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Realities, Perceptions, Challenges and Aspirations of Rural Youth in Dryland Agriculture in the Midelt Province, Morocco

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Abstract: Active involvement of youth in agriculture is necessary for sustainable agricultural systems but is currently a challenge in many areas. Using a combination of qualitative and quantitative participatory research methods, this study analyses rural youth's realities, perspectives and aspirations in dryland Agricultural Livelihood Systems (ALSs) in the Midelt Province, Morocco, with a particular focus on gender. The data collected are an important first step in understanding the target group and working with youth to identify and develop appropriate programmatic interventions to improve their livelihoods and rural futures. Prior to expressing their aspirations for their rural life and career, the youth first raised the issue of unfulfilled primary needs: access to education, potable water, health care, and lack of infrastructure in their villages. The issue of outmigration from rural areas is controversial and not so widespread. The youth's dream village is envisioned as a rural place where people have a more comfortable life with their own families, farming better and more sustainably rather than seeking a job in urban areas. To support the youth's aspirations and their willingness to stay in agriculture, there is a need for infrastructural and regulatory interventions and specific training in agricultural practices targeting and engaging youth.

Keywords: rural youth; Morocco; drylands; rainfed agriculture; irrigated agriculture; pastoralism; migration; youth aspirations; livelihoods; environmental degradation

1. Introduction

The sustainability of agriculture and food production relies on young people remaining in rural areas and engaging in agriculture, in particular in challenging areas like drylands and mountain areas, and in countries of high youth migration like Morocco. However, the lack of engagement of youth in agriculture, compounded with a declining interest among young professionals in pursuing agriculture-related careers [1–3], has resulted in an ageing agricultural system [4]. There is thus the risk that fewer dynamic youth are exploring on- and off-farm innovations, and that there will be fewer experienced people to take over agricultural activities and thus reduced transfer of knowledge from the older to the younger generation. Despite recognizing the importance of engaging youth within the

agricultural development community to seek sustainability in agriculture, a cohesive approach has not yet been defined and efforts remain fragmented and piecemeal [1,5,6].

While some research has been undertaken in this field, it is still emerging and more information is required to develop appropriate sustainable strategies, policies and programmes. Youth remain a highly diverse group of people, with different backgrounds, drivers and experiences leading to varying ideas, aspirations and challenges [1,2,7]. While gender became an important topic in agricultural research well before youth climbed up the agenda [1], there is now a lack of data that are both age- and gender-disaggregated, not to mention all the other factors identifying youth (e.g., social background, education, family status, land holdings, etc.). More insightful data and knowledge on youth in agriculture are needed to understand their relationships with farming, so that it becomes possible to draw from 'best practice' examples for designing youth policies, support programmes and interventions [3]. Unlike historical efforts that have often considered creating youth employment on the one hand and agricultural development and food security on the other hand, their complementarity and close interlinkages are nowadays recognized [8]. To better understand the diversity of young people and be able to develop appropriate and effective strategies and programmes for supporting sustainable livelihoods, there is a need for more disaggregated data about different youth—in terms of age, gender, etc. [1,3,9]. Existing research on youth aspirations and trajectories related to the labour market tends to mostly focus on education research, looking at occupational and vocational targets [10] and more significantly in Europe and North America. These studies, while interesting, are rarely applicable to rural youth in developing countries, who operate within a drastically different opportunity space. "An emerging body of work on aspirations has come from studies of migration, with a focus on child and youth migration in Africa and Asia. To date there has been little empirical research in Africa on youth aspirations, but the studies that do exist lend support to the notion that young people turn away from agriculture not simply as a result of poor economic returns or lack of access to factors of production (such as land)" [10]. Research in 2015 that centred on the Sahel uncovered some indications that in Morocco's Saïss region agrarian transformation was closely linked to aspirations in rural youth [11], while a Tunisian study indicated that a strong entrepreneurial spirit emerged when asking youth about their dreams [12]. At the same time, however, in Indonesia there was no evidence that entrepreneurial and innovative farming were among youth's desires [13]. It was recognized that these cases are highly context-specific.

Rural youth's aspirations [5,14,15] remains a relatively unexplored area for researchers [1,5,6] and is struggling to find its place in sociological or socioeconomic research. Understanding the specific context of youth is critical to developing appropriate and effective strategies and programmes. While some contend that aspirations are 'hopes and dreams' that are not necessarily embedded in reality [15], they may also be what people expect to achieve [16]. Aspirations give us a better understanding of the life trajectory that young people want to have. It enables marginalized groups to exercise their 'voice' and reflect on ways to change their situation [17,18].

There is a prevailing narrative that agriculture is not the first career choice for many [1–3,19–23]. Successful rural futures require youth to actively pursue careers in agriculture. By collecting information on aspirations, we can match these with specific Agricultural Research for Development (AR4D) targeted programs.

As early as 1969, a study by Pascon and Bentahar [24] recognized the importance of the role of youth in agrarian change. Although viable rural futures depend on the willingness and ability of young people to take on careers in farming [25], the literature has largely excluded young people as change agents in agriculture [11,26]. Limited attention is given to shaping young women and men's futures in the agricultural sector and few development projects and programmes successfully reach them, despite efforts by multilateral organisations [9].

An online analysis of the scientific services of Web of Science in November 2015 (Figure 1) indicated that despite an increase in youth- and agriculture-related research in recent years, research activities still remain limited. The topic of rural youth has seen a sharp increase in recent years, but this

does not extend to youth aspirations and youth and agriculture. Research on youth and agriculture still requires more systematic attention. National statistical databases on employment, agricultural labour (total or by sub-sectors or value chain nodes) or land and livestock holdings still rarely disaggregate data by age or gender [1,5].

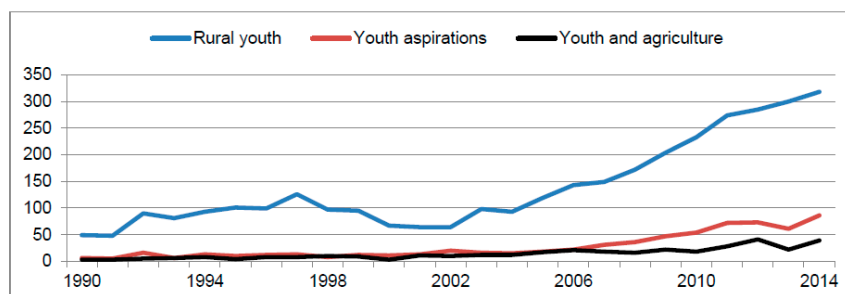


Figure 1. Web of Science search on the topics of ‘rural youth’, ‘youth aspirations’ and ‘youth and agriculture’ [27]. Note: *x*-axis = year; *y*-axis = number of publications per year.

The CGIAR Research Program (CRP) on Dryland Systems was an early leader in confronting the challenges of youth targeting and engagement within the CRPs [5]. In light of this, the objective of this paper is to provide a diagnostic analysis of the situation of the rural youth in dryland Agricultural Livelihoods Systems (ALSs) in the Midelt Province in Morocco, addressing four research questions: (i) What are their realities and their perceptions of agriculture? (ii) What are the challenges they face (i.e., low productivity, lack of access to inputs and technology, low participation in decision-making, environmental threats)? (iii) What are their perceived opportunities to remain engaged in agriculture? (iv) What are their aspirations in life (i.e., remaining in agriculture or migrating to find a job in an urban centre)? Based on the need to study different contexts, the overall goal of this research was to understand the livelihoods and the factors that influence the choices and decisions of rural youth in the study area, to be able to provide detailed scientific evidence for required support programs and interventions. The study also aimed to develop and test a methodology that can be used to replicate similar studies in other contexts. This study is pioneering not only because it looks at youth perceptions in rural dryland agriculture, but also because it collects and examines disaggregated data on gender, age and level of education. This type of data and approach is fundamental in developing appropriate and targeted outreach, training and support programs for rural youth working in dryland agriculture, with the ultimate objective of improving the livelihoods of these populations to mitigate migration to urban areas in search of work. Furthermore, in conducting the study’s literature review, there was a notable absence of sources describing the context of the study’s geographic area of the rural areas surrounding Midelt, Morocco, specifically in terms of rural agriculture, youth, or the health of the local agricultural sector. This study, therefore, is an initial step in documenting the socioeconomic situation of rural youth in this region, with a view to their realities, perceptions, challenges and aspirations.

1.1. Who Are Youth?

There exists no single way of describing youth and definitions vary largely—some are based on different age ranges, while others—complementarily—describe youth as a stage of life that is characterized by specific attitudes, wishes and changes [15,28,29]. The United Nations (UN) generally defines youth as people between 15 and 24 years of age (above all for statistical purposes); however, the UN acknowledges the existence of other definitions in different countries and contexts, which vary from eight to 40 years old. Then again, for example, FAO as one of the specialized agencies of the UN defines (rural) youth in the context of development-related programs as people from 10 to 25 years old, because long-term experiences had shown that it is easier and more effective to support behavioural and attitudinal development from an early age on [28]. In addition to age, other factors

that traditionally play into the definition of youth include a person's capacity to engage in labour markets, marital and legal status, education, independence (in different ways, e.g., financial and psychological), responsibilities, etc. Generally, the term 'youth' is often framed as describing the transitional period from childhood to adulthood [1,7], where new roles and responsibilities are taken up [30] and life-changing decisions are made [31]. Furthermore, the period of adolescence is highly complex, heterogeneous and described as non-linear, i.e., the various characteristics of adolescence appear in numerous combinations that make it difficult to define 'youth' as a socio-demographic group of people. Aside from the discussed parameters of age and gender, youth have different norms, mindsets, backgrounds and many other characteristics that make one individual distinct from another [1,7,32].

