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### Plan

#### Plan: The appropriation of outer space by private entities in the United Arab Emirates is unjust.

#### Legalization of private appropriation opens the door to private investment in the industry – assurance of profit is key.

SW 20 “UAE Space Law Details Announced To Facilitate Space Sector Development” SpaceWatch [SpaceWatch.Global is a digital magazine and portal for those interested in space and the far-reaching impact that space developments have. While showcasing the technology that enables the industry to edge closer to the next frontier, SpaceWatch.Global also provides analysis, forecasts and insight into the geopolitical implications of space developments. ], February 2020 <https://spacewatch.global/2020/02/uae-space-law-details-announced-to-facilitate-space-sector-development/> SM

UAE Space Law Details Announced To Facilitate Space Sector Development

The UAE Space Agency announced the details of the new UAE Space Law issued by President His Highness Sheikh Khalifa bin Zayed Al Nahyan.

The announcement was made on 24 February 2020 during an introductory workshop for the UAE Space Law, organised by the UAE Space Agency and held in Abu Dhabi. Previously, the law was passed by the UAE Cabinet, headed by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President, Prime Minister and Ruler of Dubai, in late 2019.

During the workshop, the Agency revealed the details of the first law of its kind in the Arab and Islamic world, which aims to create a legislative and regulatory environment for the national space sector in line with the other laws and regulations in the UAE.

The UAE Space Law consists of nine chapters and 54 articles that regulate space activities across the country and governs the Agency’s role in this regard.

It clarifies the mechanism for issuing space activity permits; registering space objects and vehicles; responsibility and insurance regulations for space activities; space accidents and risks regulations; the transitional period for current operators regulations; the provisions for regulating the construction of facilities on other planets, as well as the utilisation of space resources and developing space debris mitigation measures.

The new law aims to adhere to international treaties, and be clear, transparent, and flexible. It also aims to protect the UAE’s interests through establishing a balance between economic and commercial requirements, encourage innovation, adhere to the requirements of security, safety, and protect the environment, as well as drive investment and promote the participation of the private sector in the space industry.

The law is being implemented during a transformational time within the global space sector, as the transition to New Space continues to present new opportunities for start-ups and small to medium-sized businesses, including those recently incubated within the UAE in partnership with KryptoLabs and Mohammed bin Rashid Aerospace Hub, to enter the market and contribute to the sector’s growth and development.

The workshop was attended by Dr. Ahmed bin Abdulla Humaid Belhoul Al Falasi, Minister of State for Higher Education and Advanced Skills and Chairman of the UAE Space Agency; Simonetta Di Pippo, Director of the United Nations Office for Outer Space Affairs, UNOOSA; Dr. Mohammed Nasser Al Ahbabi, Director-General of the UAE Space Agency, as well as executives and experts in the space sector, relevant governmental and non-governmental bodies, and representatives of embassies for countries that have cooperative space projects and agreements with the UAE.

Dr. Ahmed Al Falasi said, “The new law regulates space activities to facilitate the development of a prosperous and safe space sector in the UAE, which realises our wise leadership’s vision for the sector. It also sets a clear framework for the rights and duties of officials and establishments operating in this sector and guarantees the rights of all relevant parties, in compliance with the international agreements and treaties signed by the UAE.”

“The new law reinforces the UAE’s leading position in the international space sector, where it now stands among a few nations that have such laws, particularly since it covers relatively new activities which are not yet addressed in other laws around the world, as well as other future activities which the UAE intends to develop the appropriate infrastructure for in the near future,” the Minister added.

“The law will be a key factor in opening the doors for investment in the national space sector to various global companies, due to its legislative and regulatory environment, which provides foreign investors with assurance ahead of starting their business and projects in the UAE,” Dr. Al Falasi added.

Commenting on the announcement, Al Ahbabi said, “The enactment of the new space law will provide the UAE with an integrated legislative system for the space sector, making it a reference for regional and international space projects. The law will contribute to keeping pace with the rapid growth of the space sector and regulating the work of its various stakeholders within one ecosystem that promotes the sector and its capabilities and ensures the optimal use of its resources.”

“The Agency developed the law within the framework of its field of expertise and strategic plans for developing the UAE’s space sector,” the UAE Space Agency Director-General explained, adding that the law will enable the sector to launch more space projects, initiatives, and missions, bolstering the UAE’s position among ambitious countries in the global space race.

“The Agency drafted the law in collaboration with top international experts as per the best practice, as well as its consulting committee that includes the brightest minds in the space sector, to ensure that the law meets the current and future trends for the sector,” he noted.

Commenting on the United Nation’s partnership with the UAE Space Agency, UNOOSA Director Di Pippo, said, “I would like to express my gratitude to the UAE’s contribution to the space sector, and as we look forward to expanding our work with the UAE in Space, we will soon be establishing a new office of the United Nations in the UAE, which will be dedicated to space exploration and will reinforce the UAE’s position as a global space hub.”

Nasser Al Rashidi, Director of Space Policy and Regulations at the UAE Space Agency, gave a presentation during the workshop clarifying the law and demonstrating stages of its implementation, as well as its most important elements.

Al Rashidi said, “The UAE Space Law comes in line with the UAE Vision 2021, the UAE Centennial 2071, the 4th Industrial Revolution Strategy, the Higher Policy for Science and Technology and Innovation, and the National Policy for the Space Sector. The development of this law took into consideration 20 relevant treaties and agreements, and compared its elements to more than 18 other national space laws of countries such as the US, Russia, France, Germany, Korea, Hong Kong, Brazil and Kazakhstan among others.

“The development of the law was also based on key local legislations relevant to space sector and its activities, such as the civil aviation law, the communications law, commercial companies’ law, IP rights laws, and imports and exports laws. The process also involved consultations with more than 15 relevant parties within the country and other agencies of leading states in the space sector.”

“The law,” Al Rashidi noted, “also tackles advanced, new, and modern concepts that are garnering international attention, including space-launch activities, organising manned trips, space tourism and related activities, training and science activities, high-altitude activities, building and using man-made facilities in space and on other planets, ownership and usage rights of space resources, and other commercial activities like mining operations and space logistics services, in addition to the mechanism for dealing with space debris, meteorites, and managing space risks.”

The global space industry is currently worth more than US$400 billion, including countless opportunities for businesses and governments.

As an emerging space nation, the UAE space industry’s investments have exceeded AED22 billion. The UAE Space sector has provided 1,500 jobs, at 57 space-related entities, five space research and development centres, and three universities offering space degrees. Moreover, the commercial space sector in the UAE includes the seventh largest satellite operator in the world in terms of revenue, Al Yah Satellite Communications Company, and Thuraya Telecommunications Company.

With its Space Investment Promotion Plan, the UAE Space Agency aims to make the UAE a regional hub for commercial space activities and advanced research and development, through increasing foreign investment in the UAE Space sector as well as encouraging local investors who may be considering funding opportunities within the space exploration and commercial space industries. In 2019, the UAE had six new space start-ups, where four of them were established by Emirati nationals.

#### The private sector is key to the next stage of UAE’s space advancement.

Sapra 21 “UAE sends out call for space startups” Bani Sapra is a Business Insider editorial fellow covering tech October 18, 2021 <https://wired.me/science/space/uae-sends-out-call-for-space-startups/> SM

AFTER PROVING ITSELF on a mission to Mars, the UAE’s Mohammed bin Rashid Space Center (MBRSC) now wants the private sector to contribute toward achieving its ambitious goals.

The space agency is launching Space Ventures, an initiative aimed at incubating space startups within the UAE. Those joining the new ecosystem will be able to work with MBRSC on long-term projects (such as its planned mission to explore the asteroid belt between Mars and Jupiter in 2028 and its eventual aim to establish human settlements on Mars in 2117). They will also receive support from MBRSC, allowing them to access new technologies and work with regulatory agencies around the world, according to the announcement.

“Space Ventures will help in establishing a strong and sustainable space ecosystem that will contribute to achieving the goals of the Mars 2117 Programme… as well as other space programs in the UAE,” says Adnan Al-Rais, the head of MBRSC’s Mars 2117 program. Given the many niche areas of specialization within the space sector (including communications, data storage, space hardware, robotics, and internet-of-things devices), Al-Rais predicts that an ecosystem of diverse startups will allow both MBRSC and the startups to collaborate and innovate together.

The new initiative comes at a moment when the private sector is going through something of a space renaissance. SpaceX, Blue Origin, and Virgin Galactic each sent up civilian astronauts this year (billionaires included), and have committed to making space tourism a more accessible dream, spurring enthusiasm in the sector. The renewed global drive to explore space could help propel Space Ventures, which says that it is looking to attract startups from around the world (provided they are willing to relocate to the UAE).

Since sending its first astronaut, Hazza Al-Mansouri, to the International Space Station in September 2019, the UAE has hit a series of milestones in its space ambitions. The Hope probe, which entered Mars’ orbit in February, has sent back hundreds of images and gigabytes of scientific data that can help researchers gain a better understanding of the Red Planet. Two Emirati astronauts have meanwhile been sent to Moscow to join an international team preparing to live in a space simulation for the next eight months (only one of the Emirati astronauts join the crew living in the isolation, while the other will serve as a reserve). As the country now plans its next mission—which will entail orbiting around Venus, as well as becoming the first Arab country to land a probe on an asteroid—MBRSC chief Yousuf Al-Shaibani says that the private sector will be now be critical to furthering its ambitions.

