Living on Luck
The Story Behind Zagora’s Watermelons
Preface

Rippling beneath Zagora’s oases and watermelon fields is a story of scarcity, underdevelopment, and ingenuity. Drought has changed living in the southeastern region of Morocco and reconfigured irrigation practices. Watermelons pepper the landscape in the spring, fueling a local economy built around an export commodity. This phenomenon has captured national attention in Morocco with critics calling for an end to watermelon production in drought-prone regions. Yet locally, many farmers say this solution fails to engage with the underlying drivers of agriculture intensification in Zagora and across Morocco.

Today, the cascading impacts of drought on local lives have opened a debate on water governance; namely, how best to negotiate between the needs of farmers while protecting the sustainability of water resources. Farmers are at the center of these changes-managing dwindling water to support their families in a region where agriculture remains integral to daily lives. They have much to say about the future of water governance and agriculture in the region.

This report examines water scarcity and watermelon farming in Zagora through the lens of local farmers and residents based on interviews during the summers of 2021 and 2022. The authors would like to thank Jamal Achsbab and Adil Moumane of the Friends of the Environment Association in Zagora, Ghizlane Chouaki, Youssef El Ghizlani, and Zakariya Ben Larbah for their support. They also thank the employees at Office Regional de Mise en Valeur Agricole de Ouarzazate (ORMVA-O) and Agence du Bassin Hydraulique de Draa Oued Noun for their assistance. Finally, the authors are deeply indebted to everyone in Zagora who shared their experiences and opened their homes to them. It is their hope that this work honors these voices.

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About the Authors

Jamie Fico is a U.S. Fulbright researcher studying agricultural, social, and environmental change in the southeastern oases of Morocco. Her work stems from
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Aimee Kenti is a young writer and photographer from Zagora in the southeast of Morocco. She studied at Cady Ayyad University where she obtained her Bachelor of Arts in English Studies. She remains focused on projects in Zagora, helping her community respond to interconnected environmental and social issues as an ecological mediator and a graduate of the U.S. Embassy’s American Leadership Academy.

Mقدمة

هناك قصة متشابكة الأطراف بين الواحات وحقول البطيخ الأحمر في زاكورة من جهة، و بين ندرة المياه وتأخر التنمية والابتكار من جهة أخرى. لقد غير الجفاف البيئي في منطقة الجنوب الشرقي للمغرب وتفاقمت معه طرق التسقي. يظهر البطيخ الأحمر وهو يؤثث منظر الأراضي ويوقد معه شعلة الاقتصاد المحلي المبني على إنتاج الصادرات. هذه الظاهرة شدت الأنظار على المنطقة، حاصلة على شهادة تجريبية في المزارع والتسويق في ولاية تانزور وباكالوريوس في دراسات الشرق الأوسط والدراسات الدولية من جامعة شيراس. 

أمين الكنتي هو كاتب ومصور شاب من مدينة زاكورة، درس في جامعة القاضي عياض في مراكش حيث نال إجازة في الدراسات الإنجليزية، يبقى م☀زرا على مشروعي جمعيتي في زاكورة حيث نادى إجادة في المجتمعات والمجتمعات الاجتماعية توريت كايس ويكولوجيا وخرج من الأكاديمية الأمريكية للقيادة.

تم دعم البحث من طرف المؤسسة الأمريكية للدراسات المغاربية، وتمويل روسكو مارتن لبحث التخرج في جامعة سيراكوس، وشعبة الجغرافيا في جامعة سيراكوس. 

البحث يكشف ندرة المياه وزراعة البطيخ الأحمر في زاكورة من وجهة نظر الفلاحين والسكان المحليين. يأتي عملها من اشتغالها كمتطوعة مع هيئة السلام الأمريكية من سنة 2018 إلى 2020 في زاكورة.

تحاول هذه التقارير أن تظهر لنا الجوائز والتحديات المترابطة بين البيئة والتنمية، وتحاول أن تقدم لنا نماذج للتعامل مع التغيرات البيئية.

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لما، كما يمكن أن يكونا المتوسطين والمدارين في المكتبة الجهوية للأسماء التي تأتي من الأسماء. أخيراً، يُساهم ليس آخرنا في معرفة هؤلاء الآخرين. واتخاذهم كما دائماً أن يكونوا هذه التقارير أن يُنفّذ أشخاصهم. كل
A Story of Scarcity

Basou Hadouchi’s house overlooks the Fezouata Oasis facing the city of Zagora. It sits on the border between the encroaching sand dunes and the valley’s green date palms. For nearly a century he’s watched the Draa River’s water dwindle and the desert sand pour onto oasis farms in Zagora. “The Draa River is dying. There is no water from Ait Saoun to M’hamid,” he says.

