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ASSAR
Adaptation at Scale in Semi-Arid Regions

Subjective Wellbeing Analysis as a means of achieving Sustainable Development Goals: Evidences from the semi-arid villages in Maharashtra

CARIIAA-ASSAR Working Paper

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About ASSAR

All authors of this working paper are team members in the ASSAR (Adaptation at Scale in Semi-Arid Regions) project, one of four hotspot research projects in CARIAA. The international and interdisciplinary ASSAR team comprises a mix of research and practitioner organisations, and includes groups with global reach as well as those deeply embedded in their communities. The ASSAR consortium is a partnership between five lead managing institutions - the University of Cape Town (South Africa), the University of East Anglia (United Kingdom), START (United States of America), Oxfam GB (United Kingdom) and the Indian Institute for Human Settlements (India) - and 12 partners - the University of Botswana, University of Namibia, Desert Research Foundation of Namibia, Reos Partners, the Red Cross/Crescent Climate Centre, University of Ghana, ICRISAT, University of Nairobi, University of Addis Ababa, Watershed Organisation Trust, Indian Institute for Tropical Meteorology, and the Ashoka Trust for Ecology and the Environment.

Working in seven countries in semi-arid regions, ASSAR seeks to understand the factors that have prevented climate change adaptation from being more widespread and successful. At the same time, ASSAR is investigating the processes - particularly in governance - that can facilitate a shift from ad-hoc adaptation to large-scale adaptation. ASSAR is especially interested in understanding people's vulnerability, both in relation to climatic impacts that are becoming more severe, and to general development challenges. Through participatory work from 2014-2018, ASSAR aims to meet the needs of government and practitioner stakeholders, to help shape more effective policy frameworks, and to develop more lasting adaptation responses.

Why focus on semi-arid regions?

Semi-arid regions (SARs) are highly dynamic systems that experience extreme climates, adverse environmental change, and a relative paucity of natural resources. People here are further marginalised by high levels of poverty, inequality and rapidly changing socio-economic, governance and development contexts. Climate change intersects with these existing structural vulnerabilities and can potentially accentuate or shift the balance between winners and losers. Although many people in these regions already display remarkable resilience, these multiple and often interlocking pressures are expected to amplify in the coming decades. Therefore, it is essential to understand what facilitates the empowerment of people, local organisations and governments to adapt to climate change in a way that minimises vulnerability and promotes long-term resilience.

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Abstract:

The UN Sustainable Development Goals aim to achieve a set of Economic, Social and Environmental targets by 2030. With an end target of improving human and environmental wellbeing, various governmental policies are required to align with these goals. Subjective Wellbeing studies look at analyzing the needs and satisfaction of the people in a community in order to understand what, according to them, contributes to their wellbeing. The current paper looks to understand what forms the major “needs” in rural sample of Maharashtra, what areas would possibly contribute to policies if the subjective wellbeing of the subjects is prioritized and which SDGs would be achieved or compromised in the process. It further goes on to inspect the caste, gender and age differentiated needs and satisfaction of the sample and compares the same with the aggregate. The paper, using the sample looks at the importance of using the group- differentiated needs and satisfaction in order to achieve policies that benefit all, rather than achieving majoritarian needs.

Keywords:

Subjective Wellbeing; Sustainable Development Goals; Differential vulnerability; Semi-arid; Need- Satisfaction.

1. Introduction

The UN Sustainable Development Goals (SDGs) are a matrix of universal set of goals and indicators, targeted to be achieved by the year of 2030. The goals have been engineered to encompass various aspects of Economic, Social and Environmental Development targets contributing to human and ecological wellbeing and are agreed to become the guiding tenets for a country's policies and agendas (Hak, Janouskova, & Moldan, 2016) regarding the same. Wellbeing is derived from a person's involvement in the various aspects of life that contribute to social, economic, political, cultural and psychological processes (McGregor, Camfield, and Woodcock 2009) and also how the *functioning* of these different aspects contribute to making up a person's state of being. (Nussbaum and Sen 1993).

The determinants of wellbeing have been often debated. Poverty depreciates human wellbeing (Stevenson and Wolfers 2008, Chaudry et al. 2016, McBride 2001). While wealth does improve the quality of life, it may not be the sole determinant of wellbeing (Kahneman and Deaton 2010). Low income is accepted to be a reason of underdevelopment for people and society because economic performance is a "means to an end" (Oswald 1997), meaning it could significantly be different across individuals and groups who characterized by their difference in background (Sen 1999). However it is equally important to see how one makes use of available resources, the inherent resilience in times of hardship and thus the ability to use resources has been treated as a scale of measurement of an individual's standing in the society (Wolfers, Stevenson, and Wolfers 2008, Nelly and Adger 2000, Adger and Nelly 1999).

