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Biztonságtudományi Szemle

a biztonságtudomány nemzetközi, lektorált, szakmai és tudományos folyóirata

ENGLISH SPECIAL ISSUE

ANGOL NYELVŰ KÜLÖNSZÁM

Prof. Dr. Jeffrey KAPLAN | Dr. habil BESENYŐ János | BEKE Éva

editors by special issue

a különszám szerkesztői

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Only those papers will be published which reviewed by two independent reviewers and recommended suitable for publication in the Safety and Security Sciences Review. The submitted manuscripts must meet the requirements both of the form and the content which can be found in the journal's website. Please note: we will not return unapproved manuscripts.	A Biztonságtudományi Szemle folyóiratban csak két független lektor által lektorált és megjelentetésre alkalmasnak tartott tanulmányok jelenhetnek meg. A beküldött kéziratoknak formai és tartalmi szempontból egyaránt meg kell felelnie a Folyóirat weboldalán közölt elvárásoknak. El nem fogadott kéziratokat nem áll módunkban visszaküldeni.
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ENGLISH SPECIAL ISSUE	ANGOL NYELVŰ KÜLÖNSZÁM
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Daniella ADANKÓ graduated from the Faculty of Law of the Károli Gáspár Reformed University with a degree in international relations. She conducted her first research at the African Research Institute of the University of Obuda Doctoral School on Safety and Security Sciences, in which she examined African migration to the Canary Islands.

ADANKÓ Daniella a Károli Gáspár Református Egyetem Állam- és Jogtudományi Karán végzett nemzetközi tanulmányok szakon. Első kutatását az Óbudai Egyetem Biztonságtudományi Doktori Iskola Afrika Kutatóintézeténél végezte, melyben a Kanári-szigetekre történő Afrikai migrációt vizsgálta.

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Tibor BABOS is the Founding Director of Szent István Security Research Center, as well as he is an Associate Professor of the Faculty of Mechanical Engineering, at the Hungarian Agricultural and Life Sciences University. He is also the Founding Director of the Security Science Center, Founding Director of the Security Science College, a Thesis Supervisor and a Professor at the Doctoral School of Security Sciences, and a Honorary Professor of the University of Óbuda. Tibor BABOS is also a Honorary Professor, a lecturer and a Thesis Supervisor at the Doctoral School of Military Sciences and the Doctoral School of Public Administration at the National University of Public Service. As a Colonel of the Hungarian Defense Forces, he is a Chief Military Advisor and a Ministerial Commissioner for U.S.-Hungarian Defense Cooperation at the Ministry of Defense. His reseach field is security, defense and military policy, transatlantic relations, as well as critical infrastructure protection.

BABOS Tibor a Magyar Agrár- és Élettudományi Egyetem, Szent István Biztonságkutató Központ alapító igazgatója és a Gépészmérnöki Intézet egyetemi docense; az Óbudai Egyetem címzetes egyetemi tanára, a Biztonságtudományi Központ alapító igazgatója és a Biztonságtudományi Szakkollégium alapító igazgatója, a Biztonságtudományi Doktori Iskola témavezetője és tanára; valamint a Nemzeti Közszolgálati Egyetem egyetemi magántanára, a Hadtudományi Doktori Iskola és a Közigazgatástudományi Doktori Iskola oktatója és témavezetője. Honvéd ezredesként a Honvédelmi Minisztériumban katonai főtanácsadó és miniszteri biztos, szakterülete a biztonság-, védelem- és katonapolitika, valamint a Magyar-Amerikai Védelmi Együttműködés.

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Dr. Zoltán BEBESI PhD (currently works as the external security expert of MVM Paks I. Nuclear Power Plant. Earlier in his career, he had the opportunity to visit South American countries (Bolivia, Columbia, Venezuela) and take part in educational programs, which he could later benefit from both as a lecturer and security expert. His PhD dissertation was written on narcoterrorism. Thanks to the actuality of his researches, later – between 2009 and 2014 – he has been employed as an adjunct, then docent at Zrínyi Miklós National Defense University (now National University of Public Service). Between 2015 and

Dr. BEBESI Zoltán PhD jelenleg az MVM Paks I. létesítményénél, mint külső biztonsági szakértőként tevékenykedik. Pályája korábbi szakaszában lehetősége volt több dél-amerikai országba is kiutazni (Bolívia, Kolumbia, Venezuela), ahol különböző oktatásokon vett részt, amelynek tapasztalatait munkahelyein, illetve az oktatásban is kamatoztathatta. A PhD értekezésének témáját a kábítószer-bűnözés és terrorizmus adja. A téma aktualitásából adódóan a későbbiekben a 2009-től 2014-ig a Zrínyi Miklós Nemzetvédelmi Egyetemen, majd a későbbi jogutódnál a Nemzeti Közszolgálati Egyetemen oktatói

2018 he was the founder and the head of the Department of Counterterrorism at the National University of Public Service. The central topics of his scientific publications are mostly the South American terrorist organizations, the main problems of terrorism and the possible methods of acting and preparing against them. He has received numerous honours and acknowledgements, such as the Pro Scientia Medal or the Memorial Plaque of the Police of the Republic of Hungary. He is also a founding member of the History of Hungarian Intelligence Department of the Hungarian Military Science Association.

feladatokat látott el először egyetemi adjunktusként, majd egyetemi docensként. 2015 és 2018 közötti időszakban a Nemzeti Közszolgálati Egyetem Nemzetbiztonsági Intézet Terrorelhárítási Tanszékének alapítója és a tanszékvezetője. Publikációi főként a délamerikai terrorszervezetekkel, a terrorizmus problémáival, valamint az ellenük való küzdelem lehetőségeivel foglalkoznak. Több elismerésben részesült, például: Pro Scientia aranyérem, a Magyar Köztársaság Rendősrége bűnügyi szolgálatának emlékplakettje. Alapító tagja a Magyar Hadtudományi Társaság Magyar hírszerzés történetét feldolgozó szakosztályának (2001-ben alapítva).

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Alexandra Lilla BEREGI, the last semester student of the Doctoral School of Security Sciences at the University of Óbuda, is the Vice-President of the College of Security Sciences. Her research topic is the impact of European security challenges and trends on Hungary's security policy. From 2016 to 2020, she worked as a government official in the Prime Minister's Office, the Cabinet Office of the Prime Minister and the Ministry of Defense. In the course of her work, in addition to document and data security, she became a specialist in domestic and European security policy. From 2021, in addition to performing educational activities in higher education, she is working on her doctoral dissertation.

BEREGI Alexandra Lilla, az Óbudai Egyetem Biztonságtudományi Doktori Iskola utolsó féléves hallgatója, a Biztonságtudományi Szakkollégium alelnöke. Kutatási témája az európai biztonsági kihívások és trendek hatása Magyarország biztonságpolitikájára. 2016-2020 között a Miniszterelnökségen, a Miniszterelnöki Kabinetirodán és a Honvédelmi Minisztériumban kormánytisztviselőként dolgozott. Munkája során a dokumentum- és iratbiztonság mellett és hazai- és európai biztonságpolitika vált a szakterületévé. 2021-től a felsőoktatásban oktatásszervezői tevékenység ellátása mellett a doktori disszertációján dolgozik.

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Colonel (ret.) Dr. habil János BESENYŐ had 31 years of experience in the Hungarian Defence Forces. In his last assignment he led the General Staff, Scientific Research Centre more than 4 years. He is an assistant professor of University of Obuda Doctoral School on Safety and Security Sciences and teaching African conflicts, European Security and Defence Policy, and conflict management. He is a lecturer in National Public Service University, Budapest (Doctoral School of Military Sciences), Eötvös Loránd University, Budapest (Doctoral School of History) and Eszterházy Károly University of Applied Sciences, Eger about African History, African conflicts, Hungarian participation in African peace operations, Western Sahara, terrorism, Christian-Muslim relations, Hungarian-African relations.

Dr. habil BESENYŐ János 31 éves tapasztalattal rendelkezik a Magyar Honvédségnél. Legutolsó megbízatásában 4 évig vezette a Honvéd Vezérkar Tudományos Kutatóhelyet. Az Óbudai Egyetem Biztonságtudományi Doktori Iskolájának adjunktusa, ahol afrikai konfliktusokat, európai biztonság- és védelempolitikát, valamint konfliktuskezelést oktat. A budapesti Nemzeti Közszolgálati Egyetem (Hadtudományi Doktori Iskola), a budapesti ELTE (Történelemtudományi Doktori Iskola) és az egri Eszterházy Károly Egyetem oktatója afrikai történelem, afrikai konfliktusok, magyar részvétel az afrikai békeműveletekben, Nyugat-Szahara, terrorizmus, kereszténység-muszlim kapcsolatok és magyar-afrikai kapcsolatok témakörökben.

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Anneli BOTHA, PhD is a senior lecturer at the Department Political Studies and Governance at the University of the Free State in South Africa. She also serves as an independent consultant on radicalization, deradicalisation, reintegration and terrorism in Africa and worked on a number of projects with different UN agencies. During the period 2003 till 2016 she was a senior researcher on terrorism at the Institute for Security Studies (ISS) in Pretoria, South Africa. Anneli has delivered specialized training on various aspects of the threat of terrorism, extremism, radicalisation and counterterrorism to law enforcement and criminal justice officials in Africa. Prior to her position at the ISS, she served in the South African Police Service for 10 years. She was a founding member of the Religious Extremism and Terrorism Desk at Crime Intelligence Head Office and also served in the Rapid Reaction Unit and the Special Task Force on Urban Terror in the West Cape.

Anneli BOTHA, PhD a Dél-Afrikai Szabad Állami Egyetem Politikai Tanulmányok és Kormányzás Tanszékének vezető előadója. Független tanácsadó radikalizálódás, deradikalizáció, reintegráció és afrikai terrorizmus területen. Számos projekten dolgozott különböző ENSZ ügynökségekkel. 2003 és 2016 között a dél-afrikai Pretoriában, a Biztonsági Tanulmányok Intézetének (ISS) vezető kutatója volt a terrorizmus terén. Anneli speciális képzést tartott a terrorizmus fenyegetésének, a szélsőségességnek, a radikalizálódásnak és a terrorizmus elleni küzdelemnek különböző aspektusairól az afrikai bűnüldözési és büntető igazságszolgáltatási tisztviselőknek. Az ISS-nél betöltött pozíciója előtt 10 évig szolgált a Dél-Afrikai Rendőrségnél. Alapító tagja volt a Bűnügyi Hírszerző Központ vallásos szélsőségességgel és terrorizmussal foglalkozó osztályának, és szolgált a Gyorsreagálású Egységben és a Nyugati-foki városi terror elleni különleges munkacsoportban.

KEMÉNY János

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János KEMÉNY is a researcher at the Center for Strategic and Defence Studies. He is a former postdoctoral researcher of the Hungarian Academy of Sciences, where he researched the Hungarian participation in the Vietnam War. Based partially on this research, he co-authored a book about the Hungarian Mission of the International Commission of Control and Supervision. During this time, he did extensive archival research in multiple archives and conducted oral history interviews. He also authored a book about the modern history of Vietnam. His research interest includes insurgency and counterinsurgency, intelligence history, and is focusing on modern conflicts like the War in Iraq. He received his PhD from Corvinus University in Budapest, in 2014. He previously worked as the research coordinator of the Cold War History Research Center in Budapest between June 2010 and January 2012 and has extensive teaching experience.

KEMÉNY János a Stratégiai és Védelmi Tanulmányok Központjának kutatója. A Magyar Tudományos Akadémia korábbi posztdoktori kutatója, ahol a vietnami háborúban való magyar részvételt kutatta. Részben e kutatás alapján társszerzőként írt könyvet a Nemzetközi Ellenőrzési és Felügyeleti Bizottság magyar missziójáról. Ez idő alatt kiterjedt levéltári kutatásokat végzett több levéltárban, és szóbeli interjúkat készített. Ezen kívül könyvet írt Vietnam modern történelméről. Kutatási területe a felkelés és a lázadásellenes, a hírszerzési történelem, és olyan modern konfliktusokra összpontosít, mint az iraki háború. PhD fokozatát a budapesti Corvinus Egyetemen szerezte 2014 -ben. Korábban 2010 júniusa és 2012 januárja között a budapesti Hidegháború Történeti Kutatóközpont kutatási koordinátorként dolgozott, és nagy tanítási tapasztalattal rendelkezik.

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Prof. Dr. Tibor KOVÁCS (1961) M.Sc. telecommunication specialist, M.Sc. electrical engineer, head of department at the Institute of Mechanical and Security Sciences, Óbuda University, associate professor

Prof. Dr. KOVÁCS Tibor (1961) okl. híradástechnikai-iszakmérnök, okl. villamosmérnök, az Óbudai Egyetem Gépészeti és Biztonságtudományi Intézet, Biztonságtechnikai Intézeti Tanszék tanszékvezetője,

at the Department of Security Engineering. Research interests: Critical Infrastructure Protection, Technical Approach to Emergency Behaviour, Laser Ultra-sonic Detection of Chemicals, Development Possibilities of the Early Nuclear Alert System of the Republic of Hungary. Currently, he is a lecturer at the Doctoral School on Safety and Security Sciences at Óbuda University, the Doctoral School of Military Engineering at the National University of Public Service, the Óbuda University and the National University of Public Service.

egyetemi docens. Kutatási területei: Kritikus infrastruktúra védelem, Veszélyhelyzeti viselkedés technikai megközelítése, Vegyi anyagok lézerultrahangos detektálása, A Magyar Köztársaság Korai Nukleáris Riasztási Rendszerének fejlesztési lehetőségei. Jelenleg az Óbudai Egyetem Biztonságtudományi Doktori Iskola, a Nemzeti Közszolgálati Egyetem Katonai Műszaki Doktori Iskola, az Óbudai Egyetem és a Nemzeti Közszolgálati Egyetem oktatója.

MARSAI Viktor

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Viktor MARSAI, PhD, seized his first degree in the Eötvös Loránd University from history and aesthetics. He got his second degree from security and defence policy in the Miklós Zrínyi National Defence University in 2010. He had started his PhD studies in the ELU Doctoral School of History in 2008, and he wrote his dissertation about the Somali state building efforts. He seized his PhD in the spring 2014. In 2010-2011 he worked for the Hungarian Ministry of Defence. Since 2012 MARSAI has been working for the National University of Public Service, first as junior lecturer, later as assistant professor. Since 2014 he has been delivering lectures in Péter Pázmány Catholic University. In March 2017 he became the leader of "Africa in the globalized world" Ludovika Research Group in the NUPS. In the same spring he won the János Bolyai Research Scholarship of the Hungarian Academy of Sciences. He started his part-time job in Migration Research Institute at 1 September 2017, he became research director in October 2019. His main research areas focus on the migration trends of the African continent and the security aspects of migration.

MARSAI Viktor PhD (Marsai.Viktor@uni-nke.hu) az ELTE-n szerezte meg az első diplomáját a történelem és az esztétika témakörben. A másoddiplomáját a Zrínyi Miklós Nemzetvédelmi Egyetemen 2010-ben szerezte meg biztonság és a védelempolitikai témakörben. PhD tanulmányait az ELTE Történettudományi Doktori Iskolájában kezdte 2008-ban. Disszertációját a szomáliai államépítési törekvésekről írta. 2014 tavaszán doktorált. 2010-2011 között a Honvédelmi Minisztériumban dolgozott. 2012 óta a Nemzeti Közszolgálati Egyetemen dolgozik, előbb tanársegédként, majd egyetemi oktatóként. 2014 óta oktat a Pázmány Péter Katolikus Egyetemen is. 2017 márciusában a Nemzeti Közszolgálati Egyetem Ludovika kutatócsoportjának az „Afrika a globalizált világban" vezetője lett. Ugyanekkor elnyerte a Magyar Tudományos Akadémia Bolyai János Kutatási Ösztöndíját. 2017. szeptember 1-től részmunkaidőben dolgozik a Migrációkutató Intézetben, ahol 2019 októberétől kutatási igazgató. Fő kutatási területei az afrikai kontinens migrációs trendjei és a migráció biztonsági vonatkozásai.

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Jordán PETRŐCZ got his bachelor degree in history at Eötvös Lorand University in 2015. In 2018 he finished his master degree as a history and german teacher and from that on he is a teacher of history in high school. Since 2020 he is a PhD candidate at Óbudai University at the Doctoral School for Safety and Security Sciences. His field of research is the Tuskish military industry.

PETRŐCZ Jordán az Eötvös Loránd Tudományegyetemen végzett 2015-ben történész majd 2018-ban történelem-német tanári szakon és azóta történelem tanárként is dolgozik. 2020 óta az Óbudai Egyetem Biztonságtudományi Doktori Iskolájának PhD hallgatója. Kutatási területe a török hadiipar.

SZABÓ László András

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András László SZABÓ has more than twenty years of experience in property protection and mechanical safety protection, he had his own developments and inventions. Since 2008, he has deepened his degree in security management with a degree in law enforcement administration, began his career as a criminologist and scientist at the Doctoral School of Public Administration at the University of Public Administration, and then at the Doctoral School on Safety and Security at the University of Óbuda. His research interests include international migration and criminal policy, as well as security management and innovation opportunities in managing migration.

Szabó László ANDRÁS több mint húsz éves vagyonvédelmi és mechanikus biztonságvédelmi tapasztalattal rendelkezik, saját fejlesztései, találmányai voltak. 2008 óta elmélyedt a biztonságmenedzsment területén végzettségei rendészeti igazgatásszervező biztonsági szakon, kriminológus és tudományos pályáját a Nemzeti Közszolgálati Egyetem Közigazgatás-tudományi Doktori Iskolájában kezdte, majd az Óbudai Egyetem Biztonságtudományi Doktori iskolájában folytatja. Kutatási területe a nemzetközi migráció és a kriminálpolitika, illetve a biztonságmenedzsment és az innovációs lehetőségek a migráció kezelésében.

SZŰCS Kata Rebeka

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I graduated from Budapest Business School in international management, majoring in logistics, and then I started working in this field at GE, and later at IMB as well. I completed my master's degree in business development at Óbuda University, where I started my research on the security of mobile applications. During my time at IBM, I became interested in the world of IT, so I got to my current job, British Telecom, where I am currently testing firewalls from an audit point of view and expanding my knowledge in IT Security and Networking so that I can support these firewalls later. At the Doctoral School on Safety and Security Sciences (Óbuda University), I started my studies in 2019 on the topic of the security of data shared on mobile applications. The approach learned with economics and logistics in undergraduate training helps to approach the field of informatics from a different perspective.

A BGF-en (jelenleg BGE) végeztem nemzetközi gazdálkodáson, logisztika szakiránnyal, majd ezen a területen is kezdtem dolgozni a GE-nél, később az IMB-nél is. A mesterképzést vállalkozásfejlesztés szakon végeztem az Óbudai Egyetemen, ahol megkezdtem a mobil applikációk biztonságáról szóló kutatásaimat. Az IBM-nél töltött idő alatt kezdtem el érdeklődni az informatika világa iránt, így jutottam el a jelenlegi munkahelyemhez, a British Telecomhoz, ahol jelenleg audit szempontból tűzfalakat tesztelek és az IT Security és Networking területen bővítem a tudásomat, hogy később azok támogatásával is foglalkozhassak. Az Óbudai Egyetem Biztonságtudományi Doktori Iskolájában 2019-ben kezdtem meg tanulmányaimat mobil applikációkon megosztott információk biztonságának vizsgálata témában. Az alapképzésen felvett gazdasággal és logisztikával tanult szemléletmód segít az informatika területét más nézőpontból megközelíteni.

TÓTH Veronika Zsófia

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Veronika Zsófia TÓTH is a doctoral student at the Hungarian University of Agricultural and Life Sciences. His research topic within remote sensing is unmanned aerial vehicles, drones. With the 3D printing technology during the dissertation research, an adapter was developed with which a multispectral camera can be attached to the drone. In addition to the development of the new algae research method, it also delved into the analysis of the safety risk posed by drones and their applicability in agriculture.

TÓTH Veronika Zsófia a Magyar Agrár-és Élettudományi Egyetem doktorandusz hallgatója. Kutatási témája a távérzékelésen belül a pilóta nélküli repülő szerkezetek, a drónok. A disszertációs kutatás során kifejlesztett 3D nyomtatási technológiával egy adaptert, mellyel multispektrális kamera rögzíthető a drónra. Az új algakutatási módszer kifejlesztése mellett elmélyedt a drónok által jelentett biztonságtechnikai kockázat elemzésében és mezőgazdaságban történő hasznosíthatóságukban is. A doktori

In addition to his doctoral studies, he worked for a drone company for three years and also worked as an instructor in drone pilot training. He keeps his knowledge up to date by attending regular conferences and study tours. As part of this, he visited the factory of the current market-leading drone manufacturer, DJI, in China (Hong Kong and Shenzhen) for professional training. Professional cooperation has also been established with the chairman of the World UAV Federation.

tanulmányok mellet egy drónokkal foglalkozó cégnél dolgozott három évig, valamint drónpilóta képzések oktatójaként is tevékenykedett. Tudását rendszeres konferenciákon való részvétellel és tanulmányutakkal tartja naprakészen. Ennek keretén belül Kínában (Hongkongban és Sencsenben) a jelenlegi piacvezető dróngyártó, a DJI gyárát látogatta meg szakmai továbbképzés céljából. Szakmai együttműködés alakult ki a Drón Világszövetség elnökével is.

UJHEGYI Péter

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Péter UJHEGYI has 25 years of experience in the design, implementation and operation of IT Infrastructure and IT Security Solutions in an enterprise, banking and insurance environment. He specializes in biometric identification solutions, their development, distribution and its legal and regulatory environment. In recent years, he has combined the professional tasks of larger-scale projects as project managers and technical managers.

UJHEGYI Péter 25 éves tapasztalattal rendelkezik nagyvállalati, banki és biztosítói környezetben IT Infrastruktúra és IT Biztonsági megoldások tervezésében, kivitelezésében és üzemeltetésében. Szakterülete a biometrikus azonosítási megoldások, azok fejlődése, elterjedése, illetve annak jogi és szabályzói környezete. Az utóbbi években project vezetőként és műszaki vezetőként fogta össze nagyobb volumenű projectek szakmai feladatait.

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AFRICAN MIGRATION TO THE CANARY ISLANDS

AFRIKAI MIGRÁCIÓ A KANÁRI-SZIGETEKRE

ADANKÓ Daniella[1]

Abstract

In my research, I examine the issue of illegal migrants traveling to the Canary Islands. I present the number of flow figures and then analyze the results. In my research, I emphasize the choices of the African routes and their external influencing factors. Within the issue of flow, I look the effects of coronavirus in connection with the illegal migration, and how they handled the arising situation in 2020 on the islands, including the provision of asylum and asylum to African migrants. I analyzed how the distribution of the population of the Canary Islands is formed between the islands in 2020, in which I highlight one of the future problems of the archipelago: the insenecence. In sum, and I am looking for a solution to the problem of the migration crisis in the Canary Islands, For that, I took into account the figures revealed in my research and the factors encouraging the willingness to travel.

Keywords

Canary Islands, illegal migration, migration, North Africa, migration routes, migration growth

Absztrakt

Kutatásomban a Kanári-szigetekre utazó illegális migránsok kérdéskörét vizsgálom, amelyben bemutatásra kerülnek az áramlás számadatai, majd elemzés alá vetem őket. Hangsúlyt kapnak az útnak induló afrikaiak útvonalának választásainak miértjei, illetve annak külső befolyásoló tényezői. Az áramlás kérdésén belül kitérek -napjaink egyik legaktuálisabb témájára - a koronavírus okozta hatásokra az afrikai migráción belül, illetve hogy a 2020-ban kialakult helyzetet hogyan kezeli a spanyol kormány. Elemeztem azt, hogy a Kanári-szigetek lakosságának eloszlása miként alakul a szigetek között 2020-ban, amelyben rávilágítok a szigetcsoport egyik jövőbeni problémájára: az elöregedésre. Összegzésül pedig a migrációs válság problémájának megoldására próbálok választ adni, figyelembe véve a kutatásomban feltárt tényeket.

Kulcsszavak

Kanári-szigetek, illegális migráció, migráció, Észak-Afrika, migrációs útvonalak, migráció növekedés

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INTRODUCTION

Over the past decades, illegal migration from Africa has received significant attention and increased the fear of the emergence of migrant flooding in European countries. As a significant part of African refugees reaches Europe through the boundaries of Spain, I consider it worthwhile to examine migration routes more thoroughly over the years and what factors are in the background of increased migration from Africa to Europe. Besides, in order to get an accurate picture, I will examine how the dynamics of the numbers are in recent years.

MIGRATION TO SPAIN AND THE CANARY ISLANDS

Black Africans from North Africa mainly use the Western Mediterranean route to approach Europe. Most people try to get to Spain on ships, which starts from the ports of Algeciras and Almeria, but they are trying to get into Ceuta and Melilla [1, p. 21] in the mainland to the two North African Spanish enclaves that ensure the two land borders among the continents. Those who wish to go to Europe from West African countries should first reach the Western Mediterranean. Here they can reach the route on the Sahara or the Atlantic Coast. The Atlantic route is mainly favored by those who come from Syria, Eritrea, Afghanistan, Mali, Gambia, Nigeria, Somalia, Palestine, Senegal, Egypt, Bangladesh, Pakistan, Sudan, Morocco, and Ghana.

Since the southern borders of Western Sahara and Europe are close to each other, it became one of the most popular routes for illegal entries. Immigrants traveling through the Morocco are delivered by smugglers, often using the unknown ports of the West Saharan coasts to the Canary Islands.[2]

At the beginning of the 1990s, the refuge flood set out from the ports of the two enclaves with small fishing vessels and boats to cross to Europe. [3] Morocco and Spain introduced increased border control due to the high number of illegal entry, which forced migrants to use longer routes.[4] In 1991, Spain imposed a visa requirement for North Africans, thus hampering illegal border crossing. Marine borders are still dominated by small boats.[5] During border control, African Spanish enclaves, Ceuta and Melilla received special attention. Each time they are tightened by control, immigrants use newer strategies and approach the borders on new routes.[6] Initially, Moroccans regulated the flow of migrants arriving on ships, but since the end of the nineties, more and more African people arrived from the South of the Sahara to travel through Morocco. In 1999, the Spanish Government approved the plan for increased monitoring of Gibraltar. However, according to 2000 statistics, the number of unauthorized migrants captured on the land coasts of Spain increased over 17,000.[5] Since the mid-1990s, the constitution of the foreign population on the island has changed. The growth of immigration to the Canary Islands coincided with the changes in Spain. Until 1996, Europeans were at the head of immigrant populations, with nearly 70%. However, by the beginning of the 21st century, the proportion of Europeans decreased significantly and the African majority were formed instead.[6] Since 2002, the number of migrants entering the Canary Islands has been more than those who target the land coasts of Spain.

Most of those arriving at the Canary Islands started from the nearest points of the land coast, both from Western Sahara and Morocco.[5] The peak was reached in 2006 when

it was estimated that 700-800 people were launched daily to the Canary Islands. Those who wanted to get here needed to travel about 800- 2000 kilometers - depending on the starting point. Those who decided to take on the journey, had to pay thousands of euros to the smugglers to get them to the target country. For the longer roads the used „Cayucos" ships, and "Pateras" ships for the shorter ones.[7, p. 8] New ships coming to the shores of the Canary Islands were called kayaks. These were previously used by fishermen in Mauritania and Senegal. These types of ships were built of wood and fiberglass, painted with vibrant colors. Their structure is much longer, deeper, and more durable than any Cayucos. In addition to that, due to their deeper design, length and their equipments, they are suitable for transporting a lot more passengers and ready to take much longer journeys on sea.[6] Depending on the currents, the journey took approximately 5 to 15 days, during which passengers were often in lack of a sufficient amount of food and drinking water the time spent in a boat. The occurance of death and disappearings were common. These cases can be estimated at approximately 400-1000 people. [7, p. 8] Migration floods reached a peak in 2006. More and more people arrived from the southern areas, especially from Mauritania and Senegal. Due to these changes, the number of people coming to the Canary Islands has increased.[5] In the first five months of the year, nearly 10,000 people arrived. Probably due to the more favorable weather conditions, the flow of migration to the islands was particularly intense in the spring. 900 people came to the islands only on the second weekend of May. It is likely that most of the migrants who set out die on board. The quantification is not easy, but if we look at the number of corpses found on the shores or consider the words of the Red Cross, the Red Crescent, the succesfully arrived migrants, and the family members of thos that has dissapeare, then the number of people that died in transit can be made up to thousands during the spring months. This increase has caused an extraordinary humanitarian crisis in the Canary Islands and has seriously tested all institutions and civil communities in the area.[6]

Some of the migrants on the road managed to obtain a visa and not everyone took the "services" of smugglers, but the overwhelming majority of them did. The price of the trip could differ, but it is about 155 million US dollars in 2010, and they could ask as much as 105 million US dollars per trip in 2011.

Those who finally decide to face the long road, often do not concider the possible the dangers and risks, especially those that the Sahara and the Mediterranean can keep during the journey.

FACTORS CAUSING MIGRATION OF AFRICANS

Some factors affect the flow of migration in the Mediterranean, these are called "push" and "pull" factors. Along the West, on the Mediterranean route, PUSH factors have a greater impact than the PULL factors. The most important push-factors of the most people - regardless of origin – is the instability. This instability can take several forms, for example, in the form of war, social pressure, conflict, or tha lack of possibility to make an adequate living. Instability factors make it impossible for people living there to lead a normal life for themselves. The fact that the wages are low also contributes to the issue, also they can not provide permanent work for people living there, and the quality of education is not appropriate either.[1, p. 26] For example, more than 70% of Nigerian residents do not reach the lower limit of the national poverty threshold. [8]

It is common for them to feel that their life situation is much worse than those who live elsewhere. This desperation has a great impact on the decision making process, even greater than their inability to meet their needs. Migrants on the western route of the Mediterranean were not living in much worse living conditions in their own country. For most migrants, however, the uncertainty of life gives the final push to leave their home.

There are some cases when they decide to leave when their acquaintances return from migration and offer them a possibility to join them when they re-migrate. In addition, the number of young people increases from year to year in these countries, and the high unemployment rate causes them to leave their country. Climate change, desertification (lakes are drying out, and the deserted areas started to expand), political instability, internal conflicts, and their suppressing regimes are of great importance when making their decision.

In the countries concerned, there may be even more problems from the listed PUSH factors at the same time. [9]

The performance of the Spanish economy, favorable geographic location, are the factors that attract migrants into the area, so they are called Pull factors. [10, p. 2]

In 2009, UNODC carried out a survey in which the stakeholders were asked in the 36 states of Nigeria about the factors influencing migration. The majority of the examined group is men between 20 and 30 years of age, more than half of them are school graduates and 13% had a college degree. In addition, this research also shows in Mali that the overwhelming part of the interviewed immigrants graduated from high school. When they asked them about their livelihood, more than half of the Nigerian migrants said they were not poor compared to local people. Before they become migrants, two-thirds of these people had dealt with agricultural production, taxi driving or retail. Thay also have been asked whether they have a relative living in Europe, and 80% of the responds were yes.

Most people did not leave their homes due to full deprivation, but to increase their standard of living.

SPAIN'S RESPONSE TO MIGRATION

Spain has a serious migration past behind its back. Untill the seventies, emigration was typical, but the tendency turned to the next decade and immigration became overwhelming. In their migration policy, they put focus on immigrants from Mediterranean areas because they thought it was the largest of the flows and it requiried attention. In 2006, 30,000 West African migrants arrived through the Canary Islands. As a respond, the Spanish Government created a new policy to cooperate with the main countries of origin. At this point, Seahorse Atlantic was created, which was initiated by the Spanish Ministry of Interior and the Civil Guard to deter unauthorized immigrants. Also, a regional coordination center was established in the Canary Islands to facilitate cooperation between Portugal and the main countries of origin. These measures proved to be successful, as the number of arrival of migrants declined significantly after 2006 (see Figure 1). [1, p.45]

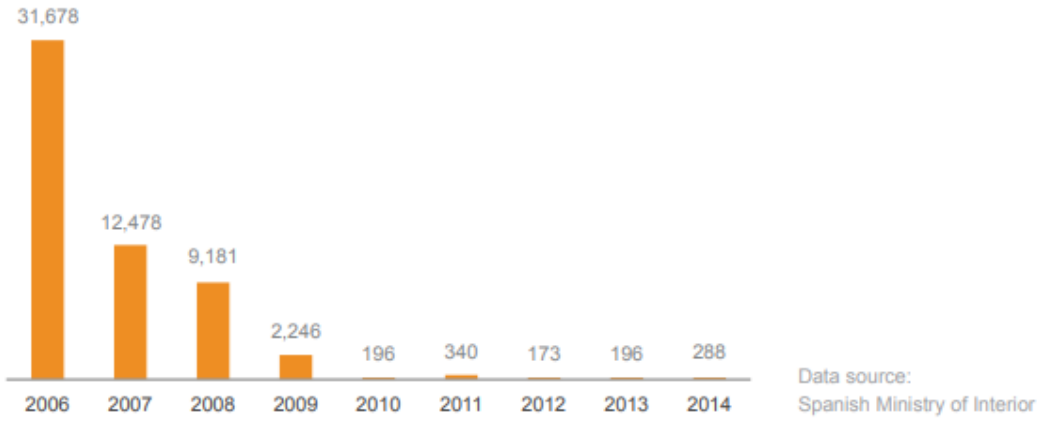

Figure 1: Arrival of migrants to the Canary Islands (2006-2014), Altai Consulting - IOM MENA Regional Office (2015)

First, the Spanish Government focused on three plan initiatives to resolve the 2006 crisis. They has signed new readmission agreements primarily, improved bilateral cooperation in border controls, and has significantly increased development and humanitarian aid and improved multilateral cooperation with the countries of origin of immigrants (by adopting a new Action Plan of Sub-Saharan Africa). One of the goals of the plan is to promote cooperation and to assist the countries of origin in regulating migration flows and combating illegal smuggling.

The plan includes measures such as acquiring information on routes used by illegal immigration networks, consolidating border control, reducing bureaucracy involved in relocation processes, and promoting the social integration of migrants already arrived in Spain. Multilateral initiatives aim to encourage cooperation between Europe and Africa on migration issues and to increase the number of agreements adopted at the Conference on Migration and Development. A number of cooperation agreements include bilateral measures, such as the migration, readmission, and the enhanced Spanish diplomatic presence in the region.

In order to monitor the waters separating the African Continence and the Canary Islands together with the European Union, eight EU Member States participate in a permanent maritime and air patrol system that preserves the shores of Africa. The European Center for Regional Border Controls was established in the Canary Islands by the EU Border Control Agency. In the first half of 2006, the European Border and Coast Guard Agency (Frontex) activity was established between the various Member States of the European Union in HERA I, HERA II and HERA III. The Hera I operation is focused on the opinions of the illegal immigrants from the Canary Islands by boat to see the crossing to facilitate their smugglers. The task of HERA II was to patrol and capture ships in the water waters separating the Canary Islands from the west coast of Africa. The most recent operation includes the objectives of Héra I and Héra II. [6]

Regional Coordination Center for the Canary Islands

In 2006, the Spanish Government established the Regional Coordination Center for the Canary Islands Regional Coordination Center (CCRC) to faciliate the fight against irregular immigration. The CCRC represents a number of stakeholders in the Spanish Government, such as the Navy, the Ministry of Defense, the army, national intelligence, maritime rescue operations, national police, home guard, the Labor, Immigration, Social, Economic and Defense Ministry. The center provides various features that also help parties of interest. Among other things, it has a control role, centralizes and disseminates the information received, directs joint maritime patrols, coordinates police, customs and naval operations, and also deals with marine and rescue operations.

Common supervision by the countries, and the operations that Frontex has implemented at sea borders, has been involved in reducing illegal immigration on maritime routes. In 2006, more than 4200 immigrants were captured on the African coast (11.87% of total volume), while in 2007, this number was 8500 (40.73% of total volume).

Due to these restricted policies and the economic situation, the number of arrivings in the region has finaly started to decrease. So much so that in the case of roads leading to the Canary Islands, there was a spectacular fall: 31678 people arrived in 2006, but only 2246 people came to the islands in 2009 (see Figure 1).

Seahorse Project and Seahorse Network

The countries of origin and transit countries have also enhanced supervision in other areas of the African coast and EU. Coastal monitoring, SIVE, and enhanced police surveillance is aiming to stop migrant flooding. Cooperation with police affairs is a complex case, which is based on a shared agreement between the officers in charge of connecting, and the Agrigigos de Interior. The best example of this is the Seahorse Project and Seahorse Network developed by Spain under the Aeneas project.

In 2006, Seahorse was established, to prevent illegal immigration and human trafficking. Seahorse has established Seahorse Network, which is intended to provide the exchange of information on illegal migration across the sea between Spain and the transit countries. The system allows the information to be detected immediately with satellites and then transmitted in order to track the ships and their route. To create a network, local contact points have been created in African countries. Land operations were also included in Mauritian (Cabo Blanco Operation) and Senegal (Goreé Operation) to prevent the launch of ships. [11]

RECEIVING MIGRANTS IN THE CANARY ISLANDS

Asylum and expulsion

Unauthorized immigration in Spain is not considered to be a crime, so those arriving at the Canary Islands will not be arrested on the islands. If necessary, they provide help for them, but if the individual decides not to live with the right to asylum application, they will issue a return order, which will allow them to leave the area - the cost of it is covered by the Spanish Government and the European Return Fund (European Return Fund). The Court can resort to the Authorities for help if they believe it is necessary to preserve the person to implement the return order. If the court finds the need for preservation, they can be held in

one of their closed centers for a maximum of 60 days. The time spent here is an average of 30-40 days, since the individual's identification can be confirmed, cooperation between the country of origin is required. There are several cases where the government can not validate the return order before the expiry of the 60 days. In such cases, the government has its duty to release the person. Then, most of the time, the authorities can not find individuals, but there is a great likelihood that they traveled to other countries of Europe further.

If an unauthorized individual arrives in two enclaves of Spain, they must register at the police. Similarly, in the case of the Canary Islands, if they do not live with the possibility of asylum, it becomes an immigration issue and releases the expulsion order against them. After that, as part of the expulsion order, they are waiting in a closed center until their deportation begins. Based on experiences, many people do not immediately live with the possibility of asylum. [1, p. 47]

IOM

IOM projects in Spain promote the integration and reintegration of migrants. They work on projects that encourage migrants to participate in the community and politics. IOM supports both the integration of authorized and unauthorized migrants, mainly because it is often very difficult to distinguish between the two types. During the project, training courses are provided within the framework of which encourage the activity of migrants in community and politics. [1, p. 50]

IOM has a supported volunteer return program (Assisted Voluntary Return and Reintegration, AVRR). This program helps migrants who want to go home, but they do not have a way. AVRR can mean the only solution to them. The program provides assistance to migrants in need, to secure and preserve their dignity - to be returned to their countries of origin, full respect for human rights - regardless of their status. This opportunity is open for everyone whose application for asylum was rejected or withdrawn, also, who were victims of human trafficking, and unfortunately, some migrant children arrive without company and there are other vulnerable people as well. [12]

UNCHR

In 1979 UNCHR began its operation in Spain. Its organizational units are international defense and communication and external relations. As part of its international defense activities, UNHCR deals with the tasks relating to asylum applications; They got notified of the applications, which are then evaluated by them. Also, they give guidance and advice to the Spanish authorities and help the asylum seekers and refugees with the interpretation and application of international refugee law, and deal with other, non-governmental organizations.

Additionally, training activities and seminars are organized for lawyers, students, public servants, and non-governmental organizations. The communication and external relations class deals with fundraising, communication, and awareness-raising. [1, p. 51]

INCREASE IN THE FLOW TODAY

European authorities deliver illegally arriving migrants to a larger city where they receive a return decision and will be released freely. This will account for the number of

migrants incoming to the Canary Islands. The number of smuggled people observed by the European authorities is almost the same as the number of those crossing the border. People who do not have the right papers are trying to find other ways to access, making the work of European authorities rather difficult. This also results in difficulty to specify the exact number of illegal immigrants. European governments have been working for decades to tighten border control and to abolish alternative border crossing modes. [13]

Despite the fact that it is difficult to establish the number of persons with these factors, we can even conclude that their number has decreased in recent years. They managed to somewhat slow the migration flow down a bit, as almost all possible smuggling routes were discovered by the authorities, so smugglers had run out of their opportunities.

In 2008-2009, the economic crisis came, resulting in that migration significantly decreased. Based on the surveys carried out by UNODC, migrants who decided to set out by the impact of the crisis turned back to their country, as they were given the news that it was no longer possible to reach Europe. By 2010, the number of migrants arriving by ships does not exceed 16,000. However, 2011 brought an unexpected turn, as in Libya and Egypt and Tunisia a tense situation has emerged since the number of migrants had increased that year at all the entry points that had been declared to be the official. Only few of them came from the west. All in one, the number of immigrants arriving to Spain, Italy, Greece and Malta was nearly 17,000. The evolution of the number of migrants coming to these areas can be observed in the following figure (Figure 2):

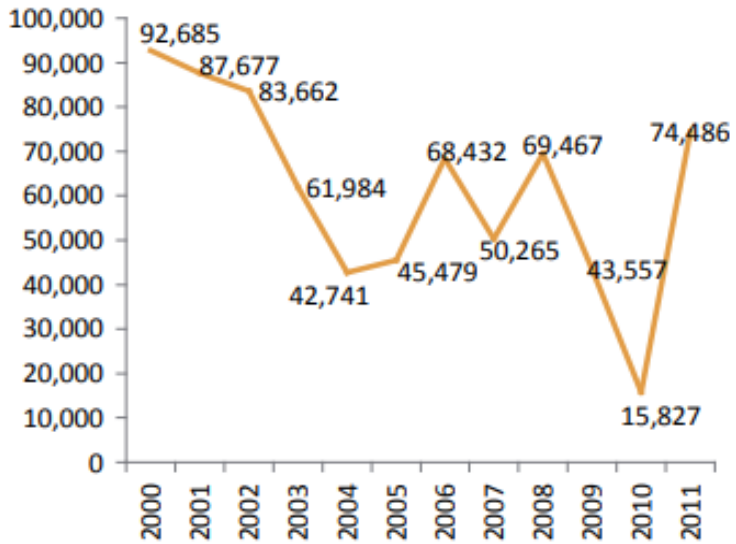

Figure 2: Migrants from West of Spain, Italy, Greece and Malta (2000-2011), UNODC Regional Office for West and Central Africa (2012)

However, this number encompasses all of the migrants arriving from West, including legally and illegally arriving ones as well. The 2010 flow counted for 55,000 people,

which was nearly 37,000 migrants in 2011. [14] In 2020, they again needed to face an emerging flow of migration, as approximately 20,000 people were setting out on the Atlantic route from Africa. [15]

As a result of the coronavirus epidemic, they had more emphasis on land border protection. Due to the North African tension and the favorable weather, the Atlantic route was popular for immigrants. Sub-Saharan people, in 2020 was still intended to start the migration and to use the further operation of smuggling networks. [10, pp. 1-3]

From August 2020, nearly 14,000 migrants arrived at the islands until November, which means that this number increased ten times compared to the previous year. [16]

In November 2020, the number of immigrants increased to the highest in November, when more than 8,000 people arrived to the islands during a month. The situation was the most intense at the harbor of Arguineguin. Previously, there had been a hosting center for migrants there, which provided help for 500 people, and then this figure increased to nearly 2700 people in November 2020, which exceeded the number of the original population of the city. People in inclusive centers are not provided high living conditions, so they are forced to stay in tents for a mandatory 72 hours. However, some people had a chance to spend this time at temporary camps, hotel rooms, or government receptions. [15] Because of the high-quality public security of the port the competent authorities released a significant part of the camps to the streets to make those camps less crowded. The mayor of the city sent these people to Las Palmas by buses where they were placed at the local representative building of the Spanish Central Government on arrival. After a while, the government directed 197 more people to tourist resorts in the southern part of the island who had been sent to the camps to further mitigate the crowding of the port. [17] As a result of the continuous tension of the coronavirus epidemic and the restricted control of the North African countries, the Atlantic route was popular for smugglers again. [15]

COMPOSITION OF THE POPULATION OF THE CANARY ISLANDS

The Canary Islands is one of the most popular areas of the European Union's external regions. Based on the trends of convergence in the past two decades, we can see that the natural increase in population contributes only a little to the populatin growth, since the birth and mortality rates show a similar tendency. In contrast, the proportion of migration has been multiplied over the past decades as it has become one of the main targets for African immigrants.