The Draa River was once the longest in Morocco, running southeast from the Atlas Mountains to M’hamid and then curving southwest through Tata to make its way to the Atlantic Ocean. The river feeds 26,000 hectares of six date palm oases (Mezguita, Tinzouline, Ternata, Fezouata, Ktawa, and M’hamid) where families in the Middle Draa Valley cultivate household vegetables, cereals, and alfalfa. Long gone are the days when the Draa River would flood the Hamada of the Sahara, providing flood-irrigated fields and nomadic pasture. Today, the riverbed is dry except for 10-20 days following each of the three to four dam releases each year.

As consequence of water scarcity, Basou says, “people left the region,” traveling to cities for work in construction or following the agricultural seasons across Morocco, sending home earnings to their families remaining in the Province of Zagora. Many households are reliant on remittances from relatives working outside the region to maintain family farms.

Water is source of life. If there is water, the region becomes good. The people eat with each other, work with each other, and there is good economic activity. If there is no water, we have nothing. We have no factories in Zagora. There is no work. People leave, they migrate. If you have a child, they leave the region to bring what is needed to live. Water brings what is needed to live. Water is the source of life.”

Farmer from Amazraou, Zagora.

Photo by Jamie Fico, Amazraou, June 2022.
Living on Luck

Today, a new enterprise is spreading across Zagora—watermelon production for the international market. The Province of Zagora produced 75,950 tons of watermelons from 2020-2021, an increase of 3,710 tons from the previous year, using groundwater from the valley’s stressed aquifers. Many farmers do not support melon growing but say there are few alternatives in the region where jobs in other industries are largely lacking.

“I grew watermelons with my brother for the first time this year,” shared Youssef El Ghizlani, a 27-year-old resident of Feija, “Before I did a lot of other jobs. I worked digging wells, tending gardens and villas in Casablanca and Dakhla.” Tired of dangerous and temporary work, and wanting to make a living closer to home, Youssef tried his hand at watermelon farming in 2022. However, he found that “watermelons are not enough to live on. The market is unstable, and you need luck.”

Youssef does not see a future in agriculture in Zagora, telling us, “I’ve watched my father devote his entire life to farming, and it’s given him nothing.” For Youssef, watermelon production is a means for attaining a larger goal of business ownership as an entrepreneur. He’s hoping to use his earnings to start his own construction business.

العيش بالحظ

تنتشر حالياً تجارة جديدة عبر زاكورة - إنتاج البطيخ الأحمر للسوق الدولي. أنتج إقليم زاكورة 75,950 طن من البطيخ الأحمر خلال 2020 إلى 2021. و شهد ارتفاعاً بـ 3,710 طن مقارنة بالسنة الفائتة، باستعمال مياه جوفية من طبقة المياه المنهكة للوادي. لا يدعم الكثير من الفلاحين في زاكورة زراعة البطيخ الأحمر ولكن يقولون أن هناك عدد قليل من البديل الأخرى في المنطقة حيث إن فرص العمل قليلة في المجالات الأخرى.

يروج للاضطرابات أولاً وخلايا أدوات هاد العاطل يعمال للتشويپ الغزاني 27 سنة مقيم بالفيجة» من قبل خدمت يرام دك دخايي، حلقت الأقمار في فيديلا في الأسرة الخادمة. ولكن كان مطيأ من العمل المؤقت والخطر ويرى أن يعيش قريباً من أرضه، يوسف حريب زراعا البطيخ الأحمر في 2022. ولكن وجد أن ”الدلال ماكيكشيش ياش تعيش به السوق طالع هابط انت وهرك«.

لا يرى يوسف مستقبلاً للفلاحية في زاكورة، كما يقول لنا “شافت الوالدين عطي كل جيلات لفلاح، وماعطانو والو” بالنسبة ليوسف إنتاج البطيخ الأحمر هو وسيلة لتحقيق هدفه الكبير: إنشاء مقاولة خاصة، فهو يتمتع استعمال أراضي لتأسيس شركة للبناء.
The Flow of Water to Fields

Water fuels agriculture, the main economic activity in the Province of Zagora. Water for the Draa River originates in the High Atlas Mountains and is collected in the Mansour Eddahbi Reservoir located near the city of Ouarzazate. The dam was originally built in 1972 to store and conserve water for agriculture throughout the year and provide drinking water for the city of Ouarzazate.

