watched over by the faithful crow whose life he had saved. Years go by. But Barnabo has remained the same, and even though he is confined to the fields, he continues to watch his mountains from afar. One day his crow, sensing the end, detaches his shadow from Barnabo, hovers in the sky, and with a heartrending cry, human like fear, seems to show him the way back and the original point where Death meets life. Shortly after, Barnabo also leaves again, and returns to the Val di Grave no longer as a forester but as a simple solitary guardian of an abandoned house. His old comrades mockingly let him believe that, on the anniversary of the assault, the bandits will return to the powder keg and all the foresters will gather to take revenge. But Barnabo once again remains alone in waiting, and the next day he

lurks alone among the cliffs with his rifle aimed. When they finally arrive, he does not see the enemies, but the helpless creatures of a ragged old man and his companions in the presence of the now abandoned Powder Keg. He could kill and take revenge, but every motive is now senseless. Shortly after we see him already on the path, with the loaded rifle over his shoulder which once again has not fired, he continues on his way home. He is a reconciled man who can start over again.

In this debut novel, Buzzati condenses the atomic nucleus of his imagination that will inspire his next work: love for the mountains, boundless like a childhood; the feeling and contemplation of passing time; the pre-modern, magical and symbiotic bond between man and nature as opposed to the loneliness tinged with the absurd of modernity; the expectation of living and the unshakeable shadow of death. And yet the novel shines like a lonely star, with its own light. Following with his eyes the flight of the crows that cross that passage of sky and cliffs to which he has returned and which is his whole world, Barnabo wonders: "I wonder if the crow hasn't died and isn't still around here". So the place where we must return, and stay, is death? Is it in that gap, while waiting, that consciousness remains still and life comes true? A country that never ended, where birds and men suffer and sing, and things happen. The myth of *Barnabo* does not only bring us back to the land of the moralizing fable with a predominantly existential and individual dimension, with psychic and autobiographical connotations, reflections of the personal tastes of the writer. We must be attentive to any findings of such personal parameters in the collective, choral dimension of the existential fact, i.e. in the society in which the author lives, and we must compare them with the ethical principles claimed and propagated by this society.

*Barnabo of the mountains* was written by Buzzati during 1931 and 1932. In those years the totalitarian didactic structures foreseen for childhood, adolescence and youth were definitively launched: they were organized on the basis of the code of the new ethics, i.e. the total dependence of the individual on the State, which demanded blind obedience from everyone and fanatical dedication to the country, to the regime, to the party. "Believe, Obey, Fight" was the rule of life in that time. All these rules were fabricated to definitively eradicate from the population the tendency to indiscipline, to idleness, in such a way that Italy of the twentieth century could reach in the Elysian of glory, that of imperial Roman antiquity.

The dedication, the obsessive scruple, the sense of guilt and redemption of which Buzzati's first novel gives us so many examples can hardly be evaluated without referring to the climate of an era in which the entire Italian nation saw itself proposed to model the same dedication, the same scruple, the same sense of guilt and redemption. Elements of a military symbology are very present: the guard, the uniform, the rifle, the powder magazine.

As Panafieu argues in his essay "[...] *the multiple recurrences of the theme of the guard, and of the reference to the rifle as a symbol of strength and dignity, the allusions to the aggressive potential (dialectically hinged on the combination of defence/attack) of the powder magazine, the insistence on the concept of uniform, make 'Barnabo of the mountains' a book in keeping with fascist mythology in its most striking narrative plot and in the collective meanings it includes*"<sup>10</sup>.

To the question "Who is Barnabo?", addressed to him by Giuseppe Trevisani, in the

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<sup>10</sup> Buzzati, D. and Panafieu, Y., 1973. *Dino Buzzati: un autoritratto*. A. Mondadori, p.114.

introduction to the school edition of the book, Buzzati in fact replies:

*"He is, how to say, one of those frequent characters in modern literature, that is, a scarcely differentiated character. To be clear, he is someone you wouldn't recognize on the street"*<sup>11</sup>.

Certainly Buzzati, acknowledging that his hero was "a poorly differentiated character" not only brings us back to the modernity of his writing, but also insisted on the choral perspective. It seems that in this way the author's adherence to the collective dimension of existence, then propagated, is confirmed in another way and by himself. We can therefore say that even if he avoids any reference to the present story, he proposes texts that, apparently speaking of something else, manage to capture a widespread feeling, the connotations of a given moment.

### 3. The Secret of the Old Woods

Buzzati allowed the printing of "The Secret of the Old Woods" in 1935, for the types of the Treves Brothers: it was his second novel. Behind the appearance of a fairy-tale writing that mixes fantastic elements with realistic ones, and within the linear structure of the fabula, ethical and existential themes run after each other that offer the reader interesting solutions of interpretation: the relationship between man and nature, ecology and environmental education, the archetypes of childhood and adulthood, the symbolic-sacral dimension of natural elements.

In the succession of the 40 short chapters that make up the text, the plot tells of the bequest of a large wooded estate in Valle di Fondo in favor of the greedy colonel Sebastiano Procolo and his fragile twelve-year-old nephew, Benvenuto Procolo, of whom he is guardian. The old officer intends to raze the Bosco Vecchio (Old Woods), the oldest and most noble part of the property, to make a fruitful profit, and plans to murder his nephew to grab the remaining and most conspicuous part of the inheritance.

The magical element that changes the course of the story is grafted onto this simple narrative track: the forest is alive, millenary genes and talking animals live there, and even the winds have a name and possess a voice. Bernardi, one of the geniuses with human features, agrees to an agreement with Procolo to protect the forest: he will stop the massacre of trees, and in exchange the creatures of the wood will give him branches and fallen trunks from which to profit. Procolo, however, still pursues the idea of getting rid of his nephew, and hires the terrible Vento Matteo (Wind Matteo), after freeing him from the quarry in which he had been locked up, to carry out his wicked plan. The wind will repeatedly fail the attempt, and finally will lie to its master, telling him that Benvenuto was lying under an avalanche; moved to pity for the boy, to whom he had gradually grown fond of, the old man dies looking for the child in the freezing night. This act of love overturns the judgement: inside the Forest, Colonel Procolo, returned to his primitive dimension, regained his most beautiful human qualities.

In the same manner as "Barnabo of the mountains", "The Secret of Old Woods" requires a more accurate examination, to verify to what extent it is possible to trace within the metaphors and allegories, heralds of the polemical cues of a social and historical nature found in the post-war production. Can we be sure that "The Secret of Old Woods", with the evasion of the marvellous under the free play of the imagination,

<sup>11</sup> Arslan, A., 1974. Invito alla lettura di Dino Buzzati (Vol. 23). Ugo Mursia Editore, p.44-45.

so propitious to the rupture of logical categories, has not concealed hidden meanings more challenging than the literal truth of the narrative plot suggests? And can we be sure that there are no significant comparisons with the reality of the era in which the book was written? ...

Deciphered in a sociological key, the narrative plot of "The Secret of Old Woods" offers us a metaphor of the dominant power. This second novel, like the first, has many militaristic connotations coupled with the concept of prestige, strength, power. When in chapter XXII, very proud, Benvenuto evokes his uncle to halo himself among his young companions a little of his fame, he mentions his uncle's military values. Representations of war are continually proposed to us, with terms such as "army, flag, regiment, trumpets, fanfares..." It should also be noted that, unlike what happens in *Barnabo* where the symbols of destruction and death are often symbolised in fallen rocks, landslide, avalanche - in *The Secret of the Old Wood* destruction and death derive from a decidedly desired choice by the protagonists. The tree dies because Proculus wants it to die. The magpie, symbol of poetry, possible allegory of the creator, is voluntarily killed by Procolo. The unleashing of violence witnessed by the populations of the valley on the occasion of the tournament between Matteo and Evaristo is also voluntary...

But perhaps the writer had wanted to react, in a way that suited his personality, to the sense of oppression that in the last years of the Fascist period had infected many intellectuals, even those not personally committed against the regime. Probably Buzzati had guessed that certain truths proposed by his texts came to contradict his attitudes, and the formal choices sanctioned by his social behaviour.

By renouncing any realistic element, Buzzati had been able to reflect the signs of a crisis that was in the conscience of his generation, of a collective unease. Buzzati intended to use writing to undermine the power and falsehood of social truths, wisely administered by men afflicted by mole-blindness which does not allow them to see beyond their own personal interests, their own economic, prestige, "phenomenal" selfishness. The fact that in Buzzati's narrative it is difficult to catch a direct echo of the facts, in short, does not authorize us to pronounce judgments on his disengagement as a writer intent on cultivating the allegory and fantastic garden, unaware of the events and dramas of his era.

## Conclusions

Dino Buzzati is one of the most famous representatives of magical realism in the Italian literature. His works are an illustration of the coexistence between the real with the unreal world, an expression of contraposition of life with death, of the concrete with the absurd. This is the background where Dino Buzzati explores the dimension of Death and its multiple faces. The fantastic literature, which became a widely used literary language in different parts of the world during the twentieth century, did not aim to significantly expand the concept of reality in order to include another reality, but rather confirmed the epistemological post-modern state in which it leaves open the hypotheses, the confrontation with doubts. This process helps to recognize that the reasons that came from the irrational, from the inner psychological world, should have a central place in overcoming the possible and the real, through the narration with fantastic tendencies. Buzzati's vital impulse is "made of that impalpable



substance which is commonly called fable or illusion: even if it is true". It's what drives him to cry "Gallop, flee, gallop, fantasy survivor. Eager to exterminate you, the civilized world is pressing on your heels, it will never again give you peace"<sup>12</sup>. Buzzati has always written the same thing; his life, indeed, his lives as a "serial novel" and his daily and inner, waking and dreamlike experiences.

In this study we have tried to represent magical realism, the "fantastic", which for the greatest writers was a timeless field of experimentation and artistic achievements. By making a historical coverage of Buzzati's first works, we have also tried to give information on the life that was led and the atmosphere that circulated in Italy in the 1930s, in that "magic" Italy, where the courage was often lacking to tell things directly, so that the books where history seemed absent were numerous and dusted the windows of libraries throughout the peninsula. Stories, novels, paintings, fairy tales, plays, and screenplays, opera librettos by Buzzati, show themselves in their magical coded essence, transform themselves into reflections on history and the word, on man's destiny on this earth and beyond black door of Death. The pure, the true, the immutable is possible only through the magical experiment of art.

Buzzati began to explore this reality with spiritual compassion from a young age with "Barnabo of the Mountains" (1933). One of the interrogations that is endlessly repeated in the work of Dino Buzzati, refers to the human being: Is man an unpredictable anomaly verified in the arc of the evolutionary process of life or he is the result where evolution should necessarily lead?

This rebus pushes Dino Buzzati to create a universal image of life surrounded by the mysterious, the invisible signs, that can only be perceived and never described in their totality. For this reason, the literary vision of Buzzati refers to the human being as a weak creature, very intelligent, inevitably unhappy, on the edge of the abyss where seemed to be nothing beyond, except death. The dedication, the obsessive scruple, the sense of guilt and redemption of which Buzzati's first novel gives us so many examples can hardly be evaluated without referring to the climate of an era in which the entire Italian nation saw itself proposed to model the same dedication, the same scruple, the same sense of guilt and redemption.

"The secret of the old Woods" represents a real song to lost childhood, to that definitive transition to adulthood, in which he stops "feeling" and enters the world of adults. A world in which it is not possible to hear the voice of the geniuses, small creatures that inhabit the forest and represent the soul of the trees, the sound of the woods, the voice of the winds. A profound tale, steeped in melancholy and magic, of undeniable elegance.

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<sup>12</sup> Buzzati, D., (2010), *Baubau*, in *Le notti difficili*, Oscar Mondadori, Roma, p. 8.

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# Evidences and their significance in the criminal process

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## Abstract

The process of proving is at the heart of the judicial debate that takes place between the parties, which proves the existence or not of the criminal offense, the suspected perpetrator of its commission and finally his guilt or innocence. To prove means to show the truth with legal evidence, to reason and argue with strong convincing arguments, the facts related to the criminal offense, but also the circumstances for the way it was committed.

In this paper, our goal is to identify and materialize the concept of evidence, but also the right to counter evidence, as part of the institute of evidence in our procedural law. The right to contrary evidence refers to a truly dynamic search for evidence, with the aim of seeking the effectiveness of law enforcement, but also respect for the presumption of innocence and defense.

Therefore, in the criminal process, in addition to the evidence of the accusation, the evidence of the accused or the evidence of the defendant and the defense are also needed, which are otherwise called the evidence against the accusation. In this sense, the right to evidence to the contrary requires society to make every effort to guarantee the defendant the opportunity to prove his innocence, which means to prove the opposite of what is claimed by the prosecution, or the position of his legal criminal liability in relation to the offense committed. By finding the basis of the right to counter evidence we know how to seek and exercise the freedom they have in the criminal process.

**Keywords:** Evidences, significance, criminal process.

## Introduction

The trial process and the evidences have an important role in the criminal procedure. The evidence, as essential elements of this process, is not simply a product of a formal process, but it is evaluated and valued by the court for its importance, reliability and probative value of the defendant's guilt or innocence.<sup>1</sup> For this purpose, in the criminal process, the search and discovery of the truth should be the motto of all the actions taken by the criminal proceedings agencies. This is because the verification of legal facts is the most difficult process in the work of the court and, as such, makes the judicial function even more responsible.

In the criminal process, the evidence has a decisive importance since, only through them, the registration of the commission of the criminal offense and the proceeding against the suspected author of the committed offense begins and the innocence or guilt of the defendant is proven. Evidence is "*what convinces the mind about a truth*"<sup>2</sup> In the legal sense, evidence is the confirmation of the reality of a fact, or the existence of a legal act. From the formal side, it is present with all its legal elements and is decisive in the decision-making of the judge and the right conclusion of the trial of

<sup>1</sup> European Court of Human Rights (2015), Evidence and proofs from the perspective of the European Court of Human Rights, p.2.

<sup>2</sup>DOMAT, Lois civiles, Premiere partie, Livre III, Tome 6, édition Rémy, II, p. 137.

the criminal case. For this reason, evidence is of particular importance in its kind because it makes it possible to demonstrate the existence of a criminal offense and determine who is the real author of its commission.

The criminal process must offer a rational methodology to distinguish the guilty from the innocent, and the parties must always bring to trial such evidence as is related only to the criminal case. However, the importance of evidence is evident at the stage of the judicial process where the criminal trial is guided by the search for truth based on evidence alone. A person can benefit from a right, from a fact, or from a legal situation only if he is able to prove its existence. At this procedural moment, the prosecutor, as the procedural subject that defends the accusation, is forced to prove the defendant's guilt, which must be clear and proven, while the defendant and the defense must prove the opposite of the accusation.

In the criminal process, the defendant, as the subject of the proceedings, is presumed innocent until he is given a final court decision. Therefore, no one can be declared criminally responsible and punished if the person was not guilty of a committed crime. Since evidence is a crucial element in a criminal trial, it would be of interest to know the definition and what its notion refers to. Evidence can be defined as an instrument to confirm the truth of what is said and as an essential part of the criminal process. According to the lexicon of legal terms, evidence can be defined in a broad and narrow sense.

-In the broadest sense, evidence is the confirmation of the reality of a fact or the existence of a legal act.

-In the narrow sense, the test is a process to achieve this goal. Evidence of a fact is anything that tends to logically conclude that a fact exists or is true. The criminal process can be defined as a procedure in which the judge, through the application of the law, intervenes to decide the solution of a dispute between the perpetrator of the criminal offense and the victim. This paper is important because the permanent search for evidence invites the parties to reflect directly on the process, in order to examine the most effective means for finding evidence, why not in terms of other research techniques or methods.

Our main goal is to raise the authorities' awareness of the effectiveness of evidence in the face of criminal offenses and the need to bring innovation to the further improvement of evidence tools. In order to better, understand the importance of evidence in the criminal trial, our paper deals with the definition of legal bases of evidence and then the difficulties that arise in their search.

## 1. The meaning of evidence in the criminal process

Evidence can be defined as proving the reality of an event or a fact, or the existence of a legal act. The Code of Criminal Procedure of the Socialist People's Republic of Albania, in article 15,<sup>3</sup> provided this meaning for evidence:

*"Evidence is all the data obtained in the form provided by this Code, and which prove the commission or non-commitment of the criminal offense, the guilt or innocence of the person, the degree of responsibility and his personality, as well as the consequences of the criminal*

<sup>3</sup> Code of Criminal Procedure, of the People's Socialist Republic of Albania, 1979, Article 15, page 9.

*offense*".

Also, in article 16 of this code, the sources of evidence in the criminal process are determined, which were the statements of witnesses, the statements of the defendants, the opinions of experts, material evidence and documents.

With all the problems of the time and the practical implementation of this code, it must be said that, regarding the meaning and content of the evidence, there is no fundamental change with the new Code of Criminal Procedure approved by the Parliament in 1995, and amended in time. Nevertheless, the previous code of 1979, in article 17 "Taking evidences", defined both the evidences that aggravates and those that ease the responsibility of the defendant, which the Code of Procedure of 1995 did not have. The difference was that the previous code of 1979, gave the right to receive evidence only to the court and the investigator, denying the right of the defendant or the legal defender or the lawyer who actually did not exist as institutions of law in that period.

In the Code of Criminal Procedure of the Republic of Albania, as amended, Article 8/a defines:

*"Facts in the criminal process are proven with any evidence, provided that they do not violate basic human rights and freedoms"*.

However, the meaning of evidence is clearly indicated in Article 149 of the Code of Criminal Procedure,<sup>4</sup> with the following content:

*"Evidence is the information on the facts and circumstances related to the criminal offense, which are obtained from the sources provided for in the criminal procedural law, in accordance with the rules set by it and which serve to prove the commission or non-commitment of the criminal offense, the consequences resulting from her, the guilt or innocence of the defendant and the degree of his responsibility"*.

From this definition, it can be seen that the legislator has defined in detail the content of the evidences, the source of obtaining it and the legal basis, the role and importance they have in the criminal process, the consequences, the guilt and the degree of responsibility of the defendant.

The legislator, with the new changes in the reform of justice and especially in the Code of Criminal Procedure, for the first time has foreseen the defendant's evidence or counter-evidence in the criminal process. In this sense, Article 8/a, 2 of the Code of Criminal Procedure defines:

*"The procedural body must collect and examine both the evidences that incriminates the defendant, as well as those that are in his favor"*<sup>5</sup>

This change in the Code of Criminal Procedure constitutes, in the investigation phase, an innovation in obtaining evidence from the procedural subject of the accusation, strengthening the accusatory system in the criminal process. We emphasize that before this change, the prosecutor brought only evidence of guilt to the trial, placing the defendant and the defense in an unequal and difficult position with the prosecution, as the latter was either unaware of the evidence in its favor, or there was no real possibility to present them before the court.

The Code of Criminal Procedure of Kosovo in Article 216 provides for the right of the defendant to request from the state prosecutor the receipt of evidences that is

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<sup>4</sup> The Criminal Procedure Code of the Republic of Albania, 1995, amended, Article 149.

<sup>5</sup> Criminal Procedure Code of the Republic of Albania, 1995, amended, Article 8/a, 2.

relevant to the procedure and when there is justification.<sup>6</sup>

In criminal cases, the main forms of evidences are those that are reflected in writing, called "literal evidences". These evidences, both in the stage of preliminary investigations and in the stage of trial, are documented and reflected in the record where as such we can mention the testimony, the question of the defendant and private parties, confrontations, acquaintances, experiments, expertise or documents. In these evidences, there is no predominance of one or underestimation of the other, therefore all of them will be equally evaluated by the court. Such a definition is given in Article 152/1 of the Code of Criminal Procedure, which states "no evidences has a value predetermined by the law".

In the criminal process, evidences are taken according to the definitions provided in Article 151 of the Code of Criminal Procedure, "Taking evidence". In this case, we are talking about "legal evidences" where the law clearly defines the ways in which the facts must be proved. On the other hand, evidences are freely offered by the parties, with a request to the court, and this method is called "freedom of evidences" in the doctrine. In French criminal law, in article 427 of the code of criminal procedure,<sup>7</sup> this way of obtaining evidence is defined. The judge is free to evaluate all the evidence brought to him by the parties, according to his internal conviction, in order to reach a just and reasoned judgment and decision, explaining clearly and with legal arguments the way he formed the conviction of the defendant's innocence or guilt. On the other hand, the principle of freedom of evidences means that all means are possible to prove a fact. Both parties in the process have this freedom of evidence, on the one hand the defendant, as the subject of criminal proceedings to support his defense, and on the other hand, the prosecutor as the representative of the accusation, to prove the guilt or innocence of the person accused or defendants in the criminal process.

Our Code of Criminal Procedure, in Article 151/2, determines that in the trial the evidences are taken at the request of the parties, which means the right they have in the criminal process, to present to the court the legal evidences, which the parties think are valid and are important for the right solution to the issue. In this sense, even though the parties have the right to receive evidence in trial, it should be noted that it is the judge who immediately decides on the requests of the parties, excluding evidences prohibited by law. However, the judge can base his decision only on the evidence presented during the trial, communicated to the parties and discussed and debated before him. Therefore, there is respect for the so-called "adversarial" principle, which means that each party must communicate to the other, the evidences that are presented and intended to be heard, discussed and debated during the judicial review. In this way, the regular judicial process and at the same time the respect of the adversarial principle is proven.

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<sup>6</sup>E. Sahiti, R. Murati and Xh. Elshani, Commentary on the Criminal Procedure Code of Kosovo, p. 545, (both incriminating and exculpatory circumstances must be determined. the defendant and/or his defense, before and during the trial, must be able to use all the facts and evidences that are in his favor defendants), December 2014.

<sup>7</sup>The French Code of Criminal Procedure, 2002, as amended, Article 427, provides that, unless the law provides otherwise, criminal offenses may be proven by any other means of obtaining evidence.

## 2. The legal framework of evidences in the criminal field

The legal framework for evidences refers to all the legal rules provided in the law, in judicial practice and considered as rules in force. In this regard, in the Code of Criminal Procedure there are a number of main norms that regulate criminal evidences, types and tools for their search. In the General Provisions of the Criminal Procedure Code, we mention article 8/a "Evidences", or in Title IV, Chapter I, General Regulations, article 149 "Meaning of evidences", article 150 "Object of evidences", article 151 "Taking evidences", or article 152 "Taking evidences". In Chapter II of this code, Types of Evidences are dealt with, beginning with Article 153 "Evidences" and ending with Section VIII "Documents". In Chapter III, of the Code of Criminal Procedure, the "Means for seeking evidence" are dealt with, starting with "Inspections" provided for in Article 198 et seq., "Controls" Article 202 et seq., "Seizures" Article 208 et seq., and finally "Interrogations" article 221 et seq. of the Code of Criminal Procedure.

### a. The principle of freedom of evidences.

In principle, the criminal offense can be proven with any type of evidences. According to article 151 of the Penal Code, evidences, during preliminary investigations, is taken by the body that proceeds, according to the rules specified in this code, while in the trial, evidence is taken at the request of the parties, excluding the evidences prohibited by law. Evidence obtained in violation of the prohibitions provided by the law cannot be used.<sup>8</sup> In Chapter II, of the Code of Criminal Procedure, the types of evidences established by the legislator are defined, which are:

Testimony, questioning of the defendant and private parties, confrontations, acknowledgments, experiment, expertise, material evidences and documents.

However, in the judicial process, the parties can offer any means of proof without having any hierarchy between them. The principle of freedom in the production of evidences are subject to limitations. In fact, the evidences must have been obtained legally, according to the provided sources and in accordance with the rules set in the criminal procedural law. The evidences must have been obtained legally, that is, in accordance with the rules governing the taking of each of them. According to the theory of legal evidence, when the evidence is provided and obtained in a regular manner, it becomes binding on the judge with the force given by the law. Therefore, we must consider the specific rules for each type of evidence. Evidences must be obtained in an orderly manner, in the sense that it cannot be obtained through illegal or unfair means. However, the judicial practice has shown cases where the procedures of obtaining evidences were violated, against which the parties have exercised appeal or recourse at the highest levels of judgment. In this sense, the subjects of the proceedings must show care and professionalism in taking evidences. When the police, both at the scene or in the detention facilities, provoke the suspected perpetrator of the criminal offense, or use violence or torture against him, then they have acted in serious violation of the procedural law and the rights and freedoms of the individual. The principle of legality limits this freedom by protecting human dignity.

b. The search and taking of evidences must respect the dignity of the person prosecuted.

In violation of Article 3 of the European Convention, "Inhuman and degrading

<sup>8</sup>The Criminal Procedure Code of the Republic of Albania, 1995, amended, Article 151.

treatment”,<sup>9</sup> the European Court of Human Rights, on August 27, 1992, condemned the French state in the Tomasi case. In this case, the Court reminds the parties that the needs of the investigation and the undeniable difficulties, in the fight against crime, could not lead to the limitation of protection due to physical integrity. According to Article 3 of the Convention, no legal consequences can be drawn from statements obtained as a result of inhuman and degrading treatment of the person. The evidences are free to be taken by the parties, but never in violation of the legal norms and rules, except according to the sources provided by the law.

The search for evidence is subject to limitations arising from the right to professional secrecy.<sup>10</sup> The right to respect for private life may limit investigations that cannot be carried out outside the legal framework. The obligation to maintain professional secrecy can be understood as generating a right to secrecy in favor of the person who entrusted it. As such, professionals bound by professional secrecy are not required to contribute to the emergence of the truth. During the criminal process, they are required to appear, but they cannot be forced to give evidences, with the exception of cases where they have the obligation to refer to the prosecuting authorities. Such subjects are representatives of religious beliefs, lawyers, legal representatives, notaries, doctors, surgeons, pharmacists, dentists, and anyone who practices a health profession.

### **3. The principle of the internal conviction of the judge**

The principle of the internal conviction of the judge is an old principle, born from the practices of the courts of the 18th century, during the French revolution. Criminal law is regulated by the legal evidences system, as is civil law. The law does not require judges to account for the manner and means by which they have convinced themselves to give the decision and does not provide them with rules that distinguish the completeness and sufficiency of the evidences. On the contrary, the law gives the right to the judges to ask themselves silently and to reflect, searching in the sincerity of their conscience, what impressions have been left by the debate between the parties. On the one hand, there is the interest in the evidences brought by the accusation against the defendant and, on the other hand, the interest in what were the means of defense, the behavior and attitude of the defendant against the accusation. The judge must base his decision only on the evidences brought during the court proceedings and discussed in a contradictory manner before him. In this way, the rule imposes respect for the rights of the parties. This rule shows that in criminal cases, the subjectivity of the judge’s personal conviction leads the reason in his decision. The judge must reason and justify the decision taken by him, but he must not give an account for what motivated his inner conviction. In the Universal Declaration on the Independence of Judges, it is stated “Individual judges shall be free, and it shall be their duty to decide on matters before them impartially, in accordance with the assessment of the facts and the understanding of law without any limitation, direct or indirect influence, or for any reason.”<sup>11</sup>

<sup>9</sup> European Convention on Human Rights and Freedoms, 1949, Article 3.

<sup>10</sup> The Criminal Procedure Code of the Republic of Albania, 1995, amended, Article 159, “Protection of professional secrecy”.

<sup>11</sup> The first World Conference on the Independence of the Judiciary, (1983), held in Canada, ad-



- As an exception, from the principle of freedom of evaluation of evidences, the judge cannot base his decision decisively on a completely anonymous testimony, or only on a statement taken in an audio-conference, or only on the testimony of a witness protected. To evaluate the evidence, the judge is based on the usefulness and importance that each evidence presented by the parties can have, in the formation of his personal conviction, without having a predetermining value and in full harmony between them.

#### 4. Taking and burden of proof in the criminal process

In our procedural system, the way to obtain evidences are not completely free, as it must be obtained according to a procedure regulated by law. During the police phase, the search and taking of evidences are secret and non-contradictory, with the exception of the case when the prosecution notifies the defendant and his defense to perform a procedural action that does not harm the investigation of the case. At the preliminary investigation stage, the investigation is always secret and non-adversarial, except to a much lesser extent before the preliminary hearing judge, who has wider prerogatives at this stage of the process. Whereas, during the trial on the merits, the evidences are taken, debated and contradicted publicly. In general, the different types of evidences are those provided for in Chapter II of the Criminal Code "Types of evidences", which we have highlighted above, in point 2 of this paper.

In the criminal process, presumptions or indications also play an important role.<sup>12</sup> These are data that determine a probability of true evidences, otherwise called conjunctural or situational evidence. There are absolute legal presumptions and simple legal presumptions. Absolute legal presumptions prohibit the possibility to prove the opposite. Such is the case of minors who have not reached the age of criminal responsibility (14 years for crimes and 16 years for criminal misdemeanors). We emphasize that, from Roman law until today, the absolute presumption has been created that all minors, who have not reached the age of criminal responsibility, are irresponsible in relation to the actions they perform. The relative legal presumption exists temporarily until proven otherwise.

##### a. Burden of proof.

Burden of proof means the right and obligation of the procedural subject to present the evidences that proves the relevant facts on which the court decision is based. The burden of proof rests with the public prosecutor or the prosecuting party. Article 151 of the Code of Criminal Procedure, based on the axiom "actor incumbit probatio", provides that the burden of proof fall on the applicant. Thus, during the preliminary

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opted the Universal Declaration on the Independence of Judges.

<sup>12</sup> The Criminal College of the Supreme Court, in decision no. 179 dated 23.06.2022 (counseling room), reasons:

"..indications that can be valid to prove the existence of a fact must meet three conditions: to be relevant, which means to be valid in providing a factual data, to provide a fact that is important for the object of the test, to be correct, which means not to be evasive and such that they do not offer something that seems clear, consistent with each other, which means that they must be taken into account that the indications are not in opposition to each other. So, the unification of the probative value of the direct evidences with the indirect evidences will only be possible if they are without flaws and if there is no doubt about the compatibility between them.(...)".

investigations, the evidence is taken by the proceeding body, while in the trial, the evidences are taken at the request of the parties. This rule is dictated by the principle of the presumption of innocence, which not only protects the person who has not yet been finally convicted of his guilt, with a court decision of the cut form, but also shows who bears the burden of proof. However, the person being prosecuted can bring arguments to the contrary. It even happens that the judge places part of the evidences in his charge. In our procedural system, for finding and obtaining evidence, apart from the parties in the process, the judge also plays an active role.

During the criminal process, the prosecuting party must seek and report evidences of the suspected perpetrator's guilt. In this case, it can be the public prosecutor, the accusing victim or the civil party, who, in addition to proving the damage suffered, must also prove the cause-and-effect relationship with the criminal offense committed. The evidences, from a formal point of view, must meet all the features related to the criminal offense, and which have to do with the legal, mental and material elements.

-The legal or juridical element means that the alleged act or deed must be provided as such in the criminal code. Such is the provision in Article 1 of our Criminal Code.<sup>13</sup>

-The material element refers to the fact that the accusing party or the prosecutor must prove on the one hand the existence of the criminal offense, its commission and attribution to the accused party, also determining the evidence of the penalty of the author of the criminal offense.

-The intellectual element is related to the behavior and attitude of the suspected perpetrator towards the commission of the criminal offense, which varies depending on the type of offense. In criminal offenses, committed with guilt, provided for in Article 14 of the Criminal Code,<sup>14</sup> intent must be proven, direct or indirect,<sup>15</sup> as an element of the subjective side of the criminal offense. For criminal offenses committed by negligence, according to Article 16 of the Criminal Code,<sup>16</sup> both for crimes and misdemeanors, the guilt of negligence in the form of negligence or excessive self-

<sup>13</sup> The Criminal Code of the Republic of Albania, (1995), amended, Article 1, "Criminal law and classification of criminal offenses":

"The criminal law defines criminal offenses, punishments and other measures taken against their perpetrators. Criminal offenses are divided into felonies and misdemeanors. Their difference is made in any case in the provisions of the special part of this Code".

<sup>14</sup> The Criminal Code of the Republic of Albania, (1995), amended, Article 14, "Guilt", has the following content:

"No one can be punished for an action or omission provided by the law as a criminal offense, if the offense was not committed with guilt. The person who commits the crime intentionally or negligently is called guilty."

<sup>15</sup> The Criminal Code of the Republic of Albania, (1995), amended, Article 15, "Will", has the following content:

"The criminal offense is committed intentionally, when the person foresees the consequences of the criminal offense and wants their arrival or, although he foresees and does not want them, he consciously allows their arrival."

<sup>16</sup> The Criminal Code of the Republic of Albania, (1995), amended, Article 15, "Negligence", has the following content:

"The criminal offense is committed negligently when the person, although he does not want the consequences, foresees the possibility of their arrival and lightly hopes to avoid them, or does not foresee them, although according to the circumstances he should and had the opportunity to foresee them."

confidence must be proven.

When the criminal offense is committed in cooperation,<sup>17</sup> there must be both the intention of the main author and the intention of his accomplices. As an exception, in this case there may be a shift in the burden of proof. The accused party has the right to remain silent throughout the process as well as the right to testify to the opposite of what is claimed by the accusation. However, there are cases when this party is required to prove its innocence. This can be called an exceptional case, which is related to the presumption of guilt of the author and which has to do with quite serious criminal offenses such as criminal organizations or structured criminal groups, related to the suspected income derived from criminal activity. In relation to the accusation of committing acts such as trafficking in narcotics or human beings, or prostitution, the suspected perpetrator is required to provide legal justification or the burden of proof for the considerable sums of money that are suspected to be derived from these illegal activities. However, the suspected author at every stage of the criminal proceedings is guided by the principle of presumption of innocence and retains the right to defense with a lawyer.

Nevertheless, as we have emphasized above, in addition to the parties in the process, during the trial of the criminal case, the judge can also contribute to the search and discovery of the truth. In this sense, when the collected evidence turns out to be insufficient, the judge mainly or at the request of the parties can take the necessary measures to seek and find evidence to clarify the truth of the event.

## **5. The right to counter evidences**

We can define contrary evidences as the opportunity given to the defendant to challenge the defined elements of the charge. The concept of counter-evidences can be understood as the legitimate response to the general attack that is the accusation. The right to counter-evidences is accompanied by two main rules, which are the freedom of counter-evidence and the legality of counter-evidences.

-According to this principle, the accused has the freedom to present evidences that contradicts the charge and that is favorable for demonstrating his innocence. The principle of presumption of innocence allows the accused and the judge to use the freedom of evidences contrary to the accusation. This principle allows the accused not to passively wait for his fate to be sealed, but to do everything possible to seek and present elements of evidences that are favorable to demonstrating his innocence. He has the opportunity to directly present the opposite evidences in the process, which means the right to express himself and the freedom to produce evidence for the opposite of the accusation.

-Affirming the existence of the right to counter-evidences promotes the possibility for any person implicated to control his defense and to be able to produce counter-evidences. However, in jurisprudence there is a will of freedom of evidences both for the accused person and for the defendant. Freedom of evidences envisages the ability of the accused to assert in court all elements useful for the recognition of his

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<sup>17</sup>The Criminal Code of the Republic of Albania, (1995), amended, Article 25, “Meaning of cooperation”, has the following content:

“Cooperation is the commission of a criminal offense by two or more persons with an agreement between them.”

innocence. The party who has the burden of seeking and producing rebuttal evidence raises the question of the value to be given to it. Taking evidences<sup>18</sup> is a complex mental operation process, for the realization of which, in addition to the knowledge of the legality of logical thinking, it is also necessary to know the forensic psychology, which deals with the study of legality around the formation and manifestation of the consciousness of the subjects participating in the process criminal. The evaluation of these evidences are done in the session, during the judicial review, or the debate in the counseling room. There are two theories of evaluation of evidence: the legal theory of evaluation of evidences and the theory of free evaluation of evidences.<sup>19</sup> The legal theory of the evaluation of evidences has been applied in the inquisitorial procedure, according to which, in order to prove the validity of the contested facts, the court was obliged to recognize each piece of evidences the value that the law previously gave it. This means that the court does not judge according to its own conviction, created through the analysis of the evidences, but it does so on the basis of the evidences, the value of which is determined by the law. According to the legal theory of evidences evaluation, two variants are distinguished, which are the positive legal theory and the negative legal theory.

According to the positive legal theory, the court was obliged to take as proven a relevant legal fact when the conditions provided by the law were met and, based on them, gave the decision of punishment, regardless of his inner conviction. While, the negative legal theory required that, for the conviction of the defendant, the number and quality of the evidences had to be met, and in making the decision the court evaluates the evidences according to its internal conviction. This theory did not completely rule out the theory of free evidences. The theory of free evaluation of evidences derives from the accusatory system of criminal procedure. This theory is based on the principle of material truth. According to her, the court is not bound by any formal rules of evidences as to whether it will consider a piece of evidences as correct or not. All the evidentiary materials, presented by the parties in the trial, are evaluated according to the conviction of the court, conviction that it created at the time of receiving the evidences. Nevertheless, despite this fact, the judge cannot go outside the legal limits related to the collection of evidences and their proceeding in the judicial review. In our law, the free evaluation of the evidences are done according to the progressive system of their evaluation, where the free conviction of the judge is argued between the reasoning of the decision, so that everyone is notified of the final decision of the court. The collection of evidences are extensively dealt with the unifying decision of the United Colleges of the Supreme Court, no. 5, dated 11.11.2003.<sup>20</sup> The court has the duty to conscientiously evaluate each piece of

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<sup>18</sup> Decision of the Criminal Board of the Supreme Court, no. 8, dt. 14.01.2022, which reasons: "In relation to the above, this College takes the position that the formation of conviction based on the analysis of the evidences as a whole, as imposed by Article 152 of the Penal Code, does not mean only the mention of this evidences in the court decision, as is act in the case subject to judgment by the Shkodër Court of Appeal, but the analysis of each of them separately and together with the others".

<sup>19</sup> Sahiti, Ejup dhe Murati, Rexhep, E Drejta e Procedurës Penale, Universiteti i Prishtinës, Prishtinë, 2013.

<sup>20</sup> Unifying Decision No. 5, dated 11.11.2023 of the United Colleges of the Supreme Court, among others, analyzes:

evidences, one by one and in harmony with all the other pieces of evidences and, based on their evaluation, draw a conclusion as to whether or not a fact has been proven.<sup>21</sup>

## 6. The legality of the right in counter-evidences

The basic concept of the good administration of justice is the regular judicial process. This process is only one of the procedural rights of the individual related to the regularity of the trial and the administrative activity in which all other rights are tested. When we talk about the legal term, “the right to a regular process”, we think of “Due process of law”, which is often used by those who know the law when they want to express themselves in relation to this right. The right to a due process has two aspects, the first is related to the protection of human rights and freedoms and secondly, the obligation of state bodies to be careful when exercising their activity and help fulfill all legal requirements to respect this right. The right to a fair trial, according to European standards, means that the defendant is given the right to freely show everything related to his innocence, as well as to be allowed in any case to dispute the charges against him. This right is guaranteed in Article 14 of the International Covenant on Civil and Political Rights (ICCPR), which provides that “everyone has the right to a fair and public trial by a competent, independent and impartial tribunal, established by law”, in article 42/2 of the Constitution<sup>22</sup> as well as

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“This conclusion was reached, since in the analysis of the evidence, the court must start from the basic principles for their objective evaluation and the requirements of Article 152 of the Code of Criminal Procedure, according to which the determination of the authenticity and probative value of the evidence is subject to review judicial, there is no predetermined value and that the existence of a fact can also be deduced from the indications, when they are important and in accordance with one another. The charge against the defendants for theft committed in collaboration, regardless of Article 134/2 of the Criminal Code, was not raised only on the statements made before the judicial police officer by the defendant, but also referring to the statements of other persons. taken during the preliminary investigation”.

<sup>21</sup> Decision of the Criminal College of the Supreme Court, no.104, dt. 01.04.2022, reasoned as follows:

“In the conditions where the Supreme Court cannot assess or evaluate the evidence in terms of its foundation and probative value, it is limited only to the assessment of whether or not Article 152 of the CPC has been applied in their evaluation by the lower courts .

The College assesses that the Court of First Instance and the Court of Appeal in Tirana, in the case under consideration, have completely exhausted the process of proof, administering and evaluating in accordance with the criminal procedural law all the evidence with witnesses or written evidence, presented in the function of the criminal process, as a result the verdict of guilt of the defendant Ndriçim Balla regarding the two charges against him is not beyond reasonable doubt. Both courts have found the defendant Ndriçim Balla guilty of the charge “Murder in other qualifying circumstances” and “Unauthorized production and possession of military weapons and ammunition”, provided by articles 79/”ë” and 278/4 of the Criminal Code, analyzing the value and probative power of all the evidence, which was administered, examined and evaluated during the judicial process with the ordinary trial procedure”.

<sup>22</sup> The Constitution of the Republic of Albania, (1998), amended, Article 42/2, defines:

“Everyone, for the protection of his constitutional and legal rights, freedoms and interests, or in the case of accusations brought against him, has the right to a fair and public trial within a reasonable

in article 6, first paragraph of the European Convention on Human Rights.<sup>23</sup>The use of the concept of “lawfulness” of the right to adverse evidences implies the temper in the free exercise of this right. These concepts may come from the legislator’s intention to focus on certain categories of criminal offenses as well as the effectiveness of the implementation of procedural honesty for equality and equal protection by the law. They relate to facts and circumstances that create a strong sense of the defendant’s guilt.

## Conclusions

In the criminal process, much importance is attached to the evidences, the rules and the means of their research. In this sense, the evidences are the means by which the judge, in their analysis and evaluation in the judicial process, can gain his inner conviction, and decide on the guilt or innocence of a defendant. Adverse evidences in the criminal process is like all other evidences that is subject to this process and, as a new concept in our procedural law, it plays an essential role in discovering the truth. The mechanism of judgment necessarily requires evidence, the judge cannot decide justice without analyzing, and immediately evaluating, the evidences presented at the hearing. Proving means establishing the truth with evidence, giving arguments and making reasoning, deduction, analysis and synthesis of the facts and circumstances in which the criminal offense was committed. Therefore, evidences has a fundamental role in the criminal process, as it is closely related to the meaning of truth and means the means to know the truth in a judicial process. The main role of justice is in the direction of discovering this truth. Respect for the principle of the presumption of innocence, in addition to the impact it has on legal evidences, is also characterized by some distinctive features that traditionally derive from the criminal process, which are the benefit of the doubt as to the authorship of the criminal offense, the right to remain silent and the right not to contributed to self-incrimination.

Justice demands that we make every effort to guard against miscarriage of justice in the conviction of an innocent person. For this reason, safeguards must be in place to protect the fundamental freedoms of every individual against unjustified or disproportionate attacks directed at him. In this process, we must go further and not be afraid of the possibility of placing in a debate the new evidence that is brought by the defense of the defendant in the criminal process. Judging the guilty requires a path illuminated by facts and circumstances obtained from legitimate sources. The internal imbalance between the interests of the parties in the criminal process requires a mechanism to ensure the balance of the judicial decision that must be taken at the end of the process by the court. This is the role of the right to adverse evidence.

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time by an independent court. and impartial determined by law.”

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# E-contracts types in the digital area and the criminal response in Albania

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## Abstract

A contract is a legally binding force between two or more entities, companies, or parties that link the parties in a contract protected by law. This paper aims to analyze e-contracts types, advantages and disadvantages and their legal regulation, referring not only to Civil Code provisions but even to other normative acts. The validity of these e-contracts, terms of conclusions, the parties that interact with one another in a digital format, and other relevant aspects will be a point of view, referring even to the adequate response of criminal law. Civil law does not offer sufficient protection to the parties of e-contract and that's the reason that the criminal response should be adequate to protect property rights. First of all, the article will analyze the validity of the e-contracts and their regulation in the Albanian legal system, the impact of technology on them. A large part of the analysis aims to clarify the intersection between traditional contract law and e-contracts, e-signatures, browse-wrap agreements, shrink-wrap agreements etc. The research will include the analysis of cybercrimes that violate e contractual relations between the parties in a comparative point of view. International acts will be in consideration to understand the impact in internal laws.

**Keywords:** E-contract, validity, types of e-contracts, regulation, criminal law.

### 1. Definition of electronic contract

Electronic contracts exist as a result of the development of technology and the facilitation of the provision of services and the fulfillment of the obligations arising from them. In the conditions that we are dealing with new forms of reaching agreements, beyond the classic form of the present parties, the agreement can be concluded at a distance, through the means offered by technology. Rather, the doctrine itself has long sought to determine the placement of this category of contracts in the Civil Code. Some opinions are of the idea that, the categorization of these contracts should be done according to their means, considering them as object contracts that transfer a good or perform a service through a technology tool that simplifies the practice. So, this type of tool through which the contract is signed is a way, where the agreement between the parties is realized, the form of the contract appears in the outside world. The parties choose this form of contract also in respect of contractual autonomy, since the realization of the contract and the reaching of the agreement through the computer is their right, which is not prohibited.

The doctrine defines electronic or digital contracts, that legal act that with mutual or complete consent according to the will of the parties, is bound only and only electronically without the use of physical paper, without the physical presence of the parties. So, the exchange of the proposal and acceptance of the offer, and in some cases its execution, is done electronically, through technological support.

For practical reasons, we must explain that the computer system is the Internet network that consists of the web page and the e-mail and that these types of contracts form the notion of network commerce or electronic commerce. In any case, for the



electronic contract to be valid, it must fulfill all the requirements provided by the Civil Code, for the general part of the contracts, and the special requirements, provided in the law no. 10 128 dated 11.05.2019 "On electronic commerce" and law no. 9902, dated 17.4.2008 "On consumer protection".

## **2. Legal provision at the international level**

The development of electronic commerce requires the trust of the parties to conclude contracts and to benefit both parties. Therefore, it is important that in the conditions when electronic commerce is carried out between different countries, then it takes on an international character, so it is necessary that this form of contractual autonomy is also foreseen at the international level.

The need for legal provisions at the international level is a necessity as the parties must have the necessary clarity of the law and a harmonization of the legal references that regulate this matter.

Thus, if we go back in time, we can mention the Unicitral Model law "On electronic commerce", of 1996, which aimed to unify the legislation related to electronic commerce in international trade. The law aims, through uniform regulations, to overcome the legal barriers for the recognition and implementation of electronic contracts. This model would serve to harmonize the legislation in the field of trade due to the specificity of this trade, overcoming geographical barriers and the realization of trade transactions between subjects in different countries. The model law regulates the use of electronic communications for the realization of international contracts, the binding and validity of the contract, the recognition of data messages.

The main guidelines at the international level on electronic commerce are given by the Organization for Economic Cooperation and Development OECD. Basically, these recommendations are to ensure the parties and to give them guarantees in the development of electronic commerce, giving help to the problems that could arise from these contractual relations.

At the EU level, the approved legislation aims to protect the safety, health, economic and legal interests of consumers, as well as the provision of compensation systems and general product safety. According to the Treaty on the Functioning of the European Union (TFEU), consumer protection issues are a shared competence of the EU and the member states. The legal tool mainly used by the EU in the field of consumer protection has been the directive, which is not directly applicable and must be transposed into the national laws of each EU member state. Currently, about 90 EU directives cover consumer protection issues.

## **3. Legal provision according to the Civil Code and special laws**

In articles 686-689 of the Civil Code of the Republic of Albania, it is determined that the general conditions of the contract have an effect on the other party, if at the time of the conclusion of the contract the latter knew them or should have known them, showing ordinary care. The general conditions that bring a disproportionate loss or damage to the interests of the contracting party are invalid, especially when they differ substantially from the principles of equality and impartiality expressed in the provisions of this Code that regulate contractual relations. Those conditions which

establish in favor of the one who prepared them earlier, limitations on liability, the possibility to withdraw from the contract, to suspend its implementation, or which assign to the other party periods of decadence, do not create legal effects. or limitations on the right to make defaults, on contractual freedom, in dealing with third parties, on the terms of arbitration or avoidance of the powers of judicial bodies, unless separately approved in writing by the other party.

In addition to the provisions of this code, there are also special laws that regulate this form of contract. Thus, the sales contract in electronic form according to law no. 10 128 date 11.05.2019 "For electronic commerce" is a way to shorten the distances between the parties entering into contractual relations, to shorten the time of concluding contracts between the parties who are located in different countries, or even in the same country but that use technology tools, the law, shows a new and completely modern way of concluding an electronic contract. According to the law, an electronic sales contract is a contract concluded using electronic means.

The official definition of the electronic contract is contained in the law no. 10 128 dated 11.05.2019 "On electronic commerce", article 1, point 1 which expressly defines that contract concluded through electronic means are called contracts in electronic form.

This law was adopted precisely for this purpose, to establish rules for conducting commercial actions electronically, through the services provided by the information society, for the protection of participating persons, the legal protection and confidentiality of consumers or the confidential data of participants in it, as well as to ensure the free movement of information services.

According to Article 1 point 1, it is determined that the proposal and acceptance of the offer can be made through electronic means, which is their electronic form. "Electronic means" shall mean that the service is sent from the point of origin and received at the final destination. not all contracts can be regulated by the law in question as there are also exceptions that are provided for by its article 12 and specifically it is determined that: This law does not apply to the following contracts: a) for contracts concluded to create, change or extinguished rights on immovable property, except for the lease contract for immovable property with a term of up to 9 years; b) for contracts, which by law require the involvement of courts, public authorities and professions that exercise or provide a public service; c) for guarantee contracts and securities collateral, given by persons acting for purposes other than those of their business, trade or profession; ç) for contracts provided for by the Family Code and legal actions, provided for by the Civil Code, part III, title III "Inheritance by will"; d) for financial services or insurance services, for which distance marketing is applied". These restrictions are in fact in accordance with the general principles of the Civil Code, where in order to carry out the transfer of some specified sentences, a certain notarial form is required for the conclusion of contracts.

