



Methods for Irrigation and Agriculture
لتطوير أساليب الري والزراعة

NEWSLETTER

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Picture 1: Consortium members represent many different countries, cultures, and geographies across the Mediterranean region.

From June **1st** until June **3rd**, MIRRA attended the **kick-off meeting** for the FUSION project in Cartagena, Spain. This inaugural gathering brought together 17 project partners from across the consortium representing many diverse corners of the Mediterranean region to meet for the first time. During the three-day meeting, each partner had the opportunity to present their organization and their planned contributions to the project work packages.

These presentations gave a collaborative environment for each partner to discuss their project goals and collectively devise a Project Management Guidelines and Quality Plan. The dialogue during each presentation allowed the consortium to align the objectives, roles, and responsibilities among the partners.



Picture 2: Partner presentation about their organization and planned activities for FUSION

MOREOVER, this **kick-off meeting** offered a chance for project partners to build relationships and learn about each other organization's goals. During a field trip, consortium members had ample time to learn about each partner's experience, to gain practical insights from other contexts around the Mediterranean region, and discuss project applications in a real-world setting.

We're excited to embark on this collaborative journey and look forward to achieving our project objectives with our partners. Stay tuned for updates on the FUSION project's progress!



Picture 3: Participating in social activities provided many opportunities to build stronger relationships and mutual understanding across cultural and language differences.

**Discover what our interns have to say about their experience
at MIRRA – read their testimonials and reflections below:**



Intern: Jane Beeler

Home Institution: Georgetown University School of Foreign Service

Major: Science, Technology, and International Affairs with a concentration in Security

Time at MIRRA: Fall 2023/2024

What was your time like at MIRRA?

“MIRRA has taught me to find the nuance in environmental and social issues, and to seek solutions that account for everyone.”

Tasks you’ve worked on while at MIRRA:

- Developed a report on Syrian refugees, agriculture, and Jordan’s water scarcity problem
- Attended and documented the 2023 AZMUD Symposium between MIRRA and their international partners. This was an important event highlighting the results of the EU PRIMA project.
- Drafted newsletter articles
- Developed a policy memo on Jordan’s illegal water market and the policy solutions to illegal tanker water markets

What did you learn while interning at MIRRA?

“I have greatly enjoyed my time working with MIRRA this past year! It has been an amazing opportunity to learn more about a crucial field and explore solutions to pressing issues in Jordan. My time at MIRRA has inspired me to further study water crises, water resource management, and environmental studies in college and to apply my interest and knowledge to my future endeavors.”



Intern: Georgia Barnes

Home Institution: Macalester College

Major: Political Science

Time at MIRRA: Spring 2024

What was your time like at MIRRA?

“MIRRA is an exceptional organization dedicated to advancing sustainable agriculture by addressing key challenges, such as water scarcity. My internship with MIRRA significantly broadened my understanding of sustainable agriculture, offering me a valuable global perspective on the sector’s complexities and innovative solutions”

Tasks you've worked on while at MIRRA :

- Wrote a policy paper on vulnerable groups and the environment in Jordan
- Summarized Jordan’s Nationally Determined Contributions (NDC) for climate change
- Summarized the Action Plan for the UN Decade on Ecosystem Restoration 2021-2030
- Summarized the United Nations Convention on Biological Diversity Post-2020 Global Biodiversity Framework
- Updated MIRRA’s agriculture report
- Researched funding opportunities as well as updating the guidelines, deadlines, and requirements for call for proposals

What did you learn while interning at MIRRA?

Interning with MIRRA while studying abroad in Jordan was an incredibly enriching experience that enhanced my semester in ways I hadn’t anticipated. I am deeply grateful for the opportunity to learn about agricultural systems and the environmental challenges they face in a climate so different from the ones I have known back home. One of the highlights of my time with MIRRA was spending a day on the farm, collecting data on grape leaves and plants as part of MIT’s drip irrigation study. It was a hands-on experience that gave me valuable insights into sustainable farming practices in a region where water conservation is critical.”