Wellbeing must be perceived as a result of both "subjective and objective dimensions" and these dimensions are embedded in the socio-cultural relation that human beings have, as being a part of any society (Copestake and Camfield 2010). This implies that what a person aspires, chooses, does and how well they satisfy him/her are "constrained or enabled by wider societal structures" (McGregor, McKay, and Velazco 2007) which also differ within the various sub-sections of the society, molded by the different historical and social trajectories that each section has experienced (Appadurai 2007) as a class or group—like that of various castes or gender or even age.

Nussbaum and Sen, 1993 argues that a list of human functional capabilities can be prepared which exhaustibly captures all human needs in all type of social and cultural settings. On the other hand, the Doyal and Gough's Theory of Human Needs argues that the only two truly basic needs are Health and Critical Autonomy (Doyal and Gough 1984). In a broader sense the fulfillment or satisfaction of these two basic needs through "intermediate means" and channels as thought fit by individuals, grant all the basic needs to human beings (McGregor et al. 2009).

McGregor et al. 2007, found that resource endowment and need satisfaction is a non-perfect relation—meaning it is not necessarily that households with access to more resources are better placed to meet their needs. It was also found in various studies that money, assets, health, food, water and family relations featured as priority areas for the community while personal progress, travel for pleasure and accessories were the least important. Fang et al. (2016) found that knowledge, food supply, water supply and cash income has over time been main contributors to the vulnerability.

The sustainable development goals (SDGs) are aspirational objectives that help in shaping development pathways of nations to address issues like poverty, hunger, health and wellbeing, equality in life, quality for all people among others. The differential needs and aspirations of the diverse demographic (across age groups of different genders) and socio-economic groups (based on social categories, land ownership and economic criteria) in the rural communities, thus, have implications for achieving SDGs. In fact the heterogeneity and complexity of society and ecological systems forms the major challenges in achieving the SDGs (Kates, Parris, and Leiserowitz 2005).

The objective of the paper is to understand the differential needs and satisfaction of rural communities across the different social and demographic categories and to what SDGs they contribute to even if policies are implemented at a village level. This type of understanding is necessary for the furthering of achievement of local and national development goals.

2. Methods

The Resource and Needs Questionnaire (RANQ) is a survey instrument developed by WeD, designed to capture the resource base that individuals have access to and need-satisfaction they achieve out of it (McGregor et al. 2009). The questionnaire used in this survey has been based on the above questionnaire with modifications to suit the social and economic structure of the study area.

2.1 Study Area

The Ahmednagar district of Maharashtra is drained by Godavari river in the North and Bhima river in the South. Both these blocks fall in the Semi-Arid Agro-Climatic Zone (scarcity zone). The annual rainfall for this district varies between 484 mm to about 879 mm. The mean annual temperatures vary between 12.3° C and 39.1° C. The area had been declared under the influence of meteorological drought in the years 2012, 2014 and 2015.

2.2 Sample selection

The sample has been collected from 8 villages spread over Sangamner and Parner blocks of Ahmednagar during December 2016. The villages were selected in random from the list of villages in the Sangamner and Parner blocks. For each of the villages, the estimate of total number of households were obtained from the Census of India (2011). A complete list of all the households along with their caste categories were obtained from the Village Panchayats i.e. the local self-governing bodies. In this stratified sampling method, the selection of caste as the first strata was purposive. The households had been selected as 10% of each caste present in the village using systematic sampling method i.e. every 4th person in the list was selected, thus maintaining the overall caste composition of the 8 villages in the sample. Approximate number of households residing in these 8 villages during the 2011 Census is 3125. The sample under

study is an approximate 10% sample from each of the villages, with a sub-stratification and representative sample of the various social groups present in the village. The social stratifications present in the village are – the Forward category which is the historically forward class, the Nomadic Tribes (or Notified tribes), the Officially Backward Classes (OBC) & other religious classes, the Scheduled Castes (SC) and the Scheduled Tribes (ST). The total sample comprised of 310 households. About 969 individual family members were interviewed for capturing the intra-household dynamics of perceptive wellbeing.