Over time, residents in the valley have noticed an alarming decline in the amount of water released by the Mansour Eddahbi Dam to the Draa River. Today, annual dam releases have decreased from an average of 238 million cubic meters from 1992-2000 to only 95 million cubic meters for the 2020-2021 agricultural year. There was a total of 53 million cubic meters of water released to the Draa Valley for 2021-2022.

“Two dam releases this year, and they did nothing. For ten days [the water was released] and there is still no water in the well,” shared a farmer in July 2022 from Tamezmoute. He is part of a government workforce program clearing the oasis of dry branches and trees. This year, the water released by the dam was not enough to be diverted to the villages’ irrigation canals. Water storage in the reservoir was only 13.5 percent capacity in July 2022, significantly worse than the critically low average of 29.7 percent capacity across all Morocco’s reservoirs.

Dam releases are critical not just for surface water irrigation but also for recharging the valley’s aquifers, causing water in farmers’ wells to rise. Today, the amount of water released by the dam is not always sufficient to raise the water table and farmers resort to deepening and digging new groundwater wells.
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Drought in the Oases

“Date palms are like people” said Youssef Bourkha, a 56-year-old oasis farmer from Ouzagor in the Province of Zagora. One date palm produces many offshoots which a farmer’s children will remove and transplant in the oasis. In Youssef’s analogy, the oasis and its families are interlinked, growing alongside one another.

Many date palms in the valley are over 100 years old and passed down generationally. Under the palms, families cultivate wheat, barley, vegetables, and alfalfa for household sheep. The palms shelter the plants from the sun and trap moisture from irrigation, creating an ideal microclimate for cultivation in the arid region where temperatures exceed 48 degrees Celsius from July to August.

Youssef has worked hard his entire life to continue farming the oasis. He spent 30 years as a construction laborer in Rabat, using his wages to support his family of five children and invest in their oasis farms in Ouzagor. Every free moment away from work was spent irrigating the fields, cutting dates, and planting food for his growing family.

Today, Youssef says oasis farming is difficult. “You need another source of income to support any production,” he explains. “It is hard, so hard.” Oasis farming has become a competition, according to Youssef, with people digging wells and installing motorized pumps, drawing water away from one another.

The amount of groundwater pumps has drastically increased, according to Daoud, a 57-year-old farmer from Ait Hamou. “In the past, there were not many wells and there was water. There were three wells every five kilometers. Now there’s a well everywhere. The river is dry. This is taking water from the river, it should be forbidden. The oasis is dying, the date palms are dying.”

Groundwater presents a challenge to local water management. Surface water from the Draa River is managed collectively, with each village in the valley following a system of ordered irrigation turns, or nuba, overseen by a locally elected water authority known as the ‘amil. Farmers have a set number of hours for irrigation, one following the other. This local management system distributes limited water resources between villages and among farmers. When the water runs out, irrigation stops. Groundwater, on the other hand, is drawn from privately owned wells and not subject to this system, making it difficult to conserve. As dam releases dwindle and rainfall declines, farmers dig deeper for water.
Drought was the reason why the Imsoufa transhumants of the Ait Atta tribal confederation in the Draa Valley settled and began farming to grow food for their families and herds in the late 1970s and 1980s. A member of the tribe, Ali Ohra, explained: “There are two reasons why the Imsoufa transitioned to farming. The first reason is the drought and the decline of food for grazing. The second reason is the establishment of the primary school” in Zagora and families sending their children to study, leaving no one to watch over the herds. Drought pushed families to adapt their livelihoods, while improved access to education pulled them into new ways of living.

According to oral history, the Imsoufa originally came to the region to protect the local oasis population and received a share of their harvests in return. As anthropologists point out, the Ait Atta assumed ownership of the original inhabitants’ land, constructing a racial and social stratification within the Draa Valley that reverberates today in socio-economic interactions and collective memory. The land of the Imsoufa, known as Feija, was officially assigned to the tribe by the French in 1932. It is a plain located within the Anti-Atlas Mountain Range whose surface and groundwater drain eastward to the Draa River. Its groundwater is also the city of Zagora’s primary source of drinking water.