Intern: Olivia Keller

Home Institution: Amherst College

Major: Political Science and Environmental Science

Time at MIRRA: Summer 2024

What was your time like at **MIRRA**?

"While working for MIRRA, they made me feel extremely welcome and inspired to explore the challenges facing the Jordan River. With my supervisor's gracious support, I found numerous studies and reports detailing the patterns of multiple vegetation species and the conditions necessary for them to thrive in hopes of restoring the surrounding land and ecosystems along the River."

Tasks you've worked on while at **MIRRA**:

- Worked on a research project mapping the ecological change in the Jordan River. I helped identify and research numerous botanical species that have a historical presence in the Jordan River to show the loss of biodiversity and fertility of the ecosystem. I compiled a synopsis of ideal water and soil conditions to set goals for restoring the river and surrounding environments.

What did you learn while interning at **MIRRA**?

"MIRRA helped me understand the importance of environmental regulations and protections, and how gaps in policy can cause loss of cultural, religious sites, and ecological habitats."

Understanding Social Stratification in Jordan Through the Lens of Water: A Newcomer's Perspective

After an arduously long plane ride, I touched down in Amman in the evening, watching the sun set while waiting for my suitcase to cycle through the baggage carousel. The last time I'd been on solid ground was in Los Angeles, California, and I was more than a little nervous to get to know the country where I'd be spending the next four months of my life.

I met my host family that night. I was hungry, exhausted, and ready for a good night's sleep, but as I was shown around the house, I remembered to ask about the shower— I didn't know at this point the extent of water scarcity here, but I knew Jordan was water stressed, so how long could I shower for?

My host dad, a jovial and welcoming Jordanian proud of his tribal roots who had lived in this house since the 1960's, laughed and answered: "For you, my daughter, there will always be water." And for me, there always was.

My host neighborhood, Jabal Weibdeh, is beautiful. When I stroll to one of the area's many cafes on the weekends, I pass streets of decades-old beige brick houses adorned by private gardens and shaded by lush trees. Springtime blossomed vibrantly, with many of what I'd previously assumed to be everyday green trees bursting into flower blooms of every color. Weibdeh is a cool neighborhood, full of young people, foreigners, and overpriced artistic cafes. If you never left this bubble, it'd be remarkably easy to forget about the very real absence of reliable water access that most Jordanians deal with every day.



This fantasy shatters once you start descending from the castle on the hill to the nearby areas of the city (literally— ‘Jabal’ means ‘mountain’ in Arabic, and Jabal Weibdeh is one of the distinct hills that make up Amman’s sprawling geography). Down a seemingly endless flight of stairs lies the downtown area, a network of intercrossing streets in the valley between a number of hills where visitors and Jordanians alike can sample delicious street food and desserts while shopping for everyday products or souvenirs.

A visit to downtown Amman is a surefire way to immerse yourself in the flow of everyday life here. Despite the expectations visitors might have about the glamour of a city’s downtown, downtown Amman is spectacularly cosmopolitan, unbelievably packed, and— without mincing my words— of a noticeably lower income bracket.

When I visited downtown during my study abroad orientation week with my classmates, someone exclaimed: “Ew, it stinks over here!” We all agreed— the smell of sewage did permeate the area we were walking around in. It wasn’t until a few weeks later, when I was reading about the varying rates of water and wastewater connections in the city, that I realized I’d witnessed this disparity in access firsthand already.

Whereas nearly everyone in Jabal Weibdeh and similarly affluent neighborhoods has piped water and in-home sewage connections, the rates of connection to sewage networks in places like downtown and eastern Amman are far lower, and their piping network is consistently more degraded from the lack of funding for maintenance. The percentages and statistics about access to public infrastructure seem confined to the page while doing research, but you realize quickly when you step outside that these topics are not merely fodder for articles and reports, but rather have very immediate effects on people’s daily lives.

