Empowering Armenians Through Poverty Stoplight

Abstract

Poverty Stoplight defines poverty from a multidimensional approach. The organization aims to motivate families to become actors, not objects, of development and poverty elimination. Our project aimed to adapt the indicators of poverty to Armenian conditions and portray the potential of adopting the tool to nonprofit organizations and governmental agencies. To accomplish our goal, we completed research and interviews to identify the appropriate indicators of poverty for Armenia and then tested the tool with 81 families. Through the testing process, our team found that our tool was statistically valid and reliable and is ready to be piloted by organizations that are willing to adopt the tool in Armenia.

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Approaching Poverty in Armenia

Worldwide, there are approximately 770 million people living in extreme poverty. Roughly 3.4 billion people, almost half of the global population, struggle to meet basic needs.[1] Generally, poverty is described by monetary standards, including individual or family income, unemployment rates, or debts owed.[2] However, nations around the world are beginning to adopt the idea that poverty cannot simply be characterized by dollars and cents, but rather encompasses many facets. Poverty is more accurately defined by the quality of a family's housing, health care, education, self-esteem, income, and community involvement.[3]

In Armenia, a developing nation, poverty is a prevalent issue that affects almost 30% of the population.[5] Armenians have suffered numerous tragedies including a devastating earthquake, geopolitical complications, and crippling economic issues, each of which contributes to the nation's state of poverty. In 2016, the average monthly salary in Armenia was 181,000 AMD ($374 USD), which is far below the average global monthly salary of 723,000 AMD ($1,493 USD).[6] The average monthly pension was 44,000 AMD ($91 USD), and 20% of the children under five years old had health problems due to malnourishment.[7] The Armenian government recognizes these issues and is attempting to rebuild the nation to reduce the widespread poverty issue that affects roughly 900,000 Armenians.[8]

The Armenian government has initiated programs, each of which directs its efforts towards different aspects of poverty. Such programs encompass monetary assistance, health care, education, and institutional housing. The government also collaborates with non-profit organizations including our two sponsors, the IDeA Foundation and Orran, to reduce poverty across Armenia. The IDeA Foundation focuses on economic growth to lift large populations out of poverty by building sustainable initiatives including renovating historical sites; implementing educational, cultural, and social programs in different communities; and fundraising for those in need, specifically Syrian refugees.[9] These initiatives create jobs for the Armenian people as well as increase tourism which decreases unemployment rates and increases the Gross Domestic Product (GDP). The IDeA Foundation completes large, intricate projects that focus on national development rather than individualized aid for the impoverished.

Orran has a different approach to addressing poverty by taking begging children off the streets who are tasked with being the breadwinners for their families.[10] Orran utilizes a more personalized approach when working with families because they recognize that poverty affects homes differently.

Figure 1: Rural Armenian Family from Spitak Post-Earthquake[4]

Both the IDeA Foundation and Orran, as well as other non-profit organizations, recognize the multidimensional complexity of poverty and that governmental monetary standards based solely on income create generalizations about Armenian families.

While the current solutions implemented by the government and nonprofit organizations may be providing some aid to the impoverished community, the overall impact is not large enough to reach the majority of those in need. The poverty rate has decreased from 32.4% to 29.8% from 2012 to present, but this number is still extremely large which suggests that the current poverty elimination strategies are not fully effective.[1] Generalized governmental initiatives will not always benefit the majority of the impoverished because poverty does not affect families uniformly. A poverty elimination strategy must address the specific deficiencies each family encounters in their daily lives. The main protagonist in eliminating poverty must be the poor themselves.[3]

Our team addressed the issue of poverty in Armenia by collaborating with Poverty Stoplight. Poverty Stoplight is an organization focused on helping impoverished families lift themselves and their communities out of poverty. Poverty Stoplight believes the only way to eradicate poverty is by motivating families to find solutions to remove themselves from poverty. This means the families living in poverty must be engaged as agents of change in their own lives, regardless of their income level.[3] Poverty Stoplight's individualized approach utilizes a tool that encompasses fifty indicators. Each indicator represents an aspect of one's daily life that can determine a family's state of poverty. Families assess themselves based on these indicators and recognize in which areas they are considered 'not poor' and which they are considered 'poor'. By providing families the opportunity to study their results, they are able to reflect upon both their strengths and weaknesses. This is meant to provide families with the added motivation to overcome their specific poverty situation.

Our goal was to customize and pilot the Poverty Stoplight tool specifically to the needs of the Armenian people for the purpose of reducing poverty in Armenia. The objectives we developed to achieve this goal were:

I. Identify and understand poverty data based on income, housing, resources, education, health, and other relevant cultural issues to determine if existing indicators can pertain to Armenian conditions.

II. Customize indicators to create a working strawman of the Poverty Stoplight tool based on the unique characteristics of urban poverty in Armenia.

III. Refine the working strawman of the Poverty Stoplight tool to fit Armenian conditions, based on feedback we receive from executives, project managers, social workers, and civilians in Armenia to create the Armenian Poverty Stoplight tool.

IV. Collect data on poverty in Armenia using the finalized Armenian Poverty Stoplight tool to test for validity and reliability.

V. Present the completed tool with recommendations for implementation and sustainability of the fully tailored indicators and portray the potential of adopting the Poverty Stoplight movement to Armenian nonprofit organizations and government agencies.

To complete these objectives, we conducted multiple interviews with the CEO of Poverty Stoplight and his staff to determine how the organization works and how we could adapt the tool to Armenia. We also interviewed experts on Armenian poverty including the impact team from the IDeA Foundation, social workers from Orran, as well as representatives from other organizations focused on reducing poverty in Armenia. We utilized our adapted tool to survey families and collected the necessary data to present the tool to our sponsors and provided recommendations for further implementation and sustainability.

"Our vision is a **world without poverty** where we all want to live."[3]

Redefining Poverty in Armenia

There are two different ways to define poverty: unidimensional or multidimensionally. A unidimensional analysis of poverty focuses on one aspect of an individual's life, generally income, to determine if the individual is impoverished. For example, in various nations, the government divides individuals into different classes to determine the family's status based on the income of the heads of the household. In contrast, the United Nations defines poverty using the Multidimensional Poverty Index, or MPI.[12] MPI utilizes several different indicators to evaluate if an individual is impoverished, such as living circumstances, household income, education, and healthcare. The data gathered using this approach is then used to compare poverty across nations. By utilizing the multidimensional method, multiple facets of everyday life are considered allowing for a more holistic approach to accurately assess an individual's circumstances.

Common methods used globally to track poverty include income and unemployment rates. These statistics are definitive because they have limited outcomes: an individual is above versus below the poverty line or is employed versus unemployed. According to the Asian Development Bank, an Armenian living in poverty has a monthly income of 54,000 AMD ($112 USD) monthly. This poverty line in Armenia is determined by the average consumer basket price, which is a compilation of various needs such as housing, utilities, and food, thus producing the cost of living. An Armenian living in extreme poverty has an income of 24,000 AMD ($50 USD) monthly or less.[8] Armenia is in a poverty crisis that affects nearly one third of their population, 900,000 Armenian citizens.[8]

Armenia's unemployment rate is 18.9%[13] compared to the global unemployment rate of 5.4%.[14] Armenia's unemployment rate is more than three times above the global average, which contributes to their considerable poverty issue.

To more accurately assess each household's circumstances, MPI measurements incorporate health, education, and standard of living to exemplify that poverty is relative to factors beyond income. Health is measured by nourishment and childhood mortality. Education is measured by the number of years of completed schooling and the duration of attendance. Standards of living include access to electricity, drinking water, and the number of physical assets each individual owns, such as a radio, television, or telephone. These standards are formatted into a survey that measures deprivation applicable to citizens globally. Based on the results, an individual may be deemed multidimensionally poor.[12] As shown, poverty is a complex concept that cannot solely be defined based on income.

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6 Dimensions of Poverty:

I. Income & Employment

II. Health & Environment

III. Housing & Infrastructure

IV. Education & Culture

V. Organization & Participation

VI. Self-Awareness & Motivation

Historical Context of Poverty in Armenia

Much of the poverty in Armenia is a result of several recent historical events, especially the Soviet collapse, 1988 earthquake, war with Azerbaijan, and geopolitical factors. Following World War I, Armenia fell under the control of the Soviet Union and remained so until the Soviet collapse in 1991 prompted Armenians to declare independence and reestablish the Republic.[15] Independent Armenia lost the benefit of economic protection of the larger empire and had to overcome the "transition recessions" along with the political transition to democracy. It wasn't until the mid-2000s that Armenia was considered economically stable.[16] Poverty in independent Armenia was also affected by a catastrophic earthquake that occurred three years prior.