The younger generation living in Feija face declining groundwater and pressure to grow water-intensive crops for the international market. Still, they hold onto collective memories of the space. Photo by Amine Kenti, July 2022.

It should be noted that these are Daoud’s exact words in Tamazight without any changes.
Expanding Farms, Declining Groundwater

Farming was a strategy to keep the Imsoufa rooted to the land, Ali explained. To counter the movement of the community to the city, the tribe brought a school and potable water to Feija and drew land certificates for members. People began farming.

Over time, the expansion of groundwater-irrigated farms in Feija have contributed to the water table drastically declining and disrupted the aquifer’s flow. Farms originally grew vegetables, wheat, henna, and alfalfa for families and herds in the region. Since 2006, farms began growing watermelons for the international market, many receiving 80 to 100 percent subsidies for irrigation equipment offered by the agriculture office through the Green Morocco Plan.

Today, the encouragement of farming is propelling the community into a water crisis and threatening future living in the region. From 2000 to 2019 groundwater withdrawals in Feija increased from one million cubic meters to irrigate 250 hectares to 21 million cubic meters to irrigate 3,500 hectares. This has created a negative groundwater balance for the entire Middle Draa Valley, according to the Water Basin Agency for Draa Oued Noun.

“Now there are wells that are 50 meters in Feija and no water. [The decrease in groundwater] is noticeable” one farmer shared. As the water table lowers, another farmer added, “the quality-of-life declines. Some years are good, some are bad, but it will never be as good as the past.”


الجفاف في المراعي

كان الجفاف أيضاً السبب وراء استقرار إِرحّالن إمسوفا في مكان واحد في اتحاد قبائل ايت عطا في واد درعة، فبدأت القبيلة بالزراعة المعيشية من أجل عائلاتهم ومواشيهم في أواخر 1970 و1980. شرح لي شخص من القبيلة اسمه علي واهرى حيث قال جوج د لأسباب تبدل لكسبيبة الفلاحة. سبب الأول هو الجفاف. نقص ديا احترام ذلك، وللقره، تعتبر أبنائها إلى المدرسة فلا يبقى أحد للعناية بالمواشي. الجفاف يدفع العائلات لتكييف نمط عيشهم بينما تدفعهم رغبتهم في تعليم أولادهم إلى الوجه عن طريق جديدة للعيش.

حسب التاريخ الشفهي القبيلة، جاء إمسوفا في الأصل إلى المنطقة لحماية السكان المحليين للواحات و حصولهم على خطوط المحصول كمثير. كما يشير الانثروبولوجيون أن إمتلكوا الأراضي من السكان الأصليين بالموقع، مما يشير طبقاً ما للاقتصادية والاجتماعية والذكاء واد درعة الذي مازال صحيحاً بعد سنوات في التفاعلات الاجتماعية والاقتصادية والذكاء. الجفاف هو أحد أسباب إمسوفا. في واد درعة مروية في القبيلة يبدو هذا التحول من طرف السلطات الفرنسية في 1932. الفيجة هي فج توضع بين جبال الأطلس الذي صب مياه السطحية الجوفية شرقاً في نهر درعة. هذه الفجنة المائية هي أيضاً المصدر الأولي لمياه الشرب لمدينة زاكورة.

**Expanding Farms, Declining Groundwater**

Farming was a strategy to keep the Imsoufa rooted to the land, Ali explained. To counter the movement of the community to the city, the tribe brought a school and potable water to Feija and drew land certificates for members. People began farming.

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Watermelon production has improved the quality of life for many poor farmers in the region at the cost of consuming much of the region’s water resources. “We don’t have any alternatives that grow as well as watermelons here with the same market value” said a farmer in his early twenties from Feija. Date palms, local to the region, may take between four to seven years depending on the size of the sapling before they start producing dates. Henna has a high market value (15-20dh/kilo) but is even more labor-and water-intensive to cultivate than watermelons, according to farmers.

A focus of Morocco’s agriculture strategy is increasing its production of early fruits and vegetables, which include watermelons, to export to Europe and the Gulf States. These exports have grown by 66 percent since 2009. This approach encourages farmers to produce for global markets rather than meeting their own food needs. Because of this lucrative market, it is more cost effective to plant a hectare of watermelon rather than a hectare of carrots says Abdelsammad, a 29-year-old farmer from Feija.