In recent years, the mobility of the population has increased at both external and internal levels, which also has a significant impact on the Social Composition of the Canary Islands. The social composition of those living in the islands was affected by this mobility in various ways, as it was mostly the main cause of population growth. In the inhabitable parts of the archipelago, population density has become very high due to growth, but the number of people is disproportionately distributed among the islands.

There is a large part of the population in the islands with provincial capitals such as Tenerife or Gran Canarian. In the eastern and western islands, significant contradictions can be observed. Population issues are increasingly playing a major role in the areas of the archipelago. [18, p. 6]

Forecasts for the period between 2020 and 2030, aging processes in the Canary Islands is rather probable, resulting in economic and social challenges in the region. However, the population's evolution is now difficult to predict the actual evolution of the Canary Islands, as there is uncertainty due to the past period. [18, p. 11] The achievement of the 2020-2030 forecast is that at the time of the survey conducted by Statista by 2020 January 1, the proportion of the age of society was established within the islands: people over 40 years of age accounted for 53 percent of the total population, which means that the most common age group are people between 40 and 44. Children under the age of 10 were about 9 percent of the society.

In addition, Statista has produced a diagram (see Figure 3), which also shows how the distribution of the population of the Canary Islands is formed by 2020 January 1. It can be said that Spain's 2019 population among the autonomous communities in the Canary Islands was the eighth largest autonomous community in Spain. Most residents lived in Tenerife (966,354 people), Gran Canaria's population number was in the second place with 870 595 inhabitants.

To sum up and rank accordingly Spain's population, the Canary Islands was the eighth largest autonomous community, including 1.1 million men and 1.12 million women. According to the research, the most populous autonomous communities were Andalusia, Catalonia and Madrid.[19]

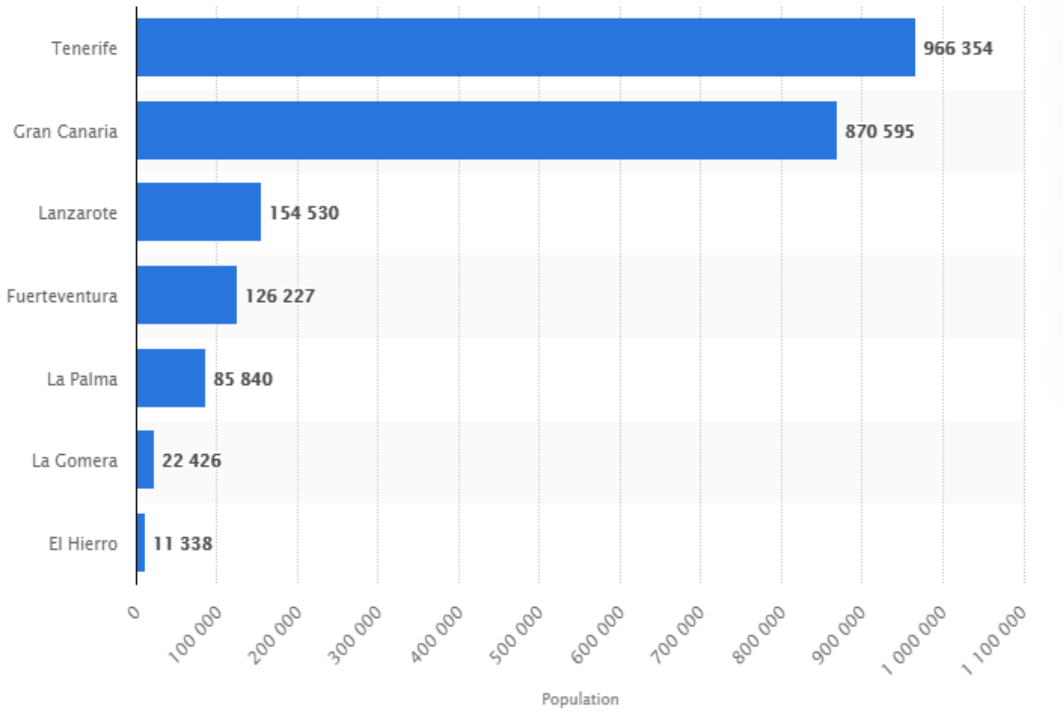

Figure 3: The residency of the Canary Islands in 2020, is divided into islands, Forte, F. (2020): *Population of the Spanishautonomous community of the Canary Islands in 2020, by island*, Statista

SUMMARY

Government has so far been fighting the fight with the growing migration flow and the placement of people, which has been solved in the non-use facilities and in different hotels. [17, p. 5] However, in terms of increased migration and the population, if the migrant situation does not change in the near future in the Canary Islands, then to we are looking at a serious situation in the Canary Islands, which is mostly relying on the income of turism and may be in a similar crisis as some Front Islands had been in before. As a result of its ever-growing weight, it may impair their economic prospects in the future. From the number of people employed in tourism, we can conclude that the province wishes to further develop tourism and will continue to build on the sector. In order to find out this, they should send illegal immigrants home sooner. If they do nt act and allow them to stay on the islands, as a chain reaction, there are going to be even more African residents on the Canary Islands. [10, p.6]

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RUSSIA'S COLLABORATIONS ON NUCLEAR ENERGY WITH AFRICAN COUNTRIES

OROSZORSZÁG ÉS AZ AFRIKAI ORSZÁGOK NUKLEÁRIS ENERGIÁVAL KAPCSOLATOS EGYÜTTMŰKÖDÉSE

BESENYŐ János[1]

Abstract

The study examines the peaceful use of nuclear energy and the related approaches, debates and differing positions from the point of view of the European Union states, the USA and Russia. It addresses the energy situation on the African continent, as the energy needs of African countries are constantly increasing, which they are currently unable to adequately meet. One of the available sources (fossil fuels, nuclear energy, renewable electric power etc.) is nuclear energy, which is mainly provided by Russia, China and, to a lesser extent, the EU and the US. Of these, I examine the role and opportunities of Russia and how it cooperates with African states in the field of nuclear energy.

Keywords

Russia, Africa, Rosatom, nuclear energy, South Africa

Absztrakt

A tanulmány az atomenergia békés célú felhasználását, illetve az azzal kapcsolatos megközelítéseket, vitákat, eltérő álláspontokat vizsgálja meg az európai uniós államok, az USA valamint Oroszország szempontjából. Foglalkozik az afrikai kontinens energiahelyzetével, mivel az afrikai országok energiaszükséglete folyamatosan növekszik, amit jelenleg nem képesek megfelelő módon kielégíteni. A felhasználható források (fosszilis energiahordozók, atomenergia, megújuló energiaforrások stb.) közül az egyik lehetőség az atomenergia, amelyet elsősorban Oroszország, Kína és kisebb mértekben az EU és az USA biztosít. Ezek közül Oroszország szerepét és lehetőségeit vizsgálom, illetve hogy az hogyan működik együtt az afrikai államokkal az atomenergia területén.

Kulcsszavak

Oroszország, Afrika, Rosatom, atomenergia, Dél-afrikai Köztársaság

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INTRODUCTION

"Russia has signed over a dozen intergovernmental agreements on the continent in recent years and Rosatom – the state-owned nuclear company – is cooperating with more than 20 African countries, according to its first deputy director general for corporate development and international business Kirill Komarov"[1].

Nuclear energy production is a part of the global energy mix that is important for many reasons, including lowering the effects of climate change, countering the effects of resource depletion, managing (controlling) the fluctuation of renewable electric power (such as wind, solar etc.).

THE REASONS AND RESULTS OF NEGATIVE WESTERN POLICIES AGAINST NUCLEAR POWER: LOWER LEVEL OF COMPETITIVENESS IN AFRICA

Contrary to conceptual resistance to nuclear power [2] that often results in bans of the construction of new nuclear power plants and their early closure, much of the rest of the world, including Russia, China and India support nuclear power plant development and utilisation. Western concerns against nuclear power plants offer competitive advantages "for free" for leading nuclear power plant developers – such as Russia.

It appears that the Western conceptual approach to nuclear power is beginning to change in favour of it. A recent statement of the European Parliament supports nuclear power as part of the energy mix, where renewables play an increasingly dominant role. It is an important policy change, since credible chances of Western nuclear energy investments in Africa might not materialise in a policy environment hostile to nuclear energy generation, maintaining its bad reputation to public opinion. The extent of policy change related to nuclear energy is unclear, but the tendency is positive [3]. Even in the best case scenario if there is a significant policy change all over the Western world, it will take many years if not decades to compensate for the consequences of policies hostile to nuclear energy production, gaining momentum since Three Mile Island (1979), Chernobyl (1986) and Fukushima (2011) nuclear accidents.

It is not easy to overcome hostility against the peaceful utilisation of nuclear power in the West, since the Western approach has not been credible since the Three Mile Island accident in 1979. If the West was honest, thorough comparison between pollution done by nuclear power plant accidents and military type nuclear experiments should have seriously been taken into account. Such representative studies exist, but they are definitely not wildly "advertised" (known) for masses of public opinion. The reasons are simple: damage done by military experiments involving nuclear power as a destructive force in upper atmospheric tests, atmospheric tests, tests on the ground, below the ground, and undersea experiments definitely have far worse nuclear destruction, and more importantly pollution record, than accidents involving the civilian use of nuclear power. In Hiroshima and Nagasaki, nuclear power was used "to win WWII against Japan", killing masses of Japanese civilians in city environment.

"The National Resources Defense Council estimated the total yield of all nuclear tests conducted between 1945 and 1980 at 510 megatons (Mt). Atmospheric tests alone

accounted for 428 Mt, equivalent to over 29,000 Hiroshima size bombs … The 2000 Report of the United Nations Scientific Committee on the Effects of Atomic Radiation to the General Assembly states that: "The main man-made contribution to the exposure of the world's population [to radiation] has come from the testing of nuclear weapons in the atmosphere, from 1945 to 1980. Each nuclear test resulted in unrestrained release into the environment of substantial quantities of radioactive materials, which were widely dispersed in the atmosphere and deposited everywhere on the Earth's surface."[4]

The West also fails to adequately compare damage done by the peaceful utilisation of nuclear power and obviously damaging other forms of harvesting energy, such as burning fossil energy sources, for instance coal, gas and oil. It is obvious that many times more people suffered from the consequences of utilising fossil energy than of nuclear power. On one hand, there have been countless accidents all over the world related to the utilisation circle of fossil energy, while on the other hand – even more importantly – there are even more health (sickness) related casualties of pollution. One might suggest that fossil energy utilisation is far broader than the peaceful use of nuclear energy and it results in more damage when harvesting fossil instead of nuclear energy. Well, a solution might be to adequately compare the damage done by KWh produced throughout the history of energy utilisation for the same periods.

We also need to emphasise that nuclear energy does indeed deserve to be called clean in terms of CO_2 pollution, mainly associated with climate change. Building nuclear reactors does have an ecological footprint including CO_2 pollution, but once construction is complete, nuclear energy generation is clearly environmentally friendly. Even today, Western policies fail to recognise this in an adequate way. The dangers of progressing climate change for humanity certainly outweigh the dangers related to the utilisation of nuclear power. Even today, climate change causes more and more extreme weather events and destruction. The effects of climate change most directly influence the quality of human life by endangering conventional agricultural production. Thus, it endangers the food supplies of a high number of people, who already spend most of their income to pay for their food.

Such considerations lead to the conclusion that Western "awakening" concerning nuclear power has a difficult heritage as a drag on development. Most policymakers might still not realise that they are following false considerations when judging the peaceful utilisation of nuclear energy, creating an impression that – if there is a nuclear "awakening" in the West – it is mostly based on the admission that competitiveness of the West regarding nuclear energy fails all around the world, including Africa. However, Western competitiveness is only a segment of nuclear energy policies, which is important, but not "all" concerning proper policy making.

Should such conclusions be right, the West might not successfully compete with Russia in Africa when utilising nuclear energy. The West already shows signs of being a "spoiler", advertising ideas against African nuclear power plant constructions by Russia, generating negative propaganda against the utilisation of nuclear power as a whole.

THE RUSSIAN APPROACH TO NUCLEAR ENERGY

Since Rosatom is a state-owned corporation, its primary goals are in line with the geopolitical aims of the Russian state. For such reasons, Rosatom can also accept higher risks than Western private energy companies, whose own capital is at stake. Rosatom is not

only precisely aware of Russian state priorities, plans etc., but it can also rely on various forms of assistance from the state. Even though privately-owned Western nuclear energy producing companies are theoretically free to do business around the world, in reality they usually respect the policies decided by their governments.

There are several reasons why Russia is committed to the utilisation of nuclear energy: it is a profitable business itself and it also allows saving conventional energy resources that could be profitably sold to other countries or kept as strategic reserves. Furthermore, expanding their nuclear power industry allows Russia to benefit from geopolitical gains.

A Russian state-owned company, Rosatom is the "No. 1 leader in world in terms of the number of NPP Nuclear Power Plant power units in the portfolio of foreign projects (33 power units)." It is also the "No. 1 in the world in terms of Uranium enrichment (36 percent of the global market)." Rosatom is No. 2 in the world in terms of Uranium reserves (523,900 tonnes in Russia and 216,200 tonnes abroad) and 14% of global production (8,019 tonnes)." [5].

Peaceful utilisation of nuclear power by Russia flourishes despite the fact that Russia has enormous conventional gas- and oilfields and a huge amount of coal reserves that puts Russia in a position whereby the utilisation of nuclear energy is in fact optional for the country.

Nuclear power has an 18,9% share in power generation in Russia. „The Russian Federation has 37 nuclear power reactors in operation and 6 under construction. The latest Russian Federal Target Programme envisages a 25–30% nuclear share in electricity supply by 2030, rising to 45–50% in 2050 and 70–80% by the end of the century (!). In April 2018, Russia completed building a floating nuclear power plant, the Akademik Lomonosov, which is expected to go into service in 2019."[6].

As of 2019, almost 600 million people in Africa have no access to electricity.[7] Significant population growth and droughts devastating hydroelectric power generation for years only make African governments ever more desperate to find resources for electric power generation, where Russian and Chinese offers including financing nuclear power plant constructions appear to be promising.

There is a third, major party in this competition which is the US. Washington is deeply concerned about the growing influence of Russia and China in Africa and makes attempts to counter it.[8]

The Russian cooperation with African [1] countries in the field of nuclear energy clearly shows that Russia thinks strategically, also in a long term, mobilising significant loans and engineering resources. When doing so, Russia gains influence in several countries in parallel, acting as a significant world power in the field of Energetics.[9] Russia fully supports the utilisation of this environment friendly-technology that has a low CO_2 footprint: „Nuclear power generation is a source of clean energy that provides considerable environmental benefits. During one year of operation, one 1 GW nuclear power plant (NPP) prevents emissions of 9 million tonnes of carbon dioxide, which is equivalent to annual emissions from 2 million vehicles."[5]

According to Rosatom's Global Presence Map [10], the Russian nuclear energy industry is present in the following African countries: Algeria, Angola, Botswana, Burkina Faso, Chad, DRC, Egypt, Ethiopia, Gabon, Ghana, Guinea, Kenya, Libya, Madagascar, Mali, Mauritania, Morocco, Mozambique, Namibia, Niger, Nigeria, Somalia, South Africa,

South Sudan, Sudan, Tanzania, Tunisia, Western Sahara, Zambia, Zimbabwe. Cooperation varies from nuclear medicine to uranium mining; the ownership and construction of nuclear power reactors, training experts, etc. The following African countries have signed nuclear contracts with Russia: Algeria, Egypt, Ethiopia, Ghana, Libya, Morocco, Nigeria, Rwanda, Western Sahara, Zambia. As a comparison, China is lagging behind as they have only signed similar contracts with Kenya, Sudan and Uganda.

South Africa is the only African country that already generates electricity, satisfying 5% of its needs. [11] Even though there is desperate need in Africa for electricity that would technically allow South Africa to export electricity, the most developed and industrialised country on the Black Continent cannot even satisfy its own needs.

There is one country in Africa, where nuclear power plant construction is firmly scheduled: Egypt. Russia and Egypt announced their nuclear power cooperation in 2014, signing an agreement between Moscow and Cairo on 15 November 2015.[12] Russia will build 4 reactors totalling 4,800 megawatts (MW) starting construction from 2020, offering job opportunities for 50.000 people. The Dabaa nuclear power plant will be "the safest in the world", capable of withstanding all natural disasters according to its designers.[13] "Projections estimate that by 2026 the nuclear plant will account for 50% of Egypt's power generation capacity which will meet the country's rising demand for electricity. The three additional reactors will be contracted by 2028."[14] With such development, Egypt is a "crown jewel" of Russian nuclear energy development in the region.

The leaders of Rosatom unambiguously believe, that the Black Continent is important and that they are determined to further expand the company's business there. For this reason it is certain, that the Russians will sign new agreements further expanding their involvement in the nuclear energy business.

SOME REMARKS ON WESTERN CRITICISM AGAINST RUSSIAN NUCLEAR ENERGY PROJECTS IN AFRICA

There is countless criticism Russia has received from the West concerning nuclear energy policies in Africa. Such criticism is in line with my analysis in the first chapter. Should there really be a Western "awakening" concerning the peaceful utilisation of nuclear energy, much of the criticism would cede assuming that Western energy policies remain in line with the criticising competitors.

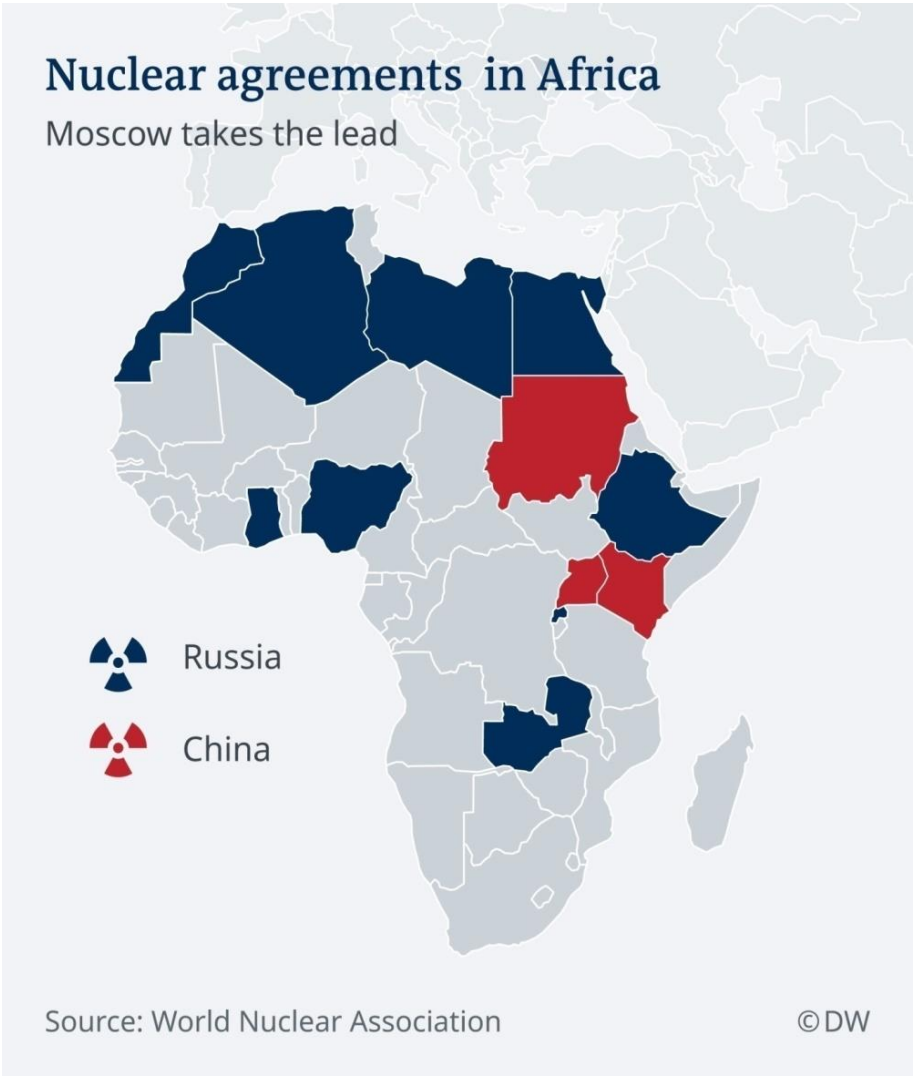
Western criticism ranges from suggesting that Russian loans to build nuclear power plants in Africa are not transparent, subject to manipulation, lead to the subordination of African countries to suggestions that Russian nuclear energy is unsafe in one or another way. A major argument on the Western side is to suggest that Russian nuclear energy projects in Africa are never purely business-based and are a tool of furthering Russian power interest in other fields, such as military cooperation etc., gaining all sorts of Russian influence in the Black Continent. There are suggestions that Russia wants to control and exploit the rich resources of Africa. Other Western sources suggest that Russia does not respect contracts; including construction time schedules. Russia might also support "undemocratic" regimes in Africa, which are not "politically correct".

It is beyond the scope of this article to thoroughly analyse most criticisms of the West against Russian nuclear power business in Africa. However, a few statements might clarify the nature of Russian involvement of developing nuclear power in Africa:

- The Western approach of nuclear energy creates a mostly hostile framework in the Western world, which leads to frustration when assessing Russian gains in Africa in the field of nuclear energy business, making the West less competitive than it could be.
- Western criticism of Russian nuclear energy projects is far from being impartial and objective, since Russia is viewed as a competitor of Western dominance in Africa.
- The West is not different from Russia when it comes to combining energy policies with other political, military, business goals. It is nothing new and not an attribute of one or another party but of both.
- Russia is not different in principle from the West or China when it wants to control African resources for multiple purposes (political, economic, military etc.).
- Russian nuclear technologies are among the best all over the world, making Moscow a powerful player in Africa.
- Russian nuclear accident records show no significant difference compared to reactors that are designed and operated by the West. Should it not be the case, new nuclear power plant accidents would have diminished confidence in Russian nuclear technologies all over the world during the past decades.
- Russian influence and presence in Africa is nothing new, except that there was a gap between the demise of the Soviet Union and regaining all sorts of Russian influence in Africa.
- Supporting or not supporting "oppressive" regimes in Africa is based on interests and pragmatism. There is a long record on both Russian and Western side when support was provided to countries with a "doubtful" or "undoubtedly bad" socio-political record, especially in Africa. If it wasn't the case, parties should have refrained from cooperation with most African countries.

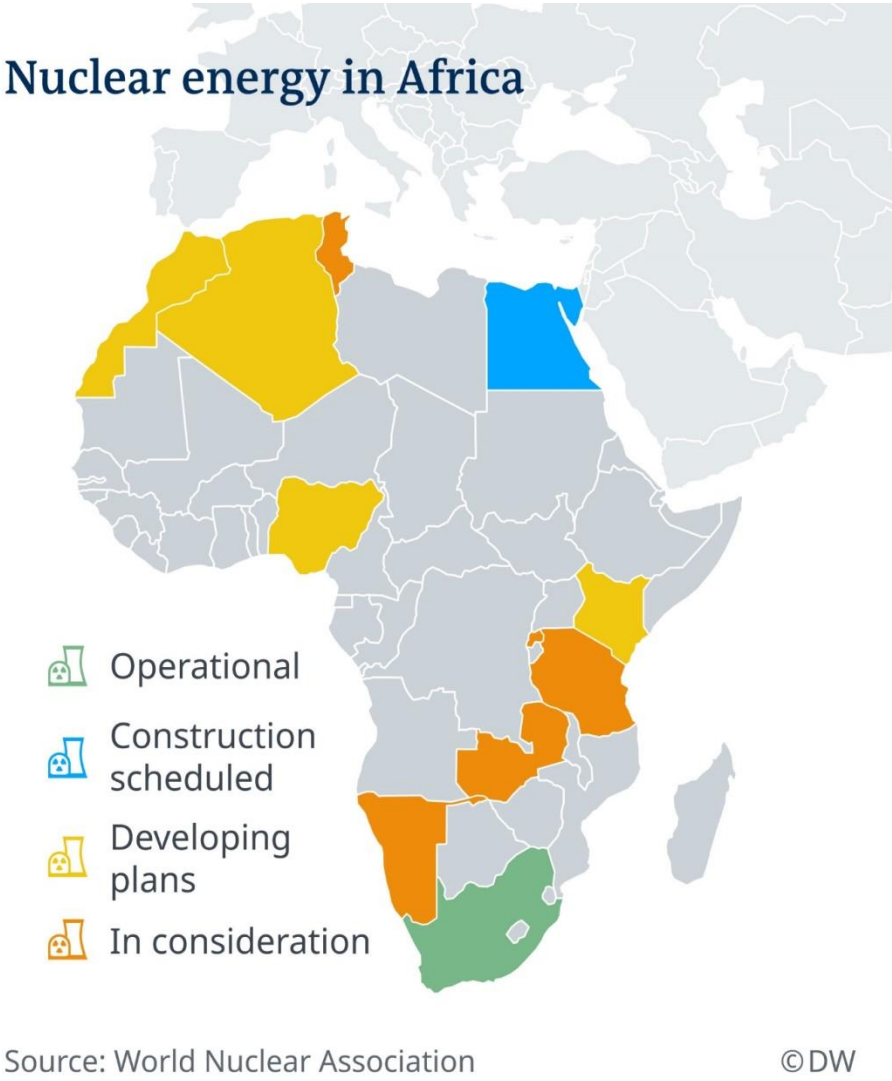
ANNEXES

Annex 1



1. figure Edited by the author based on [4]

Annex 2



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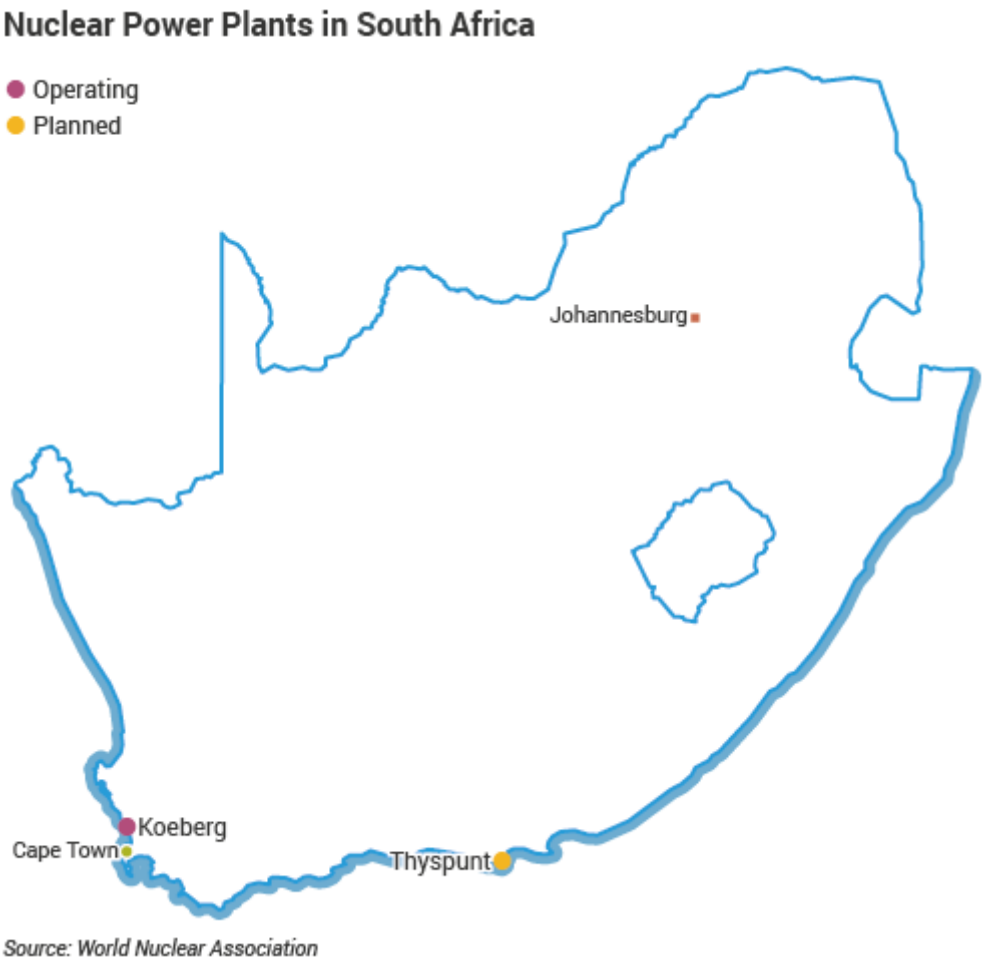
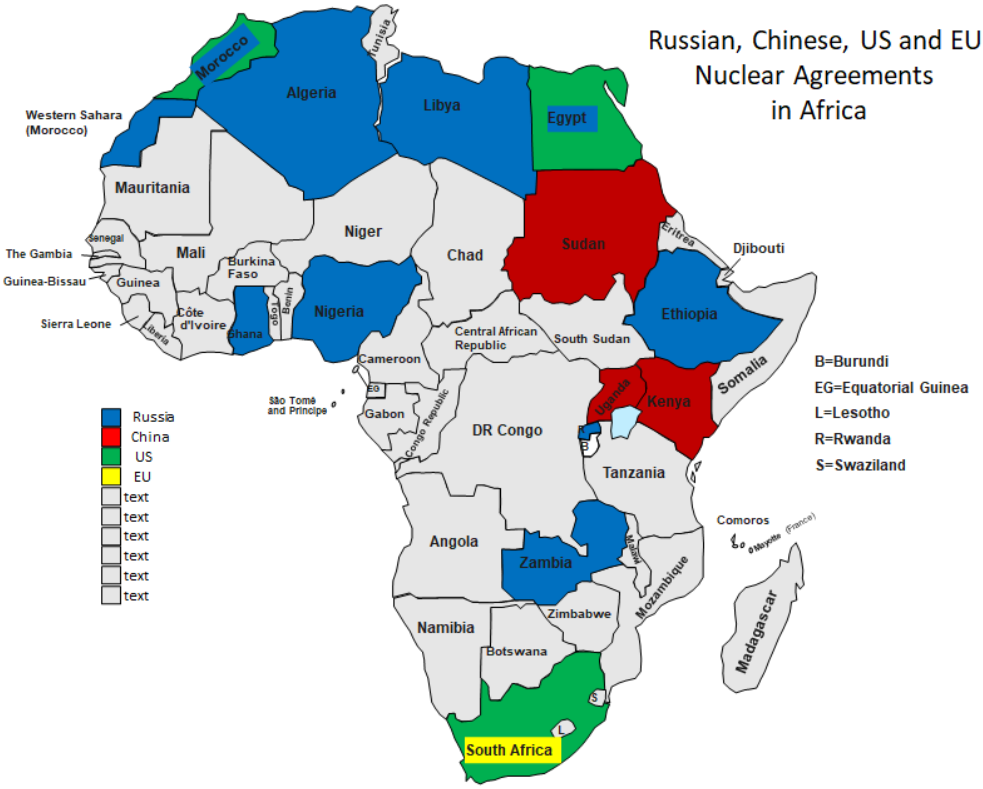
Annex 3



3. figure Edited by the author based on [11]

Annex 4



4. figure Russian, Chinese, US and EU nuclear agreements in Africa based on the author research

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PEACEKEEPING IN AFRICA WHILE PREVENTING AND COUNTERING VIOLENT EXTREMISM

A BÉKEFENNTARTÁS ÉS AZ ERŐSZAKOS EXTRÉMIZMUS ELLENI HARC KAPCSOLATA AFRIKÁBAN

BOTHA, Anneli[1]

Abstract

It is well documented that peacekeeping operations had changed dramatically since its inception. This is particular evident in Africa where peacekeepers need not only to manage conflicts, but also become entangled in a recent debate regarding the prevention and combatting of violent extremism. Based on the unique manifestation of the threat through organizations such as al-Shabaab and Boko Haram aimed at capturing territory in Somalia and Nigeria, these organizations became a hybrid between insurgency and terrorist organizations. In addition to the aim of these organizations' increasing attacks directed at the local population placing them in the realm of terrorism. Considering the magnitude and resources required to actively deal with these threats the Nigerian government and the African Union try to eliminate these terror organisations. The UN Mission for the Referendum in Western Sahara (MINURSO) was also established to mediate between Morocco and the POLISARIO, unable to meet its initial mandate.

Keywords

Countering violent extremism (CVE), preventing violent extremism (PVE), antiterrorism, counterterrorism, insurgency, asymmetric warfare, MNJTF, AMISOM, MINURSO, DDR

Absztrakt

Jól dokumentálható, hogy a békefenntartó műveletek a kezdetek óta drámaian megváltoztak. Ez különösen nyilvánvaló Afrikában, ahol a békefenntartóknak nemcsak a konfliktusok kezelésére kell figyelniük, hanem szabályozni az erőszakos szélsőségek megelőzésével és leküzdésével kapcsolatos közelmúltbeli vitákat. A fenyegetés olyan jelenléte, mint az al-Shabaab és a Boko Haram, amelyek célja Szomália és Nigeria területének elfoglalása volt, ezek a szervezetek a felkelők és a terrorista szervezetek hibridjévé váltak. Amiatt, hogy ezeknek a szervezeteknek a növekvő támadásai a helyi lakosság felé irányultak, a terrorizmushoz hasonló helyzetbe hozták őket. Figyelembe véve a fenyegetések aktív kezeléséhez szükséges nagyságrendet és erőforrásokat, a nigériai kormány és az Afrikai Unió megpróbálja felszámolni ezeket a terrorszervezeteket. Az ENSZ nyugat-szaharai népszavazási missziója (MINURSO) szintén azért jött létre, hogy közvetítsen Marokkó és a POLISARIO között, de ez nem tud eleget tenni eredeti megbízatásának.

Kulcsszavak

extrémizmus, antiterrorizmus, lázadás, aszszimetrikus hadviselés, terrorelhárítás, MNJTF, AMISOM, MINURSO, DDR

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INTRODUCTION

It is well documented that peacekeeping operations had changed dramatically since their inception to the point that new doctrine is being called for. This is particularly evident in peacekeeping operations in Africa, where peacekeepers need not only to manage conflict towards a peaceful outcome, but can easily become entangled in not only the mission, but also the way peacekeepers conduct themselves. Therefore, nudging peacekeeping closer to the more recent debate regarding the prevention and combating of violent extremism is important. Based on the unique manifestation of the threat as presented by al-Shabaab and Boko Haram aimed at capturing territory in Somalia and Nigeria, these organizations in the two countries became a hybrid between insurgency and terrorist organisations.

It is not debated that violent extremism affects all four core areas the United Nations (UN) works in namely: peace and security, humanitarian assistance, human rights and development. To achieve these core principles, peacekeeping is an essential component in assisting countries confronted with conflict to recover to attain sustainable peace once again, security and development. The role of peacekeeping operations therefore fits squarely into the need to find peaceful solutions to longstanding conflicts as captured under Pillar 1 of the UN Global Counter-Terrorism Strategy. Included are initiatives to prevent conflict, achieve durable political settlements, protect civilians and sustain peace. A critical challenge peacekeepers face is the use of force. It is also one of the most prominent challenges that can place the overall objectives of the mission in jeopardy. This debate on the use of force, however, cannot be conducted without understanding the environment under which these operations take place and how peacekeepers deal with these threats. Consequently, recognizing the UN's efforts in countering terrorist narratives (UN Resolution 2354 of 2017) dedicated initiatives need to be taken to prevent extremist groups, such as al-Shabaab to use the conduct of peace builders as a justification for their actions. For example, from the indiscriminate shooting in the aftermath of an attack (to recruit new members and justify its existence, while placing a question mark on the legitimacy of the mission) to the organisation's ability to successfully attack and overrun bases.

In addition to Pillar I, Pillar III through building capacity of host States, and Pillar IV on human rights are equally relevant to peacekeeping operations in Africa. Consequently, Ban Ki-moon the then-Secretary-General, when introducing the Plan of Action to Prevent Violent Extremism on 15 January 2016, stressed his intention to integrate PVE into relevant peacekeeping activities in accordance with peacekeeping mandates. [1]

A high-level Independent Panel on Peace Operations assessed a broad range of issues facing peacekeeping and special political missions, including: Changing nature of conflict; evolving mandates and peace building challenges; managerial and administrative arrangements; planning; human rights and protection of civilians. The first part of the chapter will include the following broad themes: The changing nature of conflicts and peacekeeping in Africa; the mandates of recent peacekeeping missions and the challenges peacekeepers are being confronted with. It will also identify current missions and the involvement of African countries in these missions.

Peacekeepers being in the frontline against violent extremism and the ideology it represents will require them to approach these missions from a counterinsurgency perspective. Recognising that peacekeepers not only have to deal with the direct manifestation of these violent extremist groups, but also how the mission is being conducted. The latter will

have a direct impact on preventing others to join these extremist groups (preventing violent extremism or PVE). Assessing the impact AMISOM had in countering and preventing violent extremism, the second part of this chapter will briefly reflect on the reasons and motivating factors that facilitated radicalisation and recruitment into al-Shabaab. The chapter will conclude with the future of peacekeeping in Africa and measures to enhance its success.

DEFINING PEACEKEEPING AND OTHER IMPORTANT CONCEPTS

Considering that maintaining peace is one of the core functions of the United Nations under its Charter, while one of the objectives of the African Union is 'to promote peace, security, and stability on the continent'[2], it is necessary to briefly define peacekeeping, peace enforcement and peacebuilding. Since these forces are being deployed in hostile areas, reference need to be made to the concepts 'insurgency' and 'terrorism'.

According to Ramsbotham and Woodhouse in Bruwer, 'peacekeeping' is defined by the UN as "an operation involving military personnel, but without enforcement powers, undertaken by the United Nations to help maintain or restore international peace and security in areas of conflict."[3] While Green, Kahl and Diehl explain that "peacekeeping operations may be deployed at various stages of a conflict, ranging from before any violence occurs to during a full scale war"[3], the UN refers to peacekeeping as "a technique designed to preserve the peace, however fragile, where fighting has been halted, and to assist in implementing agreements achieved by the peacemakers.". [4]

Peace enforcement "involves the application, with the authorization of the Security Council, of a range of coercive measures, including the use of military force. Such actions are authorized to restore international peace and security in situations where the Security Council has determined the existence of a threat to the peace, breach of the peace or act of aggression. The Security Council may utilize, where appropriate, regional organizations and agencies for enforcement action under its authority.".[4]

Peace building "involves a range of measures targeted to reduce the risk of lapsing or relapsing into conflict by strengthening national capacities at all levels for conflict management, and to lay the foundation for sustainable peace and development.". [4] The UN consider peace building as a complex and long-term process to create the necessary conditions for sustainable peace by addressing the causes of the conflict. [4]

Considering the challenges in defining 'terrorism', this chapter will use the AU definition of a 'terrorist act' as presented in Article 1 (3) of the OAU Convention on the Prevention and Combating of Terrorism (1999) [5] as:

- "any act which is a violation of the criminal laws of a State Party and which may endanger the life, physical integrity or freedom of, or cause serious injury or death to, any person, any number or group of persons or causes or may cause damage to public or private property, natural resources, environmental or cultural heritage and is calculated or intended to:
    - Intimidate, put fear into, force, coerce or induce agovernment, body, institution, the general public or asegment thereof, to do or abstain from doing any act, or to adopt or abandon a particular standpoint, or act according to certainprinciples; or

- disrupt any public service, the delivery of anessential service to the public, or to create a public emergency; or
- create general insurrection in a State.

An insurgency can be defined [6] as:

…a protracted political-military struggle directed toward subverting or displacing the legitimacy of a constituted government or occupying power and completely or partially controlling the resources of a territory through the use of irregular military forces and illegal political organizations.

It is also important to make a distinction between preventing violent extremism (PVE) and counter violent extremism' (CVE): Preventing violent extremism (PVE) broadly includes initiatives to prevent radicalization, recruitment and mobilization of individuals (who have not been radicalised yet) into terrorist groups that include an entire array of role-players. The focus is on preventive measures, which directly address the drivers of violent extremism. Counter violent extremism' (CVE) aims at reaching those already radicalised and includes the whole spectrum of instruments and not only what normally resonates under counterterrorism. It also includes the principle of moving away from a military-led to a criminal justice-led approach.

UNITED NATIONS PEACEKEEPING MISSIONS IN AFRICA

According to the UN, peace operations are deployed on the basis of mandates from the United Nations Security Council. However, in response to changing patterns of conflict and in an attempt to address the different types of threat to peace and security, UN peace operations have expanded significantly to include the following four primary objectives[7]:

1. Deploy to prevent the outbreak of conflict or the spill-over of conflict across borders;
2. Stabilize conflict situations after a ceasefire, to create an environment for the parties to reach a lasting peace agreement;
3. Assist in implementing comprehensive peace agreements;
4. Lead states or territories through a transition to stable government, based on democratic principles, good governance and economic development.

In addition to the above mentioned four primary peace enforcement responsibilities, UN peacekeepers are often mandated to play a role in the following peace building activities:

1. Disarmament, demobilization and reintegration of ex-combatants;
2. Mine action;
3. Security sector reform and other rule of law-related activities;
4. Protection and promotion of human rights;
5. Electoral assistance;
6. Support for the restoration and extension of State authority;
7. Promotion of social and economic recovery and development.