“The UAE space sector is looking to further expand its horizon and create a new space economy landscape in the country through a self-sustaining space ecosystem,” says Al-Shaibani. “This is only possible through partnerships with ambitious companies focused on emerging trends in the upstream and downstream areas of the space sector as well as space exploration and sciences, which will add further impetus to the country’s space sector.”

#### The UAE is the sole leader of the Middle East space mining race now but cascades are possible – legalization of appropriation is key.

Al Shamsi 17 “#SWMEThemes: Could Earth’s Asteroids Be the Next Al Ghawar Oil Field?” Humaid Al Shamsi is a founding Partner of ABH Aerospace and a Member of the Advisory Council of For All Moonkind, Inc. July 2017 <https://spacewatch.global/2017/07/swmethemes-earths-asteroids-next-al-ghawar-oil-field/> SM

Currently, the United Arab Emirates is the only Gulf country that has announced its plans for space mining. The emerging space nation has made space activity one of its strategic goals as it endeavors to diversify and shift its economy from being oil-based. The UAE, which established its space agency in 2014, is very active in space exploration and will launch a probe to Mars by 2020. It also wants to build a colony on the Red Planet by 2117. Thus, mining asteroids might be a small step towards reaching that ultimate goal since it would provide the necessary resources, including water and Helium-3, to support human life in outer space.

Meanwhile, the UAE is in the process of developing a space law that would promote commercial activities in space. Significantly, such a law would grant ownership rights to the private sector over the natural resources they extract. However, the UAE is not alone in adopting this approach. The United States was the first to issue this kind of law and Luxembourg is going in the same direction.

The importance of passing new space laws cannot be overemphasized. Due to its extensive experience in oil production along with international collaboration with other space nations and the private sector, the UAE, which holds the seventh largest proven oil reserve, is in a position to be a global leader in the development of commercial space activities. Although the feasibility of exploiting off-Earth resources appears to be out of the picture for the time being, due to the lack of adequate technology, setting out the foundation and the legal framework for this potential development is necessary. On the other hand, the rest of the Gulf states have not yet shown similar interest. Nonetheless, they may follow and enter the race once mining in space has become feasible.

Of highest concern to members of the private sector is the right to ownership over the resources they extract from space. The foundational document of international space law is the Outer Space Treaty (OST), signed in 1967, which lays down the principles of using and exploring outer space. It promotes the principle of freedom of use and exploration of outer space for all states without discrimination. Yet, Article II of the OST restricts this right by prohibiting any national appropriation of materials from outer space. The non-appropriation principle is controversial; the question is whether it should include exploitation of natural resources from celestial bodies such as asteroids or the Moon.

Currently, the interpretation that prohibits any exploitation of off-Earth resources is more accepted by legal scholars, regardless of whether such resources are exploited by a government entity or member of the private sector, since a state remains responsible for its private sector activities in space. However, the emerging practice by states to adopt national laws that grant ownership rights to the private sector over resources they exploit from outer space would arguably create a new customary international rule if other states follow the same practice consistently, this practice has been accepted as law by states and is known as opinio juris. Since amending the OST would be extremely challenging, a possible solution could be establishing a soft law that promotes space mining whether through a UN resolution or international guidelines.

To conclude, while Earth’s natural resources are being exhausted and may not satisfy the rapid increase in demand for resources, natural resources in our solar system could ensure humanity’s development and meet its demand for energy and other resources. The Gulf states which have provided the world with energy for the last several decades should consider space as a future opportunity. Only the UAE, however, seems interested in such development based on its experience in oil production and its plans to diversify its economy. The UAE aims to promote commercial space activities including space mining and to establish a legal framework that protects and guarantees the private sector’s rights. However, current international space law could be an obstacle to this new industry since it does not support ownership rights over off-Earth resources. Perhaps states’ practices along with opinio juris will establish a new customary international law. Alternatively, adopting a soft law that promotes space mining and protects private sector rights will certainly encourage the exploitation of outer space resources.

#### Acceleration of UAE space appropriation and dominance solidifies UAE regional leadership and sets off Middle East space racing.

Al-Saif 20 “The United Arab Emirates plans a space mission to Mars this week, bolstering the country’s regional power status.” July 13, 2020 Bader Mousa Al-Saif is a nonresident fellow at the Malcolm H. Kerr Carnegie Middle East Center in Beirut, where his research focuses on the Gulf and Arabian Peninsula. <https://carnegie-mec.org/diwan/82282> SM

Space is rapidly becoming a new domain for Middle Eastern states to project their power and vie for leadership in the region. The United Arab Emirates (UAE) is a case in point, with a mission to Mars to be launched this week. A national countdown to July 17\* is meant to excite Emiratis and Arabs in general, for it marks the first time an Arab state launches a mission into outer space.

The Emirati government has named its Mars Mission Hope Probe, coloring it with a pan-Arab sentiment. The mission invokes past Arab Islamic achievements in the sciences and incites Arabs to maintain that spirit. There is no shortage of nationalist fervor, either. The UAE has timed the completion of its mission before the 50th anniversary of the federation’s founding in December 2021. It has also tied it to its 100-year goal of establishing a human colony on Mars by 2117.

The UAE has been marketing this science-driven apolitical Arab narrative of hope, but its space policy is more than that. It aims to reinforce its newfound regional power status and align the Middle East’s geopolitical order to its advantage. It has also, by default, ushered in a regional space race, something relatively novel in the Middle East. The UAE’s ability to complete its Mars Mission, and how this factors into its activist foreign policy, will determine the degree to which the UAE transforms itself and the region in the process.

The UAE prides itself on being the “first, biggest, and best.” But it cannot claim that in relation to space. Israel was the first state in the region to begin a space program in 1983. Israel benefited from U.S. expertise and was able to launch a reconnaissance satellite in 1988. The Israelis also tried, but failed, to land on the moon in 2019.

Though the Israeli space program is the oldest in the region, it has not been a priority for Israel. That is not the case with Dubai, which founded the Mohammed bin Rashid Space Center in 2006. The center was expanded by the federal government in 2014 with the creation of the UAE Space Agency. Knowing that it does not have the expertise, the UAE partnered with three U.S. academic institutions to jointly design and build its mission to Mars. The Emiratis assembled a team to support their effort, with an average age of below 35, a third of whom are women, headed by a young female minister tasked with advancing science. These steps reflected the UAE’s branding of itself as a champion of youth and women, while marketing this enterprise as an international collaboration that included manufacturing in the United States and a launch from Japan.

Other than Israel, Iran has also been active regionally in space. Its international collaboration has not been as intense as the UAE’s. Yet Iran has been producing satellites since establishing the Iran Space Agency in 2004, making it the second space state in the region. It has also sent animals into space, and launched a military satellite last April. Tehran’s early collaboration with Russia and China paid off with its first locally built satellite in 2009, which it named Omid, or Hope, the same name the Emiratis chose for their Mars mission.

The UAE is not the first Arab state to show an interest in space. Saudi Arabia led a pan-Arab effort in 1976 to establish the satellite operator Arabsat. The Saudis also produced the first Arab astronaut, Prince Sultan bin Salman. His participation in a mission of the space shuttle Discovery in 1985 was to be followed by a Saudi space policy, but this was put on hold after the crash of the Challenger.

By venturing into this domain, the UAE wants to position itself in a field long occupied by regional adversaries such as Israel and Iran. Emirati thinking is focused on differentiating the UAE from others and advancing its own agenda despite challenges. The UAE has much to gain if its mission to Mars succeeds—a feat only accomplished by the United States, the former Soviet Union, India, and the European Space Agency. Space is the Emiratis’ next convenient card to raise their country’s standing. Doing this would allow the UAE to bolster its post-2011 rise as a middle power in a region whose traditional centers—Egypt, Iraq, and Syria—have waned. This would grant the UAE an increasing say on thorny regional issues, such as peace with Israel, a nuclear deal with Iran, the Yemen conflict, and the dispute within the Gulf Cooperation Council.

The UAE’s actions in space have not gone unnoticed in the region. Saudi Arabia and Turkey created space agencies days apart in December 2018. Egypt joined the club soon thereafter in August 2019. Not wanting to allow this moment of regional attention to space to go to waste, the UAE established the first pan-Arab Space Coordination Group in 2019. It brought together eleven Arab states whose first goal is to develop “813,” a satellite to monitor earth named after the year in which the famed Arab House of Knowledge reached its peak upon Al-Ma’mun’s ascension to the caliphate. However, paying homage to Arab history did not mean the UAE would avoid standing out. It left for itself the more high-profile feat of a Mars exploration mission, while leaving the less ambitious goal of building a satellite to the Arab conglomerate.

Arabs and their neighbors have historically set their sights on the sea and land for sustenance. Now, space offers a new arena for potential development, competition, and conflict. For the UAE, its ability to shape regional geopolitics to its advantage is filled with hazards, especially with its risky foreign interventions. If successful, its space program can offset some of these risks and provide a chance for a UAE-centric worldview to prevail in an ever-changing Middle East.

### Adv 1

#### Middle East space race spills over into missile arms racing because of dual-use technology.

El-Zobaidi 21 “The Middle East edition of ‘Star Wars’ takes shape” Dr Haitham El-Zobaidi is the executive editor of Al Arab Group. February 24, 2021 <https://thearabweekly.com/middle-east-edition-star-wars-takes-shape> SM

The Middle East edition of ‘Star Wars’ takes shape

Countries of the region are scrambling to position themselves geopolitically on the global level through the space race.

LONDON--The Middle East is readying to enter at a reduced scale its space version of the Cold War, with successive announcements of space projects and missile development programmes. The Emirati space probe orbiting Mars and reconnaissance drones endlessly whizzing over the region’s skies are but the latest manifestations of this new regional landscape.