In December of 1988, an earthquake struck Spitak, a large city in northern Armenia, causing the deaths of over 25,000 people across three large cities and hundreds of surrounding villages and towns. Hundreds of thousands of people in the region lost their homes and jobs.[17] People are still suffering from the repercussions of the earthquake as sources of employment have not been reestablished, causing much of the workforce to migrate elsewhere for better job opportunities. Generally, this migration involves unemployed men going to Russia to seek work, leaving behind their families for the majority of the year. In rural areas where families rely on agriculture, the men's absence tends to force the women of the village to care for not only their children, but also the farmland and livestock.[18] Further, many still live in the temporary shacks provided during the earthquake relief effort.[19]

Another significant event was the war with Azerbaijan, also known as the Nagorno-Karabakh conflict. Nagorno-Karabakh, a region of majority Armenian population, was placed under Azerbaijani control by the USSR for the majority of the twentieth century until the attempted secession of resident Armenians prompted widespread conflict.[20] Even though the conflict technically ended in 1994 when a ceasefire was signed, hostilities persist between the two nations today.[21] The Karabakh conflict resulted in strained relations between Armenia and Turkey, due to the latter's support of Azerbaijan during the war. Consequently, Turkey and Azerbaijan closed their borders with Armenia, leaving Georgia and Iran as the only available routes for trade.[22] In general, Georgia possesses Armenia's main trade route, connecting it to Russia and the rest of the world. While Iran also has an open border with Armenia, trade is limited due to Iran's "protected internal market for imported goods".[23] These limited trade routes have severely impacted the Armenian economy, contributing to nationwide poverty. The high level of poverty has prompted the development of several organizations to address poverty in Armenia.

Current Government Solutions to Poverty

The Armenian Government has taken many steps to attempt to reduce the poverty rate, but these initiatives are either ineffective or too small-scale to help large populations. Since Armenia has only recently become independent, the government is struggling to find methods to build the economy, health care system, social programs, and other essential government assistances. The current government initiatives, including monetary assistance, health care, education, and institutional housing are inadequate for the large impoverished population in Armenia.

The Family Benefits Program aims to support families financially who are living under the poverty level by supplying them with an allowance. The Family Benefits Program has helped to slightly reduce poverty in Armenia, but only 4.33% of the total Armenian population receive aid.[24] Since nearly 33% of Armenians are below the poverty line, the percentage of citizens receiving aid is inadequate for reducing poverty on a large scale. The Basic Benefits Package (BBP) was implemented to offer health care to individuals who cannot afford medical expenses. For all of Armenia, the package theoretically guarantees that certain services are free of charge, while a small portion of the population is granted with all available medical treatment free of cost. The remainder of the nation must pay for medical expenses that are not covered in the BBP out of pocket. In theory, this seems beneficial to guarantee the majority of Armenia can receive medical care regardless of income. However, due to the general practice of informal payments as well as limited resources, even the individuals with guaranteed free health care are asked to pay for services. Due to the large scale problem of expensive health care, many people defer medical treatment until it is unavoidable.[25]

While education is valued greatly throughout Armenia, the government is not providing enough funding for higher education institutions. Universities have resorted to charging students for the use of certain university properties and services in order to pay their staff. There is also very little aid provided to students to help pay for their education and every year this amount is declining. For example, at its highest, the average amount of aid per student was 127,000 AMD (262 USD) while the cost of the average university program is 4,480,000 AMD ($9,255 USD).[26] The elevated costs of higher education creates obstacles for the general population to attend, and it is nearly impossible for those who live under the poverty line.

Administration of Poverty Stoplight Tool

Due to lack of funds, there are no unified government housing programs for the "vulnerable groups" including the earthquake-displaced, refugees, children lacking parental care, the mentally ill, newly formed young families, and people with disabilities or partial mobility.[27] There are no registered homeless citizens according to Armenian records because the government is not tracking these numbers. The government has refused to begin implementing programs due to the lack of data, which means these groups are not receiving essential shelter. In all of Armenia, there is only one homeless shelter, the Hans Christian Kofoed Charitable Foundation. It houses roughly 100 individuals comfortably, in a stretch 150, and the majority of them are senior citizens without families to support them. The government is funding this shelter by annually providing 56 million AMD ($115,682 USD) to cover food, utilities, and wages, but much more needs to be done.[28] More institutions need to be set in place in order to support the homeless and begin lifting individuals out of poverty.

Current Non-Governmental Organization Solutions to Poverty

In addition to government programs, the IDeA Foundation has completed many projects which have benefitted Armenia immensely, such as the Tatev Revival. In 2008, they aided in transforming the Tatev region and it is now the leading cultural and spiritual destination in Armenia. The IDeA Foundation supported the restoration of the Tatev Monastery, invested money to build the Wings of Tatev aerial tramway and Tatevatun restaurant, as well as improving infrastructure to help develop local communities. This included restoring a drinking water supply, installing garbage bins and street lamps, and creating an agricultural business plan for the surrounding villages.[29] The Tatev Monastery is one of the most illustrious religious and cultural symbols of medieval Armenia and its restoration was meant to instill a sense of hope and pride to the Armenian people as well as attract tourists. Due to its rich history, leading specialists and expert organizations were able to conduct scientific research while the restoration was being completed. The IDeA Foundation plans to further transform Tatev from a single day-trip destination to a major attraction where tourists spend multiple days experiencing all of southern Armenia. This program will increase tourism, create jobs and businesses, as well as develop infrastructure and a local community.[9]

Another organization that is attempting to resolve poverty in Armenia is Orran, which means "home" in Armenian.[10] Orran was established in 2000 for the purpose of preventing the escalation of poverty and begging among children and the elderly in Yerevan. Orran is a day-care center that aids vagrant and deprived children as well as lonely elderly who would have to resort to begging on the streets.[30] Orran provides food, academic assistance, medical and psychological assistance, social services, vocational training, and cultural enrichment; all of which are necessary to help shape the children into happy, successful, and well-rounded adults regardless of their financial status. To date, more than 5000 people have benefitted from Orran's programs, which are supported by generous financial donations from their benefactors.

Social Worker Explaining an Indicator to a Mother

There are multiple other organizations focused on reducing poverty and furthering the development of Armenia including the Dilijan Community Center (DCC), the Caucasus Research Resource Center (CRRC), and Fund for Armenian Relief (FAR). The DCC provides programs tailored towards adolescents which include recreational activities, sports, and educational classes.[31] The CRRC conducts a census survey and tracks poverty trends throughout all of Armenia.[32] FAR creates relief and developmental programs for economic development, child protection, healthcare programs, education, and social services.[33] While Armenia has numerous programs aimed at reducing poverty nationwide, they individually do not have the widespread impact that the country

needs. The adoption of Poverty Stoplight would introduce new ideals and methods that could benefit the nation. through large scale data collection and individual household education and assistance. The Poverty Stoplight methodology has been successfully implemented in twenty-four different countries, and could provide a reliable solution to lifting Armenians out of poverty.

The Mission, Method, and Instrumentation of Poverty Stoplight

Fundación Paraguaya, a partner of MetLife Foundation, was founded in 1985 and became Paraguay's first microenterprise development program. The non-profit organization did so by assisting the poor within Paraguay by providing loans and training sessions to help the poor strengthen existing jobs and create new ones. Fundación Paraguaya knew that in order to pursue their vision of a 'world without poverty where we all want to live' the organization would have to take a larger step towards innovative, practical, and sustainable solutions.[3] They developed the Poverty Stoplight methodology, and later a tool, based on four insights shown in Figure 2. To properly articulate the definition of what it means "not to be poor" in each community, Poverty Stoplight utilized the four main insights to produce the following six dimensions:

I. **Income & Employment**: Incorporates income, access to credit, savings, and forms of personal identification

II. **Health & Environment**: Incorporates insurance, access to medical facilities, clean water and environment, eye and dental care, personal hygiene and sexual health

III. **Housing & Infrastructure**: Incorporates stable and safe housing, access to a mobile device, access to transportation, household appliances, appropriate clothing, electricity and gas

IV. **Education & Culture**: Incorporates ability to plan a budget, awareness of human and legal rights, entertainment and recreation, and access to information

V. **Organization & Participation**: Incorporates conflict resolution, voting, participation in self-help groups, and influence in the public sector

VI. **Self-Awareness & Motivation**: Incorporates autonomy, moral conscience, self-expression, emotional-affective awareness, and entrepreneurship

The Poverty Stoplight methodology has been successful in defining what poverty means in Argentina, Chile, Colombia, Honduras, Mexico, Nigeria, Papua New Guinea, Paraguay, Sierra Leone, Singapore, South Africa, United Kingdom, and the United States of America. To redefine what poverty means in each nation, Poverty Stoplight utilizes around fifty indicators that are divided into three distinct groups: eight Core Indicators, sixteen Conceptual Indicators and at least twenty-four Suggested Indicators. The mandatory Core Indicators allow Poverty Stoplight partners and organizations to make comparisons between nations by utilizing MPI factors. MPI uses different factors to determine poverty beyond income-based lists universally.[34] The sixteen Conceptual Indicators are required, but can be altered under the verification of the Methodological Committee at Poverty Stoplight.