2.3 Data collection

A structured questionnaire was developed based on RANQ so as to capture dynamics of a rural household that include material ownership and access to various amenities, perceptions about quality of these amenities, their occupation and agricultural engagement details, information about their social engagement, the various climatic and non-climatic shocks faced by the households. Information regarding perceptions of needs and satisfaction levels was collected from the household head and other members of the household.

3. Analytical framework

The importance of having different social categorization is because of exclusion that some of the categories have faced, inhibiting them from following a similar growth trajectory to groups with better opportunities (Martinsson and Akay 2012).

Castes, gender, age, among many other factors form the collectivities which may shape the absolute and relative demands of a person (Tibesigwa, Visser, and Hodkinson 2016). Thus it is necessary for any social study to clearly define these collectivities. The study examines whether need and satisfaction levels differ within social categories that form the skeleton of the Indian social and economic systems. In the first level of the survey, 22 aspects were identified through Focus Group Discussions, which contributes to the overall quality of life. These “functional life constituents” are exhaustive and have been carefully considered by the researchers, keeping in mind the sociological and geographical context of the study area.

For the purpose of analysis and easy understanding, these 22 factors have been further grouped under further 7 Domains. The following table depicts the various factors have been put under sub headings of Domains and the SDGs it would correlate to.

Table 1: Life Constituents and their classification into Basic Domains and the corresponding SDGs

Functional Life Constituents	Basic Domains	SDG
Food Consumption Clean Water Sanitation	Basic Needs	Goal 2,3,6, 9
Basic Household goods Clothes Housing Infrastructure	Material Need	Goal 1,9
Landholding Fodder Availability Water levels in the well Access to wells	Natural Resources	Goal 2,12
Health care Veterinary services Credit Availability Information on credit and crop advisories Agricultural inputs Access to markets for crops and livestock	Services	Goal 2,8,9
Family Relations Recognition in the community Access to Common Pasture land	Social Capital	Goal 10,16
Employment Opportunity	Financial Capital	Goal 1,8
Education	Human Capital	Goal 4

On the perception of how much of each of the above 22 “functional life constituents” are necessary for a good life and how satisfied do they feel in these sections of these factors on a scale of 0, 1, 2 the overall sample’s answers were analyzed. Each respondent was asked to mark on a scale of 0-2, how necessary is each of the above for an ideal good life and on a scale of 0-2 how satisfied they are with this specific area in their lives. The data was analyzed and the gaps between the scores of the Needs and Satisfaction were used as indications towards overall requirements of the society and between the various reference groups.

4. Results and discussions

Sample characteristics

The sample consisting of 310 families has a myriad caste composition. The broad composition of existing social categories in the sample is given by the following table—

Table 1: Caste Composition in the sample.

Caste	Sample (n)	% composition
Forward castes	123	39.68%
Nomadic Tribes	90	29.03%
Other Backward Castes	46	14.84%
Scheduled Castes	23	7.42%
Scheduled Tribes	28	9.03%
Total	310	100%

The average family size is approximately 5.40 members per family. It was observed that the sex ratio in the children (F: M =794:1000) and young adults (F: M = 630:1000) is skewed in favour of the males whereas the adult population had a balanced gender ratio.

Farming was the major livelihood source (accounting for 36.5% of the average total annual income of sample households) followed by other regular employment (jobs and services), (about 19%, wage employment (14.6%) and dairy (10.7%). The substantial contribution from farming, dairy and small ruminants characterises the agrarian nature of the population. Pension contributes to a small percent of family income in all categories, explained by the existing pension schemes for the elderly and widows in the state (National Old Age Pension Scheme).

Income inequalities existed among the sample households with Gini Coefficient of 0.45. Also, the correlation between land holding and income is quite high ($r = 0.66$) and significant at 1% level indicating close relationship between income and land ownership.

In the context of adequacy of income, 54.7% replied that the family income was just adequate for sustenance. However, a substantial number of the population (40%) also replied that the income was not adequate for sustenance. The relative perception of income was very wide ranging depending on what a person thinks of his neighbor's or other members in the society's wealth. This is in tandem to many studies that have shown that a person's subjective understanding of wellbeing depends largely on the relative-income (McBride 2001), (Kahneman and Deaton 2010), (Deaton and Stone 2013). However, quite possibly it might also be related to under-reporting of wealth in case of surveys.