Integration into Global Markets

The first person to plant watermelons in Zagora was a man known as Bilhou. Bilhou, from Feija, brought the first seeds from Agadir after learning about agriculture production throughout the country. Today, his name is famous in Zagora.

Before, “people experimented [with different crops]” said Basou Hadouchi, “they were paying out of pocket and losing a lot of money” until they discovered watermelons and could “make millions from selling them.”
الاندماج في الأسواق العالمية

أول من زرع البطيخ الأحمر في زاكورة هو شخص مُعَرف محلياً بـ: بلحو. بلحو من الفيجة، جاء بأول بذرة من أكادير بعد أن تعلم الإنتاج الفلاحي عبر البلاد، اليوم اسمه مشهور في زاكورة.

إنجذب البطيخ الأحمر رفع من جودة حياة الكثير من الفلاحين الفقراء في المنطقة، على حساب استهلاك الكثير من الموارد المائية. ما عندا الفلاحين قبائل جبلية يتزعمه داود داودي، لكن الكثير «كأي قصصنا عليها من جيوبهم وهاديدا هي الخسارة حتى نكتشف أن البطيخ الأحمر آراء الملابس باش كابتاب».

ترتكب الاستراتيجية الفلاحية في المغرب على رفع إنتاج البواكر، بالإضافة إلى البطيخ الأحمر، للتصدير إلى أوروبا والخليج العربي. أنتجت هذه الاستراتيجيات بنسبة 66 بالمئة منذ 2009. هذه المقالة تتيح الفلاحين لتناول الأسواق العالمية بدل تفتيشهم على حساب الدفائن الناصية.

موسم البطيخ الأحمر في زاكورة

ينمو البطيخ الأحمر بشكل جيد في زاكورة بسبب المناخ الدافئ في فصل الشتاء، الأمر الذي يسمح للمنطقة بزراعة محصولي قابل بداية الموسم في أكادير ومرامخ. أنتاب المذكور والأنفاس المطعمة للفلاحين في المنطقة عن طريق تنفيذ الدفائن الناصية مع حفظ البطيخ الأحمر في شهر ديسمبر وصبح أول محصول يتألق بحلول نصف شهر أبريل، ولكن زراعة البطيخ الأحمر هي مخاطرة، حسب الفلاحين في المنطقة.

العيش بالحظ القصة وراء البطيخ الأحمر لزاكورة

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A Market Based on Luck

Watermelons represent social mobility for many struggling farmers by offering a lifestyle that was previously unattainable in Zagora. “The people here have never seen money like this before,” said Basou, discussing how many were able to purchase cars and nice homes for the first time. However, success in the watermelon business can be short-lived and is not the case for every individual. It is common for farmers to carry over debt from successive watermelon seasons and make partnerships with an investor to afford production.

The average farmer sells his crop for 70,000 dirham/hectare at the beginning of the season when the market is high and may make a profit of 30,000 dirham after subtracting the cost of expenses. A watermelon buyer, on the other hand, will sell the farmer’s crop to packaging companies for 160,000 dirham/hectare, making about 70,000 dirham after paying for transport and other expenses.

Farmers rarely have the upper hand in this cross-continental industry. The market, which is largely controlled by quotas set by packaging companies in Agadir, Casablanca and Berkane, “may offer a quick profit or heavy loss,” according to Rachid, a first-time watermelon farmer from Tamezmoute. It is common for buyers to make an agreement with farmers in early April to buy their harvest when the market is still high (five-six dirham/kilo), then abandon the agreement if the market falls to three dirham/kilo or less. Farmers, who have a short window to sell the crop once it is ready, are forced to sell under what they paid for their production. If this occurs, many farmers may be unable to pay back their credit to agriculture suppliers and investors.

For his part, Rachid says this was his “first and last time” growing watermelon, “but if I have the time, I will grow them again.” He is a teacher in the region and grew melons as a side business venture. He chose watermelons because you can “profit quickly” off them. He made a good profit off his crop, but not by selling to the coastal packaging companies who offered him a price much lower than a buyer in Beni Mellal. Reflecting on the experience, Rachid said that selling watermelons is too much work and a risky endeavor. He also believes that melons should not be grown during drought in the region. Rachid’s melon farm pulls water from a well located within the oasis which is surrounded by browning date palms. Neighbors, who were hired to build the well, comment how watermelon farming is exhausting the groundwater.