Lastly, the Suggested Indicators allow the developers to create indicators that are relatable to the majority of impoverished residents in the target population. For instance, in New Orleans, Louisiana the probability of incarceration is nearly double the United States average, making it a concern that can be identified by Poverty Stoplight.[35]
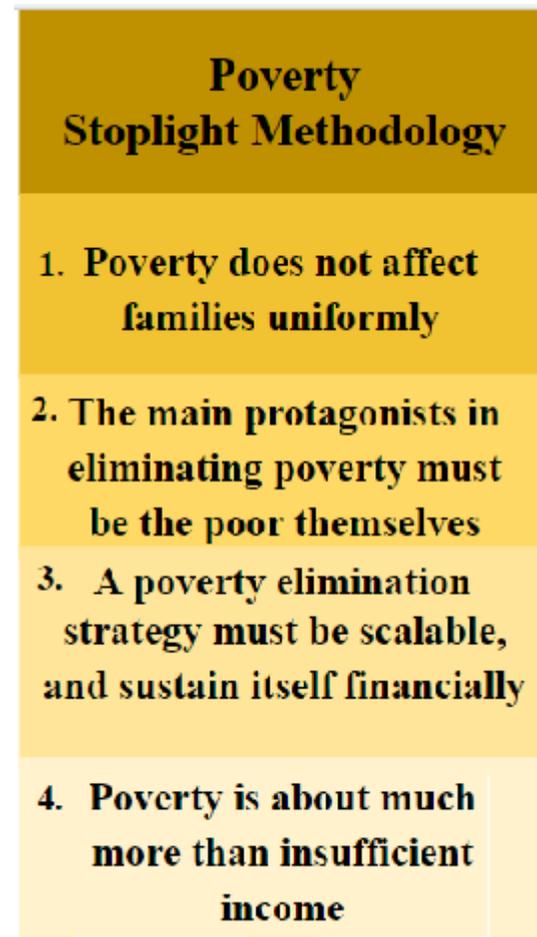

Figure 2: Poverty Stoplight's four main insights[3]

The indicators must be tailored to a specific country or region, as poverty is relative to the needs and problems of the individual location. The Core Indicators and Conceptual Indicators tend to remain the same country to country, but the Suggested Indicators can be altered to highlight the individual realities of the country. The general procedure for adapting the indicators is completing initial background research to create a working draft. This draft is then utilized in interviews or focus groups with citizens of that country, where questions are asked to find what revisions must be made to the tool. Finally, the tool goes through a phase of reliability and validity testing.

The tool is administered to a family, along with two surveys, a preceding socio-economic survey, and a post validity survey. The socio-economic survey gathers information on the basic data of the household, such as their monthly income and if they own a vehicle. These data can then be used to compare households; if the tool is reliable, households from similar socio-economic backgrounds should have similar answers. The post validity survey asks questions to gather data on if the household thought the tool was a fair representation of them, if they agree with their results, and if they believe it is an effective measure of poverty in their country. The results gathered from both surveys are meant to prove whether the tool is valid and reliable. If they are, the tool will be considered adapted to the needs of that country. The indicators are assessed by the head of the household, either the mother or the father, giving them the opportunity to select the rate how the indicator represents their current circumstances on a three-point scale. It is administered by a mentor, typically a social worker or a trained third party.

The scale uses the universal stoplight colors: red being that the family always identifies with the conditions, yellow being that the family sometimes identifies with the conditions, and green being that the family never identifies with the indicator. Each indicator is supported by its specific definition, justification, three identity levels and corresponding pictures. The definition is a broad statement that encompasses all three indicator levels, which allows the individual utilizing the tool to understand what the indicators are assessing.

The justification is a specific statement included to answer why the indicator is required for the adaptation of the Poverty Stoplight tool in the target region. The three indicator levels allow the individual completing the Poverty Stoplight assessment to choose the situation that best describes their personal poverty profile. Finally, the tool includes one picture to correspond with each indicator level to assist in understanding what the level assesses.[3] The format of an indicator is shown in Figure 3.

Indicator 8: Clean drinking water	Category: Core Indicator (GI)	Dimension: Health and Environment
Definition: *Access to drinking water* consists of the members of a family having a steady source of drinking water that can be used for domestic purposes or for personal hygiene, as well as for drinking or cooking without the risk of contracting disease.		
Justification: Drinking water is indispensable for health of the family and easy, continuous access to it are essential elements of a decent life.		
Green: Our family has access to clean tap water. Our water has not been shut off by the city, and we never worry about the quality of tap water.	**Yellow:** Our family's water has been shut off or we do not have easy access to clean tap water. We buy bottled water instead.	**Red:** Our family's water has been shut off, we do not believe the tap water is clean, or we have to travel far to get water. We cannot afford to buy bottled water.

Figure 3: Indicator #8 of the Armenian Poverty Stoplight Tool

After the head of household chooses their level for all of the indicators, a dashboard and Life Map are developed for the family. The dashboard is the compilation of all of the family's answers visually depicted, as shown in Figure 4. The head of household creates a Life Map by choosing five indicators in which they are poor or extremely poor that they would like to improve. The mentor that administered the tool helps create an action plan for the household using locally available solutions, and follows up with the family every few months to track their progress.[3] An example Life Map is shows in Figure 5.

Overall, households who participate in taking the Poverty Stoplight survey are able to:

I. Visualize their own poverty in a simplified way

II. Become actors, not objects, of development and poverty elimination

III. Break down the overwhelming concept of poverty into manageable fragments

IV. Develop their own Life Map to overcome poverty

The goal is to upgrade every yellow and red level eventually to green. Once each level turns green, the family can state that they have overcome all of their deficiencies and are no longer poor.
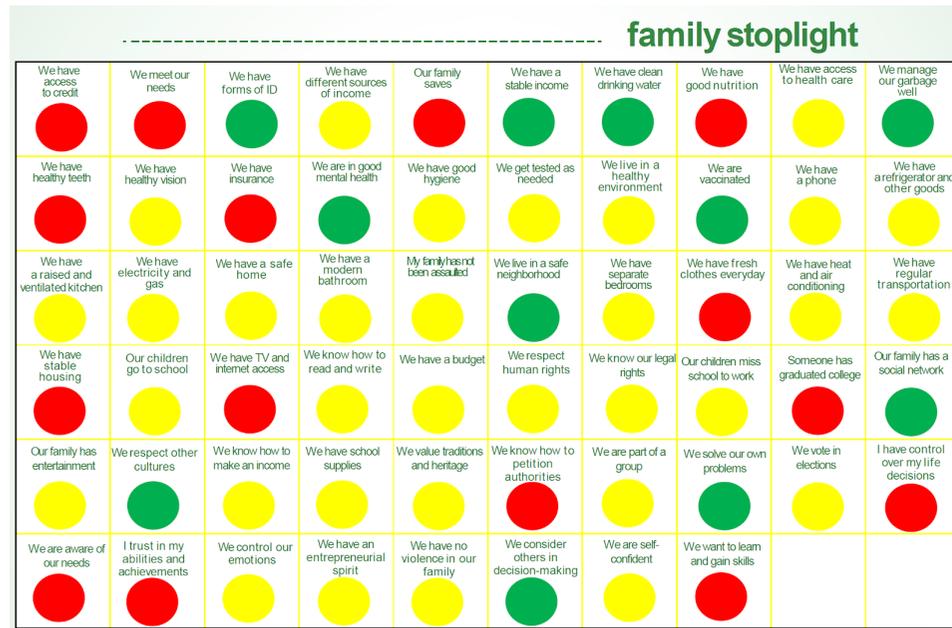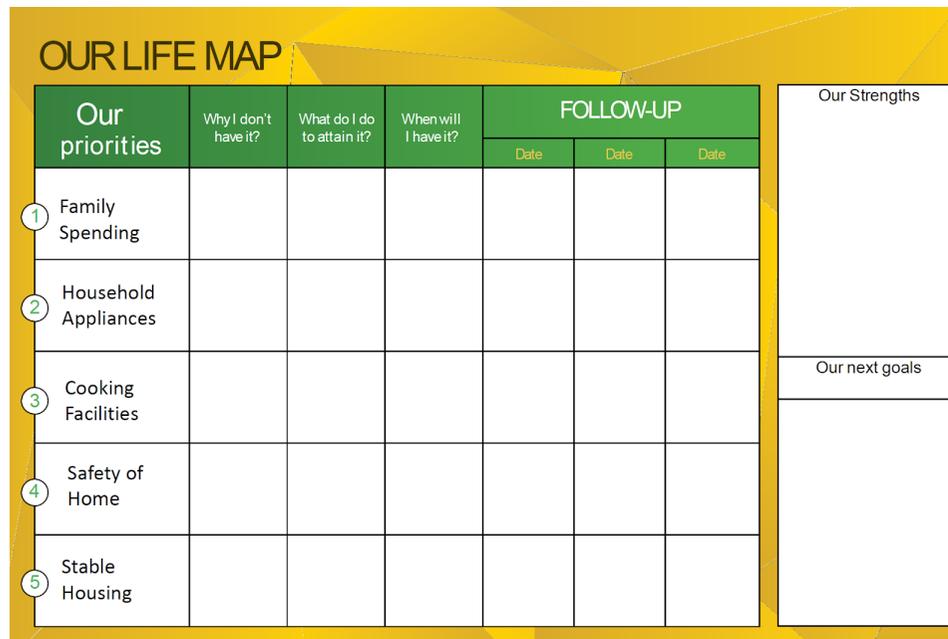

Figure 4: Poverty Stoplight Dashboard[3]