1.2. Rural Youth in Morocco

In Morocco, to achieve perceived success in life is a real challenge for rural youth, who often barely have access to productive resources (land, water, capital). Though youth is a heterogeneous group, rural youth in Morocco (like most global youth), view success as one's capacity to obtain their own, stable income that would allow them to meet their needs, be independent, and form a family. Income generation for rural youth in the research site is indeed heavily dependent on their access to productive resources. In most cases, young people still live with and depend on their parents—usually their fathers, recognized as the head of the household. Fathers are often the only ones owning the land and making decisions on the farm. These parents are then the only link between the youth and the public institutions and development interventions, which still do not fully recognize the productive role of youth. Nevertheless, in recent years, some research and development agencies showed an increasing interest in rural youth by targeting them in development and cooperation projects (e.g., GIZ—the German public organization for international development cooperation). Though Bouzidi, Faysse, Kuper & Billaud [33] state that development agents who interact directly with farmers are fully aware of the active role of the youth in agricultural and rural development in Morocco, this study shows that there is still a long way to go to fully consider and involve rural youth in development interventions in rural Morocco.

In order to improve the agricultural sector's performance, the government launched the Plan Maroc Vert (PMV, also known as the Green Morocco Plan) in 2008, to support both small and large farms in becoming more efficient and market-oriented. The PMV's goal is to increase agricultural production and diversity, and reduce rural poverty and rural–urban inequality. However, rural youth are often excluded from assistance, such as financial support from programs like INDH (Initiative Nationale pour le Développement Humain) or the PMV because they lack one of the most important required resources, land [33]. Ghanem [23] argues that “there is a need to develop programs and projects that target young farmers specifically and provide them with privileged access to land, credit and technical knowledge.” In addition, Ftouhi et al. suggest that the engagement of young people in agriculture must be supported by the creation of youth-specific interest groups [34].

1.3. The Midelt Province in Morocco

The Midelt Province is located in the Meknès-Tafilalet region between the Middle and High Atlas mountains in the Northern part of Morocco; geographically Midelt lies at 32°N latitude and 4°W longitude (Figure 2). While the town of Midelt is situated on an elevated plain at 1500 m a.s.l., steep mountain slopes and numerous valleys characterize large parts of the province [35]. Fruit trees (mainly apple trees), fodder crops and vegetables are the main irrigated crops that were found to be grown. The main crops in rainfed farming are barley and wheat. Nomadic and sedentary pastoralism is highly present. Beekeeping was found to play a certain role too, though this activity is not visibly widespread among farmers. As the landscape declines in altitude and the climate gets milder, more Mediterranean fruit-bearing trees such as olives, almonds and apricots appear to dominate.

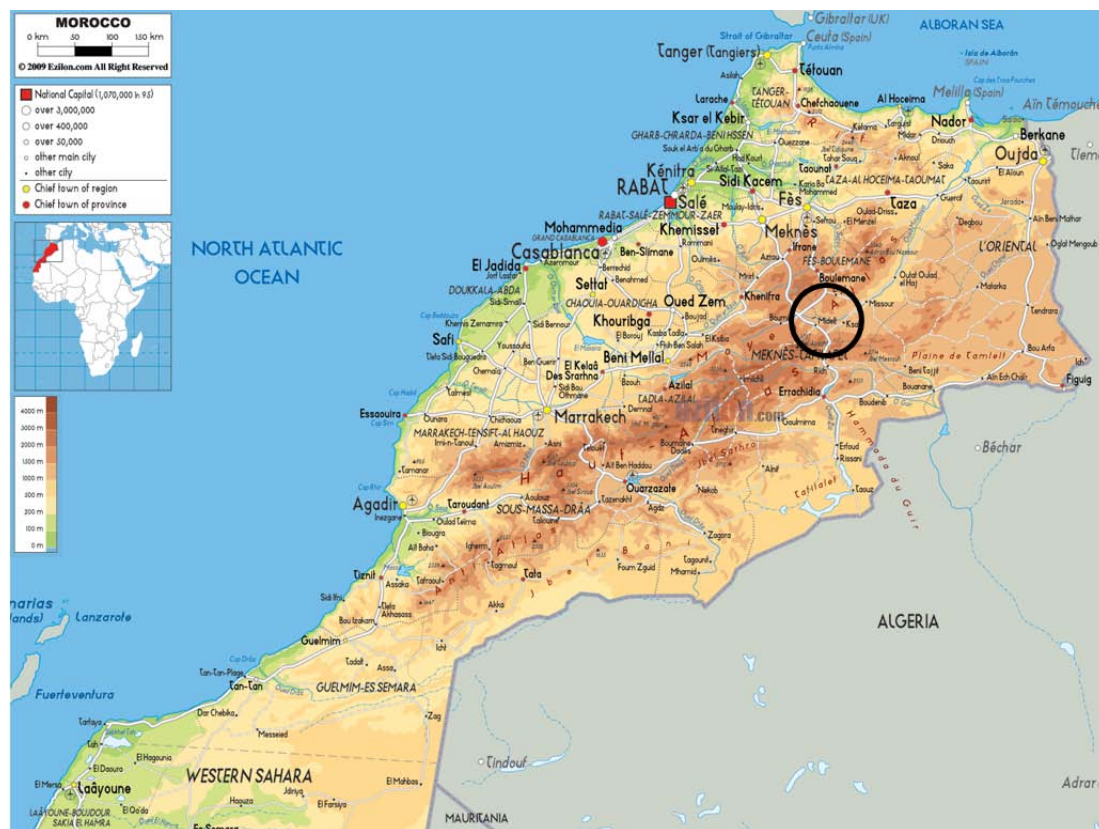


Figure 2. Topographic map of Morocco [36]. Note: a black circle indicates the research site, the Midelt Province.

2. Materials and Methods

The methodology applied a multi-perspective participatory approach, using different tools to enable the youth to express themselves in different ways (orally, through drawing, and discussing their ideas with other peers). The approach also included complementary opinions from other actors (key informants/influencers), to obtain a holistic understanding of the issue and to triangulate the information. The participatory approach forms the basis of the approach to empower the youth to speak out and share their outlooks in an atmosphere of openness and trust. The survey included 106 individual in-depth interviews with the youth (32% women) in 24 villages located in seven different communes in the Midelt Province, 34 interviews with key informants and youth influencers, and six Focus Group Discussions (FGDs).

For the individual in-depth interviews, maximum variation purposive sampling was applied to select the 106 youths from the three different Agricultural Livelihood Systems (ALSs) and from different villages, some closer and others more remotely located from Midelt town, different gender and age range, in order to have the most diversity as possible. In this study, the youth age range choice is 15–30 years old, based on the youth strategy of the CRP on Dryland Systems [5]. Data collection took place between November 2015 and May 2016. All interviews and FGDs were conducted in person by the survey team composed by the authors and the local team. A comprehensive semi-structured questionnaire for individual in-depth interviews to collect qualitative and quantitative data was developed, which covered the respondents' characteristics, realities and perceptions of their rural lives, their challenges and perceived solutions in agriculture, as well as their dreams and aspirations. Youth influencers who directly or indirectly influence youth in their thinking and acting were identified through a stakeholder analysis as parents, teachers, current and possible employers (in agri-business), association leaders, and urban youth who had migrated to urban areas. Key informants identified

as representatives of national agencies (governmental, non-governmental and private sector) and external development partners active in the field of agricultural development and agricultural research in the Midelt Province in and outside of the study region were also approached to understand their perceptions of issues that relate to rural youth. Key informant and influencer interviews were conducted using open-ended question checklists covering topics such as: (i) involvement of youth in agricultural activities; (ii) access to resources; (iii) rural–urban migration; (iv) skill gaps. For the FGDs a creative, interactive approach was used which asked youth to visually report their challenges and to propose suitable solutions in a collective drawing called the ‘village of their dreams’. FGDs were gender-specific—either with a group of young men or women. Overall, the combination of the different methodological tools supported the aim to obtain holistic, well-balanced information [37] of the issues at stake in the research site.

In addition, a multi-stakeholder workshop with a relevant and diverse audience formed by policy makers, youth involved in the survey, and development actors in the region was organized in Midelt in May 2016 with a dual purpose of (i) restitution and discussion of results; (ii) discussion among different stakeholders and development of recommendations about possible interventions with respect to youth in agriculture, which were then integrated into the study findings. Short videos of interviews with rural youth and FGDs were recorded to visualize their realities and aspirations and served as qualitative records and were later used for social media purposes to further engage youth and other stakeholders in a dialogue about the challenges and opportunities of youth in dryland agriculture. The video was first shown at the workshop in Midelt.