#### **4. Remote signing of the contract, electronically**

The notion of signing an electronic contract, in Albanian law, is regulated by Law no. 9880 dated 25.02.2008 "On the electronic signature", in article 3 thereof. According to this provision, the definition is explained: "Electronic signature" is all data in electronic form, which are connected or logically accompany other electronic data, which serve as a way of proving the identity of the signatory and the authenticity of

the signed document. The electronic signature is a condition for the validity of the contract, then it has the same legal validity and evidential force as the written form, this definition is found in article no. 4 of this law. Legal actions and acts drawn up by natural and legal persons, public and private, can also be done through an electronic document, to which a qualified electronic signature is attached. The electronic document, which bears the name of the signatory and his qualified signature, has the same legal validity and evidential force as the written form. The electronic signature is considered invalid, when it is proven that the requirements for security, provided for in this law and in the by-laws issued in its implementation, have not been met.

## 5. Contracting parties

Of course, the contracting parties, also called subjects, will sign a contract between traders (seller) and consumers (buyer), which are defined differently and as distance contracts. According to Article 36 of the Law "On Consumer Protection" it is determined that a distance contract is any contract for goods or services, concluded between the merchant and the consumer, according to a scheme for organizing distance sales or service provision by the merchant, who, for the purposes of the contract, uses one or more means of distance communication exclusively, up to and including the moment of conclusion of the contract.

Merchant or service provider (seller) according to the law on electronic commerce, is any natural or legal person that offers an information society service. ii. The consumer (Buyer) according to the law on electronic commerce, consumer, is any natural person who buys or uses goods or services to meet personal needs, for purposes that are not related to commercial activity, business or the exercise of the profession.

Based on both of these laws, we can conclude that electronic contracts are divided into two categories:

- professionals, if the entity operates in the framework of its entrepreneurial or professional activity;
- consumers, if the operating entity is not related to any professional or entrepreneurial activity carried out.

The models of contracts that can appear in the practice of electronic commerce are:

- contracts concluded between physical or legal entities that both have the qualification of professionals: in this case, a commercial relationship arises between two companies, one of which is interested in buying the other's products;
- contracts concluded between an entity that possesses the professional qualification and another that operates as a consumer; 3. contracts concluded between subjects as consumers.

This difference between the different models of contracts that can appear is important in relation to the levels of protection of the contractor provided by the legal system, changing the system of protection according to the model used from time to time.

### 5.1 Agreement/conclusion of the contract

The usual form of concluding a contract is that of exchange of offer and acceptance, where the contract is considered concluded at the time and place where the proposer has received the notification of the other party's acceptance. The receptive nature of the proposal and acceptance does not present problems when the contracting parties are present or use means of direct communication; Greater problems arise in contracts

between absentees, where the legislator, accepting the theory of receipt, considers it sufficient that the act has reached the recipient's address, with the exception of proving the objective impossibility of receiving information.

Law no. 10 128 dated 11.05.2019 "On electronic commerce" in article 14 provides for the conclusion of the contract, which goes through several stages. According to this provision, in the first instance, the service provider provides a summary sheet of the conditions, general and special, that apply to the contract, and secondly, notifies him without delay of receiving the order from the recipient of the service via electronic means, except in cases where non-consumer parties agree otherwise.

The electronic contract is called concluded when the provider receives an electronic message, which contains the declaration of receipt of confirmation and acceptance of the offer. The proposal and acceptance of the offer, made by the parties in the legal relationship, which arises due to electronic commerce between them, are considered to have been received, when the parties, in advance, have proven to each other that they are able to receive them those electronically. In this case, the provisions of the Civil Code for the acceptance or rejection of the offer, provided in the general conditions of the contracts, are also applicable for this purpose.

To summarize, the conclusion of the electronic contract goes through these stages:

a) The recipient of the service indicates that he/she has accepted the service b) The service provider declares the receipt of acceptance c) The service provider sends the provider an electronic message containing the confirmation and acceptance of the offer. We refer precisely to the aforementioned article, 14, point 3, which defines that: "The proposal and acceptance of the offer, made by the parties in the legal relationship, which arises due to electronic commerce between them, are considered to have been received, when the parties, in advance, to have proven to each other that they are able to receive them electronically".

b) Regarding the definition of the ability of the parties to receive the proposal and acceptance by electronic means, we can refer to the United Nations Convention on the Use of Electronic Communications in International Contracts, which provides a solution to this situation by defining that the term "accessible" means that information from computer data must be readable and interpretable. In this context, we emphasize that, like any other contract, the electronic contract must be signed in order to be valid.

Regardless of the legal specifications, it is worth noting that the formation of the contractual agreement is normally preceded by the negotiation phase. This stage occurs particularly in contracts between professionals where the parties find themselves acting on equal footing; The negotiation phase is usually absent in the contracts concluded between the professional and the consumer, where, instead, a model agreement to accept is used.

Law no. 10 128 dated 11.05.2019 "On electronic commerce" provides for a number of information obligations for the provider, in addition to the fact that preliminary information must be provided in a clear and understandable manner, respecting the principles of good faith and loyalty in matters of commercial transactions. Thus, Article 7 of this law defines the obligation for general information regarding data related to commercial activity.

The reference to the provisions of the Civil Code appears clearly with the provision of extra-contractual liability on the violation of these pre-contractual obligations, when

no comprehensible and mandatory information is provided based on Article 22 of Law no. 10 128 dated 11.05.2019 "On electronic commerce".

More specifically, the remedies available in the event of a breach of information obligations are essentially two: claims for damages due to the service provider's pre-contractual liability and rescission of the contract due to fraud or error.

Therefore, the non-implementation of these obligations for the provision of information determines the application of an administrative sanction, as an administrative offense, according to Article 22 of Law no. 10 128 dated 11.05.2019 "On electronic commerce" except when the fact constitutes a criminal offense, In addition to the civil consequences foreseen on the pre-contractual responsibility, the invalidity due to the violation of the general principles, as well as the intentional error, has been evaluated.

## **5.2 Execution of the electronic contract**

One way of accepting the proposal or offer has to do with the beginning of the execution of the contract, for example, the fact is debatable if. sending the identification number of the credit card is sufficient to be considered as the beginning of the execution of the contract. There are opinions that accept that since these payment methods are irrevocable, they show indications of the full will and finality of the consumer's satisfaction.

Payment methods and means present a problem of their own related to the execution of the contract. Electronic commerce requires a payment method that allows to satisfy two fundamental interests: the interest of the payee, who for his needs wants to receive it as quickly as possible and the interest of the one who pays to use a payment system safe.

## **6. The criminal response in Albania**

The interests protected by criminal law certainly include not only the consumer but certainly both parties in general, so it is necessary to analyze it from two points of view.

The first refers to the protection of the consumer's interests, where the first one prevails over his health. Criminal legal protection on the health and safety of the consumer is provided by the Penal Code by the provisions of a preliminary protection on the production and trade of consumer articles such as articles 288, 288/a288/b, 288/c, 288/ç.

The risk or damage that can be caused to the consumer derives from the production or distribution of food or other items in violation of the requirements of the special legislation.

Criminal facts that are punishable because they endanger or harm are provided in the Criminal Code as standard figures, where the actions performed change or do not follow the special legislation for their proper production and conservation as provided for in Article 288 of the Penal Code.

In this group of criminal offenses can be included all those behaviors of the manufacturer who, during its production, changes the ingredients and endangers the health of the consumer. These behaviors, which are foreseen by article 288/a of the Criminal Code, are certainly committed through fraud and are considered as contraventions. criminal. This is a dangerous criminal offense as the legislator

condemns the illegal production of industrial and food items and goods even though they have not yet been consumed by the consumer. These actions are reprehensible for the sole reason of preventing harm or danger to the consumer's health/life, regardless of whether they were carried out intentionally or negligently.

Article 288/c of the criminal code also provides for actions that deceive the consumer by selling goods in which data are marked that do not correspond to the content, type, categorization, quantity, quality of the product or products without the above data as provided in the legislation in force. These actions constitute crimes and are punishable by up to 3 years of imprisonment. If they are committed in collaboration, more than once or when they have brought serious consequences to human health, a sentence of 3 to 10 years of imprisonment is provided.

Intentionally destroying the safety signs of state bodies in the field of food safety constitutes a criminal offense and was added by law no. 44/2019, dated 18.07.2019.

The Criminal Code provides for other criminal offenses that can lead to fraud on the parties and cause harm to them. One of these crimes is computer fraud.

The criminal offense of computer fraud is provided for the first time in the Albanian Criminal legislation in article 148 / b, as a new provision by Law No. 10 023 date 27.11.2008. The needs dictated by the legislator were related to the development of technology and its use of the time. The Computer Fraud crime harms computers, bank computers, and computers connected to the Internet. It shields them from trespassing, threats, damage, espionage, and from being corruptly used as instruments of fraud. In the cybercrimes field stands out computer fraud, which even though is a new article it has taken a considerable place in practice, but ambiguity can often be understood from the case law itself, regarding the constituent elements of this criminal offense, which are related closely with its structure. This criminal offense consists of extortion of property through the fraudulent use of actions in computer data or the operation of a computer system.

## **Conclusions**

Regarding the withdrawal of acceptance, it deems necessary that the same be known to the offeror before acceptance; however, given the cancellation of the time interval between sending and receiving the message, typical of telematic contracts, it appears very difficult to hypothesize an effective revocation of acceptance, unless it is possible to demonstrate that the proposer (recipient of the revocation of the acceptance) has first known the revocation and then the acceptance (i.e. the previous message) - a situation that is difficult to conceive it.

On the basis of the forms of completion of the contract, the distinction between consensual contracts and real contracts deserves particular emphasis, as for the latter there are serious doubts about the admissibility of stipulation electronically.

The problem that has arisen in relation to documents signed with digital signatures or in any case with strong electronic signatures concerns the possibility of a denial of the signature by the interested party.

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# The Impact of Media Coverage on Democratization and Conditionality - Tangled Threats of Albanian Crisis 1997

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## Abstract

The study aims to track the role and effect of media coverage in 1997 events, its impact and linkage with further progress of media freedom over years in Albania by drawing a comparative approach spanning in time period between two almost distant contexts, namely the beginning and the current landscape of the democratic transition in Albania. Methodologically, the study uses three newspapers of different affiliations and explores issues falling under four structured themes for each newspaper; next, interweaving this analysis with qualitative approach of a variety of other sources, it seeks to provide an answer to the research question: Why and how has media freedom worsened to the extent it has adversely affected Albania's democratic evolution and EU's integration path? The analysis shows that what featured media landscape during the 1997 events in Albania, has applied during subsequent years as well. It concludes that thriving on a fragile democratic setting, amidst weak institutions, politically controlled, suppressed and captured, is a definition that best describes media functioning both during the 1997 events and further down the road. It finally recommends a radical change to the enlargement methodology in all integral and complex components coupled with political will and commitment on both parties concerned to effectively achieve it.

**Keywords:** Usury, crisis, pyramid schemes, integration, legacy, democratization, conditionality.

## Introduction

The historic shifts that swept across Eastern Europe in the 1990s, finally encompassed Albania as well. Upon the fall of communism, Albania immediately determined its orientation towards future Atlantic and European values. It resorted to opening its doors of relations and cooperation with international organizations, such as NATO, EU, UN, WEU, OSCE, etc. To that end, Albania set to its long road of domestic reforms, changes, developments, regional and international cooperation which in turn, would strongly and significantly influence its trajectory towards democratization and EU integration.

Shortly after the country's first multiparty elections in 1992 which brought the overwhelming victory of the strongest opposition Democratic Party, Albania entered a new phase of reconstruction in 1992-1994, which implied undertaking radical reforms intended to transform centrally-planned economy into market economy. But the privatisation programme which was essential at that stage for a country unfamiliar with market institutions and market practices, failed to produce the expected results. Instead, an informal market made its way within which several new deposit-taking companies that invested money on their accounts, were grown. These companies were soon transformed into pyramid schemes which as a new phenomenon in Albania, were unprecedented as regards their scale of operation as well as political and social



impact on current multi-faceted domestic developments and further down the road. In view of above, taking as a departure point of analysis the media coverage of 1997 pyramid crisis in Albania and related consequences, this study considers the evolution of the media role in Albania as a component of political conditionality to date while testing the rationale behind such a model.

## Methodology

The research procedure for this topic is primarily based on the content analysis of three newspapers, i.e., *Koha Jone*: independent, *Albania*: right-wing and *Zeri i Popullit*: left-wing, selected specifically as mainstream newspapers with a large number of readership. It explores how these three newspapers covered one of the most serious and influential occurrences with profound repercussions in Albania, namely the 1997 pyramid crisis, spanning a time frame from October 1996 to summer 1997. Each of the newspapers explores this phenomenon under four aspects as transversal themes to take a full picture of the whole story: a) Dealing with the phenomenon of usury; b) The Government in front of the crisis; c) Opposition stanza; and, d) Unmanageable situation - almost Civil War.

Drawing a comparative approach spanning in time period between two almost extreme points, namely the beginning and the current landscape of the democratic transition, the study aims to track the causes for each newspaper's account, their impact and linkage with further progress of media freedom over years in Albania. Accordingly, interweaving this analysis with qualitative approach of a variety of other sources, this study aims to provide an answer to the *research question*: Why and how has media freedom worsened to the extent it has adversely affected Albania's democratic evolution and EU's integration path? In view of the analysis, the following sub-questions arise: 1. What effects did three newspapers bring to the political, social and economic Albanian theatre? 2. Did media coverage of 1997 pyramid schemes crisis become a model of ongoing media behavior in Albania? 3. Is there really a linkage between media freedom profile then and today in terms of their functioning in Albania?

### I. Setting out a New Course – Challenges and Opportunities

#### 1. *Divergent outcomes on the same context*

Soon after coming to power in 1992, the DP led by Sali Berisha initiated programs aimed at privatizing state-owned enterprises and strengthening the country's ties with Western Europe and the USA. This reform program consisted of two phases: 1. (1993-1995) privatisation through auction of small and medium enterprises of production and services; 2. (May 1995-1997) privatisation of not yet privatised strategic and non-strategic large and medium enterprises (Peev et al, 2000. p.17). Thus a new private sector that fostered the flourishing of small private activities was born but it is worth noting that during those years, the largest numbers of private businesses operating in the Albanian market were in trade (Muco, 1998. p.106).

This situation might be expected when considering that the Albanian society emerged from an isolated, centralized and extremely socialized economy and lacked market

skills. This is one reason which accounts for the government's mishandling of the economic sector and partially, accounts for the fact that the Albania's economic recovery and revival until 1996 has followed a consumption-led rather than a manufacturing- or even agricultural-led strategy (Dawisha & Parrott, 1997. p.337).

On the same ground, the privatisation process was going very slowly while the public was growing impatient and expressing distrust about the government-led eagerly-expected reforms. Actually, governance-related problems were steadily emerging. The institutional reform proved to be the least developed in Albania during 1991-1996 (Muco, 1998. p.107), which would otherwise lead to issuing a new constitution, establishing political institutions, setting up a new tax system, a central bank, market regulations, etc. So too, the financial sector reform was very limited, with three state banks holding 90% of deposits and thereby unable to satisfy private sector demand for credit. The regulatory framework was inadequate, and it was not clear who had responsibility for supervising the informal market (Jarvis, 2000).

However, despite these deficiencies and irregularities, assessments of the Albanian economy until the end of 1996 showed some positive signs: The "lek" (money) was stable and had even become a strong currency, monthly inflation rate since mid-1994 was lower on average than that of most EU countries, and budget deficit fell from 17.4% of GDP in 1992 to 7.6% in 1995 (Haderi et al, 1996. p.5-11). It could be said that the switch to a market economy was happening fast and was largely effective, and Albania was doing, at least apparently, well. But despite these positive figures in the short run, the course followed not only retarded Albania's economic development in the long run (Babameto, 2020. p.101-117), but also deterred its progress on other spheres and caused irreparable consequences.

However, the general picture of Albanian economy during 1992-1996, was an economy based on trade rather than production, in which imports were four times exports, the country's resources were unused and the infrastructure was neglected, and a country which was supported not by the work of its inhabitants, but by emigrants, international aid and imports (Morozzo Della Rocca, 1998. p.71). The services offered by the state - health, education, public order, transportation, sanitation - remained in the former state of degradation or worsened (Morozzo Della Rocca, 1998. p.71) while disappointment grew as people witnessed corruption in government and law enforcement, as well as government inability to deter prosperity of illicit trade which in all became a handicap for fuelling a legitimate economy.

## *2. Thriving pyramid schemes*

Within the above context, an informal credit market rapidly grew with informal lending companies and deposit-taking companies operating in this market. These companies called VEFA, Gjallica, Sude, Kamberi, Populli, some without any real assets and some with initially substantial real assets, turned all into pyramid schemes which proliferated in 1995 and 1996 offering competitive interest rates. At the beginning of their activity, these companies offered annual rates from 4-5% a month to 6% or almost 100% annually in real terms while the increased number of depositors was compounded by increased competition: in September 1996, Populli began offering 30% a month followed by Xhafferi which offered to treble depositors' money in 3 months and Sude which offered to double principle in 2 months (Jarvis,

2000). Meanwhile, Gjallica sponsored the Miss Europe competition in September 1996 which occasionally announced commercial breaks for Gjallica and it accordingly benefited \$ 300,000 - 400,000 per day (Nicholson, 1999. p.554).

First, the pyramid schemes activity was fed by remittances brought in by a large number of people (especially young) emigrating during these years, notably in the neighbouring countries. According to some data, an annual average of 400 000 men and women were employed in either Greece or Italy between 1992-1996 (Korovilas, 1999. p.402). These emigrants soon realised that the well-paid casual work offered them the opportunity to accumulate substantial sums. Therefore, driven by the pressing needs of family members at home and mainly by the attractions of the high-interest pyramid schemes, a huge amount of remittances inflowed.

Second, being struck by investment fever, many Albanians at home provided another source: They were convinced that their money was well invested so they sold their possessions-houses, apartments, livestock, land, etc., and also convinced that they enjoyed the government's support in such 'investment', they deposited their money into the above companies.

Another possible source was the illegal activity in which Albania was apparently involved. Starting from 1992, it consisted of the trade in oil, arms smuggling and narcotics which fostered the progress of illicit trade. Moreover, such an illicit trade was largely developed as a result of the embargo imposed by international community on Serbia and Montenegro and the blockade enforced by Greece against Macedonia. According to some observers, the financial proceeds of this kind of trade were in turn recycled towards other illicit activities (and vice versa) including a vast prostitution racket between Albania and Italy and also drug money laundered in the Albanian pyramids (Chossudovski, 1999).

Against this backdrop, the enthusiasm through which people had supported Sali Berisha's Party and Government went in decline. It is widely known his enactment of "Genocide Law" on September 1995, which led to disqualification of many candidates (mostly from SP) in the 1996 elections, the imprisonment of the chairman of the Socialist Party, Fatos Nano, the failure of Berisha's attempt to hold a referendum on a new constitution that would have reinforced his position and which according to opposition, aimed at transforming Albania into a Presidential Republic (Dawisha & Parrott, 1997. p.328). To make things worse, CSCE called the results of May 1996 elections as "far below standards for free and fair elections to be considered legitimate" (Dawisha & Parrott, 1997. p.356).

As regards pyramid schemes activity, the government was only a bystander to the crisis going on throughout the period concerned. Jarvis asserts that despite repeated warnings from the IMF and the World Bank, the finance Ministry did not warn the public about the schemes until October. Even then, however, it drew a false and misleading distinction between companies with real investments, which were believed to be solvent, and 'pure pyramid schemes'(Jarvis, 2000), revealing the support it accorded to several such companies. Moreover, pyramid managers were seen at official receptions and were daily interviewed by the government-controlled TV channels.

It was only in November 1996 that under such domestic and outside pressure, the government decided to set up a committee to investigate the schemes. Actually, no data are found regarding functioning of this committee, but the course of events

admits of no doubt on its effective role.

## II. On the Verge of Civil War

Following the above developments, people felt assured that such a scheme which involved almost every Albanian family and enjoyed the government support would no doubt be guaranteed. That's why people regarded their mistake in investing on such schemes as minor to that of government, which according to them, had not only tolerated the schemes, but actively encouraged their operations describing them as the miraculous achievements of the free market policies it had been advocating (Kola, 2003. p.322). Otherwise, the government should have frozen and if necessary seized the schemes assets once it discovered that they were operating as pyramid schemes. Since the contrary happened, people considered them as a means through which the government withdrew all their money and, accordingly, the responsibility was to fall on the government.

In January 1997, Sude scheme declared bankruptcy followed by Gjallica, Xhaferri and Populli schemes. The other schemes also ceased to make payments soon. February saw the collapse of the 2 of the largest investment schemes -Vefa Holding seated in Tirana, and Gjallica which was centered in Vlora (Crampton, 2002. p.304). This situation which persuaded Berisha to declare a state of emergency shocked the public opinion and triggered riots against the government. People's immediate demands were to overthrow the government, imprison Sali Berisha (the President of the Republic) and take their money back.

During this period, the government tried to take some steps. It refused to compensate depositors for their losses, then it began to move against some of the companies by freezing their money and finally, in February 1997, parliament passed a law banning pyramid schemes. Nevertheless, it was too late: by March 1997, Albania was in chaos. Protests had broken out, especially in several southern towns, such as Vlore, Gjirokastra, Saranda and Berat which were hit hard by the schemes and enjoyed less of government largesse dispensed by northern Berisha (Kubicek, 1998. p.121). Unfortunately, Albania was faced again with social, economic and political instability. As matters continued to deteriorate, Berisha realised that he would have to make both some concessions to the opposition and some overture for international assistance since Albania could no more recover on its own.

By the beginning of March, Berisha finally agreed through Franz Vranitzky, a former Austrian Chancellor appointed to head the OSCE's mission in Albania, to talk with the opposition and form a coalition government (whose Prime Minister became Bashkim Fino – a Socialist), ease the state of emergency and hold internationally – monitored elections. Warning that the country was on the brink of the civil war, Fino called for EU and UN military intervention (Kubicek, 1998. p.122). Actually, what happened by then in Albania, was expected to be an alarm bell for the political class and appeal to their political reesponsibility; yet, the ongoing sequence of events proved otherwise. Meanwhile, just from the time Albania sent the alarming request to international actors, a long diplomatic campaign ensued including major international institutions and capital cities of the West which treated the so called Albanian crisis with much reluctance, efforts to avoid the intervention and conflict of interests. Western governments appeared more concerned with the threat of massive emigration and

the rising importance of Albania as a center of European criminal networks than with the political conflict. Actually, the position and involvement of international factor in the matter belongs to another study, but it is relevant for this analysis to test how this scenario was reflected in the media and the consequences it brought.

### III. The Events of 1997 through the Lenses of Three Newspapers

In view of the importance, role and influence media always plays in informing the general public and shaping its perception about the world, this Part considers the coverage of the pyramid schemes activity from three daily newspapers, namely “Koha Jone”, “Albania” and “Zeri i Popullit”, which represent various political and ideological positions, taking as a point of departure the period October 1996 when the so-called pyramid schemes reached their climax until the new elections were held – on June 29, 1997. During this period, in March 1997 the President banned the issuing of the Albanian press assuming that it was very adversely affecting the actual events. This presentation aims to give the real dimension of how these three newspapers covered the period concerned by displaying both the level of unanimity and the level of differences among them, thereby coming to the point of their relevant effects on the current Albanian events. This survey was based upon journalists’ and politicians’ opinions, interviews, declarations, photos, articles and headlines published during that period (October 1996 - June 1997). The structure of presenting the content of newspapers has been based on four thematic parts for each newspaper as shown below.

|                              |                    |
|------------------------------|--------------------|
| <b>Newspaper</b>             | <b>KOHA JONE</b>   |
| <b>Political Affiliation</b> | <b>Independent</b> |

#### *a- Dealing with the phenomenon of usury*

| <b>Type</b>   | <b>Title/Headline</b>   | <b>Comments</b>  |
|---------------|---|--|
| Advertisement | <b>“Everything for everybody”<br/>Come to the VEFA department<br/>(1/10/1996)</b>                         |  |
| Opinion       | <b>FMN arrived, “investigation began” – Altin Hazizaj<br/>(12/11/1996)</b>                                | There are voices that the deposits in pyramidal companies go to \$2 milliard. What will happen?... |
| Headline      | <b>Pyramidal firms don’t care of FMN: “Sudia” reacts – 50% a month (13/11/1996)</b>                       |  |
| Opinion       | <b>Gjirokastra city is “conquered” by “Populli” and “Xhaferri” Companies-Altin Petro<br/>(29/11/1996)</b> | The phenomenon of usury has swept even the south   |
| Headline      | <b>The government should guarantee people’s money<br/>(30/11/1996)</b>                                    |  |

|                                |   |   |
|--------------------------------|---|---|
| Petition<br>(to the President) | <b>We want our money back</b><br>(22/12/1996)   | 100.000 Sudja's clients: Since a month ago we have been stricken by an unprecedented economic and physiological panic...Sudja says that the competent body is our democratic state. We ask (without violence) our money back. |
| Headline                       | <b>Driza (the president of "Populli"); Meksi government stole the money, I have the documents.</b><br>(20/5/1997) |   |
| Headline                       | <b>Pyramidal Companies: The Political Parties are closing us down</b> (20/5/1997)                                 |   |
| Opinion                        | <b>\$41 million of VEFA arrive from Greece</b> – A.Gj.(17/6/1997)   | This sum of money will definitely solve the problem of our creditors, although we have much more to use for our investments after this political situation subsidies...   |
| Photo                          |   | Confrontation of creditors with the policemen (11/1/1997)   |
| Declaration                    | <b>The State against "Populli" Company</b> (12/1/1997)  | The president of "Populli" Company: "I am under attack because of my opposition-affiliation and they seek to extort money from me.  |
| Declaration                    | <b>America condemns the violence</b> (28/1/1997)  | U.S.A. appeals to the Albanian government that all Albanians should settle this usuary-related situation by peaceful means  |
| Headline                       | <b>The boss of "Cenaj" Company disappears in Greece</b> (3/4/1997)  |   |

*b- The Government in front of the crisis*

|          |  |  |
|----------|--|--|
| Opinion  | <b>The Government plays with the usury</b> -Ben Blushi (a politician)<br>(8/10/1996)                             | The Government passed over in silence for 4 years now and decided to pronounce in TV only after the international organization gave ultimatum. FMN asked to shut down pyramidal companies in the shortest period possible... |
| Headline | <b>The Government should think to guarantee the people's savings</b> (10/10/1996)                                |  |
| Opinion  | <b>Usury: Confidence to Companies; fear to Government</b> -Emin Barçi<br>(11/10/1996)                            | These days it was confirmed that Albanians are not afraid of companies in which they deposited their money, but of traditional infidelity of their government  |
| Headline | <b>Usury between FMN and Government. Within two weeks, financial autopsy of Meksi Government</b><br>(10/11/1996) |  |
| Opinion  | <b>FMN-Government: "War without shooting"</b> -A.H.<br>(15/11/1996)  | Something is pretty sure: the Government will not shut these Companies down  |

|           |  |   |
|-----------|--|---|
| Headline  | <b>Berisha-Pyramidal Schemes: “Together until spring”</b><br>(19/11/1996)  |   |
| Opinion   | <b>Companies in chaos, FMN leaves-</b><br>E. B. (27/11/1996)   | Berisha declares to FMN that Albanians’ money is the purest in the world... the Parliament agrees to set up a commission to investigate on these companies activity |
| Headline  | <b>Usury breaks out into revolts... Violence over demonstrators who ask their money back</b><br>(20/12/1996)         | ...they don’t know yet that after Sude is the government...   |
| Opinion   | <b>Berisha provokes riots-Frrok Çupi</b> (15/5/1996)   | Europe and America are explicitly stating that with Berisha and without free elections, Albania will not obtain any help  |
| Headline  | <b>DP (Democratic Party) allowed the pyramid schemes as it could not get Albanians’ votes otherwise</b> (27/05/1997) |   |
| Headline  | <b>Usury: money about P.D. campaign</b> (8/1/1997)   |   |
| Headline  | <b>All against Berisha</b> (9/1/1997)  |   |
| Headline  | <b>“Berisha, it is high time you have resigned”</b> (14/1/1997)  |   |
| Headline  | <b>The Government: STOP to Pyramidal Companies</b><br>(17/1/1997)  |   |
| Opinion   | <b>A round table of President with other Parliamentary Parties-</b><br>Aurel Simoni (26/1/1997)                      | Yesterday the President asked for a round table with Parliamentary Parties, but S.P. (Socialist Party) refused to go  |
| Headline  | <b>DP (Democratic Party) does not renounce from heading TV</b><br>(12/4/1997)  |   |
| Interview | <b>Abaz Ermenji</b> (the head of NF-National Front): <b>Berisha set up the Mafia</b> (19/4/1997)                     |   |
| Headline  | <b>Berisha, today you must abdicate</b> (29/5/1997)  |   |

### *c- Opposition stanza*

|           |  |   |
|-----------|--|---|
| Headline  | <b>Opposition alarmed by the usury</b> (9/11/1996)     |   |
| Headline  | <b>The Government is similar to Sudja</b> (19/10/1996) |   |
| Interview | A.H. (23/11/1996)                                      | Gjinushi: “The Parliament was formed by usury votes. The Commission for investigation – a political game” |
| Headline  | <b>Government-FMN on the verge of war</b> (14/11/1996) |   |

|          |  |   |
|----------|--|---|
| Opinion  | <b>Is opposition a lever of position?</b> -Enton Abilekaji (4/12/1996)                     | Inactive attitude of opposition has not been displayed only recently... Usury which is increasingly being attacked by FMN, has not yet attracted attention of opposition parties... |
| Opinion  | <b>Do Albanian banks launder money?!</b> – I.B. (6/12/1996)                                | Albania is the ideal place for money-laundering...  |
| Opinion  | <b>The Opposition: “The year 1997, the year of new elections”</b> - A. Simoni (4/1/1997)   | “Clearly for us and USA - this is a naked dictatorship”   |
| Opinion  | <b>The Albanian State was destroyed by Berisha and his clan.</b> – Arben Pasho (25/5/1997) | Today, there exists a macabre state... which functions to exert only violence...  |
| Headline | <b>Nano (head of SP): “In front of DP I do not tolerate anymore”</b> (9/5/1997)            |   |
| Speech   | <b>Nano: “I will give your money back by 100%”</b> (10/6/1997)                             | What we promise and will achieve, is paying back (100%) your money stolen by Berisha, Meksi and their Clan  |
| Headline | <b>Nano ‘conquers’ the south</b> (8/6/1997)  |   |
| Opinion  | <b>Suicide of Albanian Opposition</b> – G.L.(5/1/1997)                                     | Albania on the verge of 1997 with a single-party system...  |
| Headline | <b>SP proposes justice in usury gambling</b> – G.L. (10/1/1997)                            |   |
| Headline | <b>SP: “We will lead the massive protests”</b> (15/1/199)                                  |   |
| Headline | <b>The Opposition is resuming its previous mistakes</b> (23/4/1997)                        |   |

#### *d- Unmanageable situation - almost Civil War*

|          |   |   |
|----------|---|---|
| Headline | <b>The strike has just began, students on protests</b> (7/1/1997) |   |
| Opinion  | <b>Fatal pageantry of Albanian mafia</b> – Zamir Dule (8/1/1997)  | ...our mafia is enjoying the peak of its power...a precise barometer is its partnership with Sicilian mafia |
| Headline | <b>Bombs Friday in Albania</b> (10/5/1997)                        | Statistics of anti-usury protests: 1200 killed, 6000 wounded  |
| Photo    | (8/1/1997)  | Flux of passengers, insecurity, accidents.  |
| Headline | <b>Vlora against the Government</b> (16/1/1997)                   |   |
| Headline | <b>Protests-the Government is unjustifiable</b> (21/1/1997)       |   |



|             |   |   |
|-------------|---|---|
| Headline    | <b>Shkodra: The Government must resign...Durrësi and Elbasani on demonstrations</b> (24/1/1997) |   |
| Opinion     | <b>The Opposition boycotts Berisha</b> (26/1/1997)  | Today, large gatherings sweep Tirana, Vlora, Korça, Saranda...  |
| Headline    | <b>State of Emergency-Capitulation of democracy</b> (28/1/1997)                                 |   |
| Headline    | <b>“We want our parents’ and brothers’ sweat and blood back“</b> (29/1/1997)                    |   |
| Opinion     | <b>Business failing along with usury – Etleva Lloci</b> (31/1/1997)                             | Tens of medium and small businesses towards bankruptcy  |
| Photo       | (12/4/1997)   | The ‘barbarians’ that burned down the “Koha Jone” offices   |
| Opinion     | <b>Berat-‘the guns game’ increases the nr. of invalids – Xhovani Shyti</b> (17/4/1997)          |   |
| Opinion     | <b>STOP with fighting, tomorrow at school – Jonila Godole</b> (20/4/1997)                       | Tomorrow, the lesson will resume at schools which have not been recently damaged                                    |
| Declaration | <b>Berisha, quit your politics</b> (18/5/1997)  | Salvation Committees: “We are here not to take the power by violence, but to forbid Berisha to keep it by violence” |
| Opinion     | <b>Albanians, who will disarm you?</b> Mirlinda Prendi (6/6/1997)                               | The political class without a clear platform of arms collection...  |
| Headline    | <b>Berisha: “All armed in June, 29, elections”</b> (20/6/1997)                                  |   |

|                              |                                 |
|------------------------------|---------------------------------|
| <b>Newspaper</b>             | <b>ALBANIA</b>                  |
| <b>Political Affiliation</b> | <b>Presidential, Right-wing</b> |

#### *a- Dealing with the phenomenon of usury*

| <b>Type</b>   | <b>Title/Headline</b>   | <b>Comments</b>  |
|---------------|---|--|
| Advertisement | <b>“Kamberi” by your side with the wonderful Albanian tourism</b> (3/10/1996)             | At “Kamberi” company you will find your serious partner which guarantees your success  |
| Comment       | <b>Investments make “VEFA” credible</b> (4/10/1996)                                       | “VEFA” is a credible company because its activity relies on the constantly increased investments... VEFA represents the largest Albanian company |
| Interview     | <b>President of VEFA: “Creditors’ money make up only 1/3 of our capital”</b> (10/10/1996) | ...We do not collect money to invest but with citizens’ credits we help our business and citizens too...   |

|          |   |   |
|----------|---|---|
| Opinion  | <b>Attack and terror over “VEFA” and “Xhafferri”</b> – B. R. (24/10/1996) | The unrealised scenarios of “Albanian revenge for justice” organization has been discovered while it was preparing to attack the two greatest centres of money collecting     |
| Headline | <b>Law on transparency of usuries approved</b> (22/11/1996)               |   |
| Headline | <b>“Populli” president: “There is no stealing”</b> (23/11/1996)           |   |
| Headline | <b>“Xhafferri” increases the number of its creditors</b> (5/12/1996)      |   |
| Headline | <b>Analysts: “SUDE, a pure pyramidal scheme”</b> (20/12/1996)             |   |
| Opinion  | <b>“Xhafferri blooms”</b> – Anila Prifti (24/12/1996)                     | Yesterday it was all quiet because money operation goes on as scheduled.  |
| Headline | <b>“Silva”: Usuries without problem</b> (24/12/1997)                      |   |
| Opinion  | <b>“Money from usuries in the western banks”</b> – A. Nikolla (11/1/1997) | The accounts number of many companies does not exist in the Albanian banks while they have collected millions of dollars  |
| Opinion  | <b>“\$130 million away from Albania”</b> – T. A. (14/1/1997)              | This fact has increased the doubts about the possibility of links with the international trafficking. It is suspected that this money belongs to one of the usuries companies |
| Headline | <b>“Populli” and “Sude” under investigation</b> (14/1/1997)               |   |
| Headline | <b>VEFA: “Do not equal us with ghost companies”</b> (14/1/1997)           |   |

### *b- The Government in front of the crisis*

|             |   |  |
|-------------|---|--|
| Comment     | <b>“Usuries, under the investigation of a relevant commission”</b> – Arben Gjuzi (21/11/1996)               | Non-parliamentary members of this commission approved by the parliament will investigate the activity of borrowing companies |
| Headline    | <b>The commission of transparency starts financial control</b> (10/1/1997)                                  |  |
| Headline    | <b>Minister Ritvan Bode protects governmental warning on the danger of usury companies</b> (17/1/1997)      |  |
| Declaration | <b>Democratic Alliance in a Press Conference: “Usuries should not be politicized”</b> (19/1/1997)           |  |
| Headline    | <b>The Parliament approves the anti-pyramidal law - 20 years of imprisonment for swindlers.</b> (24/1/1997) |  |
| Headline    | <b>“Talks instead of violence” – the right wing asks for inter-party collaboration</b> (26/1/1997)          |  |

|             |   |  |
|-------------|---|--|
| Declaration | <b>Minister Bode calls for calmness and understanding from the creditors – A. Rrozhani (1/2/1997)</b>                 | ...Bode assured the creditors that the government would use all the real and personal property of all those who set up these companies in order to pay the creditors back. |
| Interview   | <b>Berisha: "The Albanians must be assured about their money"- (4/1/1997)</b>   | The creditors will take back all their money which are frozen in the banks   |
| Headline    | <b>The State is ready to alleviate the citizens' misfortune (6/1/1997)</b>  |  |
| Headline    | <b>Meksi: "The socialists are urging a civil war"(14/2/1997)</b>  |  |
| Headline    | <b>The actual Prime Minister is on the verge of resignation. He cannot face the political pressure (22/4/1997)</b>    |  |
| Interview   | <b>Berisha: "We restore order within 75 days; There is no normal Albania with bandits and committees" (25/6/1997)</b> |  |

### *c- Opposition stanza*

|          |  |   |
|----------|--|---|
| Opinion  | <b>"Socialists attack the usuries" – Arben Gjuzi (7/1/1997)</b>                                      | The socialists hope to have a political motif to rise in power by overthrowing the borrowing companies                                      |
| Headline | <b>SP (the Socialist Party):"The failure of usuries saves the failure of SP" (8/1/1997)</b>          |   |
| Opinion  | <b>"Opposition put \$2 millions in usuries" – T.GJ (12/1/1997)</b>                                   | According to some sources, SP has withdrawn its money from "Pupulli" company through the president of this company before the fixed date... |
| Opinion  | <b>"Usuries and the cynicism of the opposition" – D.A. (16/1/1997)</b>                               | SP is eagerly waiting the quick end of usuries without minimally distinguishing between ghost companies and those investing ones            |
| Photo    | <b>"The double-faced person of SP meeting" (20/1/1997)</b>   | The same person appears 2 days consecutively in a SP meeting and is thought he had dyed himself with a blood-like liquid...                 |
| Headline | <b>"SP takes the lead in burnings and destructions" (26/1/1997)</b>                                  | Since two days ago the left opposition is inspiring and leading the violence with burnings and ruins...                                     |
| Headline | <b>Korçë city: "SP burns down DP offices" (28/1/1997)</b>  |   |
| Headline | <b>Tepelenë city: "The opposition on protests by violence" (30/1/1997)</b>                           |   |
| Headline | <b>"Socialists shoot the police" (6/2/1997)</b>  |   |
| Opinion  | <b>Do socialists support the government of National Reconciliation?! – Astrit Patozi (12/4/1997)</b> | Actually the bands and their committees are the only culprits who could endanger the restore of order and calmness in Albania...            |

|             |  |   |
|-------------|--|---|
| Declaration | <b>Nano: “We will restitute your money” (10/6/1997)</b>  | Yesterday, he promised the restitution of all lost money to the creditors if they vote for socialists |
| Comment     | <b>9 parties against socialists; Socialists continue to impede the social pact (19/6/1997)</b> |   |

#### *d- Unmanageable situation - almost Civil War*

|             |   |   |
|-------------|---|---|
| Headline    | <b>“Gjallica” causes popular revolts</b><br>(17/1/1997)                         |   |
| Headline    | <b>“We lost our money”- creditors on protests (Shkodër city)</b><br>(21/1/1997) |   |
| Opinion     | <b>‘The frozen wealth – too small’</b><br>P. Permeti (24/1/1997)                | ...This wealth does not influence in alleviating the effects of pyramidal schemes   |
| Photo       | (25/4/1997)   | Confrontation of people with the police (16 wounded policemen)  |
| Opinion     | <b>‘Vlora under the power of masks’</b><br>T.L. (14/2/1997)                     | The absence of order has increased the fear of the violent breach of public order, especially late at night..                           |
| Declaration | <b>Students on strike: ‘We want our money back and interest rates too’</b>      | We call for a new government which will pay all creditors’ money back and their interest rates too.                                     |
| Headline    | <b>46 policemen massacred (2/3/1997)</b>  |   |
| Opinion     | <b>‘Vlora in a coffin’</b><br>T.M. (2/3/1997)                                   | The criminals of Vlora have robbed girls to take them abroad as prostitutions...  |
| Headline    | <b>Terrorists attack a military division (2/3/1997)</b>                         |   |
| Comment     | <b>Bandits burn down ‘Albania’ newspaper offices A.Gj. (10/5/1997)</b>          | As long as we are concerned, only ‘Koha Jone’, ‘Zeri i Popullit’ and ‘Republika’ newspapers will be in circulation – criminals threaten |
| Headline    | <b>The Saving Banks – damages flare up to 150 million lek (11/5/1997)</b>       |   |
| Headline    | <b>The Salvation Committee: “Our time is approaching” (22/5/1997)</b>           |   |
| Comment     | <b>‘Fino is driving Europe away from Albania’ (7/5/1997)</b>                    | ...by imposing a political settlement which breaks the political consensus  |
| Headline    | <b>‘Terrorism plunges Tirana city in a pool of blood’</b><br>(3/6/1997)         |   |
| Headline    | <b>‘June 29 – the end of terrorism’</b><br>(27/6/1997)                          |   |

|                              |                                     |
|------------------------------|-------------------------------------|
| <b>Newspaper</b>             | <b>ZËRI I POPULLIT</b>              |
| <b>Political Affiliation</b> | <b>Left wing , anti-overnmental</b> |

*a- Dealing with the phenomenon of usury*

| Type     | Title/Headline  | Comments   |
|----------|---|--|
| Comment  | <b>“Vlora, the capital of usuries”</b><br>(12/10/1996)  | Vlora is otherwise known as the Albanian capital of usuries. Companies: Vefa, Gjallica, Kamberi, Silva, Cenaj-Co, and Populli have created through their branches schemes from where millions and millions dollars circulate legally |
| Notice   | <b>Xhaferri: “Our company will continue membership according to 3-month term without a fixed turn”</b><br>(8/11/1996) |  |
| Headline | <b>Vefa aims even the farthest region</b><br>(8/11/1996)  |  |
| Photo    | (12/11/1996)  | People transferring money from the saving bank to the branches of usuries.   |
| Headline | <b>Silva pretty sure on its own way</b><br>(11/12/1996)   |  |
| Opinion  | <b>Sude: “All will take their money back” – A.A</b> (12/12/1996)  | ...Some officials have withdrawn their money beforehand. This fact has caused some trouble...  |
| Headline | <b>The year 1997 – the year of ‘epidemic’ of usuries</b> (4/1/1997)   |  |
| Opinion  | <b>Citizens ask for transparency of pyramid schemes – Koço Broka</b><br>(3/5/1997)                                    | While many commissions were set up, neither of them has so far given a full picture of what happened...  |

*b- The Government in front of the crisis*

|          |   |   |
|----------|---|---|
| Headline | <b>The danger is on creditors, the government is not responsible</b><br>(16/11/1996)              |   |
| Comment  | <b>“Politics with usuries”</b> (23/11/1996)   | The Albanian government invented a so-called non parliamentary commission to cheat FMN, Albanian companies and citizens...  |
| Opinion  | <b>The state must guarantee their money to Albanians – Beqir Shkreli</b><br>(4/12/1996)           | The state declares that the issue of usuries is fundamentally personal...   |
| Opinion  | <b>“The government postpones the budget, Sude postpones the usuries” – Z. Krutja</b> (22/12/1996) | The government could not increase its nationals’ incomes on the promised levels due to its amateur management. It made up for this ‘inability’ with “Sudes’ activity”. This fact explains the alliance of Berisha’s government with them... |
| Headline | <b>“\$130 million away from Albania”</b><br>(14/1/1997)   | Is government being reckless about this loss or is it collaborating in this smuggling? ...  |
| Headline | <b>Government stole us, not Sude</b><br>(19/1/1997)   |   |
| Headline | <b>DP has embezzled money from pyramidal schemes</b> (11/2/1997)                                  |   |

|          |  |  |
|----------|--|--|
| Opinion  | <b>“June 29 elections – at stake”</b> – Engjëll Kondaj (11/4/1997)   | Berisha and his DP clan are trying to postpone the date of elections by every means hoping to win back the lost prestige...  |
| Opinion  | <b>“DP-SP meeting, failed again”</b> – Hamdi Jupe (6/5/1997)         | The country is on the brink of governmental crisis.  |
| Headline | <b>Berisha’s guards violate the military hospital (27/5/1997)</b>    |  |
| Opinion  | <b>“The power that ruined the state”</b> – Guro Zeneli (31/5/1997)   | DP painted the model of destroying the state, the opposition must build it up; Berisha divided and confronted Albanians, opposition should reconcile and unite them... |
| Headline | <b>June, 29 – salvation from Berisha (1/6/1997)</b>                  |  |
| Headline | <b>“DP, an enemy of foreign press” (14/6/1997)</b>                   | The attack on the free speech is a strategy of DP...   |
| Headline | <b>Berisha freezes the law on transparency by decree (25/6/1997)</b> |  |

### *c- Opposition stanza*

|                         |   |   |
|-------------------------|---|---|
| <b>Headline</b>         | <b>SP must become a constructive and effective opposition (4/12/1996)</b>   |   |
| <b>Opinion</b>          | <b>‘It is high time for the opposition’</b><br>- Ardian Myslymi (8/1/1997)  | SP possesses all necessary potential to demonstrate its strength                      |
| <b>Declaration</b>      | <b>SP: ‘The State is responsible for the drama of usuries and must respond to all Albanians about their money won through back – breaking jobs’.</b><br>(15/1/1997) |   |
| <b>Appeal</b>           | <b>Opposition parties: Centers across the country should belong to the unrest and popular protests (18/1/1997)</b>  |   |
| <b>Declaration</b>      | <b>SP: “We call on the current government to resign and create a new government by consensus (of all political parties) reached for that purpose” (25/1/1997)</b>   |   |
| <b>Press Conference</b> | <b>Opposition Parties (SP, SDP and DAP): “Opposition will support the people” (28/1/1997)</b>   |   |
| <b>Headline</b>         | <b>Fascist terror over opposition (30/1/1997)</b>   | 500 have been arrested so far throughout the country...                               |
| <b>Comment</b>          | <b>Leaders of SP in Vlora (11/2/1997)</b>   | We will attend the burial ceremony of Vlora citizens who were killed by the police... |
| <b>Declaration</b>      | <b>SP denounces Berisha-Meksi scenario seeking to retain their power by blood and terror (12/2/1997)</b>  | The actual crisis calls for political settlement, not military settlement             |

|                      |  |   |
|----------------------|--|---|
| <b>Communication</b> | <b>SP as a member of “Forum for Democracy” expresses its optimism regarding a dialogue in a round table of almost all Albanian political parties (18/3/1997)</b> |   |
| <b>Declaration</b>   | <b>Nano: “If the current government collapses, we will be among the population against Berisha” (9/5/1997)</b>   |   |
| <b>Declaration</b>   | <b>The head of SDP: “Bands which support DP and Berisha – jeopardise elections” (13/5/1997)</b>  |   |
| <b>Headline</b>      | <b>SP offers chances and security to all (29/5/1997)</b>   |   |
| <b>Comment</b>       | <b>“Our people signed Berisha’s end” (11/6/1997)</b>   | After Vlora, waves of meetings led by opposition conquered centers of Saranda, Delvinë, Gjirokastër and Përmet... |
| <b>Photo</b>         | (14/6/1997)  | All-round popular support about the Left-wing party...  |
| <b>Opinion</b>       | <b>“The socialists’ dawn of 30 June, will not disappoint Albanians” – A.D. (20/6/1997)</b>   | Progressive opposition is the real hope and possibility to escape the chaos...                                    |
| <b>Headline</b>      | <b>A big change is coming soon (22/6/1997)</b>   |   |
| <b>Declaration</b>   | <b>3 main Opposition Parties (SP, SDP and DAP): “Co-governing, security for the future of our country” (29/6/1997)</b>   |   |

#### *d- Unmanageable situation - almost Civil War*

|                 |  |   |
|-----------------|--|---|
| <b>Opinion</b>  | <b>Thousands of citizens poured in to occupy “Skënderbeu avenue” – N.N. (20/12/1996)</b>                         | The police dispersed them by force...   |
| <b>Notice</b>   | <b>Usuries affected the banks (9/1/1997)</b>   | Increase of private capital has been coupled with a limitation of banks activity...   |
| <b>Comment</b>  | <b>Usuries burn down Berati city – Luan Shmili (26/1/1997)</b>   | People’s wrath burned down the Court building, Attorney’s Office, SHIK Building. (National Informative Service), Archive and Police Station...  |
| <b>Headline</b> | <b>A wave of arrests launched (30/1/1997)</b>  |   |
| <b>Headline</b> | <b>The entire south of Albania entrapped (5/2/1997)</b>  |   |
| <b>Opinion</b>  | <b>The State launched gun fighting in the capital of usuries – Correspondent of “Zëri i Popullit” (6/2/1997)</b> | ...Violent clashes occurred between the police and protesters. Tens of them wounded. Thousands of military forces formed a ring around Vlora... |
| <b>Photo</b>    | (9/2/1997)   | Police and SHIK dragging demonstrators...   |

|                 |   |   |
|-----------------|---|---|
| <b>Headline</b> | <b>Turmoils even on TV (19/3/1997)</b>                                    |   |
| <b>Comment</b>  | <b>60 students on hunger strike (21/3/1997)</b>                           | Thousands of citizens have besieged the building where students are located, to sympathize with them... |
| <b>Opinion</b>  | <b>“This school year must not be repeated” – Mirela Ndini (17/6/1997)</b> | Along with the lacking education process, children were psychologically stressed...                     |

As noted above, Albanian media strongly influenced the course of events. Newspapers followed quite different lines in presenting the crisis and bias is quite obvious – the same theme and issue is interpreted in quite divergent ways by the three newspapers based on their political and ideological affiliation. This interpretation contributed to throwing people into confusion, to urging them into chaos and anarchy and to further leading them into almost civil war.