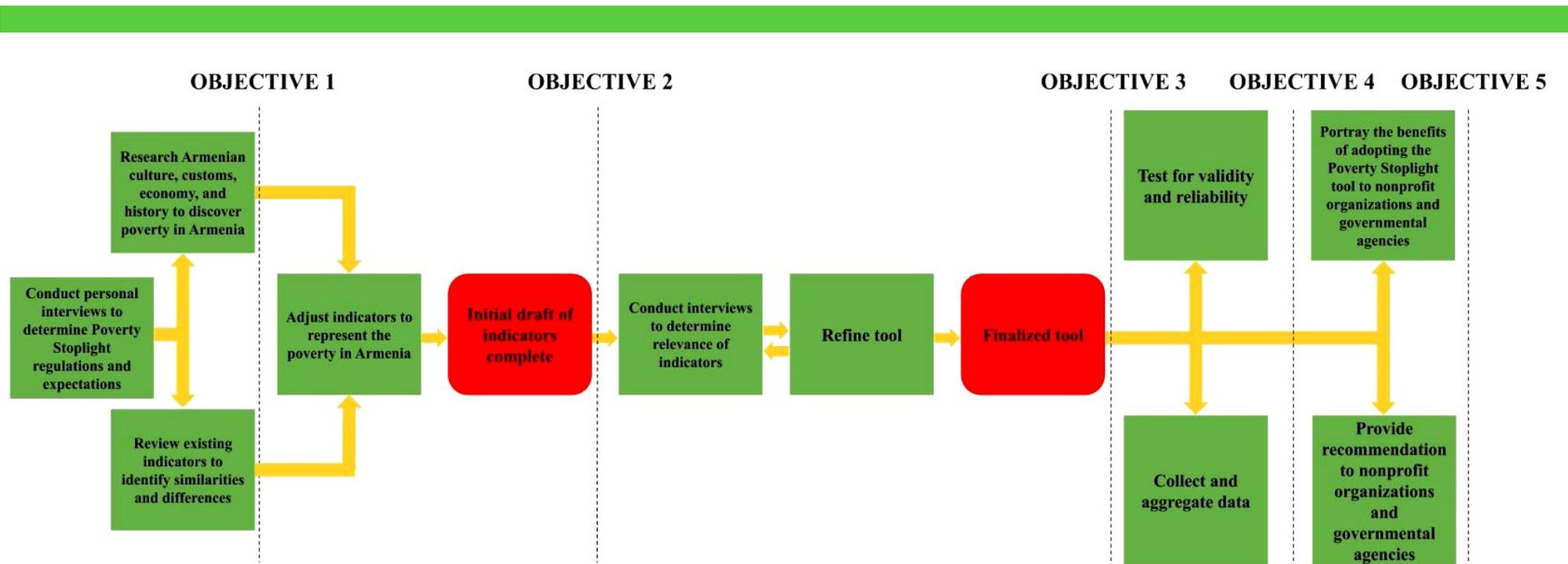*Figure 5:* Poverty Stoplight Life Map[3]

Figure 6: Process Flowchart

Developing the Armenian Poverty Stoplight Tool

The goal of our project was to customize and pilot the Poverty Stoplight indicators specifically to the needs of the Armenian people to empower impoverished families to lift themselves out of poverty. An overview of our work plan is outlined in Figure 6. Before we adapted the Poverty Stoplight indicators to suit Armenian realities, we contacted Martin Burt, the Poverty Stoplight founder, and Stephanie Manciagli, an International Replicas Specialist of Poverty Stoplight, to gather the necessary templates and resources to adapt the tool. Martin and Stephanie assisted us in understanding the history of the tool, provided guidance on how the indicators should be adapted, and outlined the Poverty Stoplight standards for adapting and implementing the tool. The templates included Poverty Stoplight indicators from two countries as well as a socioeconomic survey, standard dashboard, and life map. To properly format the indicators, Poverty Stoplight also provided us with a PowerPoint template of the Paraguay indicators.

To adapt our indicators effectively, we conducted extensive research on the state of poverty in Armenia, specifically focusing on the economy and culture. To create our first draft of indicators, we compared and contrasted existing indicators from New Orleans, Louisiana and Newcastle, United Kingdom.

After compiling the indicators from both locations, we had a total of 64 unique indicators which we analyzed to determine whether they were applicable to Armenia. We utilized literature review and personal interviews with Armenian WPI students and members of the Armenian Church of Our Savior in Worcester, Massachusetts to determine the relevance of each indicator. The research questions we posed were:

I.   How is this indicator applicable to poverty?

II. Is this indicator applicable to poverty in Armenia?

III. If not, how could this indicator be tailored to Armenian conditions?

Revise Adapted Indicators

Once in Armenia, we conducted a series of personal interviews in order to receive feedback on whether our set of indicators was representative of poverty in Armenia. We recruited individuals from Orran, the IDeA Foundation, the Dilijan Community Center, the Caucasus Research Resource Center (CRRC), Teach for Armenia and Fund for Armenian Relief (FAR). From the IDeA Foundation, we talked with executives and project managers who have an understanding of the large scale poverty issues in Armenia. Social workers from Orran brought insight from the personal experiences they have witnessed. From the Dilijan Community Center, we talked with staff and community members discussing their personal families and communities. Lastly, with the CRRC, we interviewed experts in poverty statistics and gained insight on how our tool may impact urban poverty in Armenia.

Interviews began after we received consent from the interviewee, explained our project goal, and briefly introduced the Poverty Stoplight tool. We would then transition to reviewing the entire set of indicators, where we asked the following questions about each indicator:

I. Did the indicator pertain to the multidimensional approach to poverty?

II. Did the indicator pertain to poverty in Armenia?

III. Did the definition and justification accurately encompass the purpose of the indicator?

IV. Were the red, yellow, and green levels appropriate to Armenia?

V. Were the three corresponding images appropriate to Armenia?

After we discussed the indicators, we asked if we missed any important factors of poverty within our dimensions or if there was any final feedback they would like to give us. Our questions were aimed to gain insight on how to adjust the indicators to make them more applicable in the Armenian context. These interviews allowed us to compile feedback on how to either alter or remove the indicators based on relevance to the Armenian citizens. We determined when we no longer needed to make edits to the indicators by verbal feedback. The verbal feedback was from both new interviewees and past interviewees who had already provided their feedback. By asking previous interviewees to review our edited indicator set once more, we were able to assess whether or not we made the proper adjustments and if any new changes were not applicable in their eyes.

Of the fifteen individuals we interviewed, the last three had no additional recommendations for our indicators. This allowed us to determine we were justified in beginning the field testing stage. Following the interviews, we revised our justifications for each indicator to again explain why we decided to keep, alter, omit, or add an indicator. In addition, our team arranged to have our tool translated to make the testing stage simpler for all parties involved. Our initial tool was translated by the Dilijan Community Center and was then revised by social workers from Fund for Armenian Relief.

Dr. Martin Burt Reviewing Application with Social Workers

Testing the Tool in the Field

To ensure our Poverty Stoplight tool was accurate, we had to test its validity and reliability. We utilized our translated tool in the field with twenty-four families from Vanadzor, thirty-three families from Yerevan and twenty-three families from Dilijan. Our team also tested our tool with twenty-four individuals who were from various socio-economic backgrounds within each community as well, to ensure we had a wide range of data. The impoverished families that participated were assisted by social workers in using our tool, to ensure they had an understanding of what each indicator was asking. Prior to beginning, the social worker walked the individual through a survey of socio-economic

Kitchen of a Five Person Family in

Vanadzor, Armenia

and personal questions. These surveys allowed us to collect demographic data for Poverty Stoplight and the Armenian organizations that will adopt our tool. We also asked each respondent and the social workers who administered the tool for verbal feedback on our tool as a whole including the relevance of the indicators, levels, and images. Finally, we distributed a post-survey which asked questions directed at gathering data to determine whether the tool was effective, and if it accurately represented the family's state of poverty. The Poverty Stoplight tool can be found in the supplemental materials file along with the socio-economic, personal, and post-survey questions. These responses were then compared to five specific hypotheses that were provided to us by Poverty Stoplight. Each hypothesis assisted us in determining whether our tool was a reliable and valid representation of poverty in urban Armenia.

Testing for validity was an important step in completing our Armenian Poverty Stoplight tool. To determine if our tool was valid, we utilized three forms of validity testing: face validity, logical/sampling validity, and credibility validity. To test for face validity, we needed the stakeholders, such as the heads of household, who interacted with the Poverty Stoplight tool to confirm that the tool was a valid method to measure poverty. To test for logical/sampling validity, we needed to determine if the indicators represented the underlying concept of poverty. To test for credibility validity, we needed the families who utilized our tool to accept and confirm their test results. All of this was measured in the post-survey questionnaire.

We utilized two forms of **reliability testing**: internal consistency and confirmability. To test for internal consistency we had to determine if there was a high level of correlation among the indicators within each dimension of our Armenian Poverty Stoplight tool and as a whole. This meant we had to determine whether multiple individuals in similar socio-economic standing provided comparable responses. To test for confirmability we had to identify whether the social workers that assisted us in our project were interacting with clients in a way that minimized the insertion of bias. To assist in minimizing this bias, our team explained to each social worker individually the importance of reliability testing. We expressed to the social workers the importance of receiving answers that were honest. This is because the tool is meant for families to utilize to assess their living standards; outside sources should not play a role in this assessment.