Early on in my stay, my classmate and I were gallivanting around downtown trying all manner of Ramadan sweets and warm drinks from street vendors, shopping for winter clothes and enjoying the air of excitement from the upcoming arrival of the holy month, which was expected to start the next day. “I don’t think I’d met any Syrians living in Jordan before today,” she remarked to me as we walked back that night, “but today I think we met at least five!” This wasn’t an anomaly. Many immigrants and refugees make their livelihoods working in shops downtown, meaning there’s a geographic dimension to the distribution of different nationalities living in Amman, a geography that combines ethno-national and socio-economic stratification.

If places like downtown are hubs for migrant enclaves, then there are districts awash with generational wealth that in turn become hubs and points of pride for ‘Jordanian-Jordanians,’ the citizens whose families have lived in the country for generations and who take pride in their tribal ancestry. One of these places is Iraq al-Amir in Wadi es-Sir, an unbelievably lush valley in the western outskirts of Amman where I took a long hike to the Hellenistic-era ruins at Qasr al-Abd. My day spent hiking in the valley was a series of unexpected adventures: I met an upscale restaurant owner who allowed my friends and I to walk through his private farmland, where we followed the runoff from a natural spring through citrus orchards, flower fields, and abundant shady trees. This lively hike illustrated so much of what I love about Jordan.



Picture 1-2: Images: A busy day downtown (left) and a UNICEF mural in Jabal Amman: ‘Big changes start small’ (right).

My companions and I enjoyed hospitality from all directions, not only from the landowners but also from the farmhands, who gifted us freshly picked stalks of fava beans to snack on while we walked. In the same short period, I saw ancient ruins tucked within bustling neighborhoods beside modern restaurants and shops and families enjoying the weekend with picnics under the lush shade of the valley.

The day was exceptionally warm, perhaps the hottest I'd experienced up to that point in Jordan, and my companions and I quickly finished all the drinking water we brought with us. We'd exited the previous gentleman's land by then, and another man who owned a similarly expansive stretch of farmland offered to refill our bottles at his farm's private well, where an ever-flowing spring supplied an irrigation network that grew beautiful decorative flowers as far as the eye could see.

The day I spent in this valley held the most abundantly-flowing water I saw in my entire stay in Jordan, as well as the first time I saw a private water tanker truck filling up at a local well. In fact, the town was full of water tankers filling up to deliver water to buyers in the drier parts of Amman.



Picture 3: Hiking in Iraq al-Amir through streams and flower farms.



I learned later from my host family that the valley we'd walked through, which was decently long, was owned by just a few individuals and carved up into farms that had been in individual Jordanian families for decades, while the majority of the valley's other residents were low-income agricultural workers tending and harvesting lucrative crops. The wealth I saw here was entirely contrasting with the areas of Amman barely more than a mile away: sprawling estates, verdant hills, and even swimming pools defined this little district. Undeniably, the wealth of landowners there was conventional, as they oversaw established and profitable businesses, but it was also water wealth, with constant access to water for both household use and irrigation. I realized the two were inextricable from each other— their affluence was enabled by the abundance of water in their wells, which in turn supported their thriving businesses.



Beyond this specific anecdote, I've come to realize that access to water is essential to the construction of different parts of the city as low or high class. Once, a group of young boys on the street was bantering with one of my classmates (a South Asian Muslim), telling him he looked like he could be Jordanian, but that he'd blend in in east Amman, before laughing and running off. We asked a teacher later what they meant, and she frowned. "The neighborhood they named is considered a 'bad neighborhood.' It's where all the immigrants live." Yes, Amman has the same rhetoric of 'good' and 'bad' parts of town, where my classmates and I would be warned by well-meaning locals not to go.

Water is absolutely essential to the construction of people's perceptions of these places. One of the most consistent displays of wealth across Amman's neighborhoods is having a thriving garden adorning a home's exterior. The upscale cafes and restaurants are also those that have high water pressure in their toilets and sinks, a comfort and privilege I was privy to with my spending money converted from USD, but which many locals can't regularly afford.

