Evaluation of DNREC Communications and Interaction with the Public with Special Consideration to Underserved Communities

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Executive Summary

This final report provides accounts of two phases of research activities assessing Delaware Department of Natural Resources and Environmental Control's (DNREC) effectiveness in conducting outreach and informing the public, especially underserved communities. In doing so, the project seeks to understand how DNREC processes and initiatives engage underserved communities while also examining the effectiveness of DNREC's current methods of engagement. The research activities are based on an exploratory sequential mixed methods research design, which incorporates both qualitative and quantitative research methodologies to achieve the objectives of this study. The research team conducted several stakeholder engagements with underserved communities in Delaware. This included a robust analysis of DNREC's social media communications, two public town halls, thirty-three (33) key-informant interviews, focus group discussions, and a community-wide survey. This summary presents the findings on DNREC's current engagement strategies with various underserved communities and how these communities are incorporated into their processes and initiatives. The findings of this research study and the ensuing community engagement strategy development are summarized below.

Social Media Findings

- While Two-Way engagement in DNREC's interaction with the public through social media was limited to a minority of posts, we see an upward trajectory of communications that engage the public more.

- The range of computationally-derived topics reveals a vast array of diverse communication points and attempts to engage the public through multiple channels of interest and substantive focus.

- The overwhelming majority of social media posts across Twitter and Facebook fell into the One-Way: Public Information category, where communications are primarily factual statements in a declarative manner. Tweets and Facebooks posts communicate agency updates, announcements or provide information without seeking interactive engagement. The emphasis of these tweets is to provide factual and honest information to the public.

- DNREC's communication across all social media platforms aligns with their stated social media policy, as observed by their documentation, policies, and declared objectives.

Town Halls

The two public town halls organized by the research team were vital in exploring the perspectives and experiences of the community in their engagement with DNREC. It allowed the research team to move beyond traditional methods to employ an inclusive public participation framework to provide an open platform for all to speak freely and share their points of view. The qualitative analysis of the town halls produced four significant themes.

- *One-Way Communication*

The town hall participants claimed that DNREC's involvement in the community is often only when on the receiving end of a one-way directive, either through announcements or to defend department policy. Ideally, the community maintained that DNREC should communicate directly with the public and engage in two-way, meaningful dialogue.

- *Unclear regulations/processes limiting community input and engagement*

The second theme emphasized the lack of clear direction and understanding of the rules and regulations in the community's participation in DNREC processes and activities. It assessed the bureaucratic barriers and existing knowledge gaps between DNREC and the EJ community.

- *Need trained staff to work with diverse communities*

The participants discussed the importance of DNREC developing workforce diversity initiatives that hire local community members to work alongside DNREC officials to address ongoing challenges in EJ communities. The community members also noted the importance of training existing employees about the diversity in Delaware while also dedicating more employees to working with Delaware's overburdened and underserved communities.

- *Community point persons*

The fourth and final theme that emerged in the town halls was participants' emphasis on integrating EJ community leadership in DNREC processes and activities. Civil society organizations and community point-persons were conferred as the central players to fill the communicative gaps between DNREC and the EJ communities.

Key Informant Interviews

The key-informant interviews incorporated the perspectives of community leaders who advocate on behalf of underserved communities. As key-informants to this study, their experience working in and alongside underserved communities provided invaluable insights that align and bring to the fore the voices and perceptions of the communities they serve. Our analysis has produced four major themes, with each theme including three (3) to four (4) subthemes.

Effective Outreach

One of the major themes that emerged in the analysis was the importance of conducting effective outreach. This prevailing theme underscored the perspective that DNREC's outreach activities and engagements are not accomplishing their objectives within EJ communities. The subthemes on "effective outreach" include:

- *Canvassing communities*

This subtheme underlined the importance of canvassing as an outreach tool to provide deeper insights into the perspective and perceptions of the EJ communities that DNREC serves. The participants asserted that utilizing social scientific methodologies to capture and integrate the community's perspectives allows DNREC to gauge the community as they are and beyond the

limitations that may exist when depending only on established contacts for information or access.

- *Two-way communication*

The participants contended that establishing two-way communications between the community and DNREC is fundamental to effective communication. The participants addressed the importance of outreach communication that emphasizes collaborative engagement and feedback.

- *Targeted media approaches that are culturally and regionally specific*

DNREC needs to employ diverse and targeted mediated approaches that reflect the socio-cultural and historical contexts of the EJ communities. The interviewees stressed the importance that outreach tools and tactics that DNREC uses must show a commitment to the diversity in the State of Delaware.

- *Need local community point-persons*

The participants emphasized the importance of closing the communication and outreach gaps between DNREC and the EJ communities through the direct participation of *community point-persons*. The community point-person will fill the gap in the (mis)communications between DNREC and the EJ communities and act as an intermediary (employed or a partner) between the community and DNREC. This person or group of people is expected to be *sourced* from the community and encourage community participation.

Overbearing Bureaucracy

The second major theme in our analysis was the perception that DNREC's processes were debilitating to meaningful engagement, action, and positive relations. The key-informants emphasized how their voices and overall efforts to engage were stymied by bureaucratic measures, activities, and policies that have done little to enhance DNREC's increased intentions to democratize processes and expand access. The subthemes include:

- *Unclear Processes (Permitting/Grants-Funding*)

The key-informants maintained that DNREC employs unclear processes and actions in making and finalizing decisions. The participants described the unclear processes as being linked to the lack of access to adequate information to aid the community in participating in DNREC activities and processes effectively.

- *Too many regulations defining community input and engagement*

Overall there was a lack of understanding of the bureaucratic processes that defined when and how to engage within DNREC's methods and activities, which created barriers to participation and engagement. This theme assessed the threshold for understanding when and how to engage DNREC regarding their processes.

- *No hierarchical responsibility*

The key-informants expressed frustration about not having direct access to individuals within DNREC that have the power to address concerns and problems that have emerged in the

community. They also emphasized that the lack of accountability to the EJ communities' input has created a disconnect regarding the operations and activities conducted by DNREC.

- *Websites/technology overbearing*

The EJ communities were often directed by DNREC officials to online resources, including DNREC's website, to find critical information. This online experience for the community was unclear and overbearing due to inefficient website design and accessibility.

Regulatory/Technical Language

This major theme emphasized how regulatory/technical language created gaps and divisions between the community and DNREC. The subthemes in this section reinforce the critical importance of simplifying policy and technical language to ensure it is framed to capture the largest audience possible. The subthemes include:

- *Messaging/outreach to the public not understood*

One of the critical roles that define DNREC's relationship with the public is the legal and political directives that ensure communities have meaningful involvement and fair treatment in regulatory processes. For the EJ communities, understanding the meaning behind DNREC processes, methods, and activities is central to the success of the EJ community and DNREC, as it will allow the public to engage, understand, and be directly involved in all DNREC processes.

- *Need trained staff to work with diverse communities*

Community members cited that DNREC's disconnect with the EJ communities reflects the lack of diversity present in DNREC's workforce and the relatively low number of DNREC employees dedicated and trained to work with underserved communities in Delaware.

- *Building Trust with the community through outreach and engagement*

Our participants believed they could address the trust gap between DNREC and the EJ communities by ensuring that the community participates in and has access to all of DNREC's points of outreach and engagement. This active engagement will allow DNREC and the EJ communities to share their diverse perspectives to further the cause of inclusive excellence.

Transparency

One of the underlying themes that emerged in the data is the lack of transparency in DNREC activities and processes. Many participants viewed DNREC as an organization that intentionally ignores EJ communities implementing policies at their expense. The subthemes include:

- *Outreach is conducted after decisions are made*

This subtheme represents the perception held among the key-informants that DNREC involves the community in its processes only after a decision is formally made. The participants believed that the communities' voices are seen as secondary to political and business interests and are silenced as a result.

- *Language (Spanish, Haitian Creole)*

DNREC's limited capacity to communicate in languages other than English was a significant point of contention. The participants underlined that DNREC's minimal outreach to communities whose first language is not English are often the same communities dealing with the most demanding environmental challenges.

- *Balance community and business interests in decision making*

The participants discussed the conflict of interest between DNREC as a political body seeking balanced interests between the needs and safety of the community and "big business". The common perception was that DNREC has always leaned towards the interest of big business, creating further distrust of DNREC.

- *Engagement needs to address previous trauma*

DNREC should acknowledge and build relations with EJ communities who have experienced trauma due to their marginalization by socio-political and economic actors within the State. The acknowledgement of the trauma is an important step in building trust and community relations.

Survey

The survey results provide insight into community perceptions of DNREC, its divisions, and their current outreach strategies and engagement efforts. They also highlight community perspectives on how DNREC can improve their current outreach strategies and engagement efforts to best address their environmental concerns and alleviate their immediate needs.

- Across all three counties, respondents consistently placed social media as their most preferred method of interaction and communication from DNREC, followed by traditional forms of communication, including television, radio, direct mailings, and flier distribution. Moreover, in-person interaction and direct community engagement by DNREC to overburdened communities is also preferred.

- One of the significant findings from the survey is the recognition that over one-half of research respondents are unaware or unfamiliar with DNREC. This lack of familiarity translates into their lack of awareness of the various divisions and services that DNREC can provide to these groups who encounter environmental challenges. On the other hand, the respondents familiar with DNREC are to a large extent actively involved with their services and engagement efforts.

- Survey results also revealed that although DNREC engages in a host of communicative tools and outreach methods to Delaware communities, most respondents indicate that they have not encountered, interacted with, or received information about DNREC activities and services.

- Almost 90% of respondents indicate that they have not seen or read DNREC advertisements in newspapers, and less than 10% of respondents have heard any

advertisements from DNREC on the radio or television. These findings were consistent with all of DNREC's current methods of contact and outreach.

- Over 80% of respondents have not seen or observed DNREC advertisements through public platforms, such as social media, public calendars, and websites. Moreover, communication and interaction from DNREC through the posting of fliers, email acknowledgments, or community attendance/participation in DNREC-sponsored events were remarkably low.

Focus Groups

Following the survey, four focus group discussions were conducted to explore the emerging findings that had not been captured by the previous methods. The group discussions also served as the means of exploring communities' perceptions on the constituents of community engagement strategy development - the 'Spectrum of Community Engagement to Ownership' and the 'Public Participation Spectrum.' These included informing/collecting information on/for communities, gathering community input, integrating community voices in the process, and leadership role by community in decision-making processes. The group discussions findings included the following:

- The importance of DNREC developing workforce diversity initiatives that hire local community members to work alongside DNREC officials to address ongoing challenges in EJ communities.

- That DNREC's minimal outreach to communities whose first language is not English are often the same communities dealing with the most demanding environmental challenges.

- The participants contended that establishing two-way communications between the community and DNREC is fundamental to effective communication.

- Trust gap between DNREC and the EJ communities can be bridged by ensuring that the community participates in and has access to all DNREC's points of outreach and engagement.

Strategy Development and Implementation

Subsequent to five member-checking activities conducted in the three counties of the state, based on the research findings, the research team proposes an outreach and engagement strategy development premised on three main ends: conducting effective outreach, addressing overbearing bureaucracy, and addressing regulatory concerns and technical language. The specific goals for each end are as follows:

Conducting effective outreach:

- Canvassing communities
- Two-way communication

- Targeted approaches that are culturally and regionally specific
- Need local community point-persons

Addressing overbearing bureaucracy:

- Unclear Processes (Permitting/ Grants-Funding)
- No hierarchical responsibility
- Website/technology overbearing

Addressing regulatory concerns and technical language

- Messaging/outreach to the public not understood
- Need trained staff to work with diverse communities
- Building Trust with the community through outreach and engagement

The strategy development include objectives for each of the goals identified above as they relate to the ends. Suggested timelines are provided for implementation. For in-depth capture of the engagement strategy, the team used a participatory framework that allows for assessing the benefits, potential cost, and responsibilities of both DNREC and communities.

Introduction

Purpose and Overview

The Department of Sociology and Criminal Justice (SCCJ) at Delaware State University (DSU) was asked to conduct a two-year multi-phase study to determine the effectiveness of the Department of Natural Resources and Environmental Control's (DNREC) current methods of engagement and outreach. Specifically, the research team was tasked with understanding the gaps, needs, and challenges of engagement and outreach with socially vulnerable populations in Delaware. The research project also sought to build community relationships and mutual trust through community-engaged approaches to social research. In doing so, the research team built on existing networks and developed new relationships with historically underserved communities, community and civic associations, and community leaders and advocates throughout the State of Delaware. The creation of new bridges helped facilitate meaningful feedback on the community's needs, challenges, and current participation in public engagement in DNREC processes and initiatives. This preliminary report assesses DNREC's ability to effectively reach and inform the public, especially underserved communities, regarding regulatory actions, education, and outreach. The report also seeks to provide findings on DNREC's current engagement strategies with various communities, and how these communities are incorporated in their processes and initiatives.

In utilizing community-engaged approaches, the research team focused on constructing and implementing a robust and dynamic research design. Before initiating the data collection process, the team worked directly with DNREC to conduct a department-wide analysis to inventory and evaluate their public engagement. The combination of internal surveys and interviews served as the basis for developing our research tools, guides, and methodology. For the research design, we employed an exploratory-sequential research approach which informed our methodological approaches. Firstly, we gathered qualitative data through key-informant interviews and two public town halls with community stakeholders, community/environmental justice advocates, and community members. Subsequently, we distributed surveys across the State of Delaware and conducted quantitative data analysis to identify important variables and report findings. Although the research team led the effort in drafting and presenting the results, it's the community participants whose voices are embedded in this report. As DNREC continues to adapt and change to the ever increasing challenges and demands for its services – especially in underserved communities – the findings presented in this report are an important step to aid DNREC in building "a lean, agile, and responsive agency" for all communities (DNREC, 2022).

A note on underserved communities

One of the tasks that was critical to this study was the importance of applying accurate terminology to describe the communities engaged. The research team acknowledged that in the Environmental Justice (EJ) literature there are several terms that accurately describe communities who are disproportionately affected by social, political, economic, and environmental disparities. After careful consideration and consultation with the community, the research team decided to utilize "underserved communities" when referencing EJ communities. The team defined underserved

communities as “either a group of individuals living in geographic proximity to one another or a geographically dispersed set of individuals where either type of group experiences common conditions such as low income, high and/or persistent poverty, racial, ethnic and minority residential segregation, linguistic isolation, distressed neighborhoods and disproportionate environmental stressor burden.” This definition informed our study.

Preliminary Report Outline

The next chapter will provide a brief background of DNREC, Delaware State University, and the research team. We will then present an overview of data collection methods, development, and implementation. This report will subsequently discuss the environmental justice literature, major concepts and frameworks in the EJ literature, and underserved communities in the State of Delaware. This chapter will also present a broad overview of the demographic composition and characteristics of environmental justice communities in Delaware. It will conclude with a discussion on DNREC’s recent policies and engagement and outreach efforts. Following the discussion of the relevant literature, this report will introduce the findings from the research. This will include chapters on the social media analysis, key-informant interviews, town hall findings, and the public engagement surveys. The data collection and analysis in phase I of this project concluded on March 15th, 2021. This report will provide analysis of DNREC’s social media communications, and all stakeholder events held in Phase I. The report will lay the foundation for Phase II research programming, which will focus on evaluating the gaps and develop an implementation plan outlining key strategies and actions to better engage Delawareans in DNREC processes and initiatives.

DNREC and its Divisions

As the State’s environmental protection agency, DNREC is the primary governing institution in Delaware that has regulatory powers over the environment. With eight divisions **(Figure 1),** it plays a vital role in protecting the environment, public health, and the enforcement and regulation of environmental laws. The mission of DNREC, as stated on their website “is to engage all stakeholders to ensure the wise management, conservation and enhancement of the State’s natural resources; protect public health and the environment; provide quality outdoor recreation; improve the quality of life; lead energy policy and climate preparedness; and educate the public on historic, cultural and natural resource use, requirements and issues” (DNREC, 2022). Understanding DNREC, its accompanying divisions (see charts below) and the effectiveness of their engagement and outreach is important for the overall objectives of this study. This is especially true for underserved communities, where environmental issues are more pronounced and are a lived reality.

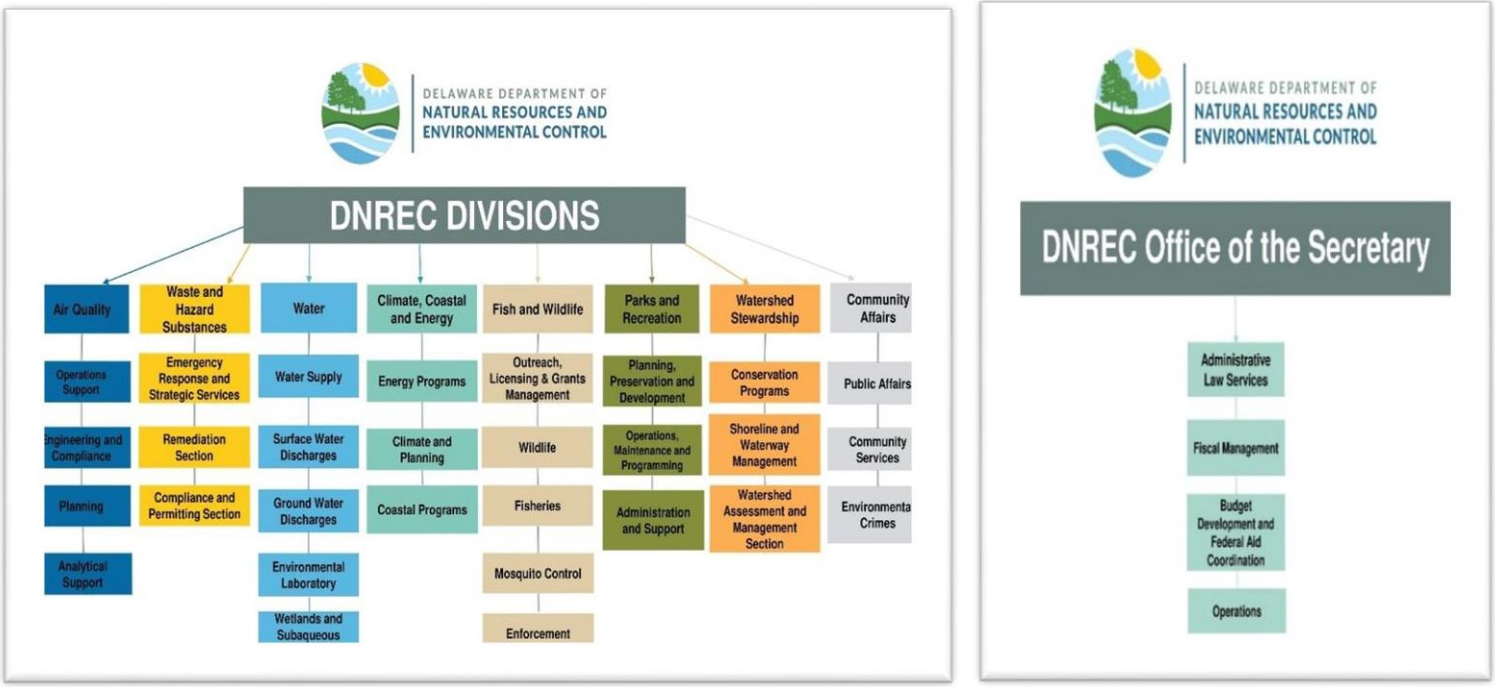


Figure 1. DNREC Divisions, Sections, and Programs

Delaware State University and the Research Team

As the sole Historically Black University (HBCU) in the State of Delaware, Delaware State University (DSU), is an accredited institution actively engaging in ground-breaking research, teaching, and provision of service. DSU has a deep history and commitment to serving the needs of all communities throughout the State, including underserved and underrepresented populations. The Department of Sociology and Criminal Justice (SCCJ) at DSU reflects this deeply embedded tradition in its research, teaching, and service. Specifically, through its commitment to community-engaged research, and applied sociology and criminology. The SCCJ research team tasked with this important study include Dr. Raymond Tutu, who serves as the Principal Investigator and Professor and Chair of the Sociology and Criminal Justice Department; Dr. Anwar Ouassini, Co-Principal Investigator and Associate Professor of Sociology and Criminal Justice at DSU; and Dr. Laurin Parker, Co-Principal Investigator and Associate Professor of Sociology and Criminal Justice at DSU.

Another key component of the research team were students. SCCJ Undergraduate and Graduate students were fully incorporated in the research process as research assistants and student interns. This project provided an excellent hands-on learning opportunity for students to apply knowledge gained in the classroom and use it in applied research. This broadened their exposure and engagement into the rigors and challenges of research tool construction, data collection, and analysis. Their associated duties and responsibilities on the project included: conducting outreach with community leaders/stakeholders; interview guide development; town hall preparation and implementation; survey distribution; participation in the testing and refining of research instruments; and assistance with transcription.

Methodology

Phase I of this project focused on understanding how DNREC processes and initiatives engage underserved communities and examine the effectiveness of DNREC's current methods of engagement. On the first objectives stated, the research team worked directly with our DNREC partners to perform a department-wide analysis and inventory to evaluate areas of public engagement in DNREC processes and initiatives. An internal survey and interview guide to capture DNREC's current methods and frequency of public engagement with the underserved communities was developed. The survey questions and follow-up interviews addressed DNREC's current methods of contact with the public (i.e., public notice, public meetings, inspection, enforcement actions, regulatory development) and their tools of communication with the public (i.e., social media, public calendar, newspaper ads, direct mailings, public hearings).

The internal survey and the follow up interview data collected by DNREC across all their divisions was shared with the research team and extensively aided in the project's subsequent methodological frameworks and data collection tools and development. The research team also conducted content analysis of all available public reports related to EJ communities in Delaware. This allowed the team to understand how previous studies, issues, and DNREC initiatives may impact our methodological frameworks and overall community engagement. Finally, the research team also received Twitter and Facebook data from the Public Affairs office at DNREC. The data handed over to the research team was from DNREC's official account. The Public Affairs office also provided the research team with two important social media policy documents: (1) DNREC's Social Media Policy and Procedures and (2) Social Media Report, DNREC 2020.

Once the research team had conducted analysis of DNREC's internal processes and initiatives with underserved communities, the research team was tasked with developing and implementing a research design. The objective was to design an approach that best measured the effectiveness of DNREC's engagement with underserved communities. The research team utilized an exploratory-sequential research design, which is useful with incorporating both qualitative and quantitative research methodologies to not only achieve the objectives of this study, but also allow researchers to better engage qualitative research data and support it with quantitative analysis. To achieve the desired results, the research team conducted several stakeholder engagements with underserved communities in Delaware. These included thirty-three (33) key-informant interviews, hosting two public town halls, distributing surveys across the State, and conducting a robust social media analysis to help derive insights into DNREC's digital communications. As indicated by the charts below **(Figure 2**), the stakeholder engagements assessed the current methods of contact and tools of engagement. This allowed the research team to report the needs, challenges, and current participation in public engagement in DNREC processes and initiatives.

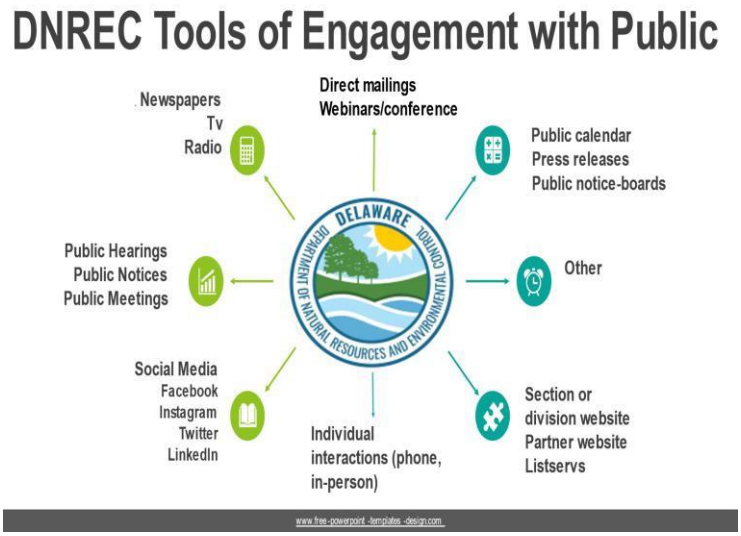


Figure 2. DNREC's Methods and Tools of Engagement

Key-Informant Interviews

The research team found it of utmost importance to incorporate the perspectives of community leaders (key-informants) who advocate on behalf of underserved communities. As key-informants, their experience of working in and with underserved communities provides invaluable insight that aligns with the voices and perceptions of the people they serve. Because community leaders have the requisite skillset to address the needs of community members, this data will deepen our understanding of the existing relationship and engagement between key-informants and DNREC (Berg, 2007; Rubin & Rubin, 2005; Babbie, 2004). When selecting credible key-informants who currently work with the underserved community, the research team relied on the team's community connections, email outreach, visitation of communities, snowball sampling, and digital research. The incorporation of these recruitment strategies provided us with a sample 33 key- informant interviews across all three Delaware counties (New Castle, Kent, and Sussex). This was to ensure the interviews provided a balanced geographic representation of the communities they serve and incorporate the voices of underserved communities who may not receive DNREC services.

The interview guide for the key-informant interviews was carefully crafted to provide insight into familiarity of DNREC, DNREC's methods of outreach and tools of engagement, developing a collaborative relationship between DNREC and the communities they serve, and recommendations on improving current measures of outreach and community engagement. To ensure that the key-informant interview questions suited the goals of the project prior to execution, the research team evaluated the effectiveness and underlying constructs of the interview instrument. The team ensured the questions were precise enough to facilitate comprehensive responses, which is crucial in developing interview guides (Rubin & Rubin, 2005; Kallio et al., 2016). Interview guides that are not meticulously constructed compromise the richness of the data

and can stunt the possibility of new insights into the questions that are being addressed (Kallio et al., 2016; Baumbusch, 2010; Dearnley, 2005; Krauss et al., 2009).

The research team conducted key-informant interviews with community leaders and organizers throughout the State of Delaware. A final list of organizations as points of contact was provided to DNREC. The interviews were audio recorded, transcribed and analyzed for recurring themes and categories using Atlas.ti. Interviews were conducted either in-person, online format (virtual), and averaged a time range of forty-five minutes to one hour.

Town Halls

The town halls were an essential methodological tool to explore the perspectives and experiences of our participants in their engagement with DNREC. It allowed the research team to employ innovative stakeholder events that was inclusive of the general public. The town hall is important for this study as it provides an open platform for all to speak freely and share their points of view. Due to the ongoing COVID-19 pandemic and the need to utilize mediums that produce the desired inclusivity from participants, we held two town halls on the WebEx platform on November 17, 2021, and December 2, 2021. The town halls were moderated by Dr. Raymond Tutu, where community members, environmental justice practitioners, and community organizers were given the opportunity to discuss matters that concerned them regarding DNREC engagement and outreach.

The online town hall format has many advantages as it allows organizers to facilitate potentially contentious verbal feedback and discussions, limits intimidation from peers, and the problem of interruption, which often upends such meetings and alienates prospective participants. It further allows individuals who do not wish to verbally respond to our questions to use the chat feature to provide their real-time responses. We also provided our project email for individuals who needed more time to respond to the town hall questions. Although the line of questioning that was asked in the key-informant interviews and during the town halls covered similar areas of exploration, slight changes were made to the town hall questions. It was important for these questions to be modified to allow for a more expansive discussion and level of engagement and participation between the community and the research team.

The online town halls were organized around the two halves of the State of Delaware. The first town hall held on November 17th, 2021, focused primarily on Sussex and Kent county. We included three featured community representatives from community organizations including First State Community Action Agency, Socially Responsible Agricultural Project, and the Southern Delaware Alliance for Racial Justice. While the advertisement of the first event focused on Kent and Sussex counties, it included partners throughout the state. The focus areas of this town hall included DNREC Engagement, Participation, and Involvement; DNREC Engagement and Outreach Tools; DNREC Engagement, Collaboration and Trust; and DNREC Activities and Services. The second town hall was focused on residents and organizations from New Castle County. We included three featured community representatives from community-based organizations, including Collaborate Northeast, Metropolitan Wilmington Urban League, and the Community Housing Empowerment Connection. While the second town hall advertisement was

focused on New Castle County, it included partners and communities from throughout the state. The focus areas of this town hall included DNREC Activities and Participation; DNREC Engagement and Outreach Tools; and DNREC Engagement, Collaboration and Trust.

The town halls were designed to better understand the needs and limitations of DNREC's engagement and outreach to the public, and in particular underserved communities. It also complemented the key-informant interviews as it expanded the conversation to the larger community to ensure that engagement and outreach gaps were identified and captured by the research team. The online town hall events were recorded for analysis purposes and transcribed using Atlas.ti software. Each town hall was two hours long.