Due to time constraints, our team was unable to test and retest by surveying the same set of respondents twice to test for confirmability. Our team instead tested for reliability by testing for internal consistency in our results. To do so, we utilized the Cronbach's alpha test. The Cronbach's alpha test is used to test multiple items under the same construct, producing a value of alpha that would determine the reliability of the results.[36] For instance, if an individual was testing if the sky was blue and asked ten questions all meant to determine if this was true, they would be able to utilize this test. In our case, we utilized this test on a dimension basis in addition to the entire tool. The belief was, if an individual answered 'green' for the initial indicators in a specific dimension, it was likely they would have more greens in total for that dimension.

Prior to utilizing the equation, shown in Figure 7, we added the following weights to each level: red = 1, yellow = 2 and green = 3. The variable 'k' depicted our number of respondents, which was 105, and 'Var' was the variance of the sum of the weighted responses for each dimension. The denominator within the parenthesis, 'σ²' represented the sum of the individual variances of each indicator. A value of 'α' above .7 is considered good, above .8 is better, and above .9 is the best.[36]

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\Sigma var}{\sigma^2}\right)$$

Figure 7: Equation for Cronbach's alpha test

After computing the equation we had seven values of alpha, each of which were above .8 as depicted in Table 1.

Table 1: Alpha Values from the Cronbach alpha reliability test

Data Set	Alpha Value
Income & Employment	0.98
Health & Environment	0.98
Housing & Infrastructure	0.95
Education & Culture	0.97
Organization & Participation	0.90
Self Awareness & Motivation	0.87
All Indicators	0.97

Our lowest value of 'α' was ~.87 for the dimension of Self Awareness and Motivation. We believe this is because that dimension was more subjective and the responses were based on how an individual felt rather than their living conditions or income.

To determine if our tool was valid, our team utilized the post surveys we administered. The first question of the post survey asked respondents to rate their understanding of the tool from 1-10 where 1: No Understanding and 10: High Understanding. If the average to these responses was above an 8, that meant our tool was valid. In addition, if we received more than 80% 'Yes' responses for our four multiple choice yes-no questions that meant our tool was valid as well. We found that our tool was valid because we had an average of 8.6 for the first question and 86.67% 'Yes' responses for our four multiple choice questions.

Impact Presentation to Prospective Users of the Poverty Stoplight Tool

The final aspect of our project methodology was to pitch the Poverty Stoplight movement to nonprofit organizations and governmental agencies to portray the potential impact of the tool. We described the success that Poverty Stoplight has had in the twenty-four nations where it has been implemented. We utilized these success stories and statistics to present the benefits of the Poverty Stoplight tool to encourage these Armenian agencies to adopt the methodology. We also utilized the data we collected in the field from Armenian families to show trends within the urban poverty populations.

Using both sets of data, we were able to depict how the individualized approach of Poverty Stoplight can be utilized to promote large scale projects. Organizations can track poverty trends based on a geographical location and implement a single solution to aid many families. We then presented the next steps for the implementation of Poverty Stoplight. We discussed the progression of the implementation of the tool with Martin Burt to find connections to other nations who have adopted the tool to develop future recommendations. Once a course of action was determined, we found recommended which organizations should pilot the implementation. We determined this by taking into account the number of resources available in conjunction with the alignment of the project to their own goals.

M. Shubert With Head of Household from

Vanadzor, Armenia and her Dashboard

Poverty in Armenia is Differently than Poverty in New Orleans and Newcastle

The act of deciphering which indicators to utilize in our indicator set was crucial in gaining a basic understanding of factors affecting impoverished Armenians, and in realizing how different poverty is in Armenia versus New Orleans and Newcastle. The following indicators from the sample sets were not relevant or could be combined with other indicators prior to arriving in Armenia: 'High school graduation', 'Flood insurance', 'Victim of crime (Frequency)', 'Victim of crime (Severity)', 'Incarceration status', 'Access to shops and services', and 'Violence against women'. We discuss two of these indicators below. Our reasoning for deleting the other five indicators mentioned can be found in our supplementary materials section.

The 'Victim of crime' indicators were solely utilized by the New Orleans set of indicators. Louisiana is ranked as the fourth most dangerous state in the United States.[37] In 2011 alone, 200 murders were reported in New Orleans. Whereas, Yerevan has reported only 54 murders since 2012.[38] From these statistics, our team determined it was unlikely either indicator would be valuable in identifying factors of impoverishment in Armenia.

'Violence against women' was an indicator our team had difficulty with prior to arriving in Armenia. We discovered that domestic violence is a prevalent issue in Armenia. Since 2010 over 2,000 domestic violence cases were registered annually with over 5,000 registered phone calls made to the Armenian violence hotline service for domestic abuse sponsored by the Coalition to stop violence against women in Armenia.[39] Although these statistics support the need for an indicator that could uncover the issue, the numbers did not inform us of how taboo the act of discussing the issue is. Our interviewees advised us to remove the indicator entirely because it was unlikely women would expose the violence and may instead be insulted. We therefore combined the indicator with the 'Family Violence' indicator.

Accurate Indicators Were Developed Based on Local Interviews

It was vital for us to have an accurate Armenian Poverty Stoplight tool. Each of the alterations described were important in revising our tool. The interviews we conducted allowed us to uncover standards we had not found, as well as innate biases Armenians have within their communities that we would have never discovered through online research.

The indicator 'Income above the poverty line' was not applicable to Armenian standards. Armenia's government does not define poverty in terms of income levels. Instead, Armenia defines impoverishment by using consumption baskets. From interviews and additional online research we established that 54,500 AMD is considered the minimum consumer market basket needed for food, non-food products, and services required for human health and everyday needs. A person who spends less than 54,500 AMD per month would be considered poor, less than 35,000 AMD per month would be considered very poor, and less than 24,000 AMD per month would be considered extremely poor.

The indicator 'Access to Credit' was not applicable in Armenia. Interviewees explained that credit scores are not utilized in Armenia; many of our interviewees recommended that the indicator be edited to reflect the process of taking out loans. It is common for impoverished Armenians to have many high interest loans from non-accredited credit institutions.

'Participation in Religious/Self-help Groups' was altered to 'Participation in community activities'. Religion has a large influence on the communities in Armenia. It is a rarity to meet an Armenian who chooses not to practice a religion, because in choosing to do so the individual is choosing to be looked down upon by the community. Self-help groups are unheard of in Armenia. These two factors prompted the revision to 'Participation in community activities'. Community activities are common in certain areas within Armenia, and the revised indicator would be able to identify whether or not the household has a community support network.

Two indicators were added to our set, an indicator depicting whether the family is receiving an income from a migrant worker and an indicator depicting whether the household is utilizing child labor. Employees from Orran, the Dilijan Community Center, and the IDeA Foundation requested to add the 'Migrant workers' indicator. It is typical for the father to search for a job abroad if he is unable to find work in Armenia. When this occurs, the mother stays in Armenia to raise their children. Initially the father will send money; however, it is common for the

father to stop sending money back to the mother and children.

The indicator 'Child labor' was added after discovering that in poor rural areas approximately 7.0% of children ages 5 to 14 work, with about 94% of that number working in agriculture.[39] Child labor is detrimental to the physical, mental, and moral development of children, along with interfering with their education. Further, it perpetuates the cycle of poverty as children who are forced to work rather than attend school will likely be trapped working in the same situation for most of their lives.

Families From Dilijan Assessing Their Poverty

Our team deleted three indicators: 'Awareness of legal rights', 'Personal safety', and 'Self-expression'. When we began researching Armenia's government we believed that the peaceful overthrow of the Prime Minister meant Armenian citizens see authority figures as individuals they can turn to when necessary. We then found that in 2016, police abuse during arrest, detention, and interrogation was a significant problem in addition to poor prison conditions.[41] Armenian law does not have safeguards to prevent mistreatment by authority figures.[41] With these factors in mind, we believed 'Awareness of legal rights' would have been an impactful indicator. Our interviewees felt that if we chose to keep it, it should be changed to 'Awareness of Laws and Benefits' because many Armenians are not aware of either their rights or benefits. It is also common for citizens to choose not to support the authorities due to either a lack of trust or a lack of respect. We deleted this indicator as it would not be able to produce actionable items for families to work towards. We learned it is common for Armenians to choose not to report acts of violence due to fear of retaliation from authority figures.[41] Our interviewees suggested that this indicator would be more beneficial by combining it with the 'Safety of neighborhood' indicator. Our team initially kept

Indicators added:

Migrant workers

Child labor

Indicators removed:

Awareness of legal rights

Personal safety

Self-expression

the 'Self-expression' indicator because our research portrayed that Armenians take much pride in their appearances and how they present themselves. As of 2015, 61% of respondents to a Gender Barometer Survey conducted in Armenia believed that it is important for an Armenian woman to take care of her appearance, while 50% of respondents believed the same for men.[42] Interviewees believed this indicator was valid, but found that it was repetitive and could be combined with the 'Self-confidence and self-esteem' indicator.