Contrastingly, a thread unifying the 'bad neighborhoods' is undoubtedly people's understanding of their conditions as unhygienic. The disparity in water access is a key contributor to this construction: water access for any household use isn't guaranteed, and not everyone is connected to a wastewater disposal network, leading the smell of sewage to occasionally permeate the neighborhood.

Outside of these places, I witnessed strange patterns in how middle-and-upper class Jordanians would speak to me about water. I understand it now as either a lack of widespread awareness about the state of water resources in Jordan, or perhaps a national insecurity leading them to purposefully misrepresent the severity of the crisis in fear of being seen as an 'underdeveloped' nation—likely something of both.



Picture 4: Aristotle Cafe in Weibdeh, a favorite of mine.

Whatever the reason, I regularly saw displays of water use that **conflicted with the country's reality**. Whether in my own home or a guest in others, I was offered the use of sinks and showers for **as long as I wanted**. Once, while visiting a classmate's host home, I saw her wash dishes with the tap left running, her host family watching but **never stepping in to turn off the steady stream**.

On a tour to Ajloun in the north of Jordan, our tour guide pointed out the winding Jordan River glinting in the distance, and we ended up talking about the **reduced annual flows** and the consequent **dangers to the Dead Sea levels**. He waved off my classmates' and my concerns, telling us the government was working on building a pipeline from Aqaba to the Dead Sea so the water level crisis would soon be resolved. The project he was referring to was the '**Red Sea-Dead Sea Water Conveyance Project**,' which has actually been **stalled indefinitely** and may never be built.

The most recent initiative to transport water north from the Red Sea, the 'National Water Carrier' desalination plant, would supply urban centers with water— a necessary development, but one with an unclear impact on Jordan River rehabilitation. Despite this reality, he had **absolute faith** that the future of the country's **fragile natural water resources** was already well in hand, a perspective that I fear is common around Jordan.

Although Jordan, and especially Amman, is a **diverse and cosmopolitan nation**, my time here showed me that there are **socio-economic divides** that intersect with nationality which often result in strong **wealth and geographic disparities**.

A population that experiences water-scarcity as a whole still experiences the manifestations of that scarcity very differently, and I came to know a city where some people swim in private pools while others can't plan on consistent showers.

There's a causality that perpetuates itself endlessly here: the impoverished populations don't have the same access to water and sanitation networks, leading them to be perceived as unhygienic, yet simultaneously don't have the means or opportunities to elevate their status largely because of stigma and this geographic stratification. Water access, or the lack thereof, permeates every aspect of social status in ways both obvious and hidden.

Nevertheless, I witnessed a very disjointed national attitude towards water. Where money can buy regular access, I saw it treated as a commodity, not a shared resource. Even as the national demand continues to grow and the availability of natural resources shrinks, indicating a terminal crisis affecting both industries and daily life, I saw individual attitudes towards water use as very 'every-man-for-himself.' Living in Jordan has taught me that water is the backbone of our lives, but preserving it as a resource must be a collective, not individualistic, effort.

Brenna Boldt

Although I learned about issues of water access in my internship at MIRRA, the viewpoints expressed in the article are entirely my own and do not represent MIRRA as a whole.



Picture 5: Cartwheeling through Wadi Rum Desert in South Jordan!



Welcome

Introducing MIRRA's Newest Intern: Zeus Spicer joins our Team!

Hello, my name is Zeus Spicer. I am an African-American student spending my first time in Jordan this summer as an intern at MIRRA. I am currently a Physics major at Arizona State University in the process of switching to a double major program for a B.A. in Linguistics and a B.S. in Sustainability and Horticulture.

During my first week at MIRRA, I have felt so much hospitality and grace from the environment and people surrounding me. Everyone here has welcomed me with much hospitality and excitement; I instantly felt a part of the team.

My primary task as an intern this summer is to create a webpage for MIRRA's Climate Smart Farm in the Jordan Valley while simultaneously restructuring the current main webpage of MIRRA to be more interactive and user friendly.

I will be gaining some much needed experience in both of my new majors and couldn't be more excited to embark on this new journey with MIRRA.



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