**Site:**

Leaves watermelons and vines are consumed by families’ household sheep and goats following the watermelon season. Photo by Amine Kenti, July 2022, Feija.

*Name changed to protect confidentiality.*
Zagora watermelon farmers fear that a local restriction alone will only serve to discourage buyers from traveling to their region and increase the advantage of other watermelon producing regions in Agadir and Marrakesh which are located closer to packaging companies. Many farmers would like the country to begin monitoring and regulating the watermelon market by instituting a fixed price, a national restriction, and contracts between farmers and buyers. A nationally regulated market would better protect farmers from buyers abandoning their agreement when the market falls and conserve water resources by keeping watermelon production under control.

“...A restriction on melon growing is good for the region, for both its water and keeping the price of melons high for farmers, but there isn’t anyone to watch over the rationing. There should also be a national restriction before a restriction in Feija” commented a 27-year-old farmer. Limits on watermelon production have been attempted in the past by the Imsoufa tribe and local officials, but the enforcement of these policies tend to lose momentum, he explained. For a restriction to truly work, farmers need to be behind the decision.

The Way Forward: Subsidized Irrigation Taxes, National Watermelon Restriction

As farmers point out, watermelon is not the only crop grown in Zagora. Even in Feija, it is common for a family growing watermelon to also farm date palms, wheat, alfalfa, figs, henna and vegetables for local markets and home consumption. However, rising expenses, including potential irrigation taxes, risks endangering their source of livelihood.

Idir, who farms vegetables, wheat and henna throughout the year to sell at the local souk in Zagora, as well as watermelon in the winter, explained in July 2022 “the farming you see here is what we live on. And this year our expenses increased a lot. People live off what they produce here in Feija. If we have to pay more bills than we can support, the work will stop. What will the farmer live on? If we have to pay at all for water, we need the price to be subsidized.”
Living on Luck The Story Behind Zagora's Watermelons

Community Water Management Recommendations:

In December 2021, farmers, researchers, and presidents of the province’s communes gathered in Zagora to discuss the water crisis and deterioration of the Draa Valley oases. The event was organized by The Friends of the Environment in Zagora (Association les amis de l’environnement), an association established in 2000 by local teachers and community members to advocate for the preservation of the region’s environment and water resources. The group has been advocating against watermelon production in the region and encouraging water management planners and ministers to respond to the needs of oasis farmers and the local community.

Participants collaborated in small groups and developed a list of recommendations for local decision makers that respond to these issues:

I. Improve Water Supply:
   a. Reconfigure the Mansour Eddahbi dam in a way that allows water to permanently flow through the Draa Valley and recharge the groundwater.
   b. Accelerate the building of hillside dams to capture the water of seasonal floods and recharge the groundwater.

II. Groundwater Management:
   a. Create a local extension of the Water Basin Agency in Zagora to plan and monitor the water resources and drilling of wells.
3. Promote Sustainable Agriculture:
   a. Create projects in the date industry and motivating youth to participate in these.
   b. Develop sustainable agriculture in the region and encourage growing herbs and medicinal plants.

4. Invest in the Local Economy:
   a. Encourage agricultural research and connect the issues of oases to university research.
   b. Establish a technical institute for dates, tourism, renewable energy, and irrigation.
   c. Encourage tourism geared towards environmental and cultural preservation.

Picture courtesy of the Friends of the Environment Association in Zagora.
Conclusion

Zagora’s watermelons are part of a larger story of changing livelihoods and the region’s integration into the global fruit market—a process occurring throughout the country. The experience of these farmers begs the question: how can water be governed in a way that allows individuals to continue making a living in their communities?

In Zagora, agriculture is the region’s main economic activity and remains a lifeline for much of the population. The region’s water issues are complex—a result of declining rainfall, decreased dam releases, and economic dependency on agriculture, demonstrated most recently by its turn towards watermelon growing for the international market. Yet many farmers in the region continue to combine household and local market production with watermelon cultivation only to experience rising production costs and declining water resources. Investing in the region’s development through training programs, alternative agriculture, tourism, and research capacity is a critical step to begin addressing its escalating water crisis. The community’s farmers and advocates have been calling for these investments for some time.As Morocco faces increasing water scarcity by 2050, solutions built on the lived realities of farmers are not just more effective, but a necessary step forward.
References


3. Data from the Chamber of Agriculture- Ouarzazate shared with the author.