A few days after the entry of the Emirati Al-Amal (Hope) probe into orbit over the Red Planet, followed by the US Perseverance rover mission and China’s Tianwen-1 spacecraft, Turkish President Recep Tayyip Erdogan was quick to announce his country’s plans to send an unmanned spacecraft to the moon by 2023.

On Tuesday, the head of the Turkish Space Agency talked about training 10,000 space scientists within a decade so as to turn Turkey into an advanced country in the field space sciences.

The Iranians say that their missile projects are already at advanced stages. They have announced more than once the sending into space of experimental satellites as well as a spacecraft manned by a laboratory animal, in an implicit response to earlier Israeli space projects which changed from space exploration projects to plans for long-range missile defence systems to counter any possible Iranian attacks.

The space race in the Middle East reenacts, albeit at a smaller scale, the race that began in the fifties of the last century between the United States and the Soviet Union and then turned in the eighties into what was to become known as “Star Wars.”

All the parties concerned want to be part of this space race, through which they want to secure important geopolitical positions on Earth.

All space technology achievements largely reflect on the weapons systems deployed over the region’s battlefields today, especially ballistic missiles, cruise missiles and drones.

The years 2019 and 2020 were two pivotal years in the region as more countries felt the urge to quickly enter the race.

A turning point was probably the targeted attack, launched by the Houthis but with Iranians not very far behind, against the facilities of Abqaiq, Saudi Arabia, where they managed to score a hit at one of the most vital installations of the world using cruise missiles and drones.

It was not long before the Turkish drones, which were delivered to Libya, were able to turn the balance of war in favour of the Government of National Accord (GNA) as these drones cut off the logistical supply lines of the attacking Libyan National Army (LNA) led by Field Marshal Khalifa Haftar. Then, they managed to destroy a large number of the LNA’s vehicles, forcing the Haftar-led army to withdraw from the vicinity of the capital and retreat to a defensive position in Sirte.

The Turks subsequently settled the battles of Nagorny Karabakh in favour of their allies with relative ease by targeting Armenian defences and personnel, destroying entire tank regiments and armoured battalions.

Experts say that mastery of space technology is the key to dominating the skies in the region’s future battles.

This trend is based on the dual use of these technologies as a repeat of what happened during the Cold War, when satellite technologies intended for communication and television broadcasting were a welcome offshoot of espionage technology advances and satellites being put on orbit.

But the most important dimension in this race is human investment, a dimension described by the head of the Turkish Space Agency, Serdar Huseyin Yildirim, as the decisive element “in achieving the goals of the national space programme.”

Concerned countries seek to dedicate great human and material assets to the training of new generations of scientists and engineers who can contribute to the development of space programmes. This is the case of the UAE, which has announced a plan to establish a university for space sciences.

Perhaps the other pertinent aspect of the space race in the region is the mastery of technologies capable of countering missile and drone attacks.

Space detection and guidance technology provides a dual opportunity to develop systems for monitoring, tracking and destroying cruise missiles and small drones.

States interested in such systems and weapons have declared their intent to develop anti-missile missiles capable of hitting slow-moving targets or targets flying at low altitudes to avoid radar detection and sophisticated defences such as the Patriot missile system.

Halkin, a regional company specialising in the production and supply of precision-guided missiles, unveiled on Tuesday at the IDEX defence exhibition being held in Abu Dhabi the Sky Knight system, the first anti-missile system against artillery and mortar shells that is designed and manufactured in the UAE.

A tour of the IDEX exhibition reveals the growing importance of drones in modern warfare. Their prototypes occupy large areas of exhibition grounds as the difference between space and traditional warfare technologies rapidly fades away.

Iran is expanding its missile capabilities with expanding sizes, ranges and types. It recently conducted exercises in which it paraded its various missile systems and offensive drones. Its leaders make no secret of their intent to make the whole Middle East region vulnerable to their retaliatory attacks if Israel strikes at their nuclear or missile projects.

For its part, Israel is promoting the “Iron Dome” counter-technology that it developed after the 2006 war with Hezbollah in Lebanon, and has since improved its performance in repelling Katyusha rockets fired from Gaza.

The United States, in turn, announced that it is working with the Israelis to develop defence systems that are derived from the “Iron Dome” model and that it wants to expand the scope of research in this regard. This project comes after the Americans realised the danger constituted by drones in infiltrating and evading defence systems intended to counter ballistic missiles flying at high altitudes.

#### Missile arms race escalates – draws in great powers.

Saab 18 “The coming Middle East missile arms race” Bilal Y. Saab [senior fellow and director of the Defense and Security Program at the Middle East Institute, and an adjunct assistant professor at Georgetown University’s Security Studies Program.], September 25, 2018 <https://thebulletin.org/2018/09/the-coming-middle-east-missile-arms-race/> SM

The coming Middle East missile arms race

When pundits speak of a post-American Middle East, they are often referring to American fatigue in the region, coupled with Russia’s resurgence following its successful intervention and subsequent military expansion in Syria.

But the bigger story of the geopolitical transition underway in the Middle East is the rise of local powers, and how they increasingly operate outside the US strategic orbit due to their decreasing confidence in US leadership.

Saudi Arabia’s war in Yemen is one example. Traditionally a US partner, Riyadh has taken matters into its own hands, leading an intervention in Yemen’s civil war, because of its doubts about Washington’s involvement in the region.

But beyond Yemen, there is a broader trend of independent policy-making and action on the part of presumed US partners that underscores how the region has gradually moved away from America’s control. This trend is most evident in national defense strategy, and specifically the quest by some key US partners in the Middle East—for now, Israel, Saudi Arabia, and the United Arab Emirates—for greater offensive military capabilities in the form of longer-range and more precise ballistic missiles.

Last month, Israeli Defense Minister Avigdor Lieberman said in a statement that his country was investing in a beefed-up and more accurate rocket and missile force. “The project for setting up a precision rocket and missile system is underway. Part of it is already in production and part is in the final phases of research and development,” he said. “We are acquiring and developing precision fire systems that will allow … the Israel Defense Forces to cover within a few years every point in the region.”

This may not represent a major shift in Israeli defense doctrine, but it does suggest an important change in security planning, given the country’s habitual reliance on the air force, and sometimes the navy, for strike missions. If Israel’s leadership still believed strongly in America’s traditional security role in the region, it is unlikely to have moved so forcefully and rapidly in this direction.

Those who disagree with this conclusion might point to the fact that the IDF has planned to develop an offensive missile force for a few decades. Moreover, the move makes military sense regardless of US considerations. The Israeli Air Force has always carried most of the burden of national defense, so creating a more balanced defense posture might serve national security and save both lives and money. (Missiles are cheaper than fighter jets, and obviously eliminate the risk to pilots). At a time when Israel faces growing military threats that might force it to fight wars on multiple fronts—Syrian, Lebanese, Palestinian, and possibly Iranian—the IDF could certainly use greater operational flexibility and speed.

While that is all true, though, there is no question that America’s passivity in the Middle East in recent years accelerated this Israeli decision and turned it from idea into reality. Had Washington made tangible efforts to prevent Iran from establishing a long-term military presence in Syria, or had Israel had the slightest assurance that Washington would actively support the elimination of Iran’s military infrastructure in Syria, the IDF would probably have shelved the offensive missile option for some time.

Similar dynamics are occurring on the Arabian Peninsula. While America’s Gulf partners have not yet taken steps as bold and decisive as Israel’s, this is not for lack of desire. Conversations I have had with Gulf military leaders in recent years suggest a consensus view that attempts to deter Iran from further developing its missile capabilities have failed, and that they therefore need a more diversified force mix. Countries like Saudi Arabia and the United Arab Emirates were purchasing the best, US-made weapons on the planet and investing in the most sophisticated missile defenses, and yet they still felt they had no effective solution to Iran’s formidable and fast-developing offensive missile arsenal. Their conclusion was that they might have to fight fire with fire.

The main reason Riyadh and Abu Dhabi have yet to pursue ballistic missiles is that Washington has managed for years to convince them not to. The last thing the United States needs in the Middle East is an offensive missile race, which could quickly lead the antagonists into a deadly military confrontation that drags Washington and Moscow into war. Missiles are inherently destabilizing weapons because of their potential to quickly escalate conflicts. Their flight times can be very short, and new technologies are dramatically improving their accuracy and lethality.

As if that were not scary enough, the nuclear future of the Middle East is also increasingly uncertain, now that the United States has withdrawn from the Joint Comprehensive Plan of Action, the deal that limited Iran’s nuclear development in exchange for sanctions relief. At the same time, at least half a dozen regional powers including Saudi Arabia, the United Arab Emirates, Turkey, Egypt, Jordan, and Qatar see peaceful nuclear energy as a long-term solution to their fossil-fuel dependence. The growth of nuclear power generation in the region could exacerbate the risk of nuclear proliferation, as the same technologies and materials are required to develop both nuclear energy and nuclear weapons. Should Middle East civilian nuclear development become militarized, possession of fleets of offensive missiles—arguably the most effective delivery vehicle for nuclear warheads—could magnify the potential danger.

Like Israel, some Gulf countries are heading toward a stronger deterrent posture—through a broader mix of offensive technologies, including missiles—because missile defense on its own does not seem to be the answer to the Iranian missile problem. Furthermore, missile defense is expensive and comes with its own set of challenges. While the best missile defense system would be one that is regionally integrated, any hope of establishing such a system in the Gulf is now gone because of the ongoing feud Saudi Arabia, the Emirates, and Bahrain are having with Qatar.