More specifically, ‘Albania’ sought to present a more peaceful picture of the matter. It expressed support for some pyramid investment companies and differentiated between them, blamed SP for the chaos, destructions, protests held, maintained a more distanced position when things boiled up to an unmanageable point and allegedly tried to take steps against such companies. The opposite applies in the case of ‘Koha Jone’ and ‘Zeri i Popullit’ which sought to present a more inflamed state of play. Both newspapers addressed people’s wrath not to solving the pyramid crisis but focused on politicizing it by asking a political collapse although at a high cost. They reflect SP’s promise to return money back to all those who lost it.

The commonality between the three newspapers is that objectivity in reflecting the reality is missing in each of the newspapers and also the component of constructive criticism which could have a positive impact, is missing too. Further, the three newspapers reveal each from their perspective how opposition-affiliated politicians exploited the situation for their own political gains – majority politicians to maintain their position, those of the opposition to overthrow the actual government and take hold of power seeing the pyramid crisis as a leverage to accomplish their goals. Such an approach reveals the politicians conduct - a round table and comprehension between opposition Parties might have avoided the losses and damages Albania suffered at that time and reach a plausible solution.

#### **IV. Post-Crisis Recovery – Myth or Reality?!**

As mentioned above, shortly after emerging from the communist regime, Albania set on the agenda of its foreign policy the course towards future Atlantic and European principles. That very year, Albania submitted its official request to gain NATO membership even though at the time, it was astonishing for an American diplomat of NATO to hear a senior Albanian official articulating without hesitation in a multilateral international meeting Albania’s wish to become a NATO member (Babameto, 2014. p.362-371). The events following the 1997 crisis, evidently affected and diversified the course of Albania’s progress to democracy and multi-party system functioning. The widespread discontent culminated into armed revolts spread to most of the south of the country and hundreds of lives lost. The danger of civil war seemed imminent.

The government was finally forced to resign and an interim cabinet was formed under



the socialist, Bashkim Fino, on 11 March (Crampton, 2002. p.305), in anticipation of next general elections due in June. The 1997 events left behind a bulk of profound financial, social, economic and political effects. The new government (SP-led coalition), committed itself to restoring order, eliminating corruption and crime, reconstructing the armed forces and reforming the administration although the difficulties were obvious (Muco et al, 1998. p.7).

To overcome the difficult economic situation, a comprehensive program starting from macroeconomic stabilization was designed and put into operation by the last quarter of 1997 (Muco, 1998. p.111). Yet, the economic and social situation was still critical, lawlessness and violence continued across the country, political reconciliation seemed unconceivable, a rapport which unfortunately persisted. A clear indicator concerns the July 2005 elections with opposition taking advantage of 1997 events to their own political gains – 1977 negative spots appeared on its electoral campaign to remind people of the bitter experience they had suffered!?

Meanwhile, during the following years of 1997 events, the SP-led government introduced a very optimistic view claiming macroeconomic and financial stability within a short period of time, economic growth in 1998 to 8%(as compared to 7% decline in 1997), budget deficit domestically financed and inflation rate reduced to 8.7% at the end of 1998 (Angjeli, 1999. p.9-10).

However, in a July 1999 speech to the Albanian Institute for International Studies Symposium in Tirana, listed indicators for the success or failure of Albania were rather pessimistic: Only in the economic area had Albania made visible (albeit limited) progress through privatization and market reforms. All the other areas - Political Stability, Institution Building, Civic Society and Organized-Crime Fighting, were dangerously deficient (Codispoti, 2001. p.94-95).

## **V. On the Path to EU Integration**

This was the state of play in Albania when the 2000 Zagreb Summit and June 2003 Thessaloniki Summit promised the Western Balkans a clear and concrete perspective of future EU membership. EU introduced the Stabilization and Association Process as a pre-accession strategy while it set and strictly kept to the Copenhagen criteria comprising political, economic and *acquis communautaire* (Babameto, 2022. p.80-95), on the road to attain eventual EU membership. On this long and strenuous road for two decades by far, EU Commission produces a Communication on Enlargement Strategy and an annual country Report.

Actually, it is not the aim of this analysis to track and consider Albania's performance and its complex relationships with EU in the project, but to get insight on certain key features of media freedom – enshrined in the political criteria – as a component thoroughly affecting the country's democratic development, with a view to grasping its evolution since the beginning of the new post-communist system. As such, it can only be considered within the whole landscape of the process.

In this context, it should be stressed out that the EU integration process is a hierarchic one, i.e., government-conducted on the part of the aspirant country, thereby encompassing a simultaneous democratization and Europeanization course of the Western Balkan countries. Within this trajectory, Albania sets out the path towards meeting the criteria, while the Commission has been assessing its achievements,

challenges and provided recommendations annually under a format designed for that purpose. Taking a glimpse at Enlargement Strategy documents and Progress Reports, overall Albania's assessment can be summarized as 'a country that has delivered results but further efforts are needed'.

Albania's timeline in this process by far is as follows (ECR Report, 2021. p.22-23): in 2004 the Council adopts European Partnership with Albania, in 2006 Stabilization and Association Agreement is signed and in 2009 enters into force, in 2009 Albania submits its application for EU membership, in 2010 visa free regime for Schengen area is introduced for all albanians having a biometric passport, in 2014 the Council granted the candidate status to Albania, in 2022 EU decided to open negotiations with Albania and held the first intergovernmental conference. It should be added here that in 2009 Albania gained NATO membership.

Against these strides achieved, a question arises: what is the position of media freedom over the years in view of the development of a democratic society? Obviously, such an evolution of media freedom in Albania has constantly fitted the other typical and related components featuring this country. Hence, it can be described as a component walking on a fragile democracy, weak institutions, with authoritarian leaders keeping a restricted freedom of expression, suppressing unwanted pieces of information, government-controlled, political interference and tightening of political control, as well as lacking professionalism.

Of special importance are also several key features that explain current weaknesses of media sector in Albania (as part of a similar wider context of Western Balkans), which undermine its proper functioning and thus affect democratization and meeting conditionality on the path to join the EU club. As such, certain observers list the abuse of the legal system for media control, lacking transparency of media outlets ownership, informal pressure on the media, intimidation, dominance of pro-government media, influence on media through allocation of public funds, as well as effect of europianization on media freedom ( BiEPAG, 2015. p.11-25). The above features altogether appear to describe the 1997 scenario too in terms of shaping media functioning as drawn from the analysis of both periods.

Against this backdrop, EU has constantly pointed to the deterioration of freedom of expression/ media freedom across the Balkan countries, as key pillars of a democratic society. Concretely, in the most recent Enlargement document of 2022, the Commission states that throughout the Western Balkan region there was limited progress in this regard (COM(2022) 528. p.13). In addition, a shadow report of 2021 quotes Albania, among others, as a country where there still remains a deficit in terms of freedom of expression, and attitudes towards media (ECR Report, 2021. p.15).

In the same spirit, Albania Progress Report 2022, states that 'no progress was made in the reporting period in this regard. The intersection of business and political interests continued to hamper media independence and the quality of journalism. Disinformation including smear campaigns are recurrent ... The atmosphere of verbal attacks, smear campaigns and acts of intimidation against journalists has not improved'. Further the document highlights the importance to ensure that the media have direct and transparent access to governmental institutions and their activities (Albania Progress Report 2022, p.5). Obviously, these requirements cannot be singled out and dealt with as such. It is rightly stated that such challenges faced in regard to freedom of expression are an integral part of the wider crisis of democracy, which

has expressed itself in the backsliding of democratic institutions (BiEPAG, 2015. p.6).

## Conclusions

Over the two decades or so that the Western Balkans have been following the path to EU integration, unfortunately they have witnessed a downturn in building up a democratic society. Freedom of expression/Media freedom as a fourth estate, enshrined in the political conditionality, has contributed in this regard. It has followed a linear path conditioned by interaction of all components involved. The analysis shows that what featured media landscape during the 1997 events in Albania, has applied during subsequent years as well. The only difference is that on the second context, it reflects the state of play of the whole set of criteria required on the road to eventual EU integration; to put it otherwise, it serves as a mirror to show where Albania stands on this journey. The course followed by far along with relevant assessments made and records marked, evidence this.

Thriving on a fragile democratic setting, amidst weak institutions, politically controlled, suppressed and captured, is a definition that best describes media functioning both during the 1997 events and further down the road. These features inherent from past legacy, could not relieve from such a grip throughout the period subject to analysis; instead they persisted and shaped both the public perception and proved an obstacle to make informed decisions and most notably – prevented politicians to follow the proper course then and today. Despite the scale and effects media coverage inflicted at that time, lessons learned should have appealed onwards to our political class' awareness and responsibility, but this was not the case. Strange enough today, media functioning appears stripped off its essential role, principles and impact, thus adversely affecting conditionality set towards EU perspective.

Indeed, whether the media functioning during 1997 events sustained itself within a context somehow excused given the near distance from the big change, its gradual worsened performance over the years, is not justified. The reason, at least one among others, lies with the mode of EU process designed and practiced domestically across Western Balkans. As a top-down process, it gave the respective governments leeway to behave in line with own personal benefits and establish informal links to that end, facing no accountability, no monitoring, no pro-active civil society or other organizations to hold them to account. Being stuck to past mindset and masters of practicing it, one strong tool to achieve this is silencing the media, silencing its freedom of expression. This in turn, brings the democratic development and conditionality to a dead-end. Therefore, to make its way from an authoritarian-imposed and captured media to a democratized pluralist one, a radical change is needed to the enlargement methodology in all integral and complex components. Political will and commitment on both parties concerned can effectively achieve it.

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# **Mobility Management medium-term solution for reduction traffic jams on the Tirana-Durres Highway**

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## **Abstract**

With the economic development of Albania but especially in the metropolitan area Tirana-Durres, the demands for transportation have increased several times. Not only economic growth but also some other factors play and will play a role in the use of transport, such as lifestyle, purpose of travel cost, impossibility other way of movement etc. Currently on the Tirana-Durres highway there are many traffic jams. This traffic jam has come as a result of the works that are being carried out in the overpass of the intersection of the city ring road with Durres Road (see Figure 2). Engineering analysis of the current situation through methods known today such as Mobility Management will provide a short to medium term solution to overcome the current situation. Through the proposed measures of Mobility Management, the aim is to normalize the movement of traffic flows, in a free circulation and without blocking problems.

**Keywords:** Mobility management, demand management, flows, peak hours, soft measures;

## **1. Introduction**

A transport system operates together with its components and their relations that ultimately realize its purpose, namely, the production and distribution of transport service. Users and beneficiaries of services are both persons and goods. Passenger and freight transport service are related depending on the time, the itinerary traversed and especially by the quantity of transport users. In addition to the realization of the transport of passengers and goods, on the other hand, the realization of a movement that is as economical, safe and as environmentally friendly as possible is required. These results require an engineering analysis but also require balanced decision-making for an optimal solution of problems (Strategy of Transport Sector). The theory of scientific management deals with the solution of these problems, where Mobility Management is also based on this theory. The basic concept of "Mobility Management" (MM) is that; Any transportation problem can be solved if people change their behavior. Mobility Management (MM) is a concept to promote sustainable transport through movement demand management.

At the core of the MM are "soft" measures such as information and communication, organization of services and coordination of activities of different partners. Soft measures of Mobility Management in comparison with strong measures, which aim at intervention in infrastructure or change of transport system in some sectors, in soft measures it is not necessary to require large financial investments, but it is required

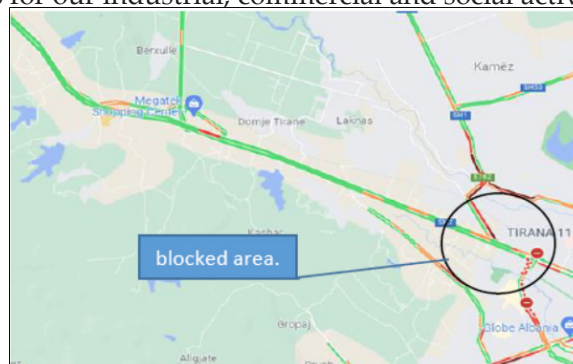
and intervened in the management of the demand for movement for an extension of it in time during the day. Let us not forget that the application of soft measures has a very high profit cost for users.



*Figure 1.*

Transportation Demand Management (TDM) is the application of strategies and policies to reduce travel demand, or to redistribute this demand in time or space. In this second possibility in the distribution of demand in time and space will be our proposal, based on the engineering analysis of traffic flows, and socio-economic activities of the study area. Tirana-Durres region in Albania is the most developed socio-economic region and with faster rates. But this development also generates high demand for transport, consequently problems arise in traffic circulation, which should be the main focus by Traffic management institutions. In recent years, the traffic management system in this segment of the highway has failed. The so-called “Tirana-Durres metropolitan area” can be classified with an oval shape with wide dimensions of 60-70 km east-west and smaller dimensions 20-30km north-south, with Durres in the West and Tirana in the East. The Tirana-Durres Highway (Planning of Tirana) connects the two largest industrial and socio-economic but also tourist centers of the country. This way, this road is busier in vehicle traffic and peaks during the weekdays. The number of vehicle trips along the Tirana-Durres highway between 2008 and 2016 increased by 60%, bus travel increased by 35%, while train travel decreased by 50% during the same period. From the analysis of the data we conclude in two factors. First, the space on the Tirana-Durres highway is a social, economic, commercial, medical, educational, state institutions, etc., area that occupy approximately 65-70 % of its nationwide. Second, this metropolitan area covers 40-45 % of the population on a national scale (Albanian National Transport Plan).

This metropolitan area also includes some transport sectors such as the national airport, the port of Durres, the railway line, and on the other hand the highway is part of Corridor VIII of the Pan-European Transport. (TEN-T). Due to the works that are being carried out in the construction of the overpass at the exit of the city of Tirana, the 4x4 lane highway is operating with 2x2 lanes. Due to this limitation of the number of lanes, traffic jams have arisen. Figure 2. A positive advantage is that during a segment of the highway, up to Vora on both sides there are secondary roads. Which solve a lot of traffic problems for our industrial, commercial and social activities.



*Figure 2 Blocked area.*

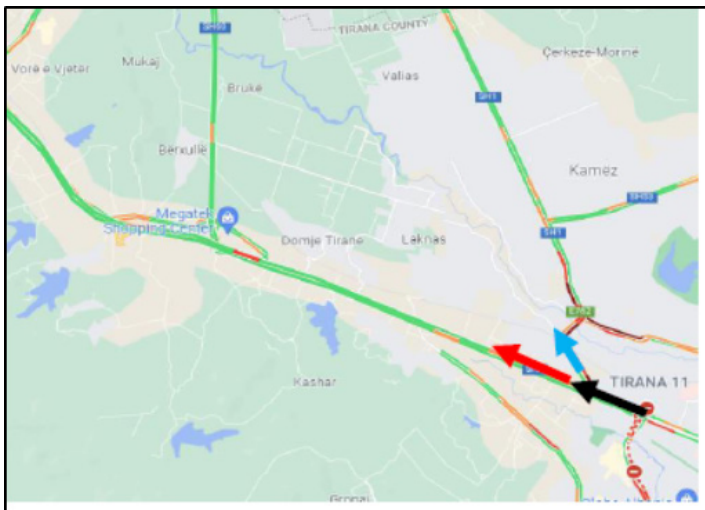
## 2. Methodology

For the analysis and the main findings, we relied on studies conducted in recent years, and the collected data were used to assess the current situation (WB7-ALB-TRA-12). From the analysis we have highlighted the following data and characteristics: The automatic traffic counts will be classified based on number of axes.

| ID | Vehicle                |
|----|------------------------|
| 1  | Motorcycles            |
| 2  | Cars                   |
| 3  | Vans                   |
| 4  | Minibuses              |
| 5  | Buses                  |
| 6  | 2 Axle Trucks          |
| 7  | 3 Axle Trucks (single) |
| 8  | Articulated Truck      |
| 9  | Truck + Trailer        |

*Table 1 Vehicle types*

The total volume and distributed according to the two main axes are showed in Table 2.



*Figure 3 Distributed traffic volume map*

| Road segment           | Direction in the figure. | AADT  |
|------------------------|--------------------------|-------|
| Tirana-Vora            | red arrow                | 43625 |
| Tirana-Kamza.          | blue arrow               | 28000 |
| Total exit from Tirana | black arrow              | 71625 |

*Table 2 Distributed traffic volume*

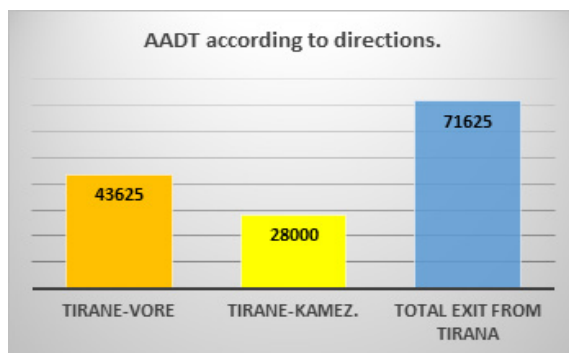


Figure 4 Traffic volumes charts of two main axes

Table 3 gives the percentage (%) according to the type of vehicles in the traffic volume.

| Vehicle type.     | Exit from Tirana |
|-------------------|------------------|
| Car               | 83.37%           |
| Van               | 3.42%            |
| Minibus           | 2.15%            |
| Bus               | 3.20%            |
| Truck (2 axl)     | 4.33%            |
| Truck (3 axl)     | 3.20%            |
| Truck articulated | 0.28%            |
| Truck + trailer   | 0.05%            |
| total             | 100.00%          |

Table 3 Percentage of vehicle types

All vehicles to and from Rinas Airport pass on this road axis. During a year, an average of 3474 914 passengers travel per year or 9520 passengers/day. Accepting the average load of 3.2 passengers/vehicle, (Milot to Morine -Highway, Feasibility Study and Detailed) in this axis pass 2975 vehicles, or 6.81% of AADT that passes on the Tirana-Vora highway. We emphasize that this volume of tools is distributed throughout the day.

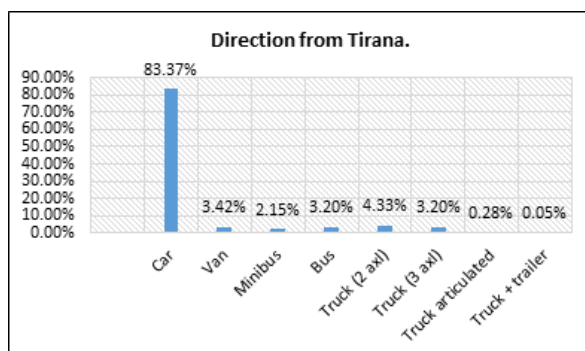


Figure 5 Weight in % that each type of vehicle has. Directed by Tirana. Hourly distribution of traffic flow.



According to the data we have analyzed the “peak” hour of the morning and the peak hour of the evening on weekdays are given in Figure 6. For each day of the week starting from Monday to Friday, the “peak” hours of traffic are, in morning between the time band 7.00 -9.00, and in the afternoon in the time band 16.00-18.00. Hourly and daily flows are distributed almost equally on each day and hour of the weekdays with an almost small difference of 3-5%. (for simplicity we have presented only an average curve for the weekly working days).

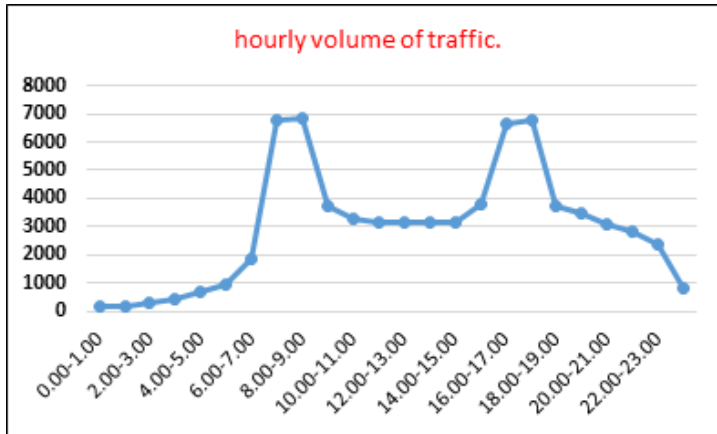


Figure 6 Hourly volume of traffic.

Working days from Monday to Friday, have a broken distribution (with ridges) in the time bands mentioned above. During the weekends, compared to the working days, the differences are quite high and this can be justified by the days off of public and non-public units and Institutions that perform their activities along the highway. (Study for the rehabilitation of asphaltic) From the data, Table 4 gives the weight occupied by the “peak” hours of the hourly distribution of traffic flows.

| Time          | Vehicle/h | In %  |
|---------------|-----------|-------|
| 07:00 - 08:00 | 6795      | 9.4 % |
| 08:00-09:00   | 6864      | 9.5 % |
| 16:00-17:00   | 6679      | 9.3 % |
| 17:00-18:00   | 6767      | 9.4 % |

Table 4 Weight in% occupied by ‘peak’ hours

### 3. Proposals

Based on the analysis of traffic flows, hourly distribution of flows, area and socio-economic development, tourism potentials, as well as the state of the current road infrastructure, we propose the application of soft measures.

Public and non-public institutions that carry out their activities in the area along the highway to change the start time of their activities as follows;

Publike public institutions to start the activity at 8.30

Higher education institutions, to start the activity at 9.00

Activities of second level services such as services, commercial units, etc. to start the

activity at 9.30.

The morning schedule until 8 o'clock is judged as the movement of vehicle flows that have a destination outside the metropolitan area.

From the economic and commercial units with number of employees over 15 people to draft the travel plans of the employees. (to make movements to/from work by minibuses or buses)

#### 4. Conclusion

The recommended MM techniques should be supported by government transport agencies, public and non-public institutions as well as the various economic and commercial activities involved in the metropolitan area.

By applying the change of working hours according to the above proposals we manage to distribute the flow of vehicles of "peak" time bands approximately 19% before day and 19% after day. With these soft mobility management measures, ie the demand for movement, our goal is to extend the curve of time flows by eliminating the "peak" hours of the morning and after the day. (see Figure 7 red curves with dashed lines). The straight red line parallel to the ox axis (hours during the day) indicates the maximum value of the flow maintained by the road capacity at the moment that works are being carried out on the highway.

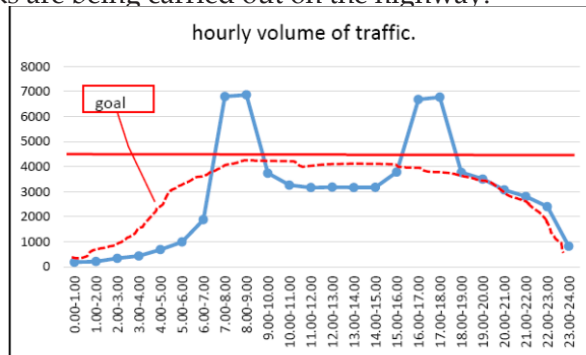


Figure 7 Hourly volume of traffic after application MM. (red dotted line).

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# Global factors increase commodity prices and consequences in domestic economy

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## Abstract

Since the global developments started a year ago when the Ukraine war shocked all the countries in over the world, this is how many macro and micro economies balances, began to change. The geopolitical influences also started to change in the economic and financial systems through the global markets. Standardized markets such as stock exchanges began to show large fluctuations in different trading segments. These changes in financial indicators slowly began to bring implications and effects to the countries' economies. Many countries' economies began to encounter difficulties in the supply-demand ratios of raw materials, such as *commodity investments*. Undoubtedly, the fluctuation of these prices implicated other derivatives in the countries' economies. This is precisely the purpose of this study, to analyze the effects that come from this war, which brought about the increase in *commodity prices*, which implied effects on the inflation increase. Then the inflation increase brought implications in every sector of the country's economy and finance of the countries, as we are seeing actually here in Albania. This paper of study will bring the literature of the implications of some reports that the previous wars effects have brought to the economies of countries, as well as the reports of the increase in price changes (*commodities*) in relationship with inflation, as well as the consequences that inflation has brought to the economy of the country.

**Keywords:** Global factors, Commodity price effects, Inflation, Domestic economy.

## Introduction

Global economic growth in 2023 is expected to slow significantly - marking the third weakest growth rate in nearly three decades, dwarfed only by global recessions triggered by the pandemic and the global financial crisis. The percentage is almost below the previous forecasts, thus reflecting the policies that have very high inflation as well as the deterioration of financial conditions due to the influence of the invasion of the Russian Federation in Ukraine.

All countries such as the United States, Europe and China, but also developing economies, are all going through a period of weakened and stressed economy. Slow growth, tightening financial conditions and high debt are likely to dampen investment and cause corporate failures. As a result, we will have further negative shocks such as higher inflation, even tighter country policies, contraction and financial stress, deeper weakness in major economies or increased geopolitical tensions may push the global economy into recession.

In the short and medium term, urgent efforts are needed to mitigate the risks of a global recession and debt distress in developing countries. Limited policy space, which is critical that these national policy makers will have to ensure any fiscal support directed at vulnerable interest groups, that inflationary trends are well anchored and that financial systems continue to be resilient. Policies are definitely needed to encourage and support large investments that can help reverse or slow down the negative effects from the overlapping impacts of the pandemic, or the occupation of

Ukraine. This requires support with new financing from the international community as well as subsidizing the agricultural or petrol sectors like Commodities Investments. The purpose of this material is to study the connection between the development of the economic growth in Albania as a result of the increase in the first countries that were affected by the Russian invasion in Ukraine and the pandemic Covid 19.

The structure of this paper is organized as follows: The second section presents a summary of the literature on the effects of the pandemic and the effect of the Ukraine war that implies increase commodity prices, and the domestic economy effects. The third section presents the development of the financial system and economic growth in Albania.

Then the fourth section presents the methodology used and results found for the case of Albania.

At the end, results and conclusions.

## Literature Review

During the last years of the First World War so between 1820 and at the end of the first world war commodity prices had a significant improvement compared to textile prices. At that time, it was the main product produced and imported for developing countries. This improvement in terms of trade is well documented and helped in the economic achievement of countries in the New World such as Argentina, Australia, Canada, Uruguay (Williamson, Economics and Organization: A Primer, 1996) The negative effects that changed reflect the lingering effects of the slowdowns in the world economy that occurred after World War I and the end of the “golden age” of the post-World War II period. Fortunately, “increases or decreases [in the terms of trade] tend to occur at different times of dramatic changes in the rate of output growth” (Baumeister & Hamilton., 2019) argued that some products exported by developing countries share some characteristics of commodities: if all, especially large developing countries, try to significantly increase exports of labor-intensive products, there will be a risk that they face rising protectionists. Developed countries’ resistance and/or terms of trade decrease to such an extent that the gains from any increase in export volumes are more than offset by losses due to lower export prices. The overall effects of commodity price shocks have long been a central topic in the economic literature. In particular, crude oil prices have long been considered a leading economic indicator, with (Hamilton, 2009, )and others suggesting a significant negative relationship between high oil prices and future economic growth. A significant increase or decrease in commodity prices often results from a combination of many factors. Hamilton studied several factors that led to changes in crude oil prices, including supply and demand, commodity speculation, monopolistic oligarchs, and resource depletion. Many other studies show the impact of commodity (oil) price shocks on the labor market (Herrera & Karaki, 2015) and the real gross domestic economy. (F. Ravazzolo, Sveen,, & Zahiri, 2016) study whether the value of future markets such as commodity futures can be predicted. They have suggested that the predictive power of commodity prices depends on the type and nature of the commodity. While commodity risk caused by storage costs has volatility, it fluctuates, and the predictive power changes over time. (Guerrero, 2018) studied and used 17 very heterogeneous countries as samples to study the responses of industrial activity, inflation, interest rates and exchange rates to commodity price shocks. All these as the impact of commodity prices on sustainable development received increasing attention in recent years, mainly energy prices. (Morana) found that since 2000, financial shocks have played an important role in increasing oil prices, and this effect

has become more pronounced after 2008. Another researcher such as Tilton studied the impact of investor demand on prices. spot commodities and predicted that, if the futures market is strong, an increase in investor demand will increase the price of the Futures market and directly affect the price of the spot market. However, when the futures market is relatively weak, investor behavior would have little impact on spot prices. The financing of commodity markets has also resulted in excessive correlations between commodity prices. (Zhang & Wei, 2010) present evidence of high correlations between the US dollar exchange rate and the prices of oil and gold, and of Granger causality running from the US dollar index to price changes of both commodities. (Akram, 2009) shows that commodity prices generally, and oil prices in particular, increase with negative movements in US real interest rates. Further, these real interest rate innovations account for a substantial portion of the forecast error variance in commodity prices.

All countries of the world economy have experienced a deteriorating external economic environment. Of great importance are the concerns about the sustainability of the recovery of growth in the world economy, which cause considerable uncertainty regarding the sustainability of fluctuating demand conditions in the world commodity markets. This is because commodity price increases in the past were positively associated with episodes of strong growth in the world economy (Erten & Ocampo, 2012) (VASISHTHA, 2022). If for the future this past experience is a guide, the slowdown in global growth, combined with the delay in investment that can now generate an increase in commodity supplies, will cause the pressure on commodity prices to ease.

## Methods

### *Commodity markets*

According to official data sources, commodity prices have decreased due to the slowdown in global growth. The increase in demand for metals weighed on a marked decrease. The latest information shows that about the availability of food due to the invasion of Ukraine resulted in a number of countries implementing food export restrictions in 2022. The reduction according to OPEC+ which announced that a reduction of 2 million mb/d in their target of production; however the group is already producing below their official target. Commodity prices have eased since June, varying to varying degrees, due to the slowdown in global growth (figure 1: World Bank 2022).

Oil prices fell from their mid-2022 peak on demand; for the year as a whole, the Brent crude oil price averaged \$100/barrel. While European natural gas prices rose to an all-time high in August, they have since fallen back to pre-invasion levels as full inventories and mild weather dampened demand for natural gas for heating. Coal prices, meanwhile, hit a record high in the third quarter before beginning to moderate in the fourth quarter. Meanwhile, metal prices fell in the second half of 2022 due to slowing demand, especially from China.

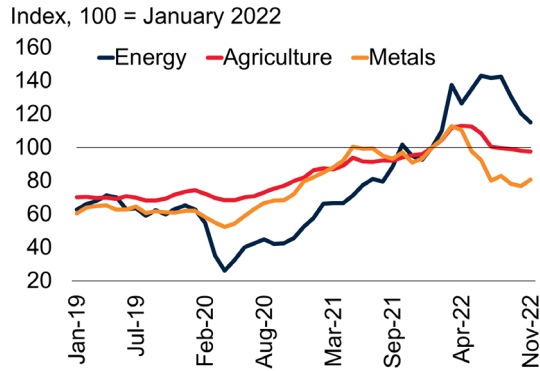


Figure 1: Commodity prices (Energy, Agriculture, Metals)

Meanwhile, metal prices fell in the second half of 2022 owing to slowing demand, particularly from China (figure 2: (Baumeister, Verduzco-Bustos, & Ohnsorge, 2022)) Agricultural prices remain high but also eased, particularly for wheat and vegetable oils, with higher yields than expected and a resumption of some exports from Ukraine.

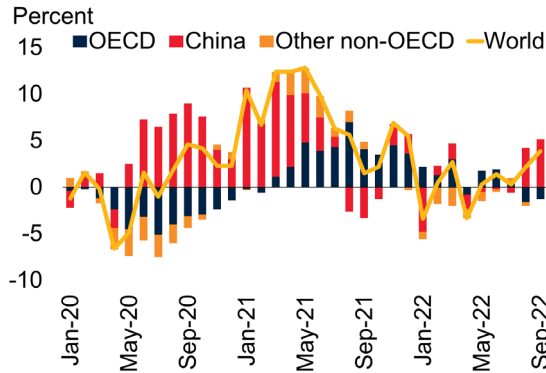


Figure 2: Commodity prices in the second half 2022

Concerns about food availability due to the invasion of Ukraine prompted many countries to impose export bans and other trade restrictions (figure 3:).

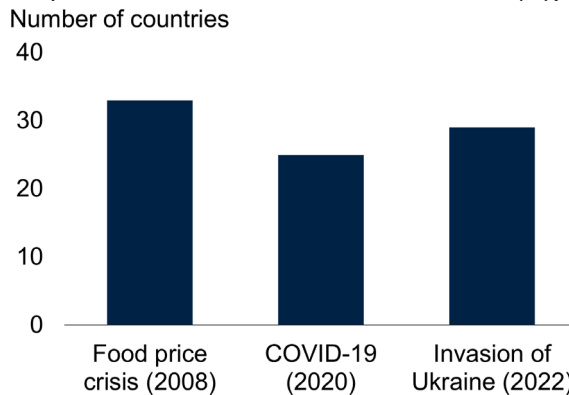


Figure 3: Percent change in metal demand relative to the same period in previous year

Sources: Bloomberg; IEA (2022a); Laborde and Mamun (2022); World Bank; World Bureau of Metal Statistics. Note: OPEC = Organization of the Petroleum Exporting Countries. A. Last observation is November 2022. B. Figure shows percent change in metal demand relative to same period in previous year. Last observation is September 2022. C. Bars show the peak of number of countries during each period implementing food export restrictions. A. Commodity prices B. Metals demand growth C. Number of countries implementing food export restrictions.

These restrictions, both in absolute terms and as a proportion of calorie intake, has been comparable to that during the food price spike in 2008. However, because the latter restrictions have been applied to a wider group of commodities, they have not affected global markets as much as those established in 2008 (which were mainly applied to rice and wheat and were also accompanied by large purchases by major importers). Also, currency devaluations in many countries have resulted in higher prices of commodities in local currency terms compared to the price in US dollars.

As a result, commodity - driven inflationary pressures in many countries may be more persistent than indicated by the recent decline in global commodity prices. Looking ahead, energy prices are expected to ease in 2023, but remain higher than previously forecast, largely reflecting an upward revision in coal prices. Crude oil prices are also forecast to decline to an average of \$88/barrel in 2023, \$4/barrel below previous forecasts. The downward trend is mainly due to slower global growth and subsequent weakness in oil demand in 2023, particularly in Europe. Russian oil exports are expected to decline in 2023 due to additional EU sanctions that began in December 2022 for crude oil and began in February 2023 for petroleum products. The overall reduction in Russia's exports is likely to be smaller than initially expected, however, as the G7 oil price cap will allow countries that import oil from Russia to continue to have access to oil insurance services. EU and UK, provided they adhere to the price cap (IEA 2022a). Beyond Russia, oil supply will continue to increase modestly, mainly from the United States, while OPEC+ will remain subject to their production agreement.

As for natural gas, average annual prices are expected to soften in 2023. Due to the decrease in demand for natural gas, it is expected to fall in 2023 as households and industrial users have reduced consumption, while a large momentum has been observed that the rapid increase in renewable energy production will help reduce the demand for natural gas for electricity generation. Also, a further increase in prices are possible. It is expected that exports from Russia will remain significantly lower than before the start of the war in Ukraine. Also, competition for liquefied natural gas will remain high globally, as European countries continue to import large volumes of LNG instead of importing from Russia. Risks increase are mainly related to supply factors. In the US, oil production could be disappointing as producers focus on returning cash to shareholders rather than increasing production. Meanwhile, the disruption to Russia's exports could be greater than expected, while an end to the war in Ukraine could ease supply issues.

In Europe for natural gas, a cold winter could cause natural gas reserves to drop to very low levels, requiring additions for this year ahead of the 2023 winter season. While agricultural prices are expected to fall by 5 percent this year, after growing by 13 percent in 2022, reflecting better global production prospects and easing input costs, especially for fertilizers. However, prices are expected to remain above pre-pandemic levels. With food insecurity remaining a critical challenge in some countries, reflecting the high number of food trade restrictions imposed last year, weather-related events and the impact of the invasion of Ukraine. Commodity markets are down due to slowing global growth. Meanwhile, the increase in the demand for metals has suffered

a marked slowdown. Concerned about food availability due to the occupation of Ukraine, a number of countries implemented food export restrictions in 2022. The demand for metals from the renewable energy sector - made more competitive by high fuel prices. It is likely to remain strong in 2023. Metals prices could be higher than expected if high energy costs cause mills to close and refined metals production to reduce. Conversely, weaker-than-expected growth is a downside risk for prices.

## **Analysis of the study**

The analysis of this paper consists in the comparison and the economic presentation of the countries that have been more impacted by the effects that the war in Ukraine has brought as post covid 19. For the analysis, I referred you to the reports of the World Bank on the effects that the war in Ukraine gave to commodities. and how commodity prices affected the economy of our country Albania. The data obtained will be seen as a comparative form and how they have been affected by this war in a graphic presentation, clearly demonstrating the trends of the increase in commodity prices. Undoubtedly, the effects of the increase in commodity prices will give us a clear picture of the trend of the local economy.

## **Results**

### *Albania's economy in 2022: an inside-out approach*

After nearly two years of low rates, the national bank tightened monetary policy four times in the first 10 months of 2022, raising the key rate from 0.5 percent in March to 2.25 percent in October. In light of the start of the war in Ukraine and growing concerns about energy security, the government adopted the Social Resilience Package in March 2022. This includes measures such as subsidies for vulnerable groups, temporary income tax relief (for all) and oil (for farmers), a slight increase in the minimum wage and an increased energy price shield for firms. Economic growth is forecast to reach 3.0 percent in both 2022 and 2023. Key risks to the near-term outlook include rising inflation and tightening financing conditions, which dampen household consumption and investment. On the positive side, Albania had a strong tourist season, which should boost the external and fiscal accounts ahead of the challenging heating season and lead to growth in the third quarter of the year.

## **Conclusions**

The global price crisis and inflation pressures remain the main risks, causing both the government and (Williamson, 1996) (Bloch & Sapsford) international organizations to have more pessimistic projections for the economy's performance.

The impact of the war in Ukraine, the increase in the price of commodities and energy and the slowdown in world economic growth are seen as the main factors by the World Bank, which are expected to slow down the economic growth rates of our country. In its latest estimates, Albania is expected to increase its gross domestic product by 2.3% for 2023, from 3.0% expected in 2022, influenced by the very positive performance of tourism. Almost at the same levels, the Bank of Albania predicts economic growth for 2023, at 2.4%, while highlighting high inflation as the main risk to the economy.

More optimistic meanwhile is the government, which in its most negative scenarios expects that in 2023 the economy will expand by only 2.6%, significantly lower



compared to the expectations of 2022 at 3.7%.

All the indicators from different sources, such as the World Bank and the European Bank, as well as the actual data from our institutions, precisely conclude the scope of this paper. The obtained data clearly show us that the impacts of global factors, both the pandemic and the war in Ukraine from the Russian invasion have influenced the increase in the prices of commodities, which have had effects in all countries around the world and the influence of in the Albanian economy, resulting in a decrease compared to the forecasts made by both international organizations and our government.

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# Portfolio selection for Commodities with maximum diversification

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## Abstract

Considering the recent crisis caused from the Russian Ukrainian conflict, has raised a problem in keeping commodities such as grain in the investment portfolios. The uncertainty of the financial markets for raising the prices of the commodities coming from these areas has pushed in the interest of finding new way of diversification. This paper proposes a portfolio selection approach for commodities with maximum diversification. The conventional portfolio optimization techniques rely on the mean-variance framework, which assumes that returns are normally distributed and investors are risk-averse. However, these assumptions may not hold true for commodities due to their unique characteristics, such as seasonality, volatility, and correlation with other asset classes. To address these challenges, this paper uses the maximum diversification approach, which aims to construct a portfolio that maximizes the diversification benefits while minimizing the concentration risk. The maximum diversification portfolio is constructed by using Risk Parity method applied to different risk measures. To demonstrate the effectiveness of the proposed approach, this paper applies it to a dataset of 20 commodities covering different sectors, such as energy, metals, agriculture, and livestock. The results show that the maximum diversification portfolio outperforms the equally weighted and minimum variance portfolios in terms of compound returns.

Furthermore, this paper analyses the sensitivity of the maximum diversification portfolio to different factors, such as changes in the correlation matrix, Herfindal and Bera Park and number of assets selected, while short-selling is not allowed. The results indicate that the maximum diversification portfolio is robust to these factors and can provide stable performance under various market conditions.

Overall, this paper contributes to the literature on portfolio selection for commodities by proposing a new approach that considers the unique characteristics of these assets and provides a more diversified and efficient portfolio. The maximum diversification portfolio can be used by investors, portfolio managers, and commodity trading advisors to improve their risk-return profile and achieve their investment objectives.

**Keywords:** Risk Parity approach, Commodities, Portfolio optimization, Asset allocation, diversification.

## 1. Introduction

Commodities have been at the centre of attention in the recent years, since at the beginning from the Covid-19 pandemic and then from the Ukrainian conflict. During the pandemic the world stopped using fuel as normal, and the price of the oil when down, even negative. On April 20, 2020, the front-month May 2020 WTI crude contract dropped 306%, or \$55.90, for the session, to settle at negative \$37.63 a barrel on the New York Mercantile Exchange (Source Nasdaq). Producers did not want to halt production, hoping that the low prices wouldn't last long and OPEC+ could not immediately agree on policy (Tonhaugen, 2020). At the same time, "oil storage was

filling up quickly, forcing oil tankers to become floating storage.”

On the opposite side the conflict between Ukraine and Russia, made the prices of oil and gas increased sharply, with both major oil benchmarks trading today at above \$110.

These strong fluctuations bring the necessities to create portfolio well diversification. With the Risk Parity or Equally weighted Risk Contribution strategy, (Maillard, Roncalli et al, 2008) suggested a method that maximize the diversification. These authors have applied this strategy to the volatility (standard deviation). One of the biggest advantages of the Risk Parity approach is that it does not require the estimation of the expected returns. Another way to use Risk Parity approach is apply to a different risk measure, the Conditional Value at Risk ( $CVaR_\alpha(x)$ ), which is a coherent and convex risk measure, that allows to apply the Euler decomposition for first order homogeneous functions. The models have been applied to daily and weekly frequencies in order to have a good approximation of Risk Parity with  $CVaR_\alpha(x)$ . Since the last year the commodities market had been afflicted from high volatility and a negative trend, the focus will be on how the portfolio created will perform in these cases. The algorithms for the optimization are developed in Matlab 2012b ©, which is very effective in the calculation of portfolios with a large number of assets. For the Risk Parity with  $CVaR_\alpha(x)$ , we use an interior point algorithm with a defined number of iterations.

After Markowitz (1952) with his first milestone work in modern portfolio theory, a number of other portfolio optimization models have been proposed in the literature. (Sharpe,1964) tried to linearize the portfolio optimization model. (Konno and Yamazaki 1991) introduced the Mean-Absolute Deviation (MAD), a different risk measure using linear programming model instead of a quadratic programming model.

The MiniMax approach, introduced by Young (1998), minimizes the worst-case scenario, which is used as risk measure. The Mean-Variance model is too sensitive to the input parameters, specially to the expected returns (Merton,1980). Thus, a significant variation of the input parameters can significantly change the composition of the portfolio, like in the Mean Variance portfolio. Models that rely on expected returns tend to be very concentrated on few assets and perform poorly out of sample (Merton,1980). The Black&Litterman model can be obtained using a Bayesian approach to change the estimated returns (Black, Litterman, 1990). With the passing of time, more sophisticated and advanced models were developed for the market forecasting, introducing different techniques and simulations. Thus, investors continue to use such simple allocation rules for allocating their capital across assets.

Risk Metrics introduced methods to quantify market risks, such as  $VaR_\alpha(x)$  which is defined as the maximum potential change in value of a portfolio with a given probability over a certain horizon.

$VaR_\alpha(x)$  does not allow diversification. There are many works on the alternative risk measure  $CVaR_\alpha(x)$  from the authors such as Andersson, Mausser and Uryasev (2000) that show why this is more preferred to  $VaR_\alpha(x)$ .

The conventional portfolio optimization techniques rely on the mean-variance

framework, which assumes that returns are normally distributed and investors are risk-averse (Markowitz,1952) . However, these assumptions may not hold true for commodities due to their unique characteristics, such as seasonality, volatility, and correlation with other asset classes. To address these challenges, this paper uses the maximum diversification approach, which aims to construct a portfolio that maximizes the diversification benefits while minimizing the concentration risk. The maximum diversification portfolio is constructed by using Risk Parity method applied to different risk measures. To demonstrate the effectiveness of the proposed approach, this paper applies it to a dataset of 20 commodities covering different sectors, such as energy, metals, agriculture, and livestock. The results show that the maximum diversification portfolio outperforms the equally weighted and minimum variance portfolios in terms of compound returns.

Furthermore, this paper analyses the sensitivity of the maximum diversification portfolio to different factors, such as changes in the correlation matrix, Herfindal and Bera Park and number of assets selected, while short-selling is not allowed. The results indicate that the maximum diversification portfolio is robust to these factors and can provide stable performance under various market conditions.

There are other works that use commodities with other equity assets (Bjerring et al, 2016) adds to the existing literature on the role of commodities in portfolio optimization by analyzing the empirical distribution of the Sharpe ratio of various commodities along with the impact of seasonality in commodity returns on the allocation of assets in an in-sample and out-of-sample mean-variance setting.

In order to address data uncertainty faced by investors, (Adhikari, R.; Putnam, K.J.; Panta,2020) utilize robust estimation to form commodity portfolios using both the conventional MV and CVaR framework. First, they create robust optimization-based portfolios by conditioning on prior return data using 12-, 15-, or 18-month lookback periods to generate the covariance matrix. They compared the performance of the robust portfolios against a naïve equally weighted buy-and-hold benchmark portfolio of commodity futures. The results indicate that portfolios constructed using robust optimization with a 12-month lookback (MV12 and CVaR12) outperform both the benchmark portfolio as well as the other robust optimization-based portfolios. These findings suggest that the utility of historical returns beyond 12 months sharply deteriorates when used as input in forming robust portfolio weights.

## 2. Methodology and data

To have a complete framework of the portfolio models we are considering :

1. 1/N equal weighted rule(Naive Portfolio),
2. minimum variance (MV),
3. minimum CVaR, Risk Parity with standard deviation as risk measure(RP-std),
4. Risk Parity with conditional value at risk measure CVaR (RP-CVaR),
5. Naive Risk Parity CVaR (RP-CVaR naive).
6. The last one, is a special case in which we have the worst-case scenario (highest CVaR, useful as an upper bound (Colucci, 2013)

In all these models, the constrain of the expected returns is removed, so at the minimum variance MV and minimum CVaR are at the smallest possible value of risk

measure.

We create a portfolio with  $n$  assets, each weight  $x_i$ , and  $\sigma_p$  as a risk measure for the portfolio

$$x = (x_1, x_2, \dots, x_n).$$

In the literature Maillard (S., Roncalli T., Teiletche J., 2009), the most common use of Risk Parity is the case with the standard deviation as risk measure. For a portfolio with  $n$  assets and weights  $x = (x_1, x_2, \dots, x_n)$ , the standard deviation is:

$$\mathcal{R}(x) = \sigma_p(x) = \sqrt{\sum_{i=1}^n \sum_{j=1}^n x_i x_j \sigma_{ij}} = \sqrt{x' \Omega x}$$

where  $\Omega$  is the covariance matrix. The marginal risk contribution of the  $i$  asset:

$$MRC_i(x) = \frac{\partial \sigma_p(x)}{\partial x_i} = \frac{\partial \sigma_i^2 + \sum_{j=1}^n x_j \sigma_{ij}}{\sigma_p(x)} = \frac{(\Omega x)_i}{\sqrt{x' \Omega x}}$$

and the total risk contribution:

$$TRC_i(x) = x_i \frac{\partial \sigma_p(x)}{\partial x_i} = x_i \frac{\partial \sigma_i^2 + \sum_{j=1}^n x_j \sigma_{ij}}{\sigma_p(x)} = x_i \frac{(\Omega x)_i}{\sqrt{x' \Omega x}}$$

Recall that the solutions Mean Variance equalizes the marginal risk contributions, instead of the total risk contributions as in case of the Risk Parity:

$$TRC_i(x) = TRC_j(x) \forall i, j$$

The Risk Parity model can be formulated as the following optimization problem:

$$\begin{aligned} x^* = \arg \min & \sum_{i=1}^n \sum_{j=1}^n \left( TRC_i(x) - TRC_j(x) \right)^2 \\ & \sum_{i=1}^n x_i = 1 \\ & x \geq 0 \end{aligned}$$

To guarantee the existence of the partial derivatives of  $CVaR_\alpha(x)$  we need to impose some assumptions on the distribution of the random vector  $R = (r_1, r_2, \dots, r_n)$ .