Quantitative data analysis coming from the in-depth interviews was performed using Microsoft Excel and SPSS. Due to the nature of the research that aimed at exploring and understanding the perceptions and aspirations of rural youth—in order to identify the factors behind their choices—only descriptive statistics were used [38]. The considerable amount of qualitative records coming from interviews with youth, key informants and youth influencers, FGDs, and videos was analysed using content analysis and the software MAXQDA for Qualitative Data Analysis, primarily used for systematically structuring larger texts [39]. For this research, MAXQDA was used to systematically group responses to open questions into meaningful categories [40]. No data had to be translated to statistical variables. The relevant information was extracted from the single interviews and summarized [39].

3. Results

The findings of this study report the realities and livelihoods (household size, education level, income generation and involvement in agricultural and non-agricultural activities), the level of decision making, the perceptions of agriculture, the challenges the youth face with respect to agriculture and their personal life, the proposed solutions, and the aspirations of the surveyed rural youth. Where notable, the analysis points out differences in the youth in terms of gender, educational level and between the three surveyed Agricultural Livelihood Systems (ALSs). Unless indicated differently, percentage values generally refer to the studied sample of young men and women ($n = 106$).

3.1. The Rural Youth's Realities

3.1.1. Rural Youth Household Characteristics

On average, the household size of the interviewees was 7.6 persons (with a slightly higher number for households of youth from pastoral backgrounds, eight persons). Less than 5% live on their own or with their own family, meaning a partner and their own child/children. The remaining 95% of interviewed youths live with their parents and extended family (grandparents, parents, brothers, sisters, in-laws, etc.). While sharing a household with the extended family appeared to be the norm, many of the rural youth wished to have their own house, if their income could allow them to be financially independent from their parents.

Among the interviewees, there was a higher percentage of married young women compared to the male youth. The age of married young women is lower than that of married young men. Among the respondents were also divorced women aged 23–27, and widows aged 26–30. Many unmarried male respondents noted that they wanted to marry and start a family but were aware that their status made it difficult to attract a spouse. Most of the rural youth interviewed (71%) had no children of their own. The young people who had children were aged 21 to 30.

3.1.2. Education among the Surveyed Rural Young People

The majority (43%) had primary education (Schooling system in Morocco: primary education (6–12 year olds), secondary (12–15 year olds), high school (15–18 year olds), higher education (academic >18 year olds), followed by a certificate of secondary education (26%), and lastly by the youth who had not attended any school (or primary school only a couple of years and without completion, 20%).

A small percentage of the interviewed youth had achieved high school certificates (6%) and only 5% had attended higher education. Differences among youth from different ALSs and gender exist. The highest number of youth with no (formal or informal) school attendance is found in pastoral systems (almost 40%) and among women (26% compared to the 19% of the young men across the three systems). Among the respondents, young women across all ALSs had a higher rate of no (formal or informal) school attendance (26% compared to the 19% of the young men). Young men with secondary education were also found more frequently than female peers in our sample. However, in the small group of young people with an academic degree, four out of five were women.

3.1.3. Income Generation

The livelihoods of rural youth in the surveyed site rely on different income generating activities and occupations. The main source of earning their living is working on the family farm (55%), followed by sedentary (21%) and nomadic pastoralism (11%) and by working on other farms as labourers (9%). The remaining main income source mentioned was agribusiness employment and collection of wild plants. The results show that in none of the three ALSs do the youth run their own farms (i.e., owned by the youth).

The majority of the youth combine different activities to earn their living. Only 18% of the surveyed young people rely on one activity only; most of these are nomadic herders. The most common combination is working on the family farm and sedentary herding (33%). Approximately one-fifth of the youth who rely on work on their family farm also work as labourers on other farms. While—besides farming—only a small number of youth mentioned earning income not related to agriculture, those youth—particularly men—emphasized the importance of their non-agricultural work (e.g., seasonal construction work in cities).

3.1.4. Agriculture and Non-Agriculture Activities

As shown in Figure 3, perceived direct participation in farming activities generally appears to be lower among young women, whilst young men seem to have a larger direct engagement in agriculture. In parallel to their work in agriculture, many of the interviewed youth reported that they were involved in other occupations that may have no link or an indirect link to farming. The main non-agricultural occupation of young men is seasonal migration to urban and peri-urban centres for construction work over the winter months. Both male and female youth stated that the viability of agricultural/rural life often requires men to leave their families for a certain amount of time to support the income derived from agriculture. Household-related activities (house maintenance and childcare) are young women's main indirect agricultural occupation (though without a salary). Seasonal migration for work is not typical for female youth; only 6% migrated seasonally to other places to work in childcare.

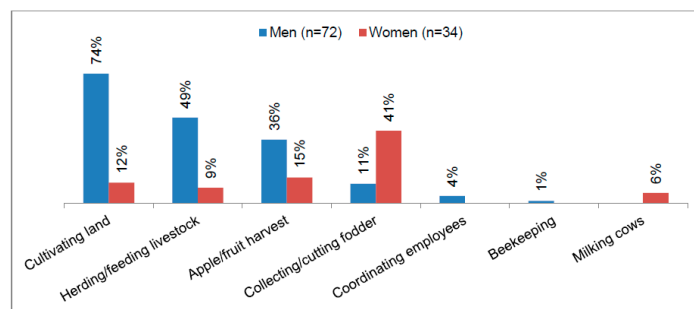


Figure 3. Agricultural activities of the interviewed young men and women. Note: In percentage of mentions ($n = 106$).

3.1.5. Land, Production and Market

The vast majority (88 out of $n = 106$) of the interviewed youth stated that they have access to agricultural land owned by their enlarged household; only 18 youths responded that they own no agricultural land. Considerable differences do, however, exist between the type of land that youth and their households have access to. Land ownership is most often limited to rather small plots for irrigated land, with youth either owning less than one hectare or one to five hectares of land. Few of the interviewed youth's households own more than five hectares of irrigated land. Most interviewed youth's households with rainfed land (41 total) are between one and five hectares, and a relatively higher number also own larger plots between five and 15 hectares.

Fruit trees (mainly apple trees), fodder crops and vegetables are the main irrigated crops that were observed to be grown. The main crops in rainfed farming are barley and wheat. When asked to indicate what share of their agricultural produce is determined for sale, interviewees across all three targeted ALSs reported to have a relatively strong market orientation (Table 1). Only youth involved in rainfed farming produce relatively more for their own needs.

Table 1. Calculated average market-subsistence production ratio.

Agricultural Livelihoods Systems (ALSs)	Market Production Share	Subsistence Production Share
Pastoral ($n = 33$)	87%	13%
Irrigated ($n = 45$)	86%	14%
Rainfed ($n = 28$)	66%	34%
Total average ($n = 106$)	81%	19%

Value addition activities in agriculture were rarely mentioned by the interviewed youth, and one fourth of the respondents were not aware of the meaning of value added. Only one-third indicated some limited activities, such as sorting and packaging their produce (rather than selling apples from the tree, which is very widespread), or bringing apples to cold storage outside of the village to sell at higher market prices. Processing of the goods they produce to add value (mainly for household consumption, such as the production of wool, leather and milk derivatives) was also reported. Only two interviewed young men—from a village with a favourably mild microclimate that allows for growing olive trees—mentioned selling olive oil of their own production.

3.1.6. Participation in Associations and Cooperatives

Among the 106 surveyed young men and women, only six stated that they were members of an association or cooperative. Most frequently (32%), the respondents knew of no association. It remained unclear whether, in the respective villages, there was a de facto absence of associations and/or cooperatives, or if existing ones were simply not accessible to youth. A further 17% of respondents argued that the existing ones were not accessible to them for different reasons such as corruption or

discrimination. Another 31% were not able to provide any reason why they are not a member of an association or cooperative, while 18% mentioned a lack of time, interest or trust. “I am not a member of an association but I wish to join if only I could find one that accepts the request of a nomad” (personal communication with a male young herder from Assaka village, November 2015). Youth influencers stated that associations and cooperatives need to be strengthened and better tailored to support youth. Alternative systems/tools rather than associations should also be created to provide information and support for young people who are not part of associations and cooperatives.

3.2. The Rural Youth’s Perceptions

3.2.1. Perception of Agriculture

To obtain a better understanding of how youth perceive their life in agriculture, during the individual interviews, the respondents were asked to indicate what they like about farming, in particular what positive and negative aspects they perceive. Figure 4 shows that, across all three Agricultural Livelihood Systems (ALSs) analysed, among both male and female youth, most responses were balanced, i.e., not providing very negative or very positive views, but instead considering both the advantages and disadvantages of farming.

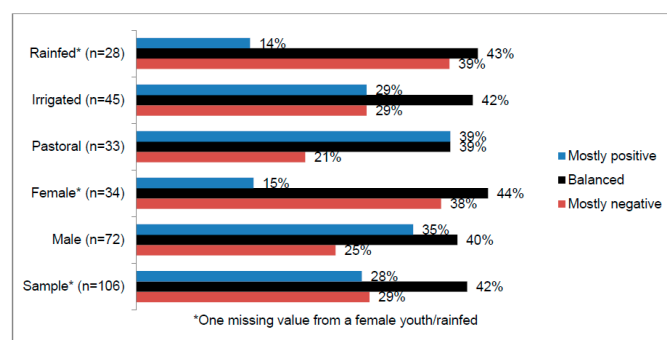


Figure 4. Youth’s perception of agriculture. Note: By Agricultural Livelihoods System (ALS) and gender, by percentage of mentions/respondents.