#### Middle East war goes nuclear.

Silverstein 21 “Iran-Israel tensions: The threat of nuclear disaster looms large,” Richard Silverstein [writes the Tikun Olam blog, devoted to exposing the excesses of the Israeli national security state], 23 April 2021 <https://www.middleeasteye.net/opinion/iran-israel-tensions-threat-nuclear-war-looms-large> SM

Israel had a near-miss of potentially catastrophic proportions on Thursday. As it has done hundreds of times in the past decade, the Israeli air force attacked Iranian bases inside Syria. In response, Syrian forces fired anti-aircraft missiles of a rather primitive Soviet model, one of which overflew its target and landed some 30 kilometres from Israel’s Dimona nuclear reactor. Israel said recently that it was bolstering its defences around Dimona for just such an eventuality.

Although an Iranian general taunted Israel, implying that Iran had some responsibility for the attack, that doesn’t appear to be the case. But the missile landing inside Israel does show that if Iran wanted to attack Dimona, it has the capacity. And despite Israel’s best efforts, an Iranian missile could hit its target.

With that, one of the worst nuclear disasters in the region’s history could unfold, including a Chernobyl-type radioactive leak that could endanger not only all of Israel, but also many of its neighbours.

A US general has assured a Senate committee that the Syrians weren’t intending to attack Israel. Rather, a misguided missile meant to target an Israeli warplane overshot its target. He blamed it on “incompetence”, as if that was supposed to be somehow reassuring; rather, it only reinforces how easy it is even for a mistake to cause a nuclear disaster.

Campaign of terror

Certainly, if either Israel or Iran wanted to bomb each other’s nuclear facilities, they could do so successfully. An Israeli attack would probably cause less catastrophic damage, but only because Iran’s nuclear programme is not nearly as developed as Israel’s. An Iranian direct hit on Dimona would cause incalculable damage due to the plutonium reactor at the facility.

Nor does this happen in a vacuum: Israel has maintained a decade-long campaign of terror attacks on Iranian military bases and nuclear scientists. Most recently, it bombed the Natanz nuclear facility, destroying the power generation source and damaging older-generation centrifuges. It also attacked an Iranian Revolutionary Guard spy ship off the Yemeni coast this month.

Iran has responded in its own limited way, restrained by its need to maintain good relations with nuclear-deal signatories.

For Israel, the attacks are a low-risk proposition. It defies US opposition (if there is any) with a wink and a nod, and the attacks look good on Prime Minister Benjamin Netanyahu’s résumé. To weather his corruption trial and retain public support, he needs external enemies (and internal enemies, but that’s a different story). Iran provides these in spades.

Eliminating Israeli leverage

The US could exert control over this scenario by eliminating Israeli leverage. If it agreed to lift sanctions in exchange for Iran’s return to low levels of uranium enrichment, as designated in the nuclear deal negotiated by the Obama administration, Israel’s rejectionist approach would become moot. The problem is that US President Joe Biden is running scared from Republican opposition to any nuclear deal with Iran. Besides, he has designated the Middle East a low priority for his administration.

There is some faint hope in the US announcement that it is ready to lift a partial set of sanctions. However, the list on offer is quite limited, and will certainly not satisfy the Iranians. Such half-measures present an example of the limitations of the Biden approach. He should instead make a full-throated commitment to end this dithering once and for all.

Israel is mounting a full-court press this coming week as it sends its Mossad and military intelligence chiefs, along with its army chief of staff, to Washington in an attempt to influence nuclear negotiations as they enter what may be a final stage. According to Haaretz, army chief of staff Aviv Kochavi “will also raise other issues, including Iran’s military expansion in Syria and the instability of Lebanon. Israel is concerned about the possibility that Hezbollah will try to … [foment] conflict with Israel.”

The hypocrisy of Israel’s refusal to acknowledge its own massive military interventions in Lebanon, Syria, Gaza and even Iraq, while decrying Iran’s involvement in Syria, is almost breathtaking.

There is next to no chance that any of this will enter into the considerations of negotiators in Vienna. Unlike Israel, they are interested in doing a nuclear deal, not engaging in wishful thinking.

Combustible Middle East mix

Returning to the Biden administration’s global goals, the Middle East doesn’t care about presidential priorities. It contains a combustible mix of corrupt elites and overbearing dictators who do not shirk from causing mayhem in their domains. And one of them, perhaps a desperate Israeli prime minister or an ageing ayatollah eager to preserve his honour and legacy, could inadvertently (or intentionally) set the entire region aflame.

If Biden doesn’t act quickly and decisively, there is a sizeable risk that another missile from one country or the other will hit a target and cause devastation. That would mark a point of no return, like the assassination of Archduke Franz Ferdinand in Sarajevo in 1914, which led to World War One. The difference is that in 1914, armies fought with guns, bayonets and artillery. Today, they will fight with F-35s, ballistic missiles and possibly nuclear weapons.

#### Nuke war causes extinction – Ice Age, famines, and war won’t stay limited

Edwards 17 [Paul N. Edwards, CISAC’s William J. Perry Fellow in International Security at Stanford’s Freeman Spogli Institute for International Studies. Being interviewed by EarthSky. How nuclear war would affect Earth’s climate. September 8, 2017. earthsky.org/human-world/how-nuclear-war-would-affect-earths-climate] Note, we are only reading parts of the interview that are directly from Paul Edwards -- MMG

In the nuclear conversation, what are we not talking about that we should be?

We are not talking enough about the climatic effects of nuclear war. The “nuclear winter” theory of the mid-1980s played a significant role in the arms reductions of that period. But with the collapse of the Soviet Union and the reduction of U.S. and Russian nuclear arsenals, this aspect of nuclear war has faded from view. That’s not good. In the mid-2000s, climate scientists such as Alan Robock (Rutgers) took another look at nuclear winter theory. This time around, they used much-improved and much more detailed climate models than those available 20 years earlier. They also tested the potential effects of smaller nuclear exchanges. The result: an exchange involving just 50 nuclear weapons — the kind of thing we might see in an India-Pakistan war, for example — could loft 5 billion kilograms of smoke, soot and dust high into the stratosphere. That’s enough to cool the entire planet by about 2 degrees Fahrenheit (1.25 degrees Celsius) — about where we were during the Little Ice Age of the 17th century. Growing seasons could be shortened enough to create really significant food shortages. So the climatic effects of even a relatively small nuclear war would be planet-wide. What about a larger-scale conflict? A U.S.-Russia war currently seems unlikely, but if it were to occur, hundreds or even thousands of nuclear weapons might be launched. The climatic consequences would be catastrophic: global average temperatures would drop as much as 12 degrees Fahrenheit (7 degrees Celsius) for up to several years — temperatures last seen during the great ice ages. Meanwhile, smoke and dust circulating in the stratosphere would darken the atmosphere enough to inhibit photosynthesis, causing disastrous crop failures, widespread famine and massive ecological disruption. The effect would be similar to that of the giant meteor believed to be responsible for the extinction of the dinosaurs. This time, we would be the dinosaurs. Many people are concerned about North Korea’s advancing missile capabilities. Is nuclear war likely in your opinion? At this writing, I think we are closer to a nuclear war than we have been since the early 1960s. In the North Korea case, both Kim Jong-un and President Trump are bullies inclined to escalate confrontations. President Trump lacks impulse control, and there are precious few checks on his ability to initiate a nuclear strike. We have to hope that our generals, both inside and outside the White House, can rein him in. North Korea would most certainly “lose” a nuclear war with the United States. But many millions would die, including hundreds of thousands of Americans currently living in South Korea and Japan (probable North Korean targets). Such vast damage would be wrought in Korea, Japan and Pacific island territories (such as Guam) that any “victory” wouldn’t deserve the name. Not only would that region be left with horrible suffering amongst the survivors; it would also immediately face famine and rampant disease. Radioactive fallout from such a war would spread around the world, including to the U.S. It has been more than 70 years since the last time a nuclear bomb was used in warfare. What would be the effects on the environment and on human health today? To my knowledge, most of the changes in nuclear weapons technology since the 1950s have focused on making them smaller and lighter, and making delivery systems more accurate, rather than on changing their effects on the environment or on human health. So-called “battlefield” weapons with lower explosive yields are part of some arsenals now — but it’s quite unlikely that any exchange between two nuclear powers would stay limited to these smaller, less destructive bombs.

### Adv 2

#### Expansion of UAE influence causes colonial African instability.

Werleman 21 “UAE’s Scheming in Africa Will Only Sow More Instability” CJ Werleman [CJ Werleman is a journalist, published author, political commentator, analyst on conflict and terrorism, and activist who has dedicated his career to exposing discrimination and injustices against Muslim communities around the world.] July 6, 2021 <https://insidearabia.com/uaes-scheming-in-africa-will-only-sow-more-instability/> SM

UAE’s Scheming in Africa Will Only Sow More Instability

The UAE’s pressure campaign for African news organizations to denounce Qatar is not only an attack on the free press, but also African sovereignty. This latest scheme reflects the UAE’s wider aim to sow discord on the continent, in an effort to further its geopolitical interests.

Somalia's President Mohamed Abdullahi Farmaajo, meets with UAE Crown Prince Mohammed bin Zayed at the Somali Embassy in Abu Dhabi, in 2017. The UAE has been accused of sowing dissent in Somalia due it ties with Qatar, while also pressuring African journalists to sabotage Qatar's hosting of the 2022 World Cup. (Photo via Somalia Embassy - UAE)

At the start of the year, Saudi Arabia announced a deal to restore diplomatic and trade ties with Qatar. Such dealings had been severed since 2017, when Saudi Arabia along with the United Arab Emirates (UAE), Bahrain, and Egypt imposed a land, air, and sea blockade against Qatar, and presented it with a list of 13 demands to restore relations.