We present sufficient conditions for quantile of the portfolio return  $X = R'x = \sum_{i=1}^n x_i r_i$  to be differentiable respect to the weights  $x_i$ . These conditions rely on the existence of a conditional probability density function (pdf) of the  $i$ -th asset return  $r_i$  given the others which is measured as follow:

$$r_{i,t+1} = \frac{P_{i,t+1} - P_{i,t}}{P_{i,t}}$$

The calculation of the partial derivatives for the Value at Risk are crucial for the of the partial derivatives of the Conditional Value at Risk. Indeed, be the definition of  $CVaR_\alpha(x)$  (Rockfellar R.T., UryasevS , 2000) we have

$$CVaR_\alpha(x) = \frac{1}{\alpha} \int_0^\alpha VaR_v(x) dv$$

Thus, using the Assumption 1 in [7] gives the conditions for the partially differentiation respect to the weights.

$$\begin{aligned} \frac{\partial CVaR_\alpha(x)}{\partial x_i} &= \frac{1}{\alpha} \int_0^\alpha \frac{\partial CVaR_\alpha(x)}{\partial x_i} dv = -\frac{1}{\alpha} \int_0^\alpha E[r_i | -R'x = VaR_\alpha(x)] dv = \\ &= -\frac{1}{\alpha} \int_0^\alpha E[r_i | X = q_\alpha(X)] dv = -E[r_i | X \leq -VaR_\alpha(x)] \end{aligned}$$

The Total Risk contribution for each asset  $i$  of a portfolio is given from the following expression:

$$TRC_i^{CVaR_\alpha(x)}(x) = x_i \frac{\partial CVaR_\alpha(x)}{\partial x_i}$$

The expression in case of continuous returns distribution is the following:

$$\begin{aligned} TRC_i^{CVaR_\alpha(x)}(x) &= -x_i E[r_i | X \leq -VaR_\alpha(x)] \\ CVaR_\alpha(x) &= \sum_{i=1}^n TRC_i^{CVaR_\alpha(x)}(x) = -\sum_{i=1}^n x_i E[r_i | X \leq -VaR_\alpha(x)] \end{aligned}$$

Numerical approximation for estimating  $VaR_\alpha(x)$  and  $CVaR_\alpha(x)$  Risk Parity using Historical Data we have to do the following assumption. Suppose that the  $i$ -th asset return  $r_i$  consist of  $T$  number outcomes  $r_{ji}$  with  $i=1, \dots, n$  and  $j=1, \dots, T$ . For each portfolio  $x \in \mathbb{R}^n$  where  $n$  is the number of assets in the market, the vector of the observed portfolio returns is  $R_p = (r_{p1}, \dots, r_{pT})$  where:

$r_{pj} = x' r^j$  with  $j=1, \dots, T$  where  $r^j = (r_{j1}, \dots, r_{jn})$ .

If the number of observation  $T$  is large enough, we can apply the Law of Large Numbers for the numerical approximation of the empirical distribution of the historical portfolio return:

$$P(R_p \leq y) \approx \frac{\#(j = 1, \dots, T | r_{p1} \leq y)}{T}$$

Therefore, we compute the  $VaR_\alpha(x)$  and  $CVaR_\alpha(x)$  of portfolio returns as follows:

$$\begin{aligned} VaR_\alpha(x) &\approx -r_{p[\alpha T]}^{\text{sorted}} \\ CVaR_\alpha(x) &\approx -\frac{1}{\alpha T} \sum_{j=1}^{[\alpha T]} r_{pj}^{\text{sorted}} \end{aligned}$$

where  $\alpha$  is a specified significance level and  $r_{pj}^{\text{sorted}}$  are the sorted portfolio returns that satisfy

$$r_{p1}^{\text{sorted}} \leq r_{p2}^{\text{sorted}} \leq \dots \leq r_{pj}^{\text{sorted}} \leq \dots \leq r_{p[\alpha T]}^{\text{sorted}}$$

For more see Velu D. PhD Thesis [10].

Using historical data, the approximation of the partial derivatives  $CVaR_\alpha(x)$  for each asset  $i$  becomes:

$$\frac{\partial CVaR_\alpha(x)}{\partial x_i} \approx -\frac{1}{\alpha T} \sum_{k=1}^{[\alpha T]} r_{ki}^{\text{sorted}} \quad \forall i=1, \dots, n$$

and then the total risk contribution of asset  $i$  is

$$TRC_i^{CVaR_\alpha(x)}(x) = x_i \frac{\partial CVaR_\alpha(x)}{\partial x_i} \approx -\frac{1}{[\alpha T]} x_i \sum_{k=1}^{[\alpha T]} r_{ki}^{\text{sorted}}$$

where  $r_{ki}^{\text{sorted}}$  are the corresponding returns of asset  $i$  to the sorted portfolio returns. In the rolling windows, the measure the cumulated return of the portfolio is needed.

$$\mu_k^c(R_p) = \prod_{j=1}^k (1 + r_{pj}) - 1$$

so that  $\mu_T^c(R_p)$  is the compounded return over the whole period (terminal compound return).

To check if the portfolios are well diversified, we consider three diversification measures.

Consider a portfolio  $x = (x_1, x_2, \dots, x_n)$  satisfying the budget constraint  $\sum_{i=1}^n x_i = 1$  with short sales not allowed ( $x_i \geq 0$ ). The first naive diversification measure is the Herfindal index:

$$D_{Her} = 1 - xx'$$

which takes the value 0 if the portfolio is concentrated in one asset and the maximum value  $1 - \frac{1}{n}$  for the equally weighted (or naive) portfolio.

For only strategies  $x_i \geq 0$ , we introduce the measure proposed by (Bera A.K., Park S.2004).

This diversification measure can be interpreted as the probability of each weight measure in terms of entropy:

$$D_{BP} = - \sum_{i=1}^n x_i \log(x_i) = \sum_{i=1}^n x_i \log\left(\frac{1}{x_i}\right)$$

The  $D_{BP}$  takes value between 0 (fully concentrated in one asset) and  $\log(n)$  for the naïve portfolio.

These two quantities represent diversification only in terms of capital invested and do not take into account that assets contribute differently to the total portfolio volatility.

Another useful index for estimating transaction costs, is the turnover of the portfolio:

$$TO = \sum_{i=1}^n |x_i^{t+1} - x_i^t|,$$

where  $x_i^t$  denotes the weight of asset  $i$  at time  $t$ .

In this study, the commodities dataset for the period from 4/3/2018 to 29/03/2023 with daily frequency, so 1257 trading days in total.(eliminated one day where the price of oil in went negative) The data is available at nasdaq.com, consisting of open, high, low and close prices, as well as dollar volume and market capitalization on a daily basis and all the prices are in dollar currency.

This is the list of the selected commodities.

|   | Metals             | Energy                   | Grains             | Meats and softs                |
|---|--------------------|--------------------------|--------------------|--------------------------------|
| 1 | Gold (GC:CMX)      | 6 Crude Oil (CL:NMX)     | 11 Corn (ZC)       | 16 Live Cattle (LE)            |
| 2 | Silver (SI:CMX)    | 7 Heating Oil (HO:NMX)   | 12 Soybeans (ZS)   | 17 Feeder Cattle (GF)          |
| 3 | Copper (HG:CMX)    | 8 RBOB Gasoline (RB:NMX) | 13 Oat (ZO)        | 18 Cotton (TT:NMX)             |
| 4 | Platinum (PL:NMX)  | 9 Natural Gas (NG:NMX)   | 14 Rough Rice (ZR) | 19 Coffee (KT:NMX)             |
| 5 | Palladium (PA:NMX) | 10 Brent Crude (BZ:NMX)  | 15 Red Wheat (KE)  | 20 NYMEX No. 11 Sugar (YO:NMX) |



Since the models of optimization rely on some specific request on the returns, i.e. the mean variance requests in the robust optimization that the return are normally distributed, it is good to see the characteristics of the returns.

Table 1. Data of the distribution of the daily returns.

|    | Commodity                   | Mean     | Median   | Range     | Skewness | Kurtosis |
|----|-----------------------------|----------|----------|-----------|----------|----------|
| 1  | Gold (GC:CMX)               | 0.0307%  | 0.0475%  | 10.9192%  | -0.2577  | 7.3939   |
| 2  | Silver (SI:CMX)             | 0.0285%  | 0.0776%  | 21.2414%  | -0.5020  | 8.8253   |
| 3  | Copper (HG:CMX)             | 0.0229%  | 0.0228%  | 14.6685%  | -0.1507  | 4.6729   |
| 4  | Platinum (PL:NMX)           | 0.0038%  | 0.0773%  | 23.4761%  | -0.2500  | 6.7719   |
| 5  | Palladium (PA:NMX)          | 0.0348%  | 0.1728%  | 45.0828%  | -0.5123  | 13.4458  |
| 6  | Crude Oil (CL:NMX)          | 0.0110%  | 0.2231%  | 111.6335% | -3.6362  | 93.2500  |
| 7  | Heating Oil (HO:NMX)        | 0.0200%  | 0.1787%  | 42.9497%  | -0.7587  | 14.9187  |
| 8  | RBOB Gasoline (RB:NMX)      | 0.0230%  | 0.2590%  | 45.6716%  | -1.1422  | 14.7132  |
| 9  | Natural Gas (NG:NMX)        | -0.0241% | 0.0257%  | 68.2207%  | 0.1419   | 11.1391  |
| 10 | Brent Crude (BZ:NMX)        | 0.0111%  | 0.2771%  | 47.0536%  | -1.2761  | 20.9706  |
| 11 | Corn (ZC)                   | 0.0413%  | 0.0758%  | 25.3081%  | -1.5307  | 19.2758  |
| 12 | Soybeans (ZS)               | 0.0283%  | 0.0850%  | 17.2858%  | -0.8348  | 10.0914  |
| 13 | Oat (ZO)                    | 0.0255%  | 0.0947%  | 30.1316%  | -0.5900  | 12.1955  |
| 14 | Rough Rice (ZR)             | 0.0289%  | 0.0418%  | 47.6439%  | -11.7286 | 277.3954 |
| 15 | Red Wheat (KE)              | 0.0495%  | -0.0348% | 16.0014%  | 0.1191   | 4.0129   |
| 16 | Live Cattle (LE)            | 0.0309%  | 0.0477%  | 22.6478%  | -1.7151  | 28.1645  |
| 17 | Feeder Cattle (GF)          | 0.0338%  | 0.0135%  | 19.6239%  | 0.9943   | 14.2275  |
| 18 | Cotton (TT:NMX)             | 0.0007%  | 0.0000%  | 39.0045%  | -1.7176  | 26.8574  |
| 19 | Coffee (KT:NMX)             | 0.0299%  | -0.0525% | 64.9421%  | 0.1957   | 38.0200  |
| 20 | NYMEX No. 11 Sugar (YO:NMX) | 0.0424%  | 0.0000%  | 23.0900%  | 0.1275   | 8.6582   |

As we see the mean of the daily returns is positive. The problem is the high negative

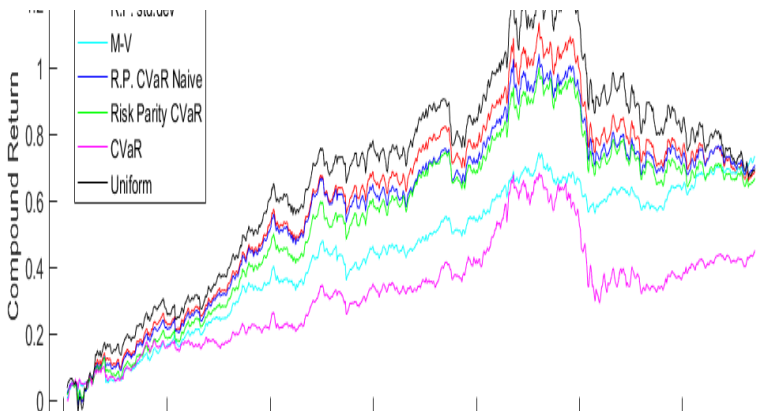
skewness and very high kurtosis (roughly the highest). So each of the return distributions has a leptokurtic distribution compared to a normal distribution, due to the fact of the decreasing trend of the market starting from February 2022.

The correlation matrix of the returns, that it is not showed since there are 20 commodities, gives that there is a high correlation between commodities inside the same category. So, if we check the heatmap, the main diagonal and around the diagonal, the correlation is very high.

It is good to underline that almost all commodities have positive correlation, with is an issue to minimize the variance of the portfolio and will bring high weights in the mean variance portfolio.

### 3. Results

In the numerical approximation, we create a rolling window using the data of the past 2 years (from 4/3/2018 to 4/3/2020 so  $L=252*2=504$  observation) for the estimation of the weights of the each of the portfolio models and move the rolling window in the period from 5/3/2020 to 29/3/2023 to measure the out of sample for the next 5 working days (Holding period). This will take 150 iterations for the calculation of the optimal portfolios. Each model has been formulated in MATLAB code in a Windows 10 system with i7 processor, RAM 12 GB, in which the time of computation is very short except for Risk Parity with standard deviation.



Graph 1. The compound return rate

From the graph we can see two main groups, the first part is the group below composed by the portfolio selected by Mean Variance and CVaR at 10 % degrees of freedom. Since these has been set to the lowest risk possible, also the return is to the lowest level.

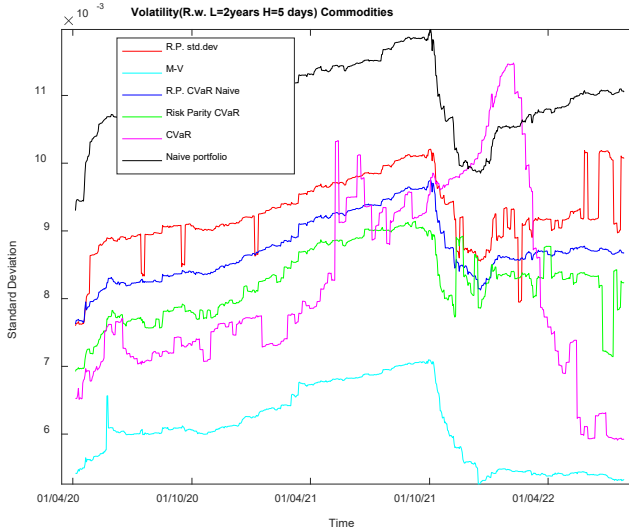
The second group composed by Risk Parity which slightly alternates each other in the performance, with the Risk Parity with standard deviation better performing than others.

We can see that the drawdown is less in the traditional mean variance. The reason is because it is focused in a smaller number of assets and the turnover is immediate and higher as we will see in the other points in which we discuss the diversification. The

uniform (naïve portfolio)

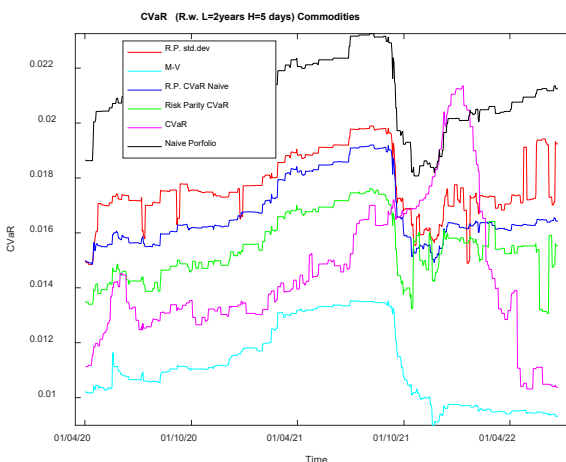
Outperform all the others but it does not consider risk at all.

If we measure the riskiness of each portfolio using the standard deviation, we will notice that the uniform and the Risk Parity with standard deviation will have a very high risk.



**Graph 2.** The standard deviation of different portfolio selections.

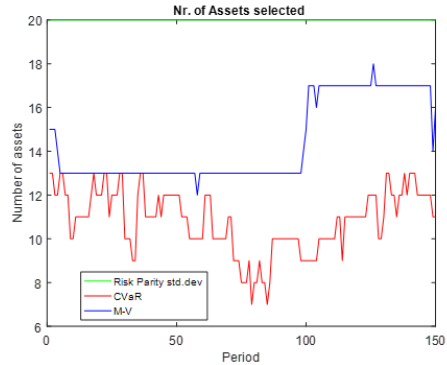
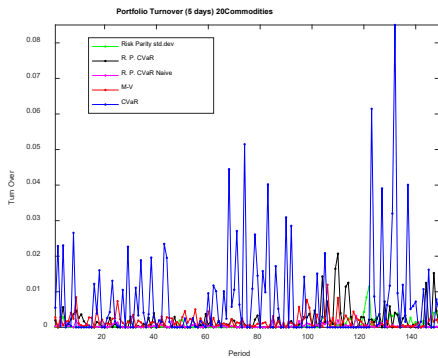
It is obvious that the Mean Variance will have the smallest standard deviation. The interesting part is that CVaR at the minimum risk will have a trend until the middle of the holding period, that will jump before it goes in the level between Mean Variance and the Risk parity group. The same trait is we change measure of risk to CVaR. (Graph 3).



**Graph 3.** The CVaR of different portfolio selections.

To have a close estimation of what happens in case we consider the transaction costs,

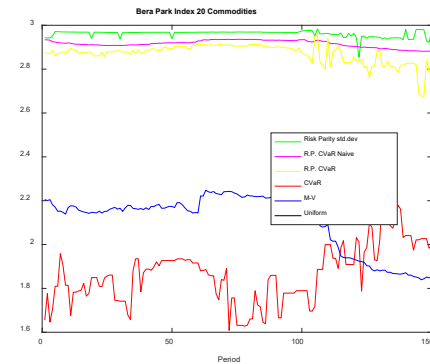
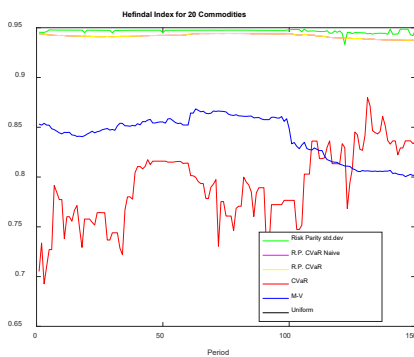
we can see the portfolio turnover.



**Graph 4.** Portfolio weekly turnover and the number of assets selected

|                      | R.P. -STD | M-V   | R.P. CVaR N. | R.P. CVaR | CVaR  |
|----------------------|-----------|-------|--------------|-----------|-------|
| Average Turnover (%) | 0.069     | 0.166 | 0.037        | 0.19      | 0.738 |

CVaR is focused in a smaller number of commodities, since the turnover is higher.



**Graph 4.** The Herfindahl and Bera Park indexes.

The Diversification indexes is poor in the Mean Variance and CVaR for the reasons that we explained above.

### Conclusions

The previous years had been very volatile for commodities as an asset class. This had urged to consider different methods to allocate the amount of the investment in commodities in financial portfolio. Some particular investor may collect significant amounts of different commodities in their financial portfolio, for different purposes. The traditional models, such as the Markowitz model, focus only on the riskless assets in we find the global minimum of riskiness. Thus, this high concentration will have also high transaction costs if the investor will try recalibrate the portfolio. Also, relying the in the expected returns during a negative trend of the economy, will bring

unrealistic and pessimistic allocation of the assets.

We have created a rolling window for daily frequencies with in sample of two years (504 days) and out of the sample of 1 week (5 days). From the point of view of the performance, there is no significant difference between the Risk Parity strategies with different risk measures, but passing to CVaR, the investor can benefit from the properties of a coherent risk measure (Artzner, 1999). Also the riskiness of the Risk parity strategies are almost the same, allocated between the CVaR (or Mean Variance) and the naïve portfolio.

The portfolio created with twenty commodities using the Risk Parity criteria presented a better diversification (tested with Herfindal and Bera Park indexes), less concentration in high weights compared to Conditional Value at Risk and Mean Variance. For this, there is less cost to recalibrate the portfolio. If the investor has the purpose to maintain different and significant quantities of each commodity, applying the Risk Parity strategies, it may cover the exposed quantity by keeping risk free assets in the same amount (for instance the same amount of bonds) in the case of CVaR.

In all these cases, the Risk Parity strategies are a good trade off between the traditional CVaR and Mean-Variance and the Naïve, from the point of view of performance and riskiness.

From the analysis of different cases, there is still a question to make: What is the right number of assets that compose the portfolio to apply the Risk Parity strategies? These strategies allocate in a significant proportion, there is still to define the right number of assets. Since the global demand for commodities will get down if the prices are high, and with the intervention of the main producers of regulators (i.e. the recent interventions of Organization of the Petroleum Exporting Countries) the investors may increase the stockpile for future use. For all the properties described in this chapter, The Risk Parity approach will create stable portfolios, with less drawdown and good diversification, due to fact that the number of commodities is small.

For future research, it remains to study these models with the transaction cost, fixed and or variable.

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## Socio-economic and environmental consequences of migration The case of Vlora district – Albania

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### Abstract

In the region of Vlora after 1990, there was an increase in migratory movements of the population. As a phenomenon, it was little known before 1990, but after this year, with the profound changes in the socio-economic and political life of the country and with the sanctioning of the right of citizens to freely choose their place of residence, this phenomenon became typical. The new situation created in the legislative aspect gave impetus to this process for high and unprecedented rates of migratory movements within the county, between counties, but also abroad. This migration was directed from rural areas to urban areas, from remote mountain areas to plain areas, but also from villages and cities to nearby and distant countries. This phase coincides with the transition period, which was characterized by the lack of policies in terms of orientation, direction, control and management of migratory movements. This phenomenon is not new in appearance, but in terms of its features it has been associated with economic, social and environmental problems for both the places of origin and the host countries. The real recognition of this phenomenon for the consequences it carries is eventually an important element in the formulation of necessary policies for the realization of a sustainable and long-term development. The Albanian Government, with the support of the IOM, has foreseen the adoption of the National Strategy for Migration, since 2002. The aim of this strategy is to provide a more complete policy for migration, from a policy that, mainly, has reacted to the war towards irregular flows, to a more complete policy based on the management of migration and the consequences that this phenomenon brings. In these conditions, it is imperative that all projects and strategies that are compiled for the development of the country consider the changes and effects that the migration process brings.

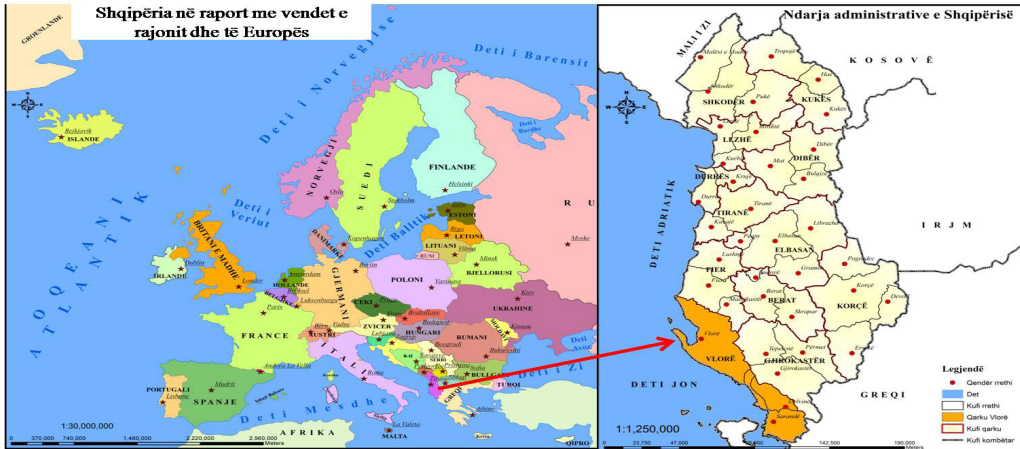
**Keywords:** socio-economic consequences, environmental consequences, migration movement, Vlora region, national migration strategy, migration management, sustainable development.

### Study area

The district of Vlora lies in the south and southwest of Albania, in the southern part of the Vjose river, and is part of two big physical-geographical units: Western region (Myzeqe of Vlora, Topallia and Selenica hills), and the southern region which includes all the southwestern area up to the state border (Shkurti, 2019). The southern part borders with Greece by the borderline with a length of 50.5 km (Vjetar Saranda 1972), 133 km far from Saranda, 154 km far from Delvina (Vlora District 2003). Vlora, as the central part of the district, is an important port city located only 72 km far from Italy (Otranto Canal) and 77 miles from Greece (Corfu island) (Krutaj et al., 2001).



Figure no. 1. Geographical position of Vlora District



## Introduction

Before the 1900's the migration phenomenon was not well known in Albanian populations, but the changes that happened in social-economic and political life became a typical phenomenon in the district of Vlora. These changes enabled the freedom of movement of people, making emigration an ongoing process till today (URI & Unicef, 2009). Migration trends from east to west during 1990's included powerful push and pull factors that reflected the great differences between the countries rich in politics, economies and societies of the west and the frustrated hopes of many people in less privileged countries of the east (Grecic 1993). According to Grecic, nothing new existed in this aspect, as migration has always been part of the early human history, but this movement degree is much higher than before. This approach verifies the idea presented by Castles and Miller who state that nowadays we are experiencing the period determined as the "migration age"<sup>1</sup>.

Economic difficulties and the poverty associated in particular times with episodes of political instability, have strongly affected the migrant flows of Albanians (Bajraba 2004). Albania is one of the eastern European countries that has been affected the most from the migration phenomenon. the lack of an initial political stability, social issues and a decrease of the economy linked to the changes in government were the main factors that had a great impact on the acceleration of the migration rates. From March 1991 to 1992, 300,000 people left Albania, (ration 1 to 10 individuals), mainly toward Italy and Greece (Carletto et.al., 2004), (Kopliku 2013). The origin of the Albanian exodus of the early 1990's lies on the domino<sup>2</sup> effect of Eastern Europe during those years and the strict political and economic chaos of the country as a companion of the liberalization (King 2003). At the beginning of March of 1991, ships overcrowded with more than 26.000 desperate Albanians arrived in the ports of Brindisi, thus marking the first act of the most important migration from east to west, a process which still continues. Five months later, in the scorching heat of August, more than 20.000

<sup>1</sup> This term is used from Castles and Miller (1993) to determine emigration of people all over the world.

<sup>2</sup> A situation where an event causes a series of similar events one after the other.

people arrived on boats and ships, leaving from the poverty and fear of life. Extract taken from the work of Nicola Mai, "Albanian Migrations, demographic and other transformations" (Urban Research Institute & Unicef 2009). The economic crisis and harsh life conditions are the foundation of the powerful migrant phenomenon, forcing people to migrate and search for better places to live, better work and life conditions (Doka 2005). After 1993 the rates of migration started to decrease, as the hosting countries started to limit the opportunities for the emigrants to enter their country (Gedeshi, Mara et.al.,1999). Nevertheless, Albania still has the highest rate of migration in Europe. Within a period of 17 years, more than 750.000 Albanians have migrated, keeping a migration flow of about 44.000 emigrants per year (Urban Research Institute & Unicef 2009). This migration is still ongoing, and deeply affecting the demographics, social and economic aspects of the country (INSTAT, 2020).

## **Methodology**

The recognition, studying and analyzing the migration phenomenon needs to be seen in the approach of the social consequences, economic and environmental impact that it brings to the geographical area and further more. This study includes a wide, inclusive literature compilation of the data on internal and external migration of Albanian area, based on the data of the local and national statistics office (INSTAT) and other published articles that treat Albanian migration phenomenon and its impact on the country. There is no time limit of the literature mentioned, but most of it included works published after 1990, as the migration phenomenon mainly started after 1990.

## **Findings and Discussion**

Migration today is one of the most present phenomena in the social and economic life in the area of Vlora district, as a consequence its recognition and analysis is very particular, with national and regional values. Eliminating the administrative obstacles of the previous period related to internal migration, liberalization of the migration process, new economic and social factors, wills and aspirations for a better life especially for rural areas etc., are pushing elements of internal massive migrations. At the same time, regardless that migration has been one of the most important processes in Albania after the communism period, the internal migration remains widely undocumented, and not studied (INSTAT & SDC 2014). Most of the migrants that came to Tirana during the period of 2001-2011, less than 5% came from Lezha and Vlora. In the south, the city of Fier is an attractive area where migrants came from Berat (19%), Vlora (18%), Gjirokastra (15%) and Elbasan (13%), (INSTAT & SDC 2014). Positive increase of the Albanian economy has affected the reduction of the migration flows, poverty and unemployment also have served as constant pushing factors in Albanian migration (Urban Research Institute & Unicef 2009). During the last two decades, Albania has been a country with a continuous movement, where immigration, emigration and returnees have lived together, interacted and joined with each other (Gedeshi, Jorgon 2012).

**Table No. 1. The change of population numbers of the districts as a result of the migration process**

| Nr | Cities  | 1989 - 1991 | 1992 |
|----|---------|-------------|------|
| 1  | Vlora   | 0.09        | 8.03 |
| 2  | Saranda | 0.13        | 9.37 |

Source: Registration of population and residences 1989

The table presents a rapid reduction of the population in the districts of the study area, as a result of the powerful migrating movement and, as a result of external migration. We notice a higher loss of population in the southern cities of the country because the population of these cities is close to the Greek border and it was easier for them to move abroad (Doka 2005). The process of migration is differentiated in the time aspect. In general, this process is characterized by migration flows, deepening the negativity from one interval to the other respectively: -0.11 (1989-2001), - 8.7 (1992), (Doka 2005). Referring to the migration negative flows during the years 1989-1992 we clearly notice the dominance of emigrants from this area. During the years 1993-1996, there was a period of stability in the economy and a constant increase of the GDP. The revenues from the emigration during this time were 25% of the total GDP, having an important contribution to the survival of a considered population number (Urban Research Institute & Unicef 2009).

**Table No. 2. Migration from the prefecture of Vlora to the other prefectures in 1989-2001**

| Leaving Prefecture | Arrival prefecture |       |        |         |      |            |       |       |        |         |        |       |       |
|--------------------|--------------------|-------|--------|---------|------|------------|-------|-------|--------|---------|--------|-------|-------|
|                    | Berat              | Diber | Durres | Elbasan | Fier | Girokaster | Korca | Kukes | Le zha | Shkodra | Tirana | Vlora | Total |
| Vlora              | 213                | 34    | 418    | 140     | 1377 | 401        | 147   | 23    | 43     | 54      | 3207   | 0     | 6057  |
| %                  | 3.5                | 0.6   | 6.9    | 2.3     | 22.7 | 6.6        | 2.4   | 0.4   | 0.7    | 0.9     | 52.9   | 0.0   | 100.0 |

Source: Migration in Albania, INSTAT 2001

Table number two shows that the migration of population from this area and requiring residence in other prefectures is higher in the cities of Tirana (3207 residents) followed by Fier (1377), Durres (418) and Girokaster (401), while it is lower in the cities of Kukes (23), Dibes (34), Lezhe (43) and Shkodra (54). Compared to other cities, Vlora has the lowest migration rate (7%), after the cities of Tirana and Durres. The 12-year-old data presented in this table shows two types of migration: the first is the long-distance migration headed to the main economic poles of the center of Albania and the second shorter distance migration headed to the coastal areas, as those are immigration and emigration regions (REPOBA 2001). As we mentioned above, internal migration within the country exists in high rates in arriving territories respectively Tirana (53 %), Fier (23 %) lower in Kukes (0.4 %), Diber (0.6 %), Lezhe (0.7 %) and Shkodra (0.9 %).

The table shows that 86% of the migrants move out of the Vlora prefecture. Most of the residents come from Delvina toward the city of Saranda (9%). Only 2% move toward the center of this area, in the city of Vlora, this means that the center of the district

is not a migration pole (REPOBA 2001). Vlora and Saranda are among the cities with a positive migration balance. The internal movement of the population brought important demographic changes. On one hand the internal and mountainous areas lost up to 25% of the population registered in 1989, and on the other hand the coastal and low-level areas faced the migrant flows. The highest numbers of the migrants move to Tirana, Fier and Durres. Less individuals move to Kukës, Diber and Lezhë. To evaluate this situation, we have to analyze the indicators of real migration, and in the southern coastal cities (Saranda and Vlora) the net migration rates are positive (REPOBA 2001).

**Table No. 3. Emigration in the district of Vlora up to 2001 (Profile of Vlora district 2003)**

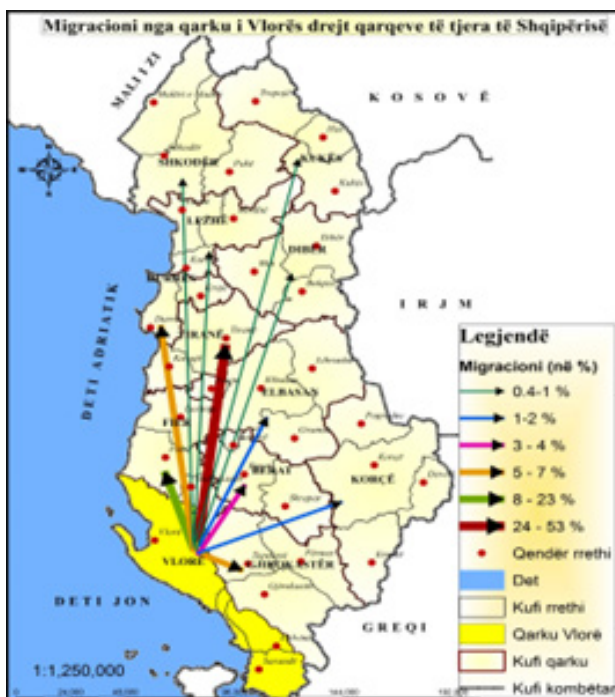
| Cities    | Vlora | Saranda | Delvina | Vlora district |
|-----------|-------|---------|---------|----------------|
| Migration | 70733 | 45765   | 19045   | 135543         |

Table three shows that the number of people from Vlora area is higher than in the areas of Saranda and Delvina. The rates for 2001 do not include the number of emigrants that left the area in this particular year, which is almost 20.000 people for the district of Vlora. Keeping this in mind, the official number in emigration is 155.000 in the district of Vlora and 86.000 people in the county of Vlora.

In reality, the residents and the emigrants reported are almost 40% more than the registered numbers in the civil office. The emigrating population of Vlora prefecture is 31% of the overall number of emigrants of the whole country, while the city of Vlora comprises 17% of this estimation (Profile of Vlora District 2003). Overpopulation of the city and gradual abandonment of the villages is now a known complex phenomenon. This migration was not a consequence of an impetuous development of agriculture, its mechanisms and high work force numbers, as it happens in developed countries. The causes of population migration from the villages to the cities are related to: -inequality of the territorial and regional development of the economy; -disharmonizing of the democratic processes with the economic ones; -the differences in the revenues between the agricultural and nonagricultural sectors; -underdevelopment and primitivity of the working equipment in the villages; - the lack of education, social, cultural, health, entertainment commodities in villages etc;- the increase of the need in the city for workforces in transport, construction, specialties etc.; - higher revenues because of the emigration which stimulated the movement toward the capital or other bigger cities, as lively areas that offer commodities of culture, social and working opportunities. These factors were the main motivators and conditions that stimulated and enhanced the powerful and permanent movement of the population from the village to the cities. This high flow of migration toward the cities caused a considerable increase in the population number of the cities during these past years (Doka 2005). This high flow is thought to be continued in the future, but with lower rates. During the years 1989-2001, the Vlora area had lower rural migration rates and enforcement of urbanization of emigration (REPOBA 2001). The central areas of the district cities have high numbers of residents because the lack of infrastructure for inhabitation (electricity, drinking water, transport, services etc.,) made people move toward these centers. Many villages decreased their resident numbers from 30-50% such as the

villages of Vermik, Ramice, Bolene, Sevaster, Mazhar of Vlora area, while in the area of Saranda and Delvina most of people moved to Greece, reducing the population to almost by half (Shkurti, Laçka 2016). The general trend was the fast population increase rate because of the migrants from the villages or the movement of the population from the small towns to bigger cities (Doka 2005). Also, the trend is the migration toward the center of the district. As a result of this trend, the population of Vlora has been growing rapidly, with a net increase of 4.000 residents. During the last years, as a result of the free movement and internal migration, many informal areas of the city of Vlora, Saranda and Delvina have become residential areas. In the city of Vlora migrants are residing in the area called the “The Field of Woods”, Food Factory, Old Beach, Cement Factory (July 10<sup>th</sup> area”), Cold Water area, by the Tunnel etc., (Shkurti 2015). This migration trend shows many variations between the cities of the district. The city of Vlora estimates positive migration rates, while Delvina is mostly affected by negative net migration rates (-200 people). The district of Vlora has an area of 2.708 km<sup>2</sup> and population of 377.697 residents (Office of Civil Records, 2013), constitutes 9.41% of the country’s area and 8.73% of the population, with a density of 139.5 residents/km<sup>2</sup>. The population in the district is in satisfiable rates, compared to the state, because if we compare the data of the 2011 Census the situation changes. According to the 2011 Census, population of Vlora is 181.346 residents (Instat, Vlora 2011), which is 6.42% of the country’s population (2.821,977 inhabitants), (Instat, Vlora 2011), so the density results 67.0 residents/km<sup>2</sup>.

**Figure no. 2. Migration from the district of Vlora toward other districts of Albania**



*Worked by: Fatlinda Shkurti*

The data shows that there is a reduction almost by half of the number of population and the density in this area compared to the civil office data. The population of 181.346 residents is not uniformly spread in all the territory of Vlora. This is as a result of the varieties between the three cities, Vlora, Saranda and Delvina. The estimations show that more than half of the district population is found in the area of Vlora, which comprises almost 59.5% of the total surface of the area under the study, thus more than half of the surface area is home to 67.5% of the district population. The higher concentration of the population in the area of Vlora corresponds to the importance and functions of this area as the biggest urbane, economic, administrative, cultural and education center. The spontaneous constructions in the peripheral areas of the city are done by most of the migrant residents and face numerous infrastructure difficulties. The urbanization trend is more related to the depopulation of the rural and mountainous areas in different times for different areas, with the industrialization and migrations, rather than the natural increase which has a controlling and decreasing tendency in the cities (Draçi et al., 2001). On July 31<sup>st</sup>, 2014, the Albanian Parliament approved the new territorial and administrative organization, which divides the country into 12 districts and 61 municipalities and their subdivisions foreseen in the law. The new law did not change the districts, the number remained the same. The counties were left out, but they served as the main criteria to determine the new administrative division. The old municipalities and communes continue to function and are known as administrative units, parts of the new municipalities.<sup>3</sup>

**Table No. 4. Internal migration in the municipalities of Vlora district (INSTAT, 2018)**

| Municipalities | Nr. administrative units | Natural increase of population | Net internal migration |
|----------------|--------------------------|--------------------------------|------------------------|
| Vlora          | 5                        | - 98                           | - 116                  |
| Selenica       | 6                        | - 50                           | - 19                   |
| Himara         | 3                        | - 65                           | 30                     |
| Saranda        | 2                        | - 44                           | 106                    |
| Finiq          | 5                        | - 92                           | 38                     |
| Delvina        | 2                        | - 7                            | - 144                  |
| Konispol       | 3                        | - 17                           | - 18                   |

In 2018, district of Vlora (statistical region NUTS 3), had 6,6 % of the Albanian general population. This population was divided into seven municipalities. The district had a decrease of the population of 123 people because of the internal net migration. This number is the lowest in the country among the districts that have had a decrease of the population because of the internal migration (INSTAT, 2018).

<sup>3</sup> Law 115/2014 “On the administrative-territorial division of the units of local government in Republic of Albania.

## The consequences of population migration

### In the demographic aspect this process has brought:

Migration has created some sharp social problems that were unknown before the transition period. The combined effects of this selective migration age-gender, related less to the internal migration and more to the international emigration process, presents two key social problems: family separations and abandonment of older people or known as “*care drain*”<sup>4</sup>. Another social main problem is the abandonment of old people and the creation of the vulnerable social group of old population which De Soto calls “*orphan retirees*”<sup>5</sup>.

-Family separation has affected all the generations - children, parents and grandparents, often leaving the elders, high increase of divorce rates. According to the INSTAT, in the district of Vlora are 3120 single mothers with children, including 8059 members of the family core. According to the urban-rural division there are 2286 single mothers with children in the city, with a number of core family members of 5827. Meanwhile, there are 834 single mothers with 2232 core family members (INSTAT 2013), (De Soto et.al. 2002).

-Divorces have had their impact on the migration rates. INSTAT data of 2011 show an increase of this indicator in the district with 1722 divorced individuals, representing 10% of the population registered in the Civil Office, more in the city, because one of the divorced family members moves abroad (INSTAT 2013). Emigration abroad and internal migration out of the district contributed in the reduction of the population increase rates, with 0.2% rates from 1.5% before 1990. The internal migration brought a loss of 20% of the population; slower population rates in the city with 91 residents between two official registration (INSTAT, 2001 & 2011). If we refer to the data of urban population registered during the time period of 1990-2013, this indicator is high-3411 individuals within a year or 1.5% of the urban population of 2013 (Statistics of Vlora District 2013); Vlora county is the only administrative-territorial unit of the district with population increase rate of 0.1% per year. This is reflected on the specific increase rate of this population, on the general district population from 67.5% (1990), to 67.7% (2000) in about 65.2% (2005), 65% in (2010), to 71.8% (INSTAT 2011) and 65.2% in (2013); the mean population density of the district has changed, according to INSTAT this indicator is decreased to 64.8 residents/km<sup>2</sup> (2011) from 71.4 residents/km<sup>2</sup> in 2001, lowered with 9.2% reduction of birth rates over 50% of their absolute and relative number.

-In 2011 the mean birth coefficient decreased to 11.1% from 24% in 2001 because of the urbanization and emigration process. The higher decrease is noticed in Delvina area, associated to the lower number of marriages too. After 1990, the overall number of marriages reduced with 40% compared to 1989. The higher reduction of this indicator is noticed in the rural area, with 41% decreasing rate. The short-term consequences of migration are noticed on the reduction of the born children, and the change of behaviour toward having children. The index child-woman has a reduction trend from 3.3 in 1990 to 2.2 % in 2000 (INSAT, 2002).

Another emigration consequence is the increase of the uninhabited residences in

<sup>4</sup> “*care drain*” or lack of care (similar to brain drain) means that the old people remain without care after their children have left the country.

<sup>5</sup> “*orphan pensioners*”, De Soto H, Gordon P, Gedeshi I, Sinoimeri Z (2002) Poverty in Albania, A qualitative assessment, World Bank Technical Paper n. 520, pg. 46.

the district. According to the INSTAT data on the registration of the population and residences in 2011, 46% of the total residences of the district are uninhabited. Among three counties of the district, the higher number of uninhabited residences are found in the county of Vlore (30.3%), followed by Delvina (25%) and Saranda (14.3%), (INSTAT Vlora, 2011).

### **Economic consequences**

Population migration from the village to the city left the lands in the villages unexploited. The agricultural area farmed in the village is only 41.9% of the overall land surface for the county of Vlora in 2013, for Saranda 56.1% in 2012. This is because villagers left the land, reduction of the agricultural productivity etc. One of the consequences of the internal migration has been a serious balance of the working age population and its distribution thus affecting the job market. There has been an increase of the number of job seekers and unemployed individuals: in March 2010 in Vlora result 3635 unemployed, in Saranda 2287 and Delvina 473 unemployed, a total of 6395 unemployed registered individuals (Regional Employment Office, Vlora). The indicators changed for the county of Vlora in 2013 with 4520 unemployed individuals (Statistical Register, Vlora 2013, pg. 11), while in Saranda there is a decrease with 1955 unemployed in 2013 (Statistical Register, Saranda 2012, pg. 3). One of the main consequences of emigration that have served as “safety net” for Albanians are remittances. Regardless of the negative perceptions of economists that remittances are mainly for consume, they started as a possible strategy for the economic development (Troshani 2008). Remittances serve as insurance for the relatives back home, showing that emigration is one of the adapted mechanisms from the families to face the economic risks (Cattaneo, Mattei 2008). The influence of remittances within the country’s economy may be noticed in the macro, micro and median level, or stated differently related to poverty, macro-economic stability and social and economic development of the country (Gedeshi, Jorgon 2012). As a result, remittances have higher percentage on the revenue total in urban areas (16%) than in rural areas (11%), which again shows the regional inequality in Albania (Gedeshi, Jorgon 2012).

A third type of remittances are the social remittances: “ideas, behaviors, identities and social capitals that come from hosting communities to the sending ones (Levitt, Vullnetari 2007). These emigrants serve as a form of economic development of their native country.

### **The environmental aspect**

The urban consequences were severe because of the sudden and fast increase of the rural population. The areas close to the centers were worse, because the lack of necessary infrastructure obligated people to move to the city centers. This flux worsened the indicators of the urban life style, followed by a series of negative phenomena. At the beginning of 1990’s many illegal constructions started to bloom, identified as a typical phenomenon of the transition period. The city centers are out of limits of the urban constructions. Public areas are lost and the construction business profits on behalf of existing infrastructure. There is a high number of illegal constructions that do not respect any of the elementary rules of urban development, invading the green areas without functions related to life. As a result, this huge mechanical movement



has disrupted the balance between the urbane population and necessary elements of urban ecosystem such as housing, drinking water, sewage, city cleaning etc. Too often these requests require expensive investments, which is one of the main issues of the rural exodus (Dumani & Stringa 1997). One of the most important consequences of internal migration is the increase of the urbanization indicator, a necessary process for the country's development.

Thus, instead of the responsibility of the urban increase for a higher productivity, too often it has deepened the difficulties of the working force and its effective use (Dumani & Stringa 1997). Being that Albanian migration after 1990's was a chaotic process, in the future it is important to take measures in fixing this phenomenon such as studying the areas and regions more appropriate for hosting the migrant society, enhancing the economic development and infrastructure in the moving regions in order to eliminate their total depopulation.

### **Results and recommendations**

All the changes that have happened from the migration phenomenon and the social, economic and environmental consequences linked to this process, reflect or assess as main causes the social- economic, political changes, the internal migration phenomenon and specially the emigration of the population. In this contest, the results and suggestions are as follow:

- ✓ Rehabilitation and usage of former processing industrial and food activities, leather, shoes, artistic enterprises etc.
- ✓ Alleviating fiscal policies favoring the small and middle business in the district, especially for farmers in the villages.
- ✓ An important place should be given to tourism development, as the district holds potentials in this area, considering it a profitable branch for the economy, employment and revenues.
- ✓ Urgent improvements in the infrastructure and traffic, education and health care in rural areas, especially in the mountains, in order to improve the lives of residents in these areas.
- ✓ Determination of the priorities in villages, concentrating the needs where really exist the potentials for the sustainability of the rural life. Agricultural economies should be motivated and enhanced from the market.
- ✓ In order to face the intellectual migration, state institutions should be more careful on the science issues, education, work satisfaction and factors, increase of the international collaboration with other universities and research centers.
- ✓ Local and central government should enable bilateral agreements for seasonal employment in neighboring countries, considering the professional education required for employment.
- ✓ Such a migration dynamic makes it necessary to increase the demographic investments as it is accompanied with unemployment, informal job market etc.
- ✓ The implementation of the economic development strategy will lower the migration and will open new job vacancies, and create appropriate living conditions.
- ✓ An important factor that should not be underestimated and can be used is the fast social and professional reintegration of emigrants who return home.
- ✓ Migration in all its forms will continue to play an important and decisive role in

- many developments in economy, demography, regions and local areas.
- ✓ The study of this phenomenon in terms of socio-economic and environmental consequences is an important indicator in the development of appropriate policies for sustainable and long-term development in the region of Vlora. The Albanian Government, with the support of the IOM, has foreseen the adoption of the National Strategy for Migration, since 2002 (National Strategy for Migration, 2002). It is imperative that in all the projects and strategies that are created for the development of the country, the changes and effects of migration process should be taken into account.

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# Low carbon Sustainable Transport thought Energy Efficiency and Planning - Case Study Port of Durres Albania

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## Abstract

In today's world, energy consumption increases by the minute. New technology and power tools and equipment are required in all aspects of our lives. World population expansion, economic growth and technological advancements are fueling the demand for goods and services, thereby putting pressure on energy resources. With international shipping accounting for more than 80% of the global trade by volume (UNCTAD, 2022), ports have evolved into very critical links in the supply chain. Nowadays, ports have the obligation to develop, modernize and expand their infrastructure to cope with the trend. Our population is also growing which is increasing the need for energy. There are a wide range of energy sources that are effective depending on the location and weather conditions.

**Keywords:** Low carbon transport, emission, efficiency, planning.

## 1. Introduction

### Energy Efficiency and Management in Port Policy

Authorities all over the world are adopting stricter environmental regulations and greenhouse gas emissions (GHG) (Carbon Revenues) arising from energy consumption. Increasingly, port operational strategies and energy usage patterns are under scrutiny. The requisite to better understand and monitor energy related activities taking place in the port - or near the port - has become more obvious as the shipping industry focuses on energy efficiency and environmental awareness. New and innovative technologies (onshore power supply), alternative fuels (LNG), development of renewable energy installations in port areas, requires improved port organization and management, with increased focus on energy matters in port operations.

In the last decades the need to better understand and monitor energy-related activities taking place near or within the port has become more apparent as a consequence of the growing relevance of energy trades, public environmental awareness and a bigger industry focus on energy efficiency. The uptake in the port sector of innovative technologies, such as onshore power supply, or alternative fuels, such as LNG, and the increasing development of renewable energy installations in port areas, also calls for more attention to energy matters within port management. So far, however, few port authorities have actively pursued energy management strategies. The necessity for port authorities to actively manage their energy flows stems from their efforts to

plan, coordinate and facilitate the development of economic activities within the port, and as a consequence of the heavier weight that sustainability is given within the port management strategies. Port efficiency is an important indicator of port performance; more efficient ports lower transportation costs and facilitate imports and exports of a country. Significant improvements can be made when the technical efficiency of ports is increased.

**Port Environmental Management Plans (PEMP) and Green Port Policies.** Energy efficiency aspects are also incorporated into Port Environmental Management Plans (PEMP) that port authorities often develop on a voluntary basis, while they also serve as a key dimension in the green policy that ports put forward as an overarching approach for tackling environmental aspects in an integrated and coordinated way. However, due mainly to their wider focus, but also the large degree of freedom that often characterizes their development, such planning instruments and policies represent only a small commitment of port authorities to efficient energy management. Currently, the seven Port Authorities of Venice, Trieste, Koper, Bar, Durres, Thessaloniki and Piraeus, in five Mediterranean countries (i.e., Italy, Slovenia, Montenegro, Albania and Greece) are working towards developing such PEMP's covering a wide range of intervention areas.