The United Nations Mission for the Referendum in Western Sahara (MINURSO) – considered to be the longest UN peacekeeping operation in Africa – was initially established by the Security Council on 29 April 1991 to fulfil both peace enforcement and peace build-

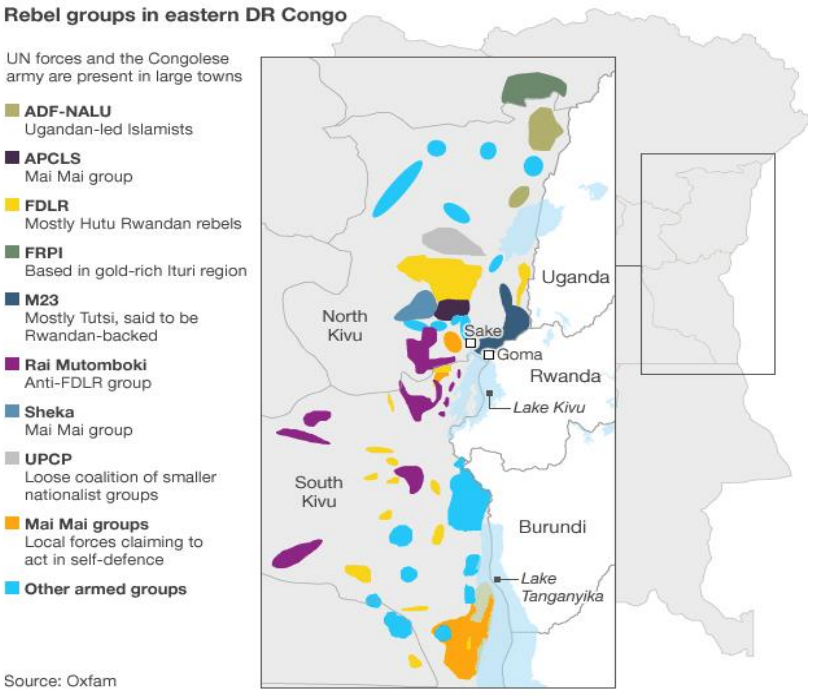
ing mandates. With reference to the former, the Mission was sanctioned following the settlement proposals between Morocco and the Frente Popular para la Liberación de Saguia el-Hamra y de Río de Oro (Frente POLISARIO) on 30 August 1988. This settlement plan provided for a transitional period to prepare for a referendum in which the people of Western Sahara would choose between independence and integration with Morocco (peace building). MINURSO was originally mandated to monitor the ceasefire; reduce the threat of unexploded ordnances and mines; verify the reduction of Moroccan troops in the disputed territory; monitor the confinement of Moroccan and POLISARIO troops to designated areas; initiate steps with both parties to ensure the release of all Western Saharan political prisoners and detainees; oversee the exchange of prisoners of war (through the International Committee of the Red Cross or ICRC); and repatriate Western Saharan refugees (the United Nations High Commissioner for Refugees or UNHCR to take the lead). MINURSO was, however, unable to fulfil its mandate in relation to the referendum that included steps to identify and register qualified voters and organise and ensure a free and fair referendum. Till date, the mission continues to monitor the ceasefire; reduce the threat of mines and unexploded ordnances; and to provide logistic support to the UNHCR-led confidence building measures) between the two parties, who suspended discussions in June 2014. In addition to its initial mission, MINURSO has also been called to provide assistance to irregular migrants, as well as providing humanitarian assistance in case of natural disasters. [8]

In a struggle over natural resources – in this case land – the conflict in Darfur (western Sudan) also has an ethnic character as being a conflict between the majority Arab community versus African groups like the Fur, Zaghawa and Masalit. The said groups felt marginalised and it manifested in limited development in Darfur. Consequently, the latter launched a surprise attack on the airport of Fasher – the capital of North Darfur – in April 2003. The Sudanese government responded with air power and an Arab militia, known as the Janjaweed. Subsequent abuses led to the International Criminal Court (ICC) arrest warrant against Sudan's then-president Omar al-Bashir for war crimes and crimes against humanity (March 2009) and genocide (July 2010). The genocide charge alleged that he had overseen an attempt to wipe out part of the Fur, Zaghawa and Masalit communities'[9] and following growing evidence came to light in March 2004 that the Janjaweed carried out systematic killings of non-Arab villagers in Darfur. On the other side of the conflict, African groups are mainly represented by two Sudan Liberation Army (SLA) factions and the Justice and Equality Movement (JEM). In 2011, these three groups consolidated their efforts with the SPLM-North rebels (operational in Southern Kordofan and Blue Nile states) to become known as the Sudan Revolutionary Front (SRF). [9]

In an attempt to find a peaceful settlement to the Darfur conflict, with the support of the AU and UN, the Darfur Peace Agreement (DPA) was signed on 5 May 2006. Due to limited support for the agreement, negotiations between 2010 and June 2011 under AU-UN mediation produced the Doha Document for Peace in Darfur. On another front, following high-level consultations between the AU and the UN Department of Peacekeeping Operations (DPKO) in November 2006 the existing African Union Mission in Sudan (AMIS) became a joint AU/UN peacekeeping operation in Darfur or better known as the African Union - UN hybrid operation in Darfur or UNAMID that formally took over from AMIS on 31 December 2007.[10] The mandate of the Mission can be summarised as the following: protect civilians; facilitate the delivery of humanitarian assistance and ensure the safety of

humanitarian personnel; mediate between the Government of Sudan and non-signatory armed movements with the Doha Document for Peace in Darfur as framework; and support the mediation of community conflict, including through measures to address its root causes. [11]

On 1 July 2010 the United Nations Organization Stabilization Mission in the DR Congo or MONUSCO took over from the United Nations Organization Mission in Democratic Republic of the Congo (MONUC), an earlier UN peacekeeping operation in the country. The original mandate of the mission authorized all necessary means to protect civilians, humanitarian personnel and human rights defenders under imminent physical threat and to support the Government of the DRC in its efforts to stabilise the country and secure peace. In response to growing insecurity in eastern DRC, in March 2013 the Security Council decided to create a specialized intervention brigade (within the 19,815 troop ceiling) that would consist of three infantry battalions, one artillery and one special force and reconnaissance company with the responsibility of neutralizing armed groups and therefore reducing the threat posed by armed groups to state authority and civilian security. The creation of the specialised intervention brigade took the principles of peace enforcement to a level beyond traditional peacekeeping to be able to address a number of rebel groups in the eastern part of the DRC. While none of these groups – as reflected in Map 1 – present a similar threat in the form of al-Shabaab in Somalia, the majority of these groups are remnants of other conflicts in the region, for example the genocide in Rwanda as well as instability in Uganda. Their presence poses a real threat to local communities that have to bear the blunt of attacks after these rebel groups exploited the DRC government's limited presence in the region.



1. Map Position of Rebel Groups in the DRC in November 2012 [12]

Consequently, a safe haven was created from Kinshasa, (the capital) considering the distance between Kinshasa and Goma in the east is 2,679 kilometres. [13] However, according to the Congo Research Group (CRG), the ADF has gradually shiftedits rhetoric employed from being at war against the Ugandan government to a broader struggle for Islam since 2016. According to the CRG, the ADF also changed its name to Madina at Tauheed-Wau Mujahedeen (MTM) which translates as the city of monotheism and holy warriors. Further adding to evidence that the ADF is forging closer links with the Islamic State (IS) or Daesh: in February 2018, DRC soldiers found a Daesh-published book on the body of a dead ADF militant [14]. Then on 18 April 2019, Islamic State claimed responsibility for its first attack in the DRC and declared it the "Central Africa Province" of the "Caliphate." The attack took place on 16 April, during which two Congolese soldiers and a civilian were killed in a shootout. According to MONUSCO, the attack took place in Bovata near Beni close to the border with Uganda. IS also claimed a higher toll of five soldiers killed and three wounded. [15]

Moving to instability in Mali: During mid-January 2012, a Tuareg movement known as the Mouvement national pour la libération de l'Azawad (MNLA), along with Islamist extremist groups including Ansar Dine, Al-Qaeda in the Islamic Maghreb (AQIM) and the Mouvement pour l'unicité et le jihad enAfrique de l'Ouest (MUJAO) initiated a series of attacks against government forces in the north of the country that had experienced a number of Tuareg rebellions due to a history of marginalisation. Earlier periods of instability, the aftermath of the Arab Spring in Libya, the uncontrolled flow of weapons and the atmosphere of instability and revolt in the region created a perfect storm. Capitalising on anti-government sentiments disaffected soldiers from units that had been defeated by the armed groups in the north, organized a military coup d'état on 22 March 2012. A military junta led by Captain Amadou Sanogo took over power, suspended the Constitution and dissolved government institutions, facilitating the collapse of the State in the north, thus allowing MNLA to easily overrun government forces in Kidal, Gao and Timbuktu and proclaiming an independent State of Azawad on 6 April. However, growing tensions between armed groups in the north led to Ansar Dine and MUJAO driving MNLA out of the main towns of Gao, Timbuktu and Kidal in November 2012. In fear of another failed state in the region that would increase the foothold of Islamist extremists in the region, the Security Council established the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) on 25 April 2013 to support political processes in Mali while addressing insecurity. The initial mandate of the mission was to 'support the transitional authorities of Mali in the stabilization of the country and implementation of the transitional roadmap.' On 25 June 2014 the Security Council further increased the mandate of the Mission to the duty of ensuring the security, stabilization and protection of civilians; to support national political dialogue and reconciliation; and assisting in the re-establishing of State authority; the rebuilding of the security sector (Security Sector Reform); and to promote and protect human rights.[16] On 28 June 2018 the Security Council extended MINUSMA's mandate for another year, maintaining its 13,289 troops and 1,920 police personnel contingent.[17]

On 10 April 2014 the Security Council established the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic or MINUSCA after taking over from the African Union Mission in the Central African Republic or MISCA that was operational between December 2013 and September 2014. MINUSCA was given the

primary mandate to protect civilians after Séléka, (meaning 'coalition' in Sango, the local language) consisting of predominately Muslim fighters led by Michel Djotodia, escalated its insurgency against the then president, Francois Bozize (a Christian). Bozize was removed from power in March 2013 but instability remained. Following atrocities committed by Séléka from 2012 against Christians (the majority), the latter formed vigilantes known as the anti-balaka ('anti-machete'), which in turn initiated atrocities against Muslims.[18] In addition to protect civilians, MINUSCA was also mandated to support the transition process; facilitate humanitarian assistance; promote and protect human rights; initiate steps to facilitate programs that would enhance respect for justice and the rule of law; and lastly to take the lead in establishing disarmament, demobilization, reintegration and repatriation (DDRR) processes.[19] On 13 December 2018 the Security Council decided to maintain MINUSCA's troop level of up to 11,650 military personnel to ensure the mission would be capable to protect the civilian population under the strategic objective of supporting the "creation of the political, security and institutional conditions conducive to the reduction of the presence of, and threat posed by, armed groups through a comprehensive and robust approach and robust posture".[20]

UN officials have traditionally distinguished between missions with resources and political support to achieve their objectives and missions that lacked the resources and political leverage needed to support and facilitate political processes. The latter includes the Democratic Republic of Congo (MONUSCO), Darfur (UNAMID), South Sudan (UNMISS), Mali (MINUSMA) and the Central African Republic (MINUSCA). Those in the DRC and South Sudan are also included that intended to facilitate political processes. However, as a result of continuous violence, it led to the concept of "conflict management" operations. These missions intend to deter the escalation of violence; contain the conflict; protect civilians; and attempts to initiate or revive a peace process.[21]

While UNMISS and UNAMID focus on the protection of civilians and providing humanitarian assistance, the main role of MINUSMA is to limit terrorist operations in Northern Mali. During 2018 the regional G5 Sahel Force operating across Burkina Faso, Chad, Mali, Mauritania and Niger, faced security and governance challenges in its attempt to restore stability in the Sahel.[22] UNMISS and MONUSCO are working with recalcitrant national leaders, who actively oppose UN interference in their affairs but MINUSCA is trying to stabilize a country without any real national authority.

Notwithstanding the mentioned differences in focus, Gowan points out that all of the above missions experienced three common factors: Firstly, all were confronted by persistent violence, including threats to their personnel; secondly, these missions had to deal with significant large-scale conflict-induced humanitarian crises; and lastly, these missions experienced limits on their ability to pursue clear political conflict resolution strategies, 'whether due to a lack of credible national partners or poor relations with their host states'.[23]

Despite concerns raised by UN officials about the purpose and sustainability of these missions, conflict management operations have become a central type of UN missions in recent years.[24] Consequently, in addition to protecting civilians, peacekeepers are increasingly being dragged into becoming active participants into insurgencies, most notably al-Shabaab in Somalia, al-Qaeda in the Islamic Maghreb (AQIM) and the M23 militia in the Democratic Republic of Congo. The unfortunate reality with these missions was that all

were initiated despite extreme volatility and violence. These missions are confronted with the same circumstances that contributed to the conflict in the first place, most notably growing state failure. State collapse manifests in political, economic and social decline. Starting with political experiences, political marginalisation and the growing inability to affect change through legitimate means contribute to limited trust in the political process marked by rapidly decreasing legitimacy of the government and its institutions. This ultimately contributes to political revolt and rebel groups contesting the authority of the existing regime. Economic stagnation, relative deprivation and ramped corruption lead to further decrease in the level of trust in those in power. On a social level religious and ethnic diversity and marginalisation complicate political and economic circumstances, especially when the country is disproportionally developed and certain members of the community do not experience the same privileges as others. Even if it is just a perception, the potential for radicalisation and recruitment into violent extremist organisations, ultimately leading to domestic conflict will increase. These political, social and economic grievances will be magnified if government and its security forces lose control over parts of the country that extremist groups use as a base from where they can launch their attacks. Confronted with these circumstances, peacekeepers have to insert themselves in the middle of a conflict, where their presence will often not be accepted by one or more parties. Without this legitimacy, peacekeepers will not be seen as honest brokers, but rather other parties to the conflict. Consequently, this type of missions will result in higher casualties as reflected in Figure 1.

In other words, missions are now largely engaged in conflict resolution rather than peace implementation, leading to the question: how is it possible to be involved in peacekeeping when there is no peace to keep? It is also for this reason that countries fitting the financial bill (most notably the United States) started to lose interest in the continuation of supporting peacekeeping operations as it is seen as a financial bottomless pit without tangible results. In addition to financial implications, casualties amongst peacekeepers started to raise questions in especially troop contributing countries, with the public asking whether loosing nationals in another country is really worth the human cost.

TROOP CONTRIBUTIONS

According to the Stockholm International Peace Research institute (SIPRI) in 2018, of the 63 multilateral peacekeeping operations around the world, 25 (the largest number) were situated in Africa. In light of the demand, 75 percent of all peacekeeping personnel deployed were in Africa, while African countries contributed the most personnel,[25] of which Ethiopia was the biggest contributor. Table 1 summarises the position of African countries in peacekeeping operations in the world, the number of personnel made available to which recent missions and the number of overall fatalities. It also refers to the number of missions where the respective countries endured fatalities and which missions were the costliest in terms of losses experienced.

Position (overall)	Country	Men	Female	Total	Mission	Fatalities (missions & highest toll)
1	Ethiopia	6,896	623	7,519	MINUSMA UNAMID UNISFA UNMISS	128 10 missions: UNAMID (30) UNISFA (30)
3	Rwanda	6,141	405	6,546	MINUJUSTH MINUSCA UNAMID UNISFA UNMISS	55 7 missions: UNAMID (30) MINUSCA (11)
7	Egypt	3,765	8	3,773	MINURSO MINUSCA MINUSMA MONUSCO UNAMID UNMISS	41 14 missions: UNAMID (10) UNOSOM (7)
9	Ghana	2,401	394	2,795	MINURSO MINUSCA MUNISMA MONUSCO UNAMID UNDOF UNIFIL UNISFA UNMISS UNOWAS UNSOM UNSOS	139 19 missions: ONUC (49) UNIFIL (33)
10	Senegal	2,493	147	2,640	MINUJUSTH MINUSCA MINUSMA MONUSCO UNAMID UNMISS	80 15 missions: UNAMID (17) UNIFIL (16)
12	Tanzania	2,162	187	2,349	MINUSCA MONUSCO UNAMID UNIFIL UNISFA UNMISS	53 7 missions: MONUSCO (31) UNAMID (15)
13	Morocco	2,113	29	2,142	MUNUSCA MONUSCO	43 8 missions: MINUSCA (10) UNOSOM (10)
14	Burkina Faso	1,985	104	2,089	MINUJUSTH MINUSCA MINUSMA MONUSCO UNAMID UNISFA	42 7 missions: MINUSMA (22) UNAMID (13)

Position (overall)	Country	Men	Female	Total	Mission	Fatalities (missions & highest toll)
					UNMISS	
15	Chad	1,471	20	1,491	MINUJUSTH MINUSMA MONUSCO	73 6 missions: MINUSMA (63) MINURCAT (6)
16	Togo	1,350	72	1,422	MINUJUSTH MINURSO MINUSCA MINUSMA MONUSCO UNAMID UNMISS	33 8 missions: MINUSMA (16) UNOCI (11)
17	South Africa	1,016	175	1,191	MONUSCO UNAMID UNMISS	43 5 missions: MONUC (18) UNAMID (10)
18	Cameroon	997	112	1,109	MINUJUSTH MINUSCA MINUSMA MONUSCO UNAMID	18 8 missions: MINUSCA (10) UNOCI (2)
20	Mauritania	1,046	3	1,049	MINUSCA MINUSMA UNSOS	9 4 missions: MINUSCA (6)
21	Zambia	920	118	1,038	MINUSCA MONUSCO UNAMID UNISFA UNMISS	79 15 missions: UNAMSIL (34) ONUMOZ (13)
22	Niger	947	43	990	MINUJUSTH MINUSCA MINUSMA MONUSCO	40 4 missions: UNOCI (19) MINUSMA (17)
24	Guinea	897	40	937	MINURSO MINUSCA MINUSMA MONUSCO UNISFA UNMISS	41 6 missions: MINUSMA (22) UNAMSIL (13)
25	Malawi	848	67	915	MINURSO MONUSCO UNAMID UNISFA UNMISS UNSOM	27 8 missions: MONUSCO (13) UNAMID (3)
30	Burundi	737	31	768	MINUSCA MINUSMA UNISFA	11 3 missions: MINUSCA (8)

Position (overall)	Country	Men	Female	Total	Mission	Fatalities (missions & highest toll)
					UNMHA	ONUB (2)
38	Uganda	485	73	558	UNMISS UNSOM UNSOS	6 2 missions: UNAMID (4) UNSOM (2)
39	Benin	485	23	508	MINUJUSTH MINUSCA MINUSMA MONUSCO UNISFA UNMISS	24 8 missions: UNOCI (6) MONUC (5)
40	Gabon	406	44	450	MINUSCA	MINUSCA (4)
42	Nigeria	332	102	434	MINUJUSTH MINURSO MINUSCA MINUSMA MONUSCO UNAMID UNFIL UNISFA UNMISS UNSOS	153 16 missions: UNAMID (39) UNAMSIL (33)
45	Côte d'Ivoire	276	25	301	MINUJUSTH MINURSO MINUSCA MINUSMA MONUSCO UNOWAS	22 5 missions: UNOCI (16) MONUSCO (3)
53	Tunisia	223	18	241	MINUJUSTH MINUSCA MINUSMA MONUSCO UNAMID UNMISS	20 8 missions: ONUC (11) MONUC (3)
56	Gambia	177	36	213	MINUSCA MINUSMA UNAMID UNMISS	13 3 missions: UNAMID (10) UNMIL (2)
60	Djibouti	173	7	180	MINUJUSTH MINURSO MINUSCA MONUSCO UNAMID UNMHA	2 1 mission: UNOCI (2)
62	Kenya	118	41	159	MINUSCA MINUSMA MONUSCO UNAMID	62 24 missions: UNAMSIL (16) UNMISS (4)

Position (overall)	Country	Men	Female	Total	Mission	Fatalities (missions & highest toll)
					UNIFIL UNMISS UNSOS	
63	Congo	141	17	158	MINUSCA	7 4 missions: MINUSCA (2) MONUSCO (2)
67	Liberia	108	8	116	MINUSMA	40 7 missions: UNMIL (34)
68	Zimbabwe	47	47	94	MINUSCA UNAMID UNISFA UNMISS	19 8 missions: UNAVEM (9) UNOSOM (4)
73	Sierra Leone	52	17	69	MINUSCA MINUSMA UNAMID UNIFIL UNISFA UNMISS UNSOM UNSOS	38 7 missions: UNAMSIL (16) UNAMID (14)
75	Namibia	38	18	56	UNAMID UNISFA UNMISS	16 5 missions: UNMIL (9) MONUA (4)
77	Mali	44	4	48	MINUJUSTH MINUSCA MONUSCO	12 6 missions: MINUSMA (7)
92	Madagascar	19	3	22	MINUJUSTH MINUSCA MINUSMA MONUSCO UNAMID	0
120	Algeria	2	0	2	MONUSCO	4 4 missions
121	DRC	1	0	1	MINUSCA	68 6 missions: MONUC (35) MONUSCO (28)
	Total	**41,312**	**3,061**	**44,373**		**1,461**

1. Table UN Troop Contributing Countries by Ranking as on 31 March 2019 and total fatalities [26]

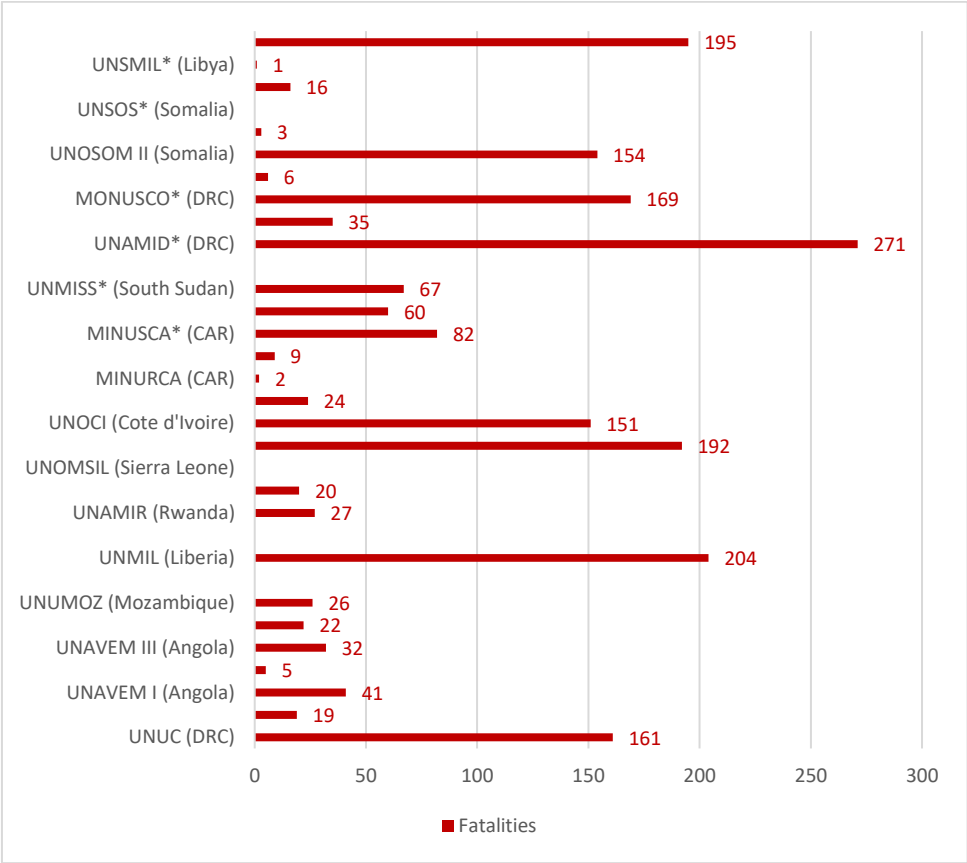
In 2017 fatalities linked to hostile acts increased to 61 in contrast to 34 in 2016. Before 2017 the majority of fatalities amongst peacekeepers were associated with peace-

keeping operations in Mali (MINUSMA), the Central African Republic (MISCA), the Democratic Republic of Congo (DRC) with reference to MONUSCO and Darfur (UNAMID).[25] Figure 1 reflects on the number of fatalities per mission in Africa.

Considering the changes in the type of missions, especially in the aftermath of the Rwanda genocide (during the deployment of UNAMIR), UNAMSIL (October 1999 until December 2005) was the first mission, during which UN troops were permitted to use force. This was due to the support of General Roméo Dallaire, the commander of UNAMIR in the 1994 Rwandan Genocide, a strong supporter for enhancing force capabilities. The argument for this position came from Article 39 in Chapter VII of the UN Charter that "The Security Council shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security." The Security Council in Article 41 calls upon the parties concerned to "comply with such provisional measures as it deems necessary or desirable" including military power.[27] Consequently, under UN Security Council Resolution 1270, UNAMSIL was given the mandate to: "take the necessary action, in the discharge of its mandate, to ensure the security and freedom of movement of its personnel and, within its capabilities and areas of deployment, to afford protection to civilians under imminent threat of physical violence".[28] Despite allowing peacekeepers to use force, 192 UNAMSIL peacekeepers were killed over 74 months. UNOSOM II (from March 1993 to March 1995) was the deadliest mission with 154 fatalities considering the two year deployment period (with 6.42 peacekeepers killed per month over the deployment period), but 271 UNAMID peacekeepers (July 2007 till present) were killed over 141 months (making it one of the longest missions).

As a result of a drastic increase in UN peacekeeper casualties the United Nations, through the Secretary-General, produced a report titled 'Improving Security of United Nations Peacekeepers: We need to change the way we are doing business' in December 2017 to explain the problems peacekeepers face on the ground followed by a number of recommendations. Under 'defensive posture' the report proposes that in order to "improve security, missions should identify threats to their security and take the initiative, using all the tactics, to neutralise or eliminate the threats. Missions should go where the threat is, in order to neutralise it. Missions should also push combat to the night, to take advantage of their superior technology. Waiting in a defensive posture only gives freedom to hostile forces to decide when, where and how to attack." [30] The terms 'neutralise' and 'eliminate' contradicts earlier guidelines as presented in 'United Nations Peacekeeping Operations: Principles and Guidelines' in which the text read as follows (emphasis placed by the author): [31]

United Nations peacekeeping operation should only use force as a measure of last resort, when other methods of persuasion have been exhausted and an operation must always exercise restraint when doing so. The ultimate aim of the use of force is to influence and deter spoilers working against the peace process or seeking to harm civilians; and not to seek their military defeat. The use of force by a United Nations peacekeeping operation should always be calibrated in a precise, proportional and appropriate manner, within the principle of the minimum force necessary to achieve the desired effect, while sustaining consent for the mission and its mandate. In its use of force, a United Nations peacekeeping operation should always be mindful of the need for an early de-escalation of violence and a return to non-violent means of persuasion.



1. Figure Duration and fatalities by UN missions in Africa [29]

Through the increasing role of peacekeepers to enforce peace in active conflict areas, the term 'peacekeepers' might no longer be the most appropriate term to use where no peace is being monitored, followed by the traditional role of peacekeepers in the aftermath of conflict. Similar to a later section referring to the relationship between peacekeeping and radicalisation into violent extremist organisations, the concern is that action may have unforeseen medium- to long-term consequences associated with being drawn into insurgencies that are traditionally difficult to get out of.

AFRICAN UNION MISSIONS

Within the African Union (AU), the Peace and Security Council (PSC) was established in 2002 to take the lead in the prevention, management and resolution of conflicts in Africa. The overall objective is to provide collective security through responding to conflicts and crisis situations and provide early warning to prevent conflicts through relying on diplomacy. Its core functions are presented as "to conduct early warning and preventive diplomacy, facilitate peace-making, establish peace support operations and, in certain circumstances, recommend intervention in Member States to promote peace, security and stability. The PSC also works in support of peace-building and post-conflict reconstruction as

well as humanitarian action and disaster management." [32] Since its inception, it deployed the following peace support operations (PSOs), most of them in contexts, where the UN has been unable to deploy peacekeepers in a timely manner: the African Mission in Burundi (AMIB), the African Mission in Darfur (AMIS), the African Mission in Somalia (AMISOM), the AU Electoral and Security Assistance Mission to the Comoros (MAES), the African-led International Support Mission to Mali (AFISMA), and the African-led International Support Mission to Central African Republic (MISCA); [33] and sanctioned others, for example the Multinational Joint Task Force (MNJTF) mission against Boko Haram. The AU is also a key strategic partner of the United Nations (UN) in its ability to deploy multidimensional Peace Support Operations (PSOs) that consist of military, police and civilian components. Increasingly, missions on the continent have been called upon to protect civilians, while getting involved in counterterrorism and counterinsurgency operations in close partnership with the United Nations. Two of these types of operations are being conducted against Boko Haram in the broader Lake Chad region and the other against al-Shabaab in Somalia. Considering the longer deployment and personal experience, attention will be placed on AMISOM in Somalia with the focus on preventing and countering violent extremism within the broader counterinsurgency and counterterrorism debate.

MULTINATIONAL JOINT TASK FORCE (MNJTF)

The Multinational Joint Task Force (MNJTF) mission came into effect under the Lake Chad Basin Commission (LCBC) in response to the transnational reach of Boko Haram in the Lake Chad region. The four countries directly affected by Boko Haram operations are Nigeria, Cameroon with Niger taking the lead, followed by Chad and Benin (the latter is not a member of the LCBC). The PSC endorsed the MNJTF mission on 25 November 2014 and authorised its deployment on 29 January 2015. MNJTF's mandate calls for the mission to "create a safe and secure environment in the areas affected by the activities of Boko Haram and other terrorist groups in order to significantly reduce violence against civilians and other abuses, including sexual- and gender-based violence. Furthermore to facilitate the implementation of overall stabilization programmes by the LCBC Member States and Benin in the affected areas, including the full restoration of state authority and the return of IDPs and refugees; and facilitate, within the limit of its capabilities, humanitarian operations and the delivery of assistance to the affected populations." [34] MNJTF consists of 10,000 uniformed troops, as well as a civilian component, divided into four sectors each with its own headquarters namely Mora in Cameroon; Bagasola in Chad; Diffa in Niger; and Baga in Nigeria.[35]

AMISOM

The African Union Mission in Somalia (AMISOM) was established by the PSC at its 69th meeting on 19 January 2007 and mandated to: 'provide support to the Transitional Federal Institutions (TFIs) in their efforts towards the stabilization of the situation in Somalia and the furtherance of dialogue and reconciliation; to facilitate the provision of humanitarian assistance; and create conducive conditions for long-term stabilization, reconstruction and development in Somalia.'

According to the initial 'Status of Mission Agreement' signed between the Transitional Federal Government of the Somali Republic (TFG) and the African Union Commission 'the mission element shall be drawn from AU Member States and shall number between 8,000 and 9,000 personnel (civilians inclusive).'[36] However, by the end of 2008, despite initial interest by several African states to contribute troops, AMISOM's strength stood at 2,650 composed of one Burundian and two Ugandan battalions.[37]

Somalia was divided into sectors with a particular force component taking responsibility for that sector: Ugandan forces are responsible for Sector 1: Banadir and Lower Shabelle regions that include Mogadishu; Kenyan forces control the southern parts of Somalia or Sector 2: Middle and Lower Juba – in the border areas with Kenya; Ethiopian forces Section 3: Bay, Bakool and Gedo regions in the western part of Somalia; Djibouti, Sector 4 that includes Hiiraan and Galgaduud regions in the north and Burundi in Sector 5 or the Middle Shabelle region in the north-eastern part of Somalia. Kismayu became a sector on its own (Sector 6) in 2017.[38]

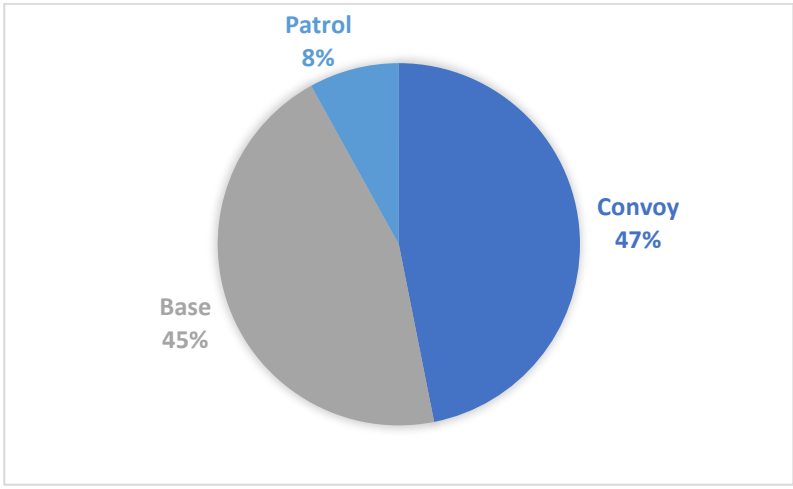
PEACEKEEPING IN THE BROADER COUNTERTERRORISM AND THE PREVENTION AND COMBATING OF VIOLENT EXTREMISM DEBATE

Mission success, especially when assessing its role in countering, but especially preventing violent extremism rests with the conduct of peacekeepers while on mission. In other words, it is not only 'what is being done', but more important 'how it is being done' that determines success. Starting with being trained and sufficiently prepared to deal with the actual threats and challenges while on mission will have a direct impact on the conduct of each peacekeeper on mission. Therefore, instead of focussing on the broader success of the entire mission to restore peace and stability in a country or area, in especially PVE it's the conduct of each peacekeeper that has a direct impact. Peacekeepers represent the international community (United Nations), the continent (with reference to missions under the AU) or representatives of a particular country they are seconded from – considering although acting under one banner (AMISOM for example), force contributing countries operate in specific areas. Therefore, if a peacekeeper from example Kenya abuses their power or act outside the boundaries of the mission, those directly affected will have a negative perception of the mission overall but also the country they represent.

Since the inception of the AMISOM's mission in Somalia following the intervention of Ethiopian forces the year before, forces were challenged with separating al-Shabaab fighters from ordinary Somalis. Starting with Ethiopian intervention in Somalia between December 2006 and January 2009 – and although not initially part of the AMISOM mission until January 2014 – Ethiopian forces set an example that others followed. Instead of protecting the Somali public, security forces increasingly targeted the civilian population, especially when responding to roadside IEDs (improvised explosive device). A common strategy was to start shooting indiscriminately at bystanders, often resulting in more civilian casualties than initially caused by the incident itself. For example, on 19 June 2007 in response to a roadside IED that resulted in the death of three Ethiopian soldiers, seven civilians were killed when soldiers indiscriminately opened fire and an undisclosed number of people were arrested 'suspected of planning the device'. [39] In similar incidents a pattern emerged that especially Ethiopian security forces but also others part of AMISOM after an incident indiscriminately open fire on any person that moves or looks suspicious without

being questioned. For example, on 26 March 2014 following a roadside IED targeting an AMISOM armoured vehicle in Kismayu, AMISOM troops responded by opening fire that resulted in the death of one civilian and injuring three others.[40] Leaving ordinary Somalis with the reality that foreign forces that are supposed to ensure their long-term stability, pose a more direct threat than the 'enemy' (reference to al-Shabaab) that more often discriminately target security personnel and government officials.

On the other side of the debate, loosing soldiers on a regular basis will have a psychological impact on troops considering that between the inception of AMISOM in 2007 and 31 March 2019, AMISOM was targeted 767 times (based on the author's own database of attacks). In contrast to the UN that keeps excellent record of casualties, AMISOM and troop-contributing countries had been extremely reluctant to provide accurate figures of soldiers being killed or injured. Whereas al-Shabaab is expected to overestimate casualties, AMISOM-contributing countries tend to under-report actual figures. From the above-mentioned 767 incidents reported in the media, Figure 2 provides insight into the type of attacks, identifying attacks against convoys through the use of firearms, combination attacks with roadside IEDs or SVBIED (suicide vehicle-borne improvised explosive device) had been a favourite of al-Shabaab followed by attacks against bases. Modus operandi in this type of attacks included the use of mortars fired from a distance to complex attacks involving the use of suicide bombers on foot and in vehicles in combination with other fighters. It is especially as a result of this strategy that AMISOM lost the most personnel in single attacks. For example, on 17 September 2009 in a suicide operation directed at AMISOM headquarters the deputy commander, Major General Juvenal Niyonguruza, who was about to complete his tour was killed while the force commander, General Nathan Mugisha, was among the wounded. The death toll was reported as nine peacekeepers and 15 others injured.[41] In another attack, on 26 June 2015, a suicide bomber detonated a SVBIED and assailants stormed an AMISOM base in Leego town, Bay region that resulted in the death of at least 70 people, including 20 assailants and 23 others were abducted in the attack.[42] In the most devastating attack, al-Shabaab managed to overrun an AMISOM (Kenya) base on 15 January 2016, when multiple suicide bombers in explosives-laden vehicles and on foot launched an attack in El-Ade, Gedo region. At least 141 soldiers and an unknown number of assailants were killed, an unknown number of people were injured in the attack and at least five soldiers were abducted. [43] Despite these figures, the actual cost is unknown.



2. figure al-Shabaab target selection against AMISOM

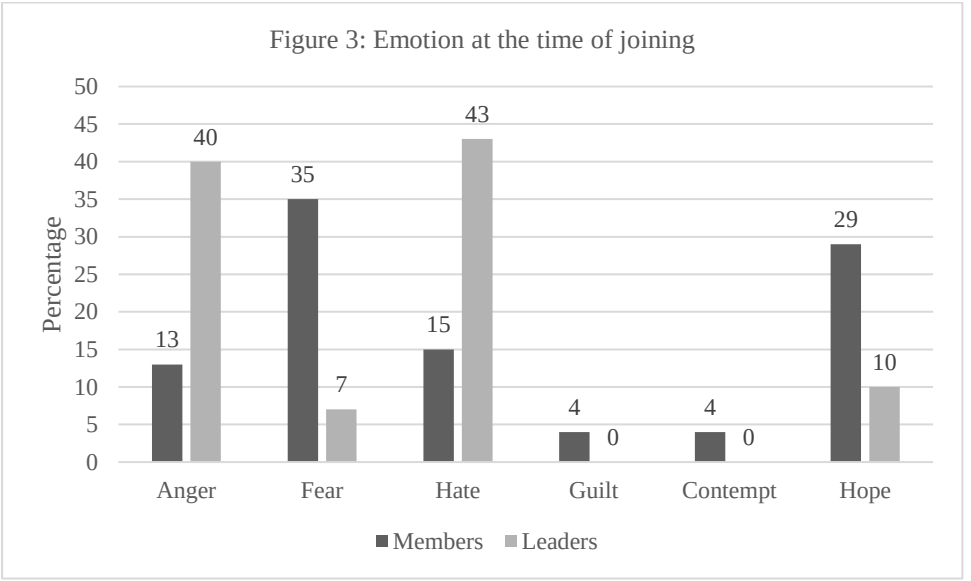
Fighting a faceless enemy that draws its strength from the ability to disappear within ordinary public resulted in many armed forces throughout history asking 'how to respond?' Separating strategic from emotional responses remains challenging. On a human level, it is understandable that frustrated soldiers want to take revenge, yet it is the least appropriate response, in addition to its being illegal and counterproductive. By retaliating or indiscriminately attacking civilians, those fighting to restore stability will increasingly be considered as an occupying force – the enemy. In other words, becoming not only more unpopular, this strategy will also play into the hands of the opposing side – the 'insurgents' or 'terrorists'. In other words, success will not only be measured by a decrease in the number of attacks, the winning of territory, or the level of security, but rather the willingness of people to join the organisation, in this case, al-Shabaab. Strategies that include the indiscriminate killing of civilians, collective punishment and other human rights abuses will only benefit insurgent/terrorist organisations. On 23 March 2007 Abulbakar Mohammed Hassan alias Abu Yahia al-Libi released a video on the Internet in which he stated:

My patient brother Mujahideen in Somalia...you have to stick to the gang wars, because it is the longest of battles and...most suitable for small numbers and vulnerable fighters...Slam them with one raid after another, set ambushes against them, and shake their soil with land mines and shake their bases with suicide attacks and car bombs…The goal of your fight and the purpose of your Jihad is the expulsion of the occupier and his helpers and the establishment of an Islamic state in the land of Somalia.[44]

In a nutshell, the most important lesson so far is that an insurgency can only be won from the inside; through understanding why people join and support the organisation (al-Shabaab) and preventing people from getting involved in the conflict based on this information. To understand the impact the use of force had on the public, a number of interviews were conducted with al-Shabaab disengaged members. Considering the focus of this chapter, reference will only be made to key results. In the first sample in 2016, 228 interviews were conducted with al-Shabaab respondents across Somalia. This sample formed part of a study conducted by the UNDP Regional Bureau for Africa in Addis Ababa titled: "The Journey to Extremism in Africa: Drivers, Incentives and the Tipping Point for Recruitment".

The majority of respondents referred to foreign intervention as the primary reason for al-Shabaab's existence. Furthermore, 58 percent of the respondents referred to neighbouring countries as the most prominent threat against Islam. Foreign intervention was not only a threat against Somalia (sparking nationalism), but also a threat against Islam in which AMISOM and Ethiopia were categorised as Crusaders (Christians) occupying a Muslim country.

In another study conducted by the Finn Church Aid in 2017, interviews were conducted with 52 low- and mid-ranking members of al-Shabaab (referred to as 'members') and 17 members within the organisation's leadership (referred to as 'leaders'). These results were not published till today. Determining the driving factors behind the decision to join al-Shabaab, respondents were asked to identify the emotion associated with their decision to join al-Shabaab (Figure 3). Whereas leaders specifically identified hate (43 percent) and anger (40 percent) as the two most prominent emotions associated with their decision to join Al-Shabaab, fear (35 percent) and hope (29 percent) were the most prominent amongst the sample representing ordinary al-Shabaab members.