Community perceptions on Needs, Satisfaction and Aspirations:

We first analyzed the responses of the aggregate sample. Of the 22 life constituents, the communities expressed highest dissatisfaction in the state of employment opportunities (41%), access to markets (crop)(41%), health care (40% of respondents), sanitation (39%) and water levels in wells (31%).

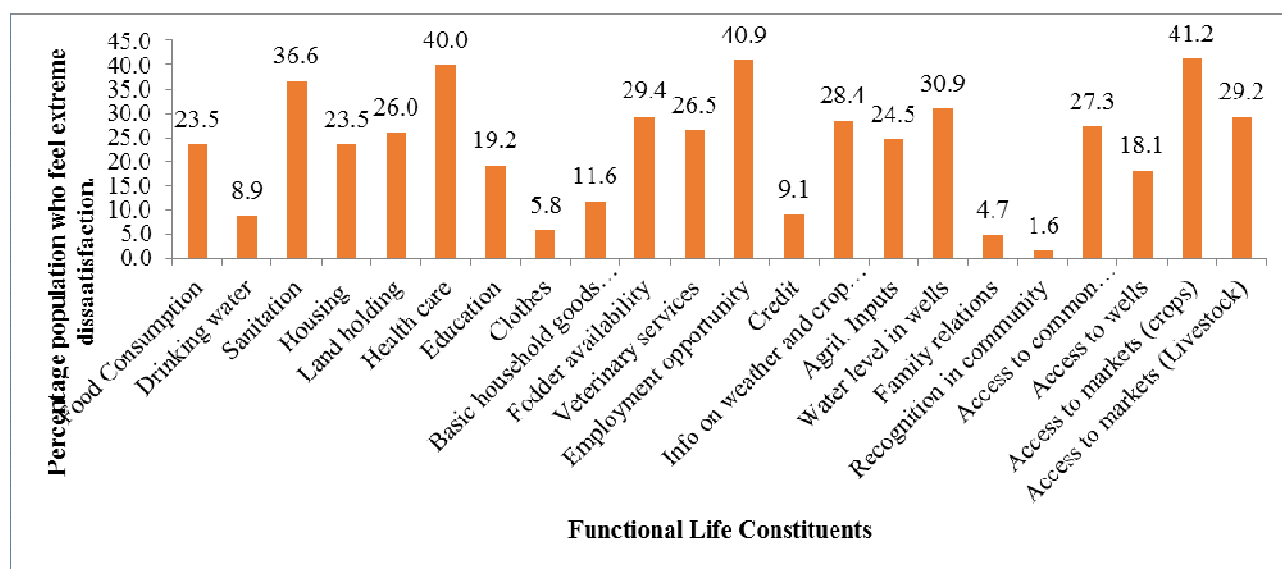


Figure 1: Community perceptions on dissatisfaction with the specific "life constituents".

The dissatisfaction with regard to employment opportunity could be due to frequent shocks to agriculture (primary source of income) in the form of concurrent droughts and pest infestations. Apart from production aspects, farmers in the area also face difficulties in accessing markets (distance to market yards, transportation, network/ nexus of traders and commission agents which makes direct entry to markets a difficult proposition to farmers). Almost 50% of households indicated no access to health facilities. According to the Census (2011) barring one village, no other sample villages had Primary Health Centers (PHC) and the nearest PHC for these villages is almost 5-10 kms away.

The dissatisfaction with water levels in wells is a reflection of the general overexploitation of groundwater resources in the area. The area has seen excessive pumping leading to drying of wells with richer farmers often drilling bore wells up to 152 m depth, tapping deeper confined aquifers (Thomas and Duraisamy 2016).

The lowest dissatisfaction was in the context of recognition in community (1.6%), family relations (4.7%), clothes (5.8%), drinking water (8.9%), credit (9%) and basic household goods (12%). High satisfaction in family relations and recognition in the community are indicative of the strong social network present within the community and it can be at least assumed that social capital is a strong point in such a community and can be effectively used to reduce vulnerability.

Social groups differentiated perceptions:

The social environment comprising of different social categories, type of livelihoods, demographic differences all potentially influence prioritization of needs, satisfaction and aspirations of individuals. These have implications on the type of shocks faced and also their ability to cope with such risks.