**Technological and Operational Measures Adopted for Improving Energy Efficiency.**

A wide range of technological solutions and operational measures addressing different processes, facilities and equipment, have been implemented in European ports for further improving their current energy performance. The relevant efforts prove to have been further intensified over the last few years considering the higher priority given on energy concerns, as well as the important opportunities that have more recently emerged with regard to the wider exploitation of renewable energy sources, such as wind energy, solar energy (Port of Amsterdam) and the different forms of ocean energy (e.g., wave and tidal energy). More specifically, addressing all different aspects of port sustainability, available practices are classified in four categories:

- **Port management and policies**, where port environmental plans, energy management and monitoring systems, green concession agreements, modal split clauses, green port dues, collaboration schemes between port community stakeholders, and other managerial instruments are being taken into consideration;
- **Power and fuel used in ports**, considering different forms of renewable energy (i.e., wind, solar, wave and tidal, and geothermal), electrification of vehicles and equipment as well as cold ironing systems, and alternative fuels (i.e, LNG, biofuels, methanol, hydrogen and low-sulphur fuels);
- **Sea activities**, that include speed reduction of vessels when approaching the port, efficient vessel handling also looking at the impact of port waiting time on energy efficiency at sea considering the relevant relation introduced by Moon and Woo, as well as other vessel emission reduction technologies (i.e, scrubbers); and
- **Land activities**, that include modal split, technological upgrades of drayage trucks, efficient truck and vessel loading/unloading operations, and intelligent traffic management systems.

**Main Technological Solutions for Port/Terminal Equipment and Vehicles.**

The second most important energy consumer in the port area, are port/terminal equipment and vehicles. Most of the relevant measures that have been included in the following table relate to new engine technologies (i.e, hybrid, electric, powered with alternative fuels) mainly for terminal transport and stacking equipment. The 'greening' of terminal equipment is a measure that most port authorities in Europe have undertaken, or primarily consider, for improving their environmental and

energy performance. Relevant investments have been mostly undertaken until now on the hybridization and full electrification of such equipment, with several orders being currently delivered in different European ports. Besides diesel-electric engines, other hybrid technologies have also been tested. According to the results of the field test, fuel consumption can be reduced by 24%, while important benefits can also be realized in terms of air quality (i.e, 40% reduction of Particulate Matter – PM and 10% reduction of CO2 emissions). Full electrification is the option that most port authorities and/or terminal operators are following for the upgrade of their container transport and handling equipment. Ports have started modernizing their fleet with such units, taking another step towards the overarching goal of zero-emission operations.



*Figure 1. Port of Durres, Albania view*

## 2. Methodology

As more operations and activities take place in the port, the need for energy is increased. In this respect, a port can be defined an energy hub. (Acciaro, Ghiara, & Cusano) defines an energy hub as a geographical concentration of high-energy demand and supply activities, where energy intense industries, power generation, distribution and related activities and projects are located. Energy efficiency is becoming more interesting for ports as they realize that substantial energy savings can be obtained through rationalization of operation, adoption of new technologies and use of renewable energy sources. Energy Management Strategy is a term that collects all the systematic procedures to control and minimize the quantity and the cost of energy used to provide a certain application with its requirements (Olatomiwa, Mekhilef, Ismail, & Moghavvemia, 2016).

Port Energy Management Strategy is aimed at formulating processes and strategies geared towards realizing appropriate energy savings, through reduced consumption and costs, and advancing the consolidation of those gains (maximizing profitability of ports) while also complying with environmental regulations. It is important to understand that Energy Management Strategy is a long-term undertaking intended to deliver more energy savings whereas focusing on continuous improvement.

The Ship Energy Efficiency Management Plan (SEEMP) is an operational measure that establishes a mechanism - a management plan - to improve the energy efficiency of a ship in a cost-effective manner. The aim is to measure and control GHG emissions from the already existing shipping fleet. A management plan should be constructed specifically for a ship and has to be implemented according to the ship type, cargo carried, ship routes, and other relevant factors. Therefore, SEEMP cannot

be implemented on a company or fleet level, even on sister ships. The SEEMP seeks to improve a ship’s energy efficiency through four steps or phases;

- Planning;
- Implementation;
- Monitoring; and
- Self-evaluation and improvement.

The Ship Energy Efficiency Management Plan to improve the efficiency of the ship can be implemented in various ways, such as, improved voyage planning, optimizing the speed of the vessel, weather routing, optimizing ship handling, hull cleaning in dry dock, etc. All these methods help in increasing the ship’s efficiency and optimizing the ship operation. The SEEMP should be considered as a “live document” changing with the vessel technical state. The speed of the ship determines the amount of fuel the main engine will use to propel the ship. Known the non-linear relationship between ship speed and fuel consumption, reducing ship speed looks like a very promising alternative to reduce fuel consumption, therefore GHG.

### 3. Case study port of Durres Albania

**Review of low carbon Strategy.** The paper examines current issues and challenges in drafting and implementing a successful Port Energy Management Plan with the focus on the main Albanian seaport of Durres. The measures and approaches to the port energy management are reviewed through benchmarking with other European ports.

**Port of Durres profile.** The Port of Durres is the main and largest port in Albania. Located on the southeaster Adriatic Sea, between latitudes 41° 19’ N and longitudes 19° 27’ E, in the north end of the Bay of Durres, the port consists of an artificial basin formed between two moles, with a west-north-westerly oriented entrance approximately 183 meters wide. With an operational length of 2.2 kilometers and 11 berths, the Port of Durres is able to process about 78% of Albania’s international maritime traffic. Currently, the port has a trade capacity of more than 1.56 million tons of total cargo (Autoriteti Portual, 2023). As a maritime logistics center, the Port of Durres core activity is the provision of marine and maritime services ranging from pilotage, maintaining of approach channels in the port area for appropriate water depths, towing, provision and maintenance of navigational aids, stevedoring and handling of vessels and cargo. The Port of Durres processes all types of goods such as: dry and liquid bulk, general goods, chemicals, dangerous goods, chemical fertilizers, containers, Ro-Ro. etc. Technical and nautical services are available at Port of Durres providing highly productive terminal operations, logistics services, accessibility, administrative facilities, onshore and maritime infrastructure, ensuring quick and safe shipping while promoting environment preservation and economic development. International transport of goods in Albania is mostly carried out by sea and road, the air and railway transport make up a small percentage. As stated previously, the port of Durres handles around 78% of Albania’s international maritime traffic (Autoriteti Portual, 2023). Furthermore, the port ranks as the largest passenger port in Albania and one of the largest passenger ports in the Adriatic Sea (Table 1).

| YEAR              | 2014      | 2015      | 2016      | 2017      | 2018      |
|-------------------|-----------|-----------|-----------|-----------|-----------|
| Tons              | 3,717,992 | 3,496,366 | 3,463,946 | 3,683,773 | 3,614,605 |
| Cargo Ships Total | 1,702     | 1,617     | 1,552     | 1,572     | 1,561     |
| TEU Total         | 99,350    | 104,060   | 118,829   | 118,270   | 134,526   |

|                  |         |         |         |         |         |
|------------------|---------|---------|---------|---------|---------|
| Container Ships  | 165     | 184     | 200     | 206     | 185     |
| Passengers Total | 774,682 | 774,411 | 839,598 | 879,905 | 854,637 |
| Ferries Total    | 1,133   | 1,090   | 1,036   | 1,012   | 1,010   |
| Autos Total      | 215,081 | 216,918 | 240,473 | 258,754 | 256,061 |

Table 1 Port of Durres activity in five years

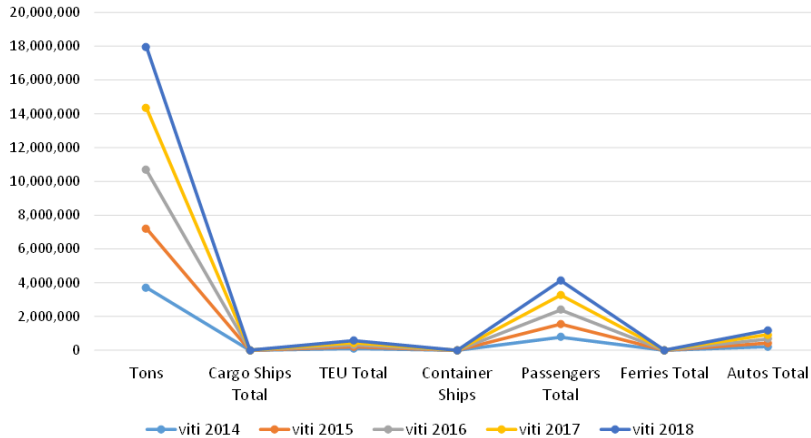


Figure 2. Dynamic of activity Port of Durres, Albania

**The Energy consumption profile of the Port of Durres.** The main sources of power at the Port of Durres are electricity and automotive diesel. Regarding energy consumption the Port of Durres is one of biggest energy consumers in the region of Durres. At the time, all the energy needed for the activities, processes and services taking place in the port is provided and purchased from the national grid. From the 2018, the Municipality of Durres as partner of the European Project, (PoWER), has been collecting and analyzing energy data in the Port of Durres. At the Port of Durres, the most energy demanding equipment are the cranes (tab. 3) and the lighting system.

For example, the cranes are installed in the late 60's (1967) and after many decades of service they are of old technology and inefficient.

|                                  |                           |          |
|----------------------------------|---------------------------|----------|
| Equipment on containers terminal | Reach stacker             | 2 pieces |
|                                  | Forklift (16 tons)        | 2 pieces |
|                                  | Forklift (32 tons)        |          |
|                                  | ECH (7 tons)              |          |
|                                  | Trailers                  | 5 pieces |
|                                  | Tyre crane (100 Tons)     |          |
| Equipment on ferry terminal      | Towing Heads MAFI         | 3 pieces |
|                                  | Towing Head SCANIA Lifter |          |



|                                |                                     |           |
|--------------------------------|-------------------------------------|-----------|
| Equipment on eastern terminal. | Electro crane (15 tons) in quay 11  | 3 pieces  |
|                                | Electro crane (16 tons) in quay     | 7 pieces  |
|                                | Electro crane (27 tons in quay      | 8 pieces  |
|                                | Grifera at different capacities     | 25 pieces |
| Equipment on western terminal  | Electro crane type “Ganz” (5 tons)  | 10 pieces |
|                                | Electro crane type “Ganz” (10 tons) | 2 pieces  |
|                                | Grejfera (5-10 tons)                | 16 pieces |
|                                | Auto cranes (45 tons)               | 2 pieces  |

*Table 2 Cargo handling equipment in the port of Durres*

**Measures to improve energy efficiency in the Port of Durres.** As mentioned previously, the Port of Durres is one of biggest energy consumption entity in Albania and until now, there has been no significant effort to switch to renewable sustainable energy. The Durres Port Authority (DPA) have taken some behavioral steps such as control of HVAC by a central office, which monitors energy consumption. Additionally, awareness campaigns have been carried out so that energy savings are brought into attention of staff and energy-demanding equipment are now being switched off while idle or after working hours. The DPA main objective is to shift by 2030 to 50% of the electric energy consumption to renewable energy sources. To achieve this objective the PA is considering investing within the Port area in the construction of Solar panels sites, in order to shift part of the energy consumption. Renewable energy sources, in this case Solar, offer new possibilities in efficiency improvements and energy bill cost cutting. The generation of electricity from Solar panels installations within the Port area can be utilized to provide electric power in areas such as yards lightings, port building lightings, including offices, workshops and air condition systems.

On the other hand, Solar technology offers the best option, as it addresses complex concerns including Energy Efficiency, GHG emissions and Environmental Sustainability. Table 3 shows the evaluated available areas within the port for installation of Solar panels and the respective annual energy output.

| Area |   | Installed Power (KWP) | Annual Production<br>(KWH/KWP) | CO <sub>2</sub> emission avoided (kg/<br>year) |
|------|---|-----------------------|--------------------------------|--|
| 1.   | Zone 18 - Administrative Building Roofs | 1,027.40              | 1,361.00                       | 839,409  |
| 2.   | Zone Parking 1                          | 1,718.25              | 1,388.38                       | 1,431,350                                      |
| 3.   | Zone Parking 2                          | 2,388.96              | 1,396.60                       | 2,000,560                                      |

*Table 3 Cargo Planned areas for Solar PV installations.*

The DPA plans to provide onshore power supply in all terminals. Onshore power supply (OPS) will reduce emissions from the ships by enabling them to shut down their

auxiliary power generators while at berth, avoiding GHG, air and noise pollutions from ships located at berth. The provisions of OPS to ships come with its issues and challenges, mostly financial and technical. In order to realize OPS infrastructure in ports high investment is required, related to the installation of transformer stations, frequency converters, cable management systems and grid extension. On the other hand, the ships located at berth, must have the suitable equipment, such as connection panel and control systems or on-board transformers. Considering the fact that 50% of the port energy demand is expected to be obtained through renewable energy sources until 2030, the implementation of OPS in the port of Durres is expected to have a high impact on the reduction of GHG emissions. In addition, another measure included in the action plan, aimed at mitigating the negative externalities of port operations, is the reduction of port carbon emissions by converting all vehicles and machines that are used for port operations in to electric ones. Is important to mention, that the main challenge for the DPA is the higher investments required for the shifting to electric vehicles. In order to attain the expected outcomes, the DPA will have the main role to monitor the implementation of the measures and based on the data collected to make the needed corrections. As Cape hart et al, (2012) notes, for an energy management plan to be set up, top management must exhibit will and commitment in providing leadership and resources to implement studies, projects and programs and the integration of energy management function in the company organizational structure. Table 3 shows the timeline for each measure of energy efficiency investment.

| ENERGY EFFICIENCY INVESTMENT   | TIMELINE |
|--|----------|
| Installation of Photovoltaic Plant.                                    | 2 years  |
| Conversion of all port vehicles from diesel engine to electrical ones. | 5 years  |
| On-shore power supply to ships (OPS).                                  | 15 years |

*Table 4 Timeline of implementation.*

#### 4. Conclusions

The paper examines the importance of energy efficiency in shipping, especially the adoption of a Port Energy Management Plan for the Port of Durres. It is evident from best practices in energy management that for the DPA to meet its energy targets and ensure continuous improvement, the top management of DPA should show commitment through developing a clear energy policy, effective regulations, institutional, technical and operational measures and a well-informed employee. Energy policies at the Port are informed by both national and international regulations and guidelines. Adherence to regulations and guidelines is needed to enable the DPA succeed in its energy sector improvements. Previous assessment shows that Port of Durres has the potential to improve energy efficiency by introducing measures such as Green Port Policy, new technologies, ISO standards and renewable energy sources. Through the adoption of ISO 50001 Energy Management System (EMS) the Port of Durres has the possibility to standardize Energy Efficiency and Management procedures. The EMS standard encourages day to day port operations towards focusing on reducing fuel and electricity cost, GHG emission reduction and improving the efficiency at the port.

Other measures taken by DPA include the electrification of the port's equipment - fixed and mobile - which mainly run on diesel fuels. To this point, an energy blueprint - a detailed plan - is drafted containing energetic measures for the growth of a positive and responsible culture to energy use and environment protection, over the entire spectrum of port employees, users and stakeholders.

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# Controlling the spreading of infectious diseases A criminal law point of view

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## Abstract

In 2019, the world found itself underprepared for the problems that the highly infectious virus COVID-19 would bring. The ongoing pandemic caused by this virus has shown little signs of slowing down. It continues to severely affect the lives of citizens all over the world and represents a serious health emergency for citizens, societies and economies, requiring special attention for the adoption of extraordinary measures to prevent not only COVID-19 but also any other type of virus that may have the potential to cause mass infections in the future. Leaving aside the medical response to this virus, another highly important issue is the legal response and legal amendments various countries have done to adapt to this new reality. Specifically, what criminal sanctions and relevant amendments have been done by various European countries in the face of the ongoing pandemic. This article gives a general panorama on the criminal sanctions and other relevant changes done in order to prevent the spread of infectious diseases.

**Keywords:** criminal sanctions, infectious diseases, criminal law.

## Introduction

Epidemics have accompanied humanity since the dawn of civilization. Various pathogens are responsible for some of the most infamous epidemics in our history. Humans and civilizations of these times and places have dealt with pathogens differently and in accordance to the medical knowledge that was available at the time. Since the era of the Spanish flu (What is the Spanish flu? , 2023), we had almost no other cases of pandemics or epidemics, however all of that quickly changed.

In 2019 there were reports of a new coronavirus, believed to have originated from the wet market of Wuhan, China. (Rath, 2022). Since then the novel coronavirus has spread globally causing problems for societies everywhere. Besides the medical approach that different countries around the world have followed in order to flatten the curve of infections and contain it, there have been massive efforts even from the legal point of view, especially criminal law.

Different European countries have always had special provisions in their criminal legislation related to the spread of infectious diseases, violation of quarantine rules, etc. In general, such provisions have been part of the respective Criminal Codes and very rarely, there have been special laws approved for this purpose. However, the pandemic caused by Covid-19 found many countries unprepared in this area, causing significant problems for several reasons.

Firstly, this disease appears asymptomatic in certain individuals and the latter negligently spread it massively, did not follow medical protocols, thus becoming a source of spreading of the infection.

Secondly, although symptomatic, certain individuals intentionally violated quarantine rules or other related medical protocols, contributing again to the spreading of the infectious diseases.

Responses to the novel coronavirus have escalated at a rapid pace, with various countries using a variety of public health interventions, including policy and legal tools, with the stated goal of controlling and preventing the spread of Covid-19. Some states have turned to criminal law to implement some of these public health measures in their responses to Covid-19.

This article and the research behind it, was undertaken to make a comparison of the legal framework and measures taken by European countries, related to the prevention of the spread of infectious diseases.

The purpose of this article is to present the criminal measures and the appropriate criminal sanctions taken in several European countries in the context of preventing the spread of Covid-19, but surely not just Covid-19. In our rapidly changing world, that is also so very interconnected, it is just a matter of time when the next pathogen will make its appearance and thus create a new epidemic or pandemic.

For this exact reason, Covid-19 served as an indicator for legislators around the world to pay more attention to infectious diseases and how they can shape our societies and especially our laws.

### **1. What European countries had an appropriate legal framework to prevent the spreading of infectious diseases?**

From the study of criminal legislation for situations caused by the spread of infectious diseases in some European countries and the region, a few elements are more noticeable. Mainly, these countries had special provisions in the relevant Criminal Codes regarding the prevention and curbing of the spread of infectious diseases of any kind. However, due to the current global health situation, amendments and new measures have been taken to adapt the Criminal Codes to the new reality that the world is facing. The countries studied for this article are Belgium, Bulgaria, Croatia, Hungary, Italy, Lithuania and Albania.

The global pandemic has directly affected the legislators who have taken immediate measures to amend the existing legal framework related to the prevention of the disease caused by the Covid-19 virus or other similar viruses that might make an appearance in the future.

Of all the countries studied for this article, it was noted that Bulgaria had the most dynamic and comprehensive changes in criminal legislation related to the prevention of the spread of infectious diseases. In the case of Bulgaria, it must be emphasized that the Bulgarian Minister of Health enjoys a very active role in taking measures to prevent Covid-19.

The Minister of Health of Bulgaria has the right according to the latest legal changes to request:

1. Temporarily restricting the movement of individuals carrying an infectious disease and their families (in case the latter are carriers of the same disease).
2. Prohibition of entry into the territory of the Republic of Bulgaria of individuals who are carriers of infectious diseases and their families. An exception in which case is it only when it is proven that the person carrying the infectious disease has been resident for a long time in the territory of the Republic of Bulgaria.
3. Prohibition of entry to certain regions, or public institutions that provide services to citizens during the period of the state of national emergency.
4. All local structures will assist the health authorities when necessary.
5. In the case of the implementation of anti-epidemic measures according to this law, the contact persons of individuals carrying the disease cannot refuse the requests of the health authorities for the epidemiological investigation.

Nevertheless, other countries as well, have special provisions in their respective national legislations that are unique to that said country. The following parts of the article will explore the legal aspects regarding each of the above-mentioned countries in the endless war to prevent and fight contagious diseases.

## 2. The criminal provisions regarding the spreading of infectious diseases in selected European countries.

When we talk about “controlling the spreading” of infectious diseases from the criminal law point of view, it is important to understand that one of the most effective ways of achieving this result, is through the allocation of a criminal sanction. In other words, if a specific country has a large number of infections as a result of Covid-19 or some other similar infectious disease, one way to flatten the curve of infections is to allocate an appropriate criminal sanction.

Everyone that doesn't follow the rules of isolation and other associated medical protocols shall be criminally liable in the court of law. For context, in the above-mentioned European countries there exist specific provisions concerning this issue, where a person can be criminally or administratively liable depending on the type of offense they commit. It should be noted that since these situations are very sensitive because they concern the health of the general public, medical protocols and the appropriate changes in the criminal law go hand in hand. Even though medical protocols are beyond the scope of this article, they will be mentioned where necessary when tackling the various legal provisions.

**Belgium** is one of the European countries where the criminal liability for the spreading of infectious diseases is stipulated in the Ministerial Decree, dated March 23<sup>rd</sup> 2020. (Internal Federal Public System , 2020). This Ministerial Decree is in accordance with another Ministerial Decree, dated May 15<sup>th</sup> 2007 (Internal Federal Public System , 2007), which provisions the exact criminal penalties for the purposeful and negligent spreading of infectious diseases. The penalties are composed of imprisonment from 8 days to three months and a fine from 26 to 500 euros.<sup>1</sup>

From a purely legislative point of view, Belgium is the only country that regulated the issue of spreading of infectious diseases with Ministerial Decrees. The whole other following countries, had either existing or amending legislation on infectious diseases in their respective Criminal Codes and other times they had the criminal legal basis as well as a *lex specialis*, regarding this issue.

Furthermore, Belgium also imposed municipal administrative sanctions in order to combat the spreading of Covid-19, but it should be noted that these sanctions are not of a criminal nature and are applicable only in very specific circumstances.

In the case of Belgium, the spreading of infectious diseases can be done either intentionally or negligently. The appropriate Ministerial Decree stipulates the two forms of the culpa<sup>2</sup> when dealing with the spreading of infectious diseases. It is an important moment to be stressed because as it will be evident shortly, not all countries make the same provisions.

**Bulgaria** on the other hand is one of the countries that had the most distinctive and comprehensive changes and amendments regarding the spreading of infectious diseases.

Article 355 of the Bulgarian Criminal Code (Bulgarian CC, 2021), stipulates that:

“1) Whoever violates an ordinance, rules or measures issued against the spread or occurrence of a contagious disease in humans shall be punished by imprisonment for

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<sup>1</sup> Ibid.

<sup>2</sup> fault.

a term up to three years and a fine from one thousand to ten thousand levs.

(2) If the act was committed during an epidemic, pandemic or emergency related to deaths, the punishment shall be imprisonment of up to five years and a fine of ten to fifty thousand levs.

(3) Whoever violates an ordinance issued for the prevention of food poisoning shall be punished by probation or a fine of one hundred to three hundred levs.”

It should be noted, in the above-mentioned provision that the *dolus*, or the intention of the perpetrator is direct. Which means that the perpetrator willingly and knowingly decides to violate this provision. They willingly and knowingly decide to become a spreader of contagious diseases. The Bulgarian law does not describe or provision the possibility of the violation being as a result of an act of negligence. This means that the offender shall only act according to their wishes, they know that they are carries of a contagious disease and willingly spread it to others.

Moreover, Bulgaria also has a *lex specialis*, when it comes to the protection of the health of all of the Bulgarian citizens. <sup>3</sup> This law has also been amended because of the global pandemic, provisioning the case of Covid-19. However, the law has a more of an administrative nature and not a criminal one. For example, according to Article 209a of the “Health Act”, whoever who violates or fails to implement anti-epidemic measures introduced by an act of the Minister of Health or director of a regional health inspection under Art. 63, para. 1 or 2, unless the act constitutes a crime, shall be punished by a fine of from 300 to 1000 levs, and in the case of repeated violation from 1000 to 2000 levs.

Similarly, to the Bulgarian case, **Croatia** too has a specific provision in its Criminal Code regarding the spreading of infectious diseases and in a *lex specialis* for the same purpose.

Article 238 of the Croatian Criminal Code (Croatian CC, 2021), stipulates the following:

(1) Whoever fails to comply with regulations or orders of the competent state authority ordering check-ups, disinfection, *disinsectisation*, *deratisation*, quarantining of patients or another measure for the prevention and suppression of infectious diseases among people or the prevention and suppression of infectious animal diseases that can also be contracted by people and where consequently the danger of spreading an infectious disease among people or the transmission of the infectious disease from animals onto humans occurs shall be punished by imprisonment not exceeding two years.

(2) Whoever by not complying with the measures of protection infects another person with a dangerous infectious disease shall be punished by imprisonment not exceeding three years.

(3) If the criminal offence referred to in paragraph 1 or 2 of this Article is committed by negligence, the perpetrator shall be punished by imprisonment not exceeding one year.

(4) The criminal offence referred to in paragraph 2 of this Article, *where it concerns a sexually transmitted disease*, shall be prosecuted at the injured party’s request, unless the criminal offence was committed against a child.

As it can be seen the Croatian Criminal Code does predict also the cases where spreading of infectious diseases can occur including also procedures of disinsectisation or deratization which are not observed in the other countries. This criminal provision too, doesn’t foresee the case of negligent spreading of an infectious disease. However, the above-mentioned provision does in fact foresee the situation of a sexually transmitted infectious disease. The spreading of a sexually transmitted

<sup>3</sup> Please see Health Act <https://extranet.who.int/mindbank/item/2267> last visited on April 10<sup>th</sup> 2023.

disease makes its appearance only in the Croatian Criminal Code and can be seen as a special aggravating circumstance to this provision.

There is also *lex specialis*, in Croatia that provides for further regulations on the protection of the public from contagious diseases.<sup>4</sup>

**Hungary** made important changes in its legal texts during the global pandemic. Its Criminal Code was amended in order to reflect the state of high alert due to the coronavirus.

Section 322/A of the Hungarian Criminal Code makes the following provisions on the guilty acts that obstruct epidemic containment. (Hungarian CC , 2023)

(1) A person who obstructs the carrying out

a) of an epidemiological isolation, observation, quarantine or monitoring ordered for the prevention of the introduction or spread of an infectious disease subject to compulsory quarantine,

b) of an epidemiological isolation, observation, quarantine or monitoring during an epidemic,

c) of a phytosanitary- or epizootic-related measure ordered to prevent the importation, exportation or spread of an infectious animal disease or a plant quarantine pest, or to eliminate its occurrence, is guilty of a felony and shall be punished by imprisonment for up to three years.

(2) The punishment shall be imprisonment for one to five years if the criminal offence is committed by a group.

(3) The punishment shall be imprisonment for two to eight years if the criminal offence causes death.

(4) A person who commits preparation for obstructing epidemic containment shall be punished by imprisonment for up to one year.

If we analyze the *actus reus* or the means employed to commit the criminal offense, it can be observed that this criminal offense can be consumed if a perpetrator obstructs an epidemiological isolation, quarantine etc., or if a perpetrator that plans to obstruct an epidemic containment. This means that this particular criminal offense has a formal nature, meaning that it doesn't necessarily need to produce effects. It just needs to be proved that a perpetrator was planning to commit the above-mentioned acts. In other words, just by purely planning to obstruct an epidemic containment according to the Hungarian criminal law, a person can be charged and punished up to one year.

Again, the Hungarian Criminal Code provisions only the guilty acts of a person that violates an epidemic containment and does not discuss the cases of a negligent conduct.

In **Italy** the situation was much more severe when it came to the infections created by the novel coronavirus. According to World Meter (WorldoMeter , 2023), Italy has had more than 25 million cases and more than 180.000 deaths because of the Covid-19. The statistics are alarming and show that this disease affected a great portion of the Italian population. Bearing in mind these statistics, Italy has undertaken a number of legal amendments in order to flatten the curve of infections in this country. Starting with a governmental decree (Government Decree, 1934), which foresees Article 260 that stipulates:

"Anyone who does not comply with an order legally given to prevent the invasion or spread of an infectious disease is punished with arrest from 3 months to 18 months

<sup>4</sup> For more information please see <https://www.ecolex.org/details/legislation/law-on-the-protection-of-the-population-from-infectious-diseases-lex-faoc106226/> last visited April 10, 2023.



and with a fine of between € 500 and € 5,000 (with arrest up to six months and with a fine from 40,000 lire to 800,000 lire). If the offense is committed by a person practicing a profession or sanitary art, the penalty is increased.”

Furthermore, Article 438 of the Italian Criminal Code also describes the culpable conduct relating to an epidemic disease or other pathogenic germs (Italian CC , 2023), is punished, if the conduct is culpable, with imprisonment from one to five years.

If the offender has had a malicious intent in the spreading of infectious disease, they shall be punished with life imprisonment. Italy is one of the sole countries that describes the “malicious intent” of a perpetrator when spreading the disease. Now this type of, or form of “guilt” is different from the ones discussed so far. In the Italian case, a perpetrator willingly and knowingly wants to spread the contagious disease and most importantly wants to cause harm to others. The perpetrator’s main objective is to cause injury to others and thus it can be seen as an aggravating circumstance.

For violations of the measures taken to contain the epidemiological risk from Covid-19 that do not constitute a criminal offence (i.e. violation of ban on leaving home for people who are not tested positive for the virus, so called “voluntary quarantine”), an administrative sanction is applied accordingly (consisting in a fine from € 400 to € 3,000).

In **Lithuania**, the appropriate legislation applicable is only the Criminal Code provision. More specifically, Article 277 of the Lithuanian Criminal Code (Lithuanian CC , 2023), provisions the “*Violation of the Regulations Governing Control of Epidemics or Contagious Diseases*”.

1. A person who violates requirements of the legal acts regulating health care or the regulations of control of contagious disease prevention, where this results in the spread of a disease or causes an epidemic, shall be punished by a fine or by arrest or by a custodial sentence for a term of up to three years.

2. A person who, having been informed by a medical establishment about his illness and warned of the protective measures which he must observe while communicating with people, exposes another person to the danger of becoming infected with a dangerous infectious disease shall be considered to have committed a misdemeanour and shall be punished by community service or by a fine or by restriction of liberty or by arrest.

3. A person shall be held liable under this Article only where the acts provided for are committed through negligence.

4. A **legal entity** shall also be held liable for an act provided for in paragraph 1 of this Article.

The Lithuanian case describes the intentional and negligent forms of the acts an offender can consume this particular criminal offense. At the same time paragraph 4 of the Article even foresees the possibility of criminal liability of a legal entity, a new element that has not been present in the number of countries that have been taken under consideration until now.

Last but not least, we have the case of **Albania**, which is one of those countries where there was a lack of legal provisions in the CC regarding the spreading of contagious diseases before the global pandemic.

Article 89/b “*Dissemination of infectious diseases*” of the Criminal Code of the Republic of Albania, (QBZ, 2023), was only added in April 2020. So, the changes were done after WHO declared the state of a global pandemic and the main driving factor

behind these changes was Covid-19.

The Article reads as follows:

“1. The intentional spread of an infectious disease with a high risk to health, through actions or omissions by the person who has been diagnosed as a carrier of the disease or by the person who intends to spread it, is punishable by imprisonment from two to five years.

2. When this offense is committed through negligence, it is punished by a fine or by imprisonment for up to two years.

3. And this offense, when it has caused serious consequences for health or danger to people’s lives, is punished by imprisonment from three to eight years.”

In the case of this specific criminal provision, there are two main elements that are more noticeable than the others:

1. The *actus reus*, or more specifically how is the offense committed

2. The intent of the perpetrator.

If we analyze the *actus reus*, the article states that is done either with action or inaction.

In other words, the offender can either commit the offense by engaging actively in doing it, or not. This Article can also take the form of an omissive criminal offense.

From a criminal law point of view the actions or inactions of the perpetrator in this case are important to be studied, for a multitude of reasons. Firstly, it is important to make the proper legal qualification of the offense committed and secondly, it plays a role ultimately during the proceedings of the case.

When we talk about the criminal intent of this particular case, the Albanian law stipulates two types of scenarios. The first one is when the perpetrator intentionally and knowingly decides to spread or disseminate the infectious disease and the second one is when the spreading occurs because of negligence of the offender. The latter case, the offender can somewhat predict the effects of their actions or inactions, however, they minimize the results. All of these are extreme cases of carelessness.

Lastly, in the last paragraph of Article 89/b the legislator has stipulated the scenario, when the as a result of the criminal activity of the perpetrator, there have been serious consequences for the health or the lives of people. This is a specific aggravating circumstance that is applied to this particular criminal offense and is applicable on a case by case scenario.

## Conclusions

Pandemic causing pathogens have accompanied humanity since the dawn of time. Since the appearance of Covid-19, it is clear that we are underprepared in our fight against such pathogens. It is extremely important to not only prepare our medical sector against such pathologies but also our legislations that regulate our day to day lives and especially when it comes to the health of the general public.

The article gave a general panorama on the criminal provisions regarding the prevention of spreading of infectious diseases. The countries studied were Belgium, Bulgaria, Croatia, Hungary, Italy, Lithuania and lastly Albania. All of the countries studied are European countries hit in various degrees of severity from Covid-19. The reason why these specific countries were chosen is because they were the countries with the most comprehensive amendments to their relevant legal legislations, regarding this topic.

A. *Which of the countries had preexisting criminal provisions regarding the spreading of contagious diseases?*

Out of all of the countries that were studied for the writing of this Article, only Albania had a lack of provisions in the Criminal Code regarding the spreading of infectious diseases. Article 89/b was added to the Albanian CC in 2020.

B. *How is the intent of the perpetrator provisioned in the above-mentioned countries?*

In Belgium and Albania both describe the notion of intentional and negligent spreading of infectious diseases.

In Italy, the CC describes the “malicious” intent of the perpetrator as a motivator for a more severe sentencing. This is the case of a specific aggravating circumstance.

In the other countries, it is described only the direct and intentional actions of a perpetrator to spread infectious diseases.

C. *What types of infectious diseases were specifically provisioned in the relevant national legislation?*

Croatia foresees disinsectisation, deratization and sexually transmitted diseases. The other countries did not make such other specific descriptions on this matter. The other provisions were more of a general nature.

D. *Means employed to commit the criminal offense and other special qualities of the subject*

When it comes to the means employed to commit the criminal offense they mostly vary from failing to follow regulations, protocols, obstructing the epidemic isolation etc..

Albania is one of the countries that stipulates also inactions when committing the criminal offense in addition to the actions, transforming the criminal offense into an omissive one in certain cases.

Lithuania is the only country that did provision legal entities as perpetrators for this specific criminal activity.

In conclusion, even though since 2019 we have been in an ongoing pandemic, with some countries having major consequences, still there are cases of disobedience regarding the following of regulations and protocols of isolations etc. For this particular reason and in order to be prepared when the next pandemic happens, criminal law should be used as a mean to contain the infections and flatten the curve of patients that might require special medical attention.

The countries taken into consideration for this article, have all done amendments to their legal texts in order to achieve this. It is hard to gauge at this moment if it is enough, however when the next pandemic happens we shall be a little better prepared than the last time.

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# Education for waste management

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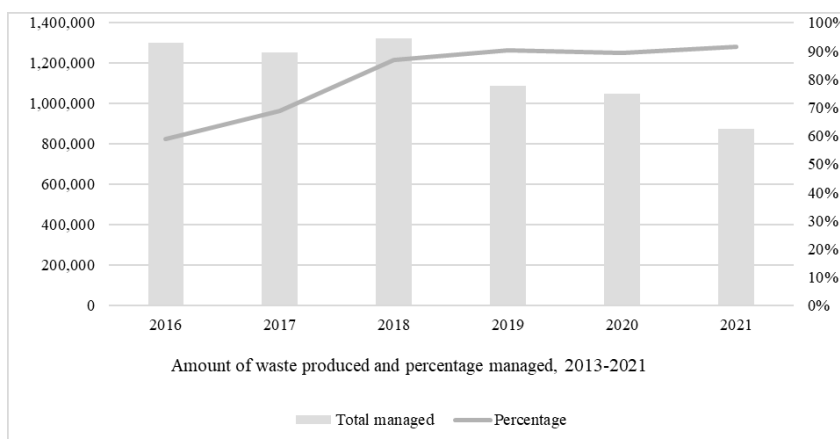
## Abstract

The issue of poor waste management is prevalent in many developing countries, primarily due to inadequate infrastructure, insufficient technical expertise, and a lack of environmental education and awareness. This paper proposes a multifaceted approach to improving waste management, by focusing on education and awareness-raising programs. Waste management and environmental education are essential components of sustainable development goals, and including them in high school curricula can promote the knowledge and skills necessary for a sustainable future. Proper waste management practices can lead to economic benefits and reduce negative environmental impacts, while environmental education can foster critical thinking and problem-solving skills among students. Educators have a vital role in creating a positive educational environment that promotes waste management and environmental awareness to prepare students for a sustainable future. By developing environmentally conscious citizens who understand the importance of protecting the environment, we can achieve a more sustainable future while promoting critical thinking skills among students.

**Keywords:** environmental education, waste management, Albania, sustainable future, environmental awareness.

## 1. Education for waste management

In developing countries like Albania, waste management is a major challenge due to a variety of factors. Besides the inadequate infrastructure, corruption (Imami, Lami, & Uberti, 2017; Kambellari, 2013; Turkeshi, 2014; Zhilla, 2011), and lack of technical know-how, a common issue that hinders effective waste management there is also insufficient environmental education and awareness (Alcani, Dorri, & Hoxha, 2015; Bineri, Huqi, & Sallaku, 2012; Debrah, Vidal, & Dinis, 2021; Gjoka, 2005; Keçi, 2017; Qafmolla & Dollani, 2010; Spahiu, 2022; Stela, 2015; Stela & Arjana, 2019). As a result, many communities in these countries struggle with poor sanitation, public health risks, and environmental degradation (Faize & Akhtar, 2020; Hoornweg & Bhada-Tata, 2012). Furthermore, the lack of monitoring mechanisms to track the amount and types of waste generated can make it difficult to plan and implement effective waste management strategies at the local, district, regional, and national levels (Ferronato & Torretta, 2019; Hoornweg & Bhada-Tata, 2012). Similar problems are evidenced in the case of Albania (INSTAT, 2020; Ministry of Tourism and Environment, 2020). Municipal solid waste, which consists of everyday items such as paper, plastic, glass, and food waste, is typically collected and deposited into waste collection bins. Unfortunately, in many parts of our country, this waste is not separated by type, which makes it challenging to recycle or reuse (Spahiu, 2022). Solid waste production in Albania varies by location, with urban areas generating roughly 370 kg per person (INSTAT, 2020), which has likely increased due to economic growth (Liço, Vito, Boci, & Marku, 2015).



**Figure 1: Waste management in Albania, 2020. (INSTAT, 2020)**

Additionally, industrial waste resulting from products and services of small business entities in urban areas is often disposed of in the same waste sites as municipal waste, further contributing to the challenge of waste management (Kripa & Nano, 2022). This mixed waste disposal approach leads to increased waste volume, environmental pollution, and resource depletion (Alcani & Dorri, 2013; Bineri et al., 2012; Debrah et al., 2021; Engström & Kässel, 2008; Gjoka, 2005; Kodra & Milios, 2013; Kripa & Nano, 2022). It also limits the ability to recover valuable materials from the waste stream, which could otherwise be used in the creation of new products or for energy production. The consequences of poor waste management in developing countries can be severe. Improper disposal of waste can lead to air, water, and soil pollution, which can have negative effects on public health and the environment. Additionally, the economic costs of poor waste management can be significant, as communities may have to deal with increased healthcare costs and lost productivity due to illness caused by poor waste management practices. Effective waste management practices that prioritize waste segregation, recycling, and reuse are essential to reducing waste volume, mitigating environmental pollution, and minimizing the depletion of natural resources. Achieving these goals is critical to promoting a circular economy that supports sustainable development. However, environmental education must also play a crucial role in promoting the adoption of proper waste management practices. A recent survey conducted by the author in several major cities (18 municipalities) found that citizens often blame their own behavior for poor waste management at the district level (60 % of the respondents, n = 1.517, EcoDes Consultancy, 2022). While the majority expressed interest in sorting the recyclables (90 %). Therefore, raising awareness and educating citizens on the benefits of proper waste management practices is essential to promoting positive behavior change and reducing waste generation, ultimately leading to a more sustainable future. Addressing the issue of waste management in developing countries requires a multi-faceted approach. In addition to improving infrastructure and providing technical assistance, education, and awareness-raising programs are crucial for promoting sustainable waste management practices (Debrah et al., 2021; Faize & Akhtar, 2020). These programs can

help to raise public awareness about the importance of proper waste management and provide communities with the knowledge and skills needed to implement effective waste management strategies. Additionally, monitoring mechanisms should be put in place to track the amount and types of waste generated, which can help to inform waste management planning and ensure that resources are allocated effectively. Several studies argue that any educational intervention should be integrated with the broader scope of formal education such as the education environment, education for sustainable development, and critical thinking (Debrah et al., 2021; Faize & Akhtar, 2020). However, while socially desirable, the National Curriculum Framework does not operationalize sufficiently this aspect of the education environment (See Ministry of Education Youth and Sports, 2017, pp. 18, 39). The issue is linked to civic education, education for sustainable development, environmental education, and critical thinking. These are some of the aspects covered in this paper.

## **2. Civic Education**

As mentioned in the National Curriculum Framework (2017), the issue could be framed within the goals of civic education. Civic education focuses on developing the knowledge, skills, and values necessary for effective participation in society and the democratic process. While waste management and environmental education are essential components of civic education as they provide students with the knowledge and skills necessary to be responsible and engaged citizens in the context of environmental sustainability (United Nations Educational & Organization, 2014). Civic education can promote waste reduction and sustainable waste management practices by encouraging students to become active participants in their communities. By fostering civic engagement and social responsibility, students can be empowered to take action on environmental issues such as waste management. This can include participating in local waste management initiatives, advocating for policies that promote sustainability, and engaging in community-based environmental projects. Additionally, environmental education can help to promote civic education by encouraging students to engage with their communities and take an active role in creating positive environmental change. By promoting an understanding of the interconnections between social, economic, and environmental factors, environmental education can foster a sense of social responsibility and commitment to the common good. This can include promoting sustainable waste management practices, supporting local waste reduction initiatives, and advocating for policies that promote environmental sustainability.

Moreover, waste management and environmental education can help to promote civic education by fostering critical thinking and inquiry skills (Arslan, 2012). Encouraging students to analyze complex environmental issues, evaluate evidence, and make informed decisions, waste management, and environmental education can help to prepare students for active citizenship and effective participation in the democratic process (Faize & Akhtar, 2020).

As the global population continues to grow, so does the amount of waste generated. Proper waste management practices are crucial in ensuring a healthy environment and sustainable future. It is therefore imperative to include waste management and environmental awareness in the high school curriculum. This essay discusses the

importance of including waste management and environmental awareness in the high school curriculum from an economic and pedagogical perspective, as well as some themes and goals, and how knowledge can be transmitted and transferred.

From an economic perspective, waste management and environmental awareness are crucial for sustainable development. Improper waste management practices result in environmental degradation and health hazards, which ultimately lead to economic losses. Environmental education and awareness can help students understand the consequences of poor waste management practices and how to reduce the negative impact on the environment. By incorporating these topics into the high school curriculum, students will be able to develop knowledge and skills that will contribute to a sustainable future. Additionally, proper waste management practices can lead to cost savings through the reuse and recycling of materials.

From a pedagogical perspective, including waste management and environmental awareness in the high school curriculum helps to develop critical thinking, problem-solving, and decision-making skills. Students will be exposed to complex environmental issues and learn how to analyze them, evaluate possible solutions, and make informed decisions. This will help them to become responsible and active citizens who are capable of contributing to sustainable development. By learning about environmental issues, students will also develop a sense of environmental stewardship and personal responsibility for protecting the environment.

The themes and goals of waste management and environmental awareness in the high school curriculum include the development of knowledge, skills, and attitudes necessary for sustainable development. Students will learn about the principles of waste management, including the 3Rs (reduce, reuse, recycle) and proper waste disposal methods. They will also learn about the impact of waste on the environment, such as pollution, habitat destruction, and climate change. Additionally, students will learn about the importance of environmental conservation and sustainability and how individual actions can contribute to a healthier environment. The overall goal is to develop environmentally conscious citizens who understand the importance of protecting the environment and are equipped with the knowledge and skills to do so. Knowledge can be transmitted and transferred through a variety of pedagogical approaches, including classroom lectures, discussions, case studies, and hands-on activities. Classroom lectures and discussions can be used to provide students with a theoretical understanding of waste management and environmental issues. Case studies can be used to analyze real-life environmental issues and evaluate possible solutions. Hands-on activities, such as recycling projects, can help students understand the practical applications of waste management and environmental awareness.

### **3. Educational for sustainable development and environment**

The importance of waste management and environmental awareness in the high school curriculum is reinforced by the need for formal environmental education and sustainable development at all school levels (Debrah et al., 2021; United Nations Educational & Organization, 2014). Such education should focus on the responsible management of chemicals and waste. They should also provide students with the knowledge and skills to understand the complexities of waste management.



In recent years, education for sustainable development (ESD) has emerged as a critical component of education. ESD seeks to develop the knowledge, skills, and values necessary to create a sustainable future (United Nations Educational & Organization, 2014). Waste management and environmental awareness are crucial aspects of ESD, as they contribute to the development of a sustainable society. By including waste management and environmental awareness in the high school curriculum, educators can contribute to the implementation of ESD and the creation of a sustainable future. One of the key principles of ESD is the integration of sustainability issues into all aspects of education. The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines ESD as “a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the earth’s natural resources” (Combes, 2005; Glavič, 2020). Waste management and environmental awareness are crucial aspects of sustainability and should therefore be integrated into all aspects of education, including the high school curriculum. Education and awareness-raising activities were essential for achieving sustainable waste management whereby teachers play an important role (Liu, Yeh, Liang, Fang, & Tsai, 2015). By educating students on proper waste management practices and the impact of waste on the environment, educators can contribute to the reduction of waste and the protection of the environment. Research has shown that including waste management and environmental awareness in the high school curriculum can have a positive impact on students’ attitudes and behaviors, and students who participate in environmental education programs have a greater understanding of environmental issues and are more likely to engage in environmentally friendly behaviors (Carleton-Hug & Hug, 2010). Furthermore, the inclusion of waste management and environmental awareness in the high school curriculum can also contribute to the development of critical thinking and problem-solving skills, which are crucial for sustainable development (United Nations Educational & Organization, 2014). By exposing students to complex environmental issues and providing them with the tools to analyze and solve them, educators can contribute to the development of responsible and active citizens (Carleton-Hug & Hug, 2010; Debrah et al., 2021; United Nations Educational & Organization, 2014). The educational environment plays a crucial role in promoting waste management and environmental awareness. The educational environment includes the physical, social, and cultural context in which education takes place. By creating a positive educational environment that fosters sustainability, educators can further promote waste management and environmental awareness among students. One way to create a positive educational environment is through the implementation of sustainable practices in schools. For example, schools can implement recycling programs, reduce energy consumption, and promote sustainable transportation options. These practices not only promote environmental sustainability but also provide opportunities for students to learn about waste management and environmental awareness in a practical context. Additionally, creating a social and cultural context that values sustainability can promote waste management and environmental awareness among students. This can be achieved by promoting sustainability initiatives, creating opportunities for student involvement in sustainability projects, and providing a platform for student

voices to be heard on sustainability issues.

Furthermore, the educational environment can also contribute to the development of critical thinking and problem-solving skills, which are crucial for sustainable development. By creating an environment that fosters creativity, innovation, and collaboration, educators can promote the development of these skills among students.

#### **4. Critical thinking**

The inclusion of waste management and environmental awareness in the high school curriculum aligns with the broader educational goals of promoting critical thinking skills. Critical thinking involves the ability to analyze, evaluate, and synthesize information in order to make informed decisions and is a key indicator of UNESCO's goals of education for sustainable development (EDS) (Ernst & Monroe, 2004; United Nations Educational & Organization, 2014).

The integration of environmental education into the high school curriculum is crucial in promoting critical thinking among students (Arslan, 2012; Faize & Akhtar, 2020). Educators can contribute to the development of critical thinking skills by encouraging students to think critically about environmental issues, exposing students to complex environmental issues, and providing them with the tools to analyze and solve them. Environmental education fosters the development of logical thinking, inquiry, and decision-making skills. Furthermore, environmental education helps students recognize the impact of the environment on their lives and the culture in which they live, which is essential for promoting sustainability.

This could be performed by stimulating and teaching scientific argumentation and providing students with the knowledge and skills necessary to address real-life environmental challenges. It helps students to understand the complexities of environmental issues and the interconnectedness of social, economic, and environmental factors. This understanding can empower students to act and make informed decisions about their own lives and the environment.

Research has shown that environmental education can have a positive impact on critical thinking skills as environmental education programs can improve students' critical thinking skills, including their ability to analyze, evaluate, and synthesize information (Arslan, 2012; Ernst & Monroe, 2004). Furthermore, environmental education can promote a sense of personal responsibility and a commitment to environmental sustainability.

Additionally, promoting waste management and environmental awareness in the high school curriculum can provide opportunities for students to develop critical thinking skills in a real-world context. For example, students can be encouraged to analyze the environmental impact of their own behavior and develop strategies to reduce waste and promote sustainability. Through these activities, students can develop critical thinking skills that are applicable to a range of real-world problems.

### **Conclusion**

Poor waste management is a significant challenge in many developing countries. Inadequate infrastructure, lack of technical know-how, and insufficient environmental education and awareness are among the factors that contribute to this problem.

Improving waste management in these countries requires a multi-faceted approach that includes education and awareness-raising programs, technical assistance, and monitoring mechanisms to track waste generation. By addressing these issues, developing countries can promote sustainable waste management practices and protect public health and the environment.

Civic education, waste management, and environmental education are interconnected in promoting active and responsible citizenship that leads to waste reduction, sustainable waste management practices, environmental sustainability, and engaged and active citizenship. Additionally, waste management and environmental education can help to foster critical thinking skills and social responsibility, which are essential components of civic education.