Our Contact Organizations Have Locally Available Solutions to the Dimensions

Of the many organizations we encountered throughout our project, the organization that encompassed the most dimensions was Fund for Armenian Relief (FAR). This organization is dedicated to producing a better future for the people of Armenia, Nagorno-Karabakh and Javakhk, Georgia. Our team worked closely with social workers from FAR's Children Support Center, which provides a home for neglected and abused children. This center is just one of the more than 290 relief, social, educational and cultural projects valued at over $350 million.[33] With their resources, FAR has the ability to address five of the six dimensions in our tool. This finding was a milestone for our project, because it provided our team with an opportunity to develop feasible and actionable recommendations for their organization.

The IDeA Foundation is focused on large-scale sustainable initiatives through tourism, financial infrastructure, technology and energy, agroecology and sustainability, and mining. The goal of each initiative is to have long-term socio-economic impact in the communities they're developed in, with the assurance that the Armenian identity of the community is preserved.[9] One such project the IDeA Foundation completed was the Dilijan Community Center. The IDeA Foundation was attracted to the idea of developing the city of Dilijan through education and infrastructure initiatives. Our team worked closely with volunteers from the Dilijan Community Center throughout our time in Armenia, and witnessed the impact the Community Center had on the students. The IDeA Foundation has the funding and the resources necessary to produce change and would be capable of addressing four out of the six dimensions incorporated in our tool. Although the IDeA Foundation would be uninterested in adopting a tool as personalized as ours, we found that their impact team did see the power in the data produced from the tool. If the IDeA Foundation chooses to use our tool, they would be able to target villages and produce impactful initiatives meant to assist the select area.

Teach For Armenia (TFA) is an organization whose main goal is to give all children an opportunity to receive quality education no matter their family's financial situation. The organization currently has 102 trained Fellows located in seven regions throughout Armenia.[44] The Fellows are tasked with assessing the students' home situations and teaching at underserved schools. TFA could use our tool to better the lives of the students the Fellows encounter on a daily basis. This organization can utilize the tool in multiple regions, allowing the comparison of data and the opportunity to contact other nearby organizations to try to find solutions, due to the fact that TFA can only address two out of six dimensions.
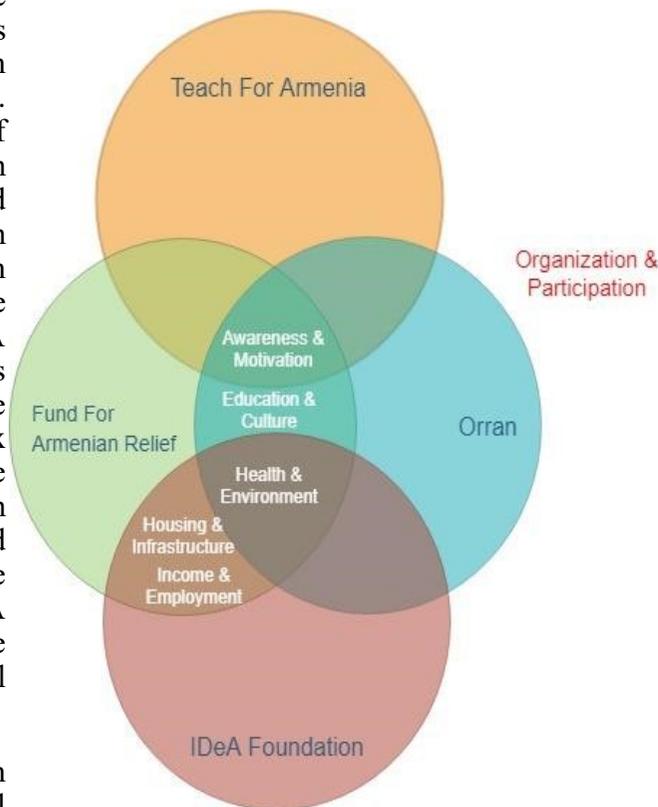

Figure 7: Venn diagram of organizations we have worked with and the dimensions their solutions address

Orran, a small organization located in both Yerevan and Vanadzor, provides support to underprivileged children. Orran initially began as a center that was working to divert children from begging on the street. This initiative soon expanded to providing meals for the children, social services, vocational training, and assistance on homework. Orran provides assistance in cultivating skill sets for children to pursue a working career.[10] Orran assisted us in testing many families, and in doing so actually found one family that had been living on the street. By using our tool, Orran uncovered their terrible living standards and was able to find funding to provide the family with a permanent home. If Orran chose to administer this tool with their social workers, they would have the ability to address three out of six dimensions. Orran's social workers also have a comfortable relationship with their beneficiaries, which is important when administering the tool.

Poverty Stoplight Recommendations for Future Tool Implementation

The tool can be utilized on an individual basis to empower a family to overcome difficulties in their lives in addition to being deployed to gather large scale data about problems citizens face in any region. The customized tool can be implemented in Armenia for use by organizations and additional Interactive Qualifying Project teams. Our recommendations are developed to show how an organization should adopt the tool and the necessary steps that must be taken within the organization to effectively adopt the tool. Figures 8 and 9 are the timelines of how an organization and individual family can alleviate multidimensional poverty.

The Host Organization Should Collaborate with Poverty Stoplight to Train Field Personnel

The organization that decides to adopt the tool should have access to people who can complete field testing. Poverty Stoplight recommends trained social workers, volunteers, college students, human resources staff, program coordinators, or loan officers. First, these individuals need to be trained to administer the survey. Poverty Stoplight will provide manuals and training sessions to assist with the training, but ultimately the organization is responsible for training their field workers. The field workers would be trained on:

I. How to interact with the families to ensure they do not feel pressured or intimidated

II. How to use the Poverty Stoplight Platform on an android tablet

III. How to explain each indicator in their own words.

The field workers should be educated on the purpose of the Poverty Stoplight survey, why it is necessary to ask personal questions, the confidential nature of the families' answers, how to position themselves when administering the survey to give personal space, and how to empathize with the client. To train all of the field workers, manuals from Poverty Stoplight should be distributed, along with a training workshop from Poverty Stoplight. The field workers must also be trained in the development and utilization of the bank of solutions provided by the host organization with the possible assistance of other organizations. This inventory encompasses organizations and strategies that the family can utilize in order to improve upon their five prioritized yellow or red indicators. Once the field workers are trained, the tool is ready to be administered in communities on a schedule that is created by the organization.
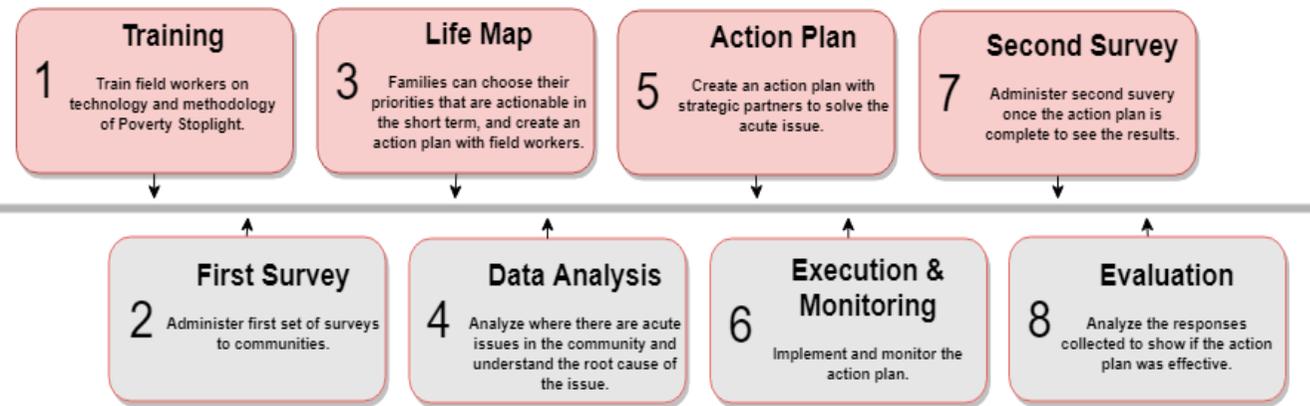

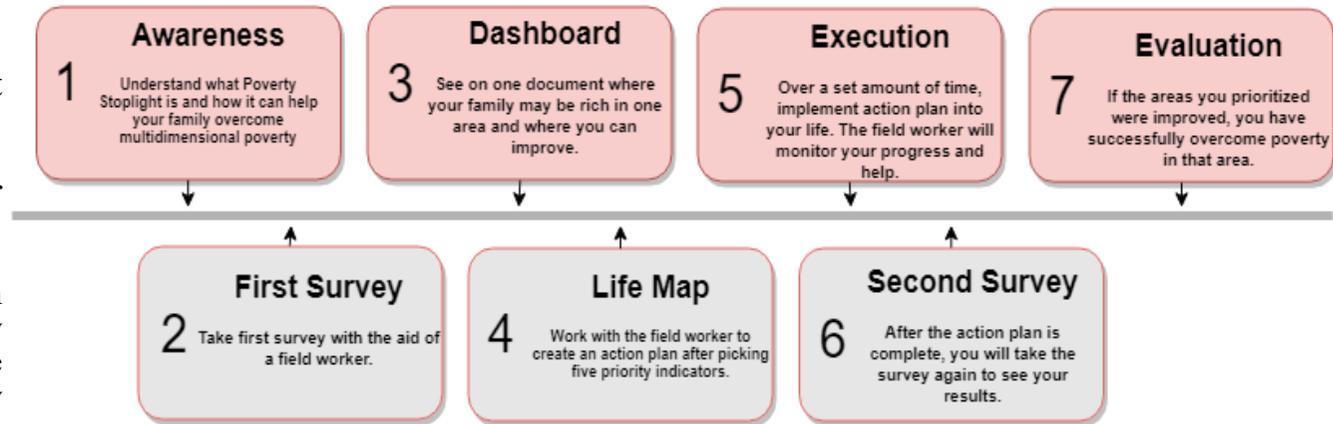*Figure 8: Organization Timeline of Alleviating Multidimensional Poverty[3]*