The four countries had accused Doha of supporting “terrorist” groups and maintaining close ties with Iran and the Muslim Brotherhood among other things, accusations it has always denied.

“What happened today is the turning of the page on all points of difference and a full return of diplomatic relations,” Saudi Minister of Foreign Affairs Prince Faisal bin Farhan told a news conference on January 4.

“I am happy to report that we are at a place where everybody is satisfied and happy and yes all the outstanding, whether it’s the returning of diplomatic relations, flights, all of that will now go back to normal,” the Saudi minister said.

It must be noted here that no public mention was made of the 13 demands initially imposed on Qatar, which begs the question whether those allegations were baseless, or even made up, in the first place.

Egypt, Bahrain, and the UAE signed the Saudi-led “solidarity and stability” agreement, but actions taken since, along with revelations by the Federation of African Journalists (FAJ), suggest that Abu Dhabi has gone rogue on the deal.

In early June, the FAJ condemned what it describes as an orchestrated campaign by the UAE to “manipulate” African journalists into speaking out against Qatar in the run up to the 2022 FIFA World Cup, which will be hosted by Qatar from November 21 to December 18 next year.

“We note with dismay recent attempts by external elements from the United Arab Emirates who deliberately tried to manipulate journalists’ organizations in Africa to issue public statements or campaign against 2022 FIFA World Cup, that will be hosted by the State of Qatar,” reads an extract from the resolution released by the FAJ on June 2.

UAE Africa Qatar

The FAJ statement on the UAE’s attempts to sabotage the FIFA 2022 World Cup.

“[And we note] with serious concern, efforts to use Africa and its institutions as political football in order to settle scores in political disputes and drag African journalists into activities beyond their primary interests, scope, and mandate. . . . We reject with contempt these despicable attempts to use and manipulate African journalists and their organizations as tools to challenge the organization of 2022 FIFA World Cup in Qatar.”

The resolution also called upon FIFA and the Confederation of African Football to investigate and sanction those responsible. FAJ President Sadiq Ibrahim Ahmed told Al Jazeera that no fewer than eight African news outlets had been approached by high-ranking UAE officials, who pressured them to encourage African teams to boycott the World Cup under the pretext of “labor rights violations” in Qatar.

“FAJ and its affiliated unions cannot allow African journalists to be used as if Africans are cheap people that can be manipulated and used to settle political scores,” Ahmed said. “We are not interested in political disputes in the Gulf. Our main mandate is to defend journalists and their interests as well as media freedom.”

The UAE’s effort to pressure African news organizations into kowtowing to its foreign policy objectives is unquestionably appalling.

This is an outrageous assault on the free press in Africa, a continent in which journalists have long struggled under the repressive rule of one authoritarian regime after another. Thus, the UAE’s effort to pressure African news organizations into kowtowing to its foreign policy objectives is unquestionably appalling.

It’s one thing for foreign diplomats to encourage local journalists and editors to publish “puff” or “vanity” pieces that paint their home countries or their governments in a positive light, but it’s another to pressure them into launching a diplomatic attack on another sovereign nation. To do the latter, while sabotaging the world’s most popular sporting event, outside of the Olympic Games, is remarkably conniving.

Yet, this assault on African journalists represents only the tip of the iceberg, when it comes to understanding just how expansive and pervasive the UAE colonial project on the African continent has become during the past five years. Abu Dhabi has inserted itself into armed conflicts in Yemen, Libya, and Somalia to advance its overarching geopolitical strategy, which is a diplomat-speak for extracting resources and trade from foreign lands even as it promotes autocratic regimes and represses popular dissent.

The UAE’s deepening influence in Africa is having a destabilizing effect on countries that have been lured into its geopolitical orbit.

The UAE’s deepening influence in Africa is having a destabilizing effect on countries that have been lured into its geopolitical orbit, including Somalia, where the UAE perceives the current government to be closely aligned with Qatar.

To counter Qatari influence in Somalia, the UAE has gone behind Mogadishu’s back to develop relationships with local and regional governments, which is akin to pouring gasoline on pre-existing political fault lines, some of which are responsible for decades of civil war.

“Importing the Gulf crisis into Somalia has contributed to tensions between Mogadishu and the federal states that over recent months have threatened to boil over,” observes the International Crisis Group.

In February, Somalia’s Information Minister, Osman Dubbe, accused the UAE of seeking to sow violence in the country, saying, “The United Arab Emirates wants Somalia to be like Yemen and Libya and wants to create in Somalia displacement, violence, and backwardness, and that is something the Somali people are wary of.”

“The UAE statement [belittling Somalia’s government as ‘interim’] is inconsistent with international diplomacy, brotherly relations between the two countries, and Arab culture,” said Dubbe.

Ultimately, the UAE’s pressure campaign against African news organizations is not only an attack on the free press, but also African sovereignty—an effort that may bring more violence to an already blood-soaked land.

#### It's existential---state collapse, refugees, and terror.

Perez ‘18 [Alexandra; 2018; Pepperdine University, School of Public Policy. Masters in Public Policy at Pepperdine. Project Manager, Health Policy at Cato Institute; "Food Security as U.S. National Security: Why Fragile States in Africa Matter." https://digitalcommons.pepperdine.edu/cgi/viewcontent.cgi?article=1169&context=ppr]

The United States’ role in foreign affairs is guided by an interest to keep the general peace around the world while protecting national security and economic interests. Stability in regions such as sub-Saharan Africa is crucial to national security, and one way to keep peace is by supplying the basic human need of food. According to the Fund for Peace, the three most fragile states in 2017 were in Africa— the Central African Republic, South Sudan, and Somalia. 1 Several other African countries are fragile, suffering from standard measures of instability, such as widespread corruption, weak institutions, and resource scarcity. Together, these problems create displacement, human-rights violations, and power vacuums where non-state actors can flourish. These issues should concern the United States not only for moral reasons, but also because they negatively affect American interests. Food aid and agricultural systems must be used as a tool to promote peace in Africa to decrease the region’s burden on the United States and to help stabilize a region that is often referred to as a lost continent. With bipartisan support, the Global Food Security Act became law in July of 2016. It requires the President and appropriate agencies—including USAID, State Department, and the Office of US Trade—to formulate a plan to address food-insecure countries and report on that plan annually.2 The bill cited the Worldwide Threat Assessment of the US Intelligence Community (2014): “[l]ack of adequate food will be a destabilizing factor in countries important to US national security that do not have the financial or technical abilities to solve their internal food security problems.”3 Though it is uncertain whether annual reports will continue under the Trump administration, the US has demonstrated (at least through the Global Food Security Act) that it views food security as a matter of national security. According to the most recent Worldwide Threat Assessment, Africa is among the regions most susceptible to terrorism, especially in Somalia and South Sudan.4 This paper explores the ways in which food insecurity can enable conflict, how the US can improve the ways it offers food aid, and why African food security is in America’s national security interest. Consequences of Food Insecurity Enforcing and communicating a universal conception of human rights by any party is difficult. Nevertheless, US national security strategy has placed an emphasis on human rights in recent years. The former Secretary of State under President George W. Bush, Condoleezza Rice, once remarked that: “[f]or the United States, supporting international development is a vital investment in the free, prosperous, and peaceful international order that fundamentally serves our national interest.”5 Fragile regimes in Africa cannot successfully maintain themselves, let alone pose an immediate threat to the United States. However, these regimes are likely to seek alliances with adversaries that may pose a threat, such as China, creating a region of the world adverse to American interests and values. Secondly, migrant and refugee flows are concerns for the United States due to their economic and social consequences. While many of the most serious cases of refugee crises today are nowhere near the US, they do affect some of the United States’ key allies around the globe. A clear example of this is Syrian migration into NATO member countries. In addition to military conflict, bipartisan research has shown that climate can also contribute to mass migrations by impacting harvest yields in regions still reliant on subsistence agriculture. For example, the famines in Somalia and Yemen have sparked emigration caused by food insecurity. Such crises may not be front page news compared to violent conflicts in surrounding states, but they present just as real a threat. The third reason why the US should care about weak states is that terrorist organizations thrive in such environments. Since September 11, 2001, US national security policy has been primarily driven by the war on terror. While the fear of a repeat attack on American soil has calmed since 2001, the threat of terrorism is still present, and the United States must be proactive to stay ahead of terrorist threats. Terrorists thrive in weak state environments because either the lack of rule of law inhibits the host state’s ability to act against them, or because corrupt governments refuse to act, such as when Sudan provided refuge to Osama bin Laden in the 1990s.6 As a developing region, Africa is full of potential, and the United States will have to decide whether it will help it stabilize or allow it to become a refuge and breeding ground for terrorism. Africa can potentially threaten or support American interests. As stated above, food insecurity in Africa creates problems for the US. The potential to politically align with other major powers, the destabilizing effect of refugees on the US and its allies, and the propensity to breed terrorism are all reasons to take Africa seriously as a national security concern. US interests include promoting international market economies that it can easily access, so to increase economic power at home. If the US ignores stability measures in Africa, this could negatively affect both American security interests and global economic growth, 7 which are both American priorities. The US needs a strategy that promotes food security in fragile states to address these concerns. Food prices in Africa are expected to rise in the next few years due to famine,8 which means there is a risk that instability will grow, heightening the security concern to the United States. Food insecurity, like any social ailment, does not necessarily cause instability, but the two do reinforce each other. Obviously, American food assistance by itself cannot solve every problem in these fragile states. Success will ultimately depend on these countries establishing and enforcing the rule of law and shoring up government legitimacy. That said, nation building is not a viable option in this region, as the US has already committed itself to this in the Middle East and largely failed. The US can, however, provide developmental aid to help promote stability and provide a foundation for future institutional growth. Therefore, it is important that the US not only maintain food security efforts in weak states but also incentivize recipient behavior that will make such aid more effective.