Waste management and environmental awareness are essential components of UNESCO's sustainable development goals. By including these topics in the high school curriculum, students will develop knowledge and skills that are crucial for a sustainable future. From an economic perspective, proper waste management practices can lead to cost savings and reduce the negative impact on the environment. From a pedagogical perspective, these topics help to develop critical thinking, problem-solving, and decision-making skills. The themes and goals of waste management and environmental awareness include developing environmentally conscious citizens who understand the importance of protecting the environment. Knowledge can be transmitted and transferred through a variety of pedagogical approaches, including classroom lectures, discussions, case studies, and hands-on activities.

Environmental education plays a crucial role in promoting waste management and environmental awareness. By implementing sustainable practices in schools, creating a social and cultural context that values sustainability, and fostering critical thinking and problem-solving skills, educators can contribute to the development of environmentally conscious citizens. As educators, it is our responsibility to create a positive educational environment that promotes waste management and environmental awareness and prepares our students for a sustainable future.

In conclusion, promoting waste management and environmental awareness in the high school curriculum aligns with the broader educational goals of promoting critical thinking skills. Environmental education has been shown to improve critical thinking skills among students and promoting waste management and environmental awareness can provide opportunities for students to develop these skills in a real-world context. Additionally, the development of critical thinking skills is a key component of education for sustainable development and is crucial for creating a sustainable future.

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# Fragility functions parameter for seismic risk evaluation of highway bridges

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## Abstract

Fragility curves constitute one of the key elements of seismic risk assessment. They relate the seismic intensity to the probability of reaching or exceeding a level of damage. Analytical fragility curves adopt damage distributions simulated from the analyses of structural models under increasing earthquake loads as their statistical basis. In order to make a rational decision about the need of retrofitting or replacing an existing bridge, the development of advancing tools for the seismic assessment highway bridges is needed. The objective of this study in regards to the fragility functions is to compare the most appropriate fragility functions parameter for the bridges construction typologies in Albania, implementation of the procedure for the seismic risk of the existing bridge based on a summary review of existing fragility functions for highway elements. The most appropriate fragility functions are presented for bridges transportation infrastructures and developed for the estimation of seismic risk.

**Keywords:** seismic risk, fragility curves, bridges vulnerability.

## 1. Introduction

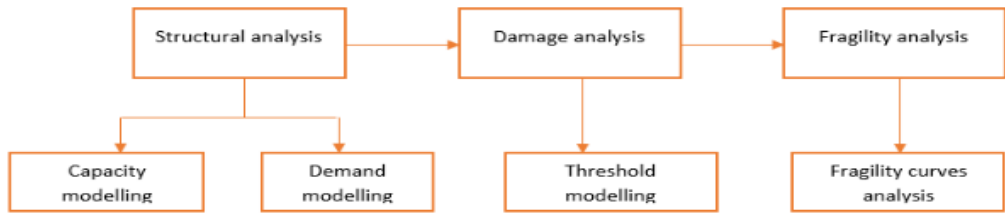
Earthquakes represent a serious threat in areas of moderate to high seismicity countries, where seismic events have been triggering significant destruction and loss over the last decades.

The first studies on seismic structure vulnerability assessment were made since 1970's at large geographical areas. However, initiatives for seismic risk assessment applied at a large scale still face significant challenges, such as the inventory of exposure data in very disparate databases and the selection of up-to-date vulnerability models compatible with the information available and with different construction practices [1,2,3,4,5].

This paper described a practice implementation for assessing seismic risk vulnerability of multi-span multi column bridges typology in Albania based on European fragility parameter research, which may be used for different seismic risk bridges studies [1,2,3,4,5].

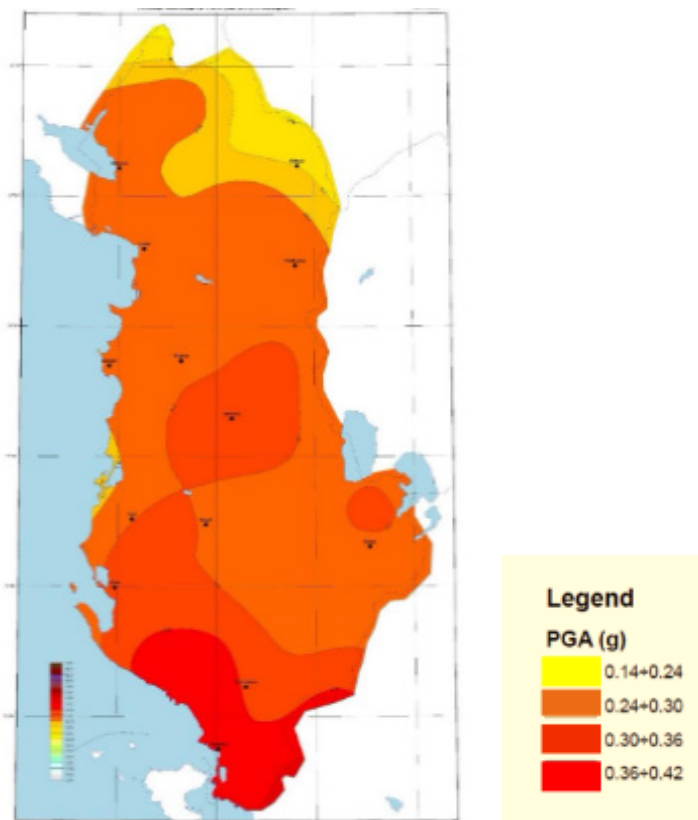
## 2. Analytical fragility methodology process

Figure 1 illustrates the main steps of fragility assessment procedure. The bridge structure model is used to evaluate the structure capacity. Demand is related to ground motion records and seismic hazard map. Damage analysis determines the definition of damage states, engineering demand parameters with intensity measures and thresholds values. Fragility analysis express the probability exceedance distribution related to damage limit states, [1,2,3,4,5].



**Figure 1.** Fragility risk assessment diagram for highway bridges

Figure 2 introduces the Seismic hazard Albania map showing peak ground acceleration for 10-percent probability of exceedance in 50 years and VS30site condition of 800 meters per second (Institute of Geoscience), [6].



**Figure 2.** Seismic hazard Albania map showing peak ground acceleration for 10-percent probability of exceedance in 50 years and VS30site condition of 800 meters per second (Institute of Geoscience), [6].

### 3. European fragility parameter and uncertainties on European vulnerability model

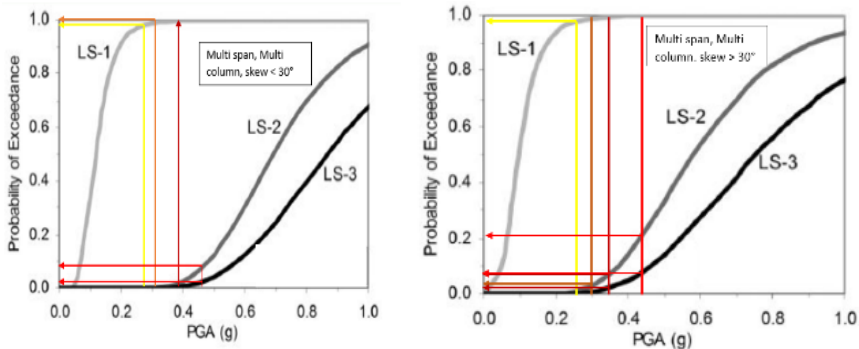
Table 1 gives median and dispersion values fragility curves parameter for multi

span-multi column RC bent bridges based on Turkey parameter [7].

**Table 1.** Median and dispersion values fragility curves parameter for multi span-multi column bent bridges based on Turkey parameter study.

| Multi-span, multiple-column bent, skew < 30°, [7] |                    |       |                     |       |                           |       |
|---|--------------------|-------|---------------------|-------|---------------------------|-------|
| Intensity measure                                 | LS1-Serviceability |       | LS2 -Damage Control |       | LS3 - Collapse Prevention |       |
|   | Median             | Disp. | Median              | Disp. | Median                    | Disp. |
| PGA (g)   | 0.117              | 0.400 | 0.693               | 0.280 | 0.869                     | 0.316 |
| Multi-span, multiple-column bent, skew > 30°      |                    |       |                     |       |                           |       |
| Intensity measure                                 | LS1-Serviceability |       | LS2 -Damage Control |       | LS3 - Collapse Prevention |       |
|   | Median             | Disp. | Median              | Disp. | Median                    | Disp. |
| PGA (g)   | 0.094              | 0.500 | 0.583               | 0.350 | 0.756                     | 0.380 |

Fragility curve for multi -span, multi column skew < 30° (on left), multi -span, multi column skew > 30° (on right) and probability exceedance values of Albanian seismic zone are given on Figure 3.



**Figure 3.** Fragility curves for multi-span, multi-column bridges values (Intensity measure parameter PGA)

Table 2 shows probability of exceedance of Serviceability, Damage Control and Collapse state using peak ground acceleration as intensity measure parameter of Albanian hazard map.

**Table 2.** Probability of exceedance for multi span – multi column bridges

| Multi span, multi column bent |                                      |     |     |                                      |      |      |  |
|-------------------------------|--------------------------------------|-----|-----|--------------------------------------|------|------|--|
| PGA                           | Probability of exceedance, skew < 30 |     |     | Probability of exceedance, skew > 30 |      |      |  |
|                               | LS1                                  | LS2 | LS3 | LS1                                  | LS2  | LS3  |  |
| 0.14~0.24                     | 0.9                                  | 0   | 0   | 0.9                                  | 0    | 0    |  |
| 0.24~0.30                     | 1                                    | 0   | 0   | 0.95                                 | 0.12 | 0.03 |  |



|           |   |      |      |      |      |      |
|-----------|---|------|------|------|------|------|
| 0.30~0.36 | 1 | 0    | 0    | 0.99 | 0.14 | 0.12 |
| 0.36~0.42 | 1 | 0.15 | 0.05 | 1    | 0.22 | 0.14 |

Table 3 gives median and dispersion values fragility curves parameter for multi span-single column bent bridges based on Turkey parameter.

**Table 3.** Median and dispersion values fragility curves parameter for multi span-single column bent bridges based on Turkey parameter.

| Multi-span, single-column bent, skew < 30°, [7] |                    |       |                     |       |                           |       |
|---|--------------------|-------|---------------------|-------|---------------------------|-------|
| Intensity measure                               | LS1-Serviceability |       | LS2 -Damage Control |       | LS3 - Collapse Prevention |       |
|   | Median             | Disp. | Median              | Disp. | Median                    | Disp. |
| PGA (g)   | 0.110              | 0.450 | 0.577               | 0.400 | 0.741                     | 0.480 |
| Multi-span, single column bent, skew > 30°      |                    |       |                     |       |                           |       |
| Intensity measure                               | LS1-Serviceability |       | LS2 -Damage Control |       | LS3 - Collapse Prevention |       |
|   | Median             | Disp. | Median              | Disp. | Median                    | Disp. |
| PGA (g)   | 0.100              | 0.420 | 0.482               | 0.360 | 0.613                     | 0.400 |

Fragility curve for multi -span, single column skew < 30° (on left), multi -span, single column skew > 30° (on right) and probability exceedance values of Albanian seismic zone are given on Figure 4.

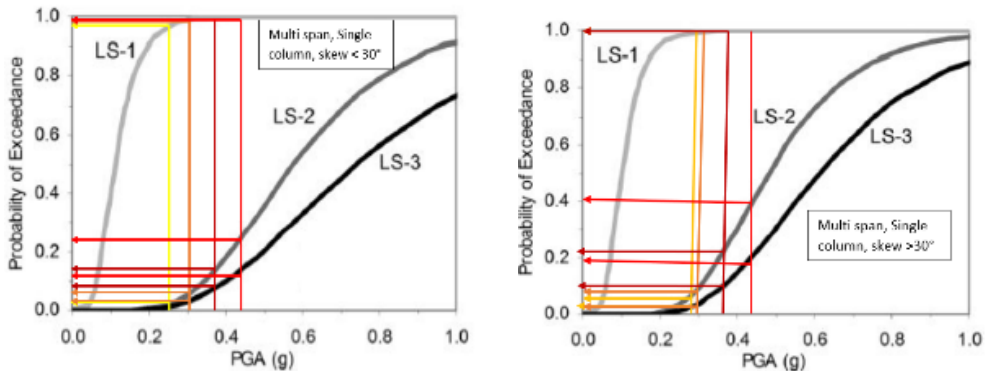


Figure 4. Fragility curves for multi-span, single column bridges (Intensity measure parameter PGA)

Table 4 shows probability of exceedance of Serviceability, Damage Control and Collapse state using peak ground acceleration as intensity measure parameter of Albanian hazard map.

**Table 4.** Probability of exceedance for multi span – single column bridges

| Multi span, single column bent |                                       |     |     |                                       |     |     |
|--------------------------------|---------------------------------------|-----|-----|---------------------------------------|-----|-----|
| PGA                            | Probability of exceedance, skew < 30° |     |     | Probability of exceedance, skew > 30° |     |     |
|                                | LS1                                   | LS2 | LS3 | LS1                                   | LS2 | LS3 |
|                                |                                       |     |     |                                       |     |     |

|           |      |      |      |      |      |      |
|-----------|------|------|------|------|------|------|
| 0.14~0.24 | 0.97 | 0.12 | 0.11 | 0.99 | 0.13 | 0.11 |
| 0.24~0.30 | 0.98 | 0.13 | 0.12 | 1    | 0.14 | 0.11 |
| 0.30~0.36 | 0.99 | 0.17 | 0.15 | 1    | 0.22 | 0.15 |
| 0.36~0.42 | 1    | 0.23 | 0.16 | 1    | 0.42 | 0.2  |

Comparing probability results taken from Table 2 and 3, it can be observed that multi span- single column bent, skew > 30° bridges scheme is the most vulnerability typology with greater values risk than others scheme.

Median value of fragility parameter on Italian study are 0.3 and 0.4 for damage and collapse stage, respectively. Compatible Eurocode 8 spectrum adjusted to Italian code is used for artificial ground motion of seismic excitation. Pier chord rotation and displacement capacity of bearings used for engineering demand parameter and PGA in term of seismic intensity parameter, [8].

Fragility curve of reinforce concrete pier for damage and collapse limit state, and probability exceedance values of Albanian seismic zone are given on Figure 5.

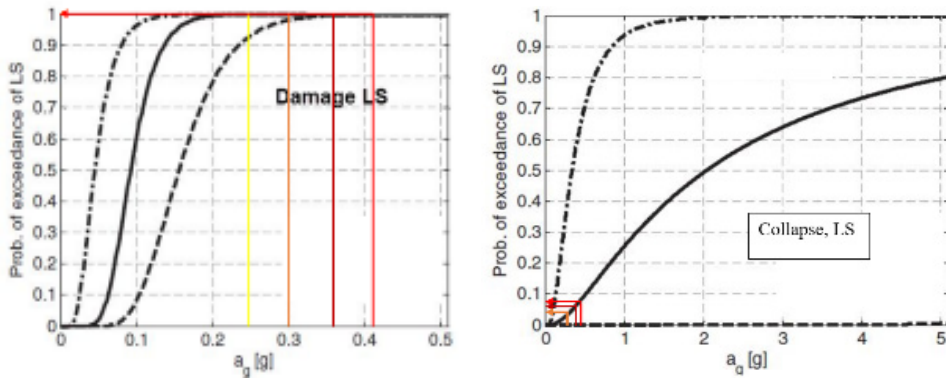


Figure 5. Fragility curves of Bridges (PGA) - Damage LS (on the left) and Collapse LS (on the right), [8]

Probability exceedance for rc girder bridges for damage and collapse limit state are shown on Table 5.

**Table 5.** Probability of exceedance for RC girder bridges

| Pier bridges with girder  |                          |                      |
|---------------------------|--------------------------|----------------------|
| Probability of exceedance |                          |                      |
| PGA                       | Damage (all Limit state) | Collapse limit state |
| 0.14~0.24                 | 1                        | 0.35                 |
| 0.24~0.30                 | 1                        | 0.4                  |
| 0.30~0.36                 | 1                        | 0.6                  |
| 0.36~0.42                 | 1                        | 0.7                  |

## Conclusion

This paper presents a fragility risk assessment on Albania multi-column bridge scheme with the application of developed existing fragility curves resulted of the European studies in the last decades.

The summary of the aspects that stand out in analysed fragility curves risk assessment is as follows:

Multi-span, multi column bridge typology located on seismic zone with (0.36~0.42) PGA intensity measure values have approximately 20% exceedance probability of collapse damage related to Turkey parameter fragility. Multi-span, single column bridge typology located on seismic zone with (0.36~0.42) PGA values have approximately 40% probability of collapse damage related to Turkey parameter fragility.

Bridges located on seismic zone with (0.3~0.36) and (0.36~0.42) PGA values have approximately 60-70% probability of collapse damage related to Italian parameter fragility.

It can be observed that multi span- single column bent, skew  $> 30^\circ$  bridges scheme is the most vulnerability typology with higher values risk probability than multi span, multi-column typology.

The seismic risk evaluation based on existing fragility curves European research are a useful guide for the assessment of the seismic risk of bridges in Albania for decision-making on bridges renovation, the impact estimations after major earthquake disasters for emergency response, the seismic scenario simulation for emergency planning, disaster risk reduction and the definition of procedures for seismic risk assessment.

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# The Impact of Regional Relations on the Integration of Albania in the EU

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## Abstract

Integration into the Euro-Atlantic institutions is an attractive, albeit difficult, process. Attractive, because the integration process increases the role and status of Albania in international relations. The main priority of the foreign policy of the Republic of Albania in the region is the promotion and contribution to peace, security and economic development through cooperation at both bilateral and multilateral levels. A safe and politically stable region that develops the right economic ties within it and with the rest of the world, serves the national interests of Albania, but is also in the interest of all other countries of the Western Balkans and our neighbors. Despite the existence of numerous obstacles, the future of the Western Balkans and Albania looks optimistic. The EU's approach to building a United Europe is based mainly on the promotion and encouragement of democracy, a stable market economy and a developed democratic and civil society, for which the countries of the region and Albania undoubtedly aspire.

Integration in the EU gives positive results that are reflected in the economic, social and democratic indicators of a country's development. As a result of these major benefits, the countries of the Western Balkans and Albania should become part of joint actions with each other, the region and with other countries of the EU and beyond to overcome the gap of challenges which seem to have deepened. with the exit of Great Britain from the EU and the uncertainty regarding the EU's enlargement policies.

**Keywords:** Regional initiative, Open Balkans, Bilateral relations, European integration.

## Introduction

Following in the footsteps of the countries that joined the EU in 2004, Albania engaged extensively with EU institutions, and joined NATO as a full member in 2009<sup>[1]</sup> Albania has benefited from the Autonomous Trade Preferences with the EU since 1999. While in 2000, products from Albania were granted tax-free access to the EU market<sup>[2]</sup> In 2010, the European Commission proposed visa-free travel to Albania. The approved proposal will enable Albanian citizens to travel to Schengen countries without the need for a short-term visa.<sup>[3]</sup> This decision was approved in November 2010 by the Council of the European Union for visa-free travel in the Schengen area for Albanian citizens.<sup>[4]</sup> In 2014, under the Greek Presidency of the EU, the Council of the European Union agreed to grant candidate status to Albania.<sup>[5]</sup> this coincided with the 10th anniversary of "Agenda 2014",<sup>[6]</sup> proposed by the Greek government in 2004, as part of the EU-Western Balkans Summit in Thessaloniki, to increase the integration of all Western Balkan states in the European Union.<sup>[7]</sup> At the summit of March 24, 2020, the decision was taken to open negotiations with Albania and North Macedonia. States that aspire to become part of the Union, including Albania, must meet a number of criteria for membership, otherwise known as the "Copenhagen Criteria". Basically, these criteria include three main directions or pillars: Political, economic and legislative criteria. Thus, the main areas where Albania "limps" are mainly related to democracy and the rule of law, such as the electoral system, reforms in justice and public administration, the fight against corruption and organized crime, as well as human rights such

as freedom of expression, non-discrimination, etc.<sup>8</sup> The development of regional cooperation between the Balkan countries is key for European integration and their economic development. The international community has always been present and has paid special attention to the region. Their assistance is constant to support economic and financial development, as well as to increase functional democracy. The states of the Western Balkans are small states, some of them very small, which is an obvious obstacle to foreign direct investment. The more effectively these states cooperate at the regional level in various fields, the more attractive they will become to investors, as investors will welcome anything that can help expand markets. In this way, the economy of these countries will become functional and able to face the competition of the European market.<sup>9</sup> Regional cooperation also helps to create social and economic cohesion by adapting them in advance to those of the EU, and this helps in a faster integration of these countries into the EU.

### **Research methodology**

Regarding research, we distinguish descriptive, ascertaining, comparative and statistical processing approaches, in relation to some statistics for Albania obtained by INSTAT. Regarding the collection of information, we distinguish the research on the sources of INSTAT and international publications on the integration of the Western Balkans, the International Relations of Albania, its bilateral relations and the national plan of the European integration of Albania. This research is based on the existing data regarding the impact of these regional cooperation's and beyond on the integration processes in the EU. The impact of these relations and cooperation on the economy and internal and external developments of Albania is also presented.

### **Albania and Regional Integration Initiatives**

Albania remains an active participant and beneficiary of the Berlin Process, which aims, among other things, to deepen economic and commercial cooperation within the Western Balkans. It has made a positive coordination between the projects launched within the Berlin Process and EU policies, with special focus on the Economic and Investment Plan, the Green Agenda for the Western Balkans and the Common Regional Market. The Economic and Investment Plan is focused on sustainable transport, clean energy and digital connectivity projects implemented through the Western Balkans Investment Framework. In the field of digital connection, the Regional Roaming Agreement has been fully implemented and the free roaming regime has been launched in the Western Balkans. Albania's participation in regional organizations is presented in the following table<sup>13</sup>.

| <b>Regional organization</b>                    | <b>Pranimi</b>   |
|---|------------------|
| South East European Cooperation Process (SEECP) | 1996             |
| Council for Regional Cooperation (RCC)          | 27 February 2008 |
| Central European Initiative (CEI)               | 1996             |

|  |                   |
|--|-------------------|
| Black Sea Economic Cooperation Organization (BEDZ/ BSEC)       | 25 June 1992      |
| Adriatic-Ionian initiative (AII)                               | 20 May 2000       |
| Regional Initiative for Migration, Asylum and Refugees (MARRI) | 2003              |
| RACVIAC (Regional Arms-Control Verification Center)            | 20 September 2000 |
| USA - Adriatic Charter (A-5)                                   | 2 May 2003        |
| The Western Balkans Fund (headquarters in Tirana)              | 13 Novembre 2015  |
| Balkan Medical Task Force (BMTF)                               | Novembre 2011     |
| Regional Maritime Initiative "ADRION"                          | 20 May 2000       |
| Ministry of Defense of Southeast Europe (SEDM)                 | 1996              |

Another regional initiative in which Albania has been engaged is "Open Balkan", which is currently a collaboration between three countries in the region, Albania, North Macedonia and Serbia. This initiative aims to implement as soon as possible the four freedoms of the EU, the movement of people, goods, services and capital, which will be implemented throughout the region.<sup>10</sup> The initiative is in line with the Common Market Plan Regional of the Berlin Process, i.e. in itself the "Open Balkan" is a mechanism of the Berlin Process. This initiative should be seen as a first successful move for the region and helps in the integration of Albania in the EU and other countries participating in this initiative, strengthening regional cooperation and generating economic growth. The Open Balkans also complements regional cooperation in the framework of various regional initiatives, such as the Regional Common Market, the Digital Agenda, the BP Green Agenda, Green Corridors and the wider Berlin Process. This initiative is in operation and complements the efforts of the countries of the region towards EU integration. The Open Balkans remains open to all countries in the region and is conceived as a comprehensive regional initiative<sup>11</sup>. Regarding cooperation with regional countries, it is worth highlighting some of the bilateral relations with Kosovo, Montenegro, North Macedonia, Serbia, Italy, Greece and Turkey.

### **Bilateral relations and cooperation of Albania with the countries of the region**

The Strategic Partnership with Kosovo is implemented through agreements and protocols signed during the seven intergovernmental meetings that have taken place so far. They have enabled a package to develop bilateral agreements covering all areas of cooperation, including trade development, cooperation between customs authorities, transport infrastructure, energy cooperation, agriculture, tourism, education, cultural cooperation, but also security cooperation, the facilitation of border control procedures, the fight against serious and organized crime, the implementation of foreign policy, etc. Regarding Albania's relationship with Serbia, it is worth noting that since January 2021, the agreement between the two countries has become effective for the free movement of our citizens with identity cards. While with Montenegro, a very positive example of concrete cooperation is the opening of the joint border point Grabom - Zatrijebacka Cijevna. Work is being done with North Macedonia to prepare the second joint meeting between the two governments. This meeting has

as its agenda the strengthening of the connection, the completion of infrastructure, energy and mobility corridors, with a special focus on major infrastructure and energy connection projects: such as the 8th Corridor, the Durrës - Elbasan - Skopje Segment; Arbri Road and the extension in the segment Bllata - Skopje; Termination of 400 KV interconnector; Construction of the Këqovo - Ohrid railway extending to Lin; Common customs point and Border Crossing in Qafë - Thane. Greece - achievements in bilateral cooperation include the implementation of the agreement on the search, exhumation, identification and burial of Greek soldiers fallen on Albanian territory during the Greco-Italian war of 1940-1941, the withdrawal of the Greek reserve for the Apostille Seal towards Albania, the successful finalization of the revision of school textbooks, the signing of the agreement on the mutual recognition of driving licenses, on January 18, 2021, the two countries signed an agreement on the establishment of a joint border cooperation center, and on January 26, 2021, the agreement was signed on the granting of a grant of 2.5 million euros, for the purpose of rebuilding a professional school in the "5 Maji" complex in Tirana as part of the reconstruction after the earthquake of November 26, 2019. Italy - cooperation in the fields of defense and justice and internal affairs was further strengthened, especially in the fight against organized crime, drug trafficking, human trafficking, illegal migration and asylum. Italy remains Albania's first trade partner and one of Albania's main donors. Turkey - there is a growing presence of Turkish investment, especially in the fields of energy, banking, tourism, telecommunications and infrastructure. Turkey is Albania's 4th largest trading partner<sup>12</sup>.

### **The European integration of Albania and the conditions that must be met for entering the EU**

Membership negotiations mark the key moment in the integration processes of a country to the EU. Before negotiations on specific chapters can begin, the candidate country must submit its negotiating position, while the EU adopts its common position. The process of the accession negotiations of the candidate country consists of three stages: In obtaining the status of the candidate country, In the official opening of the negotiations for membership, in the conclusion of the negotiations.

Negotiations take place between the ministers and ambassadors of the governments of the member countries and the candidate country through the Intergovernmental Conference. The first Intergovernmental Conference is the most important politically since it defines the general framework for the negotiations, as well as their official opening. Here the general negotiating positions between the EU and the candidate country are exchanged and the negotiating groups are presented. The duration of the negotiations depends on the speed of the implementation of the reforms and the approximation of the EU legislation (acquis) by the candidate country. The negotiation process ends only after each negotiating chapter has been closed, as confirmed by the relevant conclusions of the European Council<sup>13</sup>.

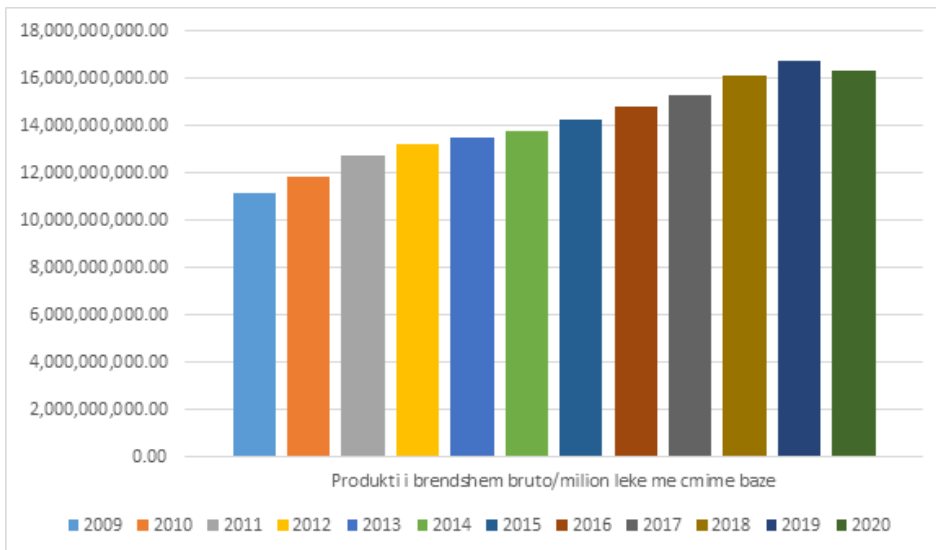
Regarding the EU-Albania negotiations, 15 conditions have been set for the advancement in the opening of chapters to join the EU. These conditions are: 1. Approval of the electoral reform 2. Functioning of the Constitutional Court; 3. Functioning of the Supreme Court; 4. Finalization of the establishment of structures against organized crime and anti-corruption/ Operation of SPAK; 5. Strengthening the fight against corruption and organized crime, in cooperation with member countries and through the Action Plan for addressing financial crime; 6. Reduction of the number of asylum

seekers; 7. Revision of the Media Law in line with the recommendations of the Venice Commission; 8. Continuation of the Justice Reform; 9. Track Records - Initiation and completion of first-degree court proceedings of senior officials and politicians; 10. Progress in public administration reform; 11. Implementation of the electoral reform; 12. The decision on the legality of the 2019 local elections; 13. Approval of the by-laws of the Law on National Minorities; 14. Approval of the (amended) Census Law; 15. Advancement of the property registration process.<sup>14</sup>

The process of negotiations for Albania started in September 2018 and extends until December 2019: Currently, all the explanatory meetings and bilateral meetings have been held, but we are still waiting for the opening of the chapters for the negotiations with the EU. This is expected to happen within the year 2023<sup>15</sup>.

## Results

The process of European integration for Albania has given increasing results and improvement in the field of democracy and law enforcement, where it is worth emphasizing the establishment of SPAK and BKH as institutions that will fight corruption and organized crime. Also, this process has helped to improve the legal framework by aligning it with EU laws. Reforms in public administration, qualification of the workforce, territorial reform, justice reform, etc., are some of the first results that have brought closer and improved the regional and integration relations of Albania. It is worth noting that Albania has made great progress in terms

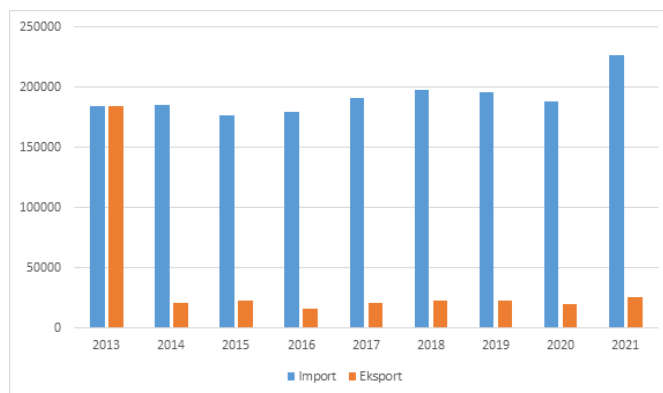


of the transport of goods, free trade and economic growth, thus strengthening the economy and making it more and more competitive in the EU market. This is also ascertained from the statistics for production in the gross domestic product and in Import and export of Albania with the EU. Chart 1 shows the gross domestic product in millions of ALL at basic prices, from 2009 to 2020 according to Instat of Albania.

Graph 1. Gross domestic product in millions of ALL at basic prices from 2009 to 2020. The graph clearly shows the ever-increasing trend of the gross domestic product, which indicates an ever-growing economy.



Regarding import and export, the values presented below in graph 2 show the trend of the Albanian economy from 2013 to 2021.



Graph 2. Values in millions of ALL of Albania's import and export with the EU from 2013 to 2021.

The graph shows an increasing trend of imports and exports in the last year measured according to Instat of Albania<sup>16</sup>.

The data of the reforms mentioned above are encouraging and stimulating for the continuous improvement of democracy, justice, the economy and the social aspect of Albania, showing the importance of regional initiatives and integration processes in the further development and democratization of Albania.

## Conclusions

1. Regional relations and cooperation serve as the first step towards European Integration.
2. The intensification of the Kosovo-Serbia dialogue, and the recognition of the reality of Kosovo by Serbia is a step that promotes the rapid integration of the countries of the Western Balkans into the EU.
3. Strengthening the rule of law and reforms in this direction contribute to the advancement of integration processes and economic growth.
4. The deepening of the four economic freedoms - of goods, capital, labor and services - should be at the center of economic cooperation for the countries of the region and beyond.
5. Economic, political and social cooperation promotes not only closer regional cooperation, but also brings peace and stability to the region.
6. Improving infrastructure is one of the key areas to connect the region and bring its countries and citizens closer together.
7. The creation of Balkan relations in the framework of economic, political and social cooperation, based on previous successful models of regional cooperation, will enable the states of the region to compete successfully with other large economies, such as European union.

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# Epidemiologic overview of acute appendicitis in Gjirokaštër, Albania

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## Abstract

### Background

Acute appendicitis (AA) is one the most frequent surgical diagnoses. This study aims to describe epidemiology of AA in Albania's southernmost region of Gjirokaštër in order to have a better understanding and then later focus on a better management of it.

### Methods

We did a research in the Surgery Unit of the regional hospital of Gjirokaštër over official medical cards during the period of time June 2016-December 2019. In total we studied 278 cases confirmed with AA, 134 were females and 144 were males. We analyzed data regarding gender, age-groups, season and days of hospitalization. The software used was SPSS.

### Results

AA cases' mean age was 28 YO and its peak was 13-18 YO. Its distribution was 48.20% in females and 51.79% in males.

From total 278 cases with AA, 47.48% happened at age-group (AG) 'up to 20 years old (YO)', 29.14% at AG '21-40 YO', 16.19% at AG '41-60 YO' and 7.19% at AG 'over 60 YO'. We found slight differences of AA cases regarding gender over age-groups, most of it was found at age-group 'over 60 YO' where we had 8.12% more cases in males. Period of hospitalization was longer at age-group 'over 60 YO' and longer on males. AA happened 26.62% in spring, 27.70% in summer, 24.46% in autumn and 21.22% in winter.

### Conclusions

Similar to the global trend, AA it's a disease of youth, with 76.72% of all cases in people up to 40 YO and its peak was at 13-18 YO, marginally higher in males. Hospitalization was longer on males over 60 YO. It was present during the whole year with a slight decline of cases in winter.

**Keywords:** Acute appendicitis, Epidemiology, Albania.

## Introduction

As a developing country, Albania will have to upgrade its health system to European standards following developed countries' experience. In regard to this, one of the main topics that needs urgent upgrade is pain therapy since it's yet a new, unknown discipline between medical community. In clinical practice, surgery unit is one the most common places where we can find patients in pain. Therefore, we started observing this unit to better understand epidemiology, clinical appearance and pain management of surgical diagnoses. We did an observational study at the surgery unit of regional hospital of Gjirokaštër, for a period of time from June 2016 until December 2019. We recorded medical data for over 2365 patients. The five most frequent diagnoses where: acute appendicitis, inguinal hernia, cholelithiasis and

its complications, contusion of head and neck and acute abdominal pain. Because of being the most frequent surgical diagnoses, with this article we'll describe epidemiology of acute appendicitis (AA) in Albania's southernmost region of Gjirokaštër in order to have a better understanding, aiming to focus later on a better management of it.

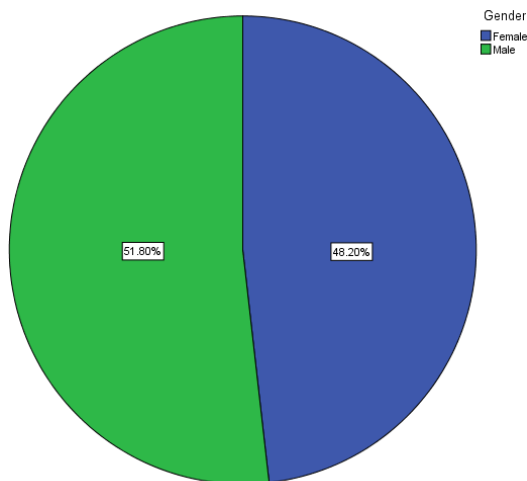
### Methods

We did a descriptive epidemiological observational study in the Surgery Unit of the regional hospital of Gjirokaštër. We collected data from official medical cards during the period of time June 2016-December 2019. In total we studied 278 cases confirmed with AA, 134 were females and 144 were males. Data have been statistically analyzed regarding gender, age-groups, season and days of hospitalization. We had four age-groups as follows: 'up to 20 years old', '21-40 years old', '41-60 years old' and 'over 60 years old'.

The software used was SPSS.

### Results

**Graphic 1. AA gender distribution.**

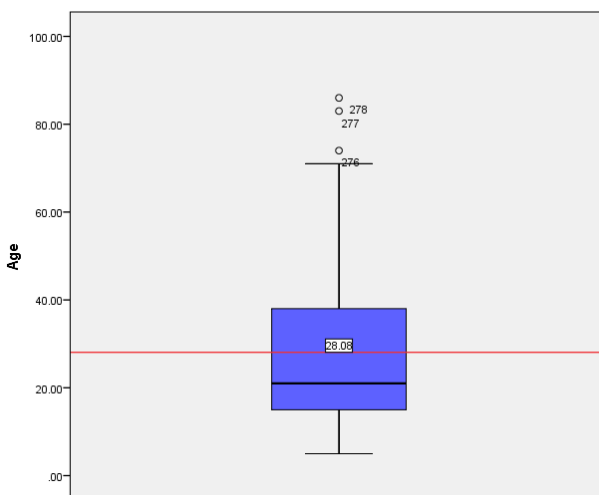


AA gender distribution was 48.20% in females and 51.79% in males. Males had a marginally higher rate than females. The overall male to female ratio was 1.07:1.

**Table 1. Descriptive Statistics**

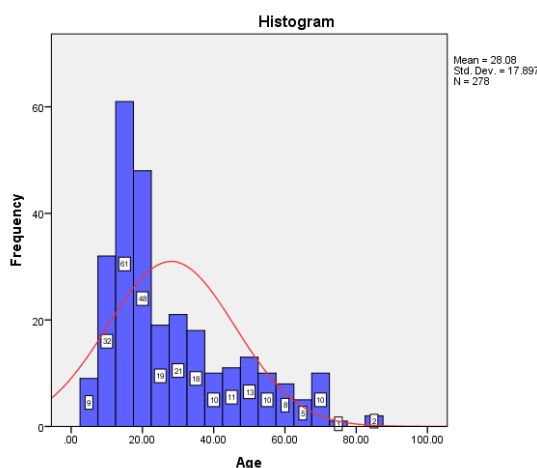
|                    | N   | Minimum | Maximum | Mean    | Std. Deviation |
|--------------------|-----|---------|---------|---------|----------------|
| Age                | 278 | 5.00    | 86.00   | 28.0755 | 17.89656       |
| Valid N (listwise) | 278 |         |         |         |                |

**Graphic 2. Interquartile range of Acute appendicitis and patients' age.**

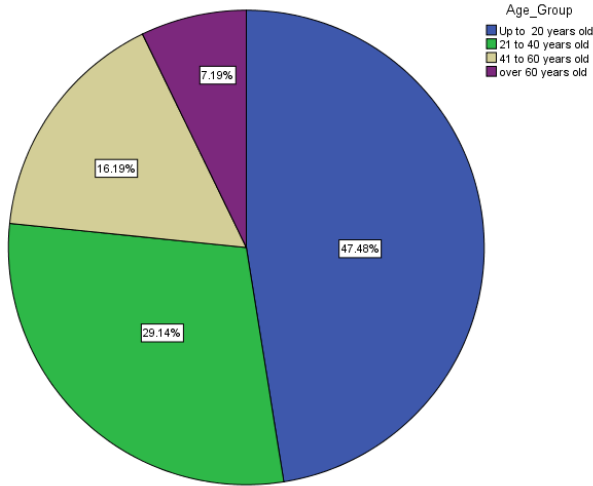


We found AA in patients starting from 5 to 85 years old. Observations on patients over 70 years old were considered outliers, so interquartile range (IQR) of AA and age was 5 to 70 years old. Graphic 2 and table 1 shows that AA's mean age was 28 years old with a standard deviation approximately 18 years. Only 25% of patients were between 5-15 years old, another 25% of them were between 38-70 years old, so interquartile difference is defined by length of age interval between 15-38 years old. Observed median was 21 years old with a difference of 7 years from AA mean age with trend towards younger ages. This is visible on graphic 3 where we see a clear deviation of normal trend of age distribution of AA compared to its real distribution. Higher frequencies are seen on 10 years old, 13-18 years old and 21 years old. Its peak was 13-18 years old.

**Graphic 3. Comparison of AA's age distribution with its normal distribution.**

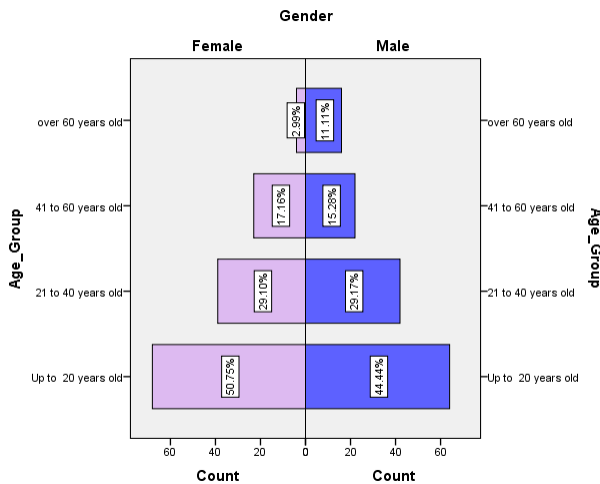


**Graphic 4. Distribution of AA at age groups.**



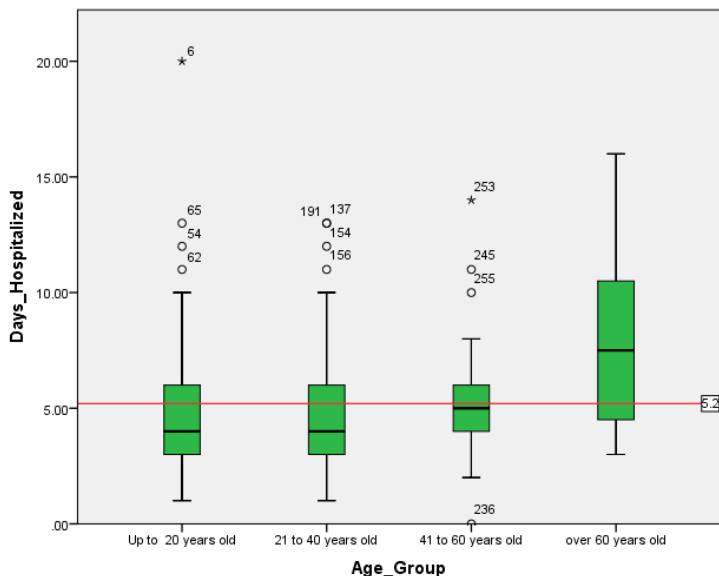
As seen on graphic 4, from total 278 AA cases, 47.48% happened at age group 'up to 20 years old', 29.14% at age group '21-40 years old', 16.19% at age group '41-60 years old' and 7.19% at age group 'over 60 years old'.

**Graphic 5. Distribution of AA at age group and gender.**



At age group 'up to 20 years old', 50.75% were females and 44.44% were males. At age group '21 to 40 years old', 29.10% were females and 29.17% were males. At age group '41 to 60 years old', 17.16% were females and 15.28% were males. At age group 'over 60 years old', 2.99% were females and 11.11% were males. We found slight differences of AA cases regarding gender over age groups, most of it was found at age group 'over 60 years old' where we had 8.12% more cases in males.

**Graphic 6. Boxplot showing correlation between days of hospitalization and age**



AA mean days of hospitalization was approximately 5 days (graphic 6, 7). Comparative interquartile range on graphic 6 shows that age group 'up to 20 years old' and age group '21-40 years old' have a similar distribution of days of hospitalization, 25% of them had 3 days of hospitalization and almost 70% of them had 5 days. With a few exceptions, statistically evaluated as outliers, the maximum of days of hospitalization is 10 days. Age group '41-60 years old' shows a trend towards the overall mean and an almost normal statistical distribution with an amplitude (6 days) defined by minimum value, 2 days and maximum value, 8 days. On the other side, age group 'over 60 years old' shows a considerably longer period of hospitalization. More than 70% of them need more than 5 days (overall mean) of hospitalization with an amplitude defined by minimum value 3 days and maximum value 17 days.

Through comparison of interquartile range of days of hospitalization and gender, graphic 7, we see that female patients are statistically more stable around overall mean of days of hospitalization. This is visible at the amplitude, which after removing cases evaluated as outliers, is 9 days for females and 10 days for males as well as at the respective interquartile difference, 3 days for females and 4 days for males. Referring to mean and standard deviation, their statistical evaluation confirms the above conclusions (Table 1).

Graphic 7. Interquartile range of days of hospitalization and gender.

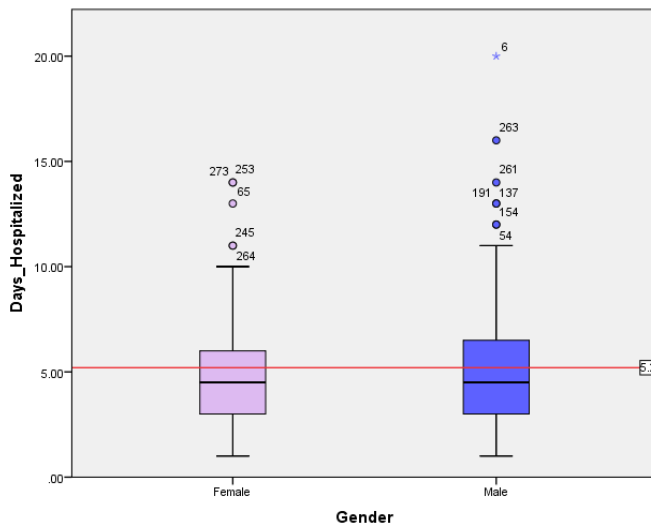
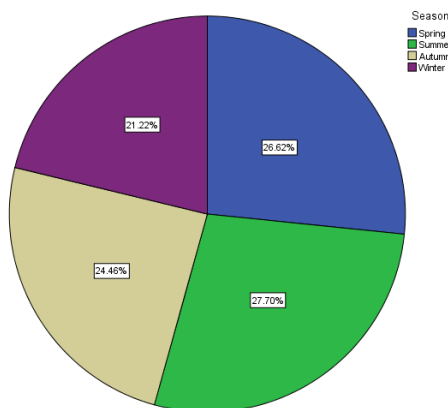


Table 2. Results of descriptive statistics for hospitalization period regarding gender.

| Table 2. Report   |        |     |                |         |         |
|-------------------|--------|-----|----------------|---------|---------|
| Days Hospitalized |        |     |                |         |         |
| Gender            | Mean   | N   | Std. Deviation | Minimum | Maximum |
| Female            | 4.8731 | 134 | 2.38864        | 1.00    | 14.00   |
| Male              | 5.4306 | 144 | 3.03512        | 1.00    | 20.00   |
| Total             | 5.1619 | 278 | 2.75191        | 1.00    | 20.00   |

Hospitalization period for females is  $4.87 \pm 2.39$  days meanwhile for males is  $5.43 \pm 3.04$  days.

Graphic 8. Distribution of hospitalization period through seasons.



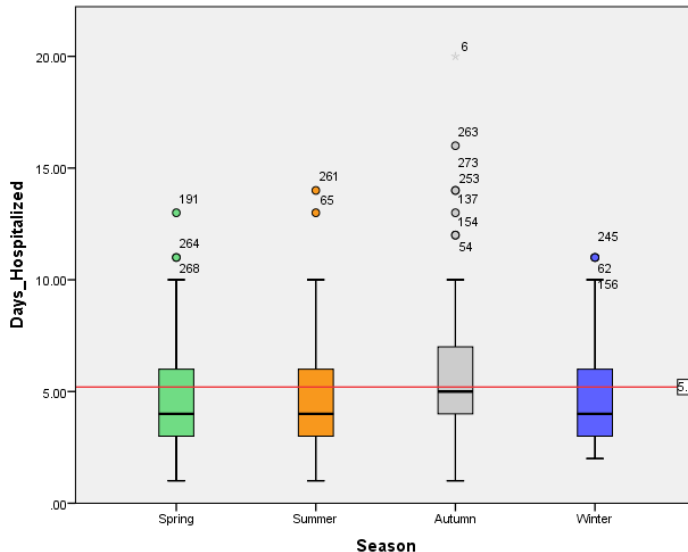
In graphic 8 we see the distribution of AA hospitalization period through the



seasons. Seasons were defined as follows: Spring (March, April, May), Summer (June, July, August), Autumn (September, October, November) and Winter (December, January, February).

We had 26.62% of AA hospitalizations during spring, 27.70% during summer, 24.46% during autumn and 21.22% during winter.

**Graphic 9. Interquartile range of days of hospitalization and seasons.**



Comparative interquartile range of hospitalization period and seasons, as we can see in graphic 9, shows that after removing cases statistically evaluated as outliers, spring and summer have the same distribution of hospitalization period; 75% of AA patients were hospitalized for 6 days, 25% of them 7-10 days and 25% of them 1-3 days. Winter shows the same interquartile range with just the difference that minimum hospitalization period was 2 days.

Autumn shows a normal distribution of hospitalization period with same mean and median, nearly 5 days, with same amplitude as spring and summer. During autumn half of AA patients had 5 days and the other half had 5-10 days.

### **Conclusions**

Acute appendicitis is one the most frequent surgical diagnoses worldwide [1]. Similar to the global trend, in our study AA is a disease of kids and youth [2,3,4,5,6,7], with 76.72% of all cases in people up to 40 years old and its peak was at 13-18 years old, marginally higher in males. Similar results have been found on other studies conducted in Albania [8]. The overall male to female ratio was 1.07:1.