There is a significant difference in the ordering of the various necessities and the level of satisfaction achieved on the various aspects of life, across the different castes compared to the aggregated data. Employment is considered an important necessity by all caste categories and low satisfaction among all caste categories is reflected in the high negative values associated with the difference in necessity and satisfaction ranking (Table 03). In the context of access to crop markets, there was significant difference among the caste categories both in terms of their rating of necessity as well as satisfaction levels (based on chi square values). Farmers belonging to forward caste category indicated very high necessity and very low satisfaction (with rank difference of -17, refer table 3) as compared to other caste categories. This may be due to relatively high land ownership by the farmers in forward category and their dependence on agriculture as a major livelihood occupation (15% of total annual income) with approximately 82% of the households depending on it as one of the major occupation.

Health care was found to be high on the necessity list for the forward and VJNT categories as compared to the other three categories. About 42 % of the forward and 56% of the Nomadic Tribes indicated dissatisfaction with health care as compared to the other groups. This is also noticed in the rank differences of -19 and -20 for the respective categories (Table 3).

All the community members felt sanitation as an important need irrespective of caste category. But there were significant differences (at 1% level) in the satisfaction levels among the caste categories. The SC, ST and nomadic tribe category members had relatively higher dissatisfaction regarding the sanitation facilities. The corresponding rank differences are also high (-14, -12, -13 respectively). It was found that almost 50 % of the Scheduled Caste and the Nomadic Tribe communities have no toilet facilities in their houses, despite all the villages being covered by the Total Sanitation Campaign. 6 out of the 8 villages do not have any community toilet facilities.

The importance of “water level in wells” is homogenously felt across all the castes and the satisfaction is lowest among the forward category and Scheduled Caste communities. This is reflected in their corresponding rank differences of -9 and -7 respectively. It is also an indication of greater dependence on groundwater to some extent by these communities. Approximately 37% of the sample families have reported making an investment in bore well digging or deepening in the last 5 years.

Food Consumption was found to be equally important among all community members and there was fair amount of satisfaction. This could be due to provision of essential food items through the Public Distribution System. About 50 % of the forward class and 44% of the NT/ VJNT class possessed Above Poverty Line (APL) Food Ration Cards. Majority of the population among OBCs, SC and ST categories have cards targeted for lower income groups (Below Poverty Line (BPL) and Antodaya cards). These cards have a greater quota than the APL cards. Most people responded that they receive the allotted quota and good quality food. There is still some

dissatisfaction as indicated by the negative rank differences for food consumption among all the categories (Table 03). This could indicate that supplying just basic food items does not meet the needs of the poor. Also, it is common that people in most rural areas cultivate for self-consumption and only the surplus is sold in market. Interestingly, the need for credit and agricultural inputs was noticed to be low and the corresponding satisfaction very high for all caste categories. 98% of the families in the sample had at least one member in the family with a bank account and the village community centers play an active role in helping the villagers in getting crop loans and insurances. Agricultural credits is quite a popular financial instrument in these areas, explaining the low necessity of the same.

1 Table 2: *Necessities (N) and corresponding Satisfaction(S) ranking of various social categories.*

Caste	Forward			Nomadic Tribes			OBC/Other Religion			SC			ST		
	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference
1. Food consumption	1	9	-8	1	6	-5	1	12	-11	1	16	-15	1	10	-9
2. Clean water	4	3	1	4	10	-6	4	4	0	5	5	0	2	3	-1
3. Sanitation	3	10	-7	3	16	-13	2	7	-5	2	16	-14	5	17	-12
4. Housing infrastructure	6	7	-1	5	9	-4	3	18	-15	4	13	-9	2	20	-18
5. Landholding	10	8	2	8	14	-6	7	21	-14	8	20	-12	7	21	-14
6. Health care	2	21	-19	2	22	-20	6	16	-10	3	9	-6	6	13	-7
7. Education	12	12	0	7	13	-6	8	6	2	5	3	2	9	6	3
8. Clothes	11	4	7	10	3	7	9	3	6	9	2	7	10	4	6
9. Basic household goods	18	5	13	15	4	11	14	8	6	13	7	6	8	8	0
10. Fodder availability	16	15	1	13	17	-4	18	19	-1	17	13	4	16	13	3
11. Veterinary services	16	14	2	17	19	-2	19	9	10	18	9	9	19	7	12
12. Employment opportunity	6	20	-14	5	20	-15	5	22	-17	5	22	-17	4	22	-18
13. Credit	22	6	16	22	5	17	20	5	15	22	6	16	22	4	18
14. Info on weather and crop-advisories	13	19	-6	16	12	4	14	9	5	16	11	5	18	12	6
15. Agricultural inputs	21	13	8	21	11	10	21	17	4	18	15	3	21	16	5
16. Water levels in your wells	9	18	-9	12	8	4	12	15	-3	11	18	-7	13	17	-4
17. Family relations	8	1	7	9	1	8	10	1	9	10	1	9	11	1	10
18. Recognition in the community	14	2	12	14	2	12	13	2	11	14	3	11	12	2	10
19. Access to common pastureland	20	16	4	20	15	5	21	13	8	18	18	0	20	8	12
20. Access to wells	15	11	4	18	6	12	14	11	3	14	8	6	17	11	6
21. Access to markets (crops)	5	22	-17	11	21	-10	11	20	-9	11	20	-9	14	17	-3
22. Access to markets (livestock)	19	17	2	19	18	1	17	14	3	21	11	10	15	15	0