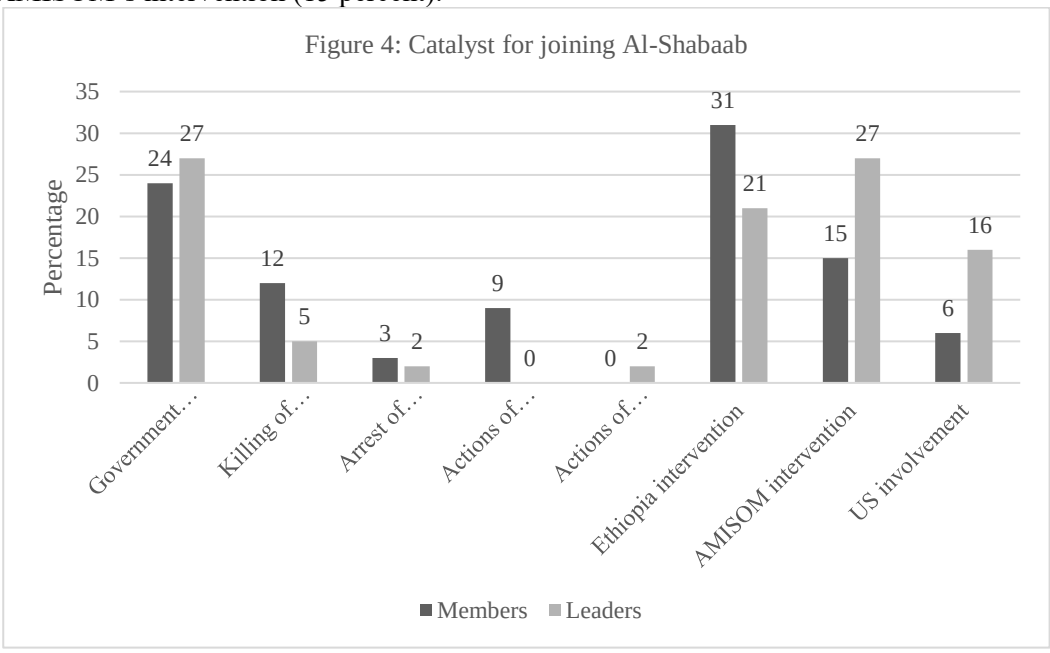


3. figure Emotion at the time of joining

Establishing who and what these emotions were directed against, respondents were asked to establish the level of frustration they experienced, identify whom it was directed against and if something specifically happened that influenced their decision to join al-Shabaab. Answering the first question, 47 percent of leaders interviewed expressed extreme levels of frustration (between 8 and 10) that corresponded with strong emotions such as anger and hate. Resembling leaders interviewed, 23 percent of ordinary al-Shabaab respondents interviewed expressed extreme levels of frustration associated with 15 percent who identified hate and 13 per cent who referred to anger as the driving emotions associated with joining al-Shabaab.

Frustration was predominately directed against U.S. military intervention as 75 percent of leaders felt severe frustration at the US intervention; 50 percent expressed severe frustration against AMISOM and 56 percent rated their frustration against neighbouring countries as 'major'. Additionally, the majority (71 percent) of leaders interviewed believed that al-Shabaab served the best interests of Muslims/Somalis, justifying their decision to join al-Shabaab.

Establishing whether a specific event ultimately facilitated recruitment into al-Shabaab (see Figure 4), most leaders were finally pushed to join al-Shabaab following AMISOM's intervention into Somalia (27 percent), Somali government action (27 percent) and Ethiopian specific intervention (21 percent). Ordinary members interviewed were motivated by Ethiopian intervention (31 percent), Somali government action (24 percent) and AMISOM's intervention (15 percent).



4. figure Catalyst for joining Al-Shabaab

Above data suggest that the decision to join al-Shabaab was mainly driven by foreign involvement in Somalia as well as Somali government action. The question however is that if Somali government forces in association with Ethiopian and AMISOM forces established a different approach towards the Somali public – starting with calling on Muslim countries to take the lead while approaching peace enforcement from a counterinsurgency perspective – would it not have prevented radicalisation and recruitment into al-Shabaab?

FUTURE OF PEACEKEEPING OPERATIONS IN AFRICA

Earlier UN missions on the continent were conducted over a shorter period of time, with very specific mandates in conflicts where different parties took the first step towards a peaceful resolution. Since the UN and the AU started to focus more on intervention to enforce peace, the required tactics have changed that should rely on a pure counterinsurgency

approach. With this both troop-contributing countries as well as countries willing to fund these operations need to understand that this type of missions will not be over soon, nor will it be without substantial casualties. The latter will be a result of an attrition strategy insurgents or terrorists will deploy that will rely on drawing opponents out to commit abuses and gain public support as a consequence. If there is any doubt, foreign troops should not be deployed especially if the mission will violate sovereignty even if just the perception exists amongst the people of the receiving country. Intervening just to ensure regime security against the wishes of the majority of the public will equally not be worth the effort. From the position of the United States and decisions by the UN to reduce troop contributions and initiate withdrawal plans in both Somalia (with specific reference to AMISOM) as well as MONUSCO before initial mission objectives were achieved, will play into the hands of al-Shabaab in Somalia and a number of rebel groups in the DRC. At the same time, both the UN and AU will lose credibility amongst those affected by conflict, while sending a wrong signal to future actors bringing disarray and instability to achieve its objectives. Especially in the case of Somalia, measures need to be put in place in the formerly liberated areas to ensure security and maintain control over liberated areas. Establishing control needs to be followed up with providing safety and security but also serving the public through providing basic services that will make al-Shabaab a less attractive alternative. The public therefore needs to see and experience the benefits presented by the government, starting with the three most immediate needs: employment, education and security.

The United States of America contributes most to the UN peacekeeping budget by providing closely a third of its $6.7 billion budget for the fiscal year July 2018 – June 2019. However, in December 2018 the United States through John Bolton, the National Security Adviser and Jim Mattis, the Defense Secretary indicated that the US was rethinking its role in UN peacekeeping missions across Africa. According to John Bolton, the US will no longer support 'unproductive, unsuccessful and unaccountable UN peacekeeping missions.'[45] While European countries not only financially contribute to peacekeeping operations but also contribution through personnel and non-traditional sources should be encouraged. While China also started to get involved in peacekeeping on the continent, the interest of China (as with other contributing countries) is always high on the agenda. It will therefore be necessary to act with the best interest of the affected country and its public in mind, namely establishing peace and security.

Following the decision of the UN Security Council on 29 March 2019 to renew the mandate of MONUSCO until 20 December 2019 the mission was tasked with two priorities: the submission of an independent strategic review of the UN Mission in the DRC, which will include 'a phased, progressive and comprehensive withdrawal plan by 20 October 2019; and secondly that MONUSCO transfer its tasks to the Congolese Government and the UN country team, that will allow the Mission to leave the country under satisfactory circumstances in accordance with a responsible and favourable withdrawal plan.[46]

ENHANCING THE SUCCESS OF FUTURE PEACEKEEPING MISSIONS IN AFRICA

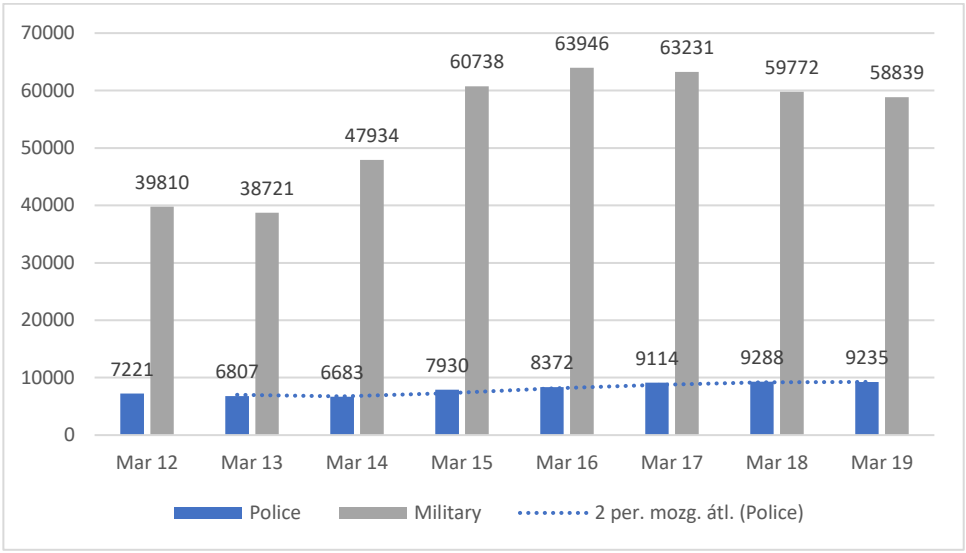
Approaching peacekeeping following the basic principles of a counterinsurgency will bring forth the following: since injuries and deaths among the civilian population will hurt the overall objective of a counterinsurgency, namely winning the hearts and minds of

the public; indiscriminate shooting is regarded as the most ineffective tactic. Instead, firepower should only be directed at insurgents, especially in an urban setting. This will be in line with the 'United Nations Peacekeeping Operations: Principles and Guidelines': "The use of force by a United Nations peacekeeping operation should always be calibrated in a *precise, proportional and appropriate manner*, within the principle of the minimum force necessary to achieve the desired effect." [31]

Secondly, intelligence is critical in any operation and should also be in peacekeeping. Without proactive intelligence, the element of surprise will be on the side of insurgents. This is in line with the new thinking on how to conduct peacekeeping in the future as published in 2017: "To prevent casualties, peacekeeping missions need tactical intelligence. Missions must be able to transform intelligence into simple tasks and actions that boost security but they often fail to do this. Missions do not lack high-tech resources to collect intelligence. They lack the basics, especially human intelligence, networks of informants, situational awareness, and capacity to communicate with the population." [47]

Thirdly, the party that wins legitimacy will win the insurgency. Defeating the enemy militarily will only ensure a short-term victory. Instead, citizens' trust in the government needs to be restored and that cannot be achieved through force. In essence, the majority of the population should want those in governing positions – at all levels – to be in those positions. Ensuring and enhancing legitimacy involve all sectors of government, because the inability to provide basic services, employment opportunities, education and healthcare will be exploited in favor of a revolt, insurgency and terrorism. The overall objective of a counterinsurgency effort is to re-establish order and security so that a society can function properly. To enhance overall legitimacy the following should be implemented as soon as possible: security operations need to move from combat operations to law enforcement – calling for a rethinking of the ratio between the military and police as presented in Figure 5 that presents the deployment of troop and police in MINUSCA (CAR), MINUSMA (Mali), MONUSCO (DRC), UNAMID (Darfur) and UNMISS (South Sudan). Accepting that every mission will require a different ratio between the military and police, when the military establish control, the police take over control (still supported by the military with its force superiority. Furthermore, insurgents should be categorised as 'criminals' that will require rebuilding the capacity of the police, judiciary and penal facilities to establish the rule of law. Soldiers and peacekeepers need to keep accurate records of all actions taken against insurgents, including record of offences committed by insurgents. These records can be used in subsequent court proceedings, but for this to be possible; soldiers should be taught the basic principles in the collection of evidence and how to maintain the chain of evidence.

Lastly, peacekeeping as well as counterinsurgency require patience. Instead of declaring victory following periods of calm, force commanders need to remember that the strength of insurgents rest in their ability to strike when they choose and periods of calm should rather be interpreted as a sign of the enemy regrouping to plan future attacks. Special attention should be directed to not getting trapped in a false sense of security.



5. figure Police and Military Deployment

CONCLUSION

Peacekeeping has changed over time and with it came the need to approach peacekeeping operations from a different perspective, especially since missions are being deployed while hostilities are ongoing and called upon to assist the government of the day to remain in power and protect civilians. Consequently, being confronted with terrorism and insurgencies, peacekeeping doctrines also need to change. The most effective solution is to approach peacekeeping from a counterinsurgency perspective. To illustrate this case in point, the chapter earlier presented AMISOM's contradictory relationship with the Somali public. On the one hand, AMISOM was mandated to protect civilians and provide humanitarian assistance. Consequently, AMISOM forces through its action was increasingly perceived as an occupying force that manifested itself through indiscriminate fire practices and the targeting of civilians that look suspicious without closer investigations. Consequently, instead of winning hearts and minds, AMISOM was nothing better than al-Shabaab in some areas. Therefore, instead of creating an atmosphere that will bring an end to the conflict, some Somalis rather opted to join al-Shabaab. However, through understanding how insurgencies work, a more strategic approach could have been adopted not to play into the hands of al-Shabaab to facilitate radicalisation and recruitment.

Within a counterinsurgency framework, future peacekeeping operations should also consider a larger police presence depending on the specific phase of the conflict. However, for these missions to be successful, peacekeepers in the future need to be trained in counterinsurgency with all involved, understanding the consequences of the excessive use of force. Instead of deploying a larger force that is undertrained and not equipped, a smaller highly trained force will be more effective in achieving its objectives. This will also become a requirement from a financial point of view considering the decreasing UN budget.

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THE EU AND THE WESTERN SAHARA CONFLICT: A DIFFICULT HISTORY

AZ EU ÉS A NYUGAT-SZAHARAI KONFLIKTUS: EGY BONYOLULT VISZONY

KEMÉNY János[1]

Abstract

The main objective of the article is to give an overview of the history of MINURSO, with a special attention to the role of EU nations played in the history of this mission. To achieve the stated goal, the author intends to give a short overview of the historical background of the conflict, how the UN got involved and how the mission was established. The article will show how the EU's interest in the Northern region of Africa changed over the years, and how the region has become strategically important for the EU. The article gives an overview of the history of MINURSO and the role of EU nations in this history. The author intends to use qualitative and quantitative methods to show the role of these nations in the history of MINURSO. On the qualitative side the author intends to give a comprehensive overview of the participating nations, their interest in the region, and how their participation can be considered as their national interest or international obligation. To underpin this argument, the author will use quantitative methods in order to showcase the contribution of these nations. In the final part of the author will draw conclusion about the EU's role.

Keywords

EU, Western Sahara, MINURSO, Africa, Morocco, Algeria, Polisario Front

Absztrakt

A tanulmány fő célkitűzése, hogy áttekintést nyújtson a MINURSO történetéről, különös figyelmet fordítva arra, hogy az egyes EU tagállamok milyen szerepet játszottak a történetében. Ennek elérése érdekében a konfliktus rövid történeti áttekintése után az ENSZ szerepvállalás létrejöttét mutatja be a cikk. Ezt követően a fontos EU tagállamok észak-afrikai érdekeinek és azok változásainak bemutatására kerül sor, és hogy hogyan értékelődött fel a régió az EU számára. Ezután a MINURSO története és az EU abban játszott szerepe kerül taglalásra. A szerző kvalitatív és kvantitatív módszereket alkalmaz az egyes országok MINURSO történetében játszott szerepének bemutatására. Kvalitatív szempontból a szerző átfogó képet ad a résztvevő országokról, regionális érdekeikről, és a részvételük mennyire nemzeti érdekként és mennyire nemzetközi kötelezettségként értelmezhető. Az érvelés alátámasztására a szerző kvantitatív adatokat is közöl az egyes országok szerepvállalásának bemutatására. A tanulmány utolsó részében pedig a szerző konklúziót a bemutatott adatokra támaszkodva konklúziót alkot az EU szerepéről.

Kulcsszavak

EU, Nyugat-Szahara, MINURSO, Afrika, Marokkó, Algéria, Polisario Front

INTRODUCTION

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The objective of the current chapter is to introduce the positions of the European Union (EU) to the reader in the conflict in Western Sahara and its relations to the United Nations Mission for the Referendum in Western Sahara (MINURSO). This relationship is not as well researched as it should be, and the author aims to rectify this problem to the extent it is possible under the limitations of a book chapter.

After a short overview of the history of the conflict and the MINURSO mission, the author intends to look at EU-Western Sahara and MINURSO relationship from multiple angles: the role of the most important EU nations with interests in the region (meaning mostly France and Spain), the role of EU policies like the Euro Mediterranean Partnership Program, the role of the European Parliament etc. as well as the outstanding issues in relations between the EU and Morocco (the latter being one of the principal actors in the Western Sahara conflict). The chapter will also look at the participation of EU nations in the MINURSO mission and how this participation has changed over time.

The author hopes that with the introduction of help of these different viewpoints, a complex picture can emerge and show the sometimes-conflicted positions of the EU.

A SHORT HISTORICAL OVERVIEW OF THE CONFLICT AND THE ROLE OF EUROPEAN POWERS

The conflict in Western Sahara began when Spain withdrew from the territory in 1975. The UN fact finding mission sent into the region reported that the population favoured independence and the World Court at the Hague ruled that the region could hold a vote for self-determination.[1] Spain had other ideas, as it wanted to disengage very quickly. The Tripartite Madrid Accords of 14 November 1975 were meant to guarantee an orderly process, but Spain gave up the territory very quickly, which made things more difficult. The accords gave about two-thirds of the territory to Morocco and the remaining part to Mauritania. A year later, Spain agreed to hold a referendum on the future of the territory upon UN pressure. But the emerging conflict, between the native Sahrawis and the occupying forces prevented a referendum. POLISARIO (Frente Popular para la Liberacion de Saguia el-Hamra y Rio de Oro; English: Popular Front for the Liberation of Saguia el-Hamra and Río de Oro) offered military resistance against the new powers on the Western Saharan territory. To underpin the Moroccan claims to the territory, Moroccan soldiers and citizens marched in their tens of thousands in an event which became known as the Green March in 1975.[2]

The Green March also had a military component and the Moroccan military units, which were aimed to crush the resistance offered by POLISARIO forces. The forces of POLISARIO were no match for the Moroccan conventional forces so these forces were able to achieve their objectives relatively quickly, but they were unable to cut off POLISARIO forces from their Algerian support.[3] As a political countermove, POLISARIO declared the formation of the Sahraoui Arab Democratic Republic (SADR). A new phase started in the war between Morocco and POLISARIO, as the latter began to rely on guerrilla tactics against the Moroccans and the Mauritanians. POLISARIO was very successful against the Mauritanians, as the Mauritanian Army was a relatively weak organisation. In turn, the Mauritanians signed a defence pact with Morocco, and 9,000 Moroccan troops were deployed on the Mauritanian occupied part of Western Sahara. Also, the French signed a defence pact with Mauritania, and French forces provided air support for the Mauritanian Army against POLISARIO, while giving training to Mauritanian and Moroccan officers as

well. (The French also increased their support for Morocco, because it was feared Algeria could take direct military retaliation on Morocco.) Mauritania was struggling with the costs of the war and an economic crisis, and the military took over the country. But the leadership was forced to sue for peace and this led to the peace agreement in 1979, with Mauritania giving up its claims. According to the agreement Mauritania would give the territory directly to POLISARIO, but Moroccan forces seized the vacated territory.[4, p. 25-27]

POLISARIO refocused its efforts on the Moroccan forces and attacked vulnerable outposts and economically important targets, forcing the Moroccans to give up smaller outposts and reinforcing important bases. After costly losses, the Moroccans were able to take over the territory bordering Algeria, and in 1980 they began to build a system of fortifications and obstacles in order to cut off POLISARIO's support from across the border. Nevertheless, POLISARIO continued to attack Moroccan positions, and the conflict was a serious drain on the Moroccan budget. France was the main arms supplier to Morocco, selling Mirage jets, helicopters, armoured personnel carriers and other heavy equipment, worth billions of dollars. In the early 1980s, the US also stepped up its support for the Moroccan military.[4, pp. 28-29]

France, despite its military support and political commitment to Morocco adopted a formal neutrality on the issue of the Western Sahara conflict. It was important for France to hold this position, as the country wanted good relations with Algeria, and the French left had good relations with POLISARIO on its own. POLISARIO was even allowed to open an office in Paris in 1982. However, the French government has shown no sign of willingness to recognise SADR.[4, pp. 34-35] This was not an easy position for France, as both Morocco and Algeria wanted French support on the Western Saharan issue, and there have been diplomatic problems between Algeria and France. Right at the outset of the conflict, President Boumediene publicly criticized France for supporting Morocco, accusing the French of allying themselves with the country. Later, the relations became somewhat better, during the Mitterand years. One can argue that for France the most important thing was stability in Morocco, and as Western Sahara was an important factor in this domestic stability, the French would never use any form of pressure to force Morocco to accept some kind of solution to the conflict, while maintaining its neutral position on the Western Sahara conflict.[5]

Spain also had an ambiguous relationship with POLISARIO. As the former colonial power, it wanted to have good relations and made the opening of a POLISARIO office possible. Relations turned sour, however, when in 1985 POLISARIO forces shot at a Spanish fishing boat, killing two and after that there was an incident involving Spanish patrol boats.[6] The US and Saudi Arabia also began to increase their support for Morocco, and during the Reagan Administration M-60 tanks, reconnaissance aircraft and fighter jets were sold to the country, as well as the number of Moroccan officers studying in the US was increased.[6]

By 1987 the berm, which was built by the Moroccan armed forces was more than 1,200 miles long and it caused POLISARIO's freedom of movement to decrease significantly. During this time, POLISARIO also had to contend with the reduction of supplies from its backers, Libya and Algeria, who based upon different interest, saw the need to restrict their assistance. This in effect meant that the conflict became a stalemate, as militarily POLISARIO was unable to mount serious attacks on the Moroccan forces, while these

forces were unable to destroy POLISARIO militarily.[7] This situation needed a political solution, which was very hard to come by, without outside assistance.

THE ORGANISATION OF AFRICAN UNITY, THE UN AND PEACEKEEPING IN WESTERN SAHARA

The Organisation of African Unity (OAU) undertook the first steps in order to create a settlement for the conflict. It wanted to create a neutral interim government, which in turn would prepare a referendum, in which the population could vote for either independence or integration with Morocco. The diplomatic track, however, became very difficult as POLISARIO undertook its own diplomatic steps. The lack of experience in regards with carrying out a plan of this magnitude as well as regional dynamics, like the Morocco-Algeria relations, were also important factors in the failure of the plan. The OAU itself became organisationally threatened as the accession of POLISARIO in the OAU caused a temporary boycott by those countries, which were supporting Morocco. In 1984 Morocco left the organisation as the SADR became a full member of it.[8, p.615] So the leadership of the OAU turned to the UN for help.

The UN has had a long history in African peacekeeping and it has had a decidedly mixed record. On the one hand, the UN has been engaged in numerous forms of peacekeeping missions in Africa from the light footprint observer missions to the larger efforts employing conventional army units. The first peacekeeping mission in the Congo had a negative outcome, and in the Cold War it didn't get an opportunity at new missions until the late 1980s. In 1988, however, 18 peacekeeping operations were established on the African continent, which was only possible due to the weakness of the Soviet Union. [9, pp. 2-3,14,17]

The Western Saharan situation perfectly fit into this new situation and the UN bodies went to work in order to end the conflict peacefully. As a first step, Resolution 40/50 of the UN General Assembly was adopted in December 1985. The resolution endorsed the essence of the previous OAU plan and the Secretary-General began talks, which ended in failure in May 1986.[8, pp.615-616] The renewed push came in 1986 from the Security Council (UNSC) with the adoption of UNSC Resolution 621, the first Special Representative of the UN Secretary-General was appointed for Western Sahara on 20 September 1988.[10]

On the diplomatic front, there was some optimism as Morocco and Algeria re-established diplomatic relations in 1988.[8, p.616] The efforts of the Secretary-General succeeded partly thanks to this rapprochement. A formal ceasefire was established and the UN plan for the settlement was accepted by the two parties on 30 August 1988.[9, pp. 240, 242] In June 1990, the UNSC adopted Resolution 658 that authorised the creation of a technical mission to Western Sahara and its neighbouring countries in order to obtain information and to create the necessary administrative aspects for the planned vote. The resolution also authorised the Secretary-General to transmit a report to the UNSC about the costs of the referendum and based on that the mission was planned to be established.[11] Accordingly, MINURSO was finally established by the UNSC Resolution Nr. 690. The resolution called for a referendum for self-determination, organised and supervised by the UN and created the MINURSO mission. [12] Later that year, in UNSC Resolution 725, the Security Council reiterated its previous positions.[13]

Things, however, were not easy, as both parties in the conflict considered the role of the UN a way for their own vision to win the conflict. It was not a solution based on mutual trust, but one, in which each side tried to gain the upper hand as the possibilities on the battlefield became harder to achieve.[9, p. 232] There were also technical questions, which proved to be irresolvable, like the question of who can participate in the planned vote.[9, pp. 241] The UN had no capacity to force a solution on the parties and thus began a tortured process of diplomacy, in which neither party in the conflict wanted to give anything away. The date of the planned referendum was pushed back to later dates again and again as the parties were unable to compromise on voter eligibility and other vital issues.

The voter registration process broke down in 1996 but it was revived and in 2000 MINURSO found more than 86,000 people eligible to vote (turning down the applications of most of the people who had Moroccan background). Thus the earlier consensus around the resolution of the conflict broke down in the year of 2000. Former US Secretary of State, James Baker played the leading role in the effort to reinvigorate the stalled process. He tried to arrange a negotiated compromise but the other parties opposed his solution. His peace plan of 2003 received a mixed welcome at first, and after it becoming clear that he wanted the UNSC resolution, Morocco opposed it openly. After the departure of Baker in 2004 the Moroccan side placed the emphasis on autonomy instead of self-determination. In turn, the nationalists opposing Moroccan presence turned to peaceful resistance. Baker's successor, Alvaro De Soto was unable to bring the parties to the negotiating table. [14]

The non-violent approach of POLISARIO held for a while but in October 2010 there was rioting as Moroccan authorities tried to dismantle a protest camp forcibly. The incident, however, was not well-covered in the international media as there was a media blackout in place in the Western Saharan region. It is unclear what happened and how many casualties there were. Only in Spain did the violent clashes evoke interest as the former colonial power still takes interest in the events of Western Sahara. There were no serious diplomatic repercussions but the European Parliament called for an international investigation into what had happened.[15] This incident also showed the difficulties of the MINURSO mission. As the report of the Secretary-General states: *"MINURSO was not able to monitor the situation in the camp because the Moroccan authorities impeded its access. Attempted military patrols and visits by United Nations security and police personnel were prevented or stopped on several occasions. (...) In response to continuing efforts by MINURSO, the Moroccan authorities eventually allowed one international security officer into the camp, on 4 November."* [16] The incident showed clearly, that the current state of the conflict was still far from being resolved and the potential for a renewed violent conflict was still there. Since then, no information about an incident of similar size is available but the potential for a sudden escalation is still there.

As Norrie MacQueen points out UN peacekeeping missions need international backing and agreements also from outside of the theatre,[9, p. 2] so in the remainder of this chapter, we will take a close look at how the European Union views and contributes to the solution of the conflict in Western Sahara.

THE DIPLOMATIC STAGE: EUROPEAN RELATIONS WITH MOROCCO AND POLISARIO

The Western Sahara conflict is present on multiple levels on the diplomatic stage. Beside the basic Morocco-POLISARIO level there is a regional level, where Morocco and its allies and POLIARIO and its allies play a role and there's the broad international stage, where the UN and international actors play a role. It is vital to get a grip on each of these levels in order to create a comprehensive picture on the nature of the international political engagement and how the EU fits into the picture.

The diplomatic background cannot be comprehended without understanding the relations between Morocco and Algeria, the latter being the most important supporter of POLISARIO. Although relations were good between the two countries during the war for independence, relations soured after the war, due to the differing natures of the regimes, which were created. Morocco with its more conservative system and Algeria with its more socialistic system approached the world in two very different ways and this caused the relationship to strain between the two. Also, the relationship was made more difficult by border disputes and accusations (and counteraccusations) of harbouring insurgents and subversive elements from the other country. In the 1980s, relations improved to some extent as the Algerian foreign policy became less ideological and focused more on regional issues. A high watermark in this process was the signing of the agreement in 1989, which established the Union of the Arab Maghreb (Union de Maghreb Arabe, UMA) with the participation of Morocco, Algeria, Libya, Mauritania and Tunisia and aimed to create a regional cooperation framework.[17, pp. 223-224]

Algeria was very active in its support for decolonisation and thus it inevitably ran into confrontations with Western powers. This meant, for example, that after the six-day war Algeria broke its diplomatic ties with the US. At later stages, the interests of the two countries became closer but this never meant a really close relationship between the two. The civil war in Algeria also made relations more difficult in the 1990s. Algeria has maintained close relations with France but this relationship also had its ups and downs as some voices demanded greater political distance from France. Despite these calls, economic and political relationship between the two countries remained good during the Cold War years and later as well.[17, pp. 228-232]

In contrast, Morocco had a special place in the Western foreign policy. Morocco had very good relations with the US and France, supported Western peace initiatives in the Middle Eastern peace process and had very active intelligence collaboration with Western powers. During the years of the Cold War, Morocco was considered to be an important ally against the spread of Soviet influence. As Pazzanita points out Morocco also has mastered the art of lobbying in the US. This meant that Morocco had a very strong ally in the US during and after the Cold War.[18]

There was much concern for internal stability in the early 2000s. After the terrorist attacks in 2003, France had a leading role in opposing the imposition of the Baker plan on Morocco. It was deemed to be a problematic time for the Moroccan government in domestic as well as in the international arena as Morocco was one of the few Arab countries supporting Western counterterrorism efforts and foreign policy agendas. [14, p. 258]

The French also played an important role after the departure of Baker in order to keep the mandate of MINURSO alive, despite the fact that Morocco refused to consider the

referendum, on which the mandate was based. The presence of MINURSO was seen as a way to keep a lid on the conflict by the French. Jacques Chirac, the President of France at the time, expressed his personal support to King Mohammed. [14, pp. 259-260]

The other important relationship Morocco has that influences European behaviour is its relationship with Spain. These relations are much more difficult compared to those with the French as the two countries had historical disputes on some issues, such as illegal migration, fishing rights etc. The low point in relations came in 2002 when Morocco took over a tiny island with the probable intent to test the Spanish response for the defence of its North African territories. The conflict ended with US mediation (EU support was hard to secure because of French opposition).[19, p. 657] However, with the Madrid bombings of 2004, the Spanish stance also changed as Morocco was an important partner in investigating the background of the attack. Spain, for a short while, tried to act as a mediator and proposed direct Algerian-Moroccan talks to resolve some of the outstanding issues. This was rejected by the Algerians and so the Spanish attempts ended in this regard.[14, p. 260] Pablo San Martín also points out that in the background of the Western Sahara conflict there has been quiet a competition between France and Spain in the 1990s and early 2000s. The successful peace efforts, that would have created an independent, Spain-friendly state would have been a diplomatic difficulty for Morocco and France (and probably for the US as well). The socialist government in Spain changed this course,[19, p. 657] but Spain remained a supporter of the UN backed peace process and Western Saharan independence nevertheless.

On the other hand, POLISARIO had also mounted an impressive diplomatic offensive in the 1970s and 1980s but it was a more regionally focused effort. In 1990 more than 70 states, mostly third world countries, established diplomatic relations with POLISARIO and its OAU membership was a further diplomatic victory against Morocco. In Europe and the US, POLISARIO had much more limited diplomatic efforts. Although much of Europe and the US did recognise the SADR in the 1980s, they didn't establish formal relations with POLISARIO.[18, pp. 270-273]

The most important backers of POLISARIO are Algeria and to some extent Spain. These two states were vital to pressure POLISARIO for example to adopt the Baker plan. But as it had already been mentioned, Spain tilted towards the positions of Morocco in the 2000s as the security situation after the Madrid Bombings of 2004 required to build a better relationship with Morocco. Nevertheless, the traditional sources of friction remained between the two countries, like the sovereignty over the two Spanish enclaves, illegal immigration, disputes over territorial waters etc.[19, pp. 654,656-657]

THE ROLE OF EU STRATEGIES AND INSTITUTIONS AND BILATERAL RELATIONS

The position of the EU in regard to the conflict in Western Sahara has to be considered from different perspectives. Firstly, there is the interest of France, Spain, and other major EU countries in the region, which has an influence on the position they represent in the EU concerning this issue (these issues had already been covered). Likewise, member states with no or little interest of their own like to put forward generic issues like human rights or support the positions of interested members. Some don't form in depth policies of their own. This is astonishing, considering there are major strategic considerations regarding the security and prosperity of the EU. The common position often times reflects this

imbalance, but there are institutions in the EU, like the European Parliament, where disagreements about the Western Saharan conflict (among others) come to the forefront.

The EU has strategic interests in the peace and prosperity of the North African region as the stability of these countries is important for the security, economic vitality of its Southern members. Also, on issues like migration, crime and terrorism etc. the EU needs strong partners in the region. The Euro-Mediterranean Partnership and the European Neighbourhood Policy were conceived as vehicles for the creation of a more stable Middle East and North Africa. But these initiatives were primarily not focused on North African issues and also in other regions they proved to be very difficult if not impossible. In the early days, the Western Saharan conflict was considered to be an impediment to the stabilisation efforts in the region and put the conflict alongside conflicts like the Israeli-Palestinian conflict. But despite the rhetoric, no confidence building measures were put in place by the EU. [20, pp. 8-9]

Other than the interests of major European countries with interests in the region, there are also other issues, which need to be considered in relation to EU positions in regard to Western Sahara. For one, there's the question of international law and human rights issues.[20, p. 7] Other important members of the EU, like Germany, kept a low profile for a long time until joining MINURSO but then again, in a very minimalistic way, contributing only 4 personnel after 16 October 2013.[21]

As the member states have a wide range of opinion, this becomes clear on the floor of the European Parliament, which has become the most active institution in the EU regarding the issue of Western Sahara. The European Parliament has issued numerous resolutions, like the Resolution of 16 March 1995, when it called on Morocco to release prisoners detained during demonstrations for Western Saharan independence and respect the human rights statues it has signed. [22] European Parliament MEPs have visited refugee camps in the region numerous times, like the meeting in 2001, when MEPs met Algerian and POLISARIO representatives and in 2002, when MEPs travelled to Morocco. During these visits, many issues were covered from both sides of the divide and included economic, social and political issues and the discussion included not only state and MINURSO officials but civil society representatives and NGO representatives as well. The final report on these trips noted that as the UN didn't seem to have an answer to the situation, the EU should be the facilitator of negotiations.[23] After the incidents of 2010, the European Parliament also passed resolutions regarding the conflict. It called *"on the EU to demand that the Kingdom of Morocco abide by international law regarding the exploitation of the natural resources of Western Sahara"* [24] and also called for an independent UN enquiry into what happened and criticized Moroccan authorities for their conduct against demonstrators and prisoners.[24]

The only uncontested and successful part of EU engagement is its role in the humanitarian support dimension. The EU's ECHO program has been engaged in the support of refugees living in camps in Algeria since 1993, providing food, water and health services among others. According to an EU report from 2004, more than 150,000 people were living in the camps, for which ECHO has provided its support.[25] According to an official publication, the EU has spent 9 million Euros in 2017 and planned to do the same for 2018.

This includes the supply of safe drinking water, medicine and health support, food and educational costs for refugees based in Algeria.[26] This means, of course, that the engagement has remained virtually unchanged since the early days of this humanitarian assistance.

Additionally, there's the issue of EU-Moroccan bilateral relations. The EU and Morocco signed an association agreement in 1996 (that come into force in 2000), as part of the Euro-Mediterranean Association Agreement and later a further agreement was signed as part of the European Neighbourhood Policy. Accordingly, Morocco has committed itself to the principles of human rights and democracy. Morocco was recognised with an advanced status as part of the European Neighbourhood Policy in 2008, which among others meant closer cooperation on the political, security and economic levels (economic relations go back to the 1970s). Morocco has become a leading trading partner of the EU.[28] As the following table shows, after 2008 the economic relations expanded significantly.

Year	Import (Mio €)	Export (Mio €)	Balance (Mio €)	Total value (Mio €)
2008	8,498	14,453	5,956	22,951
2009	6,585	12,038	5,453	18,622
2010	7,775	13,787	6,011	21,562
2011	8,876	15,407	6,531	24,283
2012	9,327	16,943	7,616	26,269
2013	10,046	17,287	7,242	27,333
2014	11,053	18,213	7,160	29,267
2015	12,456	18,142	5,686	30,599
2016	13,792	20,966	7,175	34,758
2017	15,117	22,366	7,249	37,484
2018	16,073	23,260	7,187	39,332

1. Table EU Trade flow and Balance with Morocco [28]

On the issue of security, Morocco has also become an important partner. Due to its geographical location, it has an important role in reducing the flow of illegal migration in the region. For example, Morocco was already chosen along with Afghanistan, Albania, Iraq, Somalia and Sri Lanka in 1999 by an EU High Level Working Group to receive funds in order to combat a complex set of problems, illegal migration among it (but the issue of human rights, democratisation etc. were also a priority).[29]

But the bilateral relations also had their own problems, also in part due to the conflict in Western Sahara. In 2016, the European Court of Justice decided, that the Western Sahara region, as it is not considered to be a part of Morocco, couldn't be covered by the agricultural agreement between the EU and Morocco. Also, according to a recent investigation by the newspaper EU Observer, Morocco has launched a public relations undertaking to bring the relations back on track.[30]

Regarding the official statements of the European Union, the EU has always supported the UN process. The conflict in Western Sahara is a reoccurring subject of the annual human rights report of the EU. In the 2014 edition, for example, the authors state that *"EU has also consistently expressed support for the* work of the UN" [46] and also declared that

through an agreement signed with Morocco in 2013, the EU aimed to strengthen human rights organisations.[31]

THE TROOP CONTRIBUTIONS OF EU MEMBERS TO THE MINURSO MISSION

As the conflict in Western Sahara is almost on the doorstep of Europe, it is important to take a look at the role European nations play in the MINURSO mission. It is the official position of the EU that the conflict can only be resolved through the UN. However, it is interesting to take a detailed look at how many military observers, police and civilian officials the EU nations send into the conflict zone.

At first, it must be stated that the national composition of MINURSO is very wide-ranging. Countries from the wider region, like Djibouti, Ghana and Nigeria for example, were involved. Also major powers, like the US, the Russian Federation and China sent troops as part of MINURSO. And lastly, countries which have no serious regional interests, like South America, Southeast Asia etc. also contributed to the manpower requirements of MINURSO.

The table below shows the contribution of EU members and countries, which became members during the chosen period (the numbers contributed by nations during the period they were in accession talks are not counted in total EU contributions; it only serves as a reference for their later participation; those cells are marked with a grey background. Observes, police and other staff are not counted separately, the total contribution is marked in every entry.).

Country	Year										
	1995 [32]	1997 [33]	1999 [34]	2001 [35]	2003 [37]	2005 [37]	2007 [38]	2009 [39]	2011 [40]	2013 [41]	2015 [42]
Austria	4	6	5	3	2	2	2	2	2	2	3
Belgium	1	-	-	1	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	2	-	-	-	-
France	30	25	25	25	25	25	17	13	13	13	7
Germany	-	-	-	-	-	-	-	-	-	-	4
Greece	1	1	-	1	1	1	1	1	1	-	-
Ireland	9	8	8	3	4	4	3	3	3	3	3
Italy	6	5	5	5	5	5	5	5	5	5	-
Portugal	-	6	3	12	2	-	-	-	-	-	-
Sweden	-	-	-	1	1	-	-	-	-	-	-
Croatia	-	-	-	-	2	2	6	7	7	7	7
Hungary	-	2	-	7	7	7	7	7	7	7	7
Poland	2	3	3	6	1	1	1	1	1	1	1
Total EU	51	51	46	51	40	47	44	39	39	38	32
Total MINURSO	288	230	316	263	241	236	232	218	237	215	212

Country	Year										
	1995 [32]	1997 [33]	1999 [34]	2001 [35]	2003 [37]	2005 [37]	2007 [38]	2009 [39]	2011 [40]	2013 [41]	2015 [42]
Percent-age	17,7	22,2	14,6	19,4	16,6	19,9	19	18,9	16,5	17,7	15,1

2. Table EU Troop Contributions to the MINURSO Mission, 1995-2015

The table shows that the European commitment was never too high in the given timeframe. It was between 15-20 percent of total troop contributions and in all it showed a decreasing tendency from the second half of the 2000s. It is also worth noting that the smaller EU nations were more involved in contributing forces to MINURSO, like Croatia, Hungary and Ireland. From the major EU countries only France contributed larger numbers, which commitment showed decreasing tendencies over the years. The author has found no indication that there was a coordinated effort in this, however, there was no indication the EU nations wanted to increase their commitment in a coordinated fashion.

Of course, it is also worth mentioning that the mission wasn't without dangers and until today, there have been 16 fatalities in the history of MINURSO.[43] None of them were from EU contributing countries. (The nationalities of the fatalities were as follows: Australia: 1; Guinea: 1, Iraq: 1, Malaysia: 1, Morocco: 4, Norway: 1, Pakistan: 1, Philippines: 1, Switzerland: 2, Togo: 1,Tunisia: 1, US: 1) [44]

According to an estimate made in 2007 by the Crisis Group, the MINURSO mission cost 45 million USD a year, with additional funds spent on refugees by the UN. [46] So it is safe to say, aside from the human casualties, that the costs to the international community were more severe in the symbolic and political sense than on the financial level.

CONCLUSION

As the chapter has shown there is a complex relationship between the European Union and Morocco, which casts its shadow over the EU's positions and roles regarding the conflict in Western Sahara. It would be strategically important for the EU that a resolution for the conflict was found, as this conflict, like some others in the Eastern regions, like East Ukraine, Nagorno-Karabakh etc. have the potential to disrupt regional dynamics and cause serious difficulties internationally. It is, however, a further complication that Morocco and Algeria are also strategic partners of the EU on a host of fronts and without the backing of some major members of the European Union, like France for example; it doesn't seem to be possible to place real pressure on the parties, even if the international diplomatic background was favourable. The situation is further complicated by the fact that Morocco is a vital partner for the EU on many issues from security to economic cooperation.

It is worth mentioning that the current outcome of the conflict between POLISARIO and Morocco is only possible, because the international community never exerted real pressure on conflicting parties, especially on Morocco, to find a realistic solution for the conflict. Also, the lack of international focus on the conflict coupled with serious foreign support (diplomatic as well as military, from France and the US especially) enabled Morocco, to use methods and military hardware which otherwise would not have been possible, making

its position much stronger compared to the possibilities of POLISARIO. Despite this massive support, the Moroccans were unable to decide the conflict in their own favour, so an international solution had to be searched for.

The EU didn't start a diplomatic initiative to help to end the conflict. This is partially caused by the EU's traditional problems of formulating and executing a common foreign policy. With some exception made by the European Parliament, no EU body tried to pressure Morocco into fulfilling its commitment for holding a referendum on the status of Western Sahara (although economic and security relations improved a lot during the 1990s and 2000s). This, on the one hand, shows the difficult nature of the conflict and the low chances for its peaceful resolution. On the other hand, the EU didn't live up to its ideals as it didn't try to organise a concerted diplomatic effort to support the UN when this could've helped. Although, its contribution to the MINURSO mission and on the humanitarian front is important, there is room for improvement.

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COUNTING FOR NOTHING – THE WORK OF THE IDENTIFICATION COMMISSION

SZÁMOLÁS A SEMMIÉRT – A MINURSO AZONOSÍTÁSI BIZOTTSÁGÁNAK MUNKÁJA

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Abstract

The Identification Commission (IDC) of MINUSRO was established in 1991 to register the voters for the planned independence referendum. In spite of numerous challenges, break and setbacks the IDC has managed to accomplish its task by the early 2000s. After all the documentation was provided to the UN and stored at the UN Geneva Offices. Since then, because of the lack of political settlement, the referendum has not been organised and the results of the IDC has become outdated. Therefore, any new solution would request the relaunch of the field survey of the Commission.