Mean length of hospitalization was  $5.16 \pm 2.75$  days, which is very similar to our neighbour country, Italy [9].

Hospitalization was longer on males, considerably longer on males over 60 years old. This is due to atypical clinical presentation of AA in elderly, delayed diagnoses, complications of AA and comorbidities, as seen on other studies [10]. AA was present during the whole year with a slight decline of cases during winter. This is also a common finding on emergency surgery [11].

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**Competing interests** The authors declare that they have no competing interests.

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# Sami Frashëri between Albanian movement and the French Enlightenment

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## Abstract

Sami Frashëri is the most prominent ideologue of our national movement. As an ideological leader, democrat and enlightened, he remains one of the most important personalities of the Renaissance. A man with broad horizons, even though he lived a short life, about 54 years, he left behind a valuable national scientific and cultural wealth. During his studies of human civilization, its role and problems in the life of man and humanity, and in particular for his homeland, he has relied not only on his broad culture, but also has a lot of influence from the French Enlightenment of the century XVIII, Jean Jacques Rousseau and Voltaire. The great Renaissance man is convinced that human civilization can never be interrupted. The development of education, culture and science will bring a better future. Proponent of the democratic order, the Albanian enlightener compares the ancient Greek and Eastern civilizations, asserting that religion has been an obstacle to civilization. For Sami Frashëri, the Middle Ages was a period of darkness and backwardness. Religion and ignorance had blinded the eyes of the Europeans. For the great Renaissance man, "Citizenship is the protection of man" and this, not only in the spiritual sense, but also in the material sense. An important turning point will be brought by the French Enlightenment. The Renaissance figure thinks that this movement will take civilization higher, the peak of which will be marked by the philosophy of Voltaire and Rousseau.

**Keywords:** ideologue, civilization, culture, enlightenment, religion, philosophy.

## 1. Introduction

Sami Frashëri is the most prominent ideologue of our national movement. As an ideological leader, democrat and enlightened, he remains one of the most important personalities of the Renaissance.

A man with broad horizons, even though he lived very little, about 54 years, he left behind a valuable national, scientific and cultural wealth. He had a great knowledge and command of old and new Greek, Turkish, Arabic, Latin, Italian, French and Persian.

He is one of the biggest inspirers of the Albanian League in Prizren, founder of the "Society of Printing Albanian Letters" in 1879 as well as its chairman, director of the first two magazines in Albanian "Drita" and "Dituria", editor of a number of texts for the Albanian school, the author of the work "Albania what it was, what it is and what it will be" (1899), a synthesis of the program of the Albanian National Movement. He is also the author of dictionaries, among them the French-Turkish (1882) and Turkish-French dictionaries, the Dictionary of Sciences (Kamulus'ul Alam), a title similar to Diderot's and D'Alembert's Encyclopedia of Sciences, Arts and Crafts, about 4830 pages, to which he dedicated 12 years of intensive work.<sup>1</sup> Indeed, Sami has also been a writer of artistic literature in the literal sense. Even literature, especially drama, seems to have been the favorite of the encyclopedias since the beginning of his creativity.

## 1. Human civilization over the centuries

During his studies of human civilization, its role and problems in the life of man and humanity, and in particular for his homeland, he has relied not only on his broad culture, but also has a lot of influence from the French Enlightenment of the century XVIII, Jean Jacques Rousseau and Voltaire. Even for his universal mind and inexhaustible creative energy, we can call him the "Albanian Voltaire".

The great Renaissance man is convinced that human civilization can never be interrupted. The development of education, culture and science will bring a better future. He thinks that: "A nation, in order to escape from backwardness and not disappear, should not be satisfied with its current state, but should always try to progress".<sup>2</sup>

Civilization, according to him, passed from Babylon, Egypt, Phoenicia to the old Greeks, to whom the Phoenicians gave, among other things, the alphabet. "However," he notes, "the hieroglyphic writing in Egypt was the monopoly of the priests, and the people were forbidden to learn and teach it."<sup>3</sup>

According to him, the victory of the political and social struggle of the people will open new paths for the development of both civilization and the sciences themselves as an integral part of it. He calls Greek culture an important link of human civilization. The reforms undertaken by Solon made Athens: "...Navel of Greece even among the whole civilized world of that time".

He asserts that in Attica, the tribal aristocracy had great influence and that the people of Athens were almost its slaves. Although the Slave-owners Democratic Republic was better than any other oligarchic or monarchical political regime, Solon's government managed to get the people some rights. Even with humor, this last one, when they proposed to proclaim him king, he replied: "Kingdom is a beautiful place, one can enter there, but I don't know how one can get out of there."<sup>5</sup>

Proponent of the democratic order, the Albanian enlightener compares the ancient Greek and Eastern civilizations, asserting that religion has been an obstacle to civilization. He mentions Thales as the first philosopher who showed naked and beautiful wisdom as it truly was, and regretfully affirms that knowledge and scholars were followed and persecuted.

As in ancient times, even in modern times, he judged the future with the eye of the past. Despite these wild persecutions, "...wisdom was not being drowned, but it was increasing. In all directions, wise people were appearing who invented things unknown until then".<sup>6</sup>

Regarding the extremely negative role of religion, even Voltaire qualified it with the expression "Ecrasez l'infame", according to which the real miracle is to relieve a person from the misery he is immersed in, the miracles from the saints are nothing"<sup>7</sup>. Likewise, Sami Frashëri also shared his opinion. The creative work of the people was the foundation of civilization, so it never dies. Greek civilization never died either. He exalts Homer, the great tragedians of antiquity such as Aeschylus, Sophocles, Euripides, orators like Demosthenes, historians like Herodotus and Thucydides, great philosophers like Socrates, Plato and Aristotle, "...who are still read today, with pleasure"<sup>8</sup>.

Sami Frashëri also praises the governance of Pericles by comparing the prosperity of Athens during his ruling with the Paris of that time, the power of laws without which a society could not live even a day. All legislators, philosophers, historians "... have imposed their works on the people by means of their personal value and by sanctify-

ing the source of those works".<sup>9</sup>

Greek civilization faded when Alexander the Great of Macedonia spread his hegemony to Asia, where he tried to spread Greek civilization as well. The Arabs took it further, translating the works of the most prominent Greek scholars. Arab culture was inextricably linked to the local economy. Great scientists such as Avicenna, Averroes, etc., came out of her breast.

However, the Mongol invasion and then the European and Turkish ones, dimmed the Arab culture. Sami Frashëri does not have any special regard for Roman civilization, he even calls them more copyists than creators.

For Sami Frashëri, the Middle Ages was a period of darkness and backwardness. Religion and ignorance had blinded the eyes of the Europeans. Catholic clergy were the organizers of the crusades to plunder the peoples of the East. But everything would be temporary, as darkness would give way to civilization. Trade would take off and develop, and many of Avicenna's books would be translated into Latin and taught in European schools.

### **3. The French Enlightenment and its influence on the creativity of Sami Frashëri**

An important turning point will be brought by the French Enlightenment. The Renaissance figure thinks that it will take civilization higher, the peak of which will be marked by the philosophy of Voltaire and Rousseau. This civilization is without sides and without end, which "increases every hour and one day it will cover the whole earth and enlighten all the nations of the earth" (S. Frashëri, *Civilization of the Arabs, Wisdom*, 1885, no. 6), it is related to the material life of people. It regrettably asserts that the slave-owning order was an obstacle to the development of the productive forces in ancient times. The owners did not treat the slaves as human beings and here his opinion is quite similar to that of Voltaire.

European capitalism, as a highly developed order, was the most profitable path that would bring progress and not Ottoman military feudalism. History, according to him, had been explained in a crooked way until then. The historical truth is simple and clear, understandable by working people, the future should belong to them. It is the workers and their production that bring about civilization, not the ruling classes. The main feature for Arab culture was tolerance compared to others, a thought again similar to that of Voltaire: "Eastern wisdom is profoundly tolerant". (Voltaire, *Essai sur les mœurs et l'esprit des nations*, Paris, p. 240.)

He sees the despotic regime with very critical eyes. In the work "Besa, or the Promise", the Albanian mother mourns the economic and social ruin that wars bring to mothers, fathers, women, husbands, children, brothers and sisters.

For the great Renaissance man, "Citizenship is the protection of man" and this, not only in the spiritual sense, but also in the material sense. Industrialism will bring many good things to people. He feels sorry for Albania and Albanians and thinks that they must choose between savagery and citizenship. He advocates with the full conviction that when a nation is truly civilized, though it may be conquered by others, it can never be extinguished, but will rise again with joy and courage from the ruins, while the conqueror will return in shame from where he started.

Just as the French Enlightenment had an extraordinary respect for science and scien-

tists, Sami Frashëri also thought that they were an extraordinary force for the people: “many things have been found, but many things are still to be found” (S. Frashëri, *Citizenship*, Work 1, p. 299.). The French Enlightenment’s assessment of the figures of scientists in the world was quite the opposite of those who had persecuted them. In “*Essai sur les moeurs et l’esprit des nations*, Paris, p.161,” Voltaire thought that: “Galileo was the first to speak the word of truth and reason.”

For Sami Frashëri, people of science are brothers everywhere, regardless if they belong to different races or nationalities. The discovery of the printing press opened the eyes of the people, which had been closed by religion and ignorance. Those enemies of civilization who appear to be strong are actually weak. The flooding of the rivers of civilization takes them forward: “Just as the snake with its poison and teeth cannot escape from the stork’s beak, man too cannot escape through devils and tricks from the claws of misfortune” (S. Frashëri, work 8, p.134.).

What stands out in Sami Frashëri’s opinion is the lack of mentioning of well-known figures in the European Renaissance of the late Middle Ages such as Galileo, Giordano Bruno, Michelangelo Buonarroti, Leonardo da Vinci. Perhaps due to the fact that he called it a continuation of the ancient Greek culture.

Judging by the depth of analysis that Sami Frashëri has for world civilization and its role in the life of nations, he appears as a man of high moral dignity, who has set himself the goal of lifting the heavy weight to change society through education, science and tedious work. The great French Enlightenment figures, Voltaire and Rousseau had been great human beings, who had the privilege of being inspired by the ideals of liberty, political equality and fraternity. In his work “*Dictionary of Sciences*”, Sami Frashëri dedicates a special place to them.

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# Assessment Methodology for School Buildings following the 2019 Albania Earthquake

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## Abstract

The 2019 Durres earthquake in Albania caused extensive damage to buildings, including schools, in the affected areas. In response, this paper aims to provide a comprehensive overview of the assessment of school buildings following the earthquake in Albania. Specifically, this study examines the methodology employed for assessing the damage to school buildings and provides a detailed analysis of the severity of damage observed.

The primary objectives of the study are to identify the extent of damage to school buildings, classify the severity of damage, and highlight the types of damage observed. To achieve these objectives, data collection methods involved a visual inspection of the school buildings, while data analysis techniques entailed classifying the severity of damage observed based on the level of damage to the structural elements and the overall safety of the building.

Furthermore, this study presents a comprehensive methodology for damage classification and structural intervention aimed at ensuring certification of school buildings in accordance with international standards and norms. The proposed methodology can facilitate the assessment of school buildings following earthquakes and provide guidance for appropriate interventions that promote structural safety and building resilience.

The findings of the study are interpreted and discussed in the context of previous research on earthquake damage assessment and classification. The implications of the findings for future earthquake response and recovery efforts are also discussed. Ultimately, this study contributes to the body of knowledge on building damage assessment and classification following earthquakes and highlights the importance of prioritizing interventions to enhance the safety and resilience of school buildings.

**Keywords:** Assessment Methodology, School Buildings, 2019, Albania Earthquake.

## Introduction

Albania is located in a seismically active region known as the Mediterranean or the Adriatic seismic zone. The country has a history of earthquakes, some of which have caused significant damage and loss of life. The most recent significant earthquake in Albania occurred in November 2019, with a magnitude of 6.4. The earthquake caused 51 fatalities, over 900 injuries, and significant damage to buildings and infrastructure. Given Albania's location in a seismically active region, it is important for the country to be prepared for earthquakes and to have measures in place to minimize the risk of damage and loss of life. This includes building earthquake-resistant structures, educating the public about earthquake safety, and having emergency response plans in place.

The seismic event of November 2019 in the city of Durres, Albania, marked a significant natural disaster, causing extensive damage to the city's buildings. As such, this paper endeavors to provide a comprehensive examination of the methodology of assessment and damage classification of these structures. Specifically, the focus of this research is on the classification of the buildings into multiple categories, based

on the scope and severity of the incurred damage. Through this approach, a clear and consistent classification system can be established, aiding in the effective evaluation and repair of the affected structures.

Earthquakes are one of the most devastating natural disasters that can occur, resulting in severe damage to buildings and infrastructure. The severity of the damage is often dependent on various factors, including the magnitude of the earthquake, the proximity of the building to the epicenter, and the quality of the building's construction. As such, assessing the damage and classifying the level of destruction is crucial for developing effective response and recovery strategies.

Building damage classification is the process of evaluating the level of damage to a building after an earthquake. The classification system typically categorizes the damage into several levels, ranging from minor damage to complete collapse. The classification helps identify which buildings are safe to enter and which need to be evacuated or demolished.

The Institute of Seismology in Albania has been actively involved in the development of seismic zoning for the country, with the first zoning map produced in 1952, and subsequent updates in 1963, 1980, and 1989. In line with these zoning maps, main structures in Albania are designed in accordance with the country's seismic design codes. The initial seismic design codes were developed with the assistance of international experts, and subsequently, the Technical Design Code (KTP) was introduced, with versions including KTP-52 (1952), KTP-63 (1963), KTP-78 (1978), and KTP-Nr.2-89 (1989). These codes are designed to ensure that structures are designed to withstand the effects of earthquakes, in line with the seismic hazards in the region. Albanian technical norms have not been renewed for a time period of approximately 30 years and, as a result, do not correspond to the changes that have accompanied the construction process.

Designers' attempt to use Eurocodes was often met with a lack of local parameters. During the design, according to the Eurocodes, the recommended values of the design were used. Not in every case the recommended values do effectively cover the needs of local parameters. For this reason, both the Eurocodes as well as Albanian technical norms have been used, bringing the need for interpretation in some particular cases.

## **I. Methodology**

The post-earthquake damage assessment methodology utilized in Albania, following the Durres earthquake of 2019, was designed to adhere to international standards, ensuring that the assessment was both reliable and consistent. The methodology aimed to provide an objective assessment of damage, regardless of the type of building assessed, in order to prioritize resources for reconstruction and repair in the most effective manner possible. In addition to schools, other types of buildings impacted by the earthquake were also assessed using this methodology. The rigorous application of this methodology helps to ensure that decisions regarding resource allocation are made in a rational and data-driven manner, with the ultimate goal of best serving the needs of affected communities. This approach can be seen as a best practice, as it allows for a transparent and systematic process for prioritizing repairs and rebuilding efforts in the aftermath of an earthquake.

The research design for this study is a cross-sectional observational study. The study was conducted using 20 school buildings in Durres, Tirana, Kamez and Kurbin that were affected by the 2019 Durres earthquake. To achieve this objective, data was collected through a combination of visual surveys, structural assessments, and non-destructive testing methods. The study team conducted on-site visits to the selected



school buildings, documented the observed damages, and recorded the data in a structured manner. The collected data was then analyzed to determine the extent and severity of the damage to the buildings.

### **Data Collection Methods**

The data collection process utilized in this study was executed with great care and attention to detail, relying on a combination of primary and secondary data sources to ensure the accuracy and reliability of the data collected. The primary data sources included on-site building inspections performed by a team of engineers and experts in seismic engineering, who used a standardized checklist to assess the buildings for damage and collected data on the severity and extent of the damage. This approach was designed to ensure consistency, reliability, and objectivity in the data collected. In addition to the on-site inspections, secondary data sources such as satellite imagery, photographs, and reports from local authorities and organizations involved in the post-earthquake response and recovery efforts were also utilized. These sources of data provided additional context and information about the buildings and their surrounding areas, helping to build a more comprehensive picture of the situation. One of the most valuable sources of information for this study were the original architectural drawings, which provided detailed and accurate representations of the building's design and layout. Executive construction drawings from technical archives were also reviewed to provide additional information about the construction process and materials used. These documents were crucial in providing a thorough understanding of the structure system of each building assessed. Throughout the data collection process, factors such as the age of the building, previous repairs or renovations, and any signs of damage or deterioration were carefully taken into account. This ensured that the data collected was accurate and reflective of the current condition of the buildings, allowing for a more precise and informative assessment of the damage caused by the earthquake.

### **Data Analysis Techniques**

The collected data was analyzed using descriptive statistics to provide an overview of the severity and extent of the damage to the buildings. The severity of the damage was classified into four levels: minor, moderate, major, and severe. The classification was based on the guidelines provided by the European Building Codes, which outlines the specific criteria for each level of damage. To validate the results, a reliability analysis was conducted to ensure that the data collection and analysis procedures were consistent and reliable. Inter-rater reliability was assessed to ensure that the severity of the damage was consistently classified by all the assessors.

The results of the data analysis were presented in tabular and graphical format to provide a clear and concise overview of the level of damage to the buildings. The findings were compared to previous studies on earthquake damage assessment and classification to identify any similarities or differences in the results.

The assessment of damage in buildings from the earthquake that hit Albania in November 2019 was carried out using a systematic methodology that involved a combination of visual inspections and technical assessments. The following steps are considered for such an assessment:

**Visual Inspection:** A preliminary assessment of the damage to buildings was carried out through a visual inspection. The inspectors used a standardized checklist to record the extent and severity of the damage to each building.

**Technical Assessment:** Buildings that were identified as having significant damage during the visual inspection were subject to a more detailed technical assessment. The assessment involved a detailed examination of the building's structural elements and systems, including the foundation, walls, columns, beams, and roof.

**Classification of Buildings:** Based on the results of the visual and technical assessments, buildings were classified into different categories, ranging from "safe for occupation" to "unsafe for occupation."

**Prioritization of Buildings:** Buildings that were identified as "unsafe for occupation" were prioritized for further action, including evacuation, shoring, or demolition.

**Planning for Remedial Work:** Based on the classification of damage, a plan for remedial work were developed for each school and a priority list of repairs should be developed. The priority should be given to schools that are more severely damaged and those that are critical for the education system in the affected areas.

**Cost estimation:** An estimation of the cost of repairs or reconstruction should be made based on the priority list. This will help in securing funding from the government or international aid agencies.

**Implementation:** The final step is to implement the plan for repairs or reconstruction and should begin based on the priority list. This will involve carrying out repairs and making the necessary changes to ensure the school is safe for use.

**Monitoring and evaluation:** After the repairs or reconstruction, it is essential to monitor the schools to ensure that they are safe and functional. Evaluation of the implementation process should also be conducted to identify any areas for improvement in future disaster response efforts.

Overall, the methodology for the assessment of damage to public schools in Tirana following the earthquake in Durres in 2019 were systematic, comprehensive, and efficient to ensure that the schools are safe and operational.

It's important to note that this is a general methodology and specific details may vary depending on the context and circumstances of the earthquake and damages in buildings.

The process was also supported by the use of advanced technologies, such as drones and 3D imaging, to facilitate the inspection and assessment of buildings.

Overall, the assessment methodology used in Albania for the earthquake in November 2019 in Durres was designed to provide a comprehensive and systematic approach to the evaluation of the damage to buildings and infrastructure in the affected areas.

## **Overview of the buildings assessed**

The damage to the school buildings was classified using a standardized set of criteria based on the severity of the damage. The criteria included:

**Grade 1:** No visible damage to the building or minor cosmetic damage that does not affect the structural integrity of the building.

**Grade 2:** Minor damage to the building, including cracks in the walls, ceilings, and floors, and damage to non-structural elements such as windows and doors.

**Grade 3:** Moderate damage to the building, including significant cracking of walls and floors, structural damage to load-bearing elements, and damage to non-structural elements that affects the building's functionality.

**Grade 4:** Severe damage to the building, including significant structural damage to load-bearing elements, collapse of non-structural elements such as walls, floors, and ceilings, and significant damage to the building's functionality.

**Grade 5:** Total collapse of the building.

The present study investigated 20 educational facilities, including both schools and

kindergartens, which were affected by the 2019 Durres earthquake in various regions, in Durres, Tirana, Kamez, and Kurbin. The findings revealed that 4 schools suffered damage categorized as grade 4, whereas 7 schools exhibited damage classified as grade 3. Additionally, 5 schools were identified as damaged in grade 2, and 4 school buildings sustained damage in grade 1.

The damage classification in school buildings of this study can be categorized into several categories, as follows:

**Structural damage** is the most severe type of damage and can affect the building's structural integrity. In schools, this could include the collapse of walls, floors, and roofs, making the building unsafe for occupancy. 11 schools in present study suffered structural damage during the earthquake, which forced their closure and relocation of students to temporary facilities. The extent of structural damage varied across schools, with some suffering more severe damage than others. Structural damage is an essential consideration for building safety and should be prioritized in future disaster preparedness plans.



Figure 1: Damages in a school building in Durres



Figure 2: Damages in interior staircase in school buildings during visual inspection in Durres

**Non-structural damage** refers to damage to building components that are not part of the primary load-bearing structure, such as ceilings, partitions, and fittings. In schools, non-structural damage could include the displacement or failure of non-load bearing walls, damage to doors and windows, and damage to the electrical or plumbing systems. Such damages are often less severe than structural damage but can still pose a risk to students and teachers. 16 schools mentioned in this study suffered from non-structural damages.

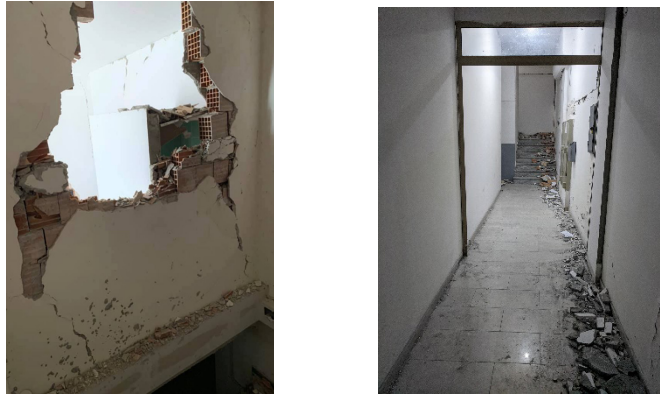


Figure 3: Non-structural damages in school buildings during visual inspection in Kavaja

**Exterior damage** includes damage to the exterior walls, roof, and other features of the building visible from the outside. In schools, this could include cracks or holes in the walls or roof, or damage to exterior features like windows, doors, and cladding. Exterior damage is an important consideration for building safety and should be addressed to prevent further damage and ensure building integrity.



Figure 4: Exterior damage in school building in Durres

**Secondary damage** is damage that occurs as a result of the primary damage, such as water damage from leaking roofs or broken pipes. In schools, secondary damage could include damage to equipment or supplies. Such damages can also lead to increased repair costs and longer recovery times. Secondary damage can often be prevented or minimized with prompt and effective response measures.

According to this study, the severity and types of damage observed varied depending on the building's age, construction materials, and location.

The technical damage classification was used to prioritize the allocation of resources for reconstruction and repair, with buildings classified as having extensive damage given the highest priority for reconstruction.

## II. Results and Discussion

The results of this study provide valuable insights into the damage classification and assessment of buildings following the 2019 Durres earthquake in Albania. The

categorization of damage into five categories provided a clear and concise framework for assessing the severity and extent of damage to the buildings.

The severity of damage classification was based on the guidelines provided by the International Building Code, which helped ensure a consistent and objective assessment of the buildings. The study's findings indicate that structural damage was the most common type of damage observed, and that the severity and types of damage varied depending on the building's age, construction materials, and location. As a result of the classification of the school buildings damaged in grade 3 and 4 in the earthquake-prone area, the decision to retrofit these buildings were based on a comprehensive analysis of the severity of the damage, the structural integrity of the buildings, and the potential risks to the safety of students, teachers, and staff.

Given the high degree of damage sustained by these buildings, retrofitting was a necessary measure to ensure their safety and resilience against future seismic events. The decision to retrofit these buildings were based on a cost-benefit analysis that takes into account the long-term benefits of retrofitting versus the short-term costs.

In summary, the decision to retrofit school buildings damaged in grade 3 and 4 in an earthquake-prone area should be made based on a thorough analysis of the risks, costs, and benefits involved, and with the goal of ensuring the safety and resilience of these buildings for the long-term.

Drawing on our experience in assessing the damage sustained by school buildings during the 2019 Durres earthquake, we propose a methodology for damage classification and structural intervention to ensure that school buildings are certified in accordance with international standards and norms. The proposed approach is outlined below:

#### **Visual Inspection**

A standardized checklist to record the extent and severity of the damage to each building.

#### **Classification of Buildings**

The decision: "safe for occupation" to "unsafe for occupation."

#### **Technical Assessment**

##### **Gathering information about the structure system**

Original architectural drawings, executive construction drawings, etc.

The assessment and detailed examination of the building's structural elements including the foundation, walls, columns, beams, slabs, roof

##### **Full survey from existing drawings and visual survey**

Details identification, simulated design

Limited, extended or comprehensive in-situ inspection

##### **Classification of the knowledge level**

**Partial safety factors**

**Structural modeling**

**Decision for structural intervention**

**Design of structure intervention**

**Cost estimation**

##### **Prioritization of Buildings**

The buildings identified as "unsafe for occupation" are prioritized for further action, including evacuation, shoring, or demolition.

## Planning for Remedial Work

Cost estimation

Implementation

Monitoring and evaluation

Table 1: The methodology for damage classification and structural intervention

### Implications of the Findings for Future Earthquake Response and Recovery

The findings of this study have several implications for future earthquake response and recovery efforts. First, the categorization of damage into five categories provides a useful framework for assessing and prioritizing building repairs and reconstruction efforts following an earthquake.

Second, the study's findings highlight the importance of effective building codes and regulations to ensure that buildings are constructed to withstand seismic activity. The implementation of more stringent building codes and regulations can help reduce the risk of future building damage and collapse during earthquakes.

Finally, the study's findings emphasize the importance of proactive earthquake preparedness and response efforts, such as the development of emergency response plans and the implementation of seismic retrofitting programs for existing buildings. These efforts can help minimize the impact of earthquakes on the built environment and ensure the safety and wellbeing of communities affected by earthquakes.

### Conclusion

The assessment methodology for school buildings following the 2019 Albania earthquake is critical in ensuring the safety and resilience of these structures.

1. To achieve this, a comprehensive and systematic approach must be taken, starting with an initial visual inspection to identify any visible damage. This should be followed by a detailed inspection of the buildings that have been identified as damaged, with more in-depth inspections and measurements of the damage.

2. Based on the results of the inspections and evaluations, a repair and rehabilitation plan should be developed, including the prioritization of buildings that require immediate attention and the identification of necessary repairs or upgrades to ensure safety. The repair and rehabilitation plan should be implemented as soon as possible, with regular inspections carried out to ensure that the work is being done correctly.

3. A post-rehabilitation inspection should be conducted to ensure that the building is safe for use.

4. It is essential to adhere to national building codes, regulations, and best practices for seismic-resistant design and construction to ensure the effectiveness of the assessment methodology.

The assessment methodology for school buildings following the 2019 Albania earthquake should be systematic, transparent, and prioritize safety.

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# Rules of specific jurisdiction in the US based on jurisprudence

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## Abstract

This article will analyze the main rules of jurisdiction in the US. For many reasons, the state rules of jurisdiction in the US are similar to those in England. Jurisdiction may extend within the territory of the state in question. In the 20th century, states began to expand their jurisdiction based on legislation. Companies from another country or from foreign countries, which did business in the country in question, was asked to designate an agent, who would be a party in case of litigation, or the process would take place at the state business site. These state statutes, which vary from state to state, are known in system terminology (case law) such as statutes of extension of influence (influence), allowing state courts to bring before the court people located in other states. It must be borne in mind that these principles were developed as part of a process within the state, however, they apply in the same way in international jurisdiction. In the US, foreigners are treated the same as US citizens coming from other states when it comes to jurisdiction. The full trust and credit clause of the US Constitution, regulated in Article IV of the US Constitution determines the automatic recognition of decisions by sister states, however, the latter does not specify the conditions to be met by the court to extend the decision to citizens of other states. This was not a problem in the case of the legal system precedent (case law) but in cases of extension of jurisdiction it was a problem.

**Keywords:** Jurisdiction, international, law, US, process.

## The doctrine of minimum contacts

To solve the problem, the US Supreme Court relied on the procedural clause of the 14th Amendment to the US Constitution.

In the matter *International Shoe Co versus State of Michigan*,<sup>1</sup> it was a company based in Missouri, which had several vendors in Washington state, who were selling the product under the control of a manager in Missouri.

The vendors were resident in Washington and working based on percentage of sales. The messages they received were transmitted to Missouri to be accepted or returned and the goods were shipped directly to customers in Washington. The question before the court was about if the company was under the jurisdiction of the Court in Washington in lawsuits relating to the payment of contributions transferred to the unemployment benefit fund. The service was based in a vendor in Washington and a copy was sent to the company in Missouri. The state courts in Washington ruled that they had jurisdiction. The appeal contained the question concerning jurisdiction was filed by the Washington State Supreme Court in the US (Supreme) Court.

**The decision.** Historically, the jurisdiction of the courts to issue a decision in personam is based on their power de facto on the respondent. His presence within the territorial jurisdiction of a court it was necessary for the decision taken to be valid for him. Since the personality of society is fictitious, it is clear that not as an individual, presence both outside and inside the country of origin can only happen based on the activities

<sup>1</sup> Decision *International Shoe Co versus State of Michigan*, 326 US 310, 66 S Ct 154, 90 L Ed 2d 95 (1945).



performed by those who are authorized to act in relation to this matter. The terms “present” and “presence” are used to symbolize those activities of the company agent within the state, whose courts are sufficient to satisfy the requirements of the proceedings. These requirements can be met by partners within the state in the context of the federal system of government, to ask the company to defend the lawsuit filed against them. In view of the above argument, activities carried out by the appellant in the State of Washington they were neither irregular nor casual. They were systematic and continuous for many years. They were voluminous in quantity within the interstate business, during which the appellant received the benefit and the protection of state laws, including the rights to request exercising his rights in state courts. Based on the case data, The US Supreme Court argued that business activities establish reasonable and sufficient contacts with the State of Washington and it cannot be said that jurisdiction in the courts of this state is unreasonable. As a consequence, the courts of Washington had jurisdiction and the decision taken by the Washington Supreme Court was also confirmed by the US Supreme Court.

### Specific jurisdiction

The following questions will show how this type of interpretation was further developed. In the Case *World Wide Volkswagen versus Woodson*<sup>2</sup> it was about the two defendants Harry and Kay Robinson who bought an Audi car in New York and left for their home in Arizona. Moving to the state of Oklahoma, the Audi car collided with another car and as a result Kay Robinson and their two children suffered second-degree burns. The Robinsons filed a lawsuit for the responsibilities of the producer before the Court in Oklahoma arguing that the fire caused was due to the defective design of the car tank. The defendants in this case were:

1. *Audi manufacturer;*
2. *Importer (VW USA);*
3. *Regional distributor (World Wide Volkswagen) and*
4. *Seller in the US (Seaway);*

World Wide Volkswagen and Seaway challenged the jurisdiction of the Oklahoma Court. World Wide Volkswagen was an independent trading company, not owned by Audi or Volkswagen USA. It was not based in New York, but distributed VW products to New York retailers, New Jersey and Connecticut. Seaway was also an independent company, was one of the merchants doing business in New York. There was no indication that either World Wide Volkswagen or Seaway had contacts with Oklahoma or any sold car was located in this state, with the sole exception of Robinson’s car. Oklahoma State Supreme Court gave jurisdiction to the courts of the state of Oklahoma, arguing that the car by design is so mobile, that the defendants should have foreseen that the car sold to the Robinson family could be used in Oklahoma.

**The decision.** Clause of the 14th Amendment to the Constitution limits the power of a state court to make a personal judgment against a non-resident defendant valid. The trial requires that the respondent be notified in a timely manner and be subject to the personal jurisdiction of the court. In the present case, the announcement was not a problem, the only issue had to do with the jurisdiction of the Oklahoma courts. A state

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<sup>2</sup> Decision *World Wide Volkswagen versus Woodson*, 444 US 286, 62 L Ed 2d 490, 100 S Ct 559 (1980).

court can exercise personal jurisdiction on a non-resident defendant only for as long as they exist “Minimal contact” between the respondent and the State in question. In the context of this argument, according to the Court there is no similar basis for Oklahoma jurisdiction on World-Wide or Seaway in this matter. Seaway sales are made in Massena, New York. Market is limited to retailers in New York, New Jersey and Connecticut. There is no evidence that the machines were distributed by World-Wide and sold to customers outside this area. It is predictable that car buyers sold by World-Wide and Seaway can take them to Oklahoma, but the defendants in the present case have no connection or contact with the state of Oklahoma. US Supreme Court ruled the Oklahoma courts’ decision was unfair. An important distinction must be made between general and specific jurisdiction. According to dogma and literature, special jurisdiction refers to, is limited to lawsuits which arise from the activities of the respondent in the State in question, while general jurisdiction generally applies to any type of lawsuit. The latter requires closer contacts with the state in which the case will be tried rather than the special jurisdiction. To establish sufficient contacts for general jurisdiction, the activities of the respondent in this State must be continuous and systematic.

### General jurisdiction

Rules which are applied by the general jurisdiction are illustrated in the following U.S. Supreme Court decision. In the case of *Helicopteros Nacionales de Colombia v. Hall*,<sup>3</sup> it is a joint venture WSH consisting of three companies, which was headquartered in Texas. They wanted to enter into a contractual relationship with a Peruvian oil company, to build an oil transportation line in Peru. Together they founded a Peruvian Consortium. Consorcio / WSH contracted by Helicol (Helicopteros Nacionales de Colombia) to provide transportation for their staff in Peru. A helicopter which was owned by Helicol crashed in Peru while transporting Consorcio / WSH personnel. Among the dead were four Americans employed by the Consortium. Relatives of the latter filed a lawsuit in the Texas State Court vs. Consorcio / WCH, Helicol and Bell Helicopter Company (texan manufacturer of helicopters). Helicol argued that the texan courts had no jurisdiction over it, which was challenged by the Texas Supreme Court. The case went to the US Supreme Court.

According to the Claimants, their claims were unfounded and were not affiliated with Helicol’s activities in Texas. So, they had to determine that the Texas courts had a general jurisdiction. Helicol’s contacts and connections with Texas were:

1. *The latter had started the executive directors to negotiate in Texas for the contract;*
2. *Received checks from the Bank of Houston and transferred in New York bank accounts;*
3. *Bought helicopters, tools, training services from Bell helicopter in Texas*
4. *He had sent staff to Fort Worth, Texas to train.*

**The decision.** The 14th Amendment Clause applies to limit the power of a state to adjudicate in person the jurisdiction over a non-resident defendant. The requirements of the jurisdiction are met when a company the non-resident defendant has a

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<sup>3</sup> Judgment of the US Supreme Court *Colombia National Helicopters versus Hall* 466 US 408, 104 S Ct 1868, L Ed 2d 404 (1984).

“minimum of contact” with the state court to the point that it does not spoil traditional notions of fair play and substantial justice. In case there are objections arising from the defendant’s contacts with the Court, the latter stipulates that “a relationship between the respondent, court and the case” it is the main basis of jurisdiction in personam. Even if the cause of action is not raised or is related to corporate activities in the trial state, jurisdiction is vested in the court of that State, if there are sufficient contacts between the state and the foreign corporation. All parties in the present case allow the lawsuits of the defendants against Helicol, that they have not been set up and have nothing to do with Helicol’s activities within Texas. It is therefore necessary to analyze whether the nature of Helicol contacts with the state of Texas, constitutes a continuous and systematic business. According to the data emerging from the case, these elements do not exist. The U.S. Supreme Court has ruled that contacts with the state of Texas were insufficient to fill the requirements of the clause of the 14th Amendment to the Constitution. For this reason also the latter overturned the decision of the Texas Supreme Court where it determined that the Texas courts had no jurisdiction over Helicol. This issue showed how a foreign company which is not resident or domiciled in the US may benefit from the protection of the doctrine of minimum contacts.

### **Conclusions**

In what was discussed in this article it became clear that the US does not apply the second principle. According to this doctrine, there must be a connection between the respondent and the state of the court in each case. However, the nature of that connection is different. It does not matter who the defendant is resides or resides in the state of the court, but there must nevertheless be systematic contacts with that state. That fact must be taken into account, as to reasonably determine jurisdiction in that State. This is true in the case of general and specific jurisdiction, although in the second case, the bond does not need to be so strong.

In Europe, there must be a link between the respondent and the state of the court, in matters of general jurisdiction, although it is a connection of a stronger way. According to the Brussels Regulation I, it is about the residence. However, there should be no such link in the case of specific jurisdiction. It is enough to have a connection between the lawsuit and the state of the court. The difference brings two consequences. First, US courts can claim general jurisdiction in matters which at least according to the Regulation will not be considered in Europe. On the other hand, European courts may require special jurisdiction in situations in which this would not be constitutionally possible in the US. In Europe, it is possible also based on this Regulation for a person to be subject to the jurisdiction of a state with whom he has never had the slightest contact and with whom he had no connection. Sections 5 point 3 and 6 point 1 of the Regulation are examples. There is a clear difference of philosophy between American and European legislation. Americans interpret that as a person will not be subject to the jurisdiction of a state as long as he did something he knew, or should have known, and this would have exposed him to this kind of danger. Europeans do not have similar issues, or if they have, then they consider that their goals can resolve this issue.

In Europe, the results could have been different. First, because the Colombian

company would not benefit from the protection of the Brussels I Regulation. Then, even if he had benefited, would have been subject to the jurisdiction of the court. If Texas were England, e.g. the English court would have taken jurisdiction over the Consorcio / WSH and Bell based in England.

If Helicol were to have a residence (headquarters) in one of the EU Member States, then the result would have been the same according to Article 6 point 1 of the Brussels I Regulation.

There are no such measures in the US, minimal contacts would exist within each respondent.

If Texas were France, French courts would have jurisdiction over Helicol merely based on the French citizenship of the respondent. This shows how jurisdiction in some cases may be more limited in the US than in Europe.

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# State of blue crab *Callinectes sapidus* population in Kune Lagoon, Albania

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## Abstract

The aim of this study is to provide data on the presence and abundance of the blue crab in Kune Lagoon (Albania, Adriatic Sea) and to evaluate its population structure referring to biometric parameters. Compared to previous findings in this lagoon, the blue crab population has been found in relatively larger quantities in most periods of field observations of this study. The data analyzed in this paper belong to three years of field observations and collections, with a special focus on the periods when blue crab enters the lagoon (March – April) and when it leaves the lagoon (November). The largest number of individuals was recorded in September and October. From an analysis of biometric parameters (weight, length and width) of 80 individuals, it was noticed the predominance of adult individuals (regarding age) and large individuals (regarding size). F: M sex ratio of approximately 0.4:0.6 was observed in this lagoon with a dominance of the male gender. Questionnaires were distributed to local fishermen, in order to gather additional information on the state of the blue crab in this lagoon, its socio-economic impact, as well as the impact of the blue crab to native lagoon populations. Based on these questionnaires, it was estimated that the trade of blue crab from Kune Lagoon remains at very low levels, not bringing economic benefits to the local fishermen. Fishermen reported aggressive behavior of this crab and damages of fishing nets. The high abundance of blue crab in this lagoon can be related to the high abundance of other invertebrates, especially the Mediterranean mussel (*Mytilus galloprovincialis*) that serve as food for the blue crab. The high abundance of blue crab population, the presence of ovigerous females and the presence of juveniles are indicators of the stability of this species in Kune lagoon.

**Keywords:** invasive alien species, population structure, biometric parameters, socio-economic impact.

## Introduction

The blue crab *Callinectes sapidus* is among nearly 40 marine alien species that have been reported so far for the Albanian coast (Beqiraj & Zenetos 2021). The first scientific report on the presence of this species on the Albanian coast dates back to 2009 from Patoku Lagoon (Beqiraj & Kashta, 2010). Later, the presence of the blue crab in different coastal areas of Albania, mainly lagoons and river mouths, was reported from a rapid assessment study, namely from the lagoons of Vilun, Kune, Patok, Karavasta, Narta, Orikum, Butrint and the Erzeni River mouth (Agolli et al., 2012), as well as from other river mouths: Buna, Mat, Ishem, Shkumbin and Bistrice (Milori et al., 2013). More specific studies on the blue crab population structure and its state of establishment were done for the Patoku Lagoon (Agolli 2012; Çami, 2015), Narta and Orikumi lagoons (Zhorri, 2013), as well as Viluni Lagoon (Qorri, 2015). A more

detailed study on the presence, abundance and population structure of the blue crab along the whole Adriatic coast of Albania, also comparing with earlier collected data from the mentioned studies here above, was published by Milori (2022). Concerning the Kune Lagoon, besides the report on the presence of the blue crab from Agolli (2012), this paper is the first publication on its population structure and state of establishment. Kune Lagoon is part of the Kune-Vain lagoon system in the Drini river mouth, situated in Lezha region, in North-West of Albania, at the Adriatic coast (N 41°30'; E 19°30'), (Figure 1 and Figure 2). Kune-Vain was the first protected area in Albania, declared as a hunting reserve in 1940. Later, its protection status and the surface of protected area has been revised several times, with the most recent revision as a Managed Nature Reserve (IUCN category IV) in 2010, covering a total surface of 4393 ha for the whole protected area of the Kune-Vain wetland complex. The surface of the Kune Lagoon is 3.08 km<sup>2</sup>, with a maximum length of 4.8 km and a width of 2.1 km. The average depth of the lagoon is 0.75 m, while the maximum depth is 1.3 m (Reçi., 1998). The lagoon communicates with the sea through a natural channel, where water circulation is 5-10 m<sup>3</sup>/s). Air temperature in the lagoon area is characterized by a minimum of 1.8°C in January and a maximum of 38.3°C in July. The evaporation in this lagoon is 850 mm per year, while the average annual precipitation is 1463.5 mm. As a result, the water balance of this lagoon is positive (Pano, 2015). The water salinity in the western part of the lagoon is 25-36 ‰ and in the eastern part 5.7-13 ‰ (Reçi., 1998). The values of dissolved oxygen in water fluctuate within the optimal values from 4.83 mg/l to 15.29 mg/l. In 2011 it was observed a decrease of dissolved oxygen in the water, which indicates the deterioration of water quality in this lagoon (Miho et al. 2013).

### Material and method

Blue crab samples were collected several times per year in Kune Lagoon, consequently on three years: 2014, 2015, 2016. The periods of observations and collections of the blue crab in this lagoon were based on the existing literature on *Callinectes sapidus* in the Mediterranean lagoons, according to Cabal et al., (2006); Florio et al., (2008); Galil (2000); Gennaio et al., (2006); Onofri et al., (2008); Kirincic & Stevcic, (2008); Tuncer & Bilgin (2008). According to these references, the blue crab enters the lagoons in March - April and leaves the lagoons in October - November



**Figure 1. Map of Albania, showing the position of Kune Lagoon and the sampling sites of the blue crab**

The blue crabs were collected as by-catch from gillnets and fyke nets of local fishermen. The following characteristics were assessed and / or measured from the collected individuals: sex, in order to evaluate the report between males and females (F: M sex ratio), weight (g), carapace width (mm) and carapace length (mm) (figure 3), referring to the methods of Cadman & Weinstein, (1985); Florio et al., (2008). Carapace width and height have been measured, in order to evaluate crabs' age after Hines et.al (1990) and their maturity after Cadman and Weinstein (1985). Spearman correlation has been evaluated to assess correlation between weight, width and height.

**Figure 3. Collected blue crabs by local fishermen from: a- fyke nets, b – gillnets**



**Figure 4. Biometric measurements in the field.**



Besides direct observations and collection in the studied area, questionnaires have been distributed to local fishermen, in order to collect additional information about the state of blue crab, its socio-economic impact and its possible impact on the other native populations in Kune Lagoon.

## Results and discussions

In Kune Lagoon the blue crab has been found in relatively larger quantities in most periods of field observations, compared to previous publications on this species from some other lagoons in the Adriatic, such as in Beqiraj & Kashta (2010), Beqiraj et al., (2012), Agolli et al., (2012), Florio et al., (2008), Kirincic & Stevcic (2008), Onofri et al., (2008).

The largest amount of individuals was reported in the months of September and October. The high abundance of blue crab in the Kune Lagoon can be related to the high abundance of benthic invertebrates in this lagoon, which serve as food for this crab (after Harding, 2003 and Milliken & Williams, 1984). Richness of benthic macroinvertebrates in this lagoon has been evidenced in Beqiraj (2004) and Beqiraj (2007).

According to the data collected from local fishermen, it is believed that the blue crab enters the Kune Lagoon in March, which was dictated by the placement of fishing weirs in June and their removal on the first week of March.

Closure of the lagoon outlet channels by placing fishing weirs was an obstacle for the migration of the ovigerous females to the sea, thus reducing the possibility of spawning.

11 ovigerous females were caught in Kune Lagoon in the months of May and September. This situation is expected based on the existing publications, which have reported that blue crab spawning occurs during May - June and August – September (Hines et al., 1990).

In this study, the fact that females were caught in fishing weirs during the reproduction period can be explained by their tendency to migrate towards the sea for spawning.

**Table 1. Number of individuals of blue crab collected in Kune Lagoon.**

| Sex          | Number of individuals |
|--------------|-----------------------|
| Females      | 36                    |
| Males        | 42                    |
| Undetermined | 2                     |
| Total        | 80                    |

F: M sex ratio of approximately 0.4:0.6 was observed in this lagoon, where, out of 80 individuals analysed, 36 were females, 42 were males, while two individuals were of undetermined sex.

**Table 2. Classification of individuals into juveniles and adults according to the Harding system (2003).**

|        | Juvenile individuals<br>(CW < 120 mm) | Adult individuals<br>(CW > 120 mm) | Total |
|--------|---------------------------------------|------------------------------------|-------|
| Female | 5                                     | 31                                 | 36    |

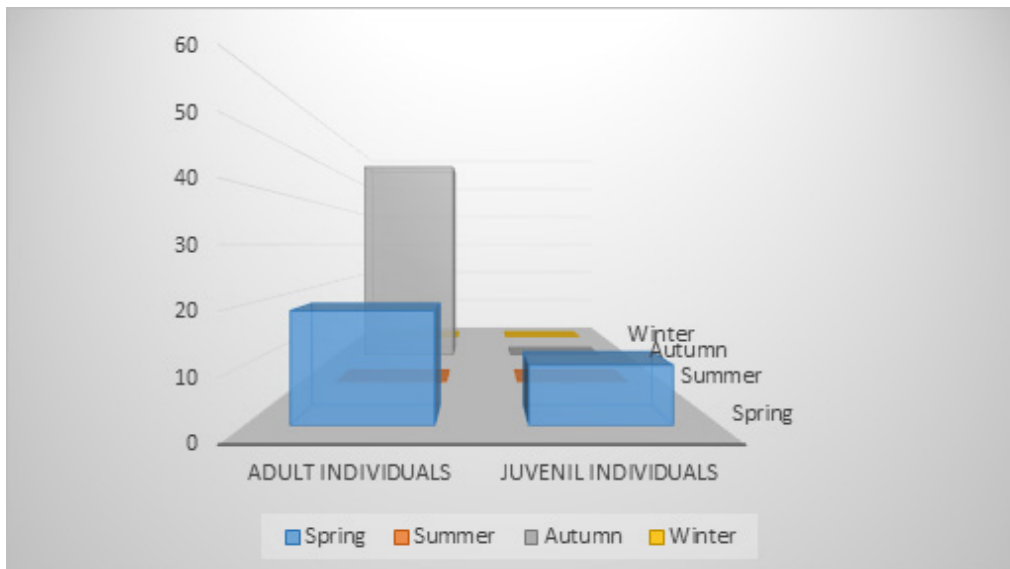


|              |    |    |    |
|--------------|----|----|----|
| Male         | 3  | 39 | 42 |
| Undetermined | 2  |    | 2  |
| Total        | 10 | 70 | 80 |

Based on the width of the carapace, the sampled individuals were classified into juveniles (CW< 120 mm) and adults (CW> 120 mm) according to the system of Harding (2003).

As can be seen from table 2, from the 80 individuals analysed in Kune Lagoon, 10 individuals were juveniles (12%) and 70 individuals were adults (88%). From 70 individuals assessed as adults, 31 were females and 39 were males, while from 10 individuals assessed as juveniles, 5 were females, 3 were males, while two individuals were of undetermined sex.

**Figure 5. The ratio between juvenile and adult individuals of blue crab by seasons in Kune Lagoon.**



From figure 5 it can be seen that in spring, the number of juvenile individuals was 10 and the number of adult individuals was 19. Neither juvenile nor adult individuals were found in summer. All individuals found in autumn, 51 in total, were adults. No juvenile individuals were found in this season.

It is worthy to note that in winter no blue crabs were caught in the lagoon, due to their migration to the sea, while in summer the local fishing companies were not given the license, so they did not fish in that season. .

**Table 3. Classification of individuals according to size (based on the Cadman & Weinstein, 1985 system).**

| Sex | Small individuals<br>(CW<80mm ) | Medium<br>individuals (CW<br>80-120mm) | Large individuals<br>(CW>120mm) | Total |
|-----|---------------------------------|--|---------------------------------|-------|
|     |                                 |  |                                 |       |

|              |   |   |    |    |
|--------------|---|---|----|----|
| Female       | 1 | 5 | 30 | 36 |
| Male         | 1 | 2 | 39 | 42 |
| Undetermined | 2 |   |    | 2  |
| Total        | 4 | 7 | 69 | 80 |

Collected individuals were classified based on carapace width into small individuals (CW < 80mm), medium individuals (CW 80 - 120mm) and large individuals (CW > 120m), according to Cadman & Weinstein (1985).