Gender and Age differentiated perceptions:

Discrimination on the basis of gender is a universal phenomenon which manifests itself through wage disparities in labor markets (Sen 1987), social and education rights. Additionally age also seems to play an important role in changing needs and satisfaction, where the respondents do not only compare themselves within their own age- defined reference groups but also across other age groups (Tibesigwa et al. 2016). To study whether the sample population also projected any difference in vulnerabilities, the sample has been split into 6 major groups-the male and female young adults (14-25 years), the male and female adults (26-60 years), and the male and female elderly(>60 years).

Food consumption, health, employment opportunities have high necessity and low satisfaction across all demographic groups. Housing infrastructure, clothes, education are fields felt with high necessity and low satisfaction for the both male and female young adults as compared to the elderly generation. These differences indicate the changing needs of the younger generations. Education also singularly features in the young adult female list as one of the lowest satisfaction areas. The average literacy among the young adults was 10 years for women and 11 years for men.

Sanitation features as the most important need only for the female young adults. About 81 % of the female young adults think sanitation is very necessary with 41.1% saying that they are not satisfied at all. Landholding is becoming a less appealing concept amongst the younger generation, with shifting importance to education and alternative employment opportunity. Access to both agriculture and livestock markets occur recurrently as one of the lowest satisfaction areas. Although "information on weather and crop advisories" does not form one of the major needs for the various age and caste groups, it features as a major low satisfaction area for everybody but the adults, both male and female. The importance of family relations and recognition in the community is strongly felt among the female adult and the elderly while the satisfaction in these areas is high and homogenous across all categories.

1 Table 3: Necessities (N) and corresponding Satisfaction(S) of various gender- age groups.

Major Life functioning	Female Adult			Female Young Adult			Female Elderly			Male Adult			Male Young Adult			Male Elderly		
	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference	N-Ranking	S-Ranking	Difference
1. Food consumption	1	10	-9	3	6	-3	1	11	-10	1	10	-9	1	3	-2	1	8	-7
2. Clean water	3	6	-3	6	4	2	4	4	0	4	6	-2	2	4	-2	9	3	6
3. Sanitation	2	11	-9	1	8	-7	9	14	-5	2	11	-9	7	13	-6	3	18	-15
4. Housing infrastructure	6	7	-1	2	10	-8	6	11	-5	6	7	-1	4	8	-4	4	10	-6
5. Landholding	8	12	-4	11	10	1	7	19	-12	7	13	-6	9	10	-1	7	13	-6
6. Health care	4	20	-16	4	21	-17	2	20	-18	3	20	-17	5	20	-15	2	20	-18
7. Education	10	9	1	6	17	-11	14	5	9	8	8	0	5	10	-5	7	6	1
8. Clothes	11	3	8	5	3	2	10	1	9	13	3	10	3	5	-2	12	4	8
9. Basic household goods	14	4	10	10	6	4	17	7	10	19	4	15	14	7	7	21	5	16
10. Fodder availability	14	19	-5	19	12	7	17	17	0	15	16	-1	21	16	5	13	15	-2
11. Veterinary services	18	18	0	18	16	2	16	11	5	16	17	-1	18	14	4	16	12	4
12. Employment opportunity	5	22	-17	6	20	-14	4	20	-16	4	21	-17	8	22	-14	5	21	-16
13. Credit	22	5	17	21	5	16	21	6	15	21	5	16	19	6	13	22	6	16
14. Info on weather and crop-advisories	16	13	3	13	19	-6	17	17	0	12	12	0	15	19	-4	15	17	-2
15. Agricultural inputs	21	14	7	20	14	6	22	10	12	20	14	6	22	12	10	20	11	9
16. Water levels in your wells	12	16	-4	13	13	0	10	16	-6	11	15	-4	10	14	-4	9	15	-6
17. Family relations	7	1	6	11	1	10	3	1	2	10	1	9	12	1	11	11	1	10
18. Recognition in the community	13	2	11	15	2	13	7	1	6	13	2	11	13	2	11	14	1	13
19. Access to common pastureland	20	14	6	22	14	8	15	9	6	22	18	4	19	18	1	18	14	4
20. Access to wells	17	8	9	16	9	7	13	7	6	17	9	8	16	8	8	17	9	8
21. Access to markets (crops)	9	20	-11	9	21	-12	10	22	-12	9	22	-13	11	20	-9	5	21	-16
22. Access to markets (livestock)	19	17	2	17	18	-1	20	14	6	17	19	-2	17	16	1	19	19	0