In terms of reasons behind their views, youth frequently mentioned that agriculture provides their only source of income (30% of all youth); this may relate to a ‘neutral’ perspective. Young women involved in the pastoral and irrigated systems and both genders of youth involved in rainfed farming had a more negative perspective on agriculture. Youth who depend on rainfed farming complained more frequently about the insufficiency or fluctuation of their income (54% as compared to 44% in irrigated farming and only 21% for pastoral), often linking this to the strong dependency of their agriculture on rainfall. Harsh work and farming conditions were mentioned as another strong negative argument across all three ALSs (39% of all youth for pastoral, 49% for irrigated and 46% for rainfed). Another negative argument that predominated among rainfed farming youth was the absence of progress and the perceived outdatedness of their activities. “Agriculture here is not enough to make a living; I need to take up any work far from the farm, whatever helps to earn a little. Agricultural activities are concentrated only over a one to two month period, and us, young men, are at the risk of getting into drugs or becoming thieves, as other opportunities lack” (personal communication with young man from Ait Brahim Ouichou—Imtchimen village, May 2016).

The most popular positive argument across all three ALSs was the perception of agriculture as being the only profession in which the youth see themselves as experienced and knowledgeable (mentioned by 36% of pastoral youth, 31% irrigated and 36% rainfed). Less frequently mentioned arguments for a generally positive perception of agriculture were the autonomy of farming and being

one's own boss, the perception of rural life in agriculture as being peaceful and calm compared to urban areas, as well as the pride and heritage linked to agriculture.

Looking at the aspect of gender, fewer female youth mentioned positive arguments in favour of agriculture compared to their male peers. Most notably, only 21% of young women linked their positive attitude towards agriculture with the fact that it is the only profession in which they see themselves as experienced, while some 40% of young men said so—this comparison may serve to underline that among the surveyed youth, agriculture is regarded as a male domain to a large extent. Also, it was less common for female youth to speak about the autonomy of farming and being their own boss—possibly because they may not be as independent as their male counterparts. However, one positive argument particularly mentioned by female youth was the perception of rural life as being peaceful and calm compared to life in more urban areas. A cross table analysis of youth's educational level in relation to their perception of agriculture showed a balance across all educational levels and does not indicate any evidence suggesting that education level influences youth's perception of agriculture (Table 2).

Table 2. Contingency table comparing youth's educational level and their perception of agriculture ($n = 106$).

Level of Education	Perception of Agriculture		
	Mostly Negative	Balanced	Mostly Positive
No school	38%	29%	33%
Primary education	28%	43%	26%
Secondary education	30%	44%	26%
High school	33%	50%	17%
Higher education	-	60%	40%

Note: One missing value for a youth with primary education.

3.2.2. Financial Viability of Agriculture and Development of Wellbeing

The youth seemed to have contradictory views about their perception of financial return in agriculture. Whilst roughly half of the youth see their activities as financially viable (45%), the other 55% do not. The reasons most frequently mentioned for why agriculture is not financially viable were the need to work elsewhere to afford their living expenses (mentioned by 30% of all youth)—either helping out with farming and other work activities at places nearby, or seasonal migration—and the high vulnerability of farming practices to varying natural conditions (mentioned by 14% of all youth). A total of 71% of young women perceive agriculture as not financially viable. A total of 15% of interviewed female youth and 6% of male youth stated that it is just enough to cover basic needs for survival. Young women often saw their insufficient financial return linked to the difficulty of land access or possessing insufficient agricultural land (21% of all young women). Youth whose livelihood primarily depends on pastoralism more frequently stated that their income only serves to cover their basic needs for survival (18%). On the other hand, only 15% of pastoralists reported the need to work elsewhere for survival, also stemming from the perception of having fewer opportunities and being excluded from society, particularly for the nomadic herders. Youth from irrigated and rainfed farming systems, 33% and 43% of the interviewees, respectively, frequently mentioned the need to work elsewhere to afford living expenses. One-quarter of youth from rainfed agriculture stated that the high vulnerability of farming practices based on the variation of natural conditions strongly impacts agriculture's financial viability (25%). This factor was mentioned less frequently in the pastoral and irrigated livelihood systems.

According to youth influencers, it is difficult to encourage young people to stay in agriculture, as it is most often not financially viable. There is considerable collective land around the region, but interventions are needed to make it accessible to youth. On the other hand, the study suggests that

improvements in rural development and agriculture can enhance the image of the sector. About two-thirds of the total respondents indicated a perceived positive change in their wellbeing over the past 10 years. However, only half of the young women perceived considerable progress in their wellbeing, and 32% even found themselves currently worse off compared to 10 years ago. Among the female youth who reported a negative development in their wellbeing, the most important reason was a negative change in personal life, i.e., a divorce or death in the family. Women in this situation complained about a lack of support and the feeling of being left alone. The second most important reason for a negative change in young women's lives was the degradation of their agricultural land, resulting in a negative impact on their economic situation. The change from nomadic to sedentary farming was stated as the first positive factor of improved wellbeing, followed by starting apple cultivation and getting better water and electricity supply. Young men generally had a more positive perception of the progress of their wellbeing over time, with only 21% complaining about the absence of development and degradation of their agricultural land. The most important reasons for a positive change in life for young men were technical progress in agriculture along with access to more land, followed by a change from nomadic to sedentary farming, better water and electricity supply, and increase of livestock herds.

3.3. Rural Youth's Challenges and Proposed Solutions

3.3.1. Challenges Perceived by Young Men

The vast majority of the young men's reported challenges and proposed solutions are not youth-specific, but include issues broadly affecting people in their villages regardless of age (e.g., regular flooding, which is due to an absence of protective measures for farming, damaged roads and other infrastructure, and is also a hindering factor for economic activities).

Most important among young men was the absence of adequate transport infrastructure in their rural areas (mentioned by 47% of the male youth), as well as the lack of efficient irrigation systems (46%), often referring to the need for drip irrigation systems, which remain unaffordable for them in most cases (Table 3). At the same time, poor access to education (reported by 38%) is either a result of a lack of nearby schools, teachers who do not show up regularly or do not foster the youth's education development, or far distances to schools beyond a certain level of education.

A substantial portion of the interviewed young men believe that it is the state's responsibility to address economic and other problems: 40% of all interviewed male youth mentioned the state as a key driver for progress in their rural areas. Yet, despite the mistrust, these youth indicated a lack of know-how and confidence to take initiative to improve their situations. The perception seems to be widespread that, theoretically, the state would intervene in rural areas that have not yet benefited from larger structural programs. Interviewees tended to see their villages and surroundings as more marginalized compared to others (as was explicitly mentioned in single interviews) and believe that only the lack of political will is keeping these problems from being solved. Male youth largely see the solutions to their problems as considerable state financial investments, requiring rather large-scale investment programmes.

Table 3. Challenges and suggested solutions mentioned by male youth ($n = 72$).

Reported Challenges in Frequency of Mentions (%)	Suggested Solutions in Frequency of Mentions (%)
No/bad roads/transport (47%)	Road construction/transport provision (40%)
Drought/lack of water (46%)	Drilling of wells (19%)
No drip/efficient irrigation (44%)	Drip/efficient irrigation systems and canals (32%)
Access to education (38%)	Improving schools/access to education (26%)
Flooding/erosion/missing dams (35%)	Construction of dams (31%)
No/insufficient land (33%)	Provision of land from the community (14%)
Cost of agricultural inputs (32%)	Support for/provision of agricultural inputs (39%)
Hail, frost and harsh weather damaging crops (26%)	Hail nets (22%), greenhouses (4%)
No practical/vocational training (25%)	Practical/vocational training/extension services (19%)
Climate conditions/change (22%)	Adaptation to climate change (3%)
No/insufficient access to health care (21%)	Health care centre/better access to health care (19%)
Lack of finance/support inaccessible (21%)	Investment in agriculture/infrastructure in general (15%)
No/bad sanitary system/potable water (19%)	Investment in sanitary/potable water system (17%)
Insufficient pastures/feed (17%)	Support for/provision of agricultural inputs (39%), provision of land (14%)
No/bad market access (17%)	Improved market access (8%)
Seasonal oversupply/low market prices (17%)	Marketing/sales training (1%)
No technological development in agriculture (15%)	Technologies/machines (14%)
Illiteracy/missing basic education (14%)	-
No associations/cooperatives (13%)	Inclusive associations/cooperatives (15%)
No access to veterinary services (11%)	Access to veterinary services (14%)
Wild animals damaging crops/killing livestock (11%)	Wild animal protection provided by forestry guards (10%)
Livestock/crop diseases (10%)	Access to veterinary services (14%)
No capacity for innovation (8%)	Small-scale support/inclusive interventions (19%), change of mindset/restrictive traditions (3%)
No cold storage for produce (8%)	Cold storages for produce (13%)
Limited electricity (8%)	Solar panels (4%), improved electricity supply (3%)
Mistrust in/corruption of institutions (6%)	State/government responsibility/solutions (40%)
No stables for livestock (4%)	Stables for livestock (11%)
No/bad access to ICT (4%)	Better access to ICT (8%)
No recreational possibilities (3%)	Recreational centres (1%)
Deforestation (3%)	Reforestation/restoration of pastures/land (7%), forest control/management (6%)
Low yields/unfertile soils (1%)	-
Crop damage from pastoralists (1%)	Control of pastoralists (1%)
Lack of livestock breeding (1%)	New livestock breeds/support for breeding (3%), livestock training (1%)
Limited additional income generation (1%)	Diversification of income generating activities (6%), access to public forests (3%), honey extraction equipment (1%)
Discrimination/marginalization in daily life (1%)	-

Note: In percentage of mentions/respondents.