**Figure 6. Size classification of blue crab individuals in Kune Lagoon, according to seasons.**

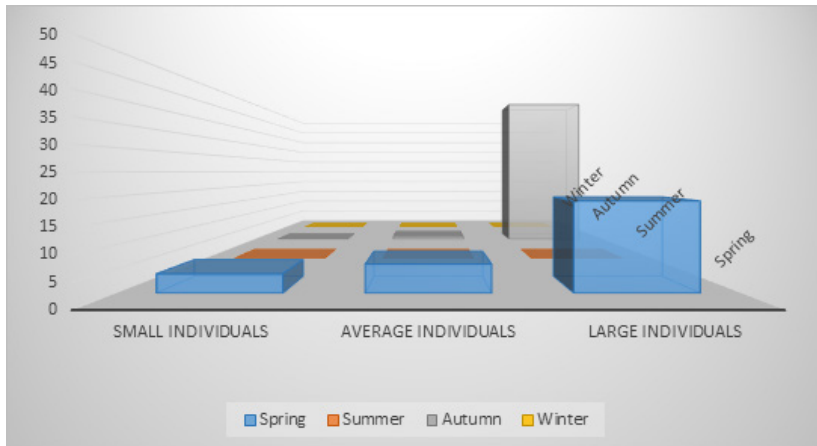


Figure 6 shows the blue crab individuals classified according to size, by seasons. In spring were recorded 4 small individuals, 6 medium individuals and 19 large individuals. In autumn, 1 medium individual and 50 large individuals were counted. Based on carapace width, blue crab individuals were also classified in 1-year-old individuals (CW < 100 mm), in individuals between 1 and 2 years (CW 100 - 170 mm) and in individuals over two years (CW > 170 mm), according to Hines et al., (1990).

**Table 4. Classification of individuals by age (based on the system of Hines et al., 1990).**

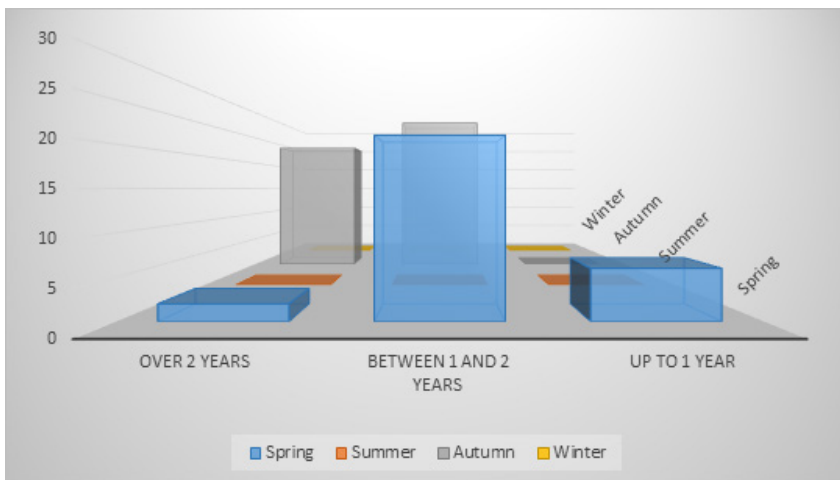
|              | Up to 1 year<br>(CW < 100 mm) | Between 1 and 2<br>years<br>(CW 100 - 170<br>mm) | Over 2 years<br>(CW > 170 mm) | Total |
|--------------|-------------------------------|--|-------------------------------|-------|
| Female       | 1                             | 30   | 5                             | 36    |
| Male         | 3                             | 19   | 20                            | 42    |
| Undetermined | 2                             |  |                               | 2     |

|       |   |    |    |    |
|-------|---|----|----|----|
| Total | 6 | 49 | 25 | 80 |
|-------|---|----|----|----|

Based on the data in table 4, it can be seen that from the total number of individuals analysed in Kune Lagoon, 6 individuals were classified as of aged up to 1 year, 49 individuals 1-2 years and 25 individuals over 2 years.

From individuals aged up to 1 year, one individual was female, three males, while 2 were of undetermined sex. From 49 analysed individuals aged 1-2 years, 30 individuals were females and 19 were males. From 25 individuals aged over 2 years, 5 individuals were females and 20 were males. Showed in percentage, individuals up to 1 year old make 8%, individuals between 1 and 2 years old 61% and individuals over 2 years old 31%.

**Figure 5. Age classification of blue crab individuals in Kune Lagoon, according to seasons.**



From figure 5, which presents the classification of individuals by age, it can be seen that, in spring, there were 6 individuals aged up to 1 year, 21 individuals between 1 and 2 years old and 2 individuals over 2 years old. In autumn, we see that the number of individuals aged between 1 and 2 years and over 2 years old is 28 and 23 individuals respectively. This may be related to the increase in the size of medium individuals due to the large amount of food in the lagoon. Finding a significant number of individuals over 2 years indicates the stability of the blue crab in Kune Lagoon.

**Table 5. Spearman correlation between length, width and weight of the blue crab in Kune Lagoon.**

|        |                         | Length | Width  | Weight |
|--------|-------------------------|--------|--------|--------|
| Length | Correlation coefficient | 1.000  | .608** | .625** |
|        | Sig. (2-tailed)         | .      | .000   | .000   |
|        | N                       | 80     | 80     | 80     |

|        |                         |        |        |        |
|--------|-------------------------|--------|--------|--------|
| Width  | Correlation coefficient | .608** | 1.000  | .877** |
|        | Sig. (2-tailed)         | .000   | .      | .000   |
|        | N                       | 80     | 80     | 80     |
| Weight | Correlation coefficient | .625** | .877** | 1.000  |
|        | Sig. (2-tailed)         | .000   | .000   | .      |
|        | N                       | 80     | 80     | 80     |

Based on the table 5, the Spearman correlation shows strong relation between length, width and weight of the blue crab the Kune Lagoon.

Questionnaires were distributed to 15 local fishermen, in order to gather additional information about the state of the blue crab in this lagoon, its socio-economic impact, as well as the impact of the blue crab to native lagoon populations.

Fishermen reported that the blue crab in Kune Lagoon appeared for the first time in 2010 and since then its abundance has been increasing. According to their reports, the blue crab enters the lagoon in the month of March, and no data was given about its exit from the lagoon due to the deployment of the fishing weirs. Fishermen claimed that in the period August-September-October the amount of this crab in the lagoon was very high. They noted the presence of blue crab in December and January, although very rare. According to fishermen, juvenile individuals were caught in October, while females with eggs were mostly observed in September and October.

The trade of blue crab in this lagoon remains at very low levels, not bringing economic benefits to the fishermen. Fishermen reported aggressive behaviour and damages of fishing nets by the blue crab. Based on the fishermen considerations an increase of the population of the Mediterranean mussel *Mytilus galloprovincialis* has been noticed, especially in the pre-lagoon area. This may be another reason for the high abundance of the blue crab in this lagoon, as they feed on mussels. ,

The continuous presence, high abundance, as well as the presence of females with eggs and juveniles, are indicators of the stability of the blue crab in Kune Lagoon.

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# Overview of the doctoral thesis on student motivation in Albania

Arben Hoti

## Abstract

The doctorate thesis *“The motivation among the students of our universities”* presents a study on motivation conducted with students of the Albanian public universities of Tirana, Shkodra and Durrës. The subjects of this study are second-year students who pursue their Bachelor studies in History, Psychology, Social Work, Economics, Law and Psycho-sociology. The most important aims of this study are the description and evaluation of the motivation of the students at Albanian public universities, the exploration of the levels and its kinds, and the exploration of the relationship of motivation with such elements as GPA, gender, and pleasure. Our sample of 505 students consists of 417 students of feminine gender and 88 of masculine gender.

By using the measuring instrument TUSMSQ-version 2 the data on student motivation are collected and examined by means of the quantitative and qualitative methods of scientific research.

The results of this research show that the students’ reasons for pursuing their studies are related to their internal motivation as well, as to their external one. This motivation trend might be disregarded or reversed only in some specific fields of study.

The results of this study also indicate a satisfactory result of the level of motivation in total, i.e. of the internal and external motivation, which do not seem to have any strong impact on academic performance and pleasure of the students. There is some feeble correlation of the motivating factors of “self-exploration” and “reject of alternatives” with academic performance (GPA), as there are perceived also some meaningful gender differences. But their differences are small and this weakens statistically the power of influence of gender on the manifestation of motivation, the level of its kinds and their influence on the academic performance of the students.

**Keywords:** motivation, motive, internal motivation, external motivation, GPA, satisfaction.

## 1. Introduction

In this chapter, the following issues were addressed: familiarity with the problem, presentation of the problem, goals and objectives of the study, hypotheses and research questions of the study, definition of the variables of the study, the significance of the study, the structure of the study and research plan and description of the chapters.

Some main goals of the study were:

1. To research theoretical and research treatments of study variables.
2. To describe and identify analytically the manifestations of motivation among students of Albanian public universities.
3. To investigate the correlation between the motivation of students of Albanian public universities and their academic progress.
4. To analyze the relationship between the level of motivation and satisfaction of students in public Albanian universities.
5. To analytically describe the internal and external motivation of students.

Some main objectives on which we were based for the goals of the paper are:

1. Theoretical description of motivation and studies on the relationship between motivation and GPA. Extracting results on the level of motivation in total, both types of motivation and satisfaction of students.
2. Descriptive analysis of correlational findings between motivation and GPA level.
3. Presentation of findings between the level of types of motivation and demographic elements of our sample (gender, field of study, university).
4. Presentation of the findings between the degree of satisfaction and the demographic elements of our sample (gender, field of study, university).

The raised hypotheses are:

H1. There is a negative relationship between students' extrinsic and intrinsic motivation on their academic performance (GPA).

H2. There is a positive relationship between intrinsic motivation and academic performance (GPA).

Some of the research questions of the paper are:

1. Is there a relationship between the level of motivation and students' GPA?
2. Are there differences in the manifestation of motivation of its types according to the gender of the students?
3. Is there a connection between motivation and the field of study?
4. How do the elements (factors) of motivations appear in students?
5. Is there a relationship between student motivation and satisfaction?

The study is based on a work plan. The work plan contains the following steps:

1. The correct presentation of the keywords of our paper.
2. Determination of goals, objectives, hypotheses, and research questions of the paper.
3. Designing a precise research structure concerning what this paper has as goals.
4. Presentation of the necessary theoretical issues and the studies carried out related to the motivation of students and its connection with their academic performance.
5. Determination and selection of the sample from the population that our work refers to.
6. Selection, translation, adaptation, and correct application of the valid questionnaire to obtain the appropriate results related to the problem raised by our paper.
7. Piloting the questionnaire to test the reliability and validity of the measuring instrument.
8. Tabular, graphical, and descriptive presentation of the results through the SPSS 16 program.
9. Interpretation and discussion of the obtained results.
10. Final presentation after the analysis done for all hypotheses and research questions.
11. Presentation of the comparative analysis of the results of our work with previous studies conducted on motivation.

## **2. Literature review**

The second chapter deals theoretically with motivation and satisfaction and includes theories and studies made about them. Here we have addressed some problems such as Understanding motivation and motives; Principles and laws of motivation;

Classification of motives; Stimulating motives; Biological and social motives; Some social motives; Personal motives; Motive for success and achievement; Views on motivation; Some main theories of motivation; Motivation to learn; Internal motivation; External motivation; Differences between extrinsic and intrinsic motivation; Pleasure, its meaning and types; Studies on student motivation; Studies carried out through the application of the TUSMSQ2 instrument; Aspects of studies and publications on motives and motivation by Albanian authors, etc.

From the second chapter, a part related to self-determination theory (SDT), intrinsic motivation, extrinsic motivation, studies on motivation and a brief presentation of studies similar to the study in question has been separated.

### **Self-determination theory of motivation (SDT)**

Self-determination theory addresses the issues of types of extrinsic and intrinsic motivation, their relationship, and their influence on the fulfillment of basic psychological needs. According to this theory offered by Ryan & Deci, people have three innate psychological needs: competence, autonomy, and psychological relatedness. (Orhani, 2011).

If these universal needs are met, people will function and grow optimally. For them to realize their potential, the social environment must nurture the fulfillment of these needs. This fact sparks intrinsic or extrinsic motivation.

A behavior is viewed as internally directed when it is decided (determined) to be performed by individual internal reasons. Internal elements that determine the performance of behavior include pleasure, fun, challenge, achievement, skills, talent, interest, etc. (Deci & Ryan, 2000, p. 227-268).

A behavior is considered externally oriented when external factors or elements that are not characteristic of the individual play a determining role in its performance. The performance of the behavior is made possible by elements such as reward, verbal praise, fear of punishment, control pressure, set conditions (deadlines), etc. (Deci & Ryan, 1985).

The theory states that an internally initiated behavior can continue to remain internally motivated as long as the occurrences of extrinsic motivational elements do not interfere with or affect the initial evaluation of that behavior. When they do this, then elements of internal motivation (competency, satisfaction, interest, etc.) will undergo changes and the evaluation of the performance of the action or behavior will change. This change expressed in the definition of behavior means that the behavior to be performed may undergo a shift of orientation inside to outside. This happens when internal incentives weaken and the performance of the action or behavior is prompted by external factors.

Intrinsically motivated behaviors that are shaped by interest and satisfy inherent psychological needs for competence and autonomy are the prototype of self-determined behavior. (Deci & Ryan, 2002).

Formally, SDT consists of six mini-theories:

- Cognitive evaluation theory (CET, influences of intrinsic motivation),
- The theory of integration of organisms (OIT), deals with the topic of external motivation;
- Theory of Causal Orientations
- Theory of basic psychological needs (BPNT)
- Goal Content Theory (GCT)
- Motivational links theory (RMT), (Deci, & Ryan, 2002).



According to this theory, external motivation and internal motivation are part of the motivation expressed for carrying out a certain work or performance. Thus, both can be influential in motivation. Both of them can go together, but the connection between them is not constant. Sometimes they influence for good, at other times they are neutral, and at others, extrinsic motivation can decrease intrinsic motivation (Deci & Ryan, 2000, p. 263). The effects of extrinsic motivation on intrinsic motivation depend on the stage of self-regulation of behavior and its type.

### **Cognitive Theory of Evaluation (CET)**

From the group of sub-theories of SDT comes presented, more broadly as a separate theory, the cognitive evaluation theory (CET). It is a theory in psychology that is designed to explain the effects of external consequences on intrinsic motivation. It focuses on competence and autonomy needs by examining how intrinsic motivation is affected by extrinsic forces.

The cognitive evaluation theory argues that interpersonal events and structures (e.g. rewards, communications, feedback) that lead to a sense of competence during their action can increase intrinsic motivation because they allow the satisfaction of the basic psychological need for competence. Feelings of competence will not increase intrinsic motivation unless they are accompanied by feelings of autonomy. In other words, for a higher level of intrinsic motivation, people must experience the satisfaction of both competence and autonomy needs (Deci, & Ryan, 2002).

It is believed that the presence of extrinsic motivators can reduce a person's intrinsic motivation, especially if the extrinsic motivators are perceived by the person to control behavior (Stipek, Karen, Julie & Valanne, 1999).

Several internal individual elements influence the birth and growth of intrinsic motivation. Researchers identify an element for the growth of internal motivation as follows: Challenge; Curiosity (sensory or cognitive); Control; Cooperation and Competition; Acquaintance.

Extrinsic motivators are more applicable in situations where people have a little initial interest in performing the activity or in cases where basic skills are lacking, but these rewards should be kept low, and moderate, and should be directly related to the performance of a task. Certain behavior. Once certain essential skills have emerged, extrinsic rewards should be phased out (Salancik, 1975, pp. 339-351).

## **3. Methodology**

The third chapter entitled "Methodology" deals with these issues: Selection of the sample; Research methods; Research measuring instrument – TUSMSQ-2; Pilot study; Validity and internal consistency of the measuring instrument; Questionnaire administration; Data collection; Coding of responses and data; Ethical issues of the study.

It has been determined that in our sample, Bachelor level students, who are in the second year of studies, will be selected. Our sample is composed of 505 students from Albanian public universities. They study at the University of Tirana, the University of Durrës "Aleksandër Moisiu" and the University of Shkodra "Luigj Gurakuqi", in the fields of History, Social Work, Psychology, Economics, Law, and Psycho-sociology. The sample has a gender composition such that 417 selected students are female and 88 students are male.

To get the right information on the motivation and satisfaction of the students, the TUSMSQ instrument - version 2 (Neil 2004) was used.

Our instrument is divided into three parts. In its first part, demographic data such as gender, age, the field of study, the university where they study, and their average grade (GPA) at the university are presented. This part closes with the request to express descriptively and briefly the three main reasons that made them attend the university according to the student's personal opinion. The second part of the questionnaire contains 30 items related to students' motivation, their internal motivation, and their external motivation. The statements are the conclusion of the sentence "I attend university, .....". They are listed from 1-30 and next to each of them are presented the answers that the students can give regarding the statements presented. Their answer can be given by marking one of the 8 numbers next to each item where: 1&2 = false; 3&4 = more untrue; 5&6 truer; 7&8 = true.

The third part of our instrument refers to students' satisfaction with their university experience. This part as its beginning contains two questions where the first one asks the students to describe which element of the university they are satisfied with and in the second question, they are asked to describe which element of the university they are least satisfied with.

Then, in this part, 19 statements (items) are listed, which present different functional aspects of the university that are thought to have appeared during the university experience of the students. These statements are presented as complements to the sentence "My satisfaction with.....". Next to each statement are presented the answers that are coded in numbers from 1-5 where 1= very dissatisfied, 2= dissatisfied, 3= neither, dissatisfied, satisfied, 4= satisfied, and number 5 = very satisfied.

Before our instrument was applied to students, it was subjected to several escalating procedures to meet the necessary psychometric parameters, to adapt to the Albanian university environment and students of Albanian universities, as well as to be easily applied to this research study. So, their realization necessitated the following several steps. These steps are related to the translation of the questionnaire into the Albanian language, the adaptation of the instrument to the Albanian university reality, the piloting of the instrument, and the verification of the stability of the instrument.

Findings regarding the reliability of our TUSMSQ-2 instrument are based on Cronbach's Alpha coefficient values.

**Table 1. Internal consistency of the motivation questionnaire**

|                       | Code of item                        | No of item | $\alpha$ of Cronbach |
|-----------------------|-------------------------------------|------------|----------------------|
| Altruism              | 6; 12; 18; 24; 30                   | 5          | 0.745                |
| Self-exploration      | 2; 8; 14; 20; 26                    | 5          | 0.518                |
| • Total of IM         | 6; 12; 18; 24; 30; 2; 8; 14; 20; 26 | 10         | 0.764                |
| Reject alternatives   | 1; 7; 13; 19; 25                    | 5          | 0.585                |
| Qualification&Carrier | 3; 9; 15; 21; 27                    | 5          | 0.707                |
| Social pleasure       | 4; 10; 16; 22; 28                   | 5          | 0.654                |
| Social pressure       | 5; 11; 17; 23; 29                   | 5          | 0.804                |

|                       |  |           |              |
|-----------------------|--|-----------|--------------|
| • <b>Totali of EM</b> | 1; 7; 13; 19; 25; 3; 9; 15; 21; 27; 4; 10; 16; 22; 28; 5; 11; 17; 23; 29 | 20        | 0.825        |
| <b>All item</b>       |  | <b>30</b> | <b>0.851</b> |

**Table 2. Internal consistency of the satisfaction questionnaire**

|           | Code of item            | No of item | $\alpha$ of Cronbach |
|-----------|-------------------------|------------|----------------------|
| Campus    | 1; 4; 7; 10; 13; 16; 19 | 7          | 0.701                |
| Social    | 2; 5; 8; 11; 14; 17     | 7          | 0.693                |
| Education | 3; 6; 9; 12; 15; 18     | 7          | 0.849                |
| All scale |                         | 21         | 0.846                |

We find that Cronbach’s alpha for both the motivation and satisfaction parts is above 0.8 (0.851 for motivation and 0.846 for satisfaction). Both parts of our instrument have internal consistency thus implying the validity of the instrument of our study. Student GPA, motivation, and satisfaction were recorded.

Depending on the hypotheses and research questions of the study, descriptive statistics such as arithmetic means, standard deviation, frequencies, percentages, etc., but also other statistics such as Kolgorov-Smirnov normality test, Chi-Square Test, Independent sample t-test, Mann-Whitney U Test, Spearman’s rho test, test Leven, Pearson correlation test and cross-tabulations.

This study is based on the respect and correctness of some elements related to the respect of study ethics.

#### **4. Results and discussions**

The fourth chapter, that of the results of the study, contains presented the results obtained from the demographic data of our sample, for the level and types of motivation of the subjects of the sample, for the degree of satisfaction of the students of our sample, the reasons (3 motivations) of students to attend university. Also in this chapter are presented the results for the correlational relationship between the level of the type of motivation and the level of students of our sample (GPA), the results for the correlational relationship between the level of satisfaction and GPA, between motivation and satisfaction, as well as results between demographic elements of our sample (gender, field of study and university) and motivation, GPA satisfaction.

The fifth chapter entitled “Discussion of the results” presents the discussion and interpretation of the results obtained from all the constituent points of the fourth chapter. To clarify its points, the chapter is divided into these issues: discussions related to the first hypothesis of the paper, and discussions related to the second hypothesis of the paper. This is followed by discussions of each research question.

The obtained data were discussed based on contemporary theories of motivation such as self-determination, CET, and attribution, as well as based on the mindset of the Albanian reality.

**Some of the data are presented below.**

Out of 505 students in our sample, 417 are female and 88 are male.

**Table no 3. Means value of GPA**

|     | N   | Min  | Max   | Means  | Standart diviation |
|-----|-----|------|-------|--------|--------------------|
| GPA | 504 | 5.00 | 10.00 | 7.4388 | 1.00874            |
|     | 504 |      |       |        |                    |

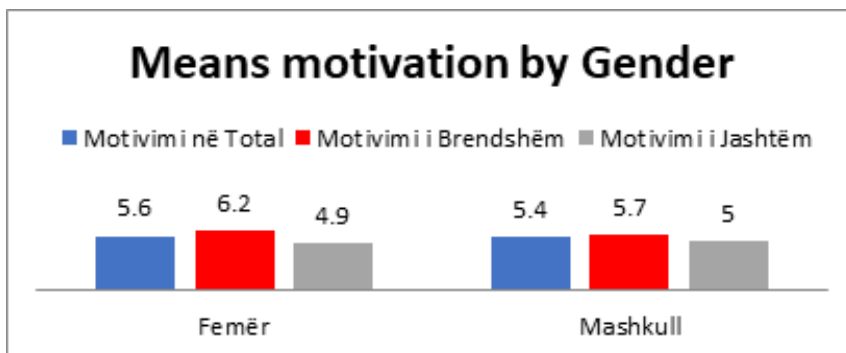
The average student GPA is 7.4388. The GPA of our sample is categorized as follows: 21.2% (n= 107) of the sample has a low GPA, 59.2% (n= 299) has a moderate GPA, and 19.4% (n=98) of our sample has a GPA- in high. The largest percentage has a moderate GPA of 59.2%. The GPA for female subjects is 7.4762 and the GPA for male subjects is 7.2620. From these data, a very small difference according to gender is shown.

In the analysis of motivating reasons, we can say that the subjects of our sample choose diverse alternatives as reasons for pursuing their studies and that they are related to both internal and external factors. If the first reason tends to be expressed as more related to internal factors than external factors in the other two reasons, this tendency declines.

**Table no 4. Means value of motivation and its factors**

| Means of motivation      | N   | Minimum | Maximum | Means  | Deviation stats |
|--------------------------|-----|---------|---------|--------|-----------------|
| Altruism                 | 505 | 1.00    | 8.00    | 5.8597 | 1.33250         |
|                          | 505 | 2.40    | 8.00    | 6.4292 | .97426          |
| Reject of alternatives   | 505 | 1.00    | 7.80    | 3.6948 | 1.25542         |
| Qualification & Carrie   | 505 | 1.80    | 8.00    | 7.2221 | .83344          |
| Social pleasure          | 505 | 1.40    | 8.00    | 5.2460 | 1.20264         |
| Social pressure          | 505 | 1.00    | 8.00    | 3.7831 | 1.65643         |
| Internal motivation (IM) | 505 | 2.20    | 8.00    | 6.1445 | 1.01010         |
|                          | 505 | 2.55    | 7.75    | 4.9865 | .89656          |
| External motivation (EM) | 505 | 2.38    | 7.88    | 5.5655 | .80160          |
| Valid                    | 505 |         |         |        |                 |

From these values, we say that the values of internal motivational factors are satisfactory and both of them influence the internal motivation of students.



Data on motivation averages by gender is provided by the following chart. For women, the internal motivation factors have the following average values: “altruism” 5.9314 and “self-exploration” 6.5072. Based on the Likert scale, both of these factors aim to go to a high motivation level. For the representative factors of external motivation among women, we have the following average values: “missing alternatives” 3.6237 (value below the moderate motivation level), “qualification & career” 7.2765 (high motivation level), “social satisfaction” 5.2507 (motivation of moderate) and “social pressure” with 3.7333 (value below the level of moderate motivation).

For men, the internal motivation factors have the following average values: “altruism” 5.5199 and “self-exploration” 6.0597. For external motivation factors among men, we have the following average values: “missing alternatives” 4.0313 (moderate level), “qualification & career” 6.9642 (high motivation level), “social satisfaction” 5.2239 (moderate motivation), and “social pressure” with 4.0188 (moderate level).

**Table no 5. Correlational relationship between IM-EM**

|    |                     | IM     | EM     |
|----|---------------------|--------|--------|
| IM | Pearson Correlation | 1      | .414** |
|    | Sig. (2-tailed)     |        | .000   |
|    | N                   | 505    | 505    |
| EM | Pearson Correlation | .414** | 1      |
|    | Sig. (2-tailed)     | .000   |        |
|    | N                   | 505    | 505    |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

There is a positive correlational relationship between intrinsic motivation and extrinsic motivation 0.414, which shows that it is also positive and not very strong. Neither type of motivation has a correlational relationship with students’ academic performance (GPA).

There is a weak positive correlation between the motivating factor “self-exploration” and GPA ( $r=0.133$ ,  $p=0.003 < 0.05$ ). There is a weak negative correlation between the

motivational factor “missing alternatives” and the GPA ( $r = -0.093, p=0.038<0.05$ ). By this, we understand that high levels of this factor are associated with lower GPAs.

From the data obtained on motivation and motivational factors according to gender, it results that:

- There are significant statistical differences in the “altruism” factor of women ( $Md = 6$ ) and men ( $Md = 5.5$ ). Women have stronger motivation in the motivating factor “altruism”. The difference is low and the size of the gender effect for the “altruism” factor calculated with the formula  $r = Z/\sqrt{N}=2.893/22.47=0.128 <0.3$  is low.
- There are significant statistical differences in the motivating factor “self-exploration” of women ( $Md = 6.5$ ) and men ( $Md = 6$ ). Women have the most powerful motivating factor “self-exploration”. The difference is low and the size of the effect of gender on this factor calculated with the formula  $r = Z/\sqrt{N}=3.553/22.47=0.158 <0.3$  is low.
- There are significant statistical differences in the level of the motivating factor “missing alternatives” of women ( $Md = 3.6$ ) and men ( $Md = 4$ ). Men have stronger motivation in the “missing alternatives” motivational factor. The difference is low and the size of the gender effect on the “missing alternatives” factor calculated with the formula  $r = Z/\sqrt{N}=2.553/22.47=0.113 <0.3$  is low.
- There are significant statistical differences in the “qualifications & career” factor of women ( $Md = 7.3$ ) and men ( $Md = 6.9$ );  $p = 0.000 < 0.05$ . Women have the strongest motivation in the “qualifications & career” factor. The difference is low and the size of the gender effect for this factor calculated with the formula  $r = Z/\sqrt{N}=3.626/22.47=0.161 <0.3$  is low.
- There are significant statistical differences in the Internal Motivation level of women ( $Md = 6.2$ ) and men ( $Md = 5.7$ );  $p = 0.000 < 0.05$ . Women have higher internal motivation. The difference is low and the size of the gender effect on IM calculated with the formula  $r = Z/\sqrt{N}=3.680/22.47=0.163 <0.3$  is low.
- There are significant statistical differences in the total motivation level of women ( $Md = 5.6$ ) and men ( $Md = 5.4$ );  $p = 0.030 < 0.05$ . Women have higher motivation in total. The difference is low and the size of the gender effect on motivation calculated with the formula  $r = Z/\sqrt{N}=2.168/22.47=0.096 <0.3$  is low.

The results also show us that: there is no correlation between the motivating factor “qualifications & career” and the GPA ( $p=0.15>0.05$ ); there is no correlation between the motivating factor “social satisfaction” and the GPA ( $p=0.544>0.05$ ); There is no correlation between the motivating factor “social pressure” and the GPA ( $p=0.070>0.05$ ); there is no correlation between internal motivation and GPA ( $p=0.131>0.05$ ); there is no correlation between external motivation and GPA ( $p=0.125>0.05$ ); there is no correlation between motivation in total and GPA ( $p=0.882>0.05$ ).

**Table no 6. Correlational relationship motivation-satisfaction**

|                |                            | Motivation | Satisfaction |
|----------------|----------------------------|------------|--------------|
| Spearman's rho | Correlation Coefficient    | 1.000      | .195**       |
|                | Motivation Sig. (2-tailed) |            | .000         |
|                | N                          | 505        | 505          |

|              |                         |      |       |
|--------------|-------------------------|------|-------|
|              | Correlation Coefficient | .195 | 1.000 |
| Satisfaction | Sig. (2-tailed)         | .000 |       |
|              | N                       | 505  | 505   |

There is a positive correlation between motivation and satisfaction. The value 0.195 shows such a thing but he is weak. Thus, there is a positive, albeit weak, relationship between student motivation and satisfaction. On these two variables, the relationship of satisfaction with the two types of motivations was looked at, according to gender, the field of study, and university.

Students also express their performance through representative factors of two types of motivations. The most expressed motivating factors among students turn out to be “qualification & career” (MJ) and “self-exploration” (MB). If the former does not express an impact on performance (GPA) students feel driven or stimulated by discovering their abilities and challenging the abilities they have. In addition to “self-exploration,” there is also the “missing alternatives” factor that affects the performance (GPA) of students. If the first has a positive effect, the second has a negative relationship with it. However, even though the connection is weak, the tendency to discover certain skills in oneself and the lack or absence of other alternatives to express themselves constitute the two motivational factors with the most significant impact on students.

## 6. Conclusions

In the sixth chapter, that of the conclusions, all the final analytical summary that is necessary to prove or not the hypotheses of our study as well as to verify its research questions is set. This chapter is divided into issues referring to research questions and hypotheses.

Based on the data and facts obtained, we can say that the study managed to prove that:

1. There is a positive relationship between intrinsic and extrinsic motivation. This conclusion is based on the theory.
2. There is no positive relationship between intrinsic motivation and students’ GPA. This conclusion is based on the theory.

According to his research questions, the study reached several conclusions: between MT and types of motivations, there is no relationship with students’ GPA; There is a relationship between motivation and gender of students. Females influence the relationship between “missing alternatives” and “self-exploration” with GPA; The motivating factor with the highest value is “qualification & career”; The motivational reasons for pursuing studies are related to both internal and external motivation. The most exposed are “like the branch” and “employment opportunity”; There is a positive but weak correlation between motivation and satisfaction, which has a gender effect.

In the context of a summary, we can say that the students of Albanian public universities who were included in this study (n=505) have some characteristic data: The students showed that they pursued their studies based on both intrinsic and extrinsic motivations. In the three reasons they give, an initial influence of internal motivation can be observed, and then the power of this motivation falls in the second

and especially the third reason.

Students have satisfactory motivational and satisfaction values. Their motivation in total is expressed at the moderate motivation level and is characterized by satisfactory levels of internal and external motivation where the internal values are higher. The relationship between them is positive but not strong. This means that their academic performance is not affected by internal motivation, so to have a high academic performance you must have high internal motivation.

The academic performance of students is the way of self-regulation of behavior. Students have satisfactory motivation from the fact that they are students and they are happy to follow their studies in their respective branches (I like the branch) because, at the end of them, they will be able to get a diploma which will serve them for a qualification and future employment (employment opportunities). Due to the lack of internalization of student behavior, the values of internal motivation, although at satisfactory levels, are not yet found to be related to or influencing their academic performance.

The motivational performances of our students tend to be influenced by some gender differences which, although small, are present. Especially in the expression of total motivation, internal motivation, and motivational factors (especially “self-exploration” and “missing alternatives”). Based on these differences, women have better motivational values than men.

## **7. Recommendations**

In the last chapter of this paper, which is entitled “*Recommendations*”, any necessary recommendations from the study are presented, as well as the corresponding explanations of their giving. They are addressed to institutions and groups directly or indirectly interested in the motivation of students at school and their performance and are mostly suggestive and advisory in nature.



# An Overview on Solar Heating Systems

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## Abstract

The challenge of people all around the world is to ensure energy continuously, at a low cost and at a low level of environmental pollution. Renewable energies result to be cost-effective and environmentally sustainable energy sources and this is the reason of investments 'growth in the development of capacities in this sector comparing to the investments on the fossil energy sources. Demand for renewables is increasing across all key sectors –power, heating, industry, and transport – in the near future. Current heating demands are mainly covered by fossil fuels using conventional technology and cooling demands by individual electric chillers. Solar systems are the most used among renewable energy technologies. They are replacing the use of conventional energy almost all over the world in order to have a better standard of living for all users of solar energy or other renewable energies.

The aim of the study is to present a global overview of the solar thermal heating and cooling systems: market and industry potential, their share in different end-use applications, and their benefits, growth, investment, and deployment. A careful analyze is dedicated to the state of solar heating energy in Albania.

**Keywords:** Renewable energy, solar collectors, solar energy, heating and cooling solar systems.

## Introduction

Conventional energy is based on sources such as oil, coal and natural gas. These resources have proven to be very effective in promoting economic progress. However, studies show that these resources are in rapid depletion while energy demands are increasing. According to existing policies lead, global energy demand will grow nearly 40% by 2050. The International Renewable Energy Agency (IRENA) estimates that [90 percent of the world's electricity](#) can and should come from renewable energy by 2050 (Perspectives for the Energy Transition-The Role of Energy Efficiency, pdf p19 ). Climate change, depletion of conventional energy sources and uncertainty for various reasons are leading to the widespread use of renewable resources and the rapid development of related technologies. Renewable energies are energy sources that are continuously met by nature and obtained directly or indirectly way from the sun, or from other natural movements and mechanisms of the environment. Energy resources came from fossil fuels, waste products from fossil sources, or waste products from inorganic sources are not renewable (Azam A., Rafiq M., Shafique M., Yuan J., 2021, p. 2424). Renewable energy technologies convert these natural energy sources into electricity, heat and

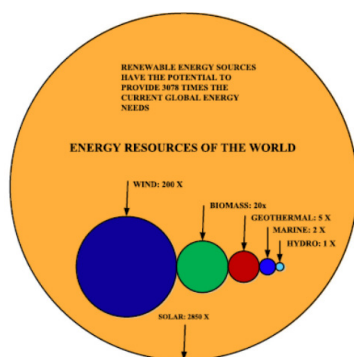


Figure 1. Main renewable energy resources of the earth

fuels. Renewable energy sources are the innovative possibility for energy production all over the world. The amount of energy provided by renewable sources may exceed several times (over 3000 times) the current energy needs of the whole world. Figure 1 illustrates the world potential of renewable energy sources (IEA Global Energy Review 2021, p.24).

Nowadays, intensive researches are being encouraged to use green technologies in an efficient way but the proposed green technologies in some cases cannot yet compete with technologies that use fossil fuels. The use of green technologies has a significant environmental impact as it leads to the reduction of greenhouse gas emissions and also provides timely and cost-effective energy. As the industry is fast evolving, renewable energy technology costs are falling, new technologies and applications are being marketed, and new best practices in policy-making are emerging.

However, either energy sources are not sufficiently abundant, or they have problems in terms of sustainability or in some cases, the renewable technologies proposed are not yet competitive compared to technologies using fossil fuel so, it is necessary to use more than one low-carbon technology in order to reduce future uncertainty.

Solar energy is the cleanest and most abundant energy among green sources available. It is the energy that obtains from the sun and then is converted into thermal or electrical energy. Related technologies can use this energy for different applications, such as generating electricity, providing light, heating water for domestic, commercial, or industrial use, etc. These technologies are technically well-proven, with numerous systems installed around the world over the last few decades.

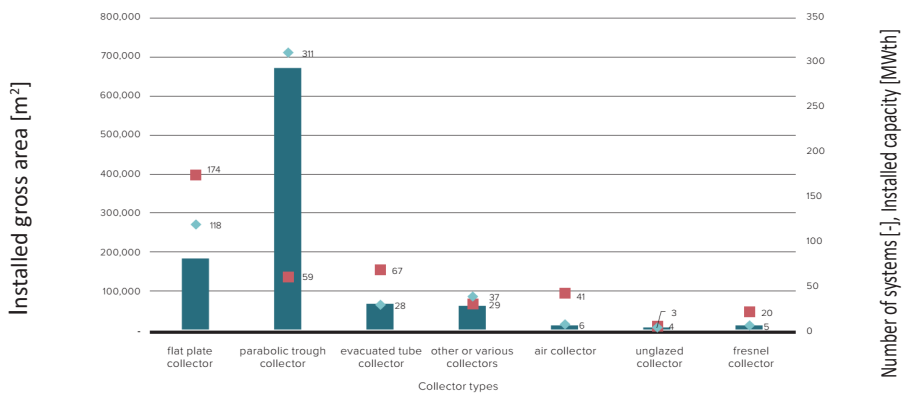
Albania, a Mediterranean country, has an energy mix that already features one of the highest shares of renewables in the region due to its extensive installed hydropower capacity. However, the essential need remains a secure and cost-competitive national energy supply.

The goal of the work is to present a global overview of the solar thermal heating and cooling systems: assessment of the state of a broad portfolio of low-carbon energy technologies, market and industry potential, their share in different end-use applications, and their benefits, growth, investment, and deployment. In addition, a particular description is dedicated to the state of solar thermal heating and cooling systems in Albania.

### **Solar thermal heating and cooling worldwide**

Almost 50 % of total final energy consumption in Europe is used in heating and cooling applications. Heat accounts for 86 % of the final energy consumption in households, 76 % in commerce, services, and agriculture, and 55 % in industry. Current heating demands are mainly covered by fossil fuels using conventional technology and cooling demands by individual electric chillers. There remains a considerable potential to increase renewable sources for heating and cooling, mainly biomass, solar and geothermal energy, which can be used as direct heat. It is estimated that renewable heating and cooling will almost reach a 30 % share of total heat consumption by 2020 and more than 50 % of the EU heat demand by 2030 (Carlsson.J, et al,2014). Solar heating and cooling comprise many technologies, from mature domestic hot water heaters to new technologies, such as solar thermally driven cooling. Nowadays, most applications for solar thermal systems use rooftop glazed and unglazed collectors.

The selection of solar thermal collector generally depends on the application and the required temperature. Non-concentrating flat-plate and evacuated-tube collectors are most commonly used for space and water heating in the building sector. The use of solar energy for heat supply is mainly limited to low temperatures, such as hot water for sanitarian use. It should be noted that solar thermal combination systems, in which solar technology is combined with an auxiliary heating or cooling source, can increase heating and cooling efficiency in buildings and supply the demand that is not achieved by the solar thermal system alone. Solar heating and cooling technologies collect thermal energy from the sun and use this heat to provide hot water, space heating, cooling, and pool heating for residential, commercial, and industrial applications. There are several major types of solar thermal technologies: Unglazed solar collectors, flat glazed collectors, vacuum tube collectors, transpired solar air collectors. As shown in Figure 2, the most used of the solar heat systems are flat-plate collectors followed by parabolic trough collectors and evacuated tube collectors. Parabolic trough collectors have the highest installed gross area. Parabolic trough collectors have the highest installed gross area needs.



Number of systems [-] ◆ Thermal Power [MWth] █ Gross Area [m²gross]

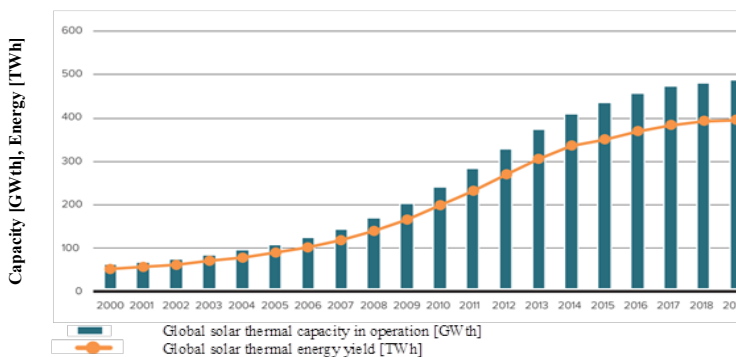
**Figure 2.** Solar process heat applications in operation at the end of March 2022 by collector type (Source: IEA SHC Task49/IV SHIP database)

The cumulated solar thermal capacity in operation by the end of 2021 was 522 GWth, following behind wind power's installed capacity of 837 GWel and photovoltaics 942 GWel of installed capacity. Geothermal energy and concentrated solar power (CSP) lag behind these three technologies in installed capacity. The total capacity of geothermal power was 16 GWel. In terms of energy, solar thermal systems supplied 425 TWh of heat, whereas wind turbines supplied 1,980 TWh and photovoltaic systems 1,138 TWh of electricity.

### Solar water heating collectors

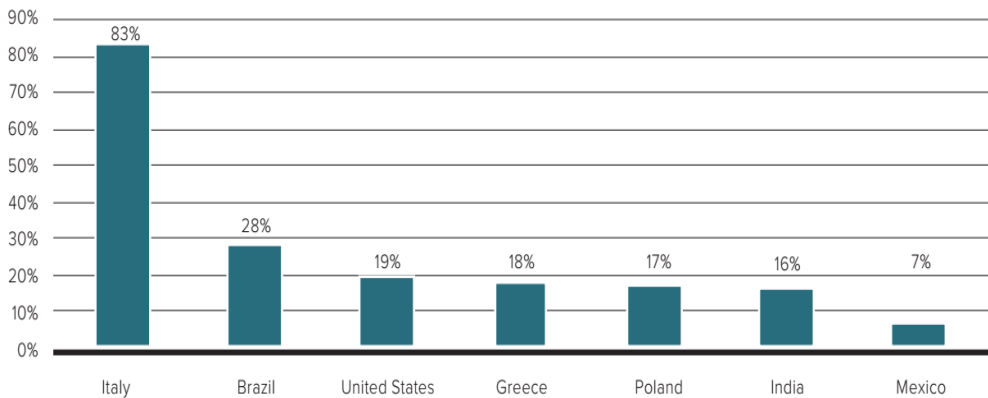
Today solar thermal collectors are the most common way to cover hot water loads in buildings. These systems are typically installed in single-family houses and use large buffer storages of about 800-2000 liters and a solar thermal collector field of 10-20 m². One can also use solar thermal collector system for cooling by integrating a thermally

driven cooling device. Different types of thermally driven cooling systems are available on the market. Most of them employ the physical phenomena of sorption, either absorption or adsorption (Henning H-M., Döll J., 2012, p.636). In addition to the four main types of collectors, other technologies such as hybrid, concentrating, and air collectors are available to meet specific heat. Because annual additions of these technologies are small, they are not yet included in global and national capacity statistics. By the end of 2020, hybrid – or solar photovoltaic thermal (PV-T) technologies provided 635 MWth of thermal capacity (and 232 MW of electric power capacity) for space and water heating. In addition, 566 MWth of concentrating solar thermal capacity provided hot water or steam for industrial and commercial customers at year’s end. Around 1 GWth of air collectors for drying and space heating was in operation in 2019. The global solar thermal market continued a gradual decline in 2020, with an estimated 25.2 GWth of capacity added worldwide, down 3.6% from 26.1 GWth in 2019. By the end of 2020, millions of residential, commercial, and industrial clients in at least 134 countries were benefiting from solar heating and cooling systems. The total operating capacity for glazed (flat plate and vacuum tube) and unglazed collectors (used mainly for heating swimming pools) reached an estimated 501 GWth by year’s end, up 5% from 478 GWth in 2019. These collector types provided around 407 terawatt-hours of heat annually, equivalent to the energy content of 239 million barrels of oil. (IEA SHC 5, p.138). In addition, a new generation of manufacturers of innovative concentrating collectors unveiled the first demonstration or commercial projects. The leading countries for new glazed and unglazed installations in 2020 were again China, Turkey, India, Brazil, the United States, Germany, and Australia. China dominated the market, accounting for 71% of new global sales, followed by Turkey and India (5% each). By the end of 2021, 1970MW<sub>th</sub> total installed capacity of solar thermal systems were in operation corresponding to 2.8 million m<sup>2</sup> collector area. As shown in the figure below, the global solar thermal capacity of unglazed and glazed water collectors in operation grew from 62 GWth (89 million m<sup>2</sup>) in 2000 to 522 GWth (746 million m<sup>2</sup>) in 2021. The corresponding annual solar thermal energy yields amounted to 51 TWh in 2000 and 425 TWh in 2021. So the solar thermal market was increased by 3% in 2021(Figure 3). The global solar thermal energy yields of all installed solar thermal systems in 2021 gave a contribution of saving 45.7 million tons of oil and 147.5 million tons of CO<sub>2</sub>. (Solar Heat World Wide 2022, p. 10).



**Figure 3.** Global solar thermal capacity in operation and annual energy 2000-2021 (Solar Heat World Wide 2022, p. 10)

By the end of 2021 China, achieved a slight growth of 1%. While by the end of 2022 there were also very positive market developments led by Italy's growth of 83%, followed by Brazil (28%), the United States (19%), Greece (18%), Poland (17%) and India (16%)



**Figure 4.** Countries with the highest growth rates in 2021 (SOLAR HEAT WORLD WIDE 2022, page 14)

### Solar air heating collectors

Solar air heating collectors can be built integrated and usually help to bring down about 20 –30% of the conventional energy used. These applications can connect to existing or new ventilators and pass via the ventilation system into the building.

Process applications operate either all year or during the harvest season, so the solar panels are roof-mounted in order to capture the higher sun angles. In case of drying applications in agriculture solar air heaters require low temperatures. For the past 3 decades, schools, municipalities, agricultural, industrial buildings and residential buildings worldwide have used these technologies. By the end of 2021, there were 26,231(588,383m<sup>2</sup>) solar air systems in operation worldwide. (Solar-Heat-Worldwide-2022, p. 29).

Solar air heating systems use solar energy to heat air directly. They are primarily used for heating buildings, including ventilation, and also for crop drying. Solar air heating technology is actually under-utilized. Covid-19 requirements for fresh air in buildings have brought an increase in the energy demand and CO<sub>2</sub> emissions too, so solar heating systems are a smart solution. Space heating applications usually consume more energy compared to water heating. Most solar air heating collectors are wall-mounted in order to take advantage of the lower winter sun angles and for eliminating snow accumulation. During the summer, there is no need to use these systems, so they are usually left dormant. Storage of heat in order to have it when it is necessary is the best solution, but this would increase the cost.

Solar air heating collectors can be built integrated and usually help to bring down about 20 –30% of the conventional energy used. These applications can connect to

existing or new ventilators and pass via the ventilation system into the building. Process applications operate either all year or during the harvest season, so the solar panels are roof-mounted in order to capture the higher sun angles. In case of drying applications in agriculture solar air heaters require low temperatures. For the past 3 decades, schools, municipalities, agricultural, industrial buildings and residential buildings worldwide have used these technologies.

These technologies are not as common in Europe, while integrated solar air collectors are the most used for industrial and commercial customers in North America, because of their low cost and architectural integration into buildings.

### **Solar Thermal Heating and Cooling in Albania**

In Albania, a typical solar water heating (SWH) system with a collector area of 3-4 m<sup>2</sup>, a 150- 200liter water tank, and a minimum operational lifetime of 15 years costs approximately USD 1000, including installation. With 50% annual efficiency, such a system could provide up to 2640 kWh/year in mountainous regions and up to 3 600 kWh/year on the coastline. An average household of four persons requires between 2 500 kWh and 3 000 kWh for hot water annually. (Buzra, U., et. al, 2018). The solar water system could fully supply this demand for seven to eight months of the year, especially in the summer season, and may require minimal backup in colder months. Such a system, provided well-dimensioned and installed, can achieve an approximate three-year payback period based on electricity savings alone (UNDP, 2017). According to a market study undertaken by UNDP/GEF, close to 8000 public buildings, including hospitals, schools, dormitories, and others, have the potential to install SWH systems for various sanitary hot water needs. Estimated solar thermal installations in Albania amounted to 176000 m<sup>2</sup> of solar water heating capacity, equivalent to 123 MW of nominal thermal capacity, by the end of 2015 (UNDP, 2017), the most recent official documentation of the installed capacities. Of this installed capacity, 90% are flat-plate collector systems, while 10% are evacuated, tube collectors. The potential for SWH installation in public buildings alone amounts to a collector area of approximately 200 000 m<sup>2</sup>, corresponding to 100 GWh of electricity savings and some EUR 8 million (IRENA ,2021).

### **Result and discussions**

Demand for renewables grew by 3% in 2021 and will increase across all key sectors –power, heating, industry, and transport – in the future. The power sector leads the way, with its demand for renewables on course to expand by more than 8%, to reach 8300 TWh. Renewables are set to provide more than half of the increase in global electricity supply in 2021. An estimated 25.2 GWth of new solar thermal capacity was added in 2020, increasing the global total 5% to around 501 GWth. China again led in new solar thermal installations, followed by Turkey, India, Brazil, and the United States. Albania has made significant economic progress during the past three decades, moving from a low-income economy to a middle-income EU member state, with a gross domestic product (GDP) per capital from 200 USD in 1991 to 5 353 USD in 2019.

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