Figure 9: Individual Timeline of Alleviating Multidimensional Poverty[3]

The Host Organization Should Pilot the Tool for Data Collection to Identify Acute Issues in a Region

The field workers should be familiar with the neighborhoods they are visiting, have an agenda of plans to meet their target number of families, know the indicators well enough to explain them in detail, and know the existing bank of solutions. Once the field worker has met with the family and explained the purpose of the tool, the field worker can then begin testing with the family. First, the family will complete the personal and socio-economic surveys, followed by the tool. After the tool is completed, the field worker will assist the family in completing their dashboard and life map. When these steps are completed, the field worker can set up the next time to meet, and thank the family for wanting to take the next steps to reach their goals. The field worker will determine how many families they would like to reach over a set amount of time with the help of their organization.

These data can then be aggregated to show the large scale problems that the region may be facing. If a majority of families are red or yellow in an area, or a majority of families prioritize the same indicator to change to green, those issues should be targeted by the organization in charge to create an action plan. The organization then must understand the root cause of the acute issue to create a solution, or implement an already existing solution. Without understanding the root cause of the issue, which could be lack of education, resources, comprehension, or will of the family, the organization may not create or recommend a solution that would impact the community in the way the tool is designed.

The Host Organization Should Collaborate With Strategic Partners to Find or Create Locally Available Solutions to Acute Issues

The organization should use strategic partners if needed, which are other organizations that may have solutions available to solve the problems, or would be willing to provide resources to assist the organization or individual families in solving their problems. The organization should create an action plan, with the assisting organization if necessary, to develop a timeline, budget, and agreement of how to proceed. The solutions should directly address the root cause of the acute issue, otherwise, the families will not see improvement.

The Host Organization Should Measure the Impact on a Family and Community Basis and Continue to Solve Acute Issues

Once the action plan is implemented, the organization needs to portray that the action plan solved the problem by administering the tool again to the same families. To measure the impact, the organization should analyze the data to see where families went from red or yellow to green. The field workers should show the families where they were successful in overcoming poverty. This would empower them to want to continue with the tool and better their lives in other dimensions or indicators.

The purpose of measuring the impact on a family and community basis is because the tool is two-fold. It is supposed to allow a family to overcome poverty through collaboration with a field worker but also allow organizations to see where problems lie and where solutions can be created.
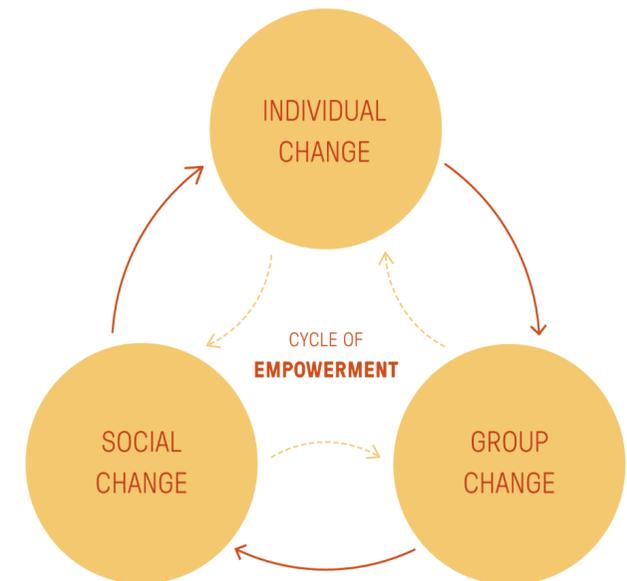

Figure 10: Cycle of Empowerment

The Host Organization Should Assist Families in Developing an Action Plan and Instill a Cycle of Empowerment on the Community Level

This is important to ensure that the family is able to overcome poverty with the aid of a field worker. Without choosing the five priority indicators to improve upon, the field worker would not have the opportunity to utilize the Life Map to provide the correct solutions and action plan. The family would be uneducated on locally available solutions that they need to implement in their life to turn their indicators from red or yellow to green, and have no action plan to actually improve upon these areas. The field workers should be trained on locally available solutions and help families recognize their strengths and weaknesses. They should then check-in with families to ensure they are following their Life Maps. If they fail to check-in, the family may become discouraged or not be held accountable when they feel the need. This will create impact on the family level, leading to individualized change.

Organizations should create an impact on the community level, as well. There is a cycle of empowerment, where individual change sparks group change, which sparks social change.[3] This shows that small, individual changes made to overcome poverty on a family level can lead to community impact. As shown in Figure 10, the cycle depicts that change on a small scale can lead to larger change, meaning if a family overcomes poverty in one dimension because of a solution implemented by an organization, the entire community can feel the impact and become empowered by it. Organizations should aim to embrace this ideal, as Poverty Stoplight embodies it.

An Interactive Qualifying Project 2020 Armenia Team Should Develop a Bank of Solutions for Acute Issues in a Community

A future IQP team could produce a bank of solutions for a selected subset of priority indicators, for a specific region in Armenia that has been piloted by an organization to gather data. The solution bank would show the field workers a wide variety of the possible solution options that exist, so they are able to relay this information to families that have taken the tool. The bank of solutions should be produced in collaboration with an interested organization to ensure they are capable of utilizing their resources to resolve the problem. For instance, the IQP team could collaborate an organization that adopted the tool to utilize their aggregated data from a specific region. The team would then identify resources that are available to address prevalent poverty indicators in the region. These solutions should be actionable resources that target the root cause of why families responded red or yellow to specific indicators. Online research and personal communication are the most reliable methods of preparation, and the team should reach out to organizations that already have existing solutions in the specific region or would be willing to locate the solution to that area. It is important the team understands the circumstances families are encountering, and have a supportive and willing organization eager to address the problems.

The home and bathroom of a family from Rural Vanadzor

Impact Presentation to the Potential Users of the Poverty Stoplight Tool

The final aspect of our project methodology was to pitch the Poverty Stoplight movement to nonprofit organizations and governmental agencies to portray the potential impact of the tool. We described the success that Poverty Stoplight has had in the twenty-four nations where it has been implemented. We utilized these success stories and statistics to present the benefits of the Poverty Stoplight tool to encourage these Armenian agencies to adopt the methodology. We also utilized the data we collected in the field from Armenian families to show trends within the urban poverty populations as shown in Figure 11 and Figure 12. The indicators are divided by their dimension where: Blue - Income & Employment, Pink - Health & Environment, Brown - Home & Infrastructure, Orange - Education & Culture, Grey - Organization & Participation, and Black - Self-Awareness & Motivation.

Figure 11: Final Data Results for the 81 Surveyed Families

Utilizing the small sample of data we collected our team was able to track certain indicators that had a higher percentage of yellow and red responses. As recommended by Poverty Stoplight, organizations should prioritize indicators that more than 20% of families identified as red. Our data depicts nine possible indicators organizations could target: Family savings, Stable income, Nutritious foods, Access to health care, Dental care, Insurance, Ability to plan and budget, Entertainment and physical activities, and Participation in community activities. In identifying the target indicators, organizations will be able to further analyze the data to determine the underlying challenges their beneficiaries are facing and develop action plans to overcome the challenges.

We also found that of the fifty-six indicators incorporated in our tool, 80% of families chose green for seven: Personal identification, Mental health, Personal hygiene, Sexual health, Safety of neighborhood, Children enrolled and attend school, and Child labor. This

Figure 12: Final Data Results for the 81 Surveyed Families

is an example of a positive trend organizations could also utilize to emphasize to their beneficiaries that while they may be facing certain challenges, they are rich in other aspects in life.

We were able to also depict how the individualized approach of Poverty Stoplight can be utilized to promote large scale projects. Organizations can track poverty trends based on a geographical location, referred to in our report as a heat map, and implement a single solution to aid many families. Heat maps are useful in identifying areas in need and in determining how many families are affected by the acute issue, and provide organizations with a grander scheme of the overall poverty situation within each region. For example, as shown in Figure 13, the Vanadzor region has only one person who identified as green for the 'Nutritious foods' indicator, but in Dilijan multiple individuals identified as green while no one identified as red. Organizations can utilize this technique to compare and contrast the factors affecting families within the different regions to better develop and implement solutions to the issues presented.