#### UAE growing influence and emboldenment is key to destabilizing intervention in East Africa – specifically causes Somali instability.

Fuller 18 EXPORTING (IN)STABILITY: THE UAE’S ROLE IN YEMEN AND THE HORN OF AFRICA Braden Fuller is an Africa Researcher with ACLED. Emile Roy is an ACLED Researcher. 10/10/2018 <https://acleddata.com/2018/10/10/exporting-instability-the-uaes-role-in-yemen-and-the-horn-of-africa/> SM

The UAE’s Engagement in East Africa: A Tale of Ports

In contrast to the direct military involvement the UAE conducts in Yemen, the UAE’s engagement in East Africa does not include the deployment of troops on the ground and its actions in the area seem to primarily reflect its economic interests. Historically, the UAE has trained and supported soldiers in Somalia who conduct operations against Al-Shabaab, and its military support in the region fell more in line with international efforts to creating stability within the country. Although the UAE has recently played an important role in solving a long-running and economically inhibiting regional conflict between Ethiopia and Eritrea, the Emiratis have lately found themselves caught in several complicated political entanglements that may influence future instability within the region.

In June of 2017, the UAE severed diplomatic relations with Qatar, citing links to terrorism, sparking the Gulf Crisis. Somalia’s location on the Red Sea and status as an Arab League member placed it at the centre of negotiations, with both sides in the Qatari conflict persuading the nation to abandon its neutral stance (Critical Threats, 26 September 2017). While the Somali government led by President Farmajo issued a statement insisting on its neutrality, Somalia’s semiautonomous regional governments of Galmudug, Puntland, and Hirshabelle issued statements of support of the UAE in the Gulf Crisis (VOA, 21 September 2018). These actions, emboldened by UAE support, were a mirror of port deals signed by another of Somalia’s semiautonomous regional governments, Somaliland.

In a deal between the UAE, Ethiopia and Somaliland, 51% of Berbera Port shares were allotted to the UAE’s DP World, which will manage and develop the port. Tensions over the deal immediately flared, with the Somali government led by Farmajo insisting that only the central government in Mogadishu can sign international agreements (Relief Web, 18 May 2018). With a military base already being built by the Emiratis in Somaliland, the central government likely fears that the UAE will follow previously exhibited patterns and increase its military support of the breakaway region’s military forces, which would strengthen Somaliland’s ability to forcefully assert its claim to independence. These fears were confirmed when President of Somaliland Muse Bihi Abdi said the UAE would train police and military in Somaliland (Goobjog, 16 March 2018).

Since 2014 the UAE’s military involvement in East Africa historically aligned with international goals at defeating Al-Shabaab. However, following strained relationships caused by the Gulf Crisis, the Berbera port dispute, and a cash seizure, the UAE cut its support to Somali forces. Notably, this did not include a break in military support for troops the declared autonomous state in Puntland (Garowe Online, 14 April 2018). Additional military action by the Emiratis within the East African Horn includes a number of military bases, most notably in Assab, Eritrea, a strategic location from which Abu Dhabi can train Yemeni troops and launch airstrike attacks against Houthi forces in Yemen.

The UAE’s actions in East Africa have not all been divisive. The Emiratis have reportedly played an important role in bringing an end to two decades of conflict fought between Ethiopia and Eritrea (Reuters, 24 July 2018), no doubt incentivised by the economic benefits that will surely come to UAE controlled ports as a result of the deal. Many in the region hope that the Emiratis will likewise be able to calm tensions in the region between Ethiopia and Egypt surrounding the Grand Ethiopian Renaissance Dam project. Furthermore, infrastructure development projects and extensive aid provided by the UAE in East Africa could bring a much-needed economic boost. In June of 2018, the UAE pledged $3 billion in aid and investments to Ethiopia in a show of support for the new Prime Minister Abiy Ahmed (Reuters, 16 June 2018).

The UAE’s Growing Military Power: To What End?

The UAE has historically engaged on the global stage through the use of soft power. Impressive achievements such as the city of Dubai, which has become an international hub and continues to attract highly-educated individuals from all over the world, and Emirates, which has become one of the world’s leading airlines, have successfully projected the image of a progressive UAE abroad. This strategy had won the hearts and minds of a number of major capitals around the world. The new princes that took over leadership positions within the UAE in 2004, replacing the founding generation of the Federation, however, seem to have decided that this was not enough. The creation of DP World in 2005, which allowed the UAE to acquire a physical footprint across the globe through the operation of more than 70 ports, for instance rings like it is more than just a mere coincidence.

Inevitably emboldened by the successes of its soft power, and amid growing economic interests outside of its borders, Abu Dhabi’s increasing military projection abroad appears as the logical next step. This was most likely rendered possible by its initial soft power strategy. Winning the hearts and minds of major global powers has decreased the potential for reluctance on their part at seeing the UAE empower itself. Moreover, within the context of an increased perception of the Iranian threat in Abu Dhabi, the Obama administration’s ‘leadership from behind’ doctrine has further contributed to the Emirati sentiment that it had to take on a military role in the region.

The exact nature of the relationship between the UAE’s emerging hard military power and its soft investment power, however, remains yet unclear. Recent actions taken by the small Gulf state could suggest that increasing military power and influence is an end in and of itself, as the UAE seeks to join a growing club of emerging powers in the region seeking to secure commercial interests. The military identity Abu Dhabi is acquiring in the meantime, however, compounded by a sense of immunity provided by the lack of accountability on its actions in Yemen (Human Rights Watch, 29 June 2018), could lead “Little Sparta” to undertake further destabilising actions. Although it is, as of today, highly unlikely, its military encirclement of the Bab al Mandab Strait depicted in Figure 1 could very well be used as a levering tool in the future, not unlike the blackmail sometimes exerted by Tehran over the Strait of Hormuz.

Lately, the UAE indeed seems to be increasingly willing to engage itself militarily and diplomatically with actors that are not necessarily linked to internationally-recognised states, ultimately upsetting local and regional orders. While the long-term consequences of its actions in Yemen are yet to be determined, its engagement in the Horn of Africa has already, at times, destabilised the region. As Abu Dhabi is pursuing a goal of establishing long-term military influence beyond the Peninsula, both its military and economic actions, funded by its vast amounts of oil wealth, are certain to influence levels of political violence within the Red Sea littoral communities.

#### Somali Instability causes Al-Shabaab Resurgence.

Magara 21 Ibrahim Magara 6-15-2021 "The political crisis in Somalia and the resurgence of Al Shabaab" <https://euideas.eui.eu/2021/06/15/the-political-crisis-in-somalia-and-the-resurgence-of-al-shabaab/> (Post-Graduate Researcher at Loughborough University)//Elmer