Surveys

The second phase of the exploratory sequential design involved the administration of surveys. The initial results from the key-informant interviews analysis provided critical feed for developing specific questions for the survey to understand DNREC's outreach and engagement with underserved communities. The results of the surveys provided a quantitative measure that supports and compliments the qualitative results from the key-informant interviews and town halls. The surveys that the research team crafted addressed methods of contact and outreach and the tools of engagement. The survey provided community members with the opportunity to address their concerns and discuss their familiarity and relationship with DNREC and the services that are offered. The categories of questions within the survey included topics like preferred methods of outreach, engagement and participation with DNREC, current methods of outreach, and basic familiarity with DNREC and its associated duties.

Surveys are useful in that they provide a quantitative buffer for qualitative research highlights and deliver robust insight on patterns, underlying mechanisms, and respondent perceptions. The research team distributed surveys in all Delaware counties with a focus on underserved communities in Delaware, and community organizations that work with underserved groups. The development of the survey relied heavily on the incorporation of DNREC's current measures of outreach with a specific focus on their methods of contact and tools of engagement. The survey was composed of close-ended questions, multiple response/rank order questions, and Likert-scaled questions. The survey was designed to be deployed online and, in the field, through in-person distribution in various communities across the state. The survey was also translated in the Spanish language to ensure that Spanish speaking individuals can actively participate in the research process. The survey was translated and validated by members of the research team and Spanish language scholars. This allowed our survey to have the semantic, normative, and conceptual equivalence across languages. To ensure that the instruments maintain validity and reliability in the translation process, we utilized direct and back translation techniques, which allowed the research team to check-and-recheck the translation. The research team worked directly with the

Latino/ Hispanic community representatives to administer and collect the surveys. To capture the voices and perspectives of the large Haitian community in Sussex County, we worked with community leaders to administer the survey to community members who spoke Haitian Creole.

A pre-test was conducted on the survey. This process allowed the research team to detect any potential problems regarding survey construction, readability, clarity, and most importantly, validity and reliability. Once the survey closed, we had 88 respondents and a preliminary analysis was conducted on the sample to check for any issues, including the nature of respondent answers, along with reliability and the instrument's internal consistency using the measure of Cronbach's Alpha.

To compose our sample of survey respondents, we utilized a multistage sampling approach and oversampled in environmental justice communities/underserved communities across the state. This sampling approach allowed the researchers to derive smaller samples or subsets of survey respondents from large populations of environmental justice/underrepresented communities in Delaware (Babbie 2004). The survey was deployed throughout the State of Delaware. Deployment consisted of using either online distribution, in-person assessments utilizing tablets, or completing the survey via hard copies that were later entered into the online database. Recruitment for survey distribution included: contacting the town managers in each community for assistance; phone calls to organizations in each county; and posting the survey on listservs throughout the state. Additional strategies for recruitment involved fieldwork and on the ground distribution to various community organizations in underserved communities.

Of the three Delaware counties, New Castle County is the largest and houses several environmental justice communities. To ensure our sample included these communities throughout New Castle County, we selected specific cities (subsets) with large percentages of environmental justice communities. New Castle County subsets include the cities of Wilmington, Newark, Bear, and Middletown. This approach was also conducted for Kent County where subsets were taken from Dover, Smyrna, Felton, and Magnolia and Sussex County where subsets were drawn from Harrington, Milford, Georgetown, and Seaford.

Survey administrators also recruited in public spaces in each of the three counties, which included sampled community organizations, minority and immigrant religious institutions, frontline communities, and within residential communities in overburdened neighborhoods. Whereas the key-informant interviews and town halls utilized a qualitative approach that provided a thorough understanding of the needs of underserved communities, the surveys provided a quantifiable understanding of these measures.

Social Media Analysis

Accompanying the qualitative and quantitative analysis, the research team examined DNREC's online communications on Twitter and Facebook. We employed computer-aided content analysis using a combination of statistical and machine learning techniques to help derive insight into the posting patterns of DNREC. The four PR models identified by Grunig and Hunt (1984) and cited and elaborated upon by Walters and Williams (2011) was used to categorize and bucket the pattern themes layered on top of the output provided by the models used to analyze the data. The analysis

also employed latent Dirichlet allocation (LDA) to provide a series of keywords and detailed information on the nature of the grouping (clusters) and its importance within emerging topics. This allows for a seamless process when extracting meaning from the text (Putri & Kusumaningrum, 2017) and will allow us to develop a framework for understanding the effectiveness of DNREC's social media outreach.

The outlined methods and approaches described were each separately applied to each social media type, i.e., text that was posted on either Twitter or Facebook. The data provided by DNREC on their Twitter post history ranged from 2016 to June 2021, with 6,644 total tweets and the average number of tweets per year being 1,107. The number of words in each tweet ranged from 2 to 61, with the average being 22.2 words and a median of 20 words. DNREC's Facebook posts totaled 619, with a date range of May 2019 to June 2021, with 206 average posts per year. The number of words in each post ranged from 4 to 324, with an average of 48 and a median of 36. The data allowed the research team to evaluate the strengths and gaps in DNREC's public engagement on social media.

Environmental Justice, Underserved Communities, and DNREC's Goals

Introduction

DNREC's commitment to understand and improve the gaps in their engagement and outreach with underserved communities is an important step in re-centering the community's voices and concerns in agency decisions and initiatives. DNREC and other state environmental protection agencies understand that these engagement gaps are primarily found in "minority and low-income communities that may be disproportionately exposed – and vulnerable – to adverse environmental impacts" (DNREC, 2022). While DNREC is dedicated to "working with community members throughout the state to shape excellent, effective, and engaging two-way communication" (DNREC, 2022), these communities often do not have "an equal seat at the table where decisions are made" (DNREC, 2022). Understanding these historical and contemporary barriers to engagement is critical to pursuing equity, fair treatment, and meaningful involvement of underserved communities in DNREC processes and initiatives. Accordingly, environmental activists and community leaders have taken great strides to advocate for underserved communities to ensure that they are not suffering from disproportionate environmental burdens; they are afforded equal access to resources; and they are meaningfully involved in DNREC decision making processes. However, despite the EJ community's mobilizations and DNREC's active response in developing EJ policies and programs, there is room for improving agency engagement and outreach with underserved communities.

Understanding Environmental Justice

Environmental justice, as defined by the Environmental Protection Agency (EPA), is "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA, 2022). The complexity of environmental justice issues has produced several challenges, reflective of the community's geography, socio-political context, and economic factors. While environmental justice scholars and activists have historically focused on environmental burdens that disproportionately impact marginalized communities, an evolving intersectional framework has become predominant in the literature. Racial, ethnic, and economic disparities are increasingly seen as interconnected with the environment and the lived realities of underserved communities. Understanding this integration will reveal the discrepancy in power in which underserved communities experience the 'equity deficit' (Agyeman, 2005, p. 44). Such equity deficits facilitate exposure to environmental hazards, minimizes opportunities for participation in outdoor and recreational activities, and allows the frontline communities to experience the brunt of environmental disasters.

Unfortunately, the underserved communities that are impacted by such burdens are not likely to garner the necessary support to combat these issues as they deal with minimal governmental resources, protection, and support. It becomes imperative for state agencies to internalize and

employ an environmental justice framework to incorporate procedural equity (Cutter, 1995). This will, in turn, fully integrate the voices of the underserved community in decision-making processes that directly impact their communities. Allowing state environmental agencies to redivert critical resources for the underserved and generate real structural change in terms of recognition, process, procedure, and outcome (Agyeman, 2012). Ultimately, internalizing the environmental justice framework will minimize conflict, confrontation, and misunderstanding that at times exist between the underserved community and DNREC, while leading to equitable and mutually beneficial outcomes for all.

Underserved Communities Key Concepts:

The literature presents several concepts that are considered best practices for government agencies seeking to integrate environmental justice principles and engage underserved communities. These conceptual frameworks are key to understanding and producing actionable ways to integrate the needs of the underserved communities into DNREC's processes and initiatives. The EPA (2021) references *fair treatment* with a clear emphasis that regulatory agencies should be held responsible for optimal engagement. This includes identifying and addressing the disproportionately high environmental effects that impacted groups experience as a result of their processes and initiatives. The EPA explicitly states that "fair treatment means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies". Placing the onus on the regulatory agency suggests that these entities should be held to a high standard to promote environmental justice, nondiscriminatory policies, and implement inclusive approaches. All of this with an urgent consideration for the cultural contexts, socio-economic needs, and collective history of the communities they are engaging.

The second environmental justice principle shaping our research is the importance of the *meaningful involvement* of underserved communities in the agency's decision-making processes. Meaningful involvement necessitates the public's incorporation, participation, and consideration in various environmental justice-related activities that impact the community (EPA, 2022). This includes early and frequent engagement, opportunities to be involved in decision-making, language accessibility, varied meeting styles, and consistent and reliable engagement (DOE, 2019, p. 12). Moreover, it shifts the responsibility of outreach and engagement onto the decision-makers who must "seek out and facilitate the involvement of those potentially affected" (EPA, 2022). This obliges the agency to evaluate its processes and activities to overcome any difficulties and barriers that may be in place. The core values embedded in meaningful involvement of the community also necessitates that the community's perspective, positions, and opinions be considered and leveraged into the agency's decision-making. This allows the community to understand how their inputs are integrated into the agency's policies, strategies, and outcomes. In doing so, it can foster new and dynamic partnerships with the community and support meaningful opportunities for involvement.

Another critical concept in this research that has defined the lived experiences of the underserved communities in Delaware is *cumulative impacts*. According to the EPA (1999), "cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time." The burden of environmental and health stressors on

underserved communities are well documented. These cumulative impacts over a community's life course often pass from one generation to the next. This builds onto the community's burden diminishing the minimal resources they may have had to address those impacts. Centering the community in environmental agencies' policies and processes will aid in addressing these impacts and provide a crucial intervention to improve community well-being. This requires seeing the underserved community as partners and collaborators in informing impact assessments and research. This empowers the community and provides agency over the management and implementation of these environmental impacts. Ultimately, this aids the underserved community in building resilience to withstand current and future environmental challenges.

Another essential environmental principle is conducting *two-way communication* outreach and engagement with underserved communities. The common practice among regulatory agencies is a "one-way direct" communication framework that seeks to primarily inform without seeking feedback or generating conversations with one's target audience. The one-way approach emphasizes internal-departmental policy construction where decisions are defined, and made in-house. Only afterwards are they announced and subsequently defended in the public sphere. The Define, Announce, and Defend (DAD) model of communication does not seek community input as the "administration promoting the project *Decides* with its experts the action to be taken, only later when the choice has been made, it *Announces* it to the public and finally it will Defend the choice from the criticisms" (Cascettaa & Pagliaraa, 2013, p. 104). The DAD model does not permit this mutual exchange with stakeholders in decision-making processes. Rather, it solely relies on the expertise and skillset of governmental entities or professionals in all decisions (Cascettaa & Pagliaraa, 2013).

DNREC recognizes that the one-way, DAD model is inherently inconsistent with community engagement and defies environmental justice principles. It states that it is "committed to working with community members throughout the state to shape excellent, effective, and engaging two-way communication" (DNREC, 2022). Understanding the needs of underserved communities requires the adoption of proactive communication strategies and dialogic exchanges between community members and regulatory agencies. It is not enough to respond to the plight of underserved communities during times of crisis. It is important to employ two-way models that consist of a legitimate dialogue between the regulatory agency and all community stakeholders. This can promote and achieve participatory community goals, build rapport, and establish mutually beneficial relationships.

Fair treatment, meaningful involvement, two-way communication, and understanding the consequences of cumulative impacts on underserved communities are established paradigmatic tools and standards in the environmental justice literature. These concepts can support environmental regulatory agencies in developing effective outreach strategies that can potentially ameliorate the needs of the underserved. By shifting the conversation and internalizing these frameworks, they can materialize their outreach and engagement objectives and act in the underserved community's best interest.

Underserved Communities: Intersectional Realities

Economics

A community is identified as underserved based on demographic characteristics or geographic location. One of the defining variables that have reinforced the systematic exclusion of underserved communities has been economic class. The class structure in the United States facilitates the divide between communities, and shapes access to resources, therefore creating barriers to alleviate some communities' environmental concerns (Wilder, Liverman, Bellante & Osborne, 2016). Economically disadvantaged communities lack the resources to address these environmental concerns and generally do not have access to the social, cultural, and political capital needed to resolve them. For this study, these same considerations impact local community participation in DNREC processes and initiatives as they are accentuated by several factors that are associated with poverty and low-income. Among other factors, some examples include access to information in the form of published posts on subscription-based newspapers; lack of transportation; time restrictions due to multi-generational family structures; or employment in two or more positions. Getting low-income communities involved in agency decision-making processes should consider the minimal resources present in many of these underserved communities. Economic inequality should be accounted for when prioritizing engagement and outreach. This can facilitate and embed a just and sustainable environmental justice framework in the regulatory agency's processes. This means acknowledging the varying characteristics of poverty, understanding cumulative impacts, and providing essential resources to support community engagement and initiatives.

Environment

Exposure to pollution, contaminated water, flooding, and rising sea levels are environmental issues that impact communities across the state. Routine exposure to these hazards and disasters has detrimental effects on the environment and the quality of life of community residents. The passage of environmental legislation in Delaware, such as House Bill 200, also known as the “Clean Water Act”, prevents and safeguards communities confronting these issues. Unfortunately, the history of environmental policy and its enforcement in Delaware has been left wanting. Underserved communities routinely contend with the building of industrial plants and factories that release toxic fumes and pollutants, food and water contamination, and mediating between state economic and business interests versus their community's well-being. In working with the underserved communities, state agencies should reinforce EJ principles. Especially those that emphasize fair treatment and meaningful involvement in processes to confront the challenges these environmental hazards and disasters pose to the most vulnerable in the state of Delaware.

Race and Ethnicity

It is understood within the environmental justice literature that environmental hazards and disasters disproportionately impact racial and ethnic minorities. Environmental justice advocates recognize disparities in health outcomes for certain racial and ethnic groups who are living in underserved

communities near industrial facilities, factories, and heavily populated urban areas. Exposure to environmental hazards and disasters tends to be skewed towards minority populations due to various issues. Examples include residing in substandard housing or zoned areas that are in close proximity to industrial sites or undeveloped infrastructure. Massey (2004) notes, "Across the United States, poor and minority neighborhoods bear an unequal burden from hazardous facilities and waste sites…Hazardous waste sites, municipal landfills, incinerators, and other hazardous facilities are disproportionately located in poor and minority neighborhoods". Similarly, Bullard (1993) notes, "Communities of color have been systematically targeted for the siting of noxious facilities such as sewer treatment plants, garbage dumps, landfills, incinerators, hazardous waste disposal sites, lead smelters, and other risky technologies, thereby exacerbating existing inequities." This is especially relevant for the State of Delaware, as Latino (21.5%) and African American communities (18.6%) are twice as likely to live in poverty as White Delawareans (9%) (CCRS, 2021, 3). Moreover, Black and Latino communities' median income in cities like Wilmington is half of White households (CCRS, 2021, 3).

Regulatory agencies should acknowledge and address the racial and ethnic projects that have historically situated minorities in underserved communities. The social exclusion that is experienced by racial and ethnic minority communities directly impedes their abilities to be meaningfully involved in regulatory agency outreach and engagement. This impacts the level of input that is needed to integrate their voices, concerns, and lived experiences in processes and initiatives that can address these critical disparities.

Rural/Urban

Adverse environmental conditions impact all communities. However, communities' access to the means and resources to prevent or recover from these adversities can depend on geographic location. Despite urbanized areas having higher levels of poverty in the State of Delaware (CCRS, 2021), rural areas have very similar challenges with poverty, environmental hazards and disasters, and minimal access to resources. Dobis et al. (2021) found that persistently poor rural environments have great difficulty recovering from any unforeseen "shocks" to the social climate, similar to persistently poor urban communities. While many challenges between rural and urban communities are different in scope and measure, the struggles to sustain economically and environmentally vibrant communities are the same. Just like urban areas, rural “persistently poor counties often have fewer resources for weathering economic and social stress, making them less resilient to these stresses and slower to recover" (Dobis et al., 2021, p. 1). Thus, while geography and place-based environmental justice frameworks are crucial to understanding the needs and struggles of these underserved communities, the struggles are generally the same. It becomes important for regulatory agencies to conduct engagement and outreach in the same areas where these communities reside. This becomes the preferred, just, and sustainable way to understand the cumulative impacts on rural communities, while creating communicative pathways to address their concerns into regulatory agency processes.

Underserved Communities in the State of Delaware

In the State of Delaware, many underserved and underrepresented communities encounter disadvantages that other communities may not face. Access to clean water, clean air, and protection from environmental disasters are of utmost importance. Therefore, the structural gaps that tends to exist between disadvantaged communities and an efficient regulatory ecosystem perpetuates inequity and only serves to compound less than favorable outcomes. The detrimental impact of environmental, demographic, and economic challenges on underserved communities in each county shapes the community's needs and challenges to achieve greater equity.

New Castle County

As the largest county in Delaware, New Castle County has an estimated population of 570,719. New Castle County has been confronted with a host of issues pertaining to air pollution, primarily through exposure to potential contaminants released from local industrial sites and chemical facilities. The underserved communities situated along the Route 9 corridor are regularly exposed to these potential contaminants from nearby facilities and have become a growing concern for residents due to the negative associated health risks. Some of the health risks cited by residents, independent experts, and scientists include an increased likelihood of developing respiratory problems, cancer, and developmental delays in children. Consistent with the findings on underserved communities' the majority of the populations exposed in New Castle County to possible environmental contaminants are low- income, racial, and ethnic minorities. This further suggests that these groups were zoned in industrialized areas without concern about the associated health consequences to the community (Union of Concerned Scientists, 2017).[1] In fact, according to the Union of Concerned Scientists, residents in Marshalltown, DE were 33% more likely to get cancer than residents of Greenville, one of the wealthier areas in the state of Delaware (DPM, 2017).

Residents of New Castle County are familiar with a host of environmental issues and sources of potential pollutants that plague their communities. The building and expansion of factories, chemical plants, and refineries and their close in proximity to the community means that, all things being equal, community members may be regularly exposed to potential contaminants. Along with residential communities, such as Rosehill, the Route 9 Industrial Corridor in New Castle County houses various factories and plants thereby increasing residents' health and environmental concerns. Seven communities in this area are identified as environmental justice communities including Belvedere, Cedar Heights, Dunleith, Marshalltown, Newport, Oakmont, and Southbridge (Union of Concerned Scientists, 2017). Some of these communities share similarities in their demographic composition, geographic location, and poverty levels (Union of Concerned Scientists, 2017). There are, however, stark contrasts between these communities regarding the racial composition and median income levels that provide insight into how governing agencies can provide effective outreach and better engagement with these residents. Although the racial composition and poverty rate of these communities may differ, environmental issues pose a significant threat to the wellbeing of these communities. To alleviate these concerns, regulatory agencies who have power

[1] This publication is not scientifically peer-reviewed. However, the organization's standing in the community and the information contained in this document was invaluable for this research.

over these processes including permitting and grants must develop approaches that caters to the needs of each underserved community. This requires proactive governmental interaction and enhanced engagement to develop strategies to mitigate their respective issues.

Kent County Delaware

Communities in Kent County, Delaware, also grapple with environmental issues unique to their residents, given their geographic location and population demographics. Kent county has an estimated population of 181,851 (United States Census Bureau, 2020). Whites accounts for 65.6% of the population, with Blacks and Hispanics accounting for 27.3% and 7.4 %, respectively (United States Census Bureau, 2020). The Census Bureau (2020) also reports a slightly higher poverty rate than New Castle County at 13% and a lower median household income of $60,910. Given the higher poverty rate and lower median household income, there is the assumption that the allocation of resources to these environmental justice communities are limited. Moreover, compared to the communities in New Castle County, Kent County faces a unique set of environmental issues that communities and its residents must confront daily including air pollution, food and transportation deserts, extreme heat, and lack of parks and recreation services. Most importantly, the census data illustrates that state government and regulatory agencies need to reconsider the best approaches when providing effective outreach and assistance to these communities.

Although Dover is not explicitly designated as an EJ community, the city is frequently referenced as having a history of troubling environmental issues including water and soil contamination and poor air quality. The EPA (2021) reports that the city of Dover is host to three superfund sites/polluted areas that have developed from "hazardous waste being dumped, left out in the open, or otherwise improperly managed." These sites are also composed of "manufacturing facilities, processing plants, landfills, and mining sites" (EPA, 2021). The EPA designated the Dover Air Force Base, a military unit, as such, given their role in the prevalence of toxic soil and contaminated drinking water on their base (EPA, 2021). The EPA (2021) reports that Superfund "allows EPA to clean up contaminated sites. It also forces the parties responsible for the contamination to either perform cleanups or reimburse the government for EPA-led cleanup work". These goals include to "protect human health and the environment by cleaning up contaminated sites, make responsible parties pay for cleanup work, involve communities in the Superfund process, and return Superfund sites to productive use" (EPA, 2021). Although the goals of Superfund are structured around prevention, equity, and fairness across communities, earlier and more effective outreach and engagement strategies on behalf of local and state governmental entities will yield the same results.

In line with the EPA directive, regulatory agencies should take proactive measures and identify these underserved, lower-income, racial and ethnic minority communities in Kent County, and designate them as environmental justice communities. The early intervention of identifying the at-risk communities can effectively mitigate their current environmental issues and improve the health outcomes of these residents. Moreover, regulatory agencies can incorporate effective outreach and engagement strategies to curtail the prevalence of these communities' specific environmental problems.

Sussex County Delaware

Sussex County, Delaware, is the most rural area in Delaware, composed of 83% White (alone), 12.1% Black, and 9.3% Hispanic (Census, 2020). Moreover, foreign-born, racial and ethnic minorities account for 7.4% of the Sussex County population. In comparison to New Castle and Kent County, the median household income of Sussex County residents is $63,162, and the poverty rate is 11%. The substantial difference in racial and minority groups implies that race-based indicators are not the sole predictors or contributors related to the differential distribution of needed resources. The rural context of Sussex County produces different challenges than other parts of the state. The perception that rural areas are secluded, lack population density, and tend to be populated by low-income communities often allows rural settings like Sussex County to become key sites of struggle with industry and big business. Especially in the context where corporate owned farms are increasingly becoming predominant in the state as they overtake smaller, family- owned farms (Albrecht, 1997).

Access to clean drinking water is one of the critical concerns impacting Sussex County residents. Although DNREC has been actively engaged in confronting groundwater contamination including elevated nitrate levels in private wells, fecal matter in spray waste, and violations in wastewater permits for ammonia and nitrates, it's outreach and engagement with the impacted communities was deemed as not effective (Galarraga et. al, 2022, 442). When the residents of Millsboro in Sussex County were confronted with toxic water issues it was discovered that "it took months before the public learned that… a processing plant had been spraying highly contaminated waste on hundreds of acres of farm fields and was failing to keep groundwater pollution levels in check for an unknown amount of time. It then took another month before water supplies appeared on Millsboro-area residents' front steps, and when they did, there was no explanation" (Lauria, 2018). This lack of outreach from DNREC to alert residents of these potential toxic materials in the water is a byproduct of how government agencies often mismanage their engagement with rural communities. Moreover, the prevalence of foreign-born minorities in Sussex County is noteworthy given their employment in animal processing plants and factories. Given their legal status, undocumented workers are not only consistently exposed to pollutants but have minimal access to resources to address them (Galarraga et. al, 2022).

Each county in Delaware faces unique environmental challenges that require proactive intervention efforts and meaningful community engagement on behalf of governing institutions. This is especially true for underserved communities. However, these efforts need to conform to and be specific to the needs of each community in each Delaware county. For some communities, however, these environmental justice issues cause far more problems on communities that are riddled with impoverished conditions and lack of access to viable resources.

DNREC and Environmental Justice

State and Federal environmental agencies across the United States are actively adjusting their methods of engagement and outreach to be more inclusive of underserved communities. The EPA recently announced a new directive focused on assisting and treating communities and its residents

fairly. More specifically, one of the central tenets emphasized the urgent and proactive approach government entities must utilize while working with environmental justice communities stating that regulatory agencies must, "take immediate and affirmative steps to improve early and more frequent engagement with pollution-burdened and underserved communities affected by agency rulemakings, permitting and enforcement decisions, and policies" (EPA, 2022). In this context, DNREC is also actively assessing the effectiveness of their communicative frameworks with the underserved communities to ensure fair treatment and meaningful involvement of the community. DNREC has been increasingly seeking input of community leaders and residents to improve their current outreach, engagement, and participation strategies through multiple projects in the State.

DNREC secretary, Shawn Garvin, has pledged his support to underserved and overburdened communities in Delaware. In an interview, Mr. Garvin discusses the importance of ensuring that Delaware communities have the resources available at their disposal by sustaining meaningful and productive partnerships. He explains, "How do [we form better partnerships]? How do we look across agencies and see if there are opportunities to leverage both activities and resources? How do we work with communities? How do we work with cities and counties? How do we work with businesses and organizations to draw on all our resources to accomplish the goals that we really need to do for the people of Delaware" (WHYY, 2017)? Mr. Garvin's plea to develop and sustain collaborative partnerships builds on past attempts to forge and cement new and better relations with the community. In 1999, DNREC established three committees to begin addressing the critical barriers that underserved communities face with the goal of integrating their voices in DNREC's decision-making processes. These committees include the Environmental Justice Committee, the External Advisory Committee, and for an 18-month period, the Community Involvement Advisory Committee (CIAC) (CIAC Report, 2001, 4-5). In this time period, the CIAC committee research and published thirty-five recommendations for DNREC to increase community collaboration and integration into their processes and initiatives.

The effectiveness of the CIAC committee study immediately led to three major reforms within DNREC. This includes the formal establishment of the *Community Involvement Advisory Council* (2001) to address "the relationships and interaction between communities and the department, increasing the flow of information, and meaningful participation in the decision-making process of the department" (DNREC 2022). The second was the *Community Ombudsman position* (2001) which would "serve as an advocate for communities and helps communities gather information about the environment and about departmental programs" (DNREC, 2022). Third, was the *Community Environmental Project Fund* (2004) which withholds "25% of funds collected as penalties for violations of environmental regulations…(that) are returned to the communities where the violations occurred as competitive grants to nonprofit organizations to support community environmental projects" (DNREC, 2022). As a result of the 2001 CIAC report, these three recommendations were formalized in DNREC and have been successful in addressing some of the communicative gaps that exist between the community and DNREC.

These measures are important steps to ensuring that underserved communities receive the support and outreach that is necessary to engage in DNREC processes and initiatives. In 2019, DNREC organized an Environmental Justice Roundtable and invited key community leaders in the State of Delaware to share their perspectives and experiences with the DNREC team, including Secretary Garvin. The findings from the workshop concluded that DNREC needed to fill the communication

gaps, identify and work with EJ communities, and create an EJ website, among other recommendations. This roundtable was an important step in aiding the underserved communities to build capacity. It also facilitated the integration of community perspectives and needs within DNREC communication outreach strategies. This ongoing effort was acknowledged by Secretary Garvin at the Town hall organized by this research team where he stated that, "along with protecting public health and the environment and improving quality of life for all Delawareans our core mission includes engaging all stakeholders. I am proud of DNREC's long tradition of transparency, public engagement, but at the same time, I know we can do better" (DSU Town Hall, 2021).

Addressing the needs of EJ and underserved communities in Delaware is an issue that spans several decades and is increasingly at the forefront of environmental research, activism, and policy construction. The importance of meaningfully involving and integrating the voices of the underserved communities in DNREC decision-making processes is key. These communicative improvements in their communities can lead to healthier, just, and sustainable outcomes for residents (Rickenbacker et al. 2019).

Conclusion

As previously discussed, and research shows, much work is still required to ensure that the underserved and overburdened communities are provided with effective measures of engagement and outreach by governmental institutions. The importance of integrating environmental justice principles and frameworks, including fair treatment, meaningful involvement, cumulative impacts, and two-way communication, is key to supporting actions and procedures. This will ensure that underserved communities have access to and participate in DNREC processes, activities, and initiatives. Moreover, understanding the intersectional realities and geographical similarities and differences throughout the state is critical to producing the robust changes intended by DNREC. Finally, through this collaborative study, DNREC will be better positioned to serve the underserved and overburdened communities in the State of Delaware.

Social Media Analysis and Findings

Introduction

The increasing importance of social media outreach to environmental justice (EJ) and underserved communities has become a central communicative framework for government institutions seeking to engage and empower their citizens. These platforms are an excellent tool to establish widespread communication of critical information to the targeted communities (Ngamassi et al., 2016). This is especially relevant for EJ and underserved communities who are often at the forefront of natural and environmental disasters (Hughes & Palen, 2009), experience greater vulnerability to environmental hazards, and experience lack of opportunities for public participation and engagement. For government institutions like DNREC, the medium of social media is utilized as an essential tool to target content to the diverse communities across the state of Delaware, inform the public of regulatory matters and concerns, address environmental issues and policies, conduct robust public campaigns, and encourage action towards community-building efforts (Burroughs, 2014).