The challenges in agriculture cited are predominantly focused on low productivity in current farming systems (Table 3).

Despite a considerable number of interviewed male youth mentioning their difficult situation in terms of market access and the unbalanced supply and demand distribution of their agricultural produce throughout the year, concrete solutions seem to be difficult to conceive. This emphasizes that there is a need to better connect remote rural villages to agricultural value chains. The absence of youth-accessible associations and cooperatives was identified as another important issue in the field of social challenges, and the respondents do see the need to form more inclusive associations and cooperatives that allow them to jointly establish value-added activities in their villages. Of those who indicated a desire to start their own organization, most stated that they do not know how to do so. It should be noted that the current means of accessing opportunities, i.e., training and credit, is mainly through associations.

3.3.2. Challenges in Agriculture and Daily Life Encountered by Young Women

Table 4 shows the five most frequently mentioned challenges perceived by female youth. Compared to their male peers, they more frequently mentioned the absence of adequate transport infrastructure. Furthermore, the frequency of responses suggests that female youth perceive the access to basic needs such as education, health care and sanitation as a greater challenge than the problems faced in agriculture. This may stem from the fact that young women see their needs as even less fulfilled than young men.

Table 4. Female youth's five most frequently mentioned challenges and suggested solutions ($n = 34$).

Five Most Frequently Mentioned Challenges (%)
No/bad roads/transport (74%)
Access to education (62%)
No/insufficient access to health care (47%)
Drought/lack of water (41%)
Illiteracy/missing basic education (38%)

Note: In percentage of mentions/respondents.

"We need healthcare in the villages; I saw my friend's mother dying while she was giving birth as she could not reach a hospital in time" (personal communication, young female farmer from Ait Lahri village, October 2015).

A number of interviewed young women raised the issues of the lack of training opportunities, the lack of financial support, as well as a lack of child care in their villages as some of their greatest challenges. The interviewed young women mentioned similar challenges in the field of agriculture. However, farming seems to be regarded as a male domain to a large extent. Consequently, female youth seemed less inclined to share their thoughts on issues related to agriculture. Perhaps this is due to a lack of confidence, knowledge or interest. Alternatively, this disinclination may be out of respect for what are generally regarded as traditional cultural roles. The surveyed young women spoke less frequently about the economic constraints in their rural lives: Only 12% expressed that poor access to markets is a hindrance to their progress and wellbeing. Further issues such as the unfavourable distribution of supply and demand of agricultural produce, lack of storage, or absence of work opportunities were only mentioned by single respondents. However, what is apparent is that the list of expressed social problems is longer than that of the interviewed male youth. Young women in the surveyed villages frequently mentioned that a lack of literacy is one of the main challenges in their lives. Despite being less frequently mentioned, other important social problems were found to be a perceived discrimination or marginalization of young women, the absence of accessible associations and cooperatives, a lack of support for widowed and divorced women, and at single mentions, intra-family conflicts as well as the feeling of being solely responsible for daily chores.

There is little difference between female and male youth regarding the environmental challenges: insufficiency of water resources and the regular flooding of land due to degraded natural vegetation. Similar to their male peers, female youth expressed the need for the construction of dams and the drilling of wells as the solutions to these problems.

To address some of the challenges reported by the youth, the influencers indicated the need for the government to facilitate the micro-credit system to tailor it to young people, and provide technical ad-hoc training on livestock (fodder, breeding, vaccinations), and sustainable use of inputs for crop production (seeds, fertilizers, plant protection products).

3.4. Youth's Involvement in Decision-Making

Household-level decision-making regarding agriculture and personal matters of youth was mainly the fathers' priority (68%) according to the interviewed young men and women. A total of 12% of respondents (of which only one was a young woman) made their own decisions. The remaining 19% of the sample reported that their husband, mother, older brother, or another family member is leading the decision-making process.

The vast majority of youth who did not make their own decisions (93 out of total 106) are divided between those who are not involved at all, have a limited influence or have regular involvement. Table 5 shows the level of involvement/support in decision-making by gender. A relatively larger share of the interviewed young women stated that they have no involvement in decision-making at all.

Table 5. Gender-disaggregated data for involvement in decision-making.

Gender	Regular Involvement in Decision-Making	Limited Capacity to Influence Decisions	No Involvement in Decisions at All
Young women (<i>n</i> = 34)	15%	21%	58%
Young men (<i>n</i> = 72)	30%	40%	27%

Note: Four values are missing (6% for female and 3% for male respondents).

From a comparative analysis, the educational level of youth seems to have some influence on decision-making as well: interviewed youth with no education were less involved in decision-making, and a relatively larger share of youth who completed primary or secondary education reported making their own decisions.

3.5. Know-How, Skills and Training Needed by Rural Youth

For a better understanding of the needs of youth, the research investigated the youth's perception of their skill and knowledge gaps. It was observed that young men and women often found it difficult to express ideas about the skills they needed or wished to have for improvement, and responses tended to outline what type of support they would expect instead. As shown in Figure 5, the interviewed young men and women had different perceptions about what type of training or support they require. Young women put more emphasis on the need to complete their basic education (41%), while young men most often expressed the need for on-the-job training in agriculture (61%) or better opportunities for practical or vocational training (50%), also including other professions besides agriculture. A considerable number of young women wished to be trained in weaving, sewing, baking and handcrafting.

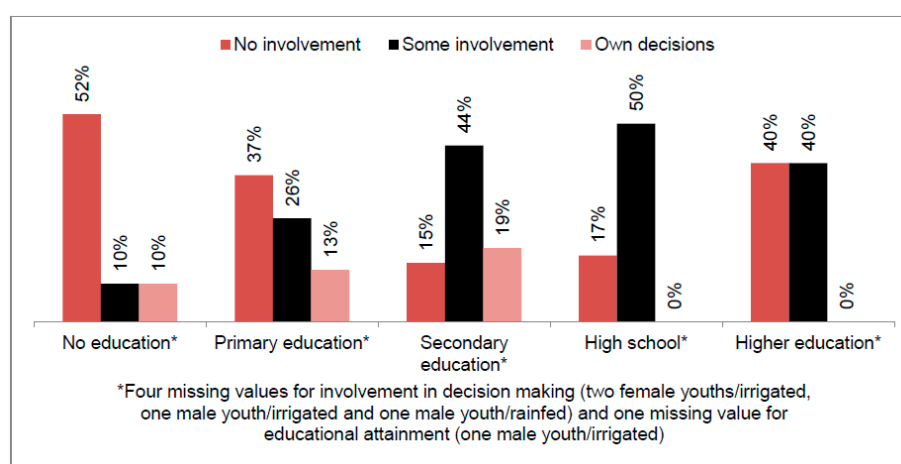


Figure 5. Youth's perception of the know-how, skills and training needed in rural life. Note: By gender, in percentage of mentions/respondents (*n* = 106).

Youth influencers indicated that both theoretical and practical training delivered by competent extension experts on how to develop their agriculture within the specifications of their own area (climate, soil) is needed, since this is largely absent at the village level. In addition, materials, products and machines to practice what they learn are needed.

3.6. Rural–Urban Migration

Outmigration from rural homes to urban areas was a controversial issue among the surveyed youth. Youth's views on rural–urban migration fell into three categories: Almost half (47%) stated that leaving their village was not an option, while 36% expressed an explicit wish to migrate. A relatively small number of youth (17%) were undecided about leaving their village.

3.6.1. Youth for Whom Migration Is Not an Option

The most striking reason (34%) why migration was not an option was the personal environment in which youth lived and the responsibilities they perceived towards their families. The second most important strike against migration (mentioned by 26% of the youth who preferred to stay) was a preference for agricultural work and life in a rural area. Furthermore, a considerable number (22%) felt they did not have enough skills and knowledge to find a job in urban areas. Eighteen percent of the youth expressed no interest in leaving their homes without citing a specific reason.