Al Shabaab attacks Al Shabaab is a terrorist, jihadist fundamentalist group based in East Africa and Yemen. It has recently carried out numerous attacks in Somalia, including in Mogadishu and Shabelle. The recent spike in Al Shabaab’s terrorist activity markedly coincides with the deepening political crisis in Somalia caused by electoral impasse. Somalia’s 2021 electoral impasse In April, Somalia’s parliament voted to extend President Mohamed Farmajo’s mandate for two years, as an attempt to end the political crisis that emerged earlier in the year when both the parliamentary and presidential elections were postponed due to disagreements between the federal government and its constituent states. The decision to extend Farmajo’s term deepened the political crisis in Somalia that saw parliament backpeddle and rescind its earlier decision. This action by Somalia’s parliament was meant to ease mounting pressure from within and outside Somalia but also in response to ensuing chaos and heightened violence in the country’s capital. While vacating the decision to extend the president’s mandate may have reduced the chaos, the political crisis in Somalia is yet to be resolved. The ongoing crisis has caused political uncertainty and worsened the security situation, which has once again revealed how Al Shabaab remains a potent threat in the country. The recent happenings raise the questions as to why Al Shabaab tends to increase its attacks during political crises, and what it means for the country’s fledgling Transitional Federal Government (TFG)? To make sense of the obtaining situation, it is important to revisit Al Shabaab’s formation and historical development within Somalia’s troubled political space. Note on Somalia With a prevalently homogenous population, Somalia is arguably Africa’s only actual nation. But the country has been in turmoil since the collapse of President Siad Barre’s regime in 1991. It is described as a ‘failed state’ characterised by ‘anarchy and disarray’. Al Shabaab’s presence in the country has led the US to categorise the Horn of Africa (HoA) as a ‘front line of the war on terror’. Somalia remains a case of concern both for African and global actors. There are multiple external interventions of varying forms, arguably aimed at combating Al-Shabaab and re-establishing the authority of the state. However, there are contestations as to how best to address Somalia’s political problem. Most of the African actors involved – especially under the UN-backed African Mission in Somalia (AMISOM) which has been in operation since 2007 – seem to view statehood in Somalia through the lens of their own historical trajectories of state formation and regime maintenance in which case Somalia is depicted as some sort of ‘a putative African problem’ that requires an ‘African solution’. Their Western counterparts, led by the US, view Somalia as a dangerous space that is home to terror cells which must be dismantled alongside state-building efforts as part of the US-led war on terror and global peace and security agenda. Political crisis At the heart of Somalia’s globalised security concerns is a persistently deep political crisis. The fall of Barre and ‘state failure’ have undoubtedly been important political moments in Somalia. Yet, the current complex political situation is particularly a culmination of developments since 2004 when the national reconciliation talks produced the agreement on a TFG which was contested from the outset and has been at the centre of antagonism ever since. The first President under the TFG was Abdullahi Yusuf. His government was viewed as ‘a narrow coalition dominated by the clans of the President and his Prime Minister, Mohamed Ghedi’. Others viewed Yusuf as ‘a puppet of neighbouring Ethiopia’ which has been a key player in the affairs of Somalia. By 2005, there were major political rifts in Somalia’s TFG, a situation that continued to polarise Somalia’s political elite and stymied attempts to (re)establish centralised authority. The Islamic Courts Union (ICU) Somalia’s factionalism saw, among other developments, the rise of the Islamic Courts Union (ICU), an umbrella group of Islamists which in 2006 came to control and govern all of Mogadishu and most of south-central Somalia. Soon after, some elements within the ICU started to take radical positions, alarming the US and provoking Ethiopia. The US was concerned by the rising radicalisation of the ICU but was equally mindful of its horrifying experiences in 1993, when Somali militias shot down two US Black Hawk helicopters killing 18 American soldiers and dragging some of the bodies on the streets of Mogadishu. The US was to back Ethiopia’s military intervention in Somalia, an offensive that led to the collapse of the ICU and reinstatement of the TFG. Ethiopia recorded quick and significant military successes and engaged in efforts to support the TFG. However, the continued presence of Ethiopian troops in Somalia and their military campaigns alongside the TFG troops contributed to the radicalisation of thousands of Somalis feeding into the increasingly-violent armed groups in Somalia, most notably Al Shabaab. Al Shabaab’s emergence and growth There are numerous sources that provide details on the emergence and growth of Al Shabaab. Of interest here is the political background and nature of Al Shabaab, for example, as presented by Menkhaus who illustrates how by 2007 Somalia continued to experience political splintering and marginalisation of radicals within TFG and opposition groups. Part of this process saw exiled ICU leaders establish the Alliance for the Re-Liberation of Somalia (ARS), that included non-Islamist Somalis, an act that angered Al-Shabaab leading to its break away. By early 2009, there were significant achievements such as the withdrawal of Ethiopian troops, and the Djibouti agreement that led to the establishment of a broad-based government featuring the moderate Islamist leadership of ICU’s Sheikh Sharif. Al Shabaab had to confront a monumental political test as it faced external pressure and growing internal political consensus under the presidency of Sharif. Al Shabaab further faced growing resistance from clan militias that were allied with the new TFG with no interest in seeing a radical jihadist group take over power. Despite the growing pressure, Al Shabaab continued to regroup, organise and grow. The battle of 2009 involving the TFG, Al-Shabab and another Islamist group called the Hisbul Islamiyya, all of which identified as Islamists, was particularly significant in Al Shabaab’s formative years. This contributed to the regrouping and strengthening of Al Shabaab but also exposed the fact that Islamism is not necessarily the unifying force in Somali politics.

#### Al Shabaab can get CBW

**Kelly 14** [Kelley, Maria. MA Critical Terror Studies Terrorism and the growing threat of weapons of mass destruction: Al-Shabaab. Anchor Academic Publishing (aap\_verlag), 2014] Page 76-80

Chapter 5 provided summaries of the problem, the review of the literature. the methodological approach used for this Study, and the results presented in Chapter 4. Chemical. biological, radiological. and nuclear weaponized devices are all attainable, to a certain degree. Each type Of weapon Of mass destruction (WMD) has been clearly found to have both its advantages and disadvantages of use. In general, all four types discussed in this research can be unreliable in terms of effects. pose a danger to the handler, and have the potential to give away the individual's position. Some types of WMD. such as radiological and nuclear elements, require a specific Skillset therefore making the protection Of the knowledgeable individual relatively important. Other types of WMD, such as chemical and biological agents and toxins, provide the ease Of being easily created by someone with understanding of biological sciences thereby making an individual replaceable; hence, ensuring the safety of the handler is not a priority. TO assess the type Of weapon that an organization Or individual is likely to employ, one would need to first determine what goal is to be achieved by the attack. Motivations and disincentives Of the use Of WMD depend upon the organization's operational, political, theological, and psychological goals. Another large factor is the amount Of financial and logistical support given to the organization. This research analyzed one Foreign Terrorist Organizations (FTOs): al-Shabaab. This organization has been determined to currently possess the ability to create or launch a WMD attack if it chose to explore this option. The lack of rigidity and centralization leads to internal conflicts occurring often. Lack of coordination. and a frequent shift in alliances makes this organization very unstable. Eritrea is suspected Of providing al-Shabaab with support, not to mention the organization operates in an area Of Strategic importance, meaning that alliances have the potential to grow from senior- to-senior relations to organization-to-organization relations between al-Shabaab and al- Qaida. The form of logistical support that Eritrea could potentially offer is unmonitored access to its two ports, located in the strategic Red Sea, with easy access to and from Yemen or Saudi Arabia. It also could allow for the easy movement of goods between Eritrea and Somalia. The history of conflict between Ethiopia and Eritrea along with the history of conflict between Ethiopia and Somalia makes this type of support plausible. However, continuous U.S. sanctions have taken their toll on Eritrea and it is now assessed that Eritrea is no longer providing material support to al-Shabaab. It still remains undetermined if Eritrea is providing support by other means or methods. Of the WMD analyzed in this research, it has been assessed that chemical and biological weapons are the most likely to receive consideration by al-Shabaab. While at this time the group itself does not possess the resources, its location, ties. and merger with al-Qaida place this organization in a perfect position to acquire and employ the use of such weapons. Because al-Shabaab is slowly losing regional control, it is possible that in an act of desperation to show superiority it could resort to WMD as the means to regain control over the local people. It is hoped that in time, the diminishment of funds will reduce the number of al-Shabaab militants. As discovered by this research, acquiring and producing chemical or biological weapons is not complicated; and it would not take much of the agent or toxin to create mass panic in the troubled country of Somalia or to have the legitimate government consider retreating. Al-Shabaab, especially after its official merger with al-Qaida, has the potential for either using facilities already established by its allies or affiliates, or building facilities for this purpose particularly because the substantial annual financial intake. For these reasons, and based on the requirements for creating such weapons, it is assessed that there is a realistic chance that al-Shabaab will turn to WMD as a fighting technique. Even a small-scale attack with a chemical or biological WMD conducted by al-Shabaab would be successful and would achieve the organization's goals. at least in the short term.

#### COVID incentivizes engineered bioterror- extinction

Walsh, 20 -- Axios Future correspondent [Bryan Walsh, "The coronavirus pandemic reawakens bioweapon fears," Axios, 5-14-2020, https://www.axios.com/coronavirus-pandemic-pathogen-bioweapon-45417c86-52aa-41b1-8a99-44a6e597d3a8.html, accessed 9-7-2020]

The coronavirus pandemic reawakens bioweapon fears

The immense human and economic toll of the COVID-19 pandemic only underscores the threat posed by pathogens that could be deliberately engineered and released.

Why it matters: New technology like gene editing and DNA synthesis has made the creation of more virulent pathogens easier. Yet security and regulation efforts haven't kept pace with the science.

What's happening: Despite some claims by the White House, overwhelming scientific evidence indicates that the novel coronavirus was not accidentally released from a lab or deliberately engineered, but naturally spilled over from an animal source.

That doesn't mean the threat from bioweapons isn't dire. Along with AI, engineered pandemics are widely considered the biggest existential risk facing humanity.

That's in part because a pathogen could be engineered in a lab for maximum contagiousness and virulence, well beyond what would arise through natural selection.

Case in point: a 2018 pandemic simulation put on by the Johns Hopkins Center for Health Security featured a fictional engineered virus called Clade X that combined the contagiousness of the common cold with the virulence of the real-life Nipah virus, which has a mortality rate of 40-75%. The resulting simulated global outbreak killed 150 million people.

COVID-19 isn't anywhere near that fatal, but the pandemic has shown the vulnerability of the U.S. and the world to biological threats both natural and manmade.

"Potential adversaries are of course seeing the same things we’re seeing," says Richard Pilch of the Middlebury Institute of International Studies. "Anyone looking for a radical leveling approach — whether a state actor like North Korea or a motivated terrorist organization — may be influenced by COVID-19 to consider pursuing a biological weapons capability."

Background: Bioweapons were officially banned by the Biological Weapons Convention in 1975, though North Korea is suspected of maintaining an offensive bioweapons program.

A particular concern about biowarfare and bioterror, though, is that many of the tools and methods that could be used to create a weaponized virus are largely indistinguishable from those used in the course of legitimate scientific research. This makes biotechnology "dual-use" — and that much more difficult to safely regulate without cutting off research that could be vitally important.

While earlier bioweapons fears focused on the possibility that a state or terror group could try to weaponize a known dangerous agent like smallpox — which would require somehow obtaining restricted pathogens — new technology means that someone could obtain the genetic sequence of a germ online and synthesize it in the lab.

"If you've been trained in a relevant technical discipline, that means you can make almost any potentially harmful agent that you're aware of," says Kevin Esvelt, a biologist at the MIT Media Lab and a member of the CDC's Biological Agent Containment Working Group. That would include the novel coronavirus that causes COVID-19, which was recently synthesized from its genetic sequence in a study published in Nature.