2

Subjective Wellbeing and SDGs

The development policies, if designed according to a specific society’s primary needs and evaluated through the lens of satisfaction levels could bring about ideal results. It can also be hoped to achieve a village’s or a state’s or a country’s SDG targets. However, societies being diverse and multi-tiered would require more than a majoritarian comment on what forms the primary need of that society.

The following table shows the synergy and trade-offs that would happen if only the aggregated sample’s needs were taken into account.

Areas deemed Necessary through the Subjective Wellbeing Methodology for the aggregated sample	SDGs achieved if these areas are targeted.	SDGs neglected if a socially or gender-wise differentiated opinion is not taken into account.
Employment Opportunity	Goal 1- No Poverty	Goal 4- Quality Education Goal 5- Gender Inequality. Goal 6- Reduced Inequalities.
Access to crop markets	Goal 2- Zero Hunger	
Health Care	Goal 3-Good Health and Wellbeing Goal 6-Clean Water and Sanitation.	
Sanitation	Goal 8- Decent work and Economic Growth	
Water levels in wells	Goal 12- Responsible Consumption and Production	

Although beyond the scope of this paper, it is easy to understand that the neglected SDGs are crucial in terms of a society’s vulnerable sub-population, stressing on the fact that while subjective wellbeing reveals the needs of a society, such studies should also be done, not merely in aggregate but across all sub sections of the society, however in minority they may be, and maybe more specifically so.

5. Conclusion

The analysis of the needs and satisfaction about various functional life constituents amongst the various reference groups and the aggregated sample have brought out that some factors like food, clean water and health are felt as prime necessity amongst most sections of the society. Few others like education and clothes finds traction only among the younger generation. Sanitation becomes the most important need for the younger females while remaining at a very low spot for the elderly females.

It has been observed in the study that the historically backward classes display certain characteristics and choices that are different from the forward communities. For example, while there is less involvement in agriculture, their dependence on other sources of income and investment in education as a necessary ladder, also creates future pathways to cope with losses due to climatic variability and helps in resilience building by creating alternate livelihood options.

The study provides insights into why and how certain areas should be specially targeted to achieve universal goals of human development and wellbeing. For example, health facility development has to be a major target in the study area as it is perceived as the factor with very high difference between its necessity and satisfaction level across all classes. Similarly, absence or low level of alternate livelihood options other than agrarian occupations is indicative of the absence of fallback employment in times of extreme climate conditions, leading to agrarian crisis and magnification of poverty. This requires creation of job opportunities, spread of education and vocational trainings.

This would also help in smoothing development “gaps” between various groups by identifying specific areas of backlog and creating a more egalitarian, developed state. This study and others like it are particularly important in helping to frame government policies and programs to take into account differing needs and priorities.