Keywords

Identification Commission, referendum, registration

Absztrakt

A MINUSRO Azonosítási Bizottságát 1991-ben hozták létre, hogy a tervezett népszavazásra regisztrálják a szavazásra jogosultakat. A különböző kihívások, a munkájukat negatívan befolyásoló események ellenére a szervezet a 2000-es évek elejére sikeresen teljesítette a feladatát. Miután az összes, a népszavazással kapcsolatos dokumentációt átadták a Világszervezet genfi központjába, ahol azok letárolásra kerültek. Azóta a politikai rendezés hiánya miatt a népszavazás nem került végrehajtásra, illetve a Bizottság által készített dokumentációk elavultak. Ezért egy esetleges rendezés esetén a Bizottság által korábban elvégzett regisztrációs folyamatot meg kell ismételni.

Kulcsszavak

Azonosító Bizottság, referendum, regisztráció

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INTRODUCTION

The last decades of the crisis and political turmoil in Western Sahara has mainly focused on the status of the contested area, namely that it could be established as an independent and sovereign state of the indigenous Sahrawi and the resettled Moroccan people or become an integrated part of the Kingdom of Morocco. In spite of the different efforts of local actors and the international community, the topic could not be solved until now. Of course, the failure of the attempts was not independent of the final determination of Rabat that it stops all processes, which can lead to the creation of a separate Sahrawi state.

Nevertheless, it would be a mistake to consider the last 44 years as a homogenous one, where there were no possibilities for the solution of the dispute. The ever-changing local and international dynamics provided a relatively wide range of manoeuvres and struggles for the parties, just to mention a few, think about the military successes of the Polisario against Mauritania and Morocco in the late 1970s, the quite of Nouakchott from the story in 1979 and the increasing commitment of the Organisation of African Unity towards the dispute in the 1980s. Yet, the involvement of the United Nation and its mediation attempts brought most successes in the procedure – even if many – if not most – times the UN could not be seen as a neutral actor, mainly by the Sahrawi, and the organisation made a lot of mistakes during the negotiations. But the introduction of the lasting ceasefire, the deployment of MINURSO, the framework for the political settlement of the dispute in the form of a referendum – even if it has not been conducted yet – were the maximum anybody has reached until now.

One of the main parts of the UN efforts has concentrated on the identification of the people who would have right to vote in the planned referendum about the status of the area. The body which was established to accomplish this task was the Identification Commission (IDC) of MINURSO. As it could be assumed, the basically technical procedure of voter registration got quickly broader political dimensions. Nevertheless, in spite of delays and debates, the MINURSO managed to achieve its goals and finalized the identification of potential voters for the planned referendum by 2003. Primarily it was not the mistake of the mission and the IDC that their work remained useless – and, considering the passing time – outdated again.

The Identification Commission (IDC) of MINUSRO was established in 1991 to register voters for the planned independence referendum. In spite of numerous challenges, breaks and setbacks, the IDC managed to accomplish its task by the early 2000s after all the documentation had been provided to the UN and had been stored at the UN Geneva Offices. Since then, due to the lack of political settlement, the referendum has not been organised and the results of the IDC have become outdated. Therefore, any new solution would necessitate the re-launch of the Commission's field survey.

In this chapter I will examine the creation and the work of the Identification Commission. Because of the other parts of the book I will not concentrate on the broader framework of happenings in which the IDC existed and I will only refer to them if it helps understand the activity of this body.

THE ESTABLISHMENT OF THE IDENTIFICATION COMMISSION

When the United Nations sent its technical mission led by the Guinean Issa Diallo to Western Sahara in 1987, it made a report about the main findings and suggestions for the UN Security General and the Council in 1988. Besides requesting ceasefire and troop-reduction, the document called for a UN-managed and monitored referendum about the status of Western Sahara, where the population could vote if it wanted to belong to Morocco or choose independence. Besides the "winner-takes-all" suggestion, the document contained the main framework for referendum-procedure for which registration would be based on the latest Spanish census conducted in 1974. Because of the massive displacement of the Sahrawi population, the Secretary-General asked the assistance of the United Nations High Commissioner for Refugees (UNHCR) to involve Saharawi people who lived outside the area. In the 25th paragraph, the SG underlined that "to facilitate the task of taking a census of the Saharan population, the Secretary-General will set up, in consultation with the current Chairman of OAU, an identification commission responsible for carefully and scrupulously reviewing the 1974 census and updating it." [1] At this point, the UN still highly underestimated the task of registration when it only suggested four to six people for the job. According to the report the role of the Identification Commission would be:

- "To review carefully the census taken in the Territory in 1974 by the Spanish authorities and update it;
- Calculate the real growth of the Saharan population in the period between the date of the above census and the date of the organization of the referendum, taking into account the following elements:
    - Births and deaths;
    - Movement of the Saharan population.
- On the basis of the information mentioned above, the Identification Commission will establish as precisely as possible the number of Saharans living in the Territory of Western Sahara and the number of Saharan refugees and non-residents qualified to participate in the referendum."[1,para. 28]

The report also contained that the IDC must consult with local tribal chiefs who "will be asked to comment on and contribute to the work of the Identification Commission." [1, para. 29] The document also emphasised that each Sahrawi with the inclusion of the Spanish and those who were aged 18 or over would have the right to vote in the referendum. [1, para. 24] The UN demonstrated the "settlement proposals" to all parties in August 1988, who – with minor amendments –accepted

the document. It meant that theoretically each actor was ready to launch a referendum about the status of the territory and respect a "winner-takes-all" approach which was a sign of high self-confidence among both the Sahrawis and Moroccans. [2, p. 45] Thanks to these developments, the UN Security Council accepted Resolution 621, which authorized the SG to appoint a Special Representative for Western Sahara and determined the organisation of a referendum about the status of the territory. [3]

The establishment of the proposed Identification Commission was necessitated by empathetic consensus on popular vote. Nevertheless, it took almost three years while the Security Council – with the support of the proposals of August 1988, which had been accepted by the parties – authorized the creation of not only MINURSO but also the IDC by UNSCR 690. [4] The Commission started its preliminary work in New York in July 1991. [5] When the Moroccan forces and the Polisario suspended their military operations on 6 September 1991 and the ceasefire was announced by the UNSG, the security environment became adequate for the IDC's field work in Western Sahara, too.

THE INITIAL WORKS OF THE IDC

The time framework and the roadmap of the referendum were suggested by the technical mission of the UN Security-General, who visited the territory and consulted with the parties between 28 July and 13 August 1990. The main proposals of the mission became the integral part of UNSCR 690 and determined the necessary steps until the referendum. [2, p. 45] The document fixed the D-Day and the implementation of the ceasefire. According to the plans, the Identification Commission had to finish updating the data of the Spanish census in 1974, while Morocco's task was to collect voter applications in the occupied Western Sahara. Polisario should have done the same in the refugee camps. [6, p. 186]

The most important task of the Identification Commission was to update the list of Western Saharan people who had the right to vote. The schedule for the registration procedure was to follow. Twelve weeks before the D-Day, MINRUSO should inform the people of the territory about the planned referendum and the mission ought to start its deployment. Nine weeks before the ceasefire agreement, the first mobile group of the IDC would arrive in Western Sahara to start the initial work of the Commission. One week later, the IDC would close the application procedure for the people of the territory and start the comparison of the applications with the results of the Spanish census in 1974. According to the plan, the IDC should have managed to finalize and publish the consolidated list of voters by the official day of the end of hostilities. With the arrival of the D-Day, MINURSO would take the complete leadership of the technical preparation for the referendum, backed by a police contingent. It was not fixed, however, and it remained a contradiction in the proposal how the IDC could work on the field before the implementation of the D-

Day ceasefire and the deployment of MINURSO. Although, the Secretary-General suggested that both tribal chiefs and the observers of the Organization of African Unity would assist the collection of applications, it seemed highly unrealistic that the documents would reach the proposed meeting places of the Commission, New York and Geneva, within the given four-week period. [7, p. 7]

After the D-Day, transitional period would come which would end with the declaration of the results of the planned referendum. According to the initial plan, it would not take more than 20 weeks, although MINURSO would stay for an additional 6 weeks. The degree of optimism experienced by the staff of the UN about their schedule was well-demonstrated by the following statement of the document: "it should be noted, however, that the period of time allowed for the various processes in the timetable are estimates and it is possible that some of the processes may be completed in a shorter period than that indicated." [7, p. 4]

The UN planned that the IDC should have been fully deployed to Western Sahara by the D-Day. The UN SG proposed the establishment of both mobile and static teams for the identification, consisting of a leader, three registration/identification officers, a typist, two civilian police monitors and support staffs as drivers and translators. [7, p. 7] Besides the tight time-framework and the pre-deployment before the official ceasefire, the other contradiction of the proposal was that it did not make it clear that if the IDC had managed to consolidate the list of voters for the referendum by the D-Day why it was necessary to deploy an extended civilian, military and police mission to do the work again and why the UNSG expected a comprehensive job from the Commission before its arrival in the territory. The most likely explanation is that the United Nations thought that the parties really wanted a quick negotiation and the settlement of the dispute. As it was revealed later, this assumption was an absolute mistake.

Furthermore, the next part of the document revealed that even the UNSG was sceptical about the results of preliminary registration. Therefore, the second phase of IDC's work consisted of two important stages: first, it had to identify and issue a registration card to the people whose names were published in the list of eligible voters; and, second, it had to organize and provide assistance for appeals against non-inclusion in the registration. So technically, the identification of potential voters also continued in Western Sahara. The IDC got 11 weeks for this procedure and according to the UNSG; it should have demonstrated the consolidated list to the Secretary General. After consultation with the chair of the OAU, the SG had the right to publish the final voter list. [7, p. 7.] Nevertheless, it was not clear why this final publication and consultation were necessary if the IDC had already distributed the registration cards.

The update of the Spanish census's results started in the mid-1991. Madrid was helpful and provided all necessary documentation for the work. Thanks to this cooperation, the Identification Commission managed to finish the initial revision of

the lists by December 1991. Nevertheless, the results could not be published because of the resistance of Morocco. The reason for Rabat's critics was the following. The census in 1974 contained 95,058 names, and 73,497inhabitants were considered as Sahrawi people from the perspectives of different local tribes, while the remaining ones were of Spanish origin and other foreign people. [2, pp. 93-94] Nevertheless, Morocco stated that the Spanish census did not take Western Saharan people into consideration who had fled to Southern Morocco in 1957-58. Rabat argued that their number could reach tens of thousands, which could significantly change the results of the planned referendum. Therefore, according to Morocco, they would also have to be inserted in the final list of voters.

Contrary to the statements of Rabat, the IDC – having analysed the data of the previous Spanish censuses – pointed out that, although there had been a visible decline in the population of the territory between 1955 and 1962, it only concerned some thousands of people. Furthermore, the number of the Western Saharan population doubled between 1962 and 1963, which proved that most of the Sahrawi people from Southern Morocco returned to the territory. [6, pp. 191-192]

Rabat did not accept this argumentation, and delivered a list with 120,000 names that were considered as the descendants of the Sahrawi tribes by the Moroccans. The offer was unacceptable for Polisario, so the negotiation came to a stalemate. The year of 1992 passed without any significant result, and because the IDC could not continue its task to clarify the results of the census and update it, in January 1992 it returned to New York. [5]

THE RESUMPTION OF WORK

In 1993 Bill Clinton was inaugurated as the new president of the United States, which gave a fresh impetus to the negotiations. It was essential for the work of the Identification Commission, which could resume its activity in Western Sahara in May 1993. The head of the IDC, Erik Jensen, though he had only 10 people on the ground, [8] made tremendous efforts to accomplish his task. He visited numerous tribal chiefs to finalize the lists and also met with the representatives of Morocco and the Polisario to discuss the technical details of the registration. [9]

The identification procedure of voters had started on 3 November 1993, but it was stopped just a week later, because the new government in Rabat did not contribute to the publication of the corrected lists. After the negotiations, Morocco finally gave its approval and the updated list could be published on 22 November 1993. The parties also agreed that the registration forms for the referendum were going to be distributed from 29 November. [10] The registration centres were opened in Laayoune and Tindouf, and later in Smara, Boujdour, and Dakhla. [11]

Although, the registration procedure of the population was much slower than expected due to limited human resources the IDC was not capable to examine the

accepted registration forms. By July 1994 55,000 documents arrived from the territory under Moroccan control, 18,000 from the refugee camps and 3,000 from Mauritania. In August 1994, the Commission started the identification of voters, but it could only achieve a maximum of 1000 interviews and identifications per week with its capacity, which was far behind schedule. Therefore, in December 1994 Jensen asked six additional settled centres and five mobile ones to accomplish his tasks on time. The extension would mean extra 51 staffs. [12] As it was revealed, the administrative process proved to be even slower, as it was assumed, and by March 1995 only little more than 20,000 applications were controlled. By that time, more than 123,000 requests had arrived. To speed up the process, the UNSC agreed to the increase of the IDC's staff according to the request of Jensen. The authorized number of registration experts increased from 81 to 132, the administrative staff from 78 to 145, the logistic one from 37 to 43, and the IDC could admit additional 35 local staffs, too. [13] Nevertheless, the IDC had never reached this size. In spite of the increase, the registration procedure went slowly both because of the capacities and the lack of commitment of the parties. For instance, although the IDC got almost 120,000 registration forms from the inhabitants of the territory, many of them never appeared in the centres. By that time, the IDC managed to finalize over 53,000 registrations, which represented about 40% of the applications from the territory and 51% from the refugee camps. [14] However, the arrival of more than 110,000 additional registration requests made it impossible for the IDC to finalize its works by the beginning of 1996.

The delay also meant that the UN had to cancel the proposed time of the referendum again and again, which jeopardized the credibility of the organisations. Furthermore, the parties also contributed to the slow speed of the identification process. Because of the debates of the status of different tribes, the IDC had to cease its activity almost completely at the end of 1995. Although, it seemed that the IDC could continue its work in 1996, due to the debates between the parties, the process collapsed and in May 1996, the Secretary-General suspended the identification procedure. Without any meaningful task, most MINURSO civilian staffs were withdrawn, including the police component, which provided security and assistance to the Identification Commission. [5] While most of the staff of IDC left Western Sahara, 22 people were asked to stay until July to archive and organize the files of the Commission and close the centres. At the end of July, the files were transferred to the Geneva UN-centre. [15]

COUNTING FOR NOTHING – THE WORK OF IDC BETWEEN 1997 AND 2003

In September 1997, the UNSG's Personal Envoy for Western Sahara, James Baker, conducted a successful round of negotiations between the Polisario and Morocco which led to the adoption of the Houston Accords and restarted the identifi-

cation process. Robin Kinloch was appointed as the new head of the IDC. The identification documentation was transported back to Laayoune and the Commission tried to do its best to finalize the procedure. In spite of the Huston Accords, the parties – mainly Morocco – traded accusations against both the UN and the Polisario and hampered the process to delay the finalization of the voter lists. By September 1998, 179,497 people applied for registration cards, but only 84,251 of them fulfilled the requirements, namely:

1. If the applicant was on the list of the Spanish census;
2. If the applicant, although they lived in Western Sahara in the time of the census, because of their nomadic lifestyle was not registered. In this case, the tribal leaders could certify his rights;
3. If the father of the applicant lived in the territory;
4. If the applicant lived for at least six years without interruption or altogether for a minimum of twelve years with interruptions in the territory after 1 December 1974. [16]

The last point was implemented because of the Moroccan request. By mid-1999, the IDC had finally completed the first phase of the identification process and the 1st Provisional List of Voters was published in 15 July 1999. [17]

In the second phase, the IDC concentrated on the registration of the contested tribal groups. During this procedure, the Commission got 51,220 applications of which only 2,135 fulfilled the requirements. The 2nd Provisional List was published on 15 January 2000. Altogether from the 244,643 applicants 243,625 got invitations for the identification interview, 198,469 people participated in the registration, and 86,425 fulfilled the requirements. [2, p. 214] Considering the limited assets and human resources of the IDC, the UN staff did a Herculean effort.

Nevertheless, by 2000 the conditions had radically changed in Western Sahara. The cooperation between the parties collapsed and the case of the referendum was put on the shelf. Among these circumstances, the IDC could neither continue its work nor did its existence seem adequate. The Commission archived the documents again and wrote analyses and reports to the UN. In January 2002, the number of the staff was dramatically reduced, [18] and the documentation was transferred to Geneva again. By 31 December 2003, the contracts of the last Commission staff expired and the IDC ceased its activity. [19]

CONCLUSIONS

The Identification Commission of MINRUSO would have played a crucial role in the planned "winner-takes-all" referendum about the status of Western Sahara. Nevertheless, it soon revealed that the plans were too ambitious. It could hardly be imagined that Rabat would give a green light for any referendum of which con-

sequence could be the independence of the territory. Therefore, Morocco tried different methods to jeopardize the procedure - successfully. It must also be underlined that the UN underestimated the political and technical challenges of the registration procedure as well, and sometimes the Polisario also hampered the developments.

From historical perspectives the identification procedure was completely useless. After almost two decades of the closure of the process, the data became outdated again. Furthermore, contrary to the census in 1974, this information cannot form a solid base for a potential new referendum: most of the current Sahrawi population was likely born after the census and out of the original territory of Western Sahara. Therefore, the original frameworks and the conditions of participation of the MINURSO-planned census are mainly useless today. The newly settled Moroccan people of the territory have also been there for decades that raise numerous questions and considerations. It seems that the idea of the original referendum was only valid in a given historical period which has already changed since then: if any time in the history a new referendum would be planned, that must have other basics than the results of the IDC's work.

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MOBILE HEALTH – AN OVERVIEW | MOBIL EGÉSZSÉG – ÁTTEKINTÉS

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Abstract

This article aims to provide an overview of the mhealth applications. They are getting more popular lately due to their potential to make professional and preventive healthcare more convenient, personalized and cost effective. This trend is supported by the growing number of users who care about health awareness as well. In the paper I describe the importance and forms of mobile health applications. I also mention the datafication trend which explains the value and potential of the data collected from these kind of apps. I also highlight the security and privacy risks and briefly explain how these kind of apps can be used in the current COVID-19 pandemic.

Keywords

mhealth, applications, security, privacy, health awareness

Absztrakt

Az alábbi cikk célja az mhealth (megészség) applikációk áttekintése. Az utóbbi időben ezek egyre népszerűbbek, mert képesek a professzionális és megelőző célú egészségügyi ellátást kényelmesebbé, személyre szabottabbá és költséghatékonyabbá tenni. Ezt a tendenciát segíti még az egyre növekvő számú egészségtudatos felhasználó is. Az összefoglalóban ismertetem a mobil egészségügyi alkalmazások fontosságát és formáit. Megemlítem az adatosítási trendet is, amely segít az ilyen alkalmazásokból gyűjtött adatok értékét és lehetőségeit is megérteni. Emellett kiemelem a biztonsági és adatvédelmi kockázatokat, és röviden kitekintek arra, hogy az ilyen típusú alkalmazások miként használhatók a jelenlegi COVID-19 járványban.

Kulcsszavak

mhealth, megészség, applikációk, biztonság, adatvédelem, egészségtudatosság

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INTRODUCTION

Today, we can hardly imagine our lives without the latest technologies, the Internet and our mobile phones. The spread of mobile technology affects almost every area of our lives and also influences our behaviour and attitudes. We can hardly find a topic for which there is no mobile application yet. Nowadays, a datafication trend can be observed, during which a huge amount of data is generated from countless sources. This trend could bring about big changes in several sectors, including healthcare. There is a good opportunity for development not only because of the better usage of data, but the better use of mobile devices as well. Mobile-assisted health care is able to handle tasks related to more serious patient care, but it is also suitable for promoting health awareness, a trend that has become increasingly popular recently.

The aim of this article is to describe the importance and forms of mhealth (especially mhealth for health promotion), mapping the current situation and trends (such as the spread of mobile health and health awareness), while also covering data security and privacy issues. While there are many benefits to this tendency, there are risks involved as well. The topic is relevant because we spend more and more time with our mobile phones every day while there is an increasing emphasis on a healthy lifestyle in our lives. At the end of the paper I briefly touch the subject of COVID-19. It is a very hot topic at the moment, and although it can be considered a 'more serious' type of mhealth topic, there are many attempts to fight it with mobile technology.

PRESENT SITUATION

Nowadays, it's hard to imagine life without cell phones and the Internet. This trend is affecting not only business, but all areas of our lives. Part of the accelerated world is the need for data and services to be available anytime, anywhere. This is aided by mobile applications (apps), among others. It is difficult to find an area that does not yet have a mobile application to help. In the second quarter of 2020 users were able to choose between 2.7 million apps from Google Play and 1.82 million apps from Apple App Store. In the Windows Store a further 669 thousand, and in the Amazon Appstore 455 thousand were available. [1]

The mobile age is not only changing the lives of consumers, it is also having a major impact on the lives of service providers, companies and businesses. Because this technology is "sticky", everyone keeps their mobile with them, it is an excellent opportunity to reach our consumers, users and gain a deeper knowledge about them in an unprecedented way, to build a closer commitment. We can also easily track all their clicks within the legal framework. Examining the success metrics of apps, we can see how much data they can collect and provide about users. [2]

- Length of commitment: how much time the user spends on the application.
- Focused engagement: how much time the user spends on each screen, what grabs their attention for a longer period of time.
- User Preference: It comes from a comparison of the previous two metrics, showing where users like to spend time within an app.
- Click through rate: Shows how many users saw a link and how many clicked on it.
- Processing: examines how many people download the app and how many use it.

- Decline: how often the app is used as time goes on. This is because it is common for apps that people do not use with a certain frequency to be deleted.

The data provided by the users is really valuable, they give good tools to the service providers to influence and persuade. Of course, this is not necessarily a problem, some users don't mind seeing personalized ads, and they prefer it compared to having their Facebook timeline full of irrelevant ads, to give an example. This clearly improves reception, provides a more positive experience than a poorly targeted ad. For example, Google collects data about its users in three main categories according to its own privacy policy:

- User actions: this mostly covers data similar to the one listed above, when a user clicks on it, what it searches for, what pages you visit, what videos you watch, and also stores your IP address, location, and device information.
- User-created: emails that the user sends and receives, contact list, calendar events, images, videos, and documents that the user uploads.
- Personal information: name, date of birth, email address and password, gender, phone number, country.

According to the description, this data is stored to make life easier for users, such as helping to complete searches, offer music which better suit tastes, automatically fill out online forms, suggest better routes, and find more relevant answers to their questions. It is a useful tool, but in many places there is no open possibility to review the data we have already created. [3] In addition to officially acknowledged data collection, the company giant is often accused of collecting and then using, selling data about users, which only supports how valuable data is today.

According to Moatti, the mobile industry contributes an average of 5% to GDP in many countries. Nowadays, 90% of those who visit online services do so through an app rather than web interfaces. The cost of generating demand varies this way, as creating an app to run on all types of devices and platforms is a very costly activity, but then, once the customer has the commitment, less is spent on advertising and other more traditional marketing activities. It is important that the "mobile first" approach prevails in companies, they have a greater chance of success trying to reach their target audience with the help of mobile apps. Of course, this in itself is not enough, with the spread of health awareness described later, many other aspects must also be taken into account in order for a company to be successful. [4]

The above and the information society has created a huge amount of data that can still hide unknown values for many. Big data is a phenomenon in which new information is extracted from a large amount of data that has not been used before, and then the knowledge gained from it is incorporated into the business. It is important that the big data method is able to use not only structured but also unstructured data, so it can take into account information from the weather or social media sites, for example. The other differentiator is that while until now we could only rely on data from the past, today we can work with real-time data for even better results.

Datafication

Nowadays, a huge amount of data is generated from countless sources, datafication is a common term, which is "the representation and expression of phenomena, processes,

objects, events in the form of data". [5, p. 34] It is typical that we try to describe and follow all areas of our lives in the form of data. An outstanding group of supporters of this trend is the quantified self movement, who follow all areas of their lives with interesting experiments, trying to discover new links from a lot of self-collected data in order to get to know themselves and improve their lives. (These studies are available at quantifiedself.com.) Among other things, this group is supported by the applications described below. The advent of IoT, the Internet of Things, ie the connection of everyday devices to the World Wide Web, also adds to the resulting mass of data, and it also plays a major role in the field of health.

The processing and understanding of collected data may already exceed the limits of traditional data processing and analysis, to which problem big data may eventually be the answer. It should also be borne in mind that it is becoming increasingly difficult to filter out relevant data with real values from these data. However, thanks to more and more advanced technology, there are already better and more accurate methods for filtering, storage and analysis. As the phenomenon has started earlier, better statistical and specialized data mining methods, as well as a highly skilled workforce specializing in this, are also helping the process.

The primary source of the growing amount of data can be considered mobile devices and the applications downloaded to, but mobility, virtual life, online entertainment and cloud computing also contribute.

A data explosion can also be a problem for a company, but it also has countless opportunities to turn it to its advantage. It is well known that there are plenty of applications that collect data about us, such as the health and fitness apps that I will cover, but it is less obvious to users what happens to this data, what the purpose is with it. It may be reassuring, however, that regulations in this area are becoming increasingly stringent (e.g. GDPR).

Spreading health awareness

The development of mhealth today is aided not only by the spread of mobile applications, but also by an increasingly popular movement, for which one of the main aspects is health awareness. It is also remarkable that while health and wellness used to mean simply being healthy, today we think of a whole, holistic well-being when we hear this concept, which includes mental, physical and emotional health. In the age of social media, good sleep, training, and a beautiful appearance are luxuries that people like to show off, which they like to brag about. As Jack Ma, founder and CEO, said at the 2017 Alibaba Summit, people today want to be healthy and happy no matter where they came from. Moreover, this desire is much stronger than their object-related desires. It is characteristic of this approach that more and more users go to exercise, eat healthily, or pay attention to their sleep, for example, which is often supported by apps. [6]

The trend is also represented by a growing group of people, called the LOHAS (lifestyle of health and sustainability) consumer group, based on the segmentation model of the Natural Marketing Institute. Its members are more conscious and feel responsible for the environment and society. They usually belong to early adopters, committed to sustainability and authentic values. Instead of material goods, they focus on the soul, the importance of existence and health awareness. [7]1

It can be observed that the spread of health awareness is mainly related to one age group, the Y generation. According to a survey, 72% of millennials would spend more on experiences than material goods and it is part of their daily routine to care for their well-being. It also affects their shopping habits, such as preferring to wear sportswear for non-sports as well, or using smart devices to track their lifestyle. Sharing habits with friends is also an important part of their behaviour. [6] These changes need to be known to those who want to thrive in the market, because it has changed the way of reaching and convincing the consumer as well.

The health-conscious trend and its followers are characterized by: being proactive, preventively exercising, leading a healthy lifestyle, searching for happiness, desiring for healthy and natural, existing in groups, community, searching for belonging, searching for personalization and understanding the importance of sustainability (including their children's health). [8]. In summary, with the development of technology, the platform on which information is available, on which we live our lives has changed, and what is important to us is also changing, which are two important factors that ultimately led to the creation of mhealth.

MHEALTH

The development and spread of mobile technologies and apps, have had a major impact on healthcare, as well as countless other areas. The mobile health (mhealth) sector is a new, very fast-growing sector that connects health care and info communication technologies, including mobile applications for health-related services and prevention, which often process personal information. [9, p. 2] Mhealth may be well placed to reform current healthcare. Some of the services can be delivered to mobile devices, which increases convenience and quality, transparency, but can reduce costs. In a 2014 study by PWC, they argue that this method is unlikely to bring much innovation in healing, but rather in its means. On the other hand, by transforming large amounts of data into information and exploring connections, researchers will even be able to discover novelties. The new area can bring the greatest help in administration and overcoming distances. If patient data is stored in one place and can be accessed quickly at any time, there is no problem with substitution, making a better diagnosis, and getting to know the patient's history quickly. It can also be easier to make an appointment, write a prescription, and visit the services. In areas where medical care is more difficult due to long distances, technology can also be of great help, and distance care can also be useful. The most obvious benefit is a significant improvement in the flow of information, leading to a qualitative improvement in all areas. [10]

Switching to mobile devices more widely is likely to take time. In my opinion, with the aging of the digital native generation, it will become more and more common, as it would be difficult for a large proportion of older people who are now being cared for to switch to mobile apps, especially in less developed regions. As the newer generation ages and takes on leadership positions, it is increasingly likely that their novel views will spread to more areas of life, so mhealth can gain more ground. However, as I mentioned, we need to focus not only on caring for existing diseases, mhealth is also a good tool for health promotion and prevention.

In his book Whole, T. Coin raises an interesting idea. He argues that based on today's situation, disease care would be a more appropriate name for health care, as the goal

is not to preserve our health, but to cure our diseases. This can be interpreted as a call for change of mindset. It is known to us that, in general, the chances of survival and possibly avoidance of leading fatal diseases can be significantly improved by focusing on prevention, such as moving more, eating better, screening more often, and thus avoiding or detecting the issues in time.

Health promotion with mobile devices

Mobile healthcare has a role not only in more serious diseases that have already developed, but also in prevention. Given its popularity and availability, this article focuses on fitness and wellness-based prevention apps rather than more serious health apps. The aim of these is to help us achieve our goals in the chosen field, to stay motivated and to monitor our progress. They help us gather data from different areas of our lives, thus creating new values. With these apps, we voluntarily share our personal information in return for help and valuable information about ourselves. As I mentioned earlier, it is not a problem for digital natives in particular to share their personal information with others, including even with these apps. Many research materials refer to this phenomenon as prosuming, which consists of the words produce and consume, suggesting that users provide content and consume what others have produced at the same time. [11].

In the application stores, you can choose from numerous wellness apps that help maintain health and improve the quality of life. Since there is an extremely wide variety of such apps, without claiming completeness, let us look at a few areas:

- Food and weight: With these apps, users can track the amount of calories and nutrients in the food they eat and how their body weight is changing. The main purpose of these can be to reduce, maintain or increase body weight. There are also apps that come with recipes to help to follow a diet better.
- Workout tracking apps: Workout apps include applications that create a workout plan, teach exercises, or motivate users to exercise, for example, 7 minutes a day. The other large group is the group of post-workout apps that help measure activity. Challenges can be created in them, which the user can share with friends, which is an effective motivation.
- Diabetes apps: Users can add their measured blood sugar data, meals, quality and quantity of carbohydrates consumed, and activity to the app to see how their data is evolving. Medication reminders can also be set and the app can be connected to an insulin pump. From the data collected, the patient also receives statistics and summaries, and can join existing diabetes communities, which can help with motivation, development, and acceptance.
- Drinking apps: Many users have a problem consuming the recommended daily amount of water, these apps help with this. After calculating, adjusting the user's water demand, the water (or other liquid) intake can be logged. If the user needs it, they can also set reminders and keep track of their daily status.
- Sleep Assisting, Tracking Apps: These apps can help users fall asleep, follow sleep cycles, and wake up in a better, proper sleep cycle. Some apps are even capable of allowing users to log their dreams. Apps with help with relaxation sounds are also available.

- Smoking cessation applications: these are intended to help users quitting smoking. A user enters the habits they want to give up and then see, for example, how much they save by not smoking, how their health risks are reduced, how their life expectancy increases. When done well, users will occasionally receive badges that they can share with their friends. The app also has a quick help menu, the essence of which is that when the user quits or smokes, he can get motivation from good or warning cases shared by others.
- Mood tracking apps: these allow users to track their own mood. They can also write a comment for some mood types, so the data can show, for example, what makes a user sad or happy. The purpose of these is to improve the quality of life and avoid mood swings or make the user happier, for example. The data collected can be shared with others, including a therapist, who can extract even more information from the data.
- Women's health applications: such as female menstrual cycle tracking or fertility apps, which are also suitable for tracking sex life. Many apps have informational materials, built-in alerts, and mood trackers that are known to be affected by the cycle. This kind of app can also be useful for those who want to start a family, it helps to determine which days is the user most likely to get pregnant.

It can be observed that most of these applications are available in English, although we can find more and more solutions in Hungarian. It is characteristic of these apps that they work with easily readable, clear, well-visualized data, graphs, charts. This is also the result of an accelerated world, users (especially the younger generations) like to be able to identify the essential points on a screen right away, conveniently find the information that is important to them. The other main influencing factor for apps, of course, in addition to their features that are most important, is the sophisticated design which engages users even more.

Data protection, privacy

The spread of the internet and the development of technology have innumerable benefits, but it also has less positive sides. As we've seen before, there are a myriad of apps to choose from in each provider's stores, many of which are even free. At least we do not have to pay for it with money. With the low level of willingness to pay to download mobile apps, manufacturers need new business models that focus on well-targeted marketing on the one hand, and collecting and selling data from users on the other. Most of the time, users pay with their data and valuable information about themselves in the case of free apps. This allows for more targeted advertising, referrals, customer influencing, and research links between topics with more data.

In many countries, providers may legally sell users' data under certain conditions without their direct consent. Free service providers also need to find ways to make money from their activities. Interestingly, not only is the information we already share about us already available, but much more, because our actions (such as which writer we like on Facebook) allow marketers to deduce a lot (such as personality, political affiliation, etc.). The collaboration of psychologists and data scientists has also helped to observe patterns of behaviour, thus even discovering things about users that they do not know about themselves. Users only have limited amount of information about what the companies that collect their

data know about them, and they cannot really control how this data is handled. As Amanda Hess, a New York Times reporter, puts it, privacy has become a privilege for the rich and strong today. [12] However, the situation and transparency have been greatly improved by the GDPR regulation introduced in recent years, which clarifies, among other things, the legal framework for data collection and storage.

It is part of today's lifestyle that users also want to use their newly downloaded apps right away, with little time and attention to their privacy and security statements, even though this behaviour also carries risks. Therefore users' individual responsibility is also a must in this topic.

As Shoshana Zuboff, among many others, said in her book, The Age of Surveillance capitalism, numerous companies today thrive by observing users, gaining their data, then using and selling it. [13] Greenwald likens the Internet directly to Orwell's Big Brother, which, by observing us, can even be a tool of repression. [14] In my opinion, data sharing can be seen as a trade-off, we are forced to give up control of our data to some extent in order to enjoy the provided benefits.

Privacy means the right of the owner of the data (i.e. who it is about) to decide who and how can use or can pass on that data that is identifiable about them. This expectation seems particularly legitimate for health data, which should enjoy a higher level of security. Confidentiality is the expectation that those who access this data and information will treat it in accordance with the data protection requirements. The issue of security, on the other hand, is more about how, by what means (with technology, administration or from human side) we protect this information from unauthorized use or possible disclosure. [15] Based on these, the risks can fall into one of the following three categories in the following section:

- Privacy and confidentiality,
- Security,
- Other- that does not fall into any of the above categories.

We can already see that we are pretty powerless in the first category, we have to give our data to service providers in many cases if we want to take advantage of the opportunities they offer. However we can always make sure that the receiving party is trustworthy and we can read the terms and conditions of usage as well, so being conscious of the above can improve the chances of better privacy.

We also have a responsibility for security, and we can typically do more than in the previous category.

- Avoiding physical threats: physical risks include, for example, the security of mobile phones and servers, where the data itself is stored, it is important that they cannot be stolen, accessed by those who are not authorized to do so.
- Avoiding Technological Threats: These are technologies within the software that allow data to be inaccessible. This category includes, for example, widely used password usage, but also encryption or the usage of firewalls.
- Administrative side: it is about who has access to the available data, which should be carefully selected and given only to those who really need it.
- Human factor: the weakest link in security is usually people, machines make fewer mistakes in this area. There are countless tricks on how to extract valuable information from people, for example through social engineering. A good example is the

list of passwords written on a piece of paper, which turns technological protection into a technique that requires simple physical protection, since then the sheet must be protected from unauthorized persons.

In my opinion, data related to health promotion, which is also collected by the above apps (weight, height, activity…), is not considered by users as sensitive as their health data, so they can more easily build trust in apps. Obviously, as this information becomes more "serious," the user becomes more distrustful. It is important (and, of course, there are regulations for this) to keep the above-mentioned risks to a minimum in the case of sensitive health data.

One study found that data stored on cell phones is thought by Americans to be at least as much, but more personal than data stored on their computers. This is interesting because data is often collected unnoticed on mobile devices, to which users might not contribute to when asked on their own computers, for example. [16] It is well known that companies can monitor users' internet activity using cookies, which eliminates the need for individual websites alone to remember each click. Cookies give users a unique identifier that can then be recognised by websites, so we may see the same ads on every page. Not only cookies, apps used on mobile devices also constantly log user data such as location, calendar, or search history. Some apps, such as Angry Birds, logged users' phone's status even when they are not playing. In the words of Bruce Schneier, it is no longer the "big brother" who watches and sees everything, but "many gossiping little brothers". [17] Anyone can create an app with programming knowledge. This can easily spread innocently maliciously crafted apps with lower level of security, but can also be created with malicious intent on purpose, such as data theft. With this in mind, it is recommended to only download apps that come from a verified source. It's worth reading the opinions of other downloaders as well, although staying on the example of data theft, victims probably cannot even be aware of what is going on. Following the thought of Dr. András Keszthelyi, if our car is stolen, we can clearly know it, as it is no longer where we left it. In the case of data theft, however, the data is also retained on our own devices, so at first glance we cannot see if someone has made an unauthorized copy of it. [18] Lastly, if users have already downloaded an app, it is a good idea to monitor and install updates, as they are usually used to fix some previous bug. A good defence can be to carefully read the privacy statement when downloading the app, as well as critically evaluate app access requests. Be suspicious if, for example, an app wants to access your phone's camera, photos, for example, to listen to music. It is important that the basic settings of mobile devices also protect the user, so for example, trackers should be disabled and data collection should be explicitly consented to.

These factors lead to the already mentioned cessation of users' secrets and privacy. If the data is used for good purposes (cumulated, depersonalized) it offers countless possibilities, but they can be abused as well.

In some cases, we use multiple services from the same provider, such as using Google Android phones, emailing with Gmail, keeping our files on Google drive, and using Google to search the web with their own browser. The danger of this is that a service provider knows a lot about us. The more information we hold with a service provider, the more we are exposed to it. Greater data security and data protection can also be achieved by sharing our data between multiple service providers, so there is less chance of them being able to put the whole picture together. Naturally, as I mentioned the trade-off of using the

same provider is the convenience and better guesses from them to help our requests and needs.

Risks and opportunities of the mhealth trend

In addition to the above, there are a numerous of other threats to apps, and the mhealth trend itself. By allowing patients to look up their symptoms with the help of Google, for example, companies and products that offer fake, unusable treatments may gain ground. However, incorrect, bad information alone is a big enough risk. It is important that patients should accept advice from experts, not "hobby doctors". It can also be dangerous because it delays the time to see a doctor. There are a lot of diseases, such as cancer, that are more likely to be cured if discovered in time. If, on the other hand, the patient does not recognize his symptoms and sees a doctor late, his chances of recovery and survival can be significantly worsened. Therefore, it is important to use professional mhealth apps in healthcare that are reliable and allow for medical intervention. This aspect does not play a major role in health promotion applications.

It can also be a danger or inconvenience that data can no longer be deleted from the World Wide Web once it has been uploaded. It would be beneficial to be able to do this, at least in relation to health, personal leaked data, because this fact greatly increases mistrust and can therefore delay development. However, we do not need a leakage to get a huge amount of personal information about someone. Using big data methods today, for example, algorithms can be used to filter out social media activity from who is expecting or will be expecting a child or who is most likely to be depressed, who has a political or sexual orientation. These encrypted algorithms are sometimes used even in workforce selection, but this should be handled with great care in order to avoid morally incorrect decisions and negative discrimination.

In addition to the many risks and dangers, mhealth also has numerous benefits. As mentioned earlier, if we examine the huge amount of data cumulatively, not per person, it can greatly help to advance research and discover new knowledge and links. By combining wearable and fixed position sensors, it is possible to continuously monitor the subjects and collect data, and from this, for example, the factors leading to diseases can be filtered out. It is also possible to influence behaviour in real time, reducing risk. [15] This dynamic, real-time, yet machine-assisted method offers plenty of new solutions for healthcare. Mhealth and big data methods can help personalize treatments to an even greater extent, which is expected to increase efficiency. Healthier people mean more resources to the state for other areas, or just for improving existing health care. It also seems clear that mobile devices can reduce healthcare costs. In addition, it can increase the quality of care and bring more convenient care to patients and doctors. With the help of mobile devices, health services will become more accessible to a wider crowd, as there are few people today who do not yet use mobile phones and this statement will become more and more true as generations age. It also seems possible that, in combination with other technologies, it will be possible to reach healthcare in sparsely populated, remote areas where there has been no such coverage so far.

Fighting COVID-19 with apps

Mobile devices and smartphones have become an integral part of modern life, so it is obvious that they also have a big role in improving, solving and surviving crisis situations,

such as the current, COVID-19 pandemic. The main areas where solutions of the mobile and digital age can help are: slowing, controlling, curbing mass diseases, monitoring people in quarantine, informing the population, helping to work from home, studying and spending time at home compared to previous epidemics. As the topic of this paper is mhealth, I will concentrate on the solutions related to healthcare, but because the limitations of this paper, I will only mention the main topics.

Contact tracing is one of the hottest topics at the moment which could be improved with technology. This means that the infected patient is asked with whom they have spent longer time of late, with whom they have had close contact, as these people are more likely to have caught the virus. Once these exposed contacts have been identified, they should also be carefully observed and possibly quarantined. [19] This is originally a manual process which makes it more resource and time consuming and also error prone. Technology would make it easier by applications using Bluetooth to track lengthier nearby contacts between users, notifying them anonymously if they have positive contacts and if they should be quarantined. These kind of apps could also contain information and could also help doctors monitoring patients that fight the virus at home. There are now several applications which are capable of contact tracing (such as the Hungarian VírusRadar), but it is hard to enjoy their benefits to the fullest, because of low penetration. A study by Oxford University, for example, found that 60-75% of the whole population has to use these kind of apps for acceptable level of efficiency. [20] Giving up privacy and trusting that the data is well protected can be unattractive for users. The main question for these apps is to decide if the data is stored and processed in a centralized or decentralized way. In the decentralized solution, user's data can remain on the mobile device and it is only shared with authorities if it is needed. The other solution is to have data at one place for every user. The EU recommendation is a combined solution where data sharing is voluntary and data is collected anonymously for statistics and predictions but users still have control over theirs for the above mentioned reasons. [21]

Another area where apps could help is monitoring people in quarantine (for example the Hungarian Házi Karantén Rendszer, aka HKR app). Using location data could show that people are staying at home and not spreading the virus further, which can reduce the amount of workforce dedicated to monitoring this and it is more convenient for the users as well. These apps can also alert authorities when the user leaves their location. This type of app can also be used for giving or collecting information. Technology giants like Google, Apple, Facebook or Amazon are also trying to help with their collected data and services. For example Google and Apple are working together to create a common contact tracking solution operating with Bluetooth that would inform users when they encounter the virus and are planning to make it available to their users by mid-May. [22] There are also voluntary surveys, information sheets, etc. which are created to protect users and generate valuable statistics by these companies. I believe that cooperation and technology can help us in the current situation.