How it works: Currently, synthetic DNA is ordered through commercial suppliers. But while most suppliers screen DNA orders for the sequences of dangerous pathogens, they're not required to — and not all do, which means safety efforts are "incomplete, inaccurate, and insecure," says Esvelt.

Screening efforts that look for the genetic sequences of known pathogens also wouldn't necessarily be able to detect when synthetic DNA was being used to make something entirely novel and dangerous.

In the near future, desktop DNA synthesizers may be able to generate synthetic DNA in the lab, cutting out the need for commercial suppliers — and potential security screenings.

The democratization of biotechnology could unleash a wave of creativity and innovation, just as the democratization of personal computing did. But it also increases the number of people who could potentially make a dangerous engineered virus, whether deliberately or by accident.

### FW

#### This connection between pain and pleasure and phenomenal conceptions of intrinsic value and disvalue is irrefutable – everything else regresses – robust neuroscience proves.

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**Pleasure** is not only one of the three primary reward functions but it also **defines reward.** As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the **basis for hedonic theories** of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10].

Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14].

Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain’s pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals.

Evolutionary theories of pleasure: The love connection BO:D

Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others–when we are in love or desperately search for it.

It is well established that modern biological theory conjectures that **organisms are** the **result of evolutionary competition.** In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring.

Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding.

There have been theories linking pleasure as a required component of health benefits salutogenesis, (salugenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health.

Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage.

Finding happiness is different between apes and humans

As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure.

Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are **many brain regions**, often termed hot and cold spots, that significantly **modulate** (increase or decrease) our **pleasure or** even produce **the opposite** of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered.

Desire and reward centers

It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation.

In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41].

Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42].

Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans.

In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45].

Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations.

Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50]

In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders.

In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, **there was** a **remarkable contrast in** the **neocortices**, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS.

Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter dopamine plays a substantial role in humans’ ability to pursue various rewards that are perhaps months or even years away in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible alterlife. This may explain what often motivates people to work for things that have no apparent short-term benefit [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shilting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual’s physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

#### Evolution proves the reliability of phenomenal introspection – when we introspect on data from our eyes or ears, such as whether one sees or smells food or a predator, we use the same part of the brain that introspects on hedonic tones and identifies their moral relevance.

#### Thus, the standard is consistency with hedonic act utilitarianism

#### Existential focus is good and valuable – otherization is inevitable, but only acknowledging and discussing possibility of self-destruction shifts targets away from each other and towards extinction.

Khan 18

Risalat Khan is an activist and intrapreneur from Bangladesh passionate about addressing climate change, biodiversity loss, and other existential challenges. He was featured by The Guardian as one of the “young climate campaigners to watch” (2015). As a campaigner with the global civic movement Avaaz (2014-17), Risalat was part of a small core team that spearheaded the largest climate marches in history with a turnout of over 800,000 across 2,000 cities. After fighting for the Paris Agreement, Risalat led a campaign joined by over a million people to stop the Rampal coal plant in Bangladesh to protect the Sundarbans World Heritage forest, and elicited criticism of the plant from Crédit Agricolé through targeted advocacy. Currently, Risalat is pursuing an MPA in Environmental Science and Policy at Columbia University as a SIPA Environmental Fellow. He also regularly consults with mission-driven organizations on building effective and loving team cultures. Previously, he graduated magna cum laude from Amherst College, where he launched a campaign that eventually resulted in the replacement of the College’s racist mascot ‘Lord Jeff’ with a cuddly ‘Mammoth’. Finally, Risalat is absolutely blown away to be alive at this amazing time in history, and approaches life like a roller-coaster ride, “5 reasons why we need to start talking about existential risks”, World Economic Forum, 10 January 2018, accessed: 15 December 2020, <https://www.weforum.org/agenda/2018/01/5-reasons-start-talking-existential-risks-extinction-moriori/>, R.S.

I find the story of the Moriori profound. It teaches me two lessons. Firstly, that human culture is far from immutable. That we can struggle against our baser instincts. That we can master them and rise to unprecedented challenges. Secondly, that even this does not make us masters of our own destiny. We can make visionary choices, but the future can still surprise us.

This is a humbling realization. Because faced with an uncertain future, the only wise thing we can do **is prepare** for possibilities. Standing at the launch pad of the Fourth Industrial Revolution, the possibilities seem endless. They range from an era of abundance to the end of humanity, and everything in between. How do we navigate such a wide and divergent spectrum?

I am an optimist. From my bubble of privilege, life feels like a rollercoaster ride full of ever more impressive wonders, even as I try to fight the many social injustices that still blight us. However, the accelerating pace of change amid uncertainty elicits one fundamental observation. Among the infinite future possibilities, only **one outcome is** truly **irreversible: extinction.**

Concerns about extinction are often dismissed as apocalyptic alarmism. Sometimes, they are. But repeating that mankind is still here after 70 years of existential warning about nuclear warfare is a straw man argument. The fact that a 1000-year flood has not happened does not negate its possibility. And there have been far too many nuclear near-misses to rest easy.

As the World Economic Forum’s Annual Meeting in Davos discusses how to create a shared future in a fractured world, here are five reasons why the possibility of existential risks should raise the stakes of conversation:

1. **Extinction is the rule, not the exception**

More than 99.9% of all the species that ever existed are gone. Deep time is unfathomable to the human brain. But if one cares to take a tour of the billions of years of life’s history, we find a litany of forgotten species. And we have only discovered a mere fraction of the extinct species that once roamed the planet.

In the speck of time since the first humans evolved, more than 99.9% of all the distinct human cultures that have ever existed are extinct. Each hunter-gatherer tribe had its own mythologies, traditions and norms. They wiped each other out, or coalesced into larger formations following the agricultural revolution. However, as major civilizations emerged, even those that reached incredible heights, such as the Egyptians and the Romans, eventually collapsed.

It is only in the very recent past that we became a truly global civilization. Our interconnectedness continues to grow rapidly. “Stand or fall, we are the last civilization”, as Ricken Patel, the founder of the global civic movement Avaaz, put it.

2. **Environmental pressures can drive extinction**

More than 15,000 scientists just issued a ‘warning to humanity’. They called on us to reduce our impact on the biosphere, 25 years after their first such appeal. The warning notes that we are far outstripping the capacity of our planet in all but one measure of ozone depletion, including emissions, biodiversity, freshwater availability and more. The scientists, not a crowd known to overstate facts, conclude: “soon it will be too late to shift course away from our failing trajectory, and time is running out”.

In his 2005 book Collapse, Jared Diamond charts the history of past societies. He makes the case that overpopulation and resource use beyond the carrying capacity have often been important, if not the only, drivers of collapse. Even though we are making important incremental progress in battles such as climate change, we must still achieve tremendous step changes in our response to several major environmental crises. We must do this even while the world’s population continues to grow. These pressures are bound to exert great stress on our global civilization.

3. **Superintelligence**: unplanned obsolescence?

Imagine a monkey society that foresaw the ascendance of humans. Fearing a loss of status and power, it decided to kill the proverbial Adam and Eve. It crafted the most ingenious plan it could: starve the humans by taking away all their bananas.

Foolproof plan, right? This story describes the fundamental difficulty with superintelligence. A superintelligent being may always do something entirely different from what we, with our mere mortal intelligence, can foresee. In his 2014 book Superintelligence, Swedish philosopher Nick Bostrom presents the challenge in thought-provoking detail, and advises caution.

Bostrom cites a survey of industry experts that projected a 50% chance of the development of artificial superintelligence by 2050, and a 90% chance by 2075. The latter date is within the life expectancy of many alive today.

Visionaries like Stephen Hawking and Elon Musk have warned of the existential risks from artificial superintelligence. Their opposite camp includes Larry Page and Mark Zuckerberg. But on an issue that concerns the future of humanity, is it really wise to ignore the guy who explained the nature of space to us and another guy who just put a reusable rocket in it?

4. Technology: known knowns and **unknown unknowns**

Many fundamentally disruptive technologies are coming of age, from bioengineering to quantum computing, 3-D printing, robotics, nanotechnology and more. Lord Martin Rees describes potential existential challenges from some of these technologies, such as a bioengineered pandemic, in his book Our Final Century.

Imagine if North Korea, feeling secure in its isolation, could release a virulent strain of Ebola, engineered to be airborne. Would it do it? Would ISIS?

Projecting decades forward, we will likely develop capabilities that are unthinkable even now. The unknown unknowns of our technological path are profoundly humbling.

5. **'The Trump Factor'**

Despite our scientific ingenuity, we are still a confused and confusing species. Think back to two years ago, and how you thought the world worked then. Has that not been upended by the election of Donald Trump as US President, and everything that has happened since?

The mix of billions of messy humans will forever be unpredictable. When the combustible forces described above are added to this melee, we find ourselves on a tightrope.

What choices must we now make now to create a shared future, in which we are not at perpetual risk of destroying ourselves?

Common enemy to common cause

Throughout history, we have **rallied against the ‘other’.** Tribes have overpowered tribes, empires have conquered rivals. Even today, our fiercest displays of unity typically happen at wartime. We give our lives for our motherland and defend nationalistic pride like a wounded lion.

But like the early Morioris, we 21st-century citizens find ourselves on an increasingly unstable island. We may have a violent past, but we have no more dangerous enemy than ourselves. Our task is to find our own Nunuku’s Law. Our own shared contract, based on equity, would help us navigate safely. It would ensure a future that unleashes the full potential of our still-budding human civilization, in all its diversity.

We cannot do this unless we are humbly grounded in the possibility of our own destruction. Survival is life’s primal instinct. In the absence of a common enemy, we must find **common cause in survival.** Our future may depend on whether we realize this.