As Valentini and Kruckeberg suggest, social media is at the "heart of public relations activities because social media can enhance organization relationships by increasing and improving community relations" (2012, p. 11). This sentiment is also reflected in the State of Delaware, Department of Technology and Information's social media policy, which oversees DNREC's social media policy as it states that "social media tools help citizens interact with their government in the individual's preferred method and time schedule and fosters a culture of greater transparency" (State of Delaware, Social Media Policy, 2015). This is important as social media is increasingly becoming a central platform that government institutions use to communicate with the public to ensure and record active citizen-stakeholder participation and collaboration.

DNREC and other governing institutions' increasing understanding that social media provides the capacity to disseminate information, conduct robust messaging campaigns, and advocacy to educate and mobilize stakeholders and reach large numbers of people who are underserved in the State of Delaware is one of the driving factors that reveals why it's becoming central in its overall outreach to the public (Veil, Buehner, & Palenchar, 2011; Saxton, Niyirora, Guo, & Waters, 2015). This ongoing communicative shift creates what Naaman, Becker, and Gravano (2011) call a "social awareness stream," which can reformulate citizen-government relationships to create more authentic engagements reflective of the citizen's needs and perspectives—ultimately increasing civic engagement and trust from the community towards DNREC (Warren, Sulaiman, & Jaafar, 2014).

These developments are crucial as EJ and underserved communities are disproportionately impacted by environmental injustices in the US and often experience the cumulative effects of living in technology deserts (WILMAPCO, 2020). However, while digital inequities have historically shaped access, the literature suggests that racial and ethnic minorities in underserved areas are more likely to identify social media as an integral tool to understand their lived environment (Smith, 2010; Marchi, 2016). They are also more likely to perceive social media as one of the best tools to support accessibility, information, and robust social networks to address social problems and pursue community growth and success (Smith, 2010). A recent Pew Research

study found that 80% of Hispanics, 77% of Blacks, and 69% of whites use social media across all platforms (Pew Research Center 2021). Moreover, the study revealed that 69% of individuals who made less than $30,000 a year and 76% of individuals who made between $30,000 and $49,999 a year, did the same.

One of the byproducts of the digital divide is the emergence of digital neighborhoods where communities are loosely organized around social media platforms representing geographical proximities and environmental communities that are often disadvantaged and segregated. The increasing presence of digital neighborhoods allows the underserved and EJ communities to mobilize online, engage in dialogue, and build rapport with institutions seeking out the communities. This can facilitate rapport while allowing government institutions to conduct effective outreach to provide critical information that the community may not have had access to through traditional methods. Especially as access to the internet is creating new opportunities for disadvantaged communities to engage with each other, the public and their governing institutions; as the recent Pew Research study found that nearly 91% of African Americans and 95 % of Hispanics use the internet and 86% who made less than $30,000 a year, and 91% of individuals who made between $30,000 and $49,999 did the same (Pew Research Center, 2021). This digital turn in our society allows government institutions and civil society organizations a path towards more effective engagement with the public and, more specifically, with the underserved and EJ communities to promote and provide information and services.

While each social media platform is different in structure and form, we can understand the messaging content and methods that an organization employs to understand its overall effectiveness. The following study seeks to understand DNREC's social media outreach to the public to develop a framework for understanding the effectiveness of DNREC's social media outreach and what that may mean for underserved and EJ communities in the State of Delaware. Specifically, we employ the Social Media Communication Model of Public Relations developed by Waters and Williams (2011) and LDA Topic Modeling to understand DNREC'S utilization of Facebook and Twitter to conduct outreach and engagement with the public. Moving beyond the traditional forms of evaluating social media engagement, including the emphasis on "likes," "reactions," and "shares," which Saxton and Waters 2011 maintain is the weakest form of engagement.

We explore the corpus of the posted texts to understand how DNREC employed one-way and two-way communications and how they have evolved over time. This method is relevant in the Twitter and Facebook social media platforms as they facilitate public conversations with other users to build relations, inform dialogue, and build community (Waters et al., 2009). This is important because research has shown that government organizations prefer One-Way communication strategies on social media as they limit conflict and adversity with the public (Glenny, 2008). However, when used effectively, social media platforms can provide the opportunity for outreach to the public by engaging in interactive dialogue (Chuang, 2010) through two-way conversations to establish productive relationships (Grunig & Grunig, 2008) and improve their understanding of the diversity of communities that they serve (Chuang, 2010; Ferguson & Greer, 2011). This is the preferred form of online engagement for minority and underserved communities who often utilize social media in conversational mode (Chuang, 2010).

Finally, DNREC's utilization of Twitter and Facebook as a means by which to communicate with the public falls in line with most public-facing government agencies; social media has increasingly been the primary medium by which information is transferred to the community. While both mediums are designed for facilitating connections between individuals and groups, each respective medium contains specific idiosyncratic characteristics, including who uses them and for what purpose. A greater number of prolific Twitter users tend to be lower aged compared to Facebook, while 99% of Twitter users also use at least one other social network, and while the number of users for both platforms has been in a steady rise across the years, Facebook's users vastly outnumber Twitter's audience, with 2.9 billion and 400 million active users per month, respectively. These differences in demographics and usage may play a role in the differences that we see in the results.

Methodology

The current study used a combination of statistical and machine learning techniques to help derive insight into the posting patterns of DNREC. The guiding theoretical framework identified by Grunig and Hunt (1984) and cited and elaborated upon by Walters and Williams (2011) was used to categorize and bucket the pattern themes layered on top of the output provided by the models used to analyze the data. Twitter and Facebook data were analyzed separately, thus producing unique results, as indicated in the results section **(Figure 3).** The outlined methods and approaches described were each separately applied to each social media type, i.e., text that was posted on either Twitter or Facebook. The data provided by DNREC on their Twitter post history ranged from 2016 to June 2021, with 6,644 total tweets and the average number of tweets per year being 1,107. The number of words in each tweet ranged from 2 to 61, with the average being 22.2 words and a median of 20 words. DNREC's Facebook posts totaled 619, with a date range of May 2019 to June 2021, with 206 average posts per year. The number of words in each post ranged from 4 to 324, with an average of 48 and a median of 36.

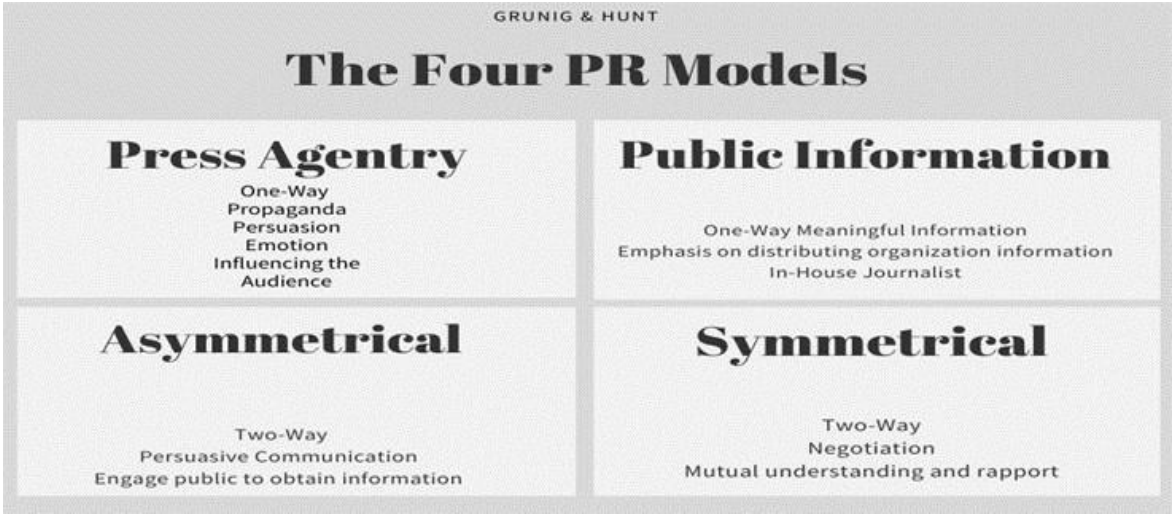


Figure 3. Public Relations Model identified by Grunig and Hunt (1984) and cited and elaborated upon by Walters and Williams (2011

A multi-class approach was used by implementing a machine learning algorithm called a Decision Tree. This classification algorithm works by using a structure that's more commonly identified as a "tree," where a "root" node that positionally begins at the top is recursively broken down into smaller and smaller subsets, based on specific "decisions," which lead down to another layer. Eventually, the algorithm makes a determination of which "category" data falls in based on applying these "layers" of decisions based on specific features or characteristics of the data being analyzed. In our usage of the Decision Tree algorithm, we initially took a random sample of posts and manually provided labels to each post using the guiding theoretical framework of Walters and Williams, where they describe the Social Media Communication Model of Public Relations, using the following types.

The first model was *press agentry*. This one-sided communication model emphasizes emotional messaging to convince the public of the organization's idea, public information which emphasizes direct, truthful messages intending to provide the public with accurate information about the organization and its activities, two-way asymmetry in which dialogue is engaged in order to obtain information for example when an organization surveys or polls the public for their position on matters. Finally, the two-way symmetry model, which is the ideal model for public engagement, consists of legitimate conversations between an organization and the stakeholders as it promotes ongoing dialogue and conversations online to achieve participatory community goals, build rapport and mutually beneficial relationships (Grunig & Grunig, 2008). By pre-training the algorithm on labels based on a random sample of social media posts for each social media medium, the model was then further trained iteratively against another subset of the data, where the process of parameter tuning took place to ensure optimal and accurate results were produced, using the decision tree.

The trained model was then applied to the remainder of the data, thus providing categorization for all the data provided by DNREC, separately between Twitter and Facebook. The final product of this phase produced a breakdown of where each post was categorized in the guiding framework. We also took the results of the classification model and applied a time series to show the change across time of the public relations model, looking at the date range of 2016 to June 2021 for Twitter and May 2019 to June 2021 for Facebook. For the second component of the analysis, we implemented topic modeling to extract "themes" throughout the corpus of tweets and posts. Topic modeling, in general, refers to the process of identifying overarching themes within a corpus or set of documents. Latent Dirichlet Allocation, or "LDA," is a topic modeling technique that has widespread application in machine learning. LDA utilization on Twitter and Facebook is well-substantiated in the literature (Resnik et al., 2015) primarily because of its relative lucidity in output.

It uses a probabilistic approach to map individual keywords to generalized topics and attempts to couple them into coherent themes, providing an in-depth look into the text's structure and meaning. The LDA framework views each document as being composed of a distribution of topics, with each topic similarly being composed of a distribution of words. By making the assumption of a structural process in the development of the text, LDA uses variables such as the size of vocabulary, word frequency, specific words in each document, and the overall number of documents to create an output. Computational topic modeling is an inherently involved method, where subject-matter experts' intervention is required to interpret the model's output. The given

output of the LDA model is initially a collection of keywords that are aggregated based upon probabilistic models (e.g., "Dirichlet" distribution) that identify trends and token co-occurrences across the analyzed corpus of text.

Based upon the aggregate provided by the model, we arrived at the "topics". The so-called "naming" of the topics consisted of many filters, including adjusting for parameters and running multiple iterations of the model to ensure the aggregate of keywords makes sense. Finally, we also looked at the costs associated with the keyword aggregations to provide greater insight into the context. Ultimately, identifying topic names is a qualitative process; therefore, there are advantages of bypassing a singular topic and focusing on the keyword aggregates themselves. This allows for a seamless process when extracting meaning from the text (Putri & Kusumaningrum, 2017).

Twitter Analysis

In using a multi-class public relations framework (Grunig & Hunt, 1984), the vast majority of DNREC Twitter communications were identified as “One-Way” engagements (91.8%) as opposed to the preferred “Two-Way” engagements which emphasize public interaction and dialogue, as indicated in **Table 1** and **Figure 3**.

Figure 4. Visual Representation of the Social Media Communication Models of Public Relations for Twitter

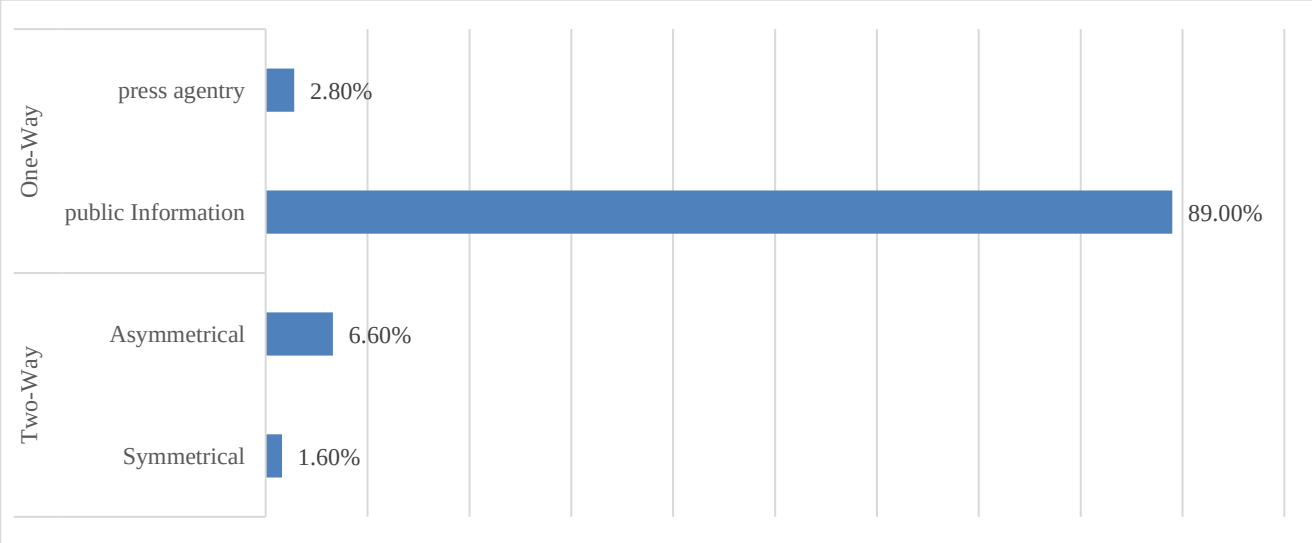


Table 1. Social Media Communication Models of Public Relations for Twitter and Facebook. *A breakdown of the different model and types that corpus of tweets and Facebook posts are categorized as, after running a series of machine learning classification algorithms. Included below are associated composition % of each type relative to the entire Twitter and Facebook corpus provided by DNREC, along with example keywords across tweets and posts that feed into the classification type.*

Social Media Communication Models of Public Relations - Twitter & Facebook

One-Way Model

Type	% Composition of Sampled Tweet Corpus (2016-2021)	% Composition of Sampled Facebook Post Corpus (2019-2021)	Keyword Examples	Description[1]
Press Agentry	2.8%	9.3%	Amazing, Air, Fascinating, Optimize	Agency use of text, emojis and other forms of graphical representation to express emotion through a tweet/post, with the sole intent of attracting attention without necessarily having an underlying motive
Public Information	89.0%	85.7%	Now, Looking, Analyses, Carts, Legislation, Provides, Limiting	Using Twitter/Facebook as a means to communicate agency updates, announcements, or providing information/reports from other related organizations, without necessarily seeking interactive engagement

Two-Way Model

Type	% Composition of Sampled Tweet Corpus (2016-2021)	% Composition of Sampled Facebook Post Corpus (2019-2021)	Keyword Examples	Description
Asymmetrical Communication	6.6%	2.9%	Involved, Survey, Join, Think, Learn	A more engaged form of communication, with agency usage of tweets/posts that request specific feedback, participation in surveys, or requesting general participation with the agency
Symmetrical Communication	1.6%	2.1%	Decreasing, Team, Help	The highest form of engagement through social media, with the agency directly replying invoking handles or usernames, attempting to resolve conflict by answering comments directly, and the general act of engaging in direct communication instead of tweets/posts that are targeted to the general audience.

[1]Waters, R. D., & Williams, J. M. (2011). Squawking, tweeting, cooing, and hooting: Analyzing the communication patterns of government agencies on Twitter. Journal of public affairs, 11(4), 353-363.

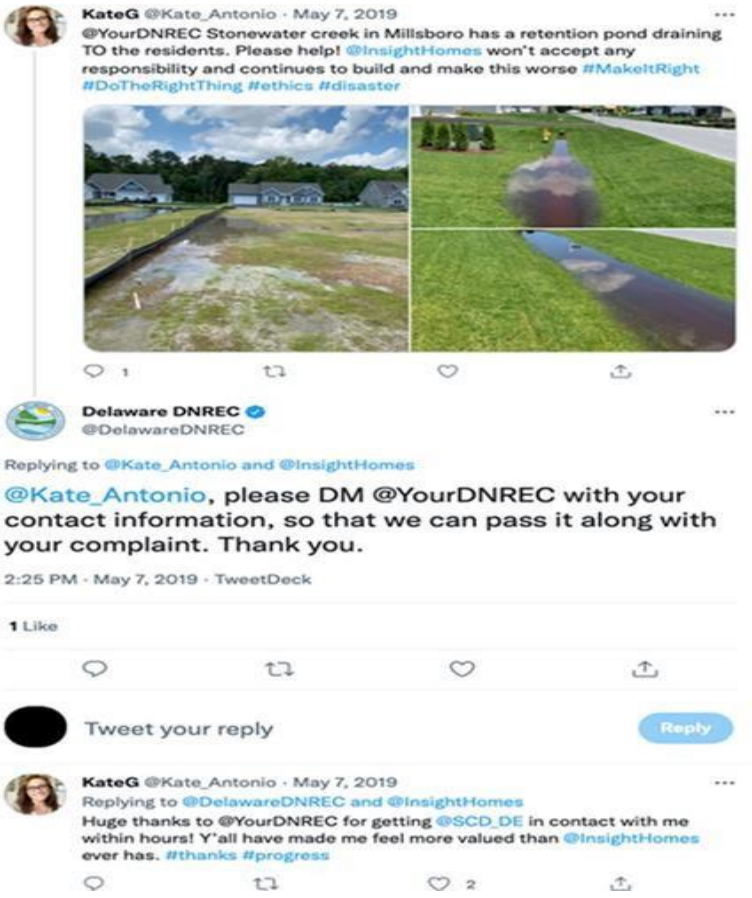
The bulk of the "One-Way" engagements can be considered under the typology of "Public Information" (89%), where tweets are primarily factual statements in a declarative manner. For example, these tweets communicate agency updates, announcements or provide information without seeking interactive engagement. The emphasis of these tweets is to provide factual and honest information to the public as exemplified in this tweet.

The other "One-Way" engagement was the "Press Agentry" (2.8%) which uses communicative tactics and strategies that use graphical representation to express emotion with the intention to attract attention without an underlying motive **(Table 1).** This is considered the lowest level of ethical public relations as it seeks to gain attention for the organization.

DNREC's Two-Way Communication reflected the normal range in the literature found from private and public sector organizations at a total of 8.2 % of all tweets. The majority of the Two-Way communications were asymmetrical communications at 6.6 %. This type of communication by DNREC requested specific feedback from the public including participation in surveys or just requesting general information. It utilizes persuasive forms of communication to influence the public while providing a feedback loop to ensure there is minimal interaction between DNREC and the stakeholder. This communication form is preferable to One-Way communications as it seeks active participation from the public in providing feedback to DNREC **(Table 1).**

The second Two-Way communication model, "Two-Way Symmetrical Communication", is considered in the literature as the ideal communication model, was classified in 1.6% of identified tweets. This is the highest and most ethical form of engagement through social media. This model "emphasizes communication exchange, reciprocity, and mutual understanding" (Cutlip, Center, & Broom, 2000, 4). DNREC has conducted Two-Way Symmetrical communications by directly replying to tweets by invoking @ handles, resolving conflicts by answering comments directly,

and responding to directed tweets. This form of communication seeks to construct and sustain mutually beneficial relationships between DNREC and the public with the intention of achieving shared common ground. Moreover, the emphasis, unlike the other forms of communication, seeks to minimize the imbalance of power that may exist between the community and DNREC by empowering the community to actively engage and participate in the process.

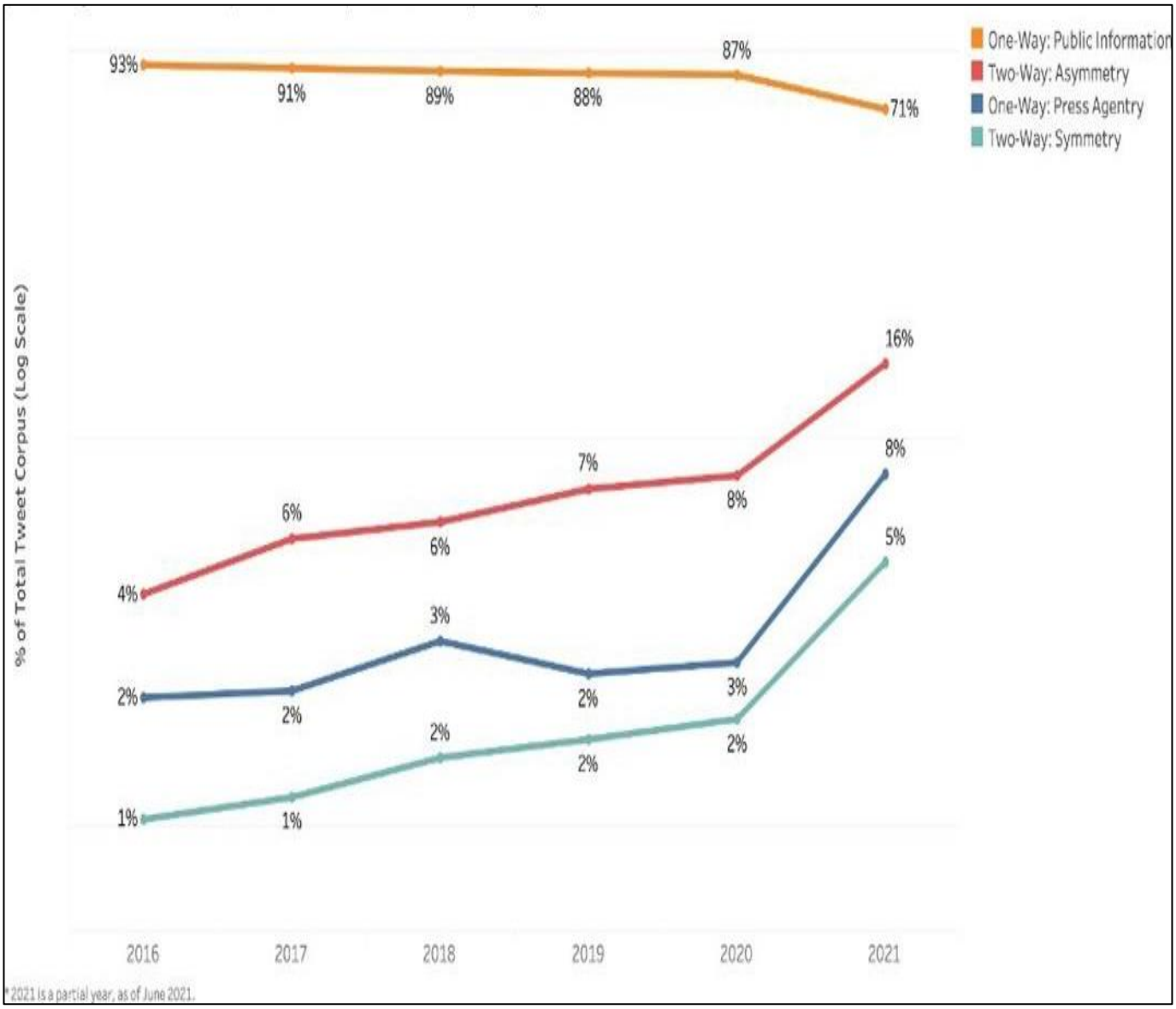


One of the interesting findings from this analysis looked at the changes of each model across the years beginning in 2016 to mid-2021. We found that there has been a significant rise in the Two-Way communication from 2019 to mid-2021. The time series analysis in each model type reveals an upward trajectory in asymmetrical and symmetrical communication. This is an important finding as it reveals that DNREC is increasingly seeking mutually beneficial engagement with the public on their twitter account. For example, in 2019, the percentage of tweets that were Two-Way Asymmetrical was 7 % and in 2021 (6 months of data) they were nearly 16 percent of all tweets. This reveals the active engagement that DNREC has sustained over the past two and half years to seek feedback and develop mutually beneficial relationships with the community regarding their policies and overall processes.

Moreover, this dramatic rise reveals that there was a positive shift internally regarding the importance of outreach beyond providing public information or emotional marketing techniques.

This jump is also significant in the two-way symmetrical communications rising from 2 % in 2019 and 2020 to 5 % in 2021. As this is the most difficult but most ethical form of engagement with the public the rise in numbers reveals that DNREC is vested in taking their public interactivity online towards meaningful and balanced engagement. The other significant rise was in the Press Agentry rising in 2020 from 3% to 8%. This rise in One-way communication may be driven by DNREC's tweets on its successes of addressing the clean-up of the Oil Spill on Slaughter Beach in 2020. **Figure 3** below captures the trend. This analysis across time was not conducted for Facebook data because of the limitation in data.

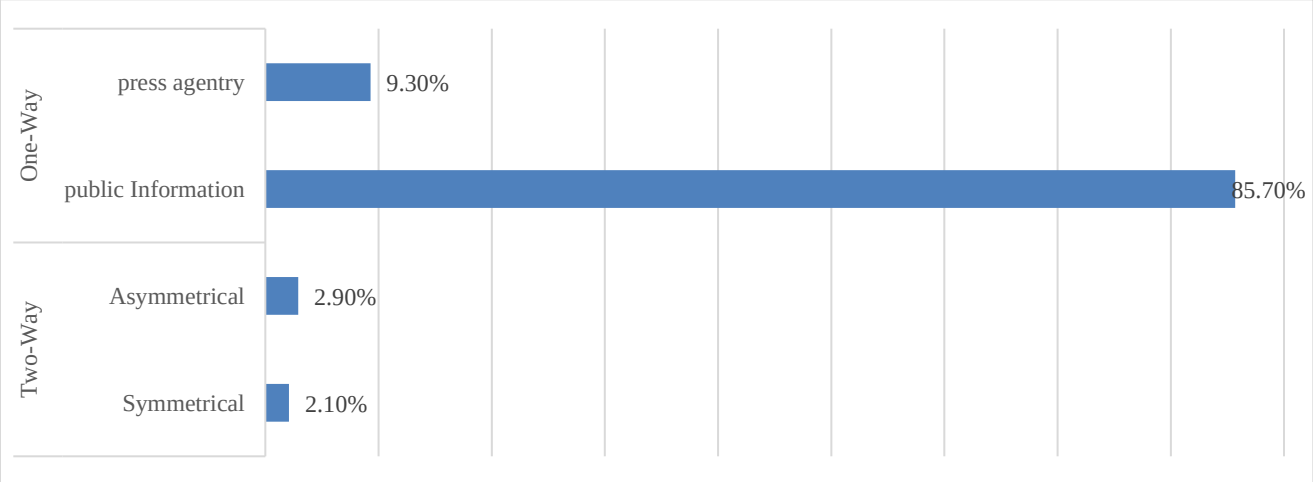
Figure 5. Change in Social Media Communication Models of Public Relations for Twitter Across Time (2016-2021)



Facebook

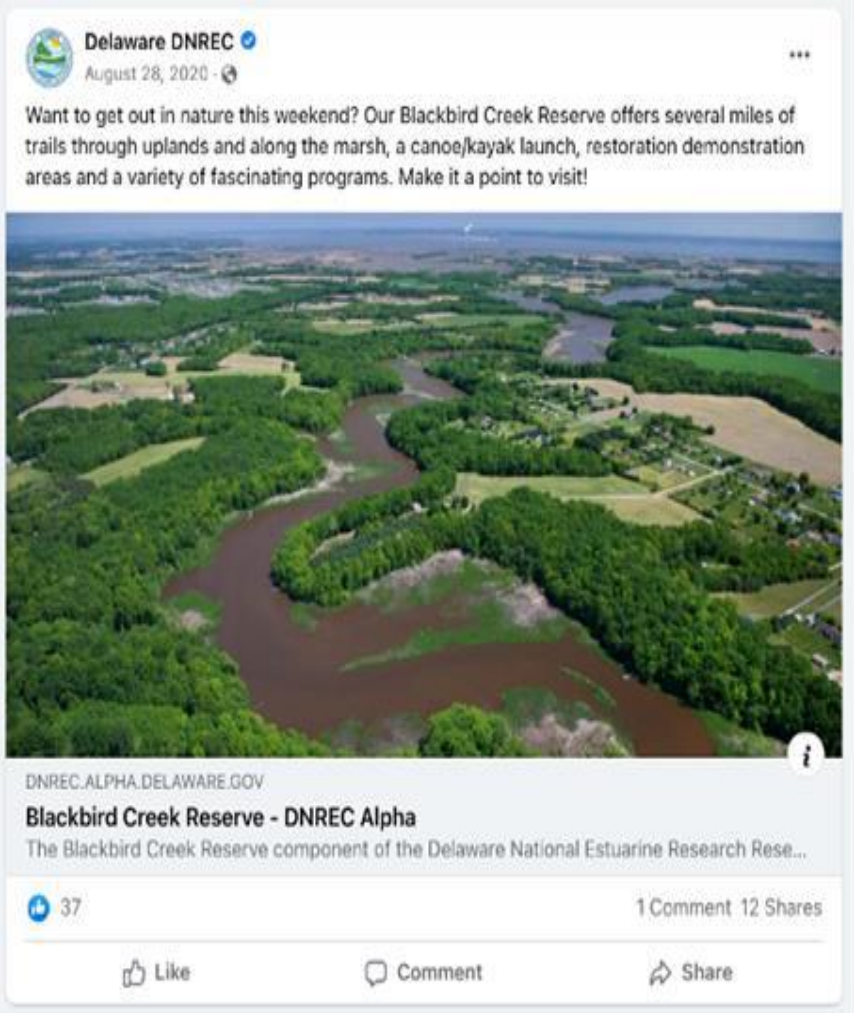
In using Grunig & Hunt's (1984) framework to analyze the Facebook data, we found that the vast majority of DNREC Facebook communications were identified as "One-Way" engagements (95%) as opposed to the preferred "two-way" engagements, which emphasize the public's interaction and dialogue. **Table 1** and **Figure 6** provide a breakdown of this data.