SUMMARY

The aim of the paper was to describe how mobile technology and the datafication trend has changed our lives, possibly healthcare and health awareness as well. There are countless available apps to choose from nowadays, several of which can help to make users healthier and happier. Mhealth applications can help in more serious health related topics as well as health promotion. Engaging, connecting and motivating users is easier in applications than ever before, but privacy and security must always be kept in mind from both provider and user point of view. Users have to be aware of the risks and trade-offs of these services. After explaining data explosion, I outline the spreading health awareness trend, which factors help the emerging mhealth sector. Then I present the security and privacy aspects of the topic and the risks and opportunities of the mhealth trend. At the end of the paper I also briefly mention the app usage to fight COVID-19, as it is a hot topic and there are several attempts to it.

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SAFETY RISK OF UNMANNED AERIAL VEHICLES

A PILÓTA NÉLKÜLI LÉGI JÁRMŰVEK BIZTONSÁGTECHNIKAI KOCKÁZATA

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Abstract

Drones never seen before are present in everyday life, allowing for technological advancement and falling prices. Drones with increasingly precise navigation, longer operating time and video and au-dio recording systems and load-bearing capabilities pose a serious safety risk. The lack of registration of equipment and pilots makes it almost impossible to de-tect and prosecute the perpetrator of a damage event or infringement. In 2018, the Council of the European Union adopted updated aviation safety rules, which amend the mandate of the Europe-an Aviation Safety Agency (EASA) and now include, for the first time, EU-level rules for drones of any size used for civil-ian purposes. In 2019, ESA presented a unified European package of laws on the use of drones, and in 2021 Hungary also introduced significant changes in the use of drones.

Keywords

drone, safety risk, prevention, regulation

Absztrakt

A drónok soha nem látott mértékben vannak jelen a mindennapokban, köszönhetően a technológiai fejlődésnek és a csökkenő áraknak. Az egyre precízebb navigációval, hosszabb üzemidővel és hatótávolság rendelkező drónok a kép-és hangrögzítő rend-szerekkel, teherhordó képességükkel ko-moly biztonságtechnikai kockázatot jelen-tenek. Az eszközök és pilóták regiszt-rációjának hiánya pedig szinte lehetetlen-né teszi egy káresemény, jogsértés elkövetőjének felderítését és felelősségre vonását. Az Európai Unió Tanácsa 2018-ban elfogadta az aktualizált repülésbiz-tonsági szabályokat, amelyek módosítják az Európai Repülésbiztonsági Ügynökség (EASA) megbízását, illetve most először uniós szintű szabályokat tartalmaznak a bármilyen méretű, polgári célokra használt drónokra vonatkozóan. Az ESA 2019-ben bemutatta a drónok használa-tára vonatkozó egységes európai tör-vénycsomagot, 2021-ben pedig hazánk is jelentős változtatásokat vezetett be a drónhasználatra vonatkozólag.

Kulcsszavak

drón, biztonságtechnikai kockázat, elhárítás

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INTRODUCTION

Unmanned aerial vehicles (UAVs), better known as drones, are taking part in everyday life to an unprecedented extent. As a result of technological advances and declining prices, drones are no longer luxury items available only to a few, but tools available to the average person. As a result, drones are no longer operated only by skilled, trained pilots, but even by inexperienced children. Drones with increasingly precise navigation, longer operating times and longer ranges, equipped with growingly advanced image and sound recording systems and their load-bearing capacity, now pose a serious safety risk. And the lack of registration of equipment and pilots makes it almost impossible to detect and prosecute the perpetrator of a damage event or infringement. Integrating safe and reliable UAVs into aviation can only be feasible if the acquisition and operational cost is low enough to be economically viable in recent economy. [1] The seriousness of the situation and the need for regulatory change have also been recognized by the European Union, as the Council of the European Union adopted updated aviation safety rules in 2018, which, among other things, amend the mandate of the European Aviation Safety Agency (EASA), and, for the first time, contain EU-wide rules for drones of any size used for civilian purposes. In 2019, ESA presented a unified European package of laws on the use of drones (Commission Implementing Regulation (EU) 2019/947), and in 2021 Hungary also introduced significant changes in the use of drones. The drone flight safety is the desired optimum state in which drone operations executed in certain circumstances with an acceptable operational risk. [2]

CURRENT REGULATIONS FOR UAVS IN HUNGARY

As mentioned in the introduction, on 12 March 2019, the European Commission accepted EU rules setting out technical requirements for drones. The ESA package presented in 2019 creates uniform regulations throughout the European Union, unmanned aerial vehicles can be used in all countries belong to European Union under the same conditions, and the transport, proper operation and cross-border use of business drones within the European Union can be facilitated. The aim is to lay down the principles that guarantee security, safety, protection of privacy and personal data, and to encourage innovation. [3] The uniform European package on the use of drones is Commission Implementing Regulation (EU) 2019/947, the package is available: [4] Hungary requested and received a postponement of the introduction of EU legislation in order to develop amendments to its local regulations. According to the European Union's regulatory standard, member states may accept stricter rules than those of the European Union, but not the opposite. The provisions contained in the European Union system of rules no longer need to be repeated in domestic legislation. Hungarian laws and regulations, as well as the rules formulated by the European Union, must be interpreted together. The basic concepts and statutes related to drones are defined in Act XCVII of 1995 on aviation. law. In December 2020, this law was amended to include the relevant rules, and as early as 2019, European Union regulations were issued that provided a framework for the development of drone regulation. Based on the risk level criteria and other criteria, the European Union regulation defines three categories of operations: "open", "special" and "licensed". "Open" category UAS operations are not subject to either a prior operating license or a UAS operator's statement of operation issued prior to the operation. The condition for belonging to the “open” category is the take-off mass of

less than 25 kg, the unmanned aircraft must be kept at a safe distance from people and the pilot must be able to always see the drone with the naked eye. The UAS must not transport or scatter any material and must not be more than 120 meters from the ground. The "special" category should include other, higher risk types of operations, for which a thorough risk assessment should be performed to determine what requirements are required for the safe execution of the operation. For low-risk operations in the "special" category for which a standard scenario and detailed risk mitigation measures have been defined, the implementation of this regulation should be facilitated by an operator declaration system. Operations in the "licensed" category should be subject to operator certification, remote pilot licensing and signature of aircraft in accordance with the certification requirements under delegated regulation (EU) 2019/945. For the "licensed" category, the certificate issued by the competent authorities for the operation of the unmanned aircraft and for the persons concerned is mandatory, and aircraft certification in accordance with delegated regulation (EU) 2019/945. The regulation addresses the issue of marking and identification of unmanned aircraft. It recommends, but does not make obligatory, the registration of unmanned aircraft operators and certified unmanned aerial vehicles. It is recommended to registrate the operator of a drone that is capable of delivering more than 80 joules of kinetic energy in the event of a collision and poses a risk to privacy, personal data protection, safety and the environment. For drones weighing 250 grams or more, it is also recommended to register the operator, even if an operation in the “open” category is performed.

The Hungarian regulations apply the three categories proposed by the European Union regulation and the requirements for them furthermore the “toy” category. A drone is considered to be a toy if it weighs less than 120 grams and is not equipped with a data recorder, such as a camera, and can only move up to 100 meters from the remote pilot, or if it can be classified as a toy under EU directives. Although the European Union regulation recommends a maximum take-off weight of 250 grams for toy” category, this has been set at 120 grams in Hungary. Registration of the drone and pilot has become mandatory, except for unmanned devices in the “toy” category. Even in the case of the “open” category, an online course and exam is obligatory, which is conducted by the Institute of Transport Science Nonprofit Ltd. In addition, as before, all drone pilots must have compulsory liability insurance except for drones with a maximum take-off mass of less than 250 grams. It is now mandatory to use the Mydronespace mobile app in flight to see the current use of airspace. Require a Temporary Designated Airspace, which must be submitted to the State Aviation Department of the Ministry of Defense at least thirty days before the scheduled flight, remains mandatory. The change, however, is that, unlike before, the permit can be applied for not for thirty days but for seven days. [5]

	Before Feruary 2021	After February 2021
drone and operator registration	not obligatory	obligatory
categories	no defined categories	"open", "special" "licensed"
pilot exam	not obligatory	obligatory
liability insurance	obligatory	obligatory (exept drones under 250 gram)
MyDronespace application	not obligatory	obligatory
Temporary Designated Airspace	obligatory in-and outside built-up area, valid for 30 days	obligatory in built-up areas, valid for 7 days

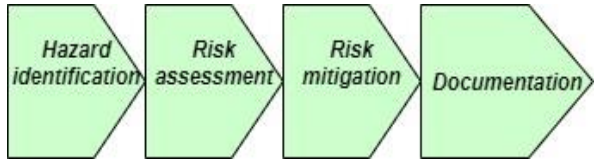
1. Table Hungarian drone regulation before and after 2021

The Hungarian drone community was pleased that Hungarian rules do not require a Temporary Designated Airspace outside in built-up area, but the general opinion is that applying for a Temporary Designated Airspace 30 days before a flight makes it very difficult to comply with the law. Droning is a highly weather-dependent activity, so it is difficult to determine which days will be suitable for this operation, and in the case of leisure activity, the joy of spontaneity is lost. And if the goal is to conduct research, scientific activity, or monitor industrial operations, it may be difficult for participants to arrange such a remote date. Logistically, therefore, problems may arise. his is compounded by the fact that instead of the previous 30 days, Temporary Designated Airspace can be requested for a maximum of seven days and the previous fee of HUF 3,000 has now been increased to HUF 9,000. Another critical point is that the regulation of the “toy” category is limited to a maximum take-off weight of 120 grams. This is stricter than the European Union limit of 250 grams and excludes many popular, popular drones (DJI Mavic Mini, DJI Mavic Mini 2) from the category.

DRONES AND THEIR SIGNIFICANT PROPERTIES FOR SAFETY RISK

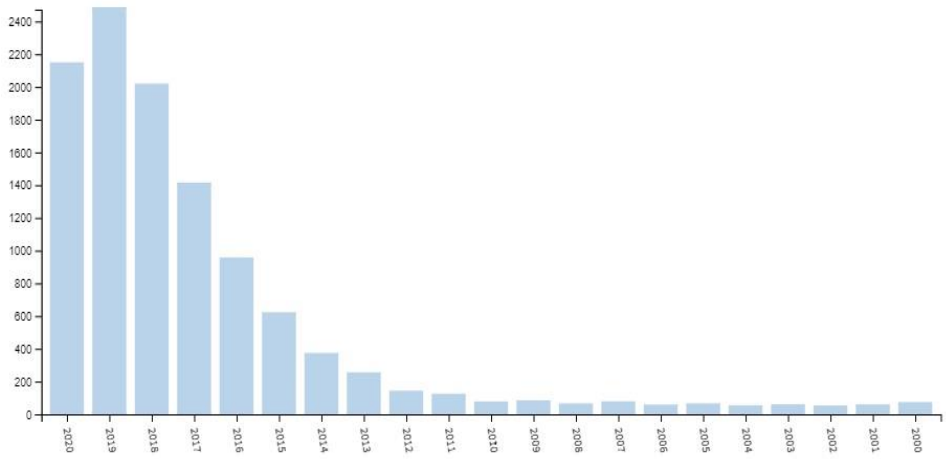
The safety risk of drones is determined by a combination of factors. Two general scenarios can be distinguished. UAVs operating over civilians and infrastructures, and UAVs flying in unpopulated areas.

According to Wackwitz and Boedecker, 2015 [6] an UAV safety risk assessment makes safety risks measurable so that risks can be better controlled. It is recommended to separate the UAV safety risk assessment into the following four phases which can be seen in Figure 1.



1. figure UAV safety risk assessment

Since drones have been released for non-military usages, drone incidents in the unarmed population are gradually increasing, according to a study from 2021. [6] The mechanical force, damage to health or property due to impact is important. A serious risk is the drone's load-bearing capacity and its ability to release the load above the specified target. The third significant factor is their data recording system, such as the camera, which can be used to support the preparation of a terrorist act, industrial espionage, and the violation of personal rights. Taking into account the above, it can be stated why the European Union considered the presence of data recording devices, transport and weight to be critical in the regulation, which principle also applies in the Hungarian regulations, as these principles are decisive in the "game" and "open" categories, for example. The need to regulate drones is justified by the fact that they have now become a mass-produce article that is accessible to everyone. It has gone from being a luxury item to an affordable product for the average person. The popularity and unbroken momentum of the technology is well illustrated by the fact that by 2025 HungaroControll expects twenty-five thousand registered flights per day. (Currently, that's all in one day all over Europe today) and expects $ 72 billion in revenue from drone flights in Hungary. Their current use rates are: military use (70%), consumer use (13%), business and corporate use (17%). These data were presented at the 2018 Drone Conference and Expo of HungaroControll. The safety risk of drones is increased by the significant, rapid growth in their popularity. This increase can also be well measured in the number of scientific publications related to drones, which can be seen in Figure. 2.



***2**. figure Results for the keyword "drone" by the Web of Science science search between 2000-2020*

The figure shows that, especially since 2015, the number of scientific publications on drones has skyrocketed, from 1,510 in 2010-2015 to 9,563 in 2015-2020. The range of the drones, as opposed to the initial few tens of meters, is now as high as 5-7 kilometres for mid-range drones. Their maximum achievable speed is constantly increasing, the typical maximum speed of currently commercially available drones is 70-80 km / h, while the speed range of drones specifically designed for competition is between 150-250 km / h. (In 2017, RacerX set the world record for "Fastest Cordless, Remote-Controlled Drone" at 263 km / h. [7]) The typical size is 322x242x84 mm and weighs about 800-1500 g. Thanks to the continuous development of cameras, better and better quality images can be taken from further afield. As an example, the DJI Mavic 2 Zoom with a 12 megapixel camera, the optics allow four times magnification, 2x optical zoom (24-48mm) and 2x digital zoom.[8]) Even if not sharing location, UAV photos may still reveal privacy information. Photos taken by DJI products are saved in JPEG format, containing invisible information, image information (manufacturer, resolution), camera recording (ISO, white balance, saturation, sharpness), and GPS data (shooting longitude, latitude, altitude). GPS and shooting time reveals when and where the photo is taken. Invisible information will be saved in accordance with the JPEG file standard in the image file header.[9]

Drones with a thermal camera are also capable of flying at night or in bad atmospheric conditions (fog, smoke). Positioning can be as accurate as centimetres, thanks to RTK (real-time kinematic) support, for example. [10] For some drones, a trigger is already available, which is also suitable for dropping an object over a target. The true potential of drones actually lies in their diversity, so anyone can find or build the right tool for their purpose. It can be seen from the above that drones are very serious factors to consider from a protection point of view. Potential hazards include waterborne and hybrid drones. Hybrid drones are able to travel in the air, underwater or on the water. An example of such a hybrid drone is the drone called Spry, released in 2019. This can be particularly important in the operation of water-bound facilities such as nuclear power plants. [11] It is also possible to fly with the drones in swarm, during which the drones are able to communicate with each other and work on their own. In 2014, the drone-based research results of the Department of Biological Physics of Eötvös Loránd University and the Research Group of Biology and Statistical Physics of the Hungarian Academy of Sciences and Eötvös Loránd University entered the world for the first time. The research team led by Tamás Vicsek created a swarm of the world's first outdoor self-organizing quadrocopters, consist of 10 drones. In thirty realistic simulations in the field, researchers have been able to make drones work closely together in a barrier-free environment with up to a thousand high-speed drones. These so-called intelligent drone swarms require a whole new way of defending for which there is currently no accepted protocol.[12] There are also drones measuring a few grams and disguised (e.g., insect, bird-shaped) that are even harder to detect and thus suitable for supporting illegal operations. One such mini drone is the RoboBee X-Wing, developed at Harvard Microrobotics Laboratory, which weighs only 90 milligrams and is 3.5 centimetres. [13] In particular, this data is open information, so the technologies and tools mentioned above are accessible to anyone, not state-of-the-art military developments. Damage with a drone can occur intentionally or accidentally. Ignorance can also lead to serious accidents as a result of incompetence. That is why the newly introduced compulsory course and exam is of paramount importance, where the correct operation and maintenance learnable, the legislation

and information about safety can be known. However, in most countries strict training is not required to fly a UAV, human error often becomes the main cause for UAV disasters, according to a study from 2018.

CURRENT ANTI-DRONE SYSTEMS

The goal of anti-drone technologies is to detect drones at the proper time, to force them to the ground and destroy them if necessary. The role of anti-drone is to prevent possible terrorist acts or industrial espionage. Detection of drones is difficult for many reasons. As a relatively new technology that is only widespread in the present, detection-response technology is still immature. A key factor in removing drones is device detection. Existing airspace surveillance radar systems have been developed for high-speed and high-performance aircraft and are therefore ineffective against small drones. Due to the small size of the drones and the small number of metal parts, its position cannot be detected by the radar, it remains hidden from the air traffic services, posing a general source of danger. The visibility of the flight profiles of drones is highly dependent on weather conditions, time of day, terrain features and pilot training, as well as the instrumentation of the drone. Visibility is also affected by the time of day. Vision to the day (east) is very limited in the morning, the same is true to the west in the evening. Weather is an important factor. Foggy, rainy, or cloudy weather can even make visual identification impossible from any direction, which is a very important consideration in the final phase of a possible terrorist attack. It should be added that there are already waterproof drones, when the operation is not hindered by moisture and rain. In case of drone with a thermal camera, it may be possible to deliver the device in poor visibility conditions. with an accuracy of up to centimetres. In addition, certain types of drones are capable of performing so-called autonomous flight. The operator of the device designates the route to be flown before take-off, which is then followed by the drone without any further guidance. As mentioned earlier, most commercially available drones weigh around 800-1500 grams, so they cannot physically cause significant damage in a protected facility. The potential dangers are the acquisition of information by drones, the support of live terrorist movements, the ingest of prohibited articles within the line of defence, and the fitting of drones with weapons and explosives. Detection is further complicated by the mini and camouflaged drones already mentioned.
Table 2 provides an overview of the basic types of drone detection technologies according to their operating principle. [14]

Detection method	Example
radar	Blighter
acustic	DroneShield
radio frequency	DJI Aeroscope
optical	Dedrone
disturbing signs	DroneDefender
complex detection and response systems	Henshold Xpeller

2. Table Possibilities of drone detection

One group of today's anti-drone systems is the so-called anti-drone drones. When an intruding drone is detected, the drone sent to repel, it is able to fire a net and thus capture and disarm the other device. It is possible to avoid the helpless drone falling on people and to extract from the captured drone the data fed into it and collected so far during its flight, which can be of great use to intelligence. Such is the DroneHunter, an intelligent flying robot that can detect and classify an intruder and then decide, based on the degree of danger, whether to throw its net at it.[14], [15] However, practice shows that due to the speed of the drones, the flights and attacks take place in seconds. An average open object enclosed by a fence ranges from a fence lengths of 10 meters to a length of a few kilometers. It is easy to calculate that if our drone is traveling at a speed of 40 km / h and the target is 100 meters from the fence line, then barely 10 seconds is enough to reach the finish line.

During this time, it is impossible to make substantial action with a manually controlled drone capture system.[16] However, newer systems, such as the Skylock developed in Israel, have the ability to take control of the drone, allowing the device to be taken to a nearby landing site where it can be safely landed. The drone can be returned to the sender and its armament can be turned against the attacker. [17] The problem of radar detection was mentioned earlier, but the Blighter system developed by Plextek, for example, is able to measure small objects flying below 30 meters (including drones) and then identify them with the help of a camera or thermal imager.[18] Acoustic sensor systems operate by identifying noise from motors and propellers. The characteristic buzzing drone sound entering the microphone is compared to the sound sample stored in its database. The DroneShield system, for example, works on this principle. There are two sources of noise generated by

drones: engine system and aerodynamic noise, such as airflow around the airplane fuselage.[19] Mark Ayers, DroneShield's sales director, also spoke about the system in his 2019 presentation. The disadvantages of this system are that it cannot be used in large, noisy environments, it does not detect rigid wing drones and due to their short range it is necessary to install several sensors. [20] Radio frequency technologies include, for example, the DJI Aeroscope, which can identify the most popular commercially available drones by tracking and analysing the radio frequency signals they emit. In this way, they can obtain extremely important information about drones invading forbidden places and ensure the integrity of our flight-sensitive airspace. The device is able to determine the identification number, speed, direction of the drone, the position of the controlling person, the take-off position of the drone, the flight altitude, the type of the drone and its current position.[21], [22] Optical detectors include, for example, a multi-camera networked system developed by Dedrone. DroneTracker software has intelligent video analysis capability that detects and finds drones in real time. The automated tracking feature continuously monitors the drone so security personnel know where they are flying in protected airspace.[23]

Another possibility is disturbing the communication between the drone and the operator by interfering with radio frequency communication. It can be done up to 3-4 different frequency bands, the problem is to find the frequency you are using in a timely manner. It would be a solution to interfere with all frequencies, but on the one hand it is very energy intensive and on the other hand it hinders all communication, including your own. The knowledge of the jammers lies in the fact that on the one hand he knows the ISM channels used by the drone manufacturers, and on the other hand he analyses the radio frequency signals measured from the space. It only starts to interfere with suspicious frequencies, not its own frequencies. It is possible to create two zone circles around the object to be protected. If the aircraft flies into the first zone, the connection between the drone and the drone pilot is lost. Only the communication channels are disturbed, not the signals needed for orientation. If the drone reaches the second zone as well, all GPS signals will be blocked, the drone will land or crash. There are drone weapons with a range of 2 kilometres. The response device knows the communication frequency range of each commercially available drone. This technology is not effective in all cases either. Radio frequency controllers from drone manufacturers able to monitor the interfering effects and then switch to another channel on the so-called frequency hopping principle. In this case, the interferer devices are not or only less effective. [24,][25] Devices that use signal interference include the Dronedefender, which has a range of up to two kilometres. [26] In 2019, the II. Drone Conference and Expo, organized by HungaroControl Zrt., introduced a complex anti-drone system, which is installed in a car, a special Hensoldt Xpeller type Mercedes G-Class SUV. Xpeller consists of infrared and conventional cameras, radars, laser sensors, electronic jamming devices and unique software packages. It can be fixed or car mounted, but can even be available in backpack form. Sensors, cameras and radars are located on top of the car shown, and a smaller control centre is located inside. Even the basic version of the system is able to detect and radar all existing drones larger than tablet size. If a drone is within 2.5 km, the customer will be notified on the radar screen. If necessary, the operator can also reach into their control. In this case, it is only possible to send them out of the controlled zone or force them to land, but it is also possible for the operator sitting in the car to take all the drones flying here at the touch of a button. [27]

SUMMARY

Drone technology is one of the most dynamically developing industries, offering countless opportunities, whether hobby, economic or professional. However, these positive changes are accompanied by an increase in security risk. Today, all strategically important facilities must anticipate this new phenomenon and take responses. As is typical in all areas, in the drone industry, the response follows the development of the device one step behind. It must be borne in mind that a drone attack can even have a crowd destroying effect, a risk to national security. As can be seen from the above, the anti-drone technology is still immature and needs to be developed. The changes in the Hungarian legislation of 2020 represent a serious step forward from a security aspect. However, it would be worth considering that, as in the case of cars, drones should be subjected to a technical inspection at regular intervals in order to prevent an accident due to the improper condition of the device. As drone technology is constantly evolving, it is also necessary to continuously examine and improve the efficiency of the protection system. The goal is to develop complex detection and response systems that can detect and neutralize malicious drone attacks with the highest possible hit rate. According to a study on anti-drone concept, the two main challenges is to build a structure to accommodate industries and persons operating small UAS, furthermore ensure the compliance to regulation.[28] In conclusion, it should be emphasized that the usefulness of drones is indisputable, but their integration into aviation is essential.

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AN INSIGHT INTO TODAY'S TURKISH MILITARY INDUSTRY

BETEKINTÉS A MAI TÖRÖKORSZÁG HADIIPARÁNAK HELYZETÉBE

PETRŐCZ Jordán[1]

Abstract

Until the 2000's Turkey was really dependent on foreign manufacturers to fulfill its defense and military needs. To import foreign products was essential, and the country's import of arms and military products was really high. But nowadays Turkey is more and more close to the defense autarky, what is more the country is becoming an important manufacturer of military product and exporter. In several places of the world they order and use Turkish-made military vehicles, devices, arms. Turkish military products have already been used in armed conflicts worldwide. Turkey led by Justice and Development Party (AKP) and President Recep Tayyip Erdoğan set itself the objective to reach defense autarky in few years. This would prevent Turkey from being dependent on foreign military manufacturers in any armed conflict, like it was in the fight against Cyprus in 1974. This study would like to give an insight into today's Turkish military industry.

Keywords

Turkey, AKP, military industry, defense industry, military spending, export of arms, defense autarky

Absztrakt

Míg Törökország az ezredfordulón még egyértelműen külföldi beszállítókra kellett, hogy támaszkodjon hadiipari szükségletei betöltésére és nagymértékű volt a hadiipari import, addig mára Törökország egyre közelít az önellátó nemzeti hadiipar eléréséhez. Továbbá Törökország egyre inkább nevezhető komoly hadiipari gyártónak és exportőrnek. A világ számos pontján alkalmaznak már török gyártmányú katonai járműveket, eszközöket, fegyvereket. A török hadieszközök és gépek pedig már több valódi fegyveres konfliktusokban is szerepet kaptak. Recep Tayyip Erdoğan elnök és az Igazság és Fejlődés Párt (AKP) vezette Törökország azt tűzte ki céljául, hogy alig néhány éven belül az ország teljesen önellátó legyen a hadiipar szintjén. Ezzel az is a célja Törökországnak, hogy soha többé ne legyen kiszolgáltatva külső segítségnek fegyveres konfliktusban a hadi eszközök területén, mint például a Ciprussal szembeni konfliktuskor 1974-ben. Ez a tanulmány betekintést szeretne nyújtani a mai török hadiipar helyzetébe.

Kulcsszavak

Törökország, AKP, hadiipar, katonai kiadások, fegyverexport, önellátó hadiipar

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INTRODUCTION - WHY IS IT IMPORTANT TO KNOW THE TURKISH DEFENSE INDUSTRY BETTER

There are several reason to take the Turkish military industry seriously. First of all because Turkey and its army are strengthening their position in the world. Secondly because of the striking achievements of Turkey's military industry in the last two decades.

Turkey has a larger army than any EU country and the Turkish army is the second largest in the NATO after the US.

Although the Turkish national defense and military was highly dependent on foreign importers in the last decades, the Turkish government has set itself the objective to become self-sufficient in the military industry. And it seems Turkey is more and more close to this goal, officially promised to reach that goal by 2023 for the 100th anniversary of the Turkish Republic. [1]

What is more Turkey used to be only a buyer of military products for decades, but it became also an important manufacturer in the military industry and several countries are buying Turkish military products nowadays.

Another indicator that shows the importance of the Turkish military industry is that while two decades ago the Defense News did not include any Turkish companies in the Top 100 list of defense companies, the latest list (2020) now includes seven Turkish companies. [2] The Defense News list is the most prestigious list of the important companies in the military industry around the world.

A BRIEF REVIEW OF THE HISTORY OF THE TURKISH MILITARY INDUSTRY

Turks have been referred to as the "Army-Nation" throughout history, and in the Ottoman period as the army developed and it triggered the improvements in manufacturing of war materiel. Reaching the Black Sea and the Aegean Sea, building larger battleships was needed for the Ottomans. Manufactories has been also founded to produce different kind of weapons: 1. for arrows, bows, swords, guns, broadaxes, gunpowder, bullets, armors, and helmets, 2. for casting cannons; 3. for the casting of mortar projectiles, mines and bombs.[3] During the time of the Emperor Mehmet II (15th. Century), the Ottomans advanced in the shipbuilding activity with the foundation of the Gelibolu Shipyard. The Empire's shipbuilding capacity exceeded the European countries, a good example of this that Ottomans could rebuild a naval fleet of 200 ships from scratch within five month following its total destruction in the Battle of Leponto (1571). [4]

In the 18th century under Selim III. the Turkish military organization and education went through crucial reforms and the "New Order" Army was formed, which is the very seed of the modern Turkish Army. During the 19th century modernization in the technology of the army was needed, therefore the building of battleships started. Some progress of this time: invention of the propeller and application of steam engines to the battleships, construction of battleships of iron, invention of breechloader guns, abandoning of the muzzle-loader guns. [3] But in this time with the decline of the Ottoman Empire the Turkish Defense Industry also weakened. In the beginning of the Republic of Turkey after the War of Independence, the development of the national defense industry become a major goal in Turkey.

But during the 20th century Turkey could not really build a strong, independent national defense industry. What is more between 1939-1974 foreign aid and foreign procurement policy emerged as a preferred model in the Turkish defense industry. [4] In the conflict with Cyprus the allies of Turkey refused to provide arms and equipment to Turkey, which drove the country to put huge emphasis on national defense system and military industry. Turkey established its own Air, Naval and Land Forces Foundations and defense enterprises were started with state fund, and later on national institutes were established to develop a strong domestic and national military industry. [4] Still, for decades Turkey was dependent on foreign military products.

Since 2003, as AKP is leading Turkey, the government makes huge efforts to strengthen its own defense industry. In 2011 Turkey reached 54% local production level according to official data. Since the 1980s one of the country's main goals is defense industrial autarky, and the government of Turkey declared that the country would reach this goal by 2023, for the 100th anniversary of the Republic. [5]

STRUCTURE - IMPORTANT INSTITUTES AND COMPANIES IN THE TURKISH MILITARY INDUSTRY

I would like to review the Turkish defense industry in four groups:

- 1. Government institutes responsible for or operating in the military industry
- 2. Important Associations, Foundations
- 3. Private institutes and companies
- 4. Defense industry clusters

Government Institutes

First, the Ministry of National Defense is the most important government institute for the Turkish defense industry. It is called in Turkish: Millî Savunma Bakanlığı. The Ministry of National Defense coordinates and supervises every Turkish agencies and functions of the government concerned directly with national security and the Turkish Armed Forces (TAF). Apart from being the national army of Turkey, TAF is also the main buyer and user of Turkish military products.

The Presidency of Defense Industries (SSB) was founded in 1985. Originally the name was Defense Industry Development and Support Administration Office (SaGeB) and after 1989 it was restructured and renamed as Undersecretariat for Defense Industries (SMM). Since the Turkish constitutional referendum in 2017 which replaced the parliamentary system of government with an executive presidency and a presidential system, this institution was reconstructed and renamed as Presidency of Defense Industries (SSB). This institute was established as the Ministry of Defense for the task of acquisition of strategic and major defense systems. [6] The SSB's activity are to *"research, develop, and produce prototypes of modern weapons, devices and equipment"* among others and "grant loans from the Defense Industry Support Fund or obtain loans from domestic and overseas sources and establish and participate in domestic and foreign companies where necessary." [7]

Important Associations, Foundations

In the 1960's, after realizing that if crucial defense systems are imported and in case of limitations the country can be cut off from these products, Turkey started programs to strengthen national defense systems. Foundations and association were founded to reform the Turkish defense system acquisitions and defense industry and for the better support of the Turkish defense industry. [6]

A foundation is a nonprofit corporation that supports other organizations with funds collected mostly from charities. In the 1970s in Turkey foundations supporting different branches of armed forces were started. Until the 1990's almost all Turkish defense firms were either supported by government or by foundations. [6] Even today there are foundations and associations that are really successful and important in the Turkish military industry that we want to list here:

- Turkish Armed Forces Foundation - TAFF / TSKGV
- Defense and Aerospace Industry Manufacturers Association - SaSaD
- Turkey's Defense and Aerospace Industry Exporters' Association – SSI

Turkish Armed Forces Foundation (TAFF or TSKGV)

The goal of TAFF is „to enhance the warfare of capability of Turkish Armed Forces through national defense industry, establishing new defense industry areas and procuring warfare armament by providing the financial and spiritual support of Citizens." [8]

TAFF as Turkish government foundation was born in 1987 by the merger of several similar foundations:

- Turkish Naval Society"
- Turkish Air Force Support Foundation"
- Turkish Land Force Support Foundation"

These three foundations were united under the Law no. 3388 on 17 June 1987. [9]

TAFF monitors and supervises directly and indirectly a total 14 companies, of which 6 of them are subsidiaries, 8 of which are affiliates. [9]

TAFF subsidiaries are:

- Aselsan Electronics Industry and Trade Inc.
- TAI - Turkish Aerospace Industries Inc.
- Roketsan Missiles Industries Inc.
- Havelsan – Air Electronics Industry and Trade Inc.
- ISBIR Electricity Industry Inc.
- Aspilsan Energy Industry and Trade Inc.

In fact, TAFF subsidiaries are important defense companies in Turkey, what is more some of them are highly-respected on the global market too.

The Defense and Aerospace Industry Manufacturers Association (SaSaD)

The SaSaD was established in Ankara with the suggestions and support of the Ministry of National Defense of Turkey in 1990, originally with the name: The Defense Industry Manufacturers Association. In 2012 the Association got its present name as manufacturers in the field of civil aviation and space joined the association. SaSaD want to represent and

be a strong voice of Turkish Defense and Aviation Industry. As the Association states in its webpage, its main goals are:

- *"To contribute to the formation of an industry that can compete internationally and minimize the foreign dependency of our country in the field of defense and security,*
- *To coordinate with the needs and supply of the authorities,*
- *To provide platforms that will strengthen cooperation and create synergy among the stakeholders of the sector,*
- *To create solutions to the demands and expectations of its members and to benefit them"* [10]

The foundation started with 12 founding member companies and in 2020 has 122 members.

Turkey's Defense and Aerospace Industry Exporters' Association (SSI)

SSI was established for the Turkish defense industry sector in 2011 with coordination and support of the Ministry of Economy. SSI got the task to help to improve exports of Turkish defense and aviation products including defense and security systems, land and naval platforms, aerospace, electronics and information systems, weapon systems and ammunition, support systems and logistic services, research and development (R&D) and engineering activities. [11]

SSI unites the exporting companies in defense and aerospace sector in Turkey under one roof. In this sense, SSI is the representative of the sector, which has made its main objective to help the Turkish Defense and Aerospace Industry sector focus on export-oriented production, increase research and development investments, and make "know-how" its main export item. [12]

SSI participate as much as possible in international fairs to make Turkish product recognized in the international market. [13]

Private companies

Before the 1990's almost all Turkish defense firms were supported by the government or by foundations, but in the 1990's new defense firms were entirely funded by the private sector. [6]

There are some Turkish companies, which are called government-affiliated companies in the Turkish Defense industry. [14]

- MKE or MKEK, a weapon and ammunition manufacturer [15]
- ASFAT, which includes military factories [16]
  - Both of these institutes are affiliated to the state but can carry out commercial activities.
- STM is a company for design and production, which was established by the Presidency of Defense Industries (SSB) [17]

Defense Industry Clusters

According to Michael E. *Porter, who defined the term of cluster, „*clustering is a geographic concentration of firms from a particular industry with the firms from supporting industries and related public and private institutions" [18]

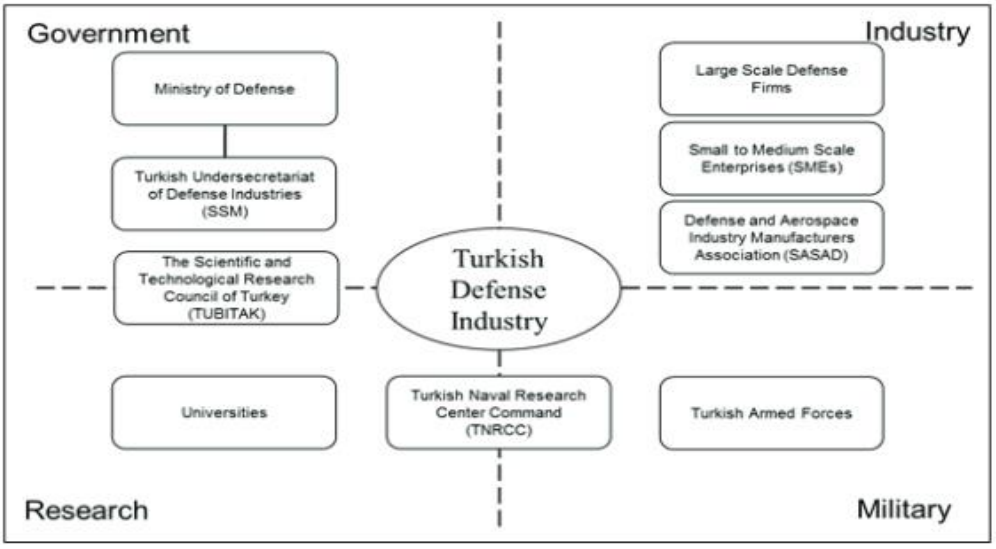
Clustering is a solution for SMEs (Small and medium-sized enterprises) to stay competitive against large companies with more resources. *"In Turkey since 2008 there are clusters related to defense, security, aviation, and space."* [6]

These are the defense industry cluster in Turkey:

- OSTIM Defence and Aviation Cluster (OSSA) (established in 2008)
- Teknokent (Technology Park) Defense Industry Cluster (TSSK) (established in 2010)
- The Aerospace Clustering Association (ACA) (established in 2010)
- The Eskisehir Aviation Cluster (ESAC) (established in 2011)
- The Defence, Aviation, Space Clustering Association (SAHA) (established in 2015)
- The Space, Aviation, and Defence Cluster (established in 2014) [6]

According to Kadir Alpaslan Demir, Ebru Caymaz, Fahri Erenel the more holistic view of the Turkish Defense Industry includes four main direction:

- 1. government
- 2. military
- 3. industry
- 4. research



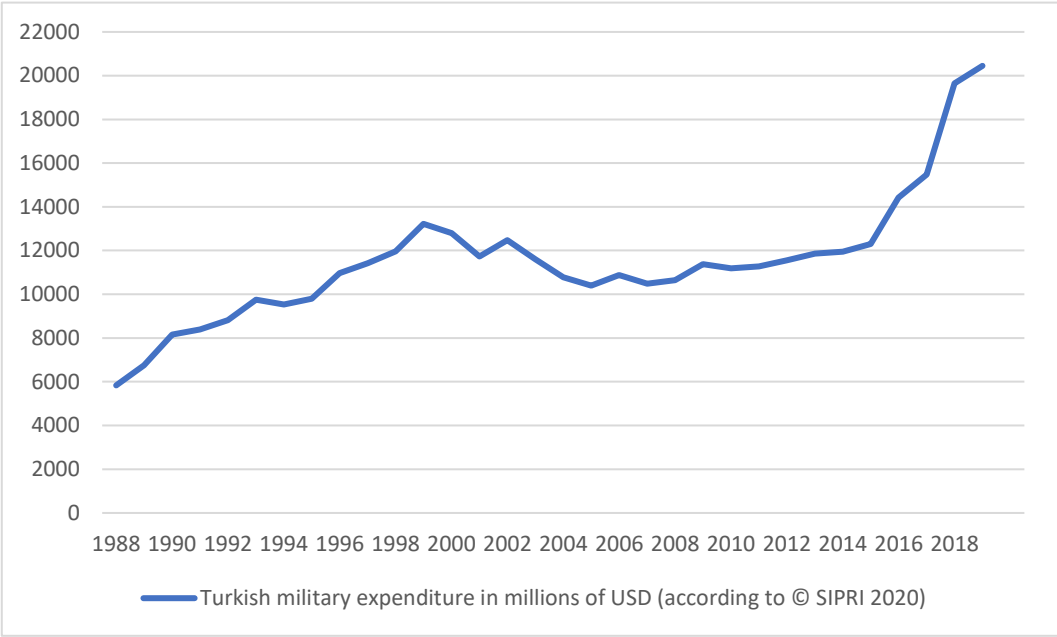
In their study they presented this large-scale structure of the defense industry in the following Figure. [6]

BUDGET OF THE TURKISH MILITARY

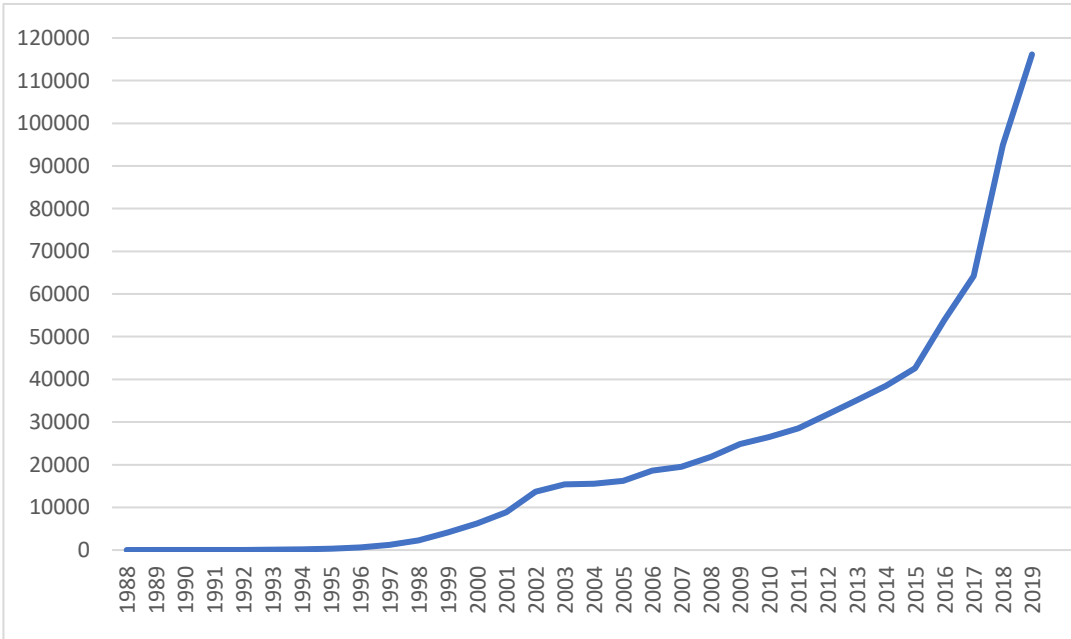
As we can see in the diagram below, the military spending has increased in Turkey in the last 30 years. Between 1988-1998 the amount spent on military doubled. (1988: 5,8 billion USD, 1999: 13,2 billion USD). (See 2. Figure) After that military spending decreased

1. Figure: The Hollistic view of the Turkish military industry, [6]

or stagnated for 10 years. Growth in the Turkish military spending started again around 2009 and slightly went on until 2015, but after 2015 a radical increase started. Concerning this issue it cannot be neglected that there was a military coup in 2016 in Turkey.