3.6.2. Youth Wishing to Leave Their Rural Homes

Of the 38 youths who expressed the wish to leave their homes and live in a more urban area, the majority (61%) referred to no or very limited opportunities in the rural area they come from. Despite their explicit wish to migrate, some of the youth (24%) mentioned their families and responsibilities in the village as things that hold them back from leaving; this may serve to demonstrate how strongly some of the youth seem to be rooted in their rural environment and devoted to their families and responsibilities. Controversially, a small number of young men and women (13%) expressed a desire to migrate even though at the same time they felt that urban working life requires people with very specific skills, which they do not believe themselves to have. These youth can presumably be described as frustrated in their perceived lack of skills to obtain urban-based opportunities. Only one of the 38 youths of this group, a young woman from a pastoral background, expressed the desire to migrate as a result of conflicts in her personal environment.

3.6.3. The Undecided

Among the youth who remained uncertain about migration, it was most frequently stated (by 39%) that the absence of opportunities in their rural homes may become a driver in a decision to leave. The second most important argument for the undecided was that they prefer agriculture and the rural life (mentioned by 22%), though the conditions are difficult and may force them to think about alternative livelihoods. Some of the youth also felt too uneducated for a demanding urban life. Other reasons why youth were undecided about migration included unresolved conflicts within their family/household and the perception of too much responsibility in regard to their families.

3.7. Rural Youth's Dreams

3.7.1. What Young Men Wish for Their Future

More than half of all interviewed young men (54%) stated that their wish for their future life (dream cloud; see Figure 6) is to successfully expand and manage their own farms. Others expressed a wish to increase apple farming and sales or livestock production (7% and 8%, respectively). In total, this represents over two-thirds of male youth who expressed a desire to stay engaged in agriculture, provided the conditions are good. A minority of all interviewed young men (19%) expressed a wish to live in urban areas—places that are perceived to offer all sorts of different opportunities and services—despite often recognizing that urban life is more expensive and may require specific skills. A total of 15% of the male youth stated their explicit wish to quit agriculture in search of better opportunities regardless of whether conditions improve in their rural village. Other dreams and aspirations young men have for the future are to marry and start their own family, to work as a driver, to change from nomadic pastoralism to sedentary farming and live in their own house, or to have any job with a stable income.

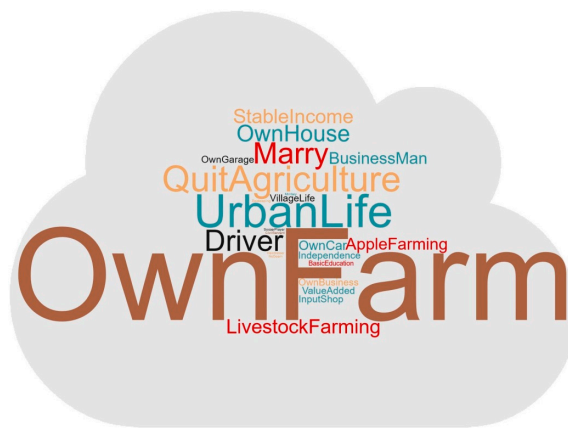


Figure 6. Dreams and aspirations of interviewed male youth ($n = 72$).

3.7.2. What Female Youth Wish for Their Future

As depicted in the dream cloud in Figure 7, agriculture does not seem to play a very important role in the desired future life of rural young women. The most frequent wish for their future (24%) is to have their children's and their own basic needs fulfilled, with a focus on getting an education. Young women also expressed a wish to either become sedentary pastoralists if they have been following a nomadic lifestyle, or to live in their own houses independently (expressed by 21%). The other most frequently expressed aspirations include doing handicraft work such as dressmaking or sewing, living in or near an urban area offering different opportunities and services, or getting married and starting their own family. A considerable number of female youth also stated having no dreams or aspirations for their future life, either as a result of being without hope for change or of the perception of not being allowed to envision a better life.

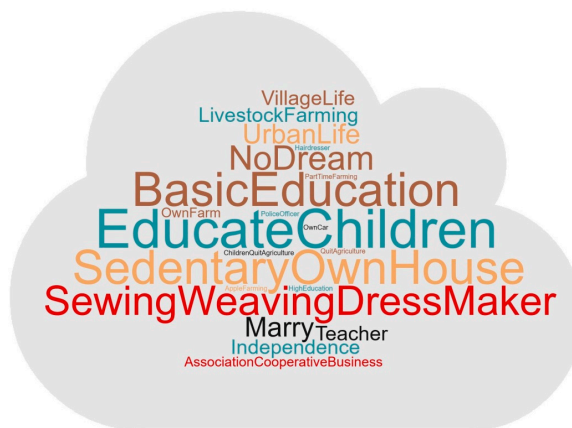


Figure 7. Dreams and aspirations of interviewed female youth ($n = 34$).

“In this village, in our situation, we are not allowed to dream” (personal communication with a young female herder, Assaka village, October 2015). This finding again highlights the marginalization of (young) women in the surveyed villages, which needs to be carefully addressed.

3.7.3. The Village of Their Dreams

To better understand what type of rural life young people would want and to comprehend their perspective so that policy makers and development practitioners can design and implement appropriate interventions that respond to their specific needs, a creative and participatory approach was used during FGDs. The researchers asked the young farmers to envision and draw the ‘village of

their dreams’ where they enjoy a more comfortable life along with their families, and better farming conditions. The ‘village of their dreams’ showed good infrastructure such as schools, wells and better roads, which would enable them to lead a more comfortable life, building their own families and earning a living as farmers, rather than chasing their ‘dream job’ outside of agriculture and the rural areas. The ‘village of their dreams’ depicted by a group of 10 young rural women aged 15–19 from the village Tissuite (Figure 8) was explained as follows:

“We want to remain in our village; we want to see more development, especially in agriculture as the income we get is not enough. Now we spend our day weeding, and then we cook for the family. Here it is just difficult to continue education for us young women, because our families say that primary education is enough for a young woman. It is difficult to convince our parents to send us to school as they are afraid about us travelling to the schools in town. We want to find a job here, not in the city, but many improvements should occur. Some of us don’t want to stay, they prefer to go leave and marry an urban dweller, as life in a city is easier. But migrating only works if there is a husband to marry and we can find a husband only if we get educated!”

“We need a pre-school system so the children will be ready to go to school when they turn six. We need a new primary school building and more committed teachers. We also want to have a college here in the village. We need a proper water supply in the village and in the houses; the water here is of bad quality. We want a system to avoid the harvest damage by the wild boars and other wild animals. We need an institute to get training in sewing clothes. We would like to create a cooperative. ‘Our’ cooperative would work like this: we would develop our business idea of producing cheese, artisanal bread, honey and clothes. Then we would need milking machines, and a vehicle. We would elect one girl as president. Paved roads should be developed as transportation is a key for market access. For the marketing, we would need to create partnerships with sellers in town. We cannot do direct selling in town as we believe being a seller requires more emancipation than we have, and we lack the required education and skills for this.”



Figure 8. (a) Rural girls drawing the ‘village of their dreams’ during a focus group discussion in Tissuite village; (b) results of the focus group discussion on a poster.

3.7.4. What the Rural Youth Wish for Their Children

While most of the interviewed youths did not have children yet, they were asked to reflect on the priorities for the good life of their future sons and daughters. Youth perceived a good education as the top priority for the wellbeing of their own children (Table 6), followed by a safe and stable occupation (often as governmental officials). Young men, more than young women, wish for their children to stay

in agriculture. This may reflect young men's own positive attitude towards farming. Still, the share of youth who want their children to work outside agriculture is high.

Table 6. Rural youth's wishes for their children.

Male Youth (<i>n</i> = 72)	Female Youth (<i>n</i> = 34)
1. Good education (83%)	1. Good education (71%)
2. Quit agriculture to work for government (35%)	2. Quit agriculture for any better job (53%)
3. Live in good conditions, also including agriculture if viable (32%)	3. Work for government (26%)
4. Quit agriculture for any better job (24%)	4. Live in good conditions, also including agriculture if viable (9%)
5. Stay in agriculture (10%)	5. Live in the city (3%)
6. Live in the city (8%)	-

Note: Interviewed youth could mention more than one wish.

It is interesting to see the comparison between youth's dreams and aspirations for their own life and the life of their children as it allows for reflecting on the long-term future. Two particular findings have to be taken into consideration when planning for future interventions for development: Firstly, youth want their children to achieve what they had only limited access to—a good education.

Secondly, the youth's wish for their children to quit agriculture and enter another, more financially attractive occupation is much more pronounced than for their own lives, evidenced by some respondents' feedback that they felt unprepared and as if they were lacking the necessary education and skills to make a living in urban areas. If youth want their children to leave farming for better alternatives, new ways of making agriculture in rural life more attractive will have to be crafted and implemented. Otherwise the purpose of long-term, large investments in rural areas, without future generations, may come into question. On the one hand, contrary to what is generally thought, the study results indicate that there is considerable interest—particularly among male youth—in continuing to develop their rural agriculture. On the other hand, increased structural investments improving the livelihoods of these rural populations are necessary to reduce outmigration. In both cases, for existing and future generations to stay in their rural areas or, alternatively, to have the necessary skills in order to migrate to urban areas in search of work, increased access to basic education and vocational training geared toward sustainable agriculture in drylands need to become a national priority.