Figure 6. Visual Representation of the Social Media Communication Models of Public Relations for Facebook

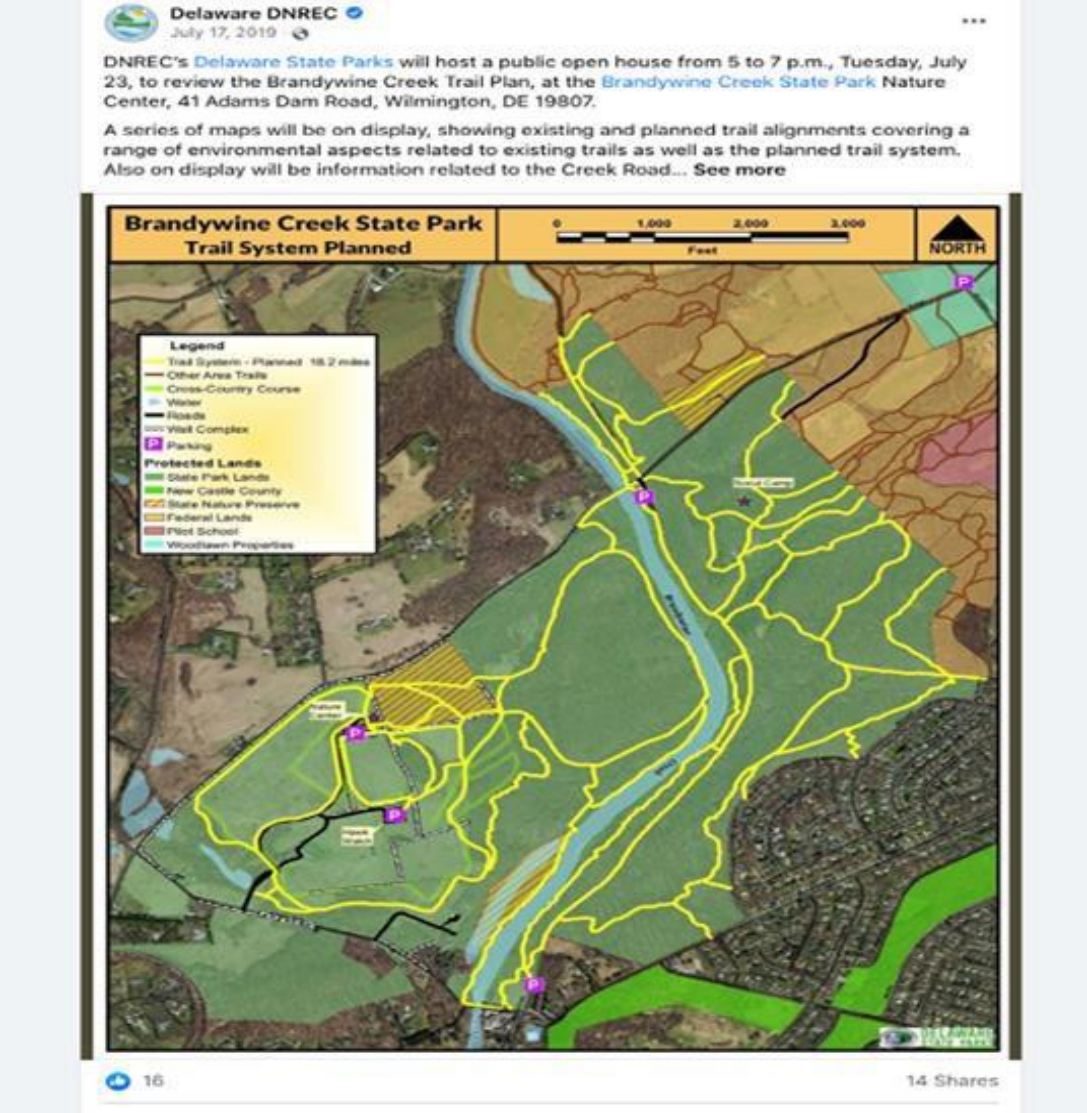


The bulk of the "One-Way" engagements can be considered under the typology of "Public Information" (85.7%), where Facebook posts are primarily factual statements in a declarative manner. For example, these posts communicate agency updates, announcements or provide information without seeking interactive engagement. The emphasis of these posts is to provide factual and honest information to the public.

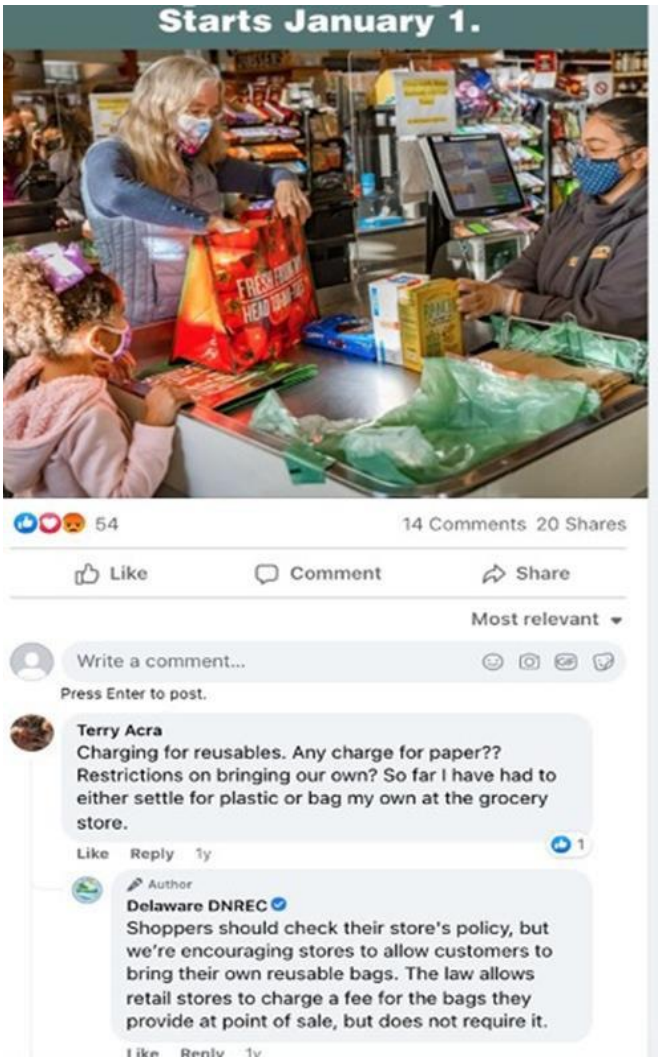
The other "One-Way" engagement was the "Press Agentry" (9.3%) which uses communicative tactics and strategies that use graphical representation to express emotion with the intention to attract attention without an underlying motive. This is considered the lowest level of ethical public relations as it seeks to gain attention for the organization with no intentions to inform or construct dialogue as the emphasis is on outcomes and attention rather than engagement.



DNREC's Two-Way Communication on Facebook reflected the normal range at a total of 5% of all posts. The majority of the Two-Way communications were asymmetrical communications at 2.9%. This type of communication by DNREC requested specific feedback from the public including participation in surveys or just requesting general information. It utilizes persuasive forms of communication to influence the public while providing a feedback loop to ensure there is a minimum level of interaction between DNREC and the stakeholder. This communication form is preferable to One-way communications as it seeks active participation from the public in providing feedback to DNREC.



The second two-way communication model is the overall preferred engagement communication model in the literature which is the "Two- Way" symmetrical communication at 2.1%. This is the highest and most ethical form of engagement through social media. This model "emphasizes communication exchange, reciprocity, and mutual understanding" (Cutlip, Center, & Broom 2000, 4). DNREC has conducted Two-way symmetrical communications by directly replying to posts by invoking @ handles, resolving conflicts by answering comments directly, and responding to directed tweets. This form of communication seeks to construct and sustain mutually beneficial relationships between DNREC and the public with the intention of achieving shared common ground. Moreover, the emphasis unlike the other forms of communication seeks to minimize the imbalance of power that may exist between the community and DNREC by empowering the community to actively engage and participate in the process.



Topic Modeling Findings

The second form of analysis conducted on both Twitter and Facebook data was LDA Topic Modeling. The computational topic modeling derived an array of diverse topics capturing the corpus of tweets from 2016-2021 and Facebook posts from 2019-2021. The topics that emerged are in alignment with the Delaware DNREC social media policy and framework and capture the breadth of the organization's mission in engaging with the public. **Table 2** and **2b** below outline the topics that emerged along with their keywords, while **Table 3 and 3b** provides the example tweets for each topic category from each respective social media platform. The topic modeling revealed that the messaging and framing of DNREC's mission and goals is reflected in their communication to the public. Moreover, the information expressed through communications shows that the subject and content matter covered by DNREC is inclusive.

While for Twitter, all the press-relations models are represented in the topics covered, Topic 4 and Topic 7 are important because the emphasis on outreach and community involvement is present with these topic categories. This coincides with the rise in DNREC's two-way asymmetrical and symmetrical communication models discussed in Figure 3. The presence of these topics reveals

that DNREC's use of social media is evolving towards greater engagement, involvement, and activism within the State of Delaware. This also parallels the findings in DNREC's 2020 Social Media Report (@DelawareDNREC) which has stated that it has increased followers by 115%, engagement by 323%, and reach by 637%.

One of the key findings in our LDA analysis was capturing the topic proportions across time for Twitter, as shown in **Figure 7**. There were significant changes in topic 7. The number of tweets that were captured by the topic of "Engagement and Activism" has been on a sharp rise in the past 3-4 years. This sharp rise over the past 4 years coincides with the increase in two-way symmetrical engagement with the community in which conversations that take place necessitate dialogue and engagement from both DNREC and all the stakeholders in the State of Delaware. This positive upward trend also coincides with DNREC's 2020 integrated marketing communications campaigns that included the Plastic Bag Ban, the Coastal Clean-up, and the Oil Spill Clean-up campaign. The intentionality of DNREC's tweets is reflected in the diversity of posts, comprehensive approaches, and robust activity-seeking engagement on Twitter. Ultimately, these changes that have occurred are best practices for yielding positive results and community reception. Such an analysis was not conducted on Facebook data due to time-series limitations.

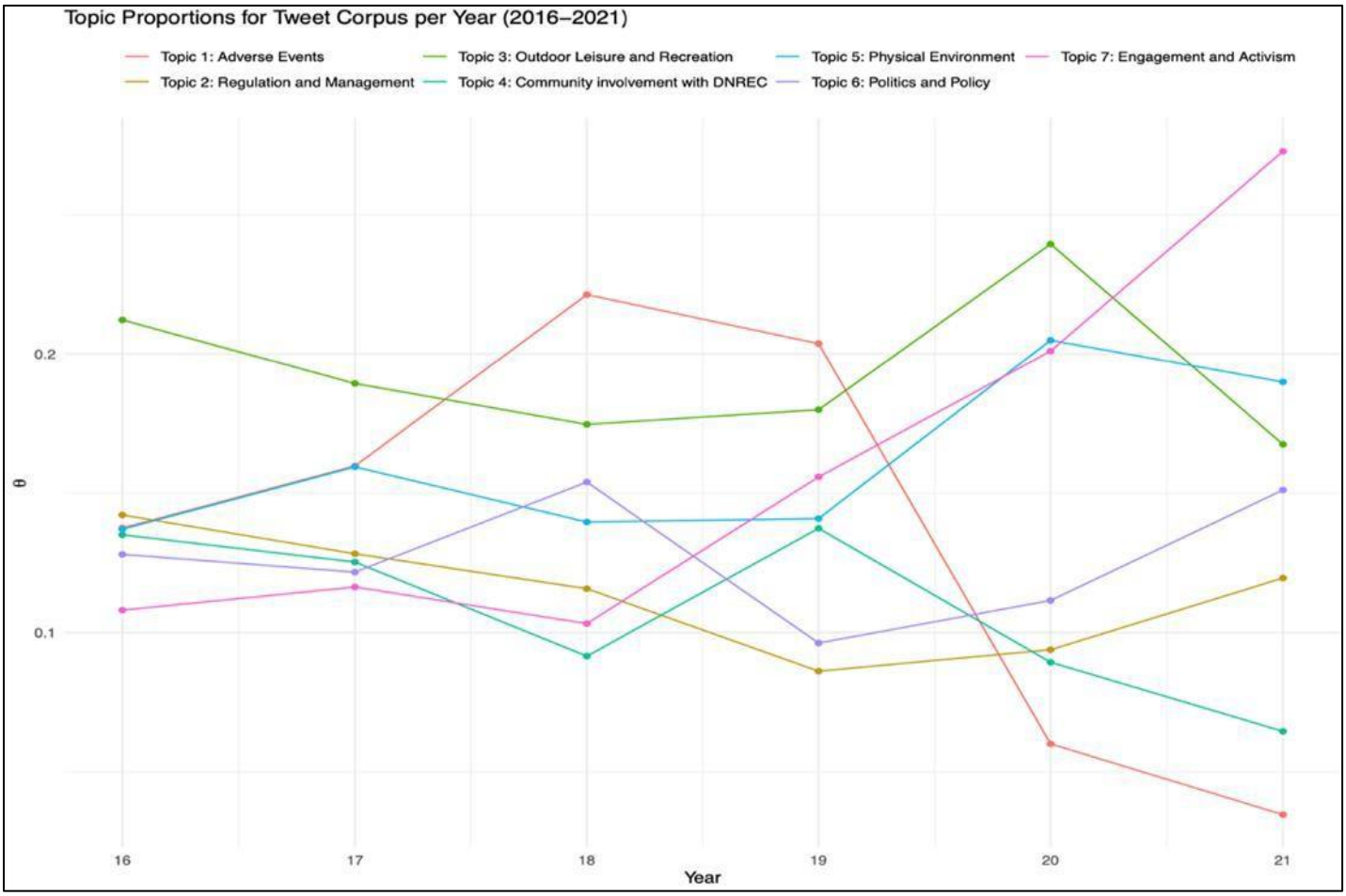


Figure 7. Topic Proportions for Tweet Corpus per Year (2016-2021)

DNREC's Twitter and Facebook messaging intersect in four (4) of the identified topics, with Twitter having exclusive messaging involving the topics of "Physical Environment", "Politics and Policy", and "Community Involvement with DNREC". It should be noted that the divergence in the years analyzed between the two social media platforms, with Twitter containing more data across a greater duration, could play a role in the differences in topics.

Tables 2 and 2b provide an output of the LDA model in the form of "topics", with Twitter providing seven (7) distinct topics and Facebook with four (4). **Table 3 and 3b** show examples of text captured within each respective topic on twitter. The difference in the number of topics can be due to a few reasons, including either the range of substantive items that social media communications cover, or due to variations captured above, including the depth of data and nature of communication. One important item of focus is the intersection of the results between the two social media platforms: the topics from Facebook are also all contained within Twitter, therefore leading one to assume that our data shows a broader range of topics communicated by DNREC on Twitter as compared to Facebook.

Social Media Topic Models - Twitter			
Topic 1: Adverse Events	Topic 2: Regulation and Management	Topic 3: Outdoor Leisure and Recreation	Topic 4: Community involvement with DNREC
1. Weather	1. Fish	1. Park	1. Hire
2. Flood	2. Wildlife	2. Weekend	2. Job
3. Warn	3. Source	3. Trail	3. Manage
4. County	4. Natural	4. Outdoor	4. Summer
5. Storm	5. Hunt	5. Cape	5. Environmental
6. Flash	6. Police	6. Pond	6. Conservation
Topic 5: Physical Environment	Topic 6: Politics and Policy	Topic 7: Engagement and Activism	
1. Beach	1. Secretary	1. Bag	
2. Bird	2. Governor	2. Learn	
3. Energy	3. Quality	3. Plastic	
4. Climate	4. Action	4. Celebrate	
5. Oil	5. Emergency	5. Student	
6. Ocean	6. Issue	6. Waste	

Table 2. Social Media Topic Models-Twitter

Social Media Topic Models - Facebook			
Topic 1: Adverse Events	Topic 2: Regulation and Management	Topic 3: Outdoor Leisure and Recreation	Topic 4: Engagement and Activism
1. Environmental	1. Fish	1. Park	1. Test
2. Natural	2. Wildlife	2. Close	2. Reef
3. Police	3. Hunt	3. Trail	3. Win
4. Secretary	4. Season	4. Beach	4. Celebrate
5. Waste	5. Division	5. Outdoor	5. Prize
6. Emergency	6. Police	6. Learn	6. Activity

Table 2b. Social Media Topic Models -Facebook

Social Media Topic Models Examples - Twitter			
Topic 1: Adverse Events	Topic 2: Regulation and Management	Topic 3: Outdoor Leisure and Recreation	Topic 4: Community involvement with DNREC
1. "The US National Weather Service Philadelphia/Mount Holly says there is an elevated threat for the spread of..." 2. Wettest year on record for #NetDE and many surrounding states; 3rd wettest for the nation as a whole.	1. "DNREC Fish & Wildlife Natural Resources Police arrest Newark man for multiple deer hunting violations - DNREC Fish & Wildlife Natural Resources Police concluded an investigation into the illegal harvest of deer during Delaware's most recent hunting se..." 2. "Laurel man arrested for multiple deer hunting violations - LAUREL – DNREC Fish & Wildlife Natural Resources Police concluded an investigation that began during Delaware's deer hunting season with the Feb. 18 arrest of a Sussex County man for multiple ..."	1. "The Summer Issue of Delaware's award-winning Outdoor Delaware magazine is out! We share a special look at 50 Ways to Escape the Ordinary; less traveled #hiking & #paddling #trails, our lesser known #festivals & attractions, & convenient, fun eateries" 2. "#GetOutside and #explore the 150 miles of #trails in Delaware State Parks! From the Hidden Pond Trail at Brandywine Creek State Park to Trap Pond State Park's Cypress Point Trail, there's an #adventure waiting for you on each and every one!"	1. "@YourDNREC is #hiring! We've got both casual/seasonal and full-time/merit positions open right now! Check out the list and join our team today!" 2. "If you're an excellent copywriter for the digital age, a social word nerd who understands analytics, listening and management tools, this #job is for you! We're hiring a #socialmedia specialist. Apply at the state's job site by FRIDAY!"
Topic 5: Physical Environment	Topic 6: Politics and Policy	Topic 7: Engagement and Activism	
1. "Blobs of oil called tar balls and oiled debris have been found scattered over a stretch of #Delaware coastline extending from the upper Delaware Bay to ocean beaches." 2. "#DYK beach grasses play a huge role in stabilizing dunes? We recently planted over 80,000 stems of beach grass in the most critical areas along #Delaware's coast. Check out this project and learn more about the importance of dunes:"	1. "The fourth meeting of the Coastal Zone Conversion Permit Act Regulatory Advisory Committee (RAC) will be held from 9 a.m. – noon, Wednesday, Sept. 12, at DNREC's Lukens Drive Office at 391 Lukens Drive, New Castle, DE 19720." 2. "DNREC announces Coastal Zone Conversion Permit Process Recommendations Report is now available for public review and comment - A draft report for the formation of a Regulatory Advisory Committee for Coastal Zone Conversion Permits is now available for... "	1. "A bag ban doesn't mean no bags at all! With #Delaware's plastic carryout bag ban, most retailers will have either reusable bags or paper bags at checkout, and bags for produce and meat will still be available. Visit https://t.co/mLeF2F673b for more info. #BYOBagDE" 2. "If you're spending a lot of time inside, you're probably generating a lot more trash in your home than usual. Delawareans are urged to recycle, and can find out what is – and is not – recyclable in #Delaware. @DE_Recycles "	

Table 3. Social Media Topic Model Examples-Twitter

Social Media Topic Models Examples - Facebook			
Topic 1: Adverse Events	Topic 2: Regulation and Management	Topic 3: Outdoor Leisure and Recreation	Topic 4: Engagement and Activism
1. "On Saturday evening, we received a report of a bear Saturday morning in the area of All Saints Cemetery in the Pike Creek area of New Castle County. Delaware Fish & Wildlife Natural Resources Police officers investigated and did not locate the reported bear, and no additional sightings have been reported as of Sunday morning." 2. "As a result of the dangerous weather conditions, Fort Delaware State Park will be closed today ..."	1. "... opened a new 5-Stand shotgun sporting clays course at the Ommelanden Hunter Education Training Center yesterday." 2. "Did you know our Division of Air Quality deploys a Moveable Air Monitoring Platform (MAMP)..."	1. "The Augustine Beach Boat Ramp near Port Penn and adjacent intertidal beach located on the south side of the ...." 2. "Shake off the winter rust and hit the trail this weekend ..."	1. "... Today, DNREC celebrated the official opening of the viewing tower, boardwalk and parking lot with a ribbon cutting ceremony." 2. " ... a grant to evaluate the effects microplastics have on blue crabs and test whether exposure during their (larval) developmental stages ...."

Table 3b. Social Media Topic Model Examples-Facebook

Conclusion

The current study used a combination of statistical and machine learning techniques to help derive insight into the posting patterns of DNREC. The guiding theoretical framework identified by Grunig and Hunt (1984) and cited and elaborated upon by Walters and Williams (2011) was used to categorize and bucket the pattern themes layered on top of the output provided by the models used to analyze the data. The following key preliminary findings were discussed:

- The overwhelming majority of social media posts across Twitter and Facebook fell into the One-Way: Public Information category, where communications are primarily factual statements in a declarative manner. Tweets and Facebooks posts communicate agency updates, announcements or provide information without seeking interactive engagement. The emphasis of these tweets is to provide factual and honest information to the public.

- While Two-Way engagement in DNREC's interaction with the public through social media was limited to a minority of posts, we see an upward trajectory of communications that engage the public more. It should be noted that the observed low percentage of Two-Way engagement is also consistent in findings within the literature.

- The range of computationally derived topics reveal a vast array of diverse communication points and attempts to engage the public through multiple channels of interests and substantive focus.
- Overall, DNREC's communication across all social media platforms fall in line with their stated social media policy as observed by their documentation, policies, and declared objectives.

Townhall Analysis and Findings

Introduction

One of the methods we employed in this study was conducting town halls for gathering EJ community feedback. The town halls were an essential methodological tool (Jasim et. al., 2018) to explore the perspectives and experiences of our participants in their engagement with DNREC. It allowed us to move beyond the traditional methods to employ inclusive public participation to ensure that we provide an open platform for all to speak freely and share their points of view (Jasim et. al., 2018). Due to the ongoing COVID-19 pandemic and the need to utilize mediums that produce the desired inclusivity from participants, we held two town halls on the WebEx platform on November 17, 2021, and December 2, 2021. The online town hall format has many advantages as it allows organizers to facilitate potentially contentious verbal feedback and discussions, and decreases the likelihood of speaker/facilitator interruption, which often upends such meetings and alienates prospective participants (Jasim et. al., 2018). It further allows individuals who do not wish to verbally respond to our questions to use the chat feature to provide their real-time responses. We also provided our project email for individuals who needed more time to respond to the town hall questions.

While the team understood the limitations that may result in using technological outfits like WebEx to conduct the town hall, the online tool's allowed community members to participate in the forum through a variety of mediums that include telephone, tablet or laptop and may have increased active participation across the state. This is especially true amid the pandemic and the general barriers that may exist in physically attending townhall meetings including transportation, space, socio-economic dimensions, and the possibility of being anonymous in one's responses. Moreover, the townhall technique of asking questions to identifiable groups facilitated the generation of data through the participants' responses in a collective context. We believe this created an environment wherein the community was able to share their perspectives freely and without any socio-political-cultural constraints. The town halls provided the researchers an opportunity to probe the EJ communities' reactions to questions and further understand the effectiveness of DNREC engagement and outreach to EJ and underserved communities. Furthermore, the town halls gave the research team an opportunity to attain EJ community perspectives on some of the responses from the Key-Informant participants.

While townhall techniques are robust and refined, it is essential to consider that group dynamics may impact the way participants feel and react to the public discussion, especially when presenting an alternative view to the dominant narrative or group leaders. The online town halls were organized around the two halves of the State of Delaware. The first November 17th, 2021 town hall focused primarily on Sussex and Kent county. We included three featured community representatives from community organizations including First State Community Action Agency, Socially Responsible Agricultural Project, and the Southern Delaware Alliance for Racial Justice. While the advertisement of the first event focused on Kent and Sussex county, it included partners throughout the state. The focus areas of this town hall included DNREC Engagement, Participation, and Involvement; DNREC Engagement and Outreach Tools; DNREC Engagement, Collaboration and Trust; and DNREC Activities and Services. The second town hall was focused on residents and organizations from New Castle county. We included three featured community

representatives from community organizations, including Collaborate Northeast, Metropolitan Wilmington Urban League, and the Community Housing Empowerment Connection. While the second town hall advertisement was focused on New Castle County, it included partners and communities from throughout the state. The focus areas of this town hall included DNREC Activities and Participation; DNREC Engagement and Outreach Tools; and DNREC Engagement, Collaboration and Trust.

We employed thematic analysis as one of the data analysis frameworks for the town halls. We used Braun and Clarke's (2006) rigorous method of identifying, analyzing, and reporting patterns and themes within the data (2006, 79). This method was chosen as it best complements the focus areas we explored with our interview subjects to ensure that the data was consistent. We initially prepared the data by transcribing the recorded interviews. In doing so, we processed and analyzed the audio and video recordings several times to ensure their accurate transcription. Once transcribed, we further familiarized ourselves with the data by reading and re-reading the interviews. We then used the textual analysis application, "Atlas.ti", to code the interviews to develop themes. While the software facilitates textual examination, the analysis depends entirely on the researcher's skills, background, and understanding of the project. Thus, it was necessary to ensure the finding's trustworthiness, credibility, and validity by iteratively processing the data.

The transcripts were coded in correspondence with the conceptual and theoretical frameworks guiding the research study. The analysis included open coding to facilitate the development of themes. Once themes began to emerge, we began to selectively code while remaining aware of the possibility of new and emerging themes. When the data-driven coding was finished, we iteratively analyzed the codes to identify and categorize the themes (Braun & Clarke 2019). We predominantly utilized the inductive approach, which allows themes to emerge inherently in the data, “without the restraints imposed by structured methodologies” (Thomas, 2003, 2). The inductive approach facilitates the links between research objectives and findings in the data while also allowing for new models and theoretical frameworks to emerge (Thomas, 2003, 2-4). The deductive approach was minimally used in the process of identifying themes, as we sought to interlink patterns emerging in the data to the focus areas of our interview guide (Braun and Clarke, 2006, 82). Throughout our data analysis, it was essential to remain consistent in determining the themes by linking “those themes into a more comprehensive, model” (Bazeley 2009, 6). Our initial analysis produced eight themes with an average of one subtheme each. After careful analysis and intricate verification processes of our data, we aggregated those themes and finalized four major themes in our analysis.

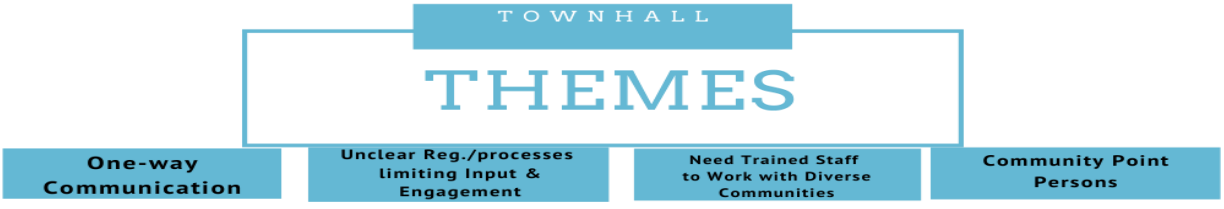


Figure 8. Town Hall Themes

Findings

One-Way Communication

One of the major themes in the town halls was the critique of DNREC's one-way communications with the EJ community and the general public. The critique of DNREC's communication outreach was generally characterized by our participants as lacking real engagement. As a governing institution, it is not out of the norm that communication and engagement with the public is often a one-way affair. In the case of DNREC, the participants described their experience through what is known as the decide, announce, and defend model (DAD) (Cascettaa and Pagliaraa, 2013), wherein a governing agency communicates and conducts outreach with the public only when decisions are made, making it needless to gauge the community's perspectives, experiences, and dialogic input. Consequently, the involvement of the community is often only on the receiving end of a one-way directive either through announcements and/or to defend policy as opposed to working directly with the public and engaging in dialogue to invite public input to make critical decisions impacting the community. As one participant stated, *"there are a number of topics up and down this state that are concerning people and there are very few opportunities for a dialogue with DNREC officials."* For our participants, DNREC's one-way communicative outreach limits the opportunities to participate in effective outreach, engagement, and dialogue with the community.