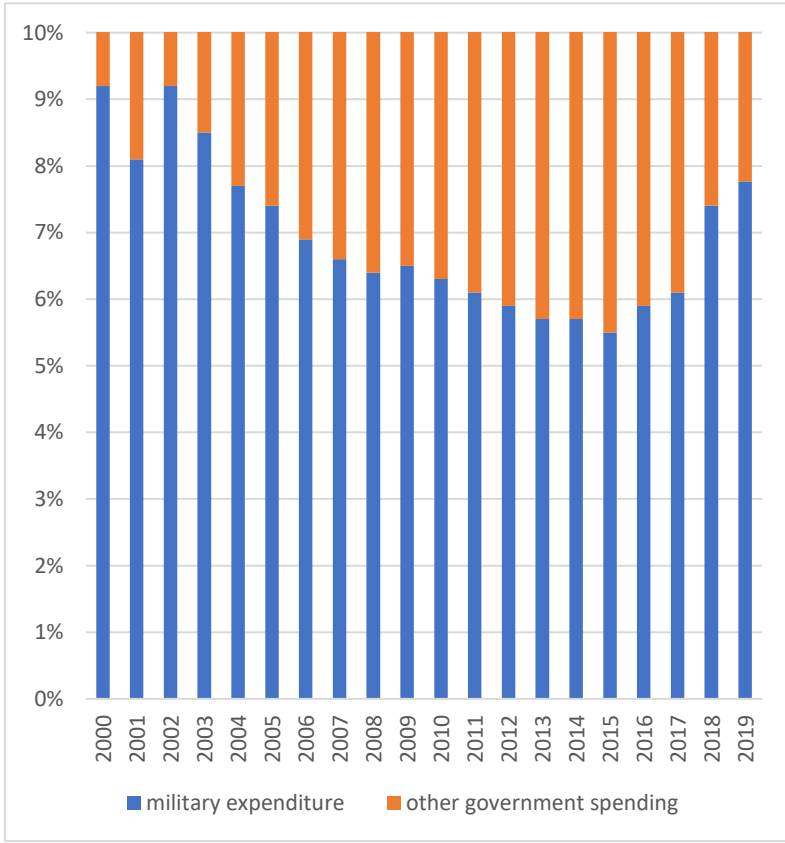


2. Figure: Military expenditure of Turkey, in constant (2018) US$ m., 1988-2019.
Source: The authors construction according to SIPRI 2020



3. Figure: Military expenditure of Turkey, in local currency, (millions of lira) 1988-2019.
Source: The authors construction according to SIPRI 2020

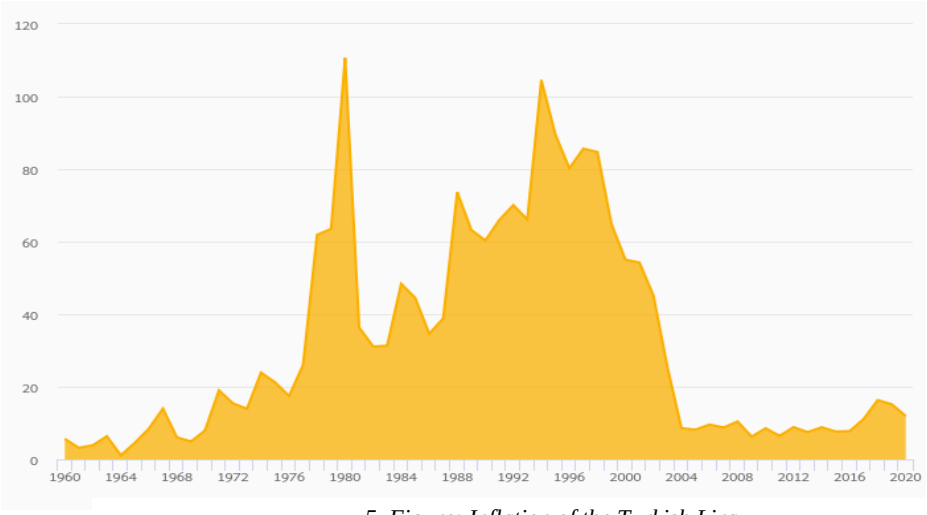
Seeing data on Turkey's military expenditure data in the last 30 years we can state that Turkey is spending billions of liras for the military and military industry. There is a significant growth after 2003, which is the beginning of the Erdogan administration. Since Erdogan is leading Turkey, the country's military spending in Turkish lira (TRY) saw a growth of 750%. (2003: 15,4 billion lira, 2019: 116 billion lira) (See 3. Figure) But on the other hand we need to see that this magnitude of growth is not reflected in spending in USD, so inflation of the Turkish lira must also be taken into consideration. As we can see on the following diagram the inflation of the Turkish lira was also really high in the last decades. (See 5. Figure)



4. Figure: Military expenditure by country as percentage of government spending, 1988-2019, Turkey. Source: Author's own construction according to SIPRI 2020

The Turkish military spending in USD saw such a growth: 5,834 billion of USD (1988), 11,970 billion (1998), 10,640 billion (2008) and 20,448 billion USD in 2019. (See 2. Figure) As it can be noticed the Turkish Military spending grew also in USD in the last decades: between 1988-1999 the spending had a 226% growth, after that it was fifteen years with an average of 11,4 billion USD spent on Turkish military issues. Since 2015 there is a

massive growth also in USD in the Turkish military spending: Turkey spent for military 66% more in 2019 than 4 years before. (See 2. Figure)



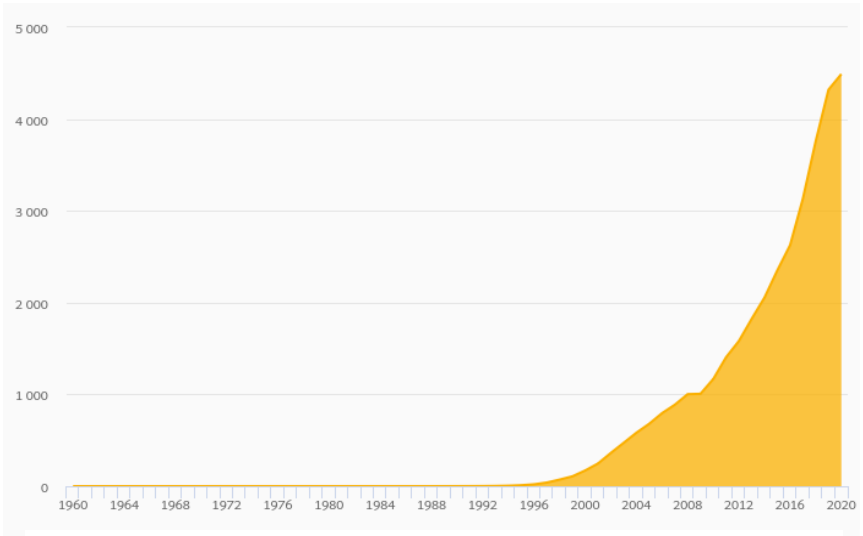
5. Figure: Inflation of the Turkish Lira,
Source: https://www.helgilibrary.com/charts/inflation-cpi-average-fell-213-to-119-in-turkey-in-2020/

Otherwise the GDP of Turkey has also increased in a significant way during the period of 2003-2019 Otherwise the GDP of Turkey has also increased in a significant way during the period of 2003-2019 under Erdogan's leadership, so not only the amount spent on military grew, but also the overall budget. But the percentage of the national budget spent on the military sank from 9,2% to 7,8% between 2000 to 2019. So three points assumed that the Turkish economy became stronger, national income become more, but inflation also made the lira less valuable. But it is clear from the percentage of military spending in Turkish GDP and from all other diagrams that Turkish military spending began to rise significantly since 2015 over the last five years. [19]

ECONOMIC SUCCESS OF THE TURKISH MILITARY INDUSTRY IN THE LAST DECADE / DURING THE ERDOGAN ADMINISTRATION

The Turkish military industry is a powerful economic actor in the country. During the last decades the Turkish military has also developed civilian enterprises that are important in their sectors. [20]

Turkey's defense industry has seen a great increase in the last 10 years. An example of the growth of the Turkish military industry is the list of the Top 100 Global Defense



6. Figure: GDP rose of Turkey in local currency.
Source: https://www.helgilibrary.com/charts/gdp-local-currency-rose-393-to-try-4490-bil-in-turkey-in-2020/

Companies. This list is made by Defense News and collects the most successful and prestigious defense companies from all over the world. [2]

In 2010 there was only one Turkish company on the list of Top 100 Global Defense Companies, in 2020 there are seven Turkish companies on this list. To understand the magnitude of this growth, we need to realize that Russia, Japan, Sweden and Israel have a total of less than seven companies on this list. [21] According to the list, countries can be ranked based on the numbers of their companies, and in 2020 Turkey ranked 4th with 7 companies after the United States, the United Kingdom and the People's Republic of China. [22]

In 2020 these were the Turkish companies on the Top 100 list, indicating the position and the background of the company:

Company name	**Background**
1, electronics specialist Aselsan (48th on the list), (https://www.aselsan.com.tr/en)	member of TAFF, a government foundation
2, Turkish Aerospace Industries TAI / TUSAŞ (53th), (https://www.tusas.com/en/)	member of TAFF, a government foundation
3, armored vehicles maker BMC (89th), a Turkish-Qatari partnership (defensnews.com turkish industry prospers) (https://www.bmc.com.tr/en)	Private
4, missile maker Roketsan (91st), (https://www.roketsan.com.tr/en/)	member of TAFF, a government foundation

Company name	Background
5, military technologies specialist STM (92nd), (SSB) (https://www.stm.com.tr/en)	Established by the Presidency of Defense Industries - Government affiliated
6, FNSS, an armored vehicle maker company (new this year at 98th) (https://www.fnss.com.tr/en) [23]	Private
7, and military software specialist Havelsan (new this year at 99th) (member of TAFF) (http://www.havelsan.com.tr/en/)	member of TAFF, a government foundation

1. Table: Turkish companies in the Top 100 Defense Companies list and their background. Source: author's construction

Seeing the list we can see that „of the seven, five are government-controlled companies.". It is a great success for the Turkish Armed Force Foundation to have four of its subsidiaries on the list of the Defense News Top 100 Defense Companies, [2] which is the most prestigious list in the defense industry globally. [23]

PRODUCTS OF THE TURKISH MILITARY INDUSTRY

The institutes, companies could only be successful in the global market if they present good quality and successful products.

Today, Turkey has become capable of manufacturing its own satellites, unmanned air vehicles (UAV), training aircrafts, helicopters, service rifles, battle ships, armored vehicles, missile and rocket systems. There are already qualified human resource, research institutes, R&D (research and development) laboratories, SMEs (Small and medium-sized enterprises) and worldwide companies within Turkey, which is now also able to develop simulation and software, it establishes partnerships in worldwide projects, builds satellite production and test centers, initiates the construction of satellite launch facilities as well as combat aircrafts and indigenous helicopter projects. [13]

The most remarkable products of the Turkish Defense Industry are: 8x8 PARS, 6x6 PARS, 6X6 ARMA; 4x4 COBRA, EJDER YALCIN, VURAN; ALTAY MBT and KAPLAN Medium Tanks. These products compete in global markets. [14]

8x8 PARS is an armored vehicle with eight wheels, which has an all-axle steering system, and this gives the vehicle the lowest turning radius in its class. The structure of the vehicle is developed especially to protect personnel, for example there are mine-resistant seats in it. This vehicle can climb 70 cm high obstacles and 2 meter wide trenches and can accelerate up to 100km / h in normal roads. [24]

6x6 PARS is from the same type as PARS 8X8 but with six wheels, which has a first and third axle steering system, which makes it really mobile. Because of it, it has the lowest turning circle of its class. This vehicle moves comfortably on loose and soft terrain. There is also another version of it called 6X6 PARS Scout, which is amphibious. [24]

6X6 ARMA is a six-wheel armored vehicle, which has superior mobility, high mine and ballistic protection and wide range of weapon integration options. This vehicle is capable to functioning in most difficult terrain and climatic conditions. This type is available in various type of configurations like personnel Carrier, Infantry Fighting Carrier, Command Post, Ambulance, CBRN reconnaissance, Driver training. And its also optional to have amphibious version. [24]

4x4 COBRA, is an armored vehicle by Otokar. It is a multipurpose platform, that can be adapted for various roles (personnel carrier, weapon platform, NBC reconnaissance, ground surveillance radar, forward observer, ambulance, command post). It can be build in amphibious version. Cobra 4X4 is combat proven since it is in active duty in armed forces throughout the world. [24]

EJDER YALCIN, is a 4X4 armored combat vehicle, developed to meet the operational requirements of military units and security forces in rural, as well as in urban areas. It can be customized for various requirements: border surveillance and security vehicle, air defence vehicle, reconnaissance vehicle, command and control vehicle, Mine/IED Detection-Clearance vehicle, combat vehicle, personnel carrier, CBRN surveillance vehicle, tactical missile Carriage/Launch System, Armored Ambulance. [24] This Turkish-made vehicle was tested in different countries and also Hungary uses this vehicle and ordered more in recent time from Ejder Yalcin, which seen as one of the most reliable in 4X4 category. The Hungarian defense minister Tibor Benkő stressed that the Turkish armored vehicle's maker, Nurol Makina, will make joint production with Hungary. [25]

VURAN is a 4 wheel armored vehicle, which is standing out for its high crew capacity. Nine person can be carried with it and this car offers high level protection for its personnel against mines and ballistic threats. To offer this kind of protection the cabin and windshields are armored, seats are shock-absorbing, and there are emergency exit hatches. [24]

ALTAY MBT is a third generation of Main Battle Tank of the Republic of Turkey. In 2005 The Turkish National Main Battle Tank Project began, and the Altay first prototype was ready in 2015. Since then Turkey planned the mass production of it and planning to build 1000 Altay tank in 250 units. The Altay MBT incorporates the most modern features of a tank, which has a crew of four, comprising the driver, gunner, loader and commander. The company Otokar won the competition to be the main contractor to build these tanks. [26]

KAPLAN has a series of different medium tanks that has the ability to move together with main battle tanks. There are Kaplan 10, Kaplan 20, Kaplan 30 and Kaplan MT. The first two has the unique feature that they are amphibious. [24]

The Turkish military industry is aiming to produce high-quality products and therefore the government and the companies want to solve not only the manufacturing products on their own, but also the testing. The president of SSI, Naki Polat, stated that „The Turkish Armed Forces demand products and services that have superior capabilities, which require very challenging tests and trials." [14]

In recent years, the development and verification activities of the new platforms such as the National Combat Ship MILGEM Project, Main Battle Tank Project - ALTAY, Unmanned Air Vehicle Project - ANKA and BAYKAR UAV (unmanned aerial vehicle) / AUAV, Cirit, Anti-Tank, Bora and Kasırga Missiles, Training Jet (HÜRKUŞ), Patrol and

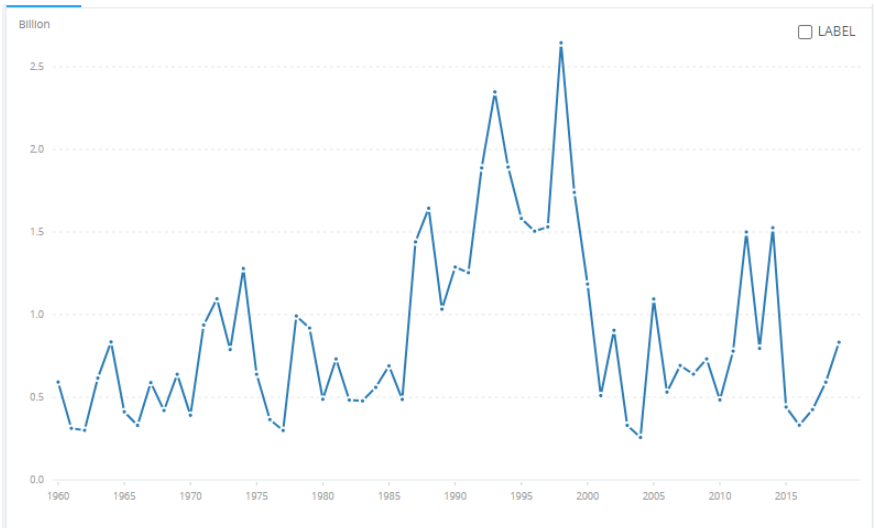
Coast Guard Boats, Light Weapons and various modern ammunition were completed. These are the success of the Turkish defense industry, which increase the Turkish export potential and help Turkey take the place in the world markets. [27]

„The Turkish Defense Industry has been on the rise for the past fifty years. Currently,
Turkey is able to support Turkish armed forces with many national defense systems."[6]

CHANGES OF IMPORT / EXPORT BEFORE ERDOGAN AND SINCE ERDOGAN

Recep Tayyip Erdoğan is leading Turkey since 2003 which is quite a long period historically and also economically. So now there is data that we can compare what it was like before the Erdogan's administration and what changes took place since then.

There have been changes over the years in arms imports and exports. The attached diagram deals only with the military weapons and exclude any other military equipment. In the 80's and 90's Turkey imported more and more arms during the years. There were high peaks in 1993 and in 1998. In 1993, Turkey imported 2,348 billion USD worth of arms, and after a short period of decrease, Turkey reached a historical highpoint in arms import in



7. Figure: Arms imports of Turkey.
Source:
https://data.worldbank.org/indicator/MS.MIL.MPRT.KD?end=2019&locations=TR&start=1960&view=chart

1998, worth 2,645 billion USD. There was a massive change around 2000 when Turkey's arms imports started to sink. (See 6. Figure)

Since Erdogan is in leadership, Turkey started to import less arms from abroad, as one of his administration's goal is to make Turkey self-sufficient in arms. So the Turkish government stimulated the national military industry to produce arms and military equipment at home. Yet during the last 15 years there was growth in Turkey's arms import, but

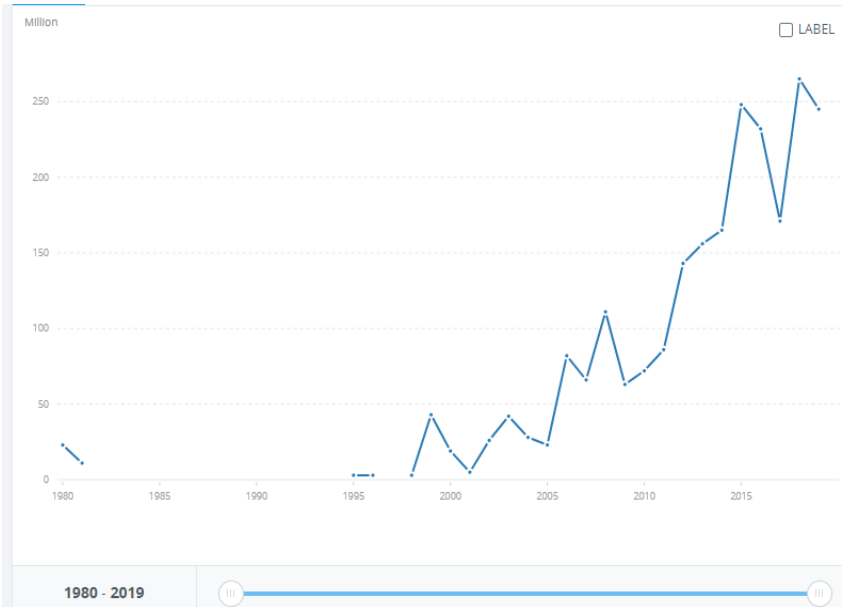
never reached the volume of the 80's and 90's. However, the Turkish arms imports in the 60's, 70's were about at the same level, or even lower than nowadays. And since 2016 Turkey has imported more arms every year. The diagram on 6. Figure deals only with the military weapons and exclude any other military equipment. Since Erdogan leadership Turkey's arms exports rose exponentially. While after the first year of Prime Minister Erdogan in 2004 Turkey exported 28 million USD worth of arms, in 2019 it was 245 million USD. This represents a growth of 875% in 15 years. [19]

BUYER OF THE TURKISH MILITARY PRODUCTS

After Turkey joined the North Atlantic Treaty Alliance (NATO) in 1952, there was a movement in the NATO in the 1980's to modernize the states weapon systems. At the same time, Turkey tried to reduce its dependence on foreign manufacturers by strengthening its own national weapon production. Nowadays Turkey has become a key provider of weapons system around the world. [14]

The products of the Turkish private companies which manufacture military devices are used in two directions:

- 1. the Turkish national security forces (for example the army, the police)
- 2. users worldwide



8. Figure: Arms export of Turkey 1980 – 2019 according to SIPRI. Source:https://data.worldbank.org/indicator/MS.MIL.XPRT.KD?end=2019&locations=TR&start=1960&view=chart

The defense industry of Turkey has also become a technology provider to various countries. Turkey provide military products with joint production and technology transfer efforts to these countries:

- Kazakhstan,

- Kingdom of Saudi Arabia,
- Malaysia,
- United Arab Emirates (UAE),
- Azerbaijan,
- Indonesia [14]

Turkish companies have made exponential progress in producing drones, ships, military electronics and armored vehicles technologies. Due to high technological standards and competitive pricing, there are foreign customers for these Turkish systems. "The combat-proven technologies easily find their place in export markets, especially in countries with which Turkey has friendly political relations." In these countries, there is a good market for Turkish companies for such products listed above:

- Qatar
- some north African countries, (Libya, Tunisia etc.)
- Azerbaijan,
- Pakistan,
- Turkic republics in Central Asia
- Muslim countries in southeast Asia, like Indonesia and Malaysia. [23]

Qatar is Turkey's most important ally country in the Gulf region. The two country has joint-production programs in the military industry and Qatar welcomed the decision of the Turkish parliament to permit the deployment of Turkish troops to Qatar. [28]

Looking to history **North Africa** can be seen as „traditional spheres of influence" for Turkey, since it was part of the Ottoman Empire. But after 1923 Turkey isolated itself from such former spheres of influence, and oriented to the West. Although since 2003 with the leadership of the AKP Turkey put emphasis on North Africa again, where Turkish influence is growing in countries like Marocco, Algeria, Tunisia and Libya. [29] In Libya Turkish-made drones helped to win war. [30]

As a matter of fact Turkey is building connections all over the African continent and in the Sub-Saharan region, and is making business of military products in these countries too. In recent years there were military related business treaties worth hundreds of million USD. [31] What is more, several countries in the African continent are purchasers of Turkish military equipment. In 2018 Turkey made 84.35 million US dollar income from the selling of these products to: South Africa, Tunisia, Ghana, Nigeria, Chad, Libya, Egypt, Burkina Faso, Kenya, the Democratic Republic of the Congo, Cameroon and Senegal. [32]

Azerbaijan is Turkey's important ally in the Caucasus, the two countries has Agreement on Strategic Partnership and Mutual Support since 2010, preceded of Social Security Treaty in 1998. [33] Turkey also helped Azerbaijan in the conflicts against Armenia, and the Azeri army got aid from the Turkish Armed Forces, could use Turkish military equipment. What is more in the latest Nagorno-Karabakh conflict Turkish UAVs (unmanned aerial vehicle), drones took a crucial part in the victories of the Azeri side. [34]

Kazakhstan is one of the most important partners for Turkey in Central Asia, as Turkey's Deputy National Defense Minister, Muhsin Dere stated in February, 2021. [35] The two countries have joint production of military products in the field of optical and radio-

electronics. Turkish made Arma 8x8 wheeled armored combat vehicle and Aselsan Nefer remote-controlled stabilized weapon system were tested in Kazakh soil. [36]

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TECHNOLOGICAL AND INFORMATION WARFARE IN THE XXI. CENTURY

TECHNOLÓGIAI ÉS INFORMÁCIÓS HADVISELÉS A XXI. SZÁZADBAN

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Abstract

The thesis of the paper is that an effective management of traditional and new security challenges can be achieved through a complex international cooperation, knowledge and data exchange, while at the same time developing adaptive capabilities of the defense sector. In addition, to advance national defense and military capabilities, the defense sector, including armed forces, need to adapt to the new security threats that have appeared and are developing continuously. To recognize and properly manage complex and coherent new security risks as well as to perform conventional military tasks at the same time, it is necessary to transform and fully modernize warfare based on existing and new technological and information capabilities. In order to verify the thesis, the first chapter of the study presents the grouping of new security challenges and then, based on that, the second part evaluates the individual stages of the military revolution. The third chapter presents the characteristics of information warfare, while the fourth chapter highlights the waves of the military revolution explaining the four stages of their development.

Keywords

digitization, globalization, security challenge, technological development, force reform, military technology

Absztrakt

A dolgozat tézise, hogy a hagyományos és az új biztonsági kihívások hatékony kezelése komplex nemzetközi együttműködéssel, a szövetségesek vonatkozó tudás és adatcseréjével, ugyanakkor a védelmi szektor adaptív képességfejlesztésével érhető el. A védelmi szektornak, ezen belül a fegyveres erőknek, a hagyományos országvédelmi feladatai ellátása mellett szükséges az új kockázati tényezők mentén kialakult/kialakuló biztonsági fenyegetésekhez alkalmazkodni, azokra reagálni. Ahhoz, hogy a hagyományos katonai feladatok ellátása mellett a komplex és koherens új biztonsági kockázatokat a fegyveres erők felismerjék és megfelelően kezeljék, szükséges a hadviselés átalakítása, teljeskörű modernizációja. A tézis igazolása érdekében a dolgozat első fejezete bemutatja az új biztonsági kihívásokat, míg a második rész értékeli a tudományos-technológiai forradalom, azon belül pedig a haditechnikai boom egyes szakaszait. A harmadik fejezet az információs hadviselés jellemzőit mutatja be, majd arra alapozva, a negyedik fejezet a hadügyi forradalom egyes hullámait, a szakirodalomban is fellelhető négy fejlődési szakaszban jeleníti meg.

Kulcsszavak

digitalizáció, globalizáció, biztonsági kihívás, technológiai fejlődés, haderőreform, haditechnika

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INTRODUCTION

Security is a state of a sort of conditions without threats, when there is no active threat to endanger us, our life or our environment. Security challenges that can become threats are complex in nature and interact with each other. This conceptual framework may be further complicated or even reinforced by changes in society, especially in the face of rapid technological development.

The process of globalization, i.e. the free and rapid flow of information, capital, labor, goods, services and political principles and ideologies, has been accompanied by technological development, i.e. electronics, informatics, biogenetics, space, the explosive development of artificial intelligence and many other technical fields of science [1] The thesis of the paper is that an effective management of traditional and new security challenges can be achieved through a complex international cooperation, knowledge and data exchange, while at the same time developing adaptive capabilities of the defense sector. In addition, to advance national defense and military capabilities, the defense sector, including armed forces, need to adapt to the new security threats that have appeared and are developing continuously. To recognize and properly manage complex and coherent new security risks as well as to perform conventional military tasks at the same time, it is necessary to transform and fully modernize warfare based on existing and new technological and information capabilities.

In order to verify the thesis, the first chapter of the study presents the grouping of new security challenges and then, based on that, the second part evaluates the individual stages of the military revolution. The third chapter presents the characteristics of information warfare, while the fourth chapter highlights the waves of the military revolution explaining the four stages of their development. Finally, the paper concludes that modern countries and their defense sectors need to be prepared to deal with new security risks, among them with cyber space, therefore digital capability development for the armed forces is not just needed, but inevitable.

A XXI. SECURITY CHALLENGES OF THE 21ST CENTURY

The goal of first chapter is to present those new and main security challenges that reshape our security perception and dominate every-day life. These are the globalization, the migration, the terrorism and the digital-technological revolution and its challenges to the information society. The transformation of security continued at the beginning of the 21st century, in line with the post-Cold War trends of the previous decade. The political, economic and social changes that began in the late 1980s, the culmination of globalization, swept away the bipolar world order, which changed the balance of power, accelerated scientific and technological development, and the interdependence of states, while threats have become universal and common. [1] The "old" armed conflicts, which can be called traditional, have been replaced by "new" security challenges: low-intensity security risks, proliferation of weapons of mass destruction, uncontrolled development of nuclear, chemical and biological technologies, cyber threats from the mass use of computers. Conflicts of interest arising from unequal social and economic development, or attacks organized by non-state actors and terrorist groups, all states to set new target systems of a preventive and protective nature in order to survive. [2]

The new security challenges can be grouped along the following lines:

- global, regional, local and specific threats based on geographical aspects;
- military "hard" or non-military, ie "soft" hazards due to their nature;
- direct, immediate or long-term, preventable risks according to their occurrence;
- occasional, short, medium and long-term hazards in terms of their duration;
- in terms of their nature and origin, armed conflicts, natural and industrial disasters, social crises, threats to civilization and forensic phenomena. [3]

With the emergence and globalization of new types of security risks, the chances of armed conflicts in democratic and modernized countries show a declining trend, as they stand today. With regard to Hungary, on the one hand, collective defense due to NATO membership reduces the chances of a direct armed conflict, and on the other hand, a significant proportion of Hungarians living across the border increase the possibility of violence against Hungarian interests, e.g. low-intensity 'below-threshold' violent armed conflicts. Therefore, maintaining and strengthening the border protection system, the presence of law enforcement and military forces nationwide cannot be indispensable as new security challenges come to the fore.

Ecological, natural or industrial disasters are emerging as new security challenges. The above phenomena are becoming more common in Hungary and Europe as well, and technological development further escalates the problems. Floods, rainfall and epidemics can have secondary consequences, as well as animal and human epidemics from the West or East, which, in addition to testing the health system, pose a serious threat to the economy, in particular COVID-19. The prevention of natural disasters and the management of disasters and epidemiological situations in the spirit of a comprehensive approach can be effective through complex civil-military cooperation. The domestic method of developing a signaling system necessary for the prevention of disaster situations, prevention damages in infrastructure, with international cooperation is a priority task for Government institutions, especially for military, disaster management and law enforcement agencies. [2]

Today, migration has been shown to be a natural part of globalization. The 2015 wave of migration, highlighted the shortcomings of the asylum system, the inadequacy of immigration, border and civil protection capacities. [2] As a consequence of migration, it is accompanied by the black labor market and cross-border crime, international crime, the increase in drug trafficking, the transmission and spread of epidemics, and the emergence of human trafficking. As a result of migration, the threat of terrorism also increases, and the expulsion and return of migrants and the emergence and criminalization of ethnic minorities may also lead to international disputes. While controlled migration can bring economic and demographic benefits in the medium and long term, it also poses serious risks to public security and national security in the short term. In terms of illegal migration, Hungary is primarily a transit country, but there is also a chance that in the long run, the peoples of Africa and South Asia will find Hungary as a destination country, especially if relative prosperity continues to improve economically and socially. Our country is tackling illegal migration with the help of organized crime, stepping up the fight against human trafficking and developing a policy of expulsion, return and readmission. In connection with the above, it can be stated that the recognition of the security challenges affecting Hungary and the

action against them can be effectively applied by deploying the appropriate national self-sufficiency and meeting the requirements of transatlantic and European integration. [4]

The relegation of traditional war to the background also greatly reduced the likelihood of total nuclear warfare during the Cold War. According to the general opinion in the global media space and social networks created in direct proportion to globalization, nuclear war should not be in the 21st century. instrument of the political goal of the 21st century. However, the nature of the new warfare resulting from the development of information and technology requires global and international treatment, especially with regard to the proliferation of weapons systems, the use of super-technical systems and the development of application technologies.

In terms of the scale of the threats, despite the above, the use of weapons of mass destruction and terrorism as asymmetric security risk factors pose the most fatal threat to developed countries. Due to the proliferation of weapons of mass destruction and the uncontrolled nature of technologies, the balance of power in the world is changing, so counterparts to developed countries are more likely to use asymmetric instruments in view of their smaller budgetary needs but greater universal destructive effects. All this means that the unauthorized access to nuclear, chemical, biological technologies, genetic engineering, the proliferation of weapons of mass destruction, the mass use of information technology and technology by computers is one of the greatest security risks and threats today. [5]

With the advent of globalization, terrorism is gaining ground, manifesting itself in different and changing ways in space and time. Although terrorism knows no borders, Hungary's level of terrorist vulnerability is rather low, but at the same time foreign terrorist acts can have an economic and security impact on Hungary. The country participates in the international fight against terrorism, in the development of the international anti-terrorist organization system, and in the implementation of the obligations of the United Nations, the EU and NATO. [6]

Today's cyber threats, like terrorism, know no borders and are spreading more and more as a result of globalization. Computer systems are driving societies, science and technology are becoming available to all of us, so we have to deal with unexpected attacks in cyberspace. Adequate protection against cyber-attacks, such as disruption, blocking, or overloading of information and communication systems or the government backbone, is necessary. In addition to the development of national security and national defense, emphasis must be placed on cyber defense and the provision of international critical infrastructure. [6]

Thus, in addition to its benefits, the IT explosion can be identified as a new risk. Both governmental and non-governmental actors are adapting the advantages and disadvantages of cyberspace. "Hacker" or "pirate" attacks may include governmental, political, and economic, non-state actors exposed to malicious intent, terrorist acts, data acquisition, or data theft and use. It is worth mentioning here the deletion and theft of information of public interest and the smuggling of falsified, false information.

Overall, traditional and new security challenges are often interlinked, inducing each other, so threats are clearly interlinked, interacting, continuously influencing a given level of stability. One of the surest places to deal effectively with traditional and new security challenges is through international cooperation. In order for Hungary to properly manage the complex and coherent risks presented in this chapter, it is necessary to adapt the force

and its use. This is basically a structural, procedural, warfare and comprehensive modernization transformation that began in 2016 with the Zrínyi 2026 Force Development Plan.

THE TRANSFORMATION OF THE ARMED FORCES, THE AGE OF MILITARY TECHNICAL REFORMS

The period from the French Revolution to the middle of the 20th century can be called the age of mass warfare. Which means that during that period, the military force consisted of an enlisted mass army, meaning those who had a larger army were the most successful on the battlefield. However, the age of mass armies is over. The almost complete destruction of Iraq, the world's fourth-largest army, in 1991 was a breeze that that outdated military technology could be surpassed by advanced weapons. [7]

In the 19th century and the 20th century, for the most part, the armies of countries had the same weapons worldwide. By the time of the First World War, greater differences could already be discovered in this field, until the Allies began mass tank production, until the Germans developed this land capability. During World War II, the contrast increased even more. The United States and Great Britain developed heavy bombers at this time, but neither the Soviet Union nor their enemies followed this example. Nevertheless, in World War II and during the Cold War, the weapon systems were fundamentally similar. The great change began at the end of the 20th century, by which time weapons had developed rapidly, which meant the development of actual means of destruction, the emergence of unique armaments solutions, and the creation of military technology systems. [8]

In most countries of the world, compulsory, conscript military service was abandoned, thereby reducing the size of the armed forces and bringing military technical developments to the fore. Together with more advanced military technology and appropriately trained soldiers, a change in power can result in a 1: 3 victory against a larger force that uses more outdated techniques. Quality, which is a combination of a trained soldier and technique, therefore overcomes quantity.

"Force reform," that is, the change of the armed forces, is a constant historical process. In the modern age, this process is present as a budgetary, developmental, and political issue. The reorganization of the force depends on changes in the image of the war. The mode of warfare depends on the particular, developed or under development military technique, political interests and economy. In addition, the geopolitical situation and military geographical position also determine the parameters of the forces. In the current changing security environment, the management of new security risks and conflicts is based on different principles of warfare than before, where mobility, flexibility, capability development and the functional use of knowledge, i.e. quality, come before quantity. At the same time, the military revolution, electronic and information-based warfare, namely the change in the human-machine ratio, is emerging. This chapter takes the stages of the above process by presenting the milestones that have shaped its major recent events leading to the transformation of the army.

Defense and military cooperation need to be implemented within an international framework, which means that international interoperability is important. With regard to our NATO allied and EU membership, the elements and capabilities of the Hungarian Armed Forces are modern, up-to-date and useful, which can be deployed outside the country, and

thus can also be used in an international environment. Therefore, the center of force development is provided by the achievement of the above capabilities. As a result, it is conceivable that some skills that have become redundant in the meantime will disappear completely and be replaced by new, modern ones. The goal is to train an army that is not based on the principle of a "mass army" with full capabilities before the change of regime, but is new and innovative, based on technology and capability development. [9]

Military technology is constantly changing and evolving. The military revolution is based on the combined presence of change. Military technology changes evolution-like, at greater or lesser rates, it transforms hectically, that is, it develops unevenly. During development, the merging of some technical innovations induces a greater transformation, while other areas have become secondary (see mass nuclear capabilities today).

Changes in warfare first appeared in the 1991 Gulf War [7], where the effectiveness of high-precision weapons was first demonstrated, a range of supporting military techniques emerged, and this brought about a fundamental change in warfare. Analyzing the specifics of the Gulf War, we can conclude that (1) quality versus quantity, (2) the specialization of military equipment, (3) and the military application of civilian-developed technologies provide the triple tooth that characterizes the new technological era of warfare. [8]

Today, the weapon systems between the leading powers are not as balanced as in the past. The United States is at the forefront of military advances such as the heavy B-2 bomber, which uses heavy-range stealth technology. [10] Few countries are able to follow this technological development, but many are able to sustain ballistic missiles. This process suggests that arms competition between countries and major powers is / has become asymmetric.

Military development is greatly influenced by the state of comprehensive systems. Because of its ability to cooperate in combat, the U.S. Navy is able to see and manage the common picture created by the data in the system simultaneously for all ships in service. Space guidance systems, which can be used to track all objects moving in orbit around the Earth and coordinate the movements of vehicles, will become available to military leadership. These advanced systems are now only shadows of traditional military command and control systems. The United States and some European countries are successful in aerospace development, with Japan having little success, while China and Russia have mixed results. [11] Systems integration, namely the targeted integration of complex technologies in the States, is developed by interconnecting weapons systems and sensors in order to enable these systems to operate in an ever-changing environment.

The military use of civilian-developed technologies is not new, as some of the developments have always come from the civilian sector. Civilian technical devices basically had a great impact on warfare (railway, telegraph). However, after the Second World War, a large number of countries interested in technical development set up research institutes, as a result of which military developments were transferred to the civil sector (transistor, jet engine). A similar finding can be made with regard to the ARPANET, which emerged at the beginning of the information age and was referred to as the "ancestor of the Internet" developed by the U.S. Department of Defense — a messaging and receiving network system created during the nuclear war. [12]

Today, as a turning point in the information age, the military sector is once again relying on developments in the civil sphere. Civilian technology is leading the way in military applications. The interdependence of governmental and non-governmental, economic and market actors is becoming more and more important in terms of technical innovations and developments.

It takes time for new military technology to take effect. It is a burden on modern armies to cope with the challenges of the information revolution. One of the biggest challenges is retaining human strength. At the time of the Industrial Revolution, the civil sector and private enterprises did not have to be fought. In the information revolution, however, the gap between civil-military organizations is widening. It is much more difficult to keep trained forces on the defense field in an age where the civilian sector offers more freedom, better wages and opportunities. That is why the development of the military career is very important. As a result of technological advances, the military faces another challenge: warfare takes place within the framework of cameras and satellite communications. This means that armed clashes can be affected by cyberspace, some battles can unfold on the World Wide Web, so real and virtual battlefields are inseparable.

INFORMATION WARFARE

This part of the study is written as an introduction to the fourth and final chapter, which aims to provide the reader with a comprehensive picture of the information society and warfare, as well as the threats to information infrastructures. The secure functioning of the information society depends on the information infrastructure and information systems. Through these, physical, electronic and IT attacks can be launched against the political, economic and cultural life of a developed industrial country. A successful information attack can cause damage that makes an actual military attack unnecessary, and in the event of a crisis, it can cripple strike forces, early warning systems, and immediate and rapid response forces. In the information society, the chances of an information attack are increasing. This predicts the short-term economic and social decline of an industrialized country dependent on information infrastructures. This means that information attacks affect both the civilian population and the military. [13]

However, cyber-terrorism is a global threat, so every country must catch up with the dangers of the information society. Nowadays, it is unpredictable when and from which country a cyber-attack will be launched. It is beneficial for a country or terrorist organization launching a cyber-attack to be able to weigh on the stability and international prestige of a target country with cost-effective information attacks, especially if it can do so without hiding its identity. [14]

In conclusion, information terrorist attacks and aggressions are as much a threat as challenges, risks and threats to international, global, regional or national interests. Therefore, in order to prevent them and fight, every country must act. This statement has already been recognized by many NATO allies, including Hungary. To this end, the establishment of a number of legal acts, institutions and organizations has begun.

Information infrastructures are complex systems that build on each other, assume each other and consist of a set of mutually supportive infrastructures. The information society depends on functional information infrastructures and the continuous operation of supporting infrastructures. Therefore, if this complex infrastructure system is attacked, it will

also affect the smooth operation of other infrastructures. There is interdependence between infrastructures. The functioning of information society information infrastructures can therefore be disrupted, damaged or destroyed altogether. Maintaining the operation of information infrastructures is important for companies, government institutions and organizations alike. The global availability of info-communication systems also provides an opportunity for their global vulnerability. Threats may come from different groups and individuals or non-governmental entities. The motivation behind threats are usually (1) political; (2) economic; (3) financial; (4) soldiers; (5) social, (6) cultural; (7) industrial; (8) ethnic; (9) regional; (10) or may be of individual interest.

Threats can be summarized as follows:

- unauthorized data entry, access to information;
- entering malicious software and viruses into the system;
- database degradation, modification, destruction;
- theft of information system data;
- electronic attacks on both military and civilian communications, reconnaissance, systems;
- destruction and destruction of elements of military command, communication, arms control systems and civilian systems that can be used for military purposes. [15]

The above threats may come from individuals, unauthorized users, terrorists, international organizations, foreign intelligence, or military organizations. In peacetime, the most common information activity is intrusion into computers, thus assessing the weaknesses of the system, so that in times of crisis or war, more direct attacks can be expected. They are able to attack the initiation or unfolding of military actions through coordinated information activities. Attacks against information systems include GPS, unmanned devices, or satellites. Attacks on civilian and military information infrastructures and info-communication systems are the primary targets of the information battlefield. [16]

The waves of the military revolution

By the beginning of the 21st century, warfare had undergone changes, new technical means had developed on the battlefield for centuries, new principles of application had appeared, and this chapter aims to present this process by analyzing the four waves of development of the military revolution.

The information revolution led to the new Revolution in Military Affairs (RMA) [17], which uses the achievements of the information, scientific and computer revolution to modernize the military and transform the 21st century force model to protect the information society. In the United States, the Army Transformation Programs [18] are undergoing a force transformation program, and in Hungary, the Zrínyi 2026 Defense and Force Development Program [19] provides a framework for capability development. Force development and force transformation programs are in line with the development of the information age and the information society. This developmental process unfolds in developmental stages that follow each other in a wave-like manner, producing higher performance. In these waves, new military-technical tools and capabilities are emerging for the army to promote the development of the information society. In parallel with the new military capabilities and weapon systems created in the development stages, new military, operational and tactical principles and methods are emerging.