After presenting the heat map, we presented the next steps for the implementation of Poverty Stoplight. We also discussed the progression of the implementation of the tool with Martin Burt to find connections to other nations who have adopted the tool to develop future recommendations. Once a course of action was determined, we found which organizations should take on what aspect of the implementation. We determined which organizations would be the most beneficial to our cause by taking into account the number of resources available in conjunction with the alignment of the project to their own goals.
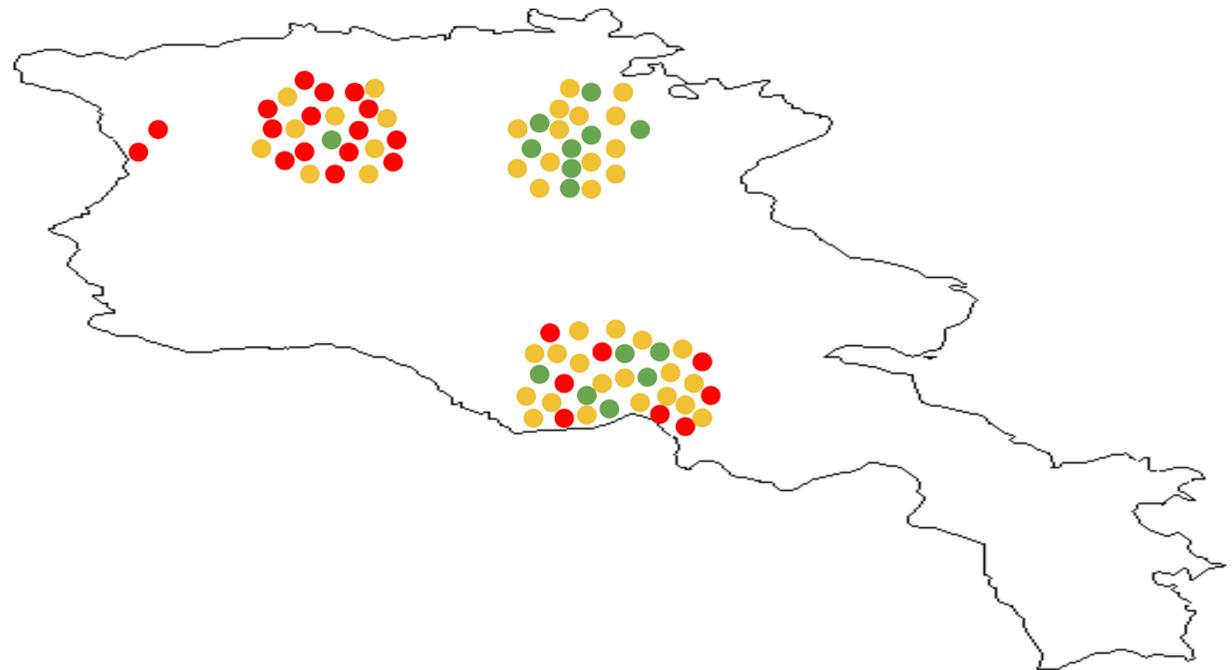

Figure 13: Heat Map for Nutritious Foods Indicator of 81 Surveyed Families

Example of Solution Implementation Cycle - Eye Care

This is a hypothetical case study to show how the solution implementation cycle, shown in Figure 14, can be used to produce change in a community. The organization referred to is the sponsoring organization that adopts the tool. The organization will first **identify the area** they are interested in assisting. In this case, the organization will assist the people of Gandzakar, a rural village in the Tavush Province. Gandzakar had an estimated population of 3,640 in 2017, with the average family size of 4 members, or approximately 910 families.[45] After identifying the area, the field workers will **conduct the surveys**, with the expectation of conducting the survey with at least 182 families (20% of the population). The field workers will administer the tool in either the homes of the families taking the survey or at the local village center.

After administration of the surveys, the organization will **gather the data for aggregation and analysis**. The organization will produce a bar graph similar to Figure 12, with aggregate data for all of the indicators. Heat maps similar to Figure 13 may also be generated for indicators

that may have geographical factors. . By analyzing these two representations of data, the organization can make a decision on what indicator needs to be addressed first.

Figure 14: Solution Implementation Cycle

Let us hypothesize that the organization then **identified an acute issue**, that the eye care indicator had one of the highest percentages of red and yellow responses. After making this realization, the organization will then try to understand why the village is suffering from a lack of eye care, and try to produce a locally available solution to help the community. The definition of the 'Eye care' indicator is: The family understands the importance of eye care, has access to it and knows how to use it. Therefore, the root cause lies within the lack of education, the lack of transportation to an eye doctor, lack of funds to pay for an eye doctor or lack of resources such as glasses or sunglasses, which negatively impacts their ability to take care of their eyes. The field workers will then attempt to make this distinction with families to determine the root cause. After discussing with families, the field workers **discover the overall root cause** is the families' inability to access to an eye care clinic as there is not one within the village and transportation to the nearest clinic is too costly for many families. It is determined that about fifty percent of people in the village over the age of 60 have cataracts.

Figure 15: Mobile Eye Care Hospital [46]

From this, the organization realizes that they do not have the resources to solve this issue alone. They reach out to the Armenian EyeCare Project (AECP), as their mission aligns with the issues that have been identified. The organization and AECP decide to partner and **make an action plan** to solve the acute issue. AECP will bring the Mobile Eye Care Hospital, featured in Figure 15, to the village and perform cataract surgeries on those in need. They will also have eye doctors conduct workshops to educate the citizens on proper eye care.

In order to **mobilize the community**, the field workers would communicate with the families that the Mobile Eye Care Hospital will be coming to the community in a few weeks and that they should let their friends and family members know so they can take advantage of the assistance provided if needed. The field workers make recommendations on who should take advantage of the solution in order for the family to move to green in the 'Eye care' indicator. They also establish future visits for the Mobile Eye Care Hospital to visit Gandzakar.

After the Mobile Eye Care Hospital has finished their visits to Gandzakar, the organization **measures the effectiveness of the solution**. The same 182 families are surveyed for a second time. The survey results are then brought back to the organization where the bar graph is reproduced for the Eye Care indicator. It is found that a majority of the respondents who initially answered red or yellow to the indicator have changed their answer to green, showing that they are no longer considered impoverished in that indicator. The organization can now conclude that they have created a solution to that indicator and can add it to their bank of solutions for future use.
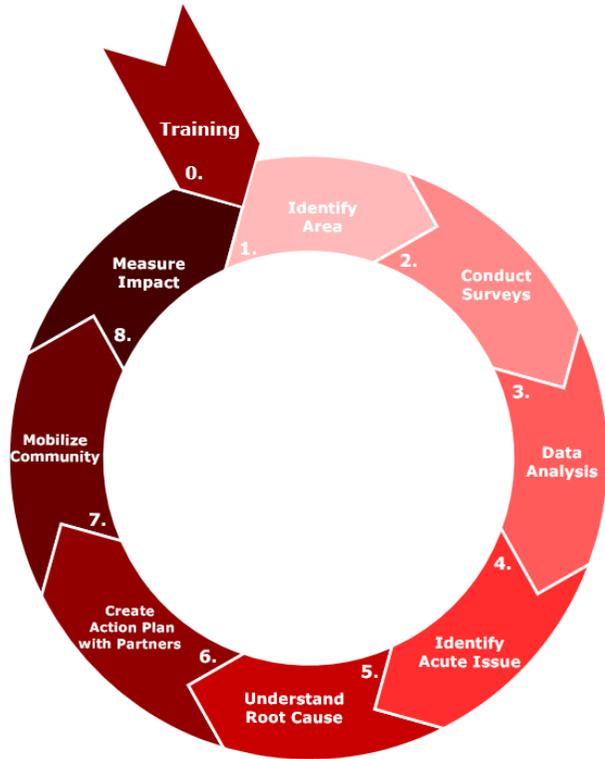
Example of Solution Implementation Cycle - Orran

This is a case study depicting a real outcome from our time in Armenia. This case study shows how the solution implementation cycle impacted a family living in Vanadzor.

Twenty four families in Vanadzor, Armenia were surveyed for the pilot of the Armenian Poverty Stoplight tool sponsored by Orran. The surveys identified a struggling father who was homeless, living with rats, and unable to provide for his two children. Orran decided to focus on assisting this family.

Social workers at Orran met with the father to understand the circumstances that resulted in the family being homeless. The social workers asked questions such as: 'Where are you currently living?', 'Where were you living before?' and 'What occurred that left you homeless?' The social workers discovered the root cause was the father's lack of a steady income, but due to shame, the father wouldn't elaborate beyond that.

Social workers at Orran realized their organization did not have the necessary funding to assist the father in his predicament. They reached out to Armenian diaspora donors and received close to 3,000,000 AMD (about $6,000 USD) from an anonymous donor in America to assist in finding the family a home in Vanadzor. If the Poverty Stoplight tool had been adopted and fully implemented in Armenia, the social workers would have had been able to use to the bank of solutions to refer the gentleman to an organization that had the resources to assist him. The solutions may have ranged from funding to workshops for him to gain skill sets, or temporary housing.

These case studies demonstrate the capabilities of the Poverty Stoplight tool in addressing the poverty crisis in Armenia at the individual, community and national levels. Families can reflect on their situation and create action plans with their case workers to overcome specific poverty indicators, while aggregate data can be used by government and non-profit organizations to address the most critical large scale problems.

Please reference supplementary material for: full version of tool in both English and Armenian, justifications for each indicator, an implementation plan, and data aggregation and analysis.

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