Participants described one-way communication as a major barrier with DNREC as it reinforced information disparities, distrust, and ineffective collaboration. As one participant stressed, *"the public has been consistently reaching out and begging for communication with the agency. The community has been the eyes and ears... right, whether it's in terms of enforcement, in terms of the citing of facilities that want to come in…and the community has questions or concerns. So, it's not a lack of the community wanting to participate. It's a lack, of the agency participating in any kind of communication be it, by email, enforcement, or requesting information."* The community's perception that access to DNREC's information and processes is limited reinforces deep seated power imbalances, that ultimately impacts who has access and possession of timely information that is directly impacting overburdened and underserved communities.

The question of communicative access to DNREC was also described as difficult and filled with obstacles. Some participants described their outreach efforts and the subsequent DNREC responses to the community's environmental concerns as authoritative, late, and dismissive of public perspectives and experiences in their own communities. This reflects the DAD model of agency communication in which input from the community is generally not taken seriously or into consideration as they are not seen as partners or experts in environmental issues that are impacting the community. As one participant described,

> "*I live on the river, right here on the Indian river and I've noticed a slick of some type of contamination in the river coming down in front of my house from an area around the poultry plant. I mean, I'm talking about a slick that's thirty, forty foot-long by twenty-feet wide coming out of their plant. I've called DNREC, they finally sent an agent out… and by the time he gets out here, the slick or whatever you*

> *want to call it, is long past. Okay*, (DNREC rep. says), *"it's probably just something naturally from the water occurring". Man, ain't nothing naturally occurring from the water when you live on the river, you see things that happen in your community that, you know, that DNREC is not really aware of and when you tell them, they kind of sluffed it off."*

The speaker continues "*we have a hard time communicating with them. That's our situation. And we wish it could be better".* Another participant discussed an experience inviting DNREC to a statewide 'Justice 40 initiative' meeting and DNREC did not attend, nor respond to why they were absent. The participant exclaimed, *"DNREC didn't show up to the meeting...To me, that's appalling, it shows disrespect on a serious level. And it shows what the communities have experienced, which is, they don't matter! Their children's health doesn't matter, if they have clean water or not, we (DNREC) don't care. We (DNREC) don't even have time to come."* The emphasis on one-way communication revealed inherent gaps including the perception of DNREC not taking the community into account in formulating policy, lack of engagement with local community members and leaders and a general absence in participating in statewide initiatives that are important for the community.

While one-way communication is a sub-optimal form of communication to increase dialogue, trust, and meaningful two-way interaction with the community, many participants cited some benefits that this form of outreach can have as a basis to begin conducting better engagement with the EJ communities. DNREC's usage of their established tools and methods of contact to have a presence in the community was cited as an important first step in creating and potentially sustaining contact and engagement. This plays an important role in promoting consistent engagement that the community and DNREC can build on. As one participant stated "*as far as being a part of the Southbridge civic association, and I'm on their calls, and in their in-person meetings, there's always someone there, so I don't know what representative from that particular civic association has you know, done their due diligence to almost, you know, make sure that they're there, but someone is always there*." This was the same sentiment expressed by another participant regarding the presence of DNREC in community meetings or events, however for this participant, DNREC's one-way engagement doesn't seek solutions with the community and is not enough to qualify as adequate engagement and outreach. They state, "*we have a route nine monitoring committee, which is made up of community people, and, you know, just different leaders and just regular activists and what have you, and DNREC comes, absolutely, and they interact, absolutely. However, we've never been able to agree on any outcome on all of the projects that have been done by DNREC. We have never agreed on what should be done. As far as the outcome of that research. We have never agreed on anything".* Thus, while some participants acknowledged the active presence of DNREC in their community, the one-way communication framework DNREC employs does not engage in dialogue to produce and integrate constructive feedback into its decisions as it primarily focusses on the community's buy-in on decisions and policies that have already been decided. DNREC's presence was welcomed by the community but the general lack of dialogic, two-way communication was cited as deftly lacking.

The participants further addressed the importance of two-way communication that emphasizes collaborative engagement, feedback, and active deliberation in deciding policies that impact EJ communities. Participants stated that DNREC has to shift the engagement and communicative

process towards a two-way communication framework that acknowledges the communities needs and interests. They state that,

> "*representatives from DNREC sit down with members of the community in a space, then talk about the issues on hand in those communities and as a two-way interchange is just an opportunity for DNREC to provide feedback… because what that means is that DNREC is telling me, what they think. Okay. And I think what needs to be on the other side of that is that DNREC needs to hear what people in the communities think and then have that dialogue and discussion around how to reach some consensus on how to go forward.*

The two-way communicative framework will not only allow DNREC to acknowledge the role of the community in DNREC processes but also support mutual recognition, develop innovative ideas, and enhance shared responsibilities. However, if DNREC continues the one-way communicative approach wherein the EJ community is not viewed as a partner in addressing environmental questions and concerns, DNREC will continue to be disconnected from,

> "*the very communities that are in distress and suffering the consequences of pollution, neglect, or …. other harm. First and foremost, it's inexcusable that those people are not consulted, that they are not asked about the issues, that information is not obtained from those individuals (leading to) a proposed discussion, or an actual discussion of proposed solutions isn't presented to find out whether they think that would work or not. It is not the way partners behave. They get that information. They consult with people and then they modify if need be. That's what partnering is about. DNREC is not a partner with any community." (Townhall Participant)*

This partnership necessitates building a common vision and recognizing the community as critical to DNREC processes and activities. Thus, even providing feedback in a simple response to an email acknowledges the time and effort that the community member took to provide critical information to DNREC. As one participant emphatically stated that they "*prefer the emails, I think that they're great…I'd like to see, you know, feedback from these types of conversations, feedback from, you know, the follow up that my team is putting out there in communications with their representatives."* The issue with the lack of follow up and dialogue from DNREC especially in regards to their methods of contact was mentioned by another participant who bluntly stated*, "I have emails that I'm waiting for twenty months for a response. And I just contacted them again last week and said, when are you going to respond? That's, that's not engagement!"* Another participant discussed that while the methods of contact are fine in their general one-way communicative frameworks, they propose that if DNREC really desires community engagement and outreach they must move beyond the intended technical use of these tools and generate new and dynamic ways of engaging the community where they are. As an example:

> *"I get back to the fact that emails are fine and, uh, posting on websites are great. However, that's not how the majority of people interact with information. And, so I get back to my original point that boots on the ground, interacting with people, having people to feel that they're a part of the process would be very helpful. Having*

informed DNREC (with community's input) and then there is a decision made. You want feedback in terms of how they incorporate your suggestions right? And so, the process can be complete. This is trying to get at how you want to be informed about how those suggestions and recommendations you made were incorporated" (Townhall Participant)

One particular example that was discussed by our participants was the Route 9 Corridor roundtable discussion organized by DNREC in 2019. Participants maintained that while the goal of the roundtable was to engage in dialogue, the community felt that the engagement was a one-way affair as it did not include the community in the process of organizing the roundtable discussion, topics, or to aid in pinpointing issues that were poignant to the community. The participants discussed how this outreach must be a collective community effort in order to ensure shared understanding of what the community feels is important. Moreover, the participants claimed they have not received any feedback or policy recommendations that DNREC found as a result of the roundtable discussion. It was expressed that DNREC came to the community, imposed their one-way communicative frameworks, and left without providing feedback. One participant in particular stated that,

"we poured a lot of energy into the meeting and in the middle of that meeting, we were asking well, okay, what are we going to do with all this great information that we've been sharing? And we were assured that we would get the outcomes and we will get the notes. To date we have received nothing. You know, this is something that I'm not proud to say, because it's almost embarrassing. And this has happened a number of times, and I hear this is a common theme up and down the state."

Another participant emphatically asserted that,

"*they talked about us, they came to a resolve which I really still don't know, what it is. Um, maybe a couple of things, but we were not included on that result. So, here's the resolution, we talked about you and this is what we are going to do. Whether we are in agreement with it (DNREC's findings), we were not able to say, well, you know, this sounds good, but, maybe we have a couple other things that might be better".*

These examples provided above reveal the importance of DNREC shifting one-way communication practices towards two-way communicative methods as critical in engaging EJ communities. As a result, the community will feel that their perspectives, first-hand knowledge, and experience is acknowledged and integrated in DNREC's activities and processes. This will necessitate utilizing DNREC's established methods of contact to ensure that two-way processes are internalized in their function and use in engaging the community. This will aid in the development of a shared (DNREC- EJ community) understanding to produce well-informed decisions and solutions to conflicts. It will also permit the community to have buy-in in DNREC processes to feel like they can share and report their experiences and have their perspectives and communal interests recognized, supported, and leveraged in DNREC policy decisions. Finally, the two-way communicative method was best described by participants as allowing the community to actively participate in the beginning of DNREC processes and activities as opposed to being told

what the outcomes and decisions are without community input and engagement. The following passages describe this frustration, desires, and objectives:

> *when you come back (to the community), you say, okay, this is the policy that we would like to put in place. Do you like it? That's where the conversation comes in at…I would think that on making the policy rather than always being on the receiving end of the policy and you never got a chance to say, oh, that's not going to fit me (my community).”*

> *“it's a relationship, I mean, any communication is based upon a relationship. Right. And usually it's a one-way process, which is then done by DNREC to communities, as opposed to being in discussion with residents. It is fundamental to communication that needs to take place around community residents as they need to be involved with the key decisions that are made that impact their lives.”*

If the engagement and outreach regarding DNREC processes and activities is done correctly not only will decisions be more achievable and sustainable in the communities but will enhance trust and a meaningful partnership as our participants described below.

> *“I feel we need each other. We can achieve great things together, but those requests have fallen on deaf ears. Yes, there is no interaction. At least nothing that's meaningful that's going to help DNREC or help our community. So, you know, again, please that the least we can do is become partners and help each other”*
> *“The single biggest issue that I think DNREC could approach if it wants to really be proactive and out front and honest about really engaging the community is having a good dialogue with the community and building a relationship”*

Unclear regulations/processes limiting community input and engagement

The second theme that emerged in the town halls was the EJ community’s lack of understanding of the rules and regulations in participating in DNREC processes and activities. This theme assessed the bureaucratic barriers and existing knowledge gaps that exist between DNREC and the EJ community. As one participant stated, “*First of all, it would be helpful for the community to know the process that DNREC uses to incorporate their suggestions. There has to be a process and it should be an objective process where people can feel that whatever comes out of a decision is based on community input and also scientific data”.* These communication gaps regarding DNREC processes reinforced a perception among participants that DNREC intentionally imposes bureaucratic hurdles for the community to limit engagement and stifle resistance to DNREC policies to allow them to move forward with their objectives without engaging the community’s input. This was expressed by one participant who seemingly stated that DNREC’s disengagement is so entrenched in day-to-day affairs that it does not even follow their own legal stipulations in regulatory measures regarding community outreach. As one participant noted,

> “*The public notices, that's something DNREC has to do, as it was saying. That's not, you know, outreach. But within there (public notices), there are documents that*

are supposed to be available for a certain time-frame the communities have to comment on. There have been within the public notices, that a community must request documents through the Freedom of Information Act. That is. That is not correct because these documents have a time period that you can put comments in, and when it goes out on public notice, they are to be available immediately to the public. So, there have been some problems in even the engagement in following their own regulations."

The EJ communities disconnect with DNREC's regulatory communications reflects the lack of engagement with the community and a general assumption that EJ community input is not necessary in scientific, regulatory matters. One participant stated "*we're doing the community air monitoring, we're seeking support from our regulatory agency that does air monitoring, but communities need to be engaged and educated in the process! And we're not getting the support! If we can just, we can start there… but there has to be communication, favorable, willing communication to begin favorable outcomes.* These barriers are structurally embedded in everyday DNREC processes and communication practices, which either imposes unrealistic demands on the community or forces the community to disengage with DNREC's methods of contact. As one participant noted as a case in point:

"DNREC last year dealing with the port. They brought people together to do a presentation. These were consultants who put together studies for the port in three very comprehensive, detailed reports. People were given about 30 days to respond to the reports that had taken many months for consultants to develop. The communities were given a very short time. We actually had to do … A whole signature gathering process to get an extension on that time, because we were put in the situation with 30 days to respond to something that was put together by consultants that had many, many months to put that (reports) together to make decisions, that would impact the lives, the health of the people and the environment. So, the process in general is not user friendly and I don't think it's set up for community feedback".

These practices leave EJ communities perplexed as to when and how their voices can be heard, and whether or not the decisions made about their communities would have direct input from the communities that they are impacting as the participant above continued, *"The process is typically setup by DNREC for people, not with people."* DNREC processes must educate and involve the community no matter the barriers in place including the social, cultural, and economic challenges that may arise. The community's involvement must not succumb to a singular outreach event as an end, as engagement must be integrated in a process that fosters meaningful involvement in DNREC regulatory processes.

The lack of engagement that embodies two-way, dialogic communication often leads the community towards legal means to address DNREC policies or to revisit their methods of contact wherein they were not engaged. The appeals process was explained by our participants as one of the only means they have to actually participate, question, and engage in DNREC directives; since the legally binding public participation and engagement model does integrate the community's perspectives in the decision-making processes as one participant noted in the following,

"There was a public meeting were public comments and, you know, it took a lot of organization, a lot of time, we submitted a comment letter. There was several people that signed that letter. They got a bunch of comments. How we were notified how, and basically, at that point, it said there would be no mitigation. There would be no impacts from that project, environmental impacts, in which they received a lot of comments (from community) that said that there will indeed be impacts and these are the type of impacts. So how we were notified and how they incorporated the suggestions and recommendations. They issued a permit and they said well, yes, there are some impacts and this is how we're going to mitigate for them. Without the public and we had had some recommendations and suggestions about engaging with the public on at mitigation. And so, our only option at that point is to you know, according to the process is to you know file an appeal. And, you know, as I mentioned that impacts good communication, good relationship building, good trust".

Another participant cited the tremendous pressure and strain that DNREC's bureaucracy has on EJ communities. Including the lack of engagement and outreach in DNREC processes and activities impact the community's finances, time, and ability to mobilize to address critical issues. One participant stated,

"In an appeal where we're in now, we have lawyers and you know communities, and especially environmental justice communities they have limited resources for lawyers and things like that. You know it has a lot of institutional, I think racism and stuff built into that. So, the process should not require a community to have to appeal or get lawyers and things like that…. For the port, we tried to get public meetings. I know it was difficult, but you know, this the outreach was sufficient and, you know, just the time and we presented comments. There was no engagement in our comments and we saw the permit was issued and, you know, our only option was to appeal. And that puts the community at a disadvantage when it becomes more of a legal process, you know. So, more public meetings, you know, more informal, education, engagement, you know, develop relationships. Um, and less hearings and appeals and legal stuff"

Another concern raised by our participants emphasized the importance of understanding the different challenges that communities may have in participating in DNREC services and processes especially when utilizing tools of outreach to encourage participation and engagement. As one participant expressed,

"I know with the air quality study that was done in Eden Park and some other places that they compared and gave from feedback on and it was… it came out through a flyer, I did talk to someone. I think if we, the community is given more time when they are going to, as they're going to present this information. Because we were able to get people to respond to it. However, I thought that there could have been more people there. If we had had just a bit more time and maybe these, um, flyers were circulated in an earlier time, you know, I, I did put out some fliers myself and talk with a few people and some of those people did, they did come and

they showed up, but I think it could have been. I think the turnout could have been a lot better"

The practice of "regulating community input" through set processes also doesn't allow the outreach tools to be effective in conducting outreach. This is important because while participants acknowledged the critical importance of integrating the public's voice in these regulatory processes, it is not enough to assume the public's engagement in these bureaucratic processes can be seen as outreach as it needs to be implemented beyond the "line items" that DNREC must check off to comply with legal requirements in engaging with the public. This necessitates limiting top-down approaches of communication that only emphasize information sharing and confining engagement to timed comments, unveiling plans to the community in the end of their processes, scheduling events in times that are not conducive to EJ communities, and defining buy in from the community with local support from politicians as opposed to community residents. For our participants, meaningful engagement is a two-way process that fosters trust and active collaboration. As one of our participants expressed,

"Public engagement to me means a lot more than putting out a public notice that's required. That's not necessarily engagement. Engagement to me is voluntary, some outreach that they are doing, or more correctly that they are not doing. It's extremely rare that they ever have anything that I'm aware of where they involve the public, where they seek input from communities on broad topics and even when they do have public hearings you are limited to your comments... to your public comments, whether during the Pre-COVID days, when they had physical opportunities to comment. It was extremely limited two to three minutes and yes, you can write and submit comments afterwards. But a lot of times people like to comment based on what others have said. Frequently people hear a comment made by someone else, and it makes them remember something that they might not have remembered if they were trying to write."

The participants described how the regulatory framework that defined the community's engagement were unclear and ineffective at ensuring adequate engagement from the public as one participant stated, *"They put on the public meetings that they're required to have to address things in the way that meet state requirements. Beyond that they show up, but they're not really interested in what the public has to say".* The lack of understanding of DNREC processes and activities was linked to the lack of engagement DNREC has with the community as outreach is not intended to integrate and empower but to ultimately fulfill state regulatory requirements and laws. As one participant articulated,

"I can't, I can't really say that I remember ever seeing feedback from DNREC on activities involving me, or the community. So, they haven't responded to questions that I have submitted that weren't part of some kind of an engagement other than responding to questions that I have submitted seeking clarification on public notices or something else. But as far as some kind of a community activity where they've turned around and sent and followed up with participants. I honestly, I can't think of a single example."

Thus, many of our participants stated that to understand DNREC processes, its often left up to the community who have minimal training to go look for the information online to try to understand the public notes, permitting, and other policies produced by DNREC. This reifies the barriers and gaps in community's ability to retrieve critical information on these processes and other potentially transformative opportunities like grants and other essential services. As one participant commented,

> *"the process can be somewhat complex of getting the information and that can include, like, when DNREC puts out a public notice. You know, and allows for public comment, but then even responding to those public comments, there's not necessarily a direct response. Or, you know, a follow up engagement. So, like, with the port, you know, you kind of just have to scroll or try to follow the DNREC public notices to get updates of what's going on so that can be hit or miss and, you know, and that's why an answer to how I would agree what was said before, like, more public meeting, more public education, more direct engagement would be helpful, because it is kind of complex and just being able to track projects or policy and things like that can be. You know, just by following notices can be very difficult".*

Another participant discussed the barriers in the framing of the language that the community feels purposely creates barriers and hurdles to limit participation,

> *"DNREC's response has been to propose a single hearing to consider as many as nine permits. There needs to be a way to simplify the language, to explain this language to people and to allow them to participate meaningfully. I mean, we can't expect the government to give every citizen a PhD in biology, but at least give them a chance to understand what's happening. I have a couple master's degrees in English but this language gives me a headache to stare at. And I know that many of my associates work with attorneys and environmental experts to decipher it"*

These regulatory barriers defining community input and engagement have real impacts on EJ communities especially in the context of funding and grants. When opportunities for engagement with processes, activities, and funding are not presented in clear and understandable ways, it allows communities who are better positioned to be awarded those grants due to the EJ community's lack of resources, time, and understanding of the process. As one participant stated, "*So, funding is a great way to partner and, you know, the way the funding works and obtaining a lot of these grants again is not very friendly to communities, it's very resource intensive can be very complex."* This for our participants includes the need to educate while providing critical information to simplify these complex processes as one participant emphatically stated,

> *"If you really want to look into the EJ communities, go down there and start to educate them in terms of how you can make applications for grants and for loans to put in reverse osmosis equipment or filters. Or, if they have to hook up to a public water supply, are they going to be forgiven? Are they going to be prorated? Um, and the monthly bills. You know, it's going to be a problem. So, I think, uh, if you look towards simplifying that and understand the plight that you're now going to put monthly bills and fees on underserved communities, it's not going to happen,*

it's a pipedream. So, what I think you can start with is simplify the paperwork so people can apply for grants and get some folks down there."

Another participant discussed the difficulties of EJ communities accessing WIAC funds stating,

"I would challenge you to look at how much money has gone through WIAC to EJ communities. As the one lady said before, you're going to find it's little or nothing. It's too complicated. They need to simplify it and understand get people on the ground, listen to the problem. Don't worry about reporting all these professorial things. Get on the ground and put the money in there. That's it."

Another issue that the participants cited was the tension that exists between the community and the seeming alignment of DNREC processes in support of big business. This has limited the need for DNREC to engage the community in their regulatory processes as one participant stated,

"If a company wants to get a permit that could lead to pollution and endangering the health of residents. That should not be a decision that is made by corporate interests and the state without the participation of residents. They need to be at the table on a triangle. We have the government, you have corporate interests, and you have the community. All elements need to be a part of that triangle. Residents and community should not have to bang, breakdown, beg to get in that discussion because their lives ultimately will be impacted and they pay taxes in this state, and they should be listened to. So that's one of the key areas of fundamental breakdown, and typically the discussions are had with the state and businesses for a corporate sector. The community is left out and then decisions are told to the communities about what needs to happen"

Moreover, the participants cited how DNREC's policies and their emphasis on a top-down, one-way communicative approach is "broken" and tilted in favor of big business. As one participant ardently asserted,

"So, this is very, very serious. I don't think that the communication process even itself speaks to the urgency with which the issues need to be addressed. So those are some of the things that I think are very, very important. I have some other comments. Possibly later, but the feedback process is absolutely broken in the state. Across the state broken through, it needs to be totally scrapped. And reconstitute in ways that work to protect the right and the health of the citizens of the state of Delaware and the environment. Which has implications for the economic development because frequently, certain businesses don't want to come to a state that has very, very lax protections because it's not a really healthy environment."

The participants' emphasis on simplifying processes and enhancing opportunities for engagement with DNREC is critical for promoting substantive and procedural equity. Moreover, the EJ community's focus on meaningful two-way communication has the potential to reformulate and

restructure the EJ communities' relationships with DNREC and their regulatory powers and mandates.

Need trained staff to work with diverse communities

The third theme to emerge out of the town halls was the importance of diversifying and training DNREC's workforce to address the ongoing challenges that exist in EJ communities. The community members cited that DNREC's disconnect with EJ communities can be seen in DNREC's workforce diversity and the number of employees dedicated to the overburdened and underserved communities in Delaware. One benefit, cited by our participants, of enhancing workforce diversity is the potential of this workforce to represent the communities that DNREC serves. For example, community members have cited the benefits of having a community ombudsman that works directly with community members and leaders. One participant expressed,

> *"DNREC has a wonderful ombudsman (who) will come out to you, I think, um… and I know there are some people from DNREC on the call, but I think it's, it's difficult. It's like being human resources in a large business. You know, you're looking out for the employees benefit, but you got to look out for the company's benefit. You're right in the middle. But we have to build his capacity to draw him out."*

Another participant shared a similar sentiment,

> *"I'm going to speak on behalf of my project manager who works directly with DNREC and the Ombudsman who has been excellent with our company as of late. We've chosen to move into South bridge, Wilmington and help revitalize that community and DNREC has been excellent as far as coming out to support our efforts, unlike some of the comments I've heard, we haven't had any issues in communication and we've also been entertaining the idea of providing some training to some of our employees on the environmental side".*

The same participant continued that having DNREC workforce out in the community was important to support overall better engagement and participation from the community. They said,

> *"but there's always someone there to communicate on DNREC's behalf for sure like outside of our direct communication there's that, and then there's also them coming out to our public events. So, we had a ribbon cutting on a home that we renovated specifically to gift to one of our employees who has a son with Down syndrome. That's kind of what Kickstarted our South bridge initiative and the ombudsman was right there when we cut the ribbon, he was out there talking with the community members, and being very engaged."*

While participants discussed the positive experiences with DNREC'S ombudsman's role in the community, others discussed the limited power this position holds and the problems with the lack of diversity present in those "community" positions. This includes sending DNREC employees to

communities who do not understand the linguistic, cultural, and environmental context that they are working in. One participant expounded,

> *"There is something called the community involvement advisory committee (ombudsman), we have invited him out to educate the communities, the problem with this kind of outreach is the communities they need to engage…, especially where there are problems with language barriers and other problems…when there's problems already with contamination in the community before the project comes to due."*

Another participant directly cited the importance of cultural competency and diversity as a key qualification to conduct good outreach in EJ communities stating,

> *"But I think that the details is what is going to matter…how every community does not correspond with same things. Some communities you're going to have to have Spanish or just different languages, you know, different cultures. So, it should be tailored… it should be tailored to whatever problem that community is challenged with.*"

Beyond the perception of cultural competency lacking among DNREC's workforce, the participants cited the incessant need for "people resources". This will allow more individuals to conduct adequate outreach as the perception currently is that DNREC has placed a tremendous amount of responsibility on very few people, with minimal institutional support to conduct regular outreach and engagement with the community. This is especially important if community engagement is to be done correctly as one participant noted,

> *"People will be needed to effectively cover the whole state. It just seems like when I looked at some of the resources and people resources, they were very, very slim. You can't possibly get feedback from people across the state with such a slim amount of money. I think it's very important that the process be scrapped and start it over from the beginning as this has been going on for many, many years as others have spoken about in this lack of response."*

Beyond the lack of funding and resources, other participants discussed the importance of supporting and diversifying the ombudsman's position to deal with some of the bureaucratic impasse that exists between DNREC and the community. These positions are seen to be ideally representative of the demographics that exist in EJ communities and who would have direct access to DNREC's leadership and bureaucratic hierarchy. As one participant exclaimed,

> *"Here's one for you, here's one more importantly for the governor and the secretary (to) create a community outreach officer. And that person should report to leadership and that person should have a dialogue with communities up and down the state regarding environmental justice issues and problems in their specific communities. And there should be an update…quarterly or semi-annually at least on the identified problems and the status of progress to address those issues."*

Another participant further stated in response to the statement above,

> *"I would add to that suggestion that there would be DNREC outreach coordinators so that there is one coordinator for each county keeping in mind the environmental issues for the counties are unique and that office should have you know a staff and that those coordinators are not only accountable to the secretary, but they are accountable to the community."*

The suggestion to build a diverse workforce with the requisite training to work with and be responsible to the both the community and DNREC will create open and direct lines of communication to deal with the perceived disconnect between DNREC and the EJ communities. This for our participants meant employing individuals from the EJ communities who understand the communities they are engaging. As one participant stated,

> *"So, you know people from these communities can become DNREC employees… there's job training assistants, related to, you know, environmental jobs. You know, all these types of things I think are very important, but most importantly that DNREC together, you know, maybe working with the federal government, uh, there's a lot of grant opportunities and…with infrastructure coming now and, you know, dollars perhaps… funding is a good way to partner with the community and the funding should be derived and directed at community driven projects, particularly ones, you know that affects human health directly or quality of life events."*

Our participants maintained that the benefits of diversifying DNREC staff to represent the communities they work on behalf of would enhance trust and build DNREC's cultural competence. This would in turn incorporate the collective knowledge of the community in describing their positions, perspectives, and lived experiences. The community suggested multiple routes that this can be done including through supporting the ombudsman, employing diverse staff from the local communities, and creating several community outreach worker positions to work within communities throughout EJ communities in the State of Delaware. As one participant stated, *"the community with our demographic, I'm not sure what DNREC's budget is, but I'm sure that their budget would support someone who can do the job that we have asked to be done. And that is boots on the ground. We need an outreach worker who talks to people one-on-one to explain what the issues are, how to get feedback from those people and to act on that feedback, which has typically not been the case."*

Community point persons

The fourth theme of the townhall was the emphasis by our participants of integrating EJ community leadership in DNREC processes and activities. Civil society organizations and community point-persons were discussed as the central players to fill the communicative gaps between DNREC and the EJ communities. This will allow DNREC to acknowledge the role and perspectives of community leadership but also benefit from the knowledge these individuals have of their community's needs. Furthermore, they have the potential to act as an intermediary between

the community and DNREC. This person or group of people is derived from the community to encourage community participation and engagement.