4. Discussion

In areas where food security is assured but poverty is widespread, before expressing their aspirations in their rural life and career, the interviewed youth in the Midelt Province first raised the issue of unfulfilled primary needs, i.e., access to education, access to potable water, lack of roads and infrastructure and health care. Though over 95% of children in Morocco have access to primary school education [41], having access is not the same as achieving a level of basic education. This is due to school attrition, a lack of teachers, the need to support a family instead of attending school, the absence of school attendance control, and a lack of a promoting or sanctioning system. Poverty among the interviewed rural youth is based on possessing no or very little land, little livestock, not having access to wage labour opportunities because of limited education and limited economic development in the area. The categories of respondents whose conditions are even more difficult are young nomad herders and young women, who face more challenges across all Agricultural Livelihood Systems (ALSs).

Environmental degradation due to deforestation and soil erosion, which are both exacerbated by climate change, and bad water management adversely affect livelihoods for all generations in all three systems. The environmental challenges are not youth-specific, but they were reported by about one-third of interviewed youths.

The present study has unearthed some interesting points that were unexpected and require further analysis. Migration from rural areas was a controversial issue: about one-third clearly wished to

migrate to an urban area. Therefore, the desire of about half of the total interviewees to stay in their villages challenges the prevailing narrative whereby it is assumed that youth are eager to migrate from rural areas as agriculture is not appealing [20–22]. Some respondents felt they could not leave their parents, which was particularly true for young women. Young women aspired to be educated, have better access to health care and other services, and have their own family. Young men wished to improve their agricultural activities, owning land and a farm, having access to training opportunities and establishing a more market-oriented production. However, further analysis is required to better understand the factors behind their desires and choices.

The image of agriculture seems to be neutral. The major reason cited for a positive perception is that agriculture is the only source of income and for young men the only profession in which they see themselves as experienced. Another positive argument for the female youth was the peacefulness and calm of rural life. Young people depending on rainfed farming are the most vocal about the insufficiency of their income due to scarce and unpredictable rainfall. In general, young women also perceive agriculture more negatively than young men. More than 70% of women (and about half of young men) find agriculture financially non-viable. The negative perception of agriculture by young women is also because the work is hard and demeaning—as also found in previous research on rural youth in Morocco [42]. In terms of aspirations, more than half of all young male respondents wished to successfully expand and manage their own farms, but without further specification, as also reported in a previous study conducted in Tunisia [12]. Overall, two-thirds of male youth expressed the desire to stay engaged in agriculture, provided the agricultural conditions are good and life in the village improves. However, some other young men aspire to live in urban areas where they wish to find a job not related to agriculture. Among the young women, the most frequently expressed wish was to get educated and educate their children. They also wish to have sewing and handicraft opportunities in the village of their dreams. Among the aspirations of both young men and women is the wish to start their own family and be independent of their family of origin.

Youth were not often involved in decision-making on their family farm. Young women, in particular, stated that they have no say in decision-making. Being financially dependent on their parents seemed to limit the youth's decision-making capacity. The youth interviewed rarely mentioned value addition activities in agriculture. This is probably due to the lack of opportunities in this field.

Young women's concern was first and foremost for completing their basic education. Young men instead frequently conveyed the need for practical training in agriculture and other types of vocational training.

It was important to include the views of the influencers in the study, i.e., parents, urban youth (migrants), teachers, agribusiness employers, as social influences on aspirations are more powerful in rural areas [15]. The influencers' views were similar to those expressed by the youth and confirmed the lack of education and infrastructure, the low profitability of agricultural activities in this area, the need for specific training in livestock management and use of crop inputs, as well as a fair distribution of and access to collective lands for the youth and better access to existing opportunities. The study further revealed that there is little agricultural education and vocational training in the area. A variety of development entities operating in the area have programmes but lack youth groups with financially viable projects. Youth need capacity building assistance that includes agricultural techniques and best practices as well as project development and management techniques. In particular, better support programmes must be tailored for disadvantaged young women. Further analysis into additional mechanisms—beyond associations and cooperatives—that could be used to target rural youth is required. Further recommendations for social action research are provided in the recommendations developed during the multi-stakeholder workshop held in Midelt (Figure 9).

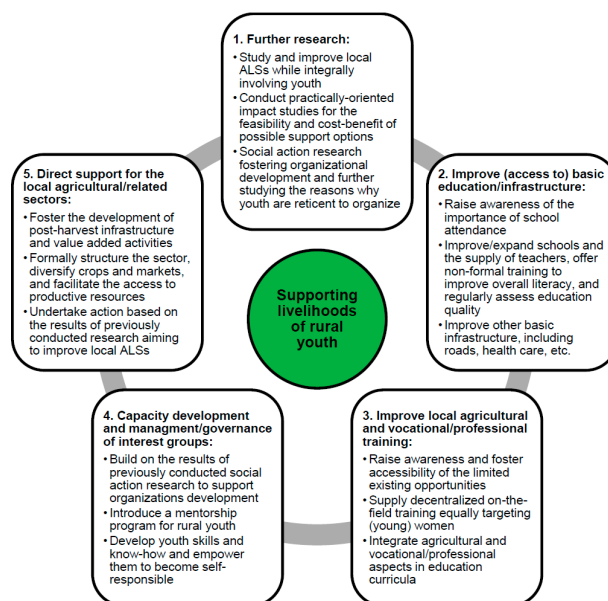


Figure 9. Recommendations from the workshop on future actions to support rural youth and sustainable agriculture in the Midelt Province.

This study confirms the findings of Bouzidi et al. [33] on rural youth's difficulty in accessing governmental support. Youth are unable to tap into supporting programmes because they are not organized into associations or economic interest groups. Without these structures, youth cannot benefit from them as the existing resources are channelled only to members. Youth can get organized, but that requires investing in education and capacity building by the state and other actors. This may be overcome by the introduction of a mentoring model that consists of having supporting individuals (ideally youth) who are respected in the villages and can act as intermediaries between the public authorities and the rural youth and help with capacity building to empower people and help make them responsible for creating opportunities. The model was one of the recommendations formulated during the workshop held in Midelt to present and discuss the research results. These recommendations are targeted to the specific/studied context for improving the livelihoods of rural youth in the area, but at the same time they provide inputs for the global debate in the thematic field of youth in agricultural research and development (Figure 9).

5. Implications

The data collected in this study are an important first step in understanding and working with youth to create better rural futures and sustainable agriculture, and to add evidence to similar studies on youth and agriculture. Youth-targeted social action research and interventions are critical for the creation of participatory and inclusive systems. Youth research is needed for sustainable dryland systems, which allow youth to build decent and sustainable livelihoods in rural areas based on agriculture. Additional research gaps, which have been identified through this research, call for replication of similar studies on youth in agriculture in other areas and scaling up this approach. Additional studies would enable a comparative analysis to be done across different areas and contexts to see if any similar trends could be unearthed. Fostering decent rural/agricultural livelihoods for present and future generations must be recognized as a means to slow down outmigration/urbanization and create inclusive economic growth [23]—not only in a Moroccan context, but generally where the rural/agricultural sector plays an important role. Young people should have a say in how they imagine sustainable rural/farming futures, as they cannot be forced into the sector but have to want to choose it. This places great importance on participatory youth research and engagement.

6. Conclusions

In rural dryland areas where basic needs are met, youth involved in agriculture would indeed prefer to stay in their villages and develop their agricultural vocation. These findings are in contrast to the general perception that the majority of rural youth aspire to migrate to urban areas in search of better livelihoods. On the one hand, the study results indicate that there is considerable interest—particularly among male youth—in continuing to develop their rural agriculture. On the other hand, increased structural investments into improving the livelihoods of these rural populations are necessary to reduce outmigration. In both cases, for existing and future generations to stay in rural areas, increased access to basic education and vocational training geared toward sustainable agriculture in drylands must become a priority.

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References

1. Pyburn, R.; Audet-Bélanger, G.; Dido, S.; Quiroga, G.; Flink, I. Unleashing potential: Gender and youth inclusive agri-food chains. *KIT Work. Pap.* **2015**, *7*, 1–16.
2. Bennell, P. *Promoting Livelihood Opportunities for Rural Youth*; IFAD: Rome, Italy, 2007; Available online: <https://www.ifad.org/documents/10180/05f77557-2567-4c7c-8326-e26d2fbabeb5> (accessed on 20 May 2017).
3. Bennell, P. Investing in the Future: Creating Opportunities for Young Rural People 2010. Available online: <https://www.ifad.org/documents/10180/4b4c6e44-3bcf-4d2d-9f91-22b916b6c09a> (accessed on 9 September 2016).
4. Heide-Ottosen, S. *The Ageing of Rural Populations: Evidence on Older Farmers in Low and Middle-Income Countries*; HelpAge International: London, UK, 2014.
5. CRP on Dryland Systems. Youth Strategy. 2015. Available online: <http://drylandsystems.cgiar.org/sites/default/files/YouthStrategy.pdf> (accessed on 15 October 2016).
6. Sumberg, J.; Anyidoho, N.A.; Leavy, J.; te Lintelo, D.J.H.; Wellard, K. Introduction: The Young People and Agriculture ‘Problem’ in Africa. *IDS Bull.* **2012**. [CrossRef]
7. Grant, M.J.; Furstenberg, F.F. Changes in the Transition to Adulthood in Less Developed Countries. *Eur. J. Popul.* **2007**, *23*, 415–428. [CrossRef]
8. Filmer, D.; Fox, L. *Youth Employment in Sub-Saharan Africa*; World Bank Publications: Washington, DC, USA, 2014.
9. Senders, A.; Motz, M.; Lentink, A.; Vanderschaeghe, M.; Terrilon, J. Sustainable coffee as a Family Business. 2014. Available online: https://www.idhsustainabletrade.com/uploaded/2016/08/toolkit_total.pdf (accessed on 14 January 2017).
10. Leavy, J.; Smith, S. Future Farmers? Exploring Youth Aspirations for African Agriculture. 2010. Available online: <http://www.future-agricultures.org/publications/research-and-analysis/945-future-farmers-exploring-youth-aspirations-for-african-agriculture/file> (accessed on 6 April 2017).
11. Bossenbroek, L.; Douwe van der Ploeg, J.; Zwartveen, M. Broken dreams? Youth experiences of agrarian change in Morocco’s Saïss region. *Cah. Agric.* **2015**, *24*, 342–348. [CrossRef]
12. Collard, A.-L.; Riaux, J.; Massuel, S.; Raïssi, M.; Burte, J. Et si on faisait comme ceux de la plaine?: Aspirations et limites d’une petite agriculture dynamique en Tunisie centrale. *Cah. Agric.* **2015**, *24*, 335–341. [CrossRef]