6. References

- Adger, W.Neil. 2006. "Vulnerability." *Global Environmental Change* 16(3):268–81.
- Adger, W.Neil and P.Mick Nelly. 1999. "Social Vulnerability to Climate Change and the Architecture of Entitlements." *Mitigation and Adaptation Strategies for Global Change* 4(3):253–66. Retrieved (<http://www.springerlink.com/content/m826227072036862/>).
- Appadurai, Arjun. 2007. "The Capacity to Aspire: Culture and the Terms of Recognition." Pp. 59–84 in *Culture and Public Action*, vol. 55.
- Chaudry, Ajay et al. 2016. "Rural Household Vulnerability and Strategies for Improvement: An Empirical Analysis Based on Time Series." *Global Environmental Change* 16(1):361–89. Retrieved (<http://doi.wiley.com/10.1111/j.1468-0149.1988.tb02065.x>).
- Copstake, James and Laura Camfield. 2010. "Measuring Multidimensional Aspiration Gaps: A Means to Understanding Cultural Aspects of Poverty." *Development Policy Review* 28(5):617–33.
- Deaton, Angus and Arthur A. Stone. 2013. "Two Happiness Puzzles." *American Economic Review* 103(3):591–97.
- Doyal, Len and Ian Gough. 1984. "A Theory of Human Needs." *Critical Social Policy* 4(10):6–38. Retrieved (<http://journals.sagepub.com/doi/10.1177/026101838400401002>).
- Fang, Yi ping, Chen Zhao, Golam Rasul, and Shahriar M. Wahid. 2016. "Rural Household Vulnerability and Strategies for Improvement: An Empirical Analysis Based on Time Series." *Habitat International* 53(April):254–64.
- Hak, T., Janouskova, S., & Moldan, B. (2016). Sustainable Development Goals: A need for Relevant Indicators. *Ecological Indicators*, 60, 565-573.
doi:<https://doi.org/10.1016/j.ecolind.2015.08.003>
- Holling, C. .. 1973. "Resilience." *Annual Review of Ecology and Systematics*. 4:1–23.
- Kahneman, D. and A. Deaton. 2010. "High Income Improves Evaluation of Life but Not Emotional Well-Being." *Proceedings of the National Academy of Sciences* 107(38):16489–93. Retrieved (<http://www.pnas.org/cgi/doi/10.1073/pnas.1011492107>).
- Kates, Robert W., Thomas M. Parris, and Anthony a Leiserowitz. 2005. "What Is Sustainable Development?" *Environment: Science and Policy for Sustainable Development* 47(3):8–21. Retrieved (<http://www.csa.com/partners/viewrecord.php?requester=gs&collection=ENV&recid=6248252>)
- Kelly, P. M. and W. N. Adger. 2000. "Theory and Practice in Assessing Vulnerability To." 325–52.

- Martinsson, Peter and Alpaslan Akay. 2012. "Positional Concerns through the Life Cycle : Positional Concerns through the Life Cycle : Evidence from Subjective Well-Being Data and Survey Experiments." *Institute for the Study of Labor Discussion Papers* (6342):1–44.
- McBride, Michael. 2001. "Relative-Income Effects on Subjective Well-Being in the Cross-Section." *Journal of Economic Behavior and Organization* 45(3):251–78.
- McGregor, J.Allister, Laura Camfield, and Alison Woodcock. 2009. "Needs, Wants and Goals: Wellbeing, Quality of Life and Public Policy." *Applied Research in Quality of Life* 4(2):135–54.
- McGregor, J.Allister, Andrew McKay, and Jackeline Velazco. 2007. "Needs and Resources in the Investigation of Well-Being in Developing Countries: Illustrative Evidence from Bangladesh and Peru." *Journal of Economic Methodology* 14(1):107–31.
- Nussbaum, Martha and Amartya Sen. 1993. *The Quality of Life*.
- Sen, Amartya. 1999. "Development as Freedom."
- Sen, Amartya. 1987. "The Standard of Living." *Journal of Economic Literature* 33(4):1903–40. Retrieved (<http://doi.wiley.com/10.1111/j.1468-0149.1988.tb02065.x>).
- Stevenson, Betsey and Justin Wolfers. 2008. "Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox." *IZA Discussion Paper* (3654):1–87. Retrieved (http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=35228172&site=ehost-live%5Cnhttp://muse.jhu.edu/journals/brookings_papers_on_economic_activity/v2008/2008.1.stevenson.pdf).
- Thomas, Renie and Vijayasekaran Duraisamy. 2016. "Hydrogeological Delineation of Groundwater Vulnerability to Droughts in Semi-Arid Areas of Western Ahmednagar District." *Egyptian Journal of Remote Sensing and Space Science*. Retrieved (<http://dx.doi.org/10.1016/j.ejrs.2016.11.008>).
- Tibesigwa, Byela, Martine Visser, and Brennan Hodkinson. 2016. "Effects of Objective and Subjective Income Comparisons on Subjective Wellbeing." *Social Indicators Research* 128(1):361–89.