> *"there seems to be a disconnect between DNREC's definition of community engagement and relationship and the community. And I think where things need to start is a meeting. Where there comes a mutual agreement you know, as to what relationship means and what community engagement means. And in this world of which we're living now, community engagement means developing a relationship that empowers the communities and the people who live in them, who are the target of what we're talking about. And it also means that DNREC may need to look outside the box. So that the people on whose behalf they are working are viewed as leaders… rather than being (labelled as) the instigators of meetings."*

In developing partnerships with the community point-persons, DNREC would be obliged to challenge assumptions they have about the communities, expand their cultural competency, understand the specific needs of the communities they are serving, and ultimately internalize a paradigmatic change towards the communities as partners working towards the same ends. As one participant stated, *"I think they should convene regular feedback sessions with community leaders. And those people are very obvious. They're typically at most meetings that DNREC will try to attend. And I think that's probably the best way from that point. They can decide with those leaders and with other people in the community, how to best address the feedback to that particular community, because with each community, it's different."* The other critical component to supporting the integration of community point-persons was that they can provide critical knowledge about the community that DNREC and others outside of the EJ communities may not possess or have access to. While simultaneously informing the community regarding the development and implementation of active and future DNREC policies, processes, and activities. This would ensure the integration of the community in DNREC processes from inception to implementation. As one participant remarked,

> *"it's this whole notion of community engagement really needs to reflect the relationship. Where a community and DNREC are in fact, our partners where there is a respect on the part of DNREC, of the community as an expert who knows what their problems are, what the negative outcomes are and in fact, help build custom solutions about how to deal with them".*

In partnering with the community and the community point-persons, DNREC will not only empower EJ communities towards greater self-determination, it would allow them to employ and embed community engagement in its policies and practices. Leading to more success in conducting outreach and engagement with its activities and processes. As one participant stated,

> *"In a variety of ways, you can send out flyers, you can contact specific associations. And, you know what they should be done, right? DNREC should have all this information (of civic associations). I mean, they've been established for a while and they should have this established information as to who the specific associations are. Who the leaders are, who they can get this information to, more than one or two people. That this information should be given to."*

Another participant discussed the creation of an independent committee composed of community point-persons who would represent the community and directly work with DNREC leadership to participate and engage in DNREC projects in their communities. The participant stated,

> *"Put together say three people from Sussex county, three people from Kent, three people from Newcastle county who all have a background in community organizations, independent of anybody else's influence. And take that input and before the secretary signs an approval notice to let the operation move forward… they should get a report from this board. Recognition of all the comments that were made by the broader public. What is recommended by that board has an influence on the decision making and highlights specific things that need to be addressed before the secretary signs off on it moving forward."*

Finally, the participants discussed the role of experts in and from the community who are often overlooked in decisions that DNREC makes about the communities. The participants maintained that EJ communities and their leaders are not "*part of the DNREC-Industry-Community triangle*" and thus are experiencing the cumulative effects of decades of misplaced policy and industrial malpractice that has not been acknowledged nor addressed by DNREC. As one of our participants explained,

> *"I and a couple of people that have been involved in environmental issues up and down the state have bent over backwards to get a dialogue where we could emphasize the things that we're aware of, we know that can be done either from (a) business standpoint or a technical analysis standpoint. And DNREC, kind of just, soft shoes the whole thing, and nothing ever seems to develop in a State of Delaware, especially in Newcastle county. You can't throw a rock without hitting a PhD chemist, chemical engineer, environmental engineer. I've worked for PhD physicists that worked on instrumentation. Some brilliant people and people that work for them, like me that are interested in making improvements and environmental issues and they don't seem to be interested and that is over a twenty-year experience I have had with DNREC. They aren't interested. But what they are interested in is the Chamber of commerce, environmental chair, and other people tied to the Chamber of commerce, who get to actively participate in the process at all times. And negate things that people who spent careers in addressing environmental problems that they come across, we're learning enough about understanding the environmental problems that exist… get pushed to the sidelines. DNREC really isn't all that open to the input from communities".*

Another participant added a poignant statement about the importance of DNREC in engaging and treating community leaders as individuals with critical knowledge of the sciences and the lived experiences of the community they represent.

> *"I felt there was a lack of education around environmental justice and climate justice issues. And when I've tried to explain, and they listened, and they, they*

weren't evil or anything. So, when I tried to explain, it just seemed odd to me that they didn't know this information."

As the participants above expressed, the community point-person(s) can cultivate community capacity, increase their direct participation, and limit the harm that the lack of engagement can have on overburdened and underserved communities. In doing so, as one of our participants emphatically asserted, "*DNREC has to come out, build the capacity of the people that they're talking to. So that everyone's on that even plane and go from there. And make solid decisions that are trustworthy."*

Key-Informant Interviews Analysis and Findings

Introduction

The key-informant interviews aimed to obtain insight into DNREC's (Delaware Department of Natural Resources and Environmental Control) outreach and engagement efficacy with Environmental Justice (EJ) communities. Using key-informant interviews, the research team obtained multiple perspectives from 33 respondents, including organization, community, and civic association leaders. All the data was anonymized to guarantee that our participants could share their experiences and perspectives on the effectiveness of DNREC'S points of engagement with the public. We did not keep demographic information to reinforce and maintain anonymity. This allows respondents the space to answer the questions freely and openly. We followed an interview guide with five sections that covered DNREC's points of engagement with the public but also remained flexible in pursuing new and unanticipated topics as they emerged.

Each interview was held for approximately 45–60 minutes and was conducted and recorded virtually using the WebEx and Zoom platform over a five-month period (August 2021- December 2021). Key-informant interviews were used as the sampling strategy in our study to provide multiple insights and perspectives into the phenomena underlying the research questions framing our study. Moreover, the emphasis on collecting this information from key members who have direct knowledge and experience in EJ communities is critical for our study as they "have unique and important knowledge about the social world that is ascertainable and able to be shared through verbal communication" (Hesse-Biber, 2017, 106).

Since we knew at the beginning of the research project that key-informant interviews would be a central component of our study design, we were actively mindful that we would be employing thematic analysis as one of the data analysis frameworks. We used Braun and Clarke's (2006) rigorous method of thematic analysis which includes a robust and systematic process of identifying themes within the data (2006, 79). We initially prepared the data by transcribing the recorded interviews. Once transcribed, we used the textual analysis application, "Atlas.ti", to code the interviews and develop the recurring themes. While the software facilitates textual examination, the analysis is entirely dependent on the researcher's skills, background, and understanding of the project's goals and objectives.

The transcripts were coded in correspondence with the conceptual and theoretical frameworks guiding the research study. The analysis included open-coding to facilitate the development of themes. Once themes began to emerge, we began to selectively code while remaining cognizant of the possibility of new and emerging themes. Once we finished the data-driven coding, we iteratively analyzed the codes to identify and categorize the themes (Braun et al. 2019). We predominantly utilized the inductive approach, which allows themes to emerge inherently in the data, "without the restraints imposed by structured methodologies" (Thomas, 2003, 2). The inductive approach facilitates the links between research objectives and findings in the data while also allowing for new models and theoretical frameworks to emerge (Thomas, 2003, 2-4). The deductive approach was minimally used in the process of identifying themes, as we sought to interlink patterns emerging in the data to the focus areas of our interview guide (Braun and Clarke, 2006, 82). Throughout our data analysis, it was essential to remain consistent in determining the

themes by linking "those themes into a more comprehensive, model" (Bazeley 2009, 6). Our initial analysis produced 11 themes with an average of 1-2 subthemes each, and then after careful analysis and verification of our data, we aggregated those themes and finalized four major themes with 3-4 subthemes each.

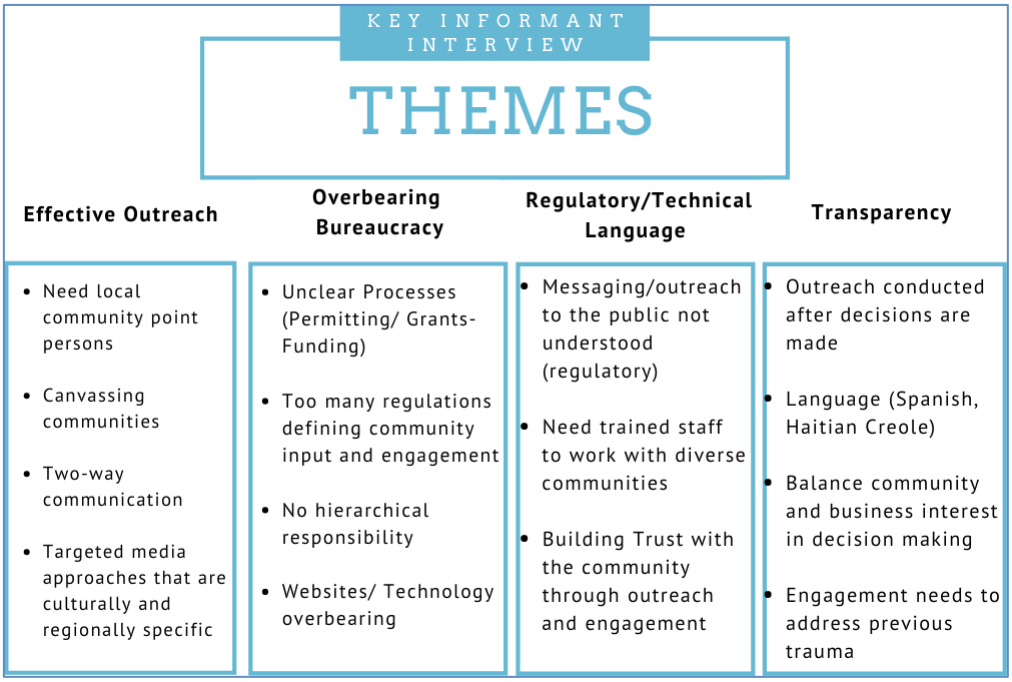


Figure 9. Key-Informant Interview Themes

Findings

The objective of this research project was to explore the effectiveness of DNREC's outreach strategies, methods, and tools of engagement. These were also the stated topics of our interview questions. As a result, it is not surprising that the bulk of the findings relates to communications and practical strategies for engaging overburdened and underserved communities.

Effective Outreach

One of the major themes that emerged in the analysis was the importance of DNREC conducting effective outreach. This theme was predominant as it underscored the perspective that current DNREC outreach activities and engagements are not accomplishing their objectives within EJ communities. This is important as ineffective outreach toward the public and EJ communities, in particular, can produce more harm than benefits leading to conflict, alienation, and increased distrust. This theme indicated that effective outreach necessitates meaningful involvement (EPA, 2022) and fair treatment to ensure EJ communities can participate and influence the decisions that affect their community, environment, and health. It also captures outreach and engagement measures that need to be pursued by DNREC to guarantee the EJ community's direct involvement

in their processes and activities. Moreover, our key-informants noted that DNREC must acknowledge the community's self-determination in this process (Taylor 2000). This will ensure that the concerns and well-being of all stakeholders are integrated into DNREC's decisions, build capacity to address issues affecting the community and provide genuine opportunities for participation for all persons impacted by decisions made by DNREC. As one of our key-informants stated, this will necessitate DNREC "*meet us (EJ communities) where we are*".

These effective outreach measures were further categorized under the subthemes below.

Need local community point-persons

One of the key issues that arose in the interviews was the importance of closing the communication and outreach gaps between DNREC and the EJ communities through the direct participation of *community point-persons*. For our key-informants, the community point-person will fill the gap in the (mis) communications between DNREC and the EJ communities and act as an intermediary (employed or a partner) between the community and DNREC. This person or group of people is envisioned to be *sourced* from the community and encourage community participation. Next, they would also provide critical knowledge about the community that DNREC and others outside the EJ communities may not possess. Lastly, they would also alert the community regarding developing and implementing active and future DNREC policies, processes, and activities to ensure that solutions and decisions are mutually beneficial. The community point-person will ultimately facilitate information exchange and empower EJ communities towards greater self-determination in their evolving partnership with DNREC (Taylor, 2000).

> *"They (DNREC) need to invest money in hiring somebody in our community who does that simple outreach. Simple outreach. Rather than hiring some high-powered somebody, technology person to push things out on a platform that reaches nobody. They could spend some of that money to hire a local outreach person and let the person work with community members. Get that person from the community, a person who knows things. Our community is underemployed. That would be a good way, one of the best ways for DNREC to change its face. To hire a person that people know and like. And that person reports back and establishes a relationship with the community. That person would also be in the community to see what's happening"*

> "*I think the meetings are good to kind of talk through things, but you really got to get the people on the street and that's, that's the way to do it. I mean, especially (for) underserved communities. It's not online, it's going to be door to door, you know, even with the pandemic. And, preferably with a resident from the community, because it'd be a more trusted person, rather than somebody from the outside"*

> *"they have that duality (community point-persons). They have to be speaking for the community and for the organization they're working for, and not be afraid to maybe say something that might not be the right thing."*

> *"if someone wanted to build a shopping center in your community and DNREC, probably not a shopping center, but it's a power plant and DNREC needed a bunch of different permits in order to build that power plant, they're probably not going to reach the people who actually live in the community impacted by it. Because it's such a hard thing to lay down. And so, in terms of getting them to better engage, you know, I would say that they would really need to build better relationships with like the pillars in those communities."*

As the passages above expressed, the community point-person(s) can cultivate community capacity, increase their direct participation, and limit the harm that the lack of engagement can have on overburdened and underserved communities. The participants maintained that information must come through trusted messengers as this is central in constructing and implementing effective engagement and outreach processes. This is critical to ensure that communicative efforts do not backfire and harm the community. Ultimately, these statements reveal that the point-person can empower the community to have an equitable voice in DNREC processes and activities by ensuring their interests and overall wellbeing is being advanced.

Canvassing communities

Another theme that emerged from the analysis was the importance of canvassing to provide deeper insights into the perspective and perceptions of the EJ communities that DNREC serves. Utilizing social scientific methodologies to capture and integrate the community's perspectives allows DNREC to gauge the community as they are and beyond the limitations that may exist when depending only on established contacts for information. Our key-informants maintained that, beyond just collecting information about the community, canvassing was vital in informing EJ communities about DNREC processes and activities impacting their community. Canvassing provides an opportunity to build trust, capacity, and critical cultural and social capital with the community.

> *"if you have a survey, go door knocking, like, target a specific community, that you want to hear from, if you really want to hear from them. Leave, create some sort of messaging campaign and leave door hangars on people's doors with educational material"*

> *"People that are opposed to public outreach in government, you know, are hesitant because you have these public meetings, and you get folks with really strong agendas that show up. But often times they form like a minority opinion. Like, they just don't want this one industry at all. I mean, but if you talk to the average person on the street, you know, they're much more open minded. So that's why that survey is really critical. And in a, you know, in a wealthier community, you might be able to get away with online surveying and, um, and reach a good demographic that matches that community. But for underserved communities, you can't rely on online tools. It has to be in person and, the most successful way is*

getting a paid community member that knows what they're doing to do the door-to-door survey"

"I believe in surveys, I think, you know, coming to workshops and even getting some community leaders engaged is good, but oftentimes, even an underserved community, the folks that you get are a specific demographic of that community, their owners of homes, they are older people with time on their hands. They are not folks that are working three or four jobs, you know, which is the typical person in the community. So, you have to have that closer engagement with the resident (community) leaders who want to be involved with surveys and sampling of the population there, to make sure that, you know, what you're working on…You know, the plan itself is going to be representative and represent what the locals want and the leaders (of the EJ communities) can't do that themselves. I mean, they just don't have the resources. So, it's just, you know, bringing those resources in to do some sort of sampling, whether it's, you know, working with a local person to go around, do some quick door-to-door surveys, or telephone surveys, or whatnot"

"As far as improving the relationship with the community, I think it's going to be presence and consistency. And folks feeling their presence, not just hearing about it, so being able to say, hey, you see that air monitor that was done correctly, we just randomly came in here, right, and put that up. And then spark conversations and, you know, showing up in communities, whether it's themselves or by partnering with community organizations who do canvases or informational canvases to include their information with whatever is being spoken about, right. So that way people are aware, they know how to reach out for things like that. And they're hearing it from trusted sources"

"This is community engagement 101, you know, that you not only talk to, you know, the leadership and those gatekeepers. But you also invest the money, because this is what it's about at the end of the day, you invest the resources because that means you need to hire a company. You need to hire a firm, a consultant that comes in and helps you do this work. Somebody that is experienced and trusted in the community. And you bring in the expertise to help you drill down and get a real assessment of what the broader community thinks and feels. Then you start making your, you know, your decisions from, you know, from that point. And I think that's what they have to do"

The sentiments above conveyed the importance of canvassing as a direct and comprehensive practice that allows the public's participation in DNREC's decisions, policies, and activities. While canvassing communities poses some challenges as it requires time and resources, as acknowledged by our key-informants, when done right, they maintain it can provide critical insights and meaningful input from and to the EJ communities. This direct method of engagement with the public supports "approaches that take the lessons of recent democratic experiments and generalize them across society" (Boyte 1999, 6).

Two-way communication

One of the consistent subthemes throughout the interview data was the importance of establishing two-way communications between the community and DNREC. The participants addressed the importance of outreach communication that emphasizes collaborative engagement and feedback. Participants noted that when DNREC conducts community engagement, it is a one-way communicative interaction that only informs the community of policies and actions that have already been implemented. Thus, the perception was that DNREC is not actively seeking partners to engage in conversation and feedback but wants the community's buy-in on decisions and policies that have already been decided. While the DAD (decide, announce, and defend) communicative framework is shared among governmental bodies and institutions, our interviewees cited it as a significant barrier with DNREC that ultimately undermines trust and meaningful collaboration (EPA, 2022). Our participants contended that what was necessary was the two-way communicative approach, where the community can achieve active engagement and deliberation in deciding policies that impact their communities. This is significant as this approach acknowledges the role of the community in DNREC processes but also has the potential to produce mutual recognition and respect (O'Rourke and Macey, 2003). As the participants described in the passages below, two-way communication permits the community to share and report what they see and experience while ensuring their interests are recognized, supported, and leveraged in DNREC policy decisions.

> *"I honestly think it's just as simple as that, like the way you can combat the angst that the community has…Well, I told you my problem and nothing happened, circle back (DNREC) and say, you know what I know that I came to your civic engagement, um, civic association meeting, and I heard when you said that there is a distasteful odor, I have contacted this person and that person… just giving simple updates (to the community). And, you know, not waiting until… Um, you hear from us again about the issue…. but just saying, hey, can we come and talk to you about something we have going on that we want to make sure that you know about, but letting it feel like a two-way street. So…., that constant ongoing communication can continue"*

> *"Typically, the way DNREC handles things, you know, they engage with the polluter, the violator and they ignore the community. Now, they set up a meeting a workshop. I want to say, maybe, um. Maybe a couple of years ago, a year and a half, 2 years ago where they were talking about what they were going to do, and they wanted to hear from the community, but the way it was designed, it was so contrived that they got the information they would like to have, but they constricted what the community had to say, because of the way they set it up, it was in groups and then they pose certain questions that you could respond to. And if those questions didn't have anything to do with your concern…oh, well, too bad, you know, they got their information they were looking for to validate themselves"*
> *"From some of the advocates who are involved with some of our work, there's a feeling of, you know, like they've attended a public hearing, but do they feel like*

they were really engaged with? Or was it more of a lecture that they had to react to?"

"I think, usually at a public hearing a person can make a comment, but not necessarily receive an answer. So maybe you can ask the question, but not necessarily get an answer. So, have public meetings, I think, where people can have a two-way conversation and get answers to their questions, I think are also highly useful and effective"

"You know, they need to respond to the community when the community says there is an issue here. We need to have a representative to come out and speak with us, but they don't. You know, that's all people want to find out. What is the issue. What can you do about it? What's within your scope of work and then address it? But don't just come and listen and run away or don't just come and start talking about "we're going to reach out to the community" and "we're going to get to know community members". We don't want that"

"Because too often, again, it's just sort of DNREC feeling like it has this mandate to protect folks and they, they kind of come in as a, you know, like a God, with a Thunderbolt or something. Like we're going to help everybody…But, you know, in the end, really, you got to say, hey, we have these resources come along with us. How can, how can we partner with you best identify your needs because the community hasn't reacted well to that sort of top down approach over the years"

The passages indicate that the DAD model exacerbates conflict when communities are informed of the issues but have no avenue to engage, express, or dialogue with decision-makers. Our participant's desire for constant two-way engagement can enforce progressive communicative norms wherein stakeholders feel they are acknowledged and seen as partners in DNREC's processes. This will aid in the development of shared understanding of solutions to conflicts while addressing the community's critical questions (Beierle & Cayford, 2001).

Targeted media approaches that are culturally and regionally specific

The next subtheme that emerged in the data focused on utilizing diverse and targeted mediated approaches that reflect the socio-cultural contexts of the community. The interviewees emphasized the importance that outreach tools and tactics used by DNREC must show a commitment to the diversity that exists in the state of Delaware. The engagement with EJ communities should acknowledge this diversity to allow for effective communication and successful programming. The participants maintain that the information that DNREC employs should be accessible and displayed in multiple formats reflecting the diversity of the audiences it engages. This will require DNREC to expand beyond traditional communication outlets to consider tailored media outlets, including African American, Latino, and Haitian newspapers and radio stations, and new media technologies, including the targeted use of digital technologies.

"Every individual receives information in a different way. And in a number of communities, you know, we're not a monolith, right? There is different ethnic

groups, their different age groups, their different socio-economic groups and so everyone is receiving their information in a different way. And so I think that what DNREC…has to do is begin to invest more time looking at the demographic makeup of these respective communities. Then determine, how are we going to engage them based on what the community looks like and that's where government, state organizations fall short, because there, you know, this is not a one size fits all sort of situation, but they very much make it that way. You know, you kind of put a tool kit together. You put a presentation together, you put a campaign together, and you roll it out. Not really taking into consideration that well, maybe that campaign is going to be effective for this particular audience, but for this particular audience, we need to do something totally different"

"so, when I get the newspaper, radio, and this direct mailing, it's, presented in a way that is not community friendly, if you will… it's not interpreted you know, in a fashion that the community clearly understands what it is. You're using techniques that, some of the community…. they don't have Internet…they just do not have internet. They can't afford internet. So, all the tools on the Internet are of no use… see what I'm saying. So, without those prior engagements and interaction with the community to develop your tools. You got tools we can't use"

"The churches, I mean, obviously, and at least in most…most black communities, the churches are the focal point for…most cultural and communicative endeavors…You know, just…someone from DNREC, going to the community to make sure that people who cannot access social media or a newspaper. I mean, for the most part, you're required to at least publish in two newspapers. A lot of people don't get newspapers anymore, even if they are connected to… computers…electronically"

"the public outreach would be a big deal, but it has to be tailored to those communities to want to pay attention…how they reach out is real cookie cutter, not attention grabbing, not culturally, like aware. And so, folks pass it over. Alternate language is a big deal. So, Spanish, Haitian Creole are a big deal. Here, we have a growing Korean population that needs to be considered. So, I think that would be a big deal…And again, it has to be culturally aware"

"If I really, really want to reach out to the Latino community is to play in the radio 30 minutes of explanations, you know (about DNREC processes and activities), they let you...advertise in, and let them know that you care for the community in Spanish and Spanish newspapers… The important thing is that you do very different things at the same time. One of these as I said is the radio… which is the most important because we are an oral culture. In, we hear while we're cleaning, where we are taking care of the babies, the radio is easier than the tv"

The emphasis on DNREC expanding its understanding of cultural competency in outreach showcases that it can understand and engage diverse communities. Moreover, the participants revealed that DNREC should recognize and bring to the table the cultural perspectives of all

stakeholders while enhancing communicative efforts using culturally aware strategies (FEMA, 2019). The participation and engagement with these diverse communities in Delaware will necessitate that DNREC invests in the costs of engagement. The key-informants believed that embedding this cultural competency framework should develop the capacity for meaningful involvement and engagement with historically underrepresented communities**.**

Overbearing Bureaucracy

One of the predominant themes in our analysis was the perception that DNREC's processes were debilitating to meaningful engagement, action, and positive relations. The key-informants emphasized how their voices and overall efforts to engage were stymied by bureaucratic measures, activities, and policies that have done little to enhance DNREC's increased intentions to democratize processes and increase access. The key-informants maintained that DNREC's overbearing bureaucratic practices extend to unclear processes, bureaucratic regulations over engagement actions, confused perceptions of who exercises power and authority within the organization, and technological tools that are often overbearing and difficult to comprehend. The participants emphasized the importance of improved delivery of information and open, dialogic communication about decisions and processes as essential to increasing legitimacy, trust, and social capital in EJ communities. This framework was captured through the four subthemes below.

Unclear Processes (Permitting/ Grants-Funding):

One of the significant subthemes that emerged in our analysis was that DNREC employs unclear processes and actions in making and finalizing decisions. The participants described the unclear processes as linked to the lack of access to information that can effectively aid the community in DNREC activities and processes. Our participants communicated that this gap heightens the EJ communities' environmental risks in the State of Delaware. The lack of experience and know-how to engage with DNREC's bureaucratic and administrative procedures creates tremendous barriers for the community to retrieve critical information on permitting and transformative opportunities like grants and other essential services. The participants asserted that individuals and communities who are better positioned are often awarded those grants due to the EJ community's lack of resources, time, and understanding of DNREC processes.

> *"DNREC has a program through that community advisory council. They have fines that they receive for communities that are near these facilities that have violations. They (communities in the vicinity of the violating facility) can apply for some of those moneys to help, you know, do something in those communities. Three times we attempted to apply for some of those moneys… We had all kinds of excuses as to why we didn't get money and we thought they were just barriers put in our in our way to exclude us. We tried to talk with them and so we still haven't reached that"*

> *"this major development or major project, you know, gets permitted and the community is just like, what the heck man, like, what's going on? They don't know*

what's going on, because nobody's there telling them like, look, here's the deal, right? This is what the law is zoned for. They got the county permits, right? They're complying with air quality and all this stuff. They are like, what do you want us to do? Right, or there's no like dialogue with the community on some of these more controversial…permits"

"And now it's going to be a facility that essentially manufactures methane to be shipped out into the natural gas lines, and you're going to have 60, 50, 60 trucks coming in here and out every day on these residential roads. It's crazy. And there's no routine air monitoring or nothing like that, you know…. But so, everybody's looking at DNREC, like, you got a nice permit. It's crazy. You can't do this. And DNREC is just, you know, completely silent. Nobody from the community knows what, if anything, DNREC's going to do? Are you going to put any conditions on this? You're going to require monitoring? Like, there's no outreach to the community from DNREC on what's happening with this permit? Where's that in the process? What are you thinking, where, which way are you leaning? None of that."
"Now, you know, the few times I've had questions about permitting, it's a nightmare. Man, I can't find, I can never find anybody, the information online that they point you to is just completely vague and not helpful at all. Yeah, I mean, on the permitting side, it's horrendous"

"Yeah, I don't really know. I don't know if it's a staffing issue. You know, I'm not sure. I mean they put out like this daily digest on a daily and I think it is, but it's that DNREC digest or something like that. And it will say, you know, these are the permits coming up for hearings, right. Click here for more information on each one, right. And then you go to that, and it's the same information that's in the email. And it's like, there's nobody to contact. There's no real details about what it's about. And it's usually like an address of so and so's company is looking to revitalize this address, right. Like, all right. I mean, cool. But I knew that from the email, right, I'm trying to find out like, what are they building? Where's their permit? How can I look at it? Like, who can I talk to? If I have questions, right? None of that."

"They applied for a permit to expand their facility back in early spring, I think, and DNREC then republished the notice with the application and the notice of the public hearing in the newspaper, they went through everything you got here. And in terms of notifying the public and the people that lived around that site knew nothing about it so that that's their fault for not reading a newspaper or not being on Facebook or, you know, not, plugged into some of these other forms? But they knew nothing about it. The hearing was held… nobody from the community was there because they didn't know anything about it. And the only person that showed up was the union guy that was in favor of the expansion and so DNREC, you know, did what they should have done, they approved the permit without any pushback from the community. When they published the Secretary's decision, it turned out that I got that notification, because I'm on the direct mailing list. You know, I get a thing from DNREC once or twice a week that says, you know, new things that have been applied for, or decisions that the secretary just made and I happen to see that one…

that the permit had been approved. So, I sent a notice to one of the people I knew that lived in Collin's Park saying, I don't know if you knew this was happening and here's what it means to you."

"I applied to try to get funds for this community air monitoring project and you know, as I understand it, um, that was a little bit of a frustrating experience because it was not real clear, at least from her perspective, or what was expressed in these meetings with others besides me and DNREC"

When opportunities for engagement with DNREC processes, activities, and funding are not presented in clear and understandable ways, the underserved communities who need those resources and information miss out. This broadens the cumulative effects as access to funding or understanding of permitting processes can have a drastic impact on community development and lead to increased distribution of environmental hazards and risks. Thus, for our key-informants understanding DNREC's bureaucracy is essential for the EJ communities to gauge how to structure their relationships with DNREC and their regulatory powers and mandates.