The waves of the new military revolution:

- first wave (1950-2010)
- second wave (2010-2030)
- third wave (2030-2050
- fourth wave (2050-2100). [15]

The chapter goes on to take a closer look at the main features of each wave without claiming to be exhaustive. The first wave of development is related to the IT and science-based technical revolution, especially the development of precision weapons and computing, software, networking, telecommunications, control and command technology. The army's armaments feature first-generation air and ground robots, miniaturized nuclear weapons, that can serve as a response to asymmetric and terrorist acts, thereby reducing the size and deployment threshold of nuclear weapons.

The main military capabilities of the first wave are:

- the military use of the results of science;
- state-of-the-art military equipment;
- emergence of intelligent missile weapons, integrated weapon systems;
- the emergence of prototypes of miniaturized nuclear weapons;
- high-capacity bombs and missiles, warheads that destroy air pressure and fire;
- the first generation of unmanned, remotely controlled / programmed aerial and ground reconnaissance and combat robots;
- the emergence of high-performance, precision-networked reconnaissance systems;
- total force command;
- increasing team maneuverability;
- combat use of satellite reconnaissance, navigation and news systems;
- combat and news equipment unlikely to be detected;
- global information environment, information battlefield, digital battlefield, emergence of digital soldiers;
- digital signal processing, news, control;
- network-based management systems;
- combat computers, tactical internet, complex military computer networks;
- advanced computer information, management and complex reconnaissance systems (C4ISR); [20]
- information operations, information warfare, command warfare. [15]

The mechanized-motorized, analog-system armies of the traditional production era are thus being replaced by digital armies that utilize new types of scientific results and have digital command superiority and precision fire superiority. The battlefield of digital forces is the digital battlefield where information operations take place.

In the second wave, the weapons and weapon systems that were developed as prototypes in the first wave will appear. Hence, the digital army continues to evolve, creating a digital, precision, and network-centric army. [21] This means that the transformation of warfare is directed towards high-mobility and high-powered airborne combat equipment.

The military characteristics of the second wave are as follows:

- the emergence of digital and precision armies in developed countries; the emergence of digital, precision and network armies in more developed countries;
- the emergence of first-generation unmanned aerial vehicles and ground robotic systems; development of second generation robots;
- making cruise missiles with stealth technology;
- the emergence of aerial, space and ground laser weapons;
- the emergence of electromagnetic pulse weapons, microwave, laser and infrared jamming equipment, devices that interfere with navigation satellites;
- the emergence of sixth-generation triple-speed multi-purpose aerial combat robots with stealth technology;
- testing of hypersonic aircraft (NASA) [22];
- development of seventh generation voice-controlled test aircraft;
- regularization of multi-purpose aerial combat robotic aircraft;
- development of aeronautical motherships for small aerial combat robots;
- proliferation of advanced chemical, biological, genetic and psychological warfare tools;
- further development of precision weapons;
- increase of remotely launched precision weapons;
- emergence of precision, multi- and hyperspectral, unsupervised detection sensor systems;
- systematization of battlefield - ground, air, sea, cosmic - attacking combat robots;
- the emergence of voice-controlled combat equipment;
- modernization of news systems and devices for multimedia data transmission, audio and video transmission, tactical internet connection and network combat management;
- further development of non-contiguous battlefield warfare, new-minded urban combat, network-based warfare, impact-based operations, information operations;
- development of networked military programs, which is a complex program of force digitization. [15]

Central to the second wave of development is the development of a networked, digital military program, the prevention of information attacks by international terrorism, with special regard to the protection of information infrastructures and computer networks. In this wave of development, the digital, networked, precision army provides leadership and technical superiority, which means it is up to three to six times more efficient in proportions than a traditional army.

In the third wave of development, multi-purpose second-generation robots and a hybrid army of mixed-composition robots and humans will most likely appear. [23] The formation of the first phase of the hybrid army is expected to consist of a larger share of living force and a smaller proportion of the presence of robots.

In the fourth wave of development, it can be assumed that the proportion of robots and humans in the hybrid army will be split in half, or in greater proportion in favor of

robots. Scientific results will have an increasing influence on military technical developments. Weapons are evolving using nano, bio, and genetic technologies, and military techniques are evolving using molecular computers. This creates a hybrid army based on nanotechnology that represents scientific and military superiority.[24]

In principle, all information societies are able to acquire the skills that have developed / are developing in connection with the waves outlined above, therefore fierce skills competition can be expected. Some of the characteristics of the development waves are that they have a close connection in each other's direction, they are built on each other, they are connected to each other, because the individual abilities, tools and systems have already appeared in the previous stages. These changes result in the emergence of new military doctrines, a reduction in the size of formations, an increase in the number of areas of application, and a multiplication of destructive force.

CONCLUSIONS, SUMMARY

The thesis of the dissertation was that the effective management of traditional and new security challenges can be achieved through international cooperation and capability development of the army. In addition to performing its national defense and military tasks, the army needs to adapt to the security threats that have developed / are developing along the new risk factors. In order for the military to recognize and properly manage complex and coherent new security risks in addition to performing traditional military tasks, it is necessary to transform and fully modernize warfare.

To substantiate the thesis, the first chapter of the dissertation presented a grouping of new security challenges and analyzed the challenges that are relevant to information technology warfare. The second part analyzed and evaluated each stage of the military technology revolution, providing a comprehensive and general picture of the historically significant points of force reform. The third chapter aimed to present the characteristics of information warfare with special regard to the characteristics of information infrastructures. The fourth chapter analyzed the waves of the military revolution in four stages of development with a focus on military-military capabilities.

Overall, the effects of globalization and the technological revolution will sooner or later reach all nations. As a result of the development of information societies, new threats know no borders. The chances of cybercrime, terrorism, migration, disasters are growing. The proliferation of asymmetric warfare and weapons of mass destruction carries great danger. All countries need to be prepared to deal with new security risks, so digital capability development for the military is needed. Through four chapters, the study draws attention to the fact that digitization, military-military technical development, total force capability development, and professional training of human resources have already begun. The only question is which country, how, in what way and to what extent has it caught up with the challenges of the information society? Or were you aloof from them instead of catching up? In the latter case, it is certain that there will be serious breaks between the countries that have caught up and those that have caught up, the conflicts of which can be assured.

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REDUCED-PARAMETER BIOMETRIC IDENTIFICATION CAPABILITIES TO PROTECT CRITICAL INFRASTRUCTURES AND SPECIAL OBJECTS

CSÖKKENTETT PARAMÉTERŰ BIOMETRIKUS AZONOSÍTÁSI LEHETŐSÉGEK A KRITIKUS INFRASTRUKTÚRÁK ÉS A SPECIÁLIS OBJEKTUMOK VÉDELMÉNÉL

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Abstract

The identification parameters of biometrics are decreased severly due to protection devices. In this article, keeping the focus on biometrics, I will conduct a theoretical examination of possible biometric identification solutions for critical infrastructures and certain special objects. In the theoretical study, I take into account the fact that due to the COVID epidemic, the number of measuring points used in biometric identification, i.e. the number of identification parameters, is significantly reduced in some identification solutions. We wear masks that inhibit the effectiveness of facial recognition tools and algorithms, or we use facial protection that protects our eyes, which can put us at a disadvantage with various optical solutions. Rubber gloves are used in many areas, but it can be a difficult and possibly exclusionary factor when using a hand geometric or palm vascular identification solution. These few examples show that the possibilities of biometric identification are limited in these circumstances.

Keywords

critical infrastructure, biometric identification, protection of water bases, entry, identification solutions, pandemic, identification, authentication, AI

Absztrakt

A védelmi eszközök használata miatt az azonosítási paraméterek számának csökkenésének hatása a biometrikus azonosítási megoldásokra. A cikkemben a biometrián tartva a fókuszt, elméleti oldali vizsgálat alá vonom a lehetséges biometrikus azonosítási megoldásokat a kritikus infrastruktúráknál és egyes speciális objektumoknál. Az elméleti vizsgálat során figyelembe veszem azt az aktualitást, hogy a COVID járvány miatt a biometrikus azonosítás során használt mérési pontok, azaz az azonosító paraméterek száma az azonosítási megoldásokban jelentősen csökken. Maszkot hordunk, ami gátolja az arcfelismerő eszközök és algoritmusok működésének hatékonyságát, vagy olyan arcvédelmet használunk, ami a szemünket is védi, emiatt hátrányba kerülhetnek az optikai megoldások. Számos területen gumikesztyűt alkalmazunk, ami kizáró faktor lehet egy kézgeometria, vagy egy tenyér érhálózat azonosítási megoldás használatánál. Ez a pár példa is megmutatja, hogy a biometrikus azonosítás lehetőségei beszűkülnek ilyen körülmények között.

Kulcsszavak

kritikus infrastruktúra, vízbázisok védelme, beléptetés, pandémia, személyazonosítás, hitelesítés, AI szabályozás

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INTRODUCTION

I was outraged to read an article the other day about a hacker, in a Florida town attacking the city's water purification plant and trying to poison the population of a city by multiplying the amount of sodium hydroxide, or alkaline, through a water purification station [1]. Fortunately, the operation did not succeed, but it is terrible to imagine what a disaster it could have been if the water supply infrastructure of a large city, or even a town of a few hundred or a few thousand people, had been the victim of an attack by bad-wishers. The reason I was so touched by this news, other than that such an act, or even thought, is hair-raising, because in one of my previous articles [2] in my doctoral studies, I highlighted the importance of protecting water resources and water bases. Although the Hungarian Government has already identified critical infrastructures for the provision of drinking water facilities, which must be given special care primarily in the fight against terrorism in order to protect civilians [3], if we believe in science and that drinking water will be the greatest asset of the next century, then more emphasis should also be placed on protection.

One of the effects of climate change is a drier climate and a decrease in precipitation. As riverside settlements spread and agriculture is on the rise, flooding areas are falling. Due to food constraints, water consumption has slowly reached unsustainably high levels, in proportion to the rapid growth of developing agriculture, textiles, food and many other industries. These are just a few facts as to why clean drinking water is our most important asset, but it is also a good feeling how at our service, because our lives are based on high water use. Such an important and vital resource could be a logical target for terrorists. In my opinion, the development of recent years in it and biometric identification solutions provides an opportunity to see which uses can benefit from them.

The attack on the aforementioned water treatment station was an attack on an IT border protection solution. In the current pandemic situation, more people are working remotely (Home Office), which necessitates the creation of remote access links, which open up new avenues and additional attack possibilities for hackers. The operator's machine, working from Home Office is much less protected on the home network, usually than the office, making it a much easier target for attacks. Of course, there are endpoint protection solutions that define and force rules and protection levels for the office environment in a home environment, and so-called VPN solutions that establish a special and secure connection between the operator's home computer and the other endpoint (well-protected workplace) through firewall systems, but it would also be necessary to include multi-factor identification solutions behind these solutions. An essential element of this, and unfortunately due to the increasing number of attacks, could rightly be expected that one of the factors of identification should be biometrics. Biometric identification clearly ensures that the authorised, identified person actually performs the task at the moment.

TYPES AND MEASURES OF BIOMETRIC IDENTIFICATION

It is important to distinguish between identification and authentication. We are talking about a type 1:n identification when the currently measured biometric sample ("1") is compared with all the samples stored in a database ("n") and if there is a match, the identity of the requester is established and, say, an entry takes place. So we have put together a sample with a set of data from a lot of people. A key part of this process is that the legal

conditions for storing biometric templates and samples must also be fulfilled, since the biometric template is considered personal data and is subject to appropriate regulation in order to protect personal data. During authentication ("1:1"), a template ("1"), i.e. a biometric data, is stored and compared to the pattern currently taken ("1"). For this method, we examine whether the person belonging to the sample in particular and stored is right there and gives the biometric sample at the moment of identification. This authentication process is used by our mobile phones for biometric verification if we enter the device or want to bank, or if we would like to pay, but from the point of view of the process, this includes how the biometric data stored by our passport is used. So the match between the newly taken sample and the sample previously stored is examined by this method.

The authentication process is usually much faster because you don't have to compare hundreds, thousands, or even millions of database records, and protecting a database with a lot of sensitive data is not a big risk because that is not how we store the data.

An important feature of the identification process and the biometric measurement solution used are the FAR and FRR values. The False Acceptance Rate (FAR) indicates the number of cases in which an unauthorized user is identified as an authorized user during enrollment. FRR (False Rejection Rate) seems less problematic than this indicator, i.e. the rejection of eligible users.

For identification solutions, the number of biometric characteristics captured by the technology used is also a characteristic consideration. The number of recorded data varies widely, we are talking about 15-35 points for a fingerprint, but a palm network-based solution can record up to 5 million reference points. Biometric solutions companies have their own professional ”know-how”, about how many of the data they record are accepted for successful identification and how much is at the limit where the process is rejected. The pandemic situation in the 2020s and 2021s is even more problematic because of the number of distractions that can affect the transmission of a successful sample. Before explaining this, let's look at the methods of identification and the interfaces that biometric identification can have in critical infrastructures or object security, including special objects, and how this changes in the pandemic situation.

Fingerprint, palm print biometric identification

The furnishings of the skin, on the surface of the finger or palm are made up of so-called frills and frill lines. It is one of the oldest biometric technologies due to its early use in law enforcement, so it is quite accepted and widespread. In the process, we measure 15-50 external features, but it is usually not contactless technology, so the detector needs to be disinfected continuously. The pattern can be easily copied because it may unwittingly remain on the suitable surface (e.g. glass). It is not applicable to 3-5% of humanity because they do not have fingerprints suitable for electronic sampling. Two palms or even ten fingers are sampled, but work with chemicals or physical activity in certain areas of the construction industry can cause the skin folds of the palms or fingers to be easily damaged, making such identification impossible. In case of failure of fingerprint-based identification at border crossing, the upper epithelium is damaged with strong acids to avoid clear identification. Over the years, the pattern does not change and develops from the age of 18 weeks. In the case of use in the health field, the use of medical rubber gloves may be a disqualifying cause.

Hand geometry-based biometric identification

It is a commonly used technology that takes into account the shape and physical dimensions and proportions of the hand. Az újabb technológiák már pozicionáló tüskék nélkül is (érintésmentesen) elvégzik az azonosítást. It is widely applicable in terms of population, there are no significant exclusion factors and no significant identification time (merely couple of seconds). The process of identification is acceptable to users, there is no revulsion at the process and technology of identification and the need to cooperate with the device is not very high. It measures an external parameter, identification is based on approximately 30 of them [4]. Weight gain, altered hand due to joint disease can cause identification problems, which is sensitive to technology, health, or the need for rubber gloves for pandemic protection can cause a decrease in the number of identification parameters.

Facial recognition-based biometric identification

One of the most well-known technologies and the most used solution in our daily lives. The biometric identification method used by tablets and notebooks to unlock phones has reached everyone and is a popular convenience. Today, most camera systems offer a facial identification solution. The acceptance of the technology is therefore high, authentication is based on external parameters, does not require physical contact during measurement, but the position of the camera and the person and many other external factors (e.g.lighting) significantly affects success.

There is no need for the consent or cooperation of the person for successful identification, which makes the solution suitable for multipurpose and hidden use. During identification, samples can be compared with the registered database of users who may not have consented to the purpose of the processing. It can work based on video taken or downloaded image, identification and AI-assisted solutions do not require a straight look in the camera and can be successfully identified based on very few parameters [5].

The technology measures the characteristic points of the face, their distance and proportions. The search for moles and other characteristic identifiers (scars, tattoos) helps the process, based on the examination of wrinkles and skin poles, it is possible to determine the age of the person [6]. This includes some identification based on the shape of the ear, and among the new solutions there are technologies that can identify from a profile, by head shape and ear shape as an additional solution.

The accuracy of the technology is low, the vulnerability is very high [7], is easily accessible to take advantage of the vulnerability of payment or identification services based on high-quality high-resolution images using masks. Typically, systems do not include live sample detection hardware software solutions.

Iris-based biometric identification

We process the pattern of the iris of the eye. The iris image does not change from the 8th month of the foetus to death, it is widely used and the pattern of two different persons is 1070 years of matching.[8] Internal biometric feature, the technology is contactless. In case of active solution, it is necessary to look up close to the sensor, which is why there is a high need for cooperation in the implementation of the identification process, as well as the acceptance of the method mainly due to the potential risk of infection. It takes into account about 400 characteristics in identification, one of the most accurate techniques, but these solutions are sensitive to various eye diseases.

Retina-based biometric identification

By scanning the vascular network running on the back wall of the eye, the structure of the retinal membrane is identified by the camera, which uses infrared light-based illumination. Very high precision solution and retinal uniqueness ensures that it can be widely used. The acceptance of the procedure is low, because those who do not know the technology are aversed to the "illumination" of the eyes. "Despite all this, retinal identification is one of the best performing biometric methods, with low FRR and near-zero percent FAR values, small data templates, and fast identification results." [9] The need of the head positioning is also not favourable for identification, it is disadvantaged by the mass rapid reading demand and is not advantageous from a hygiene point of view.

Vascular biometric identification

When identifying a finger or palm vascular network, internal data is measured. Illuminated by infrared light, the sensor detects the flow of blood enriched with carbon dioxide through the blood vessels, so it can only be used to measure a living sample. The measured reference points are in the order of millions, with high accuracy and fast solution. The latest technologies do not require any special cooperation, pulling the finger or hand over a surface will be identified contactless within a few seconds. Contaminated skin or surface damage does not affect the identification either. It can be used in the widest population, with few grounds for exclusion. Under the age of 12, due to changes in the growth of children, annual sampling is recommended. In the case of use in the health field during the pandemic period, the use of medical rubber gloves may be a reason of foreclosure.

Voice biometric identification

During voice identification, the frequency of the sound is first identified, and later on, other characteristics of the sound: tone, intonation, rhythm. There is a significant difference between two methods, in the case of "speech recognition", the speech is recognized, while the ”speaker recognition” method is used to recognize the sound itself and the unique characteristics of its emitter. The measured sound depends not only on the transmission medium, distance and method of recording, but also on the biological characteristics of the individual's vocal organs, as well as on his personality, sociocultural environment, intelligence and many other factors. Extremely unique for each pattern [10]. In general, the individual's consent is not required for sampling or identification. It's an internal identifier, an accepted technology. Its weakness is that the sound changes for diseases, even under emotional or physical exertion, which affects the sampling and the success of identification. Ideally, the technology is high-precision, but there is no live sample identification in general applications and ideal conditions are rare, so it is more of a secondary solution with great potential.

OBJECT SECURITY, SECURITY OF SPECIAL OBJECTS

"Object security or object protection is one of the largest and most diversiating areas of personal and property security. From the point of view of person and property security, objects are buildings, facilities, fenced or open areas which are at risk from someone or something and must be secured." [11]. We examine the case of special objects from the perspective of biometric identification solutions.

One important special object is the bank. "Banks are essentially threatened by two main acts of wilful unlawful conduct. One is bank robberies during opening hours, the other is post-closing burglaries. The latter is protected by the structure of the structure itself, the mechanical protection devices installed and the electronic protection systems installed." [11] A common feature of bank robberies is that robbers wear masks. Wearing a mask prevents the identity of the robber's face, so he can't take a photo that makes him easily wanted and recognizable by many. Fortunately, many of the biometric identification solutions are available, even if somebody is not identified immediately, - e.g. wearing a mask - but a number of unique parameters can be recorded: this improves the searchability in the future and increases the chance of gathering evidence. If the mask of the robber covers only the face, it is possible to record biometric uniquenesses based on the parameters of the eye by technique, or to measure the geometry of the ear and store them. Proper "cameraing" of the area in front of the bank may allow to record the dynamics of their gait and movement during the arrival and departure of the robbers (this possibility also exists within the object). In the bank area, the recording and analytic of their thermal image or sound is also a good starting point for later identification. Fingerprints, palm prints, DNA samples are almost impossible to record.

Featured special objects are hospitals, medical institutions. From the point of view of staff, patients and visitors, the composition of the population of entrants is heterogeneous. Passenger traffic is high and activities are wide-spread, a patient can even walk around the hospital during a check-up process. Identification should not be a burden on patients and workers. The safety of protected premises, where patients or visitors are not allowed to enter, should be a priority, but the protection of valuable medical equipment and even patient data should be ensured also.

The safety of patients and their property must be considered, especially in terms of the protection of children's section or even incapacitated, psychologically disturbed patients. Neither live guarding nor access control systems provide an adequate solution on their own.

The identity of the patient is also important in an other point of view: the injured person arriving without medical papers and identity documents is not always easily identified (special blood type, chronic diseases, exclusion drugs, etc.).

A well-thought-out and complex system can provide a satisfactory solution to the many needs of the hospital and medical institution. Workers' privileges can be secured with intelligent solutions that do not prevent them from working, but provide clear and continuous identification. A facial recognition system may be suitable for this purpose, which may be supplemented by gait dynamics and voice or iris identification. Thus, access to the building can be easily ensured, movement within it can be continuously controlled and qualified, or the use of special instruments can be carried out in addition to the daily routine of the task without taking time to complete the identification process. This requires the consent of the worker, the appropriate legal, data protection legislation and the coordination of technologies. Facial recognition alone is not enough, as protective equipment reduces the parameters that can be used for identification, and a vein-based solution is difficult to use because of the use of gloves.

Patients have different aspects and other solutions should be used. There are a large number of frequently changing sample and the registration and entry protocol should not take more than one or two minutes. A palm vein based identification guarantees contactless

high accuracy biometrically, fast and easy to register. The patient should also be treated with an external identification characteristic which helps a security guard or doctors to determine at 'on a glance' whether they are registered, duly admitted patients or guests. A vein-based identification solution may also be suitable in situations where the patient is incapacitated.

In the case of the safety of hazardous materials testing or storage facilities, access control systems must meet a number of requirements. In addition to the in and out function, you must support control and control of movements within an object depending on the permission level. Such systems can greatly assist in cooling the building depending on the number of visitors, or the management and continuous monitoring of guests, or the coordination of rescues during a fire. It is a common need to control the maximum number of occupants in a room, the guest can only enter with an escort. The biometric identification used for entry may vary depending on the characteristics of the field of use, but it must be selected in proportion to the risks and typically involves the integration of several systems. Unique, more expensive technologies can also come to the fore when designing.

CRITICAL INFRASTRUCTURES, CRITICAL INFORMATION INFRASTRUCTURES AND BIOMETRIC IDENTIFICATION

Critical infrastructures and critical information infrastructures should always be examined for their scope, scale and impact over time. Each country has a slightly different interpretation of the concept, but overall, they mean the infrastructure elements and their environment that are vital to that country and their environment, which are essential for the operation of the country's main social and economic life.

The Brussels Summit of Heads of States and governments of 16-17 December 2004 called on the European Commission to draw up a proposal for a European Critical Infrastructure Defence Programme. In November 2005, the European Commission published its so-called Green Paper, which divided European critical infrastructures into 11 sectors and 37 products/services.

Published in Hungary "2080/2008. (VI.30.) government decision, annexed the so-called Hungarian Green Paper, which was adopted by the Government on 30 June 2008. The Government Decision ordered the preparation of a regulatory concept for the protection of critical elements of domestic infrastructure and the preparation of a report on the examination of the possibility of connecting to the European Union's critical infrastructure warning and information network." [12] In Hungary, the legislation on the protection of critical infrastructure is solved both at systemic and sectoral level and, on the other hand, in harmony with European standards. Of course, the legislative environment is only a framework for defence activity, and strategies set out directions and priorities, and the quality of implementation depends on the activities of the professionals who implement it. As the Green Paper puts it, prevention, preparation and resilience are the main pillars of defence." [13]

"In view of international examples, we need to address the coordinated protection of attacks on critical information infrastructures at the government level globally. The protection of critical infrastructures is of paramount importance, in which several domestic governmental organizations are responsible. Among them are the Government Event Management Centre (govCERT) and the National Cyber Defence Institute. The Government Event Management Centre, as a coordination organisation within the country, manages and

coordinates incidents using the Internet as an attack channel with Hungarian and international network security and critical information infrastructure protection organisations, and publishes software vulnerabilities that have been detected and published. The National Cyber Security Institute provides its services (preventive information sharing and operational incident management) to government organisations and municipalities. The Institute has a key role to play in protecting IT systems vital to the national economy and state functioning." [14]

On the basis of the above, it can be summed up that critical infrastructures and information infrastructures, as generally defined systems, cannot be proposed by simple generalisation as biometric identification solutions, nor should it be considered along this line how pandemic control methods affect them. Based on a very high level of professional recommendations in the European Union, but also in all Member States, professional recommendations apply to different systems of criticality and risk, for which industry actors develop defence and identification solutions individually, taking into account several pillars.

VULNERABILITY CAUSED BY THE PANDEMIC SITUATION

Although in 2020 we thought that the COVID epidemic could be overcome sooner, wearing a face mask in a public places remained with us until the end of May 2021. The mask covers a significant part of our face, covering the nose, mouth, animal, thereby strongly affecting the usability of certain methods of identification. As the number of identification parameters decreases, facial recognition software for mobile phones does not work. When wearing a mask, you can't unlock your phone, and contactless phone payments based on previous uncompromising and prevalent NFC chips can be difficult because face authentication requires you to pull the mask off the face when you want to pay. Of course, it can be some inconvenience to switch to a PIN password, but in this case the user risks the identification code being revealed during use, seen by a nearby bad-will, or even recorded by security cameras, and their subsequent analysis and subsequent detection and transfer to the wrong hands is difficult to trace and catch up with.

Similarly, masks used to protect against viruses affect the operation of facial recognition cameras, which can cause problems with a solution used in stadium surveillance or in the detection of a crime.

It may be a good solution to use several methods together in identification, simultaneous use of retina, fingerprints and face when unlocking the phone, or motion dynamics and ear shape identification in public space solutions, but manufacturers should be prepared for them. It can be assumed that integrating multiple identification methods can be used to achieve a more effective solution and to eliminate more weaknesses and vulnerabilities. These systems already require specific improvements and sometimes even AI support, which needs to be looked at in newer aspects.

EU AI REGULATION

Biometric identification solutions, in particular those supported by artificial intelligence (AI), will soon be regulated very seriously by the European Union [15], because regulation has long been behind the technological development of biometric identification in terms of the protection of personal data.

And the rapidly evolving and ever-expanding artificial intelligence-based systems in our present are not primarily a risk from science fiction films with rebellious robots that destroys humanity. For this reason, the European Commission has included its proposals in the White Paper on the future of the EU in order to help the EU catch up with the momentum of digitalisation, while at the same time ensuring fundamental human rights and, last but not least, man-made and controlling technology.

AI-based systems (including biometric identification solutions) are subjected to risk analysis by area of use. Unacceptable risk AI-based systems that are capable of being manipulated, have a major impact on people's safety, livelihoods or rights, or achieve a hidden purpose without the user's knowledge are already banned. Subsequent legislation in the proposal would also prohibit systems modelled on the Chinese Social Credit System [16], which are suitable for behavioural monitoring and thus for categorising users. Remote and automated bulk identification methods which are not tied to some well-limited and heavily regulated purpose are also not acceptable. High-risk systems include, for example, AI-supported systems for critical infrastructures, law enforcement systems, migration, border protection, or medical or financial institutions systems. In these cases, the study proposes to introduce a very high and strict regulation. The data serving the systems must be of very high quality, have a high level of and detailed logging, be documented in detail and be clearly and comprehensively informed.

SUMMARY, CONCLUSION

In this article, we examined what biometric identification solutions are available and what metrics can be used to evaluate their results and how they are related to the field of use and pandemic. We have also examined the entry and identification solutions for special objects and the strengths and weaknesses of the solutions in their specific environment. The investigation has been extended to critical infrastructures, critical information infrastructures. On the basis of theoretical study, it can be stated that the protective tools and solutions used in pandemic protection can significantly influence the successful identification of certain biometric solutions used in general and in an island-like system, but taking into account the field of use, these vulnerabilities can be managed through careful planning and the use of a variety of solutions. The good news is that significant progress is also expected in the regulatory area, which is expected to help protect personal data and provide an opportunity for a wider uptake of biometric solutions.

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DARFUR PEACEKEEPERS THE AFRICAN UNION PEACEKEEPING MISSION IN DARFUR (AMIS) FROM THE PERSPECTIVE OF A HUNGARIAN MILITARY ADVISOR

DARFURI BÉKEFENNTARTÓK AZ AFRIKAI UNIÓ BÉKEFENNTARTÓ MISSZIÓJA DARFURBAN (AMIS) EGY MAGYAR KATONAI TANÁCSADÓ SZEMSZÖGÉBŐL

SZABÓ László András[1]

INTRODUCTION

János Besenyő, an established acquaintance of the African region, visited the Hungarian Armed Forces with the rank of colonel several times during his missions, and his academic research activities are also closely related to this region. Because of the fortunate meeting of personal experience and research curiosity, a unique personality and career emerged, which makes János Besenyő unique in the academic world as well. The career of János Besenyő is unique but not without precedent, as Árpád Markó [1], a scholar of Hungarian historiography, was also a soldier and scientist with the rank of colonel, fighting during World War I and World War II. Colonel Zoltán Jobbágy [2], who is involved in the operations of NATO Command, Sarajevo, Bosnia and Herzegovina and ISAF Northern Region Command, Mazar-e Sharif, is also a scientist and Deputy Dean of the International Faculty of Military Sciences and Officer Training at University of Public Service. Zoltán Rajnai [3] the National Cyber Coordinator of Hungary, Professor of the University of Óbuda, since 2015 Dean of the Faculty of Mechanical and Safety Engineering of Donát Bánki University. He is the founder, a leader and a supervisor of the research field of cybersecurity, information security, information communication, and the operation of telecommunication systems in the Doctoral School of Security Sciences. He previously (1981–2013) served as a colonel in the Hungarian Armed Forces, between 1993 and 2013 he taught at Miklós Zrínyi University of National Defense, his main fields were the organization of information, communication, and telecommunication systems and their security. The career of János Besenyő is not without precedent, but it is not at all general.

THE AUTHOR

It is not usual to start a book review with the words of the author, but this is how János Besenyő formulated this special situation and the purpose of writing the book. *„It is very unusual for a book to portray a peace support operation in a scholarly manner and, at the same time, based on personal experience, on the one hand, and to give the history of an exceptionally difficult operation of a unique era, i.e., the history of the African Union Mission in Sudan (AMIS), on the other hand."* The book is not unprecedented in its authorial scholarly work, this is well represented in his earlier works, for example in La République Centrafricaine (2016 [4], Central African Republic (2015) [5], Western Sahara (2009) [6], Morocco (2017) [7], Darfur (2016) [8], Egypt (2014) [9], Mali (2013) [10], Somalia (2014)

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[11]. In addition to country briefings, his work on the Islamic State (2016) [12] and the crisis in Hungary and Western Sahara (2020) [13] are important. The author's work *'Darfur Peacekeepers'* describes the perspective of a Hungarian military advisor. The fact that he also wrote a textbook on Hungarian military and police peace operations is a good example of his consulting activities. [14]

The book can be divided into five major parts, in the first one, the author presents the geographical and historical background, then the African Union Peacekeeping Mission in Darfur (AMIS) missions: AMIS I, AMIS II, AMIS III, finally the role of the European Union in the missions. The next chapter should be highlighted and is present in all János Besenyő 's scientific work in order to highlight the Hungarian experience, and finally to summarize and analyse the whole mission in the *Conclusion* chapter. A very important part of the volume is the *Timeline* because whoever wants to deal with this area gets a detailed guide.

GEOGRAPHY AND HISTORY OF DARFUR

In the chapter *Geography and history of Darfur,* the region is analysed by the author. The readers can learn about Darfur's geographical features, the borders of neighbouring countries, and the topographic features of the major cities. The climate, more precisely the tropical savanna climate becomes drier heading to the north, transforming into desert climate on the way. Several climate zones can be distinguished in Darfur and these are reflected in the difference of rainfall-intensity as well. Darfur's natural vegetation is in line with the north-south climate belts. In the southern borderland we find rainforests in a narrow band, up north there are savannah forests whose characteristic trees are the Acacia, Combretum and Adansonia digitata types. After the tree zone comes the savannah, composed of the true grasses (Poaceae), the height of which can reach up to 2-3 meters. One of them is the thatching grass (Hyparrhenia). The capital of the Masalit tribe is El-Fasher. It was built at the request of Abdel Rahman El Rashid sultan and served as the capital of Darfur State. Currently it is the administrative and trade center of North Darfur. The city of Nyala is the capital of South Darfur and one of the stations on the railway lining the cities of Khartoum, El Obeid, Rahad, Abuzabad and Ed Daein. Darfur's economy relies mostly on agriculture, which includes crop production, animal husbandry, forestry and other activities. Darfur's infrastructure is notably underdeveloped. Even the most of the major roads are dirty and they are almost impassable during the rainy season. Darfur has a population of 7.4 million people. Several languages are used, for example Arabic, Beigo, Daju, Erenga, Fongoro, Fulbe, Fur, Kujargé, Masalit, Sinyar, Tama and Zaghawa.[15] The Fur people are the largest ethnic group in Darfur. The Mashalits live on both sides of the borderline of Chad and Sudan, but mostly in the latter, and they speak their own language The Zaghawa people first appeared in the centre of Sudan in the 9th century. The Zaghawa and the Bideyats people refer to themselves as the Beri. Religion Islam has permeated Darfur since the 16th century by priest families from West-Africa, the Nile Valley and North-Africa. Islam in Darfur is based on the Maliki School. It was mostly a rural phenomenon, which was nothing like the traditions of Timbuktu or Northern Nigeria. Formerly Darfur was a state mechanism fundamentally connected to similar socio-political and economic structures like the empires of Kanem/Bornu, Wadai and Baguirmi, located in the western part of Darfur and in the area of Lake Chad to the east. It is important to know about these states that even though they

had been founded by one specific ethnic group (Kanuri, Maba or Fur), eventually they all became multiethnical societies inspired by the sacral African kingdoms. The Arabs did not play any role in the foundation of these states. The aspects nicely frame the development of the area, the environment as the author has done in-depth research work, the writings of János Besenyő also follow the traditions of exciting and authentic travel descriptions, all with a well-founded scientific accuracy.

The next section presents the African Union Peacekeeping Mission within Darfur (AMIS) missions, starting with the AMISI mission and then the African Union intervention. The author draws attention to the problems that have arisen as a result of the cooperation or non-cooperation of different organizations. The *AMIS II – history, structure and operation AMIS IIE (enhanced) or AMIS III* is a separate but cohesive chapter. János Besenyő illustrates his work with precise data and figures by combining the precise exploratory work of a historian and the mission-focused approach of a soldier.

THE SUPPORT MISSION OF THE EUROPEAN UNION

The next chapter is *The support mission of the European Union,* and its subsections are *Beginnings EU/NATO airlift, Logistics Advisors of the EU supporting operation in Darfur*. Not only did the chain of command and unexplained requirements constitute a problem, but also that no European observer was trained to the conditions in Darfur. The EU believed that – like in other missions – the AMIS personnel would be trained in the area of operations, while the AMIS leadership believed that the EU would send perfectly prepared people. These are the problems in African missions that are always present, and the author always emphasizes this in his previous works as well. At the end of the chapter, János Besenyő introduces the Hungarian role in the mission. Although, Hungary took part in the AMIS operation from the beginning, due to the conditions mentioned before, our participation was not so significant. Due to the plans, an observer would be sent to replace Major Kajári, but the EU would deploy one (or more) logistics expert(s).

HUNGARIAN EXPERIENCE

The chapter of *Hungarian experience* deals with the Hungarian role in three subchapters. These subchapters are: *Transformation of Hungary's participation, The Field Support Service and Situation of food supply*. For me – maybe because of my qualification – the last one was the most important area. The food supply system was carried out in a doubled system, as – due to the recent international trends – the AU put the soldiers' food supply out to a competition. This was won by the American PAE company, which was involved in the planning and operating of camps as well. [16] Providing drinking water to the area of operations was a cardinal issue, therefore, special attention was paid to this segment. The PAE was responsible for the mission's water supply. The company used a water specialist who checked the wells, their technical condition and conducted basic tests. Expensive laboratory tests were carried out only then if complaints or sick people turned up the camp. As the author writes: *„For me, this area was the biggest challenge, as at home, logistics professionals for accommodation carry out similar work. Somehow, I managed to get the hang of it. When I arrived, only 24 camps operated at a slightly larger area than France, when I left the operational area, the mission operated 33 camps, which, however,*

were significantly overcrowded". [17] He continues with the following lines: *"During my assignment, fire lightened up many times in the camps, in which fortunately only slight injuries occurred and we even managed to stop spreading in time. Most of the fires occurred because some of the African officers and soldiers cooked in their tents. Fortunately, we were able to localize and eliminate fires quickly, but it mostly really just depended on luck and not on the preparedness of officers or crew"*. [18]

The problems related to hygiene caused constant headaches for the camp supply department, as it belonged to both everyone and no one. Health care was carried out by Medical Support Solutions (MSS), a South African company, but apart from the classic medical work, they did not engage in other activities. Through the Hungarian role, János Besenyő presented how important these tasks are in the success of military operations and what their pitfalls can be, and he did all this based on his own experience.

CONCLUSION

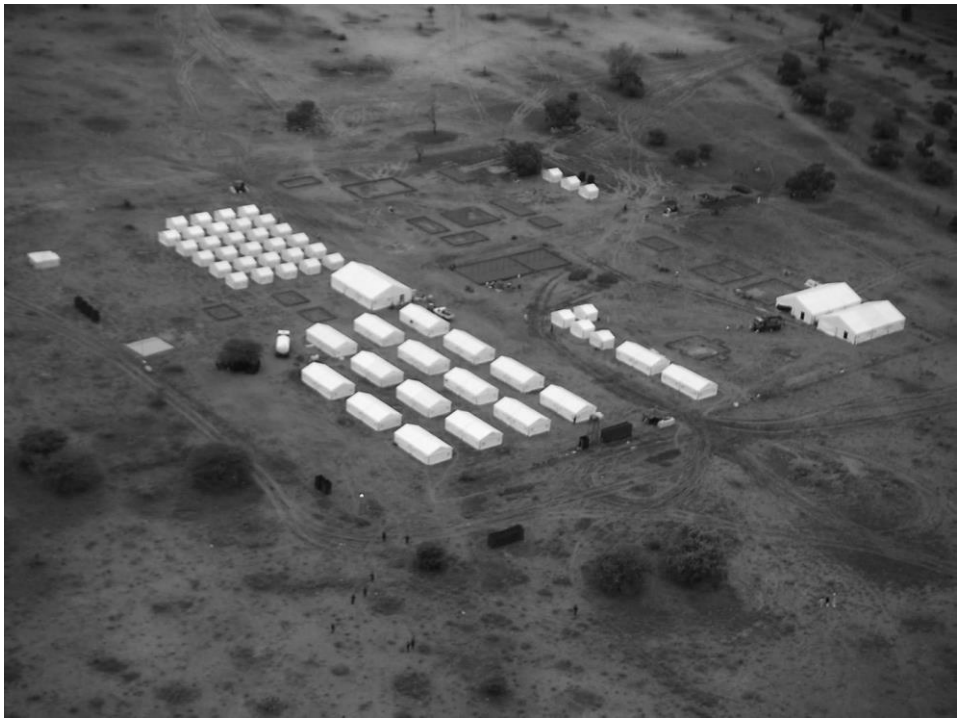
In the *Conclusion* part of the book, the words of the author should be followed, as the book cannot be summed up better. *"In this book, the reader could gain insight into the conflicts in Darfur and also the African Union operation in which Hungary has been involved since the beginning. In this book, I presented the operation in Darfur, its course and challenges, often through my personal observations, as more than six months on the field gave me such experience that most academics do not have. In this concluding chapter, I will briefly summarize the findings and suggestions that can be drawn from my book."*. [19]

RECOMMENDATION

I recommend this book to those readers who are interested in the subject because it is easy to read and exciting, to soldiers who want to increase their experience as it is based on the author's personal military experience, to scientists who research this field, because the book was written with scientific thoroughness and objectivity. I also recommend the book to those ones who love history, the background of military operations, or those ones who just want to read a meaningful good book. To the question of why János Besenyő wrote this book, he answered himself at the end of the *Conclusion* chapter of the book: *„Because of the above, I find it substantial for the experience of peace operations on the African continent to be processed and published as broadly as possible. That is why I wrote this book from a less-investigated perspective - that of a soldier actively involved in peace operations. I hope this writing will inspire other researchers to make further work and analyses."* [20] The UN mission is facing the same problems and the situation in Darfur has not really consolidated. More and more conflicts and peace operations can be expected on the African continent, where Hungary also plans to send more and more soldiers. Therefore, all Hungarian experiences there, including János Besenyő's book, are important, especially if we look at the possible future Hungarian roles in an international context.

ANNEXES

1. figure Edited by the author based on [21]



2. figure Edited by the author based on [22]

3 figure Edited by the author based on [23]

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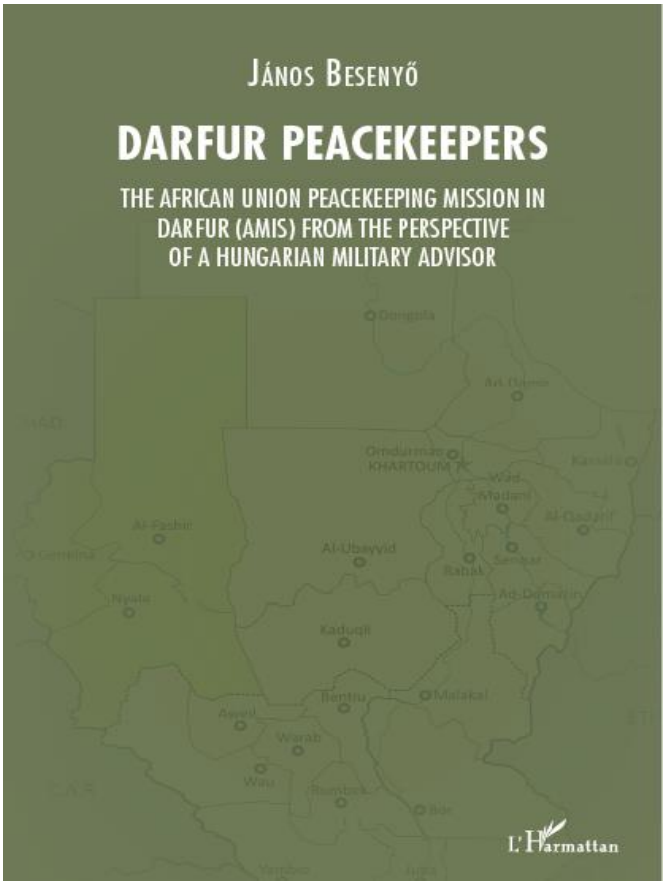

1. Figure: János Besenyő's DARFUR PEACEKEEPERS THE AFRICAN UNION PEACEKEEPING MISSION IN DARFUR (AMIS) FROM THE PERSPECTIVE OF A HUNGARIAN MILITARY ADVISOR. Book cover by János Besenyő

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