13. White, B. Generational dynamics in agriculture: Reflections on rural youth and farming futures. *Cah. Agric.* **2015**, *24*, 330–334. [[CrossRef](#)]
14. Proctor, F.J.; Lucchesi, V. *Small-Scale Farming and Youth in an Era of Rapid Rural Change*; Knowledge Programme Small Producer Agency in the Globalised Market: London, UK; The Hague, The Netherlands, 2012.
15. Leavy, J.; Smith, S. Future Farmers: Youth Aspirations, Expectations and Life Choices. Available online: <https://agrilinks.org/sites/default/files/resource/files/Future%20Farmers-Youth%20Aspirations.pdf> (accessed on 12 October 2016).
16. MacBrayne, P. Educational and Occupational Aspirations of Rural Youth: A review of Literature. *Res. Rural Educ.* **1987**, *4*, 135–141.
17. Appadurai, A. The Capacity to Aspire: Culture and Terms of Recognition. In *Culture and Public Action*; Rao, V., Walton, M., Eds.; Stanford University Press: Stanford, CA, USA, 2004; pp. 59–84.
18. Carney, D. *Sustainable Livelihoods Approaches: Progress and Possibilities for Change*; Department for International Development: London, UK, 2003.
19. Akpan, S.B. Encouraging Youth's Involvement in Agricultural Production and Processing. 2010. Available online: <https://agrilinks.org/sites/default/files/resource/files/Youth%20Involvement%20in%20Ag%20Production%20-%20IFPRI.pdf> (accessed on 9 September 2016).
20. Tadele, G.; Gella, A.A. 'A Last Resort and Often Not an Option at All': Farming and Young People in Ethiopia. *IDS Bull.* **2012**, *43*, 33–43. [[CrossRef](#)]
21. Anyidoho, N.A.; Leavy, J.; Asenso-Okyere, K. Perceptions and Aspirations: A Case Study of Young People in Ghana's Cocoa Sector. *IDS Bull.* **2012**, *43*, 20–32. [[CrossRef](#)]
22. Kritzinger, A. Rural Youth and Risk Society: Future Perceptions and Life Chances of Teenage Girls on South African Farms. *Youth Soc.* **2002**, *33*, 545–572. [[CrossRef](#)]
23. Ghanem, H. *Agriculture and Rural Development for Inclusive Growth and Food Security in Morocco*; Brookings Global Working Paper Series; Global Economy and Development: Washington, DC, USA, 2015; pp. 1–19.
24. Pascon, P.; Bentahar, M. Ce que disent 296 jeunes ruraux. In *Études Sociologiques sur le Maroc: Recueil d'Articles Conçu et Préparé par Abdelkébir Khatibi*; Khatibi, A., Ed.; Société d'études Économiques, Sociales et Statistiques du Maroc: Tanger, Morocco, 1969; pp. 145–287.
25. White, B. Agriculture and the Generation Problem: Rural Youth, Employment and the Future of Farming. *IDS Bull.* **2012**, *43*, 9–19. [[CrossRef](#)]
26. Paroda, R.; Iftikhar, A.; Bhag, M.; Saharawat, Y.S.; Jat, M.L. Regional Workshop on Youth and Agriculture: Challenges and Opportunities. Proceedings and Recommendations. 2014. Available online: http://www.apaari.org/wp-content/uploads/downloads/2014/04/Youth-and-Agriculture-Proceedings_30-4-2014-3.pdf (accessed on 22 October 2016).
27. Web of Science. Online Research on the Topics of 'Rural Youth', 'Youth Aspirations' and 'Youth and Agriculture'. 2015. Available online: https://apps.webofknowledge.com/UA_GeneralSearch_input.do?product=UA&search_mode=GeneralSearch&SID=R274mB7PQIVs5FC4GSb&preferencesSaved= (accessed on 29 November 2015).
28. FAO. Rural Youth. 2002. Available online: <http://www.fao.org/ruralyouth/faqs.html> (accessed on 2 September 2016).
29. Assaad, R.; Roudi, F. Youth in the Middle East and North Africa: Demographic Opportunity or Challenge? 2007. Available online: <http://www.prb.org/pdf07/youthinmena.pdf> (accessed on 5 September 2016).
30. Vargas-Lundius, R.; Sutti, D. Improving Young Rural Women's and Men's Livelihoods—The Most Sustainable Means of Moving to a Brighter Future. 2013. Available online: <https://www.ifad.org/documents/10180/24da98fe-d38e-4c30-898c-9044c1f8f719> (accessed on 12 January 2017).
31. Elder, S.; de Haas, H.; Principi, M.; Schewel, K. *Youth and Rural Development: Evidence from 25 School-To-Work Transition Surveys*; International Labor Office: Geneva, Switzerland, 2015; pp. 1–66.
32. Fussell, E.; Gauthier, A.H.; Evans, A. Heterogeneity in the Transition to Adulthood: The Cases of Australia, Canada, and the United States. *Eur. J. Popul.* **2007**, *23*, 389–414. [[CrossRef](#)]
33. Bouzidi, Z.; Faysse, N.; Kuper, M.; Billaud, J.-P. Les Projets des Jeunes Ruraux: Des Stratégies Diversifiées pour Accéder au Foncier et Obtenir l'Appui de l'État. 2015. Available online: <http://alternatives-rurales.org/les-projets-des-jeunes-ruraux-des-strategies-diversifiees-pour-acceder-au-foncier-et-obtenir-lappui-de-letat/> (accessed on 22 May 2017).

34. Ftouhi, H.; Hadioui, M.; Hdidi, K.; Tajni, S.; Faysse, N.; Bouzidi, Z.; Abdellaoui, E.; Essadiki, A. L'implication des Jeunes Ruraux dans les Projets de Développement dans la Province d'El Hajeb et la Préfecture de Meknès. Available online: <http://alternatives-rurales.org/wp-content/uploads/HSJeunes/AltRurHSJeunesFtouhiEtAlPourImp.pdf> (accessed on 20 May 2017).
35. ONEE. Etude d'Impact Environnemental et Social: Parc Éolien Midelt: Province de Midelt. 2013. Available online: http://www.eib.org/attachments/pipeline/20120174_eia1_fr.pdf (accessed on 27 October 2016).
36. Ezilon.com Regional Maps. Morocco—Physical Map of Morocco. 2015. Available online: <http://www.ezilon.com/maps/africa/morocco-physical-maps.html> (accessed on 16 January 2016).
37. Robins, C.S.; Ware, N.C.; dosReis, S.; Willging, C.E.; Chung, J.Y.; Lewis-Fernandez, R. Dialogues on mixed-methods and mental health services research: Anticipating challenges, building solutions. *Psychiatr. Serv.* **2008**, *59*, 727–731. [[CrossRef](#)] [[PubMed](#)]
38. Patton, M.Q. *Qualitative Research and Evaluation Methods*, 3rd ed.; Sage Publications: Thousand Oaks, CA, USA, 2002.
39. Kuckartz, U. *Einführung in die Computergestützte Analyse Qualitativer Daten*, 2nd ed.; VS Verlag für Sozialwissenschaften: Wiesbaden, Germany, 2007.
40. Flick, U. *An. Introduction to Qualitative Research*, 5th ed.; Sage: Los Angeles, CA, USA, 2014.
41. AbiNader, J.R. Morocco: The Crucial Role of Agriculture in Morocco's Future. 2015. Available online: <http://moroccoonthemove.com/2015/06/25/crucial-role-agriculture-moroccos-future-jean-r-abinader/#sthash.77cLrcAX.dpbs> (accessed on 18 September 2016).
42. IFAD. Survival, Change and Decision-Making in Rural Households: Three Village Case Studies from Eastern Morocco. Available online: <https://www.ifad.org/topic/resource/tags/gender/morocco/3452105> (accessed on 18 September 2016).



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