Too many regulations defining community input and engagement

Another sub-theme that emerged in the data was the EJ community's lack of understanding of the bureaucratic processes present within specific DNREC processes. This theme assessed the threshold for understanding when and how to engage DNREC regarding their processes. The disconnect between our participants and DNREC is shaped by knowledge gaps of DNREC's policies and procedures surrounding the community's engagement in legally or non-legally binding processes and activities. This created a perception among participants that DNREC purposely creates bureaucratic hurdles for the community to stifle resistance and allow DNREC to move forward with its objectives without genuinely engaging the community's input. These regulatory practices that for example define who can ask questions and reply to answers in public hearings leave EJ communities perplexed as to when and how their voices can be heard and whether or not the decisions made about their communities would have direct communicative input from the communities that they are impacting.

"when you get into the permitting thing, you know, you have a hearing …… the applicant for the permit state their position and DNREC makes the decision. so, you know, that's the end of the process, unless there's an appeal to that decision so it's not a reciprocal or…or directive. it's…it's a formal process that, you know, has boundaries to it and I understand that um, but in terms of being interactive and a real exchange of thoughts, ideas and concerns as, you know, it's not there"

"I mean, go to public hearings, listen to the same presentations that they gave, asked the same questions that you're not likely ever going to get an answer from. And they tell you, right, like if you can't pose questions to the applicant at the hearings, right. You have to pose them to the hearing officer. And the hearing officer tells you in the beginning, we're not answering your questions. There's literally no avenue until it's done for the community to ask questions to put any kind of pressure or anything on DNREC. And DNREC is not statutorily required to listen

to any of the comments that are made. They can listen, they may consider what the statute says, they may consider comments made by the public. But, they don't have to listen. They can say, alright, you said your thing we did our hearing, you know, statutorily we checked the boxes, we're done. And that's often what it feels like to community members when they're in these hearings, right? Because they know that at the end of the day, when they read the report from the Secretary on why the permit being approved or denied, you don't see a denial and say, you know, community members have these concerns"

"If there's a request for a permit or whatever they put out the public notice its incumbent on the public to then ask for more information and maybe then even request a hearing. When they have a hearing there's a very, very, very brief overview of what the permit request is, but there's no opportunity to really ask questions and give answers which is very frustrating, because often times the public…Um… and giving the history with DNERC quite honestly... people are very suspicious about DNREC's mission and its interest and attention to the publics concerns. Especially, when you go to a hearing…and you get three minutes to comment on something…"

"I would say...having meetings on the weekends, where people can show up, have them in the evening times where people can show up, offer people the option for zoom meetings and in person meetings, give people notice when meetings are going to happen two to three weeks' notice so that they can clear their schedules and show up. Show us what the process is going to be for when you accept… when you're accepting public comment on an issue, whether it be approving a permit, or a town hall, what you're going to do with the public comment. What's the guarantee that people's opinions are going to be heard and then implemented in your project? And how do we know your public comment sessions? That process needs to be clear. So, we know that when we do get a public comment, it's because the plans are already made, and so if the plan is already made, you're telling us to get public comments so you can check a box not so that you can see whether this plan works for people! And, so tell people what that process is going to look like or give public comment earlier throughout the process to ensure that people are getting what they need"

"it's just the idea of not feeling like DNREC has their best interests in mind. And when you don't feel like someone's looking out for your stuff you want to engage back, and say, why are you here to talk to me? Do you actually want to help me? Or are you checking a box right now? What, what's happening here? And I think that's just been the general barrier. People don't feel like maybe it's their interests that are in mind"

"*If you get a public hearing on a permit proposal. It's one and it's short. And it's after the permit proposal has already been written. So, I would like to see, you know, an additional meeting at the beginning. That says, like, this is happening. Wheels are in motion, they're applying for this industrial facility. And, you know, give people a space to start organizing early. And not have it all, just be, you know,*

permits already written, we're going to have one public meeting because we're required to"

"DNREC would publish a notice that an application has been made for a permit and the statement that typically follows that unless there was a request for a public hearing there will not be a public hearing and so if you miss that announcement and you don't see it within the fifteen-day time frame or whatever it is, that you have to request a hearing. There will be no hearing and so the notice gets published, nobody sees it. There's no hearing and, you know, the permit gets dealt with. So, it says, DNREC has the right to do without any public input or public engagement. So, my point is that these are reactive processes and then again that goes back to the notion that within these communities, at least these overburdened communities that needs to be a more proactive approach to engaging people to let them know what's going on as public hearings ought not be optional."

The practice of "regulating community input" through set processes was seen as one of many ways DNREC seeks to silence the community through its bureaucracy. The EJ community's focus on the importance of dialogue and public input in DNREC policies and activities has the potential of promoting mutual understanding, deterring conflicts, and promoting substantive and procedural equity.

No hierarchical responsibility

Another major subtheme was the relative frustration of not having direct access to individuals within DNREC that can address concerns and problems in the community. The lack of accountability to the EJ communities' input has created a disconnect regarding the operations and activities conducted by DNREC. This, in turn, creates additional barriers that the key-informants mentioned reinforce distrust and a general perception of DNREC's processes as inefficient and ambiguous by design. For DNREC employees working with the EJ communities, including the Ombudsman, the key-informants declared that they are few in number and are seen as powerless, overburdened with responsibilities, and are caught in DNREC's bureaucratic web. The Ombudsman position, in particular, was perceived to be a subordinate position with no authority to address community questions, concerns or impose the needed reforms requested by the community.

"Certainly, um, it was around a leak that took place at Croda on the route 9 corridor and the community…didn't know anything about what was going on until maybe two weeks later…nobody would talk to us. We made some calls to DNREC nobody would talk to us. And so, two weeks later, you know, we did get a chance somebody called us back to share with us what had happened. There was a leak that was ethylene-oxide, which is very dangerous. And so, we were deeply concerned that we had to wait two weeks to even know what had happened"

"So, I mean, just being more engaged with the community would help me engage with the community to engage them. Right, because as it is now, they (community) don't want to engage unless if (its) done, right. Because it's all a run around, and they never get anywhere. Yeah. So, it makes it really difficult to then want to get community members to engage with DNREC to do something outside of the courts and do something before permits are approved or denied, right?"

"the way I see it is very personal in the sense that I want to have a phone number and a name and what the person does so when I have 5 people from DNREC, I can say, okay, my Latinos are having problems with blank. This is the person. My Latinos wants to do something in the parks This is the person. But I want to have numbers that work with a person in charge. I call sometimes and they don't want to be known even though they should because they are public servants, but I don't want to have to be in call from place to place. This is worst thing that anyone can experience as a citizen, or as a leader. The things that nobody wants to do is to start calling and say, who should be the person you should direct me to that can help in this. Because that person you say this, and then you go this and this and this and that. And you don't get nothing but wasting your time. That's the way of the system"

"so, you have this community liaison, but a lot of times folks in the community feel like everything they stay stops with them, right? It never goes past them and they, you know, they'll say, well, let me go talk to my higher ups and there's never a way to kind of check"

"DNREC is not a very trusted source for a lot of individuals. And so DNREC employees, having an individual interaction with a trusted community leader, who can then report out to their own networks is an important engagement tool as well, because a lot of it is who and where's the message coming from? Depending on who it's coming from, am I going to engage with this material?"

"If, the community ombudsman would respond to an email and set up a meeting where we could talk face to face, and I could trust him as an individual, as a person who cares about the issue... that would build my trust. And I could also explain to him more thoroughly what I've seen in the community that I'm trying to serve, and get his feedback about what he can and cannot do"

"But if you have a specific question, you can't find an individual's email address. There's a form that you fill out that goes to DNREC, I don't know where in DNREC. And I've used that in the past, and it's taken a long time for someone to respond to me. I worked in state government for a while ……. So, I'm familiar with the two dimensions that the state uses to assign email addresses. So, if I know that I'm reaching Joe Smith, for example. His email address is not listed on the DNREC site, googling for his email address, won't show it to you. So, I just type in joe.smithn@delaware.gov. And I haven't received a response that tells me that's an incorrect email address, but I haven't received any response. It tells me that it

is the correct email address.. So, a lot of times you're just guessing who to reach And I know they want to triage things. They don't want their staff inundated with spam. But if you have a specific question in a specific section, it's really, really hard to reach the individual"

The sentiments above described the general frustration of having limited access to individuals with authority and power within the institution. The Ombudsman position that our participants repeatedly mentioned was initially created to "engage communities in identifying and understanding environmental issues and addressing or resolving environmental problems, advocate for communities, assist communities in obtaining information on environmental issues, and serve as a point of contact for the Department with communities and community organizations." However, the participants expressed that the bureaucratic, institutional, and cultural barriers embedded in DNREC have limited the liaison's ability to fulfill their directives as authorized by the Delaware legislature.

Websites/ Technology overbearing

Overbearing technology and inefficient website design was another subtheme that emerged in the interviews. DNREC often directed the EJ communities to online resources, including the DNREC website, to find key information that could only be accessed online. Although the availability of information online is positive, the website and the information displayed were difficult to understand, overbearing, and not user-friendly. This only resulted in participants' increased frustration, apathy, and animosity towards DNREC.

"Delaware government, web pages are just not user friendly. They're not appealing. There's just too much stuff in one place. And the whole website system for the state has to be revamped, including DNREC. So…, can websites be effective? Absolutely. But they need to put time into it and they need to speak to real people? Because it looks very bureaucratic. Not for the common person. Yeah. so, I think, that would cover a lot of other areas too, like the public calendar, if it was easily accessible, you could just say, people would know, to go to the DNREC's website, on your social media, you know, post, you can say visit the DNREC'S website for more information. But at this point, if you were to send people there, they would give up on whatever issue they were looking for, unless they were just that determined"

"Like, if it's a public meeting, I have to go to this public meeting calendar (online) that I hate using…. It's terrible…the state needs to change as no one knows, like, where to find it, what it's called"

"Everybody doesn't have access to a computer. Everybody doesn't know how to navigate what you have on your…your website. People don't know that and I think right now, and I know we are going into the age of technology. But if you got an 85-year-old person, who's well and septic are too close together, that person do not know how to go in there and get on…on a website"

"So, going to a website, you have to have the ability not only to access a website to be able to read the information on a website, but for those who will, when the literacy is low, especially those who …. don't have the language. And if they do, the education level is at a lower level. But if you say something to them in their language, it's I think it's effective. So, sending a video or send a message via video could be a great way as well to inform the public, it could be a good tool"

"overall there's one thing that I don't see on this…And that is… and I could get the definition wrong…the DNREC Environmental Navigator… DEN and it's a data base of all kinds of information. That data base is incomplete. It includes in some cases erroneous information…sometimes information is there I print it off…. I've learned after…very quickly if you don't print something off it may not be there six months later. Which I find disturbing because if it's there it should not be taken down it should be there permanently. I find it very disconcerting that the public data base is not complete. So, for example I'll go back to some of these…industrial operations like…. they have different types of permits, air permits, water permits, and um… potentially other kinds of permits whether its waste tolerance or something else. But that information is not always there in their inspections that take place, inspection reports…even though they have all these different options to gain information…you click on them frequently and the information is not there."

These statements may be a result of their engagement with the website front-end interface, which is not conducive to diverse and overburdened communities and their challenges. This includes the website's usage of technical language, minimal translations of documents, static portals, incomplete and inconsistent databases, and the general inaccessibility of their website related to structure.

Regulatory/Technical Language

One of the major themes in the interviews was how regulatory/ technical language created gaps and divisions between the community and DNREC. The subthemes in this section emphasize the critical importance of simplifying policy and technical language to ensure it is framed to capture the largest audience possible. This necessitates that DNREC creates a 'common language' reflective of the communities they are actively engaging. Including frameworks that are sensitive to socio-political and economic contexts, race, gender, disability, culture, religion, and identity. In filling this gap, the participants maintained that DNREC could ensure the active participation of the larger community in its processes and activities, which will ultimately produce robust and dynamic policy for all. This perspective was captured through the three subthemes below.

Messaging/outreach to the public not understood

One of the critical roles that define DNREC's relationship with the public is the legal and political demands that ensure communities have meaningful participation in regulatory processes. Understanding these processes is central to the success of EJ community relations with DNREC,

as it will allow the public to engage, understand, and be directly involved in all DNREC processes. However, for our participants, these processes did not fulfill their function or their stated goals, as DNREC's usage of technical terminology and jargon in their regulatory communications with the public has created a tremendous discrepancy between DNREC and the public who lack the scientific knowledge and expertise to understand complicated scientific terminology. The use of regulatory /technical language further reinforces the framing amongst EJ communities that DNREC has the sole authority and expertise over a particular matter. For the key-informants, DNREC alienated and excluded the community as they felt their participation was not warranted because they were not seen as experts in a given scientific subject area and therefore should not have a seat at the table.

> *"if DNREC is truly interested in public participation they need to provide the information in a way that the average person can understand it. To use technical terms doesn't do that… maybe that's their way…the public notice language is set up but again it seems to me…. if that's the case then the public notice language requirement should be changed to use more colloquial or everyday language. Again, they could do that in a parenthetical phrase, footnote, or flip it around and say here's the everyday language to go with the text…then they could put the technical term in parenthesis or in the footnote"*

> *"Regulatory development, inspections, enforcement are key, those are part of the areas that have felt neglected and have bred some mistrust…. The methods need to be improved, but most people don't know until the last minute. And again, if you truly want to get the public there to know that there's a public hearing or a public meeting, it doesn't look appealing. So, you just gloss over it in your social media feed, or you don't stop to look at it in the newspaper, there is no point in even doing them. And that has bred mistrust as well. There's the feeling that it's last minute, and they don't try to really make it stand out so that people don't show up. And so, but public notices are important. It's just making sure that you're hitting in the right places. I wouldn't even say that hearings and meetings are important. But maybe a prep around them every so often, maybe quarterly about like what to expect having a like a glossary available. So, people know what terms are being used without having to feel spoken down to or embarrassed. If something comes up, then they can have that. And if it's a virtual public meeting, they can just click the link and they can just say the glossary is there. And it's an automatic thing, especially for the communities I serve. Many people are still being educated on. Governments speak and industry speaks type of things"*

> *"I also think another problem is they use…they tend to use technical terminology...So just…I'll give you an example instead of calling a pipeline a pipeline they'll use the word, force main. So, if you don't know what a force main is then people are sort of like what is that. And again...they could so as a footnote to something to make sure that it's an everyday term that people will understand, and that would help people understand what it's all about"*

"also, the language they use is yeah, absolutely ridiculous. Most of the time, even when they're presenting at. I mean, it's civic association meetings. It's like the 1st, you, you can't. It's just not going to happen. You're just going to piss people off. You're just going to, it just seems it's like you're there, you're in a suit. You're not from the community. You don't look like you are. You're clearly. They're paid to be there and you're going to use these words and not to find terms and assume that anybody knows that you're talking about. It's just inaccessible in so many ways that knowledge of that information is there"

"Access just think more about being accessible in both with, um. Information sharing, and also what the information that you're sharing is, make sure that people could really understand it because I rarely understand what you're saying. It's going to be honest. So, I think. If I'm not a lot of time understanding, I can't imagine that. Most folks are understanding"

"Like, if it's a public meeting.... And then like when we get there, no one knows what the hell you're talking about. It's not in plain language. So even if I did show up, why would I show up if I don't understand what you're saying? And I mean, I'm saying that from a personal point, I don't even know what you're saying. Like, I went to school for stuff like this, like so if I don't know what you're saying, regular people aren't on to what you're saying? Neither"

"So, it there is a community ombudsman, who generally has been pretty engaged with South bridge, and the route 9 area over the years. Um, he attends meetings. When he can, uh, but he has had historically difficulty bringing other folks into the, the meetings, um, that are more experts and, and technical. You know, folks, so he, he struggles to convey the information, um, that I think the community really wants to hear and then to have those conversations. I mean, he's a good middleman type of person, but then to, to get that technical information. It's difficult"

Our participants discussed the importance of having DNREC messaging reflect the communities' cultural and social contexts. They also stated DNREC needed to involve and invite the community to translate material into everyday colloquial language so that the public is aware of the activities and processes they are implementing in the communities. This allows community members to acquire and process the information in the language that best translates technical concepts, documents, and DNREC's public communications.

Need trained staff to work with diverse communities

Community members cited that DNREC's disconnect with EJ communities reflects the lack of diversity in their workforce and the minimal number of employees dedicated to the underserved communities in Delaware. One benefit of enhancing workforce diversity is the potential to increase trust and understanding between the community and DNREC. The key-informants maintained that a diverse workforce with the requisite training would create open and direct lines of communication to deal with the disconnect between DNREC and the EJ communities, especially

on regulatory and technical matters. A diverse and representative staff will reinforce DNREC's public commitment to inclusion. It will further allow DNREC to engage with the community on their respective terms with messaging that reflects their understanding of processes and concepts central to the work that DNREC does in the community.

> *"if the person is not from the community (DNREC employee), you know, and communities of color. let's see how I can even have the stamp of approval you might as well not be there. So, absolutely, you know. That's just the way it is… recognize the culture of the community that you're dealing with. And institute methods that will address them. That their particular issues, according to their culture, not according to yours. So very specified specific type of programming that addresses the real problems on the ground. Yes, from the community's perspective real good community engagement work essentially"*

> *"I mean, ultimately, in a perfect world, right, they would have the money to have a team of people like me, like me, but like my position, right? They see the controversies or they hear what's going on in the communities. Right. And they know like, all right, you know, Wilmington, I need to contact person A, B, and C, and you know, this, all these civic leaders, right, and say, Hey, I hear there's some issues what's going on?"*

> *"You know, DNREC has a lot of like, entry level technical jobs that you don't need a specialized education for, you know, a thing of like, seasonal park jobs, stuff like that. That like a lot of our clients could, could seriously benefit from assuming we can clear like the expungement and, you know, the things that prevent if you've committed a crime or been convicted, I should say that would prevent you from entering the workforce. But I have to imagine that there's seasonal part time employment that a lot of our folks would qualify for. And then on technical assistance. You know, like, one of the, you know, one of the things that a lot of our folks get into is, or I shouldn't say a lot, but like, you know, how to start a community garden, how to, you know, how to weatherproof your home, or you know, how to deal with drainage, drainage issues in a backyard or in a basement and stuff like that, especially to folks who are living somewhere stable for the first time that would jump out"*

> *"I get huge on his job recruiting, you know, I know that, you know, the ability to what, and this actually, I think has like regulatory outcome to, you know, whatever they can do to allow more justice impacted folks actually, like make a living through DNREC would be super helpful for us"*

> *"There are a lot of folks who are just doing this now, you're just doing engagement, doing advocacy. You know what I mean in the hiring process. Maybe create a, uh, a position for somebody who just does advocacy, you know, just does outreach in the public health, or in the environmental health, or what in whatever context. Um, don't doesn't have to be a scientist doesn't have to be an engineer"*

"You guys need help put some of us into play, give us the training, you know, for me, it's a matter of, like I said, mobilizing your local community and those people would feel comfortable saying, being a reference or a resource in those times when you can't have that direct communication as often or as heavy you now have someone you can shoot an email to in a mass, you know, or BCC and mass and say, hey, If you can get this out to your next your next community meeting, that would be great and then let us know the feedback"

"when you internally don't have people. Within your organization and leadership positions. Who make decisions about resources and policy when they are disconnected. To the community and or they don't take. An, and or they don't value that type of diversity of thought in that input. Then you have people in senior positions making decisions. That are often not the best decision. And often may be a resource drain because, because you're making decisions that are not going to be effective. So, what I find at the state DNREC included in it"

"Look at your demographic makeup. Do you, do you do you reflect diversity and inclusion because if you don't. Then that's where you got to start first. In my opinion. And then you build on to that, and you add on to that, because. Because when you when you hire the right person in those senior positions. Then they understand the community connection. And so, they're, they're, um. From an operational standpoint, they're going to develop their campaigns, their programs implement their projects in a way. That reflects that community engagement that diversity and inclusion, but"

The benefits of diversifying DNREC staff to represent the communities they work on behalf of would enhance trust and build the cultural competency to incorporate the community's collective knowledge in describing their positions, perspectives, and lived experiences (Brown 2007). This step in reformulating DNREC's perception of the community may result in a dynamic in which the general community is no longer willed upon but a strategic collaborator and partner in building capacity and capital.

Building Trust with the community through outreach and engagement

One of the ways our participants believed they could address the trust gap between DNREC and the EJ communities was to ensure that the community had access to all of DNREC's points of outreach and engagement. The lack of involvement in DNREC programs, policies, activities, and overall decision-making processes has increased the community's distrust of DNREC. While overall a less favorable outcome, DNREC's consistent willingness to engage the community creates opportunities to enhance trust through outreach and communication (Hesed et al., 2020). This exchange will allow DNREC and the EJ communities to share their diverse perspectives to further the cause of inclusive excellence. It will enable both parties to bridge the gaps in their values and address the negative perceptions that each may have of the other, thus increasing trust and accountability and ultimately extending "the knowledge-base used for decision-making" to empower EJ communities and add critical knowledge to DNREC processes (Corburn, 2007).

"DNREC has to just do more like, if they want more from our community, they have to do be more present. Um. Yeah, don't wait until someone figures out how to make a phone call there because I promise you by the time they figured out that they can call this place called DNREC. They have tried. Every other thing that they can think of"

"I'm guessing that the human health is probably one of the major sticking points and so I'm really trying to think about really listening to the experts who are in the community about what is they really want and then putting money and resources behind that because I'm sure there's no lack of ideas… and that becomes the challenging part and, you know, I know that there's many well-intentioned folks that work for that agency"

"If you want to give me, my town council, and more importantly, my town engaged or help them. Learn what's important to us and then come to us. With solutions or knowledge. We'll open up the door to you, will give you the platform. Whether that be a, a zoom thing. In this day of the pandemic, or whether that be, you know, at the fire hall or whatever. And it's like, you know, we're, we're going to get some of our people to go together"

"To really cultivate and develop stronger community ties, you know, it's like, it appears as though, and I may be wrong, but it appears as though you see them show up around a Project or an initiative, but. Because they are the environmental group, they're the natural resource group, you know is there a greater role for them to play beyond just those projects to really build community, trust, community involvement engagement?"

"So, if a liaison was to ask me what are the things that are important to you, we'd say, well, track speeding is one of the issues. It's really important to us. And I've been fighting it for years. Waterfall is another one. All right, well, let us put together some people and we'll get in touch with you find out a good time and we come down and like to talk to your community about this. We would, they would get people would come because they're now tailoring. They're listening to us they're not they're not throwing something out there. That's generic. It might be flashy and cool. And asking us to follow them. Yeah, we don't have the time. So, follow us if that's what you're really serious about…. What's important and then put together a few people. That will come and talk to us about what's important and then hear what we have to say about how we can and cannot take advantage of what you're offering. And then you can go back home and say, you know, towns like this can't do what we just suggested. But they could probably do that. And then we end up having a relationship of working on a problem that ultimately gets solved. That ultimately ends up having the community feel really good about DNREC."

"Materials they can't say to the community while we put up a monitoring station, and there's no more dust there than there is on Martin Luther King Boulevard and Wilmington. don't tell people that when people are living with that every day you

know it's like so you know don't believe your lying eyes. Yeah, yeah, so that's where they can start by being truthful. You know, and saying, you know, this is not within our scope of work. This is not what we can't address. This is what we can don't tell me I'm lying when I'm living it every day. Like, they told us for, for months and months"

"I mean, we and it's a joke that we make in offices, we make it to each other about white men in suits going into communities. They have negative experiences, but they keep doing it okay. To be the white man in the suit, right? In the room. If you've been there a bunch of times, and every people know your name and, you know, people's names, it's not it's not about your subject positioning"

"I know the relationship is not good. Now, the trust is not good from the community to DNREC from DNREC to the community. We need to fix that. We need for all of us to do our job and to do our job effectively, we need to sit down together. There was agreement, but… I'm not going to be at the table. It's only the staff of DNREC going to be there to plan how we do that. See what I'm saying? They don't get it. They just can't they don't get it. so somewhere somehow there's a gap and now our communication and our understanding of…of this of this work and what the needs are in the community"

"I think to be present and be involved and engaged in their own activities. For example, if you need to get to know someone, you spend time with them, you talk to them, you ask about what the challenge is, I think engaging and having a way to engage in different communities know about what challenging challenges they are facing, could be a great way to build trust. And also, when you show up, and your appointments, something you actually execute what requirements that that is very important in, in building trust"

"Yeah, I would say, you know, having open communication lines. Is the biggest thing that's why I say is unfortunate, you know um? Michael Accra used to come to one of the networks that we host And no one at DNREC replaced him. And that was a cool thing that was, you know, you could be able to talk to a professional in, like, a somewhat a casual way, um. And, you know, we could ask questions and, you know, sometimes it would be frustrating what's going on with the Delaware city refinery and you get that sort of bureaucratic and, like, oh, we're working on it. That kind of stuff. Uh, but obviously, like, they can't, they can't go out there and say, oh, the thing's going to kill you like, we're getting our jobs. Um, but, you know, just open communication"

"*Public hearings on any permit request I want to be required so that people that live in the communities surrounding these facilities, have a chance to understand what's being proposed and to voice their concerns or support for whatever is going to take place. So, a lot of cases again, this goes back to the reception of DNREC you start going behind the scenes and nobody knows what's happening so a chance to ask questions a chance to engage and interchange, and maybe even a chance to*

share ideas. Oddly enough in a lot of cases, people that live in these communities have been with it a long time and say, you know, they, they can come up with great ideas on have you considered doing X rather than Y is it possible? you know, then…then, so, I think that comes from trust , and so I believe that if the people have a chance to, at least make…make their voices heard and gain some understanding of really what's about to happen to them. Yeah, so the more interactive dialogue I think needs to be somewhere in that process."

As our participants expressed above, the importance of building trust between the community and DNREC will necessitate greater accessibility for the community. This includes developing inclusionary frameworks that move beyond the traditional expert-based decision-making process, which has historically silenced community input and engagement, created mistrust on both sides, and reinforced perceptions that each party lacks an understanding of the other. Ultimately, active participation and accessibility for EJ communities will create long-term relationships and encourage trust in DNREC decisions and processes (Jurjonas et al, 2020).

Transparency

One of the underlying themes that emerged in the literature is the lack of transparency in DNREC activities and processes. Many participants viewed DNREC as an organization that intentionally ignores EJ communities as they implement policies at their expense. This perception was reflected in the participant's negative experiences with their engagement, or lack of, with DNREC. It also points to a lack of clear communication from DNREC, which allows the community to feel that they possess minimal input in influencing participation processes and DNREC's decisions. This leaves the community in doubt over DNREC's role in the State of Delaware and who its primary clients are.

This perspective was captured through the four subthemes below.

Outreach conducted after decisions are made

One of the issues that nearly all of our participants addressed was how DNREC involves the community in its processes only after making a formal decision. The participants believed that the communities' voices are seen as secondary to political and business interests and are silenced as a result. The lack of engagement results in frequent decision-making that does not consider EJ community sentiment and hinders the chance to produce a genuinely beneficial policy for the community. The participants noted that the legal and bureaucratic practices embedded in DNREC processes must change to build the necessary trust to inform meaningful collaboration between the community and DNREC. Our participants remarked that outreach after-the-fact reflected long-held paternalistic attitudes that DNREC and other state agencies continue to hold towards EJ communities. Accordingly, the emphasis on transparency in active participation in the early stages of DNREC processes will ensure that further harm is limited and accountability and equity is reinforced.

"Well, number one, there needs to be…Um, committed and specific communication with the leadership within these communities and…and, I mean, from the onset

don't come up, don't develop a plan and then come share it with us and be like well here's our plan. That's not, we're not engaged in that. That's your plan and you're coming to sell us your thing. We want to be at the table to…to share our issues because we know our issues best and to help mold and build the plan"

"when something has kind of already been decided. Doesn't really require like, community engagement input, but the outcome will directly affect the community. They come and present, right? So, decisions have already been made but, you know, we're still going to be here. We're going to give you the information. We can't really do anything about it if you have issues with it, but we could take it back to our boss, but we're, you know, at least we're showing it to you"

"I would say I don't like showing up to meetings where you're asking me to give public comment and then I have no clue what you do with that public comment letter. That is the worst thing in the world. I am not coming to leave my job, comment, that's like asking me for my opinion, and then telling me that, well, I didn't really need that I'm just using it to check a box. And that is a problem. I cannot get people to come and give their public opinion, if they say they've done this before, and they can't see what you've done with that public opinion. So that's, that's the barriers, I'd say"

"Yeah, because there's always a project in the works somewhere. What happens is community don't know about it. Until they show up to break ground, or they start digging holes and then, you know, at that time. Plans are going full, full throttle and now the community is pushing back because. Well, wait a minute, we don't want that or we didn't see it because they're, they're not aware"

"You know, especially for these permanent decisions, and even the air monitoring program, you know, they do it and then they describe it to, you. And, you know, everybody wants to be involved in the conversation. six months earlier"

"they're still kind of dealing with their past approach because they recently did an air study and it was, you know, DNREC going out doing it on their own. Um. You know, seeing it's a community need to understand the air issues, but they didn't really involve community members in the study. Finalized it (the data), very late. Couple years late, actually, and then presented the results, you know, there really wasn't an ability to, to kind of go back and check on things that the community had an interest in, it was kind of we're going to do our thing and then tell you about it instead of working together"

"The perception is a lot of times they were hiding that they are not being honest about things and that that the only time that DNREC will pay attention to things is if they if there's an emergency there's a disaster or there's a lawsuit that gets their attention, but it shouldn't come to that."

The sentiment expressed above maintained that public participation must be linked to the earliest point of the engagement process and must be integrated into every part of the decision-making that will directly impact the community. The knowledge gaps that our participants experience entrenched a perspective that DNREC lacks transparency and that the organization holds a bias towards EJ communities.

Language (Spanish, Haitian Creole)

One of the subthemes that emerged in the data was DNREC's limited capacity to communicate in languages other than English. Our participants emphasized that DNREC's minimal outreach to communities whose first language is not English are often settled in frontline communities (Egland and Kelley, 2020) dealing with multiple environmental challenges. Our participants maintained that it is critical to introduce DNREC processes and activities to these communities in order to participate in two-way conversations in the targeted community's language. This, the participants maintained, would ensure that policies emanating from DNREC that directly impact these communities are understood and engaged. This means having designated individuals working on community initiatives, regulatory notices, and public engagement in the community's preferred language.

> *"We have two asks, and one is that they provide information to members of the community about what's coming and in Spanish, and there are some English-speaking people there as well as some Haitians who probably speak Creole, but it's primarily Spanish speaking population. We think they should inform them of what may be coming and we would also like them to provide hearings in Spanish as well as in English. Right now, I think they haven't advertised hearings yet. But traditionally, their hearings are only held in English. And the members of that community would not be able to understand what was going on"*

> *"as you get out into the southern part of the county, as I said, things are more spread out and communities are more disparate and also, you've got communities there that English is not their first language so, I think, you know, as DNREC looks at outreach, uh, you know, uh what newspapers, are you advertising in? You know, are you advertising in Spanish language newspapers that exist in Delaware for those communities or…or French, you know, Haitian communities and so does your communication target the communities that are being affected whether it be social media, whether it be print media or whatever it is, that, you know are you sure that you're not just advertising in two newspapers, you know, which might be anything that nobody reads anymore and so, is that outreach targeted to the demographic that you're looking to engage. So, it lets me know, we're being more specific about that I guess is one option"*

> *"my specific asks are that they educate the community and that they provide hearings in Spanish for that community, but beyond that, I think they need to get out of their offices and meet people… I mean, I know it's difficult in the time of COVID but get out of their offices or at least get on Zoom and meet some people and listen to their concerns"*

"public notices are useful. I know that they are required by law before they make certain decisions to advertise. And I think two general circulation newspapers, I don't believe that they typically do that in any Hispanic publications. I'm only aware of one statewide Hispanic publication, and that's only in Delaware. And I don't know how widely it's circulated in Sussex County. So, public notices in newspapers and on web or news sites might not reach this community. But I think that's important"

"I visited that community and of the 40 some people that I spoke to, nearly all spoke primarily or only Spanish. And they are not aware that a methane refinery is coming less than half a mile from their homes. So, we would like DNREC to engage those people and help communicate with them about the environmental threat that's coming to their neighborhood. But we have not seen any sign at all DNREC is interested or concerned or involved"

The sentiments addressed by the participants signify the importance of DNREC investing critical resources to ensure they have the language capacity to deliver its services to the minority communities in the State of Delaware. Participants also expressed the need to integrate linguistic diversity in all activities and services to ensure full participation. Participants perceived the language provision to bridge the trust and transparency gap that DNREC has with the EJ community. Especially, when regulatory measures based in the linguistic community mandates that the community has input in engaging with DNREC's directives. The language imperative must be addressed adequately to ensure that a large part of our community is not being ignored, isolated, and left behind.

Balance community and business interests in decision making:

Another major subtheme that emerged discussed the conflict of interest between DNREC as a political entity seeking balanced interests between the needs and safety of the community and "big business". The common perception was that DNREC has always leaned towards the interest of big business, creating further distrust of DNREC. The historical impact of industry on many EJ communities in Delaware has had its cumulative effects and, thus, continues to impact the community negatively. In fact, a common thread throughout the interviews maintained the perception that the activities and processes that DNREC employs are tilted in favor of big business and opposed to the communities' interests and overall welfare.

"when you're left to your own devices, you always find a loophole, right. And we're seeing that more and more. Industries, especially, because they tend to be placed in communities that don't have as much political capital, they get away with not being more careful with their actions. And as a result, their enforcement actions are negligible, because who's going to come in, right? And unless somebody calls and makes a complaint, they usually don't even show up (DNREC). And to their credit. I know, they tend to be understaffed. But if it's true that they have resources, how are you understaffed, so why aren't you showing up? So, yeah, that's a concern.

And there's been stories of folks. Community members who are working in industries that have folks making complaints…will call and say,…we were informed that they were showing up. So what good is that? Right. Now, you know, to clean up, like, you know, you're going to have a party while your parents are gone. When they're about to walk in the house you clean up before they show up, right? So, it's that same type of feeling"

"I mean, there's a few reasons that I feel like DNREC, you know, ultimately approves a permit, even if it's controversial. Yeah. public interests, right, like some kind of compelling public interest, which is statutorily allowable pressure from the governor's office. Or, because legally they don't have a leg to stand on to deny it"

"I have submitted Freedom of Information Act requests to DNREC to get records of their communications with an industry partner. And the person that is communicating with DNREC (on behalf of industry partner) is their former secretary. So, he has a lot of personal relationships and professional ties with DNREC…… So, I feel there's a little bit of insider trading, it isn't the word …. but there's, there's definitely, a conflict of interest at work"

"The environmental violations are interesting and worth talking about because it's one of those things…where you just wrote 10 tickets in South Wilmington and now a new industrial facility wants to come in South Wilmington… Isn't that a problem? Like, aren't you guys sort of stressed? I mean, it puts them in an incredibly difficult position or they, I mean, they will get sued by industry. It happens all the time. I mean, that's their biggest fear. Is you know, they reject a permit and then industry sues them for it and they have to spend all this money. So, I definitely, you know, sympathize with that situation"

"Why am I (the community) taking on this responsibility? So, you know, that's kind of the general rule of, like, you know, they're always putting everything on the residents. You have to come to this public hearing, you have to understand these permits and the structure, and you have to file this appeal. Hmm, how do I do that? So, you know, I just, in general, I think that would be an easy thing to consider. Like, who are you putting the pressure on and are you putting the same pressure on industry that you're putting on us…all these residents? And, you know, industry is making money, our residents aren't making money off living next industry"

"My perspective and I think the perspective of many in the environmental justice/overburden communities is that DNREC's goal is to facilitate economic growth in the state. That's the primary goal. If somebody wants to come in and build a facility and create jobs, then, you know DNREC's role is to enable that process and if in the process of doing so, the health and welfare of the people that are impacted are secondary tertiary to that whole initiative… Oh, and it appears that, you know, there's a lot of effort to placate people but not much effort to protect people"

The perception that DNREC overlooks the community in favor of big business interests reflects the lack of communication that DNREC has regarding their specific roles and functions in the scope of their policy frameworks and relationships with industry. The EJ communities call for fair treatment to not bear the disproportionate "share of the negative environmental consequences resulting from industrial, municipal, and commercial operations" (EPA, 2021) has ultimately been expressed by our participants as being ignored and dismissed to ensure that big business always comes before the welfare and overall wellbeing of the community.

Engagement needs to address previous trauma

One of the significant subthemes to emerge was the emphasis that DNREC must build relations with EJ communities who have experienced trauma due to their marginalization by socio-political and economic actors within the State. The skepticism that emerged in the interviews regarding DNREC's engagement and outreach reflected the lack of trust our participants expressed surrounding the neglect of their communities. In building trust and transparency and pursuing honest collaboration, the participants have maintained that historical wrongs and the trauma experienced must be dealt with and acknowledged before forging new partnerships on the ground. Thus, DNREC must recognize the cumulative impacts that have drained the EJ communities of resources and have physically situated them as frontline communities.

> *"DNREC has inflicted so much harm or allowed so much harm to be inflicted upon this community that there needs to be some kind of healing process. Or some kind of reparation or something, but they're not just going to start. ... that's not going to happen. They have promised that they're going to do better. We've, we've walked that road too many times and how (did) that work for us?"*

> *"I think even if DNREC today just said, look, we're going to stop doing all the bad things, we're going to start doing all these, these positive things. It's going to take, you know, a couple years or, you know, at least a year to kind of start to repair those. There's bad feelings and trauma that the community experienced in the past."*

> *"if they made an effort to respond to me and the group that I represent. I would have to do a little bit of forgiving and get over my grudge, which is fine. I'm willing to do that. I don't know if everybody would be willing to do that. But, but I would be willing to do that in the interest of the community that I'm trying to serve. But they would at least have to show some initiative and reach out"*

> *"I would say first and foremost, you have to do a self-assessment. Have you failed the community in terms of your responsiveness to their concerns? So, you have to do an inventory of what you've done. That's to me. Step number one. Do an inventory of.... what concerns the community raised that have not been addressed that have not been dealt with. Because where I sit. You cannot build trust, if you don't address that stuff right there. So, you start with your, you know, doing an inventory of where you are, and an assessment of what you've done. And, um. And*

then to be quite honest. That question has to be asked of the community members in terms of what do we do. But my history and my experience tells me that the community doesn't want to have that conversation with you if you have failed to acknowledge and address the things that they have expressed to you... 5,10 years ago, 6 months ago. So, an acknowledgement of the past. You know, policies, actions that may have, you know, even if they stand by those positions, but understand"

"With people that have been damaged by relationships with, you know, not to say, just DNREC but the State in general, I mean, there's just been a lot of negligence of underserved communities over the years. And, um, it's going to be a tough call for them to kind of work through all that. But I think they can if, if they just continue to show up and let the community kind of guide them, uh, in terms of what works for engagement"

The views expressed by the participants suggest that outreach and engagement must be built on respect and the varied traumatic histories that these communities experienced in the State of Delaware. This will necessitate that DNREC pursues an honest, collaborative approach to engagement that works by assessing past relations, working collaboratively with the community, reinforcing two-way communication practices, acknowledging the community's pain and identifying a set of shared norms and values to build on in the future.

Survey Analysis and Findings

Introduction

The purpose of the Public Engagement Individual Level Survey is to understand community members perceptions of DNREC outreach and engagement strategies in their communities, especially communities that are identified as overburdened or underserved. Although DNREC's current methods (i.e., public meetings/public notices/public hearings, regulatory development, inspection) and tools of community outreach and engagement (newspaper/TV/radio, social media, direct mailings) are vast, the general consensus amongst the agency is that these measures must be enhanced to improve the quality of life for the communities greatly impacted by environmental hazards. The data collected from these surveys shed light on the effectiveness of DNREC's current outreach and engagement strategies and provide guidance on how their current efforts can be refined and further developed to assist all Delaware communities.

A multistage sampling technique was employed. Data collection was conducted through a variety of means that include virtual distribution through an online management system (Anthology), and through in-person distribution and administration. Distribution of the survey was conducted through electronic communication to state representatives, county officials and town managers and city level as well as through community leaders and their respective organizations. Sampled potential respondents were contacted via email or through telephone and listservs, fliers with the use of a QR Code and through social media posts. The research team, including student interns, physically distributed surveys to sampled community centers, civic associations, medical centers, retail centers, charitable/community events, local churches or religious centers, and in residential underserved neighborhoods. Additionally, the research team relied on community leaders and their affiliations to also assist in the distribution and collection of surveys. Survey results were calculated, tabulated and analyzed using descriptive statistics and cross-tabulations. The survey results are organized and presented using the following categorizations: 1) Familiarity with DNREC (and its divisions), 2) DNREC Communication, Tools of Outreach and Community Engagement Preferences and 3) Community Perception of DNREC and their Engagement Efforts.

Sample Characteristics

Out of a total of 860 respondents, 785 completed the survey. Forty-eight percent identified as female and 45% identified as male with the remaining indicating other gender categories. Respondents aged 35-44 years were about 23% of the sample while respondents aged 55 years and above constituted 21% (Figure 1). Regarding the racial composition of the sample population, a majority (46.5%) of the sample identify as Black or African American, which is followed by Hispanic (21.78%) and White (12.23%). Survey data was collected from Delaware's three counties: New Castle, Kent and Sussex. Delaware counties identified as overburdened, or underserved were oversampled. New Castle County residents compose 49.94% of the sample followed by Kent County residents (27.01%) and Sussex County residents (23.06%).

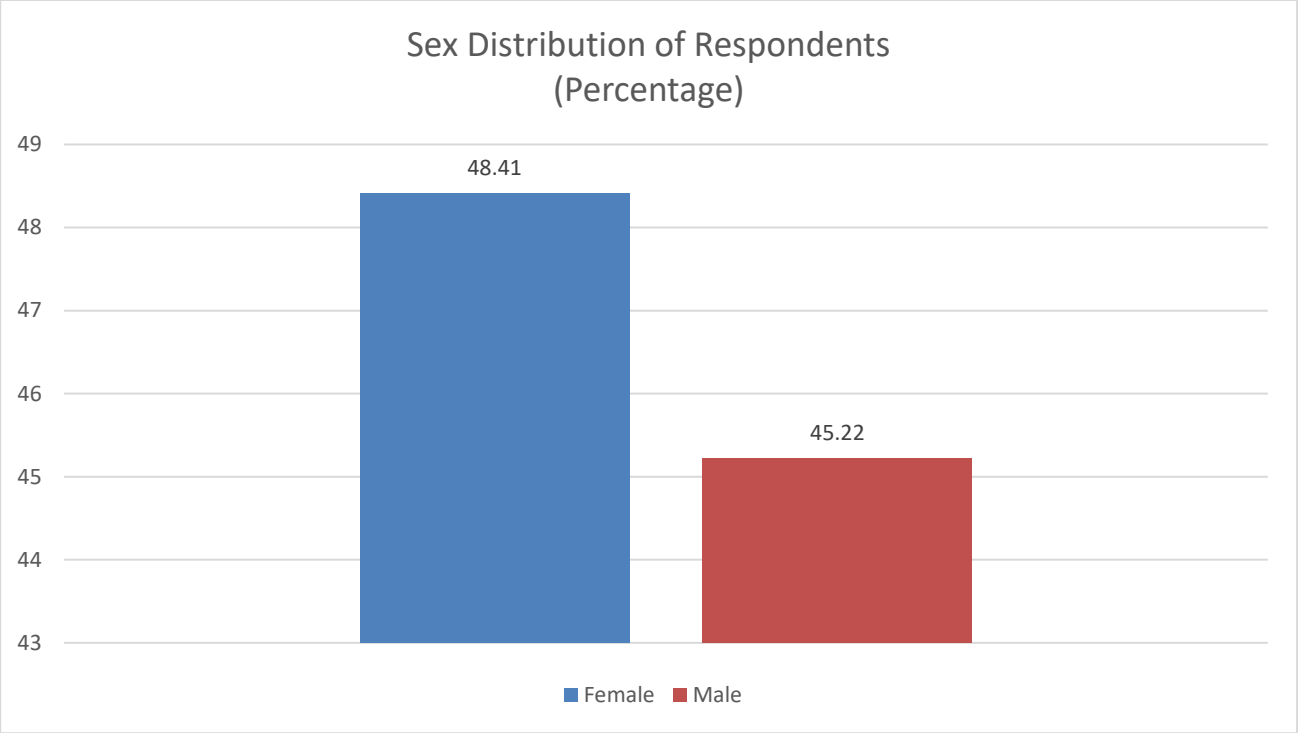


Figure 10: Sex Distribution of the Respondents

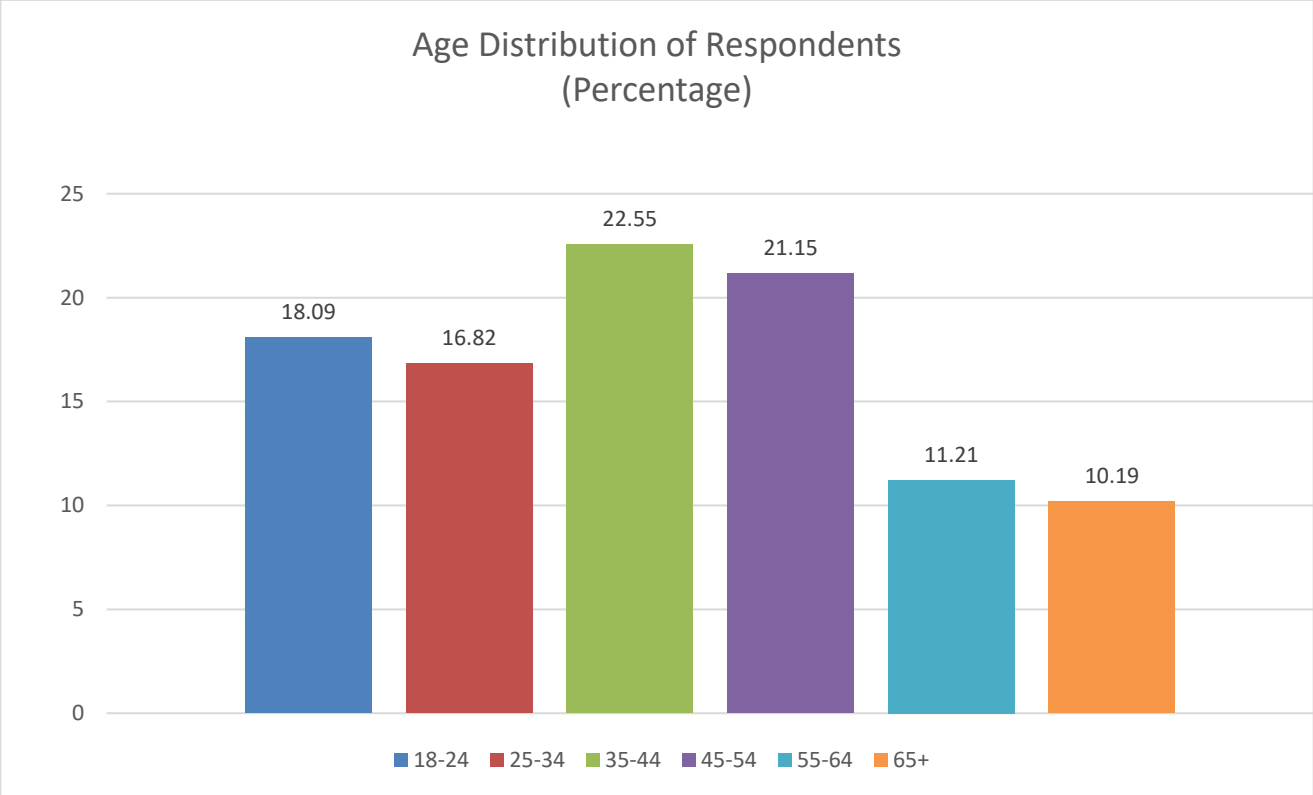


Figure 11: Age Distribution of the Respondents

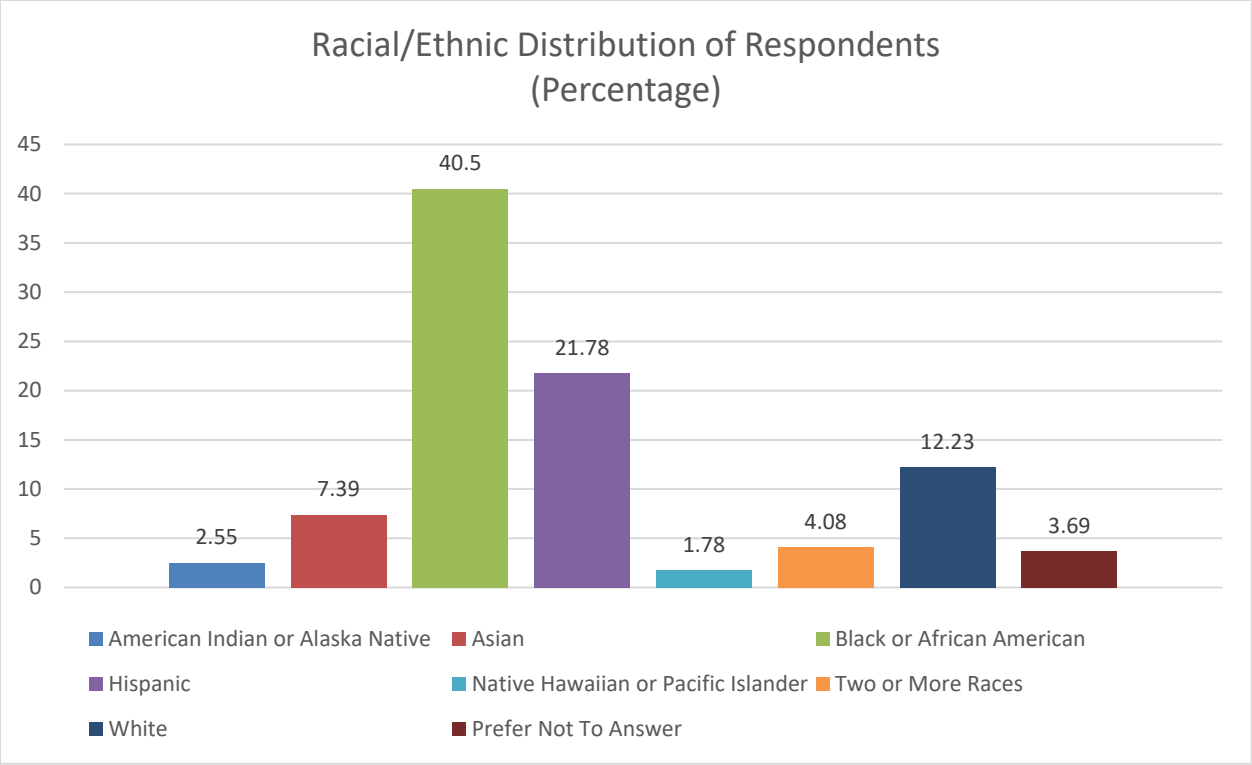


Figure 12: Racial/Ethnic Distribution of Respondents

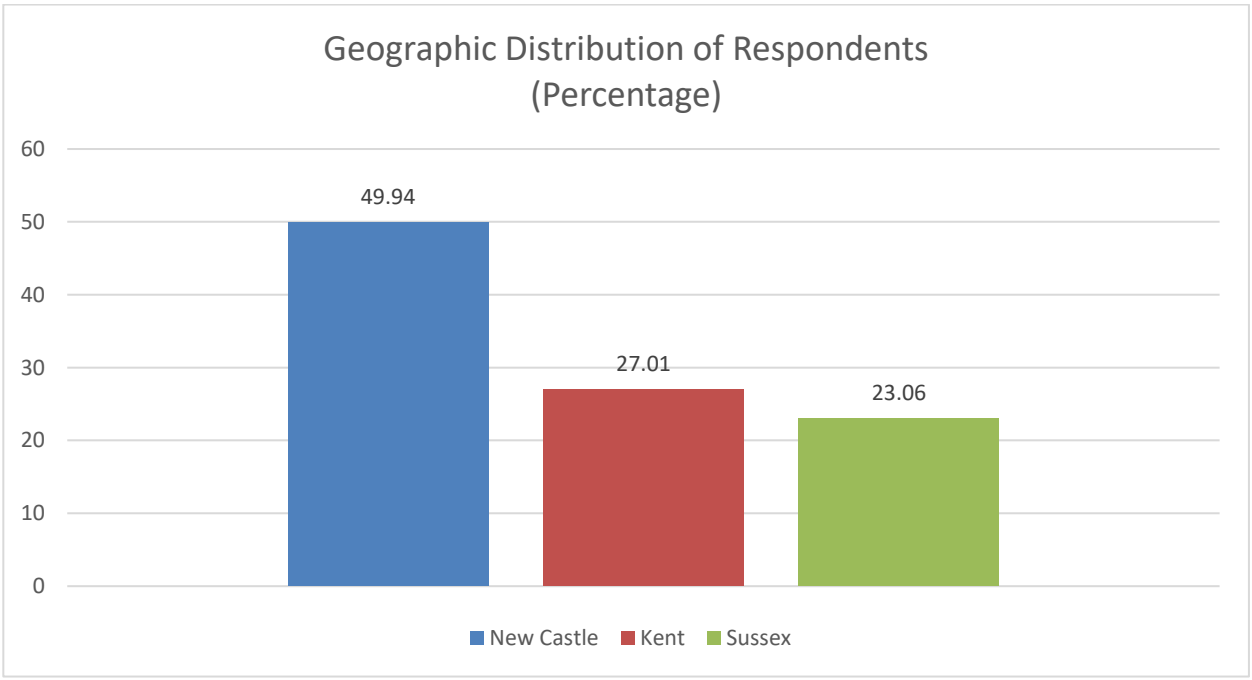


Figure 13: Geographic Distribution of Respondents

Familiarity with DNREC and its Divisions

Basic awareness, familiarity and understanding of DNREC and its divisions are important factors to take into considerations when evaluating DNREC's current methods and tools of outreach and engagement. The survey provided information about DNREC for respondents who had not heard about the agency in order to seek respondent's preference for outreach methods. About 61% of respondents reported that they did not know of DNREC. Out of the 158 respondents who reported to have ever participated in or been involved in any of DNREC's activities or programs (e.g. public meetings, inspections, outreach events, education programs, volunteering), the distribution of varying forms of contact with DNREC among this subgroup include regulatory activities (55.8%), public outreach activities (59.1%), technical assistance services (33.1%), education program (40.3%), volunteer programs (49.4%), and sales activities (53.3%).

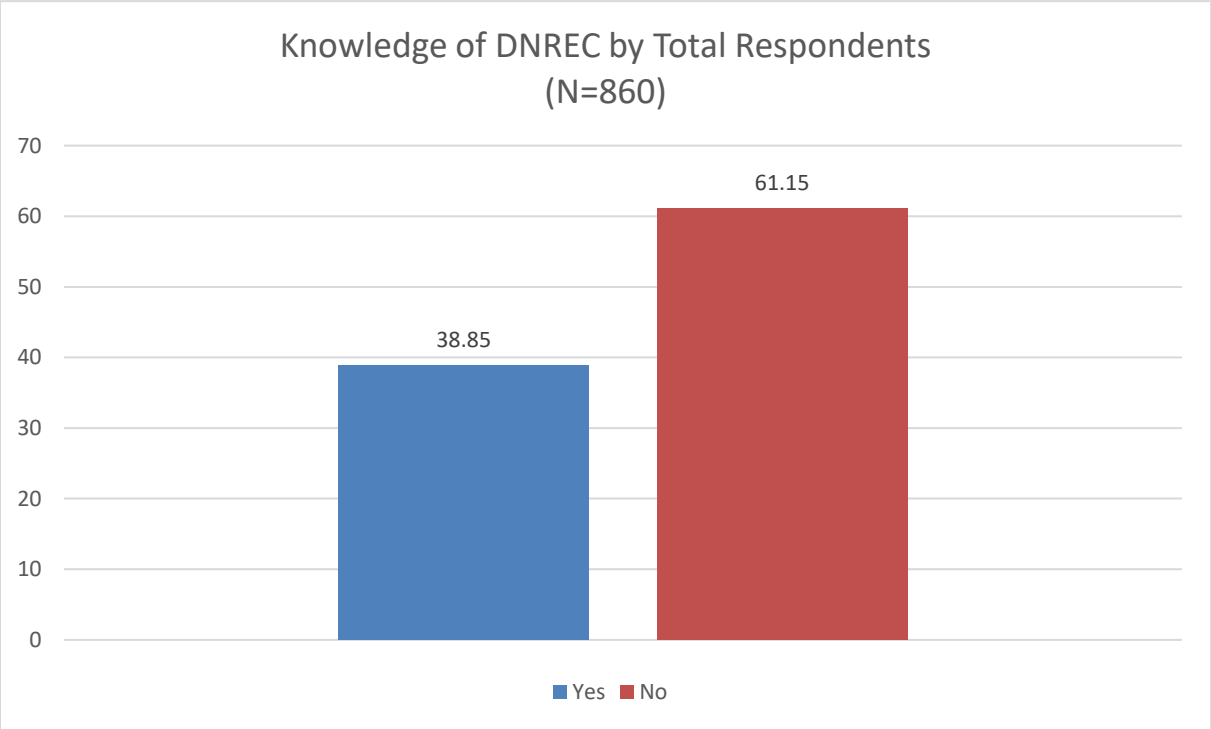


Figure 14: Knowledge of DNREC by Total Respondents (N=860)

DNREC Communication, Tools of Outreach, Engagement Preferences

Survey results show that in the last six (6) months, a substantial percentage of respondents have not encountered or recognized many of DNREC's current tools or methods of outreach and engagement. Of the 785 respondents, 88.41% (694) have not seen/read any DNREC advertisement in any newspaper while 95.29% (748) and 94.14% (739) have not heard any DNREC advertisement on any radio station or TV channel respectively (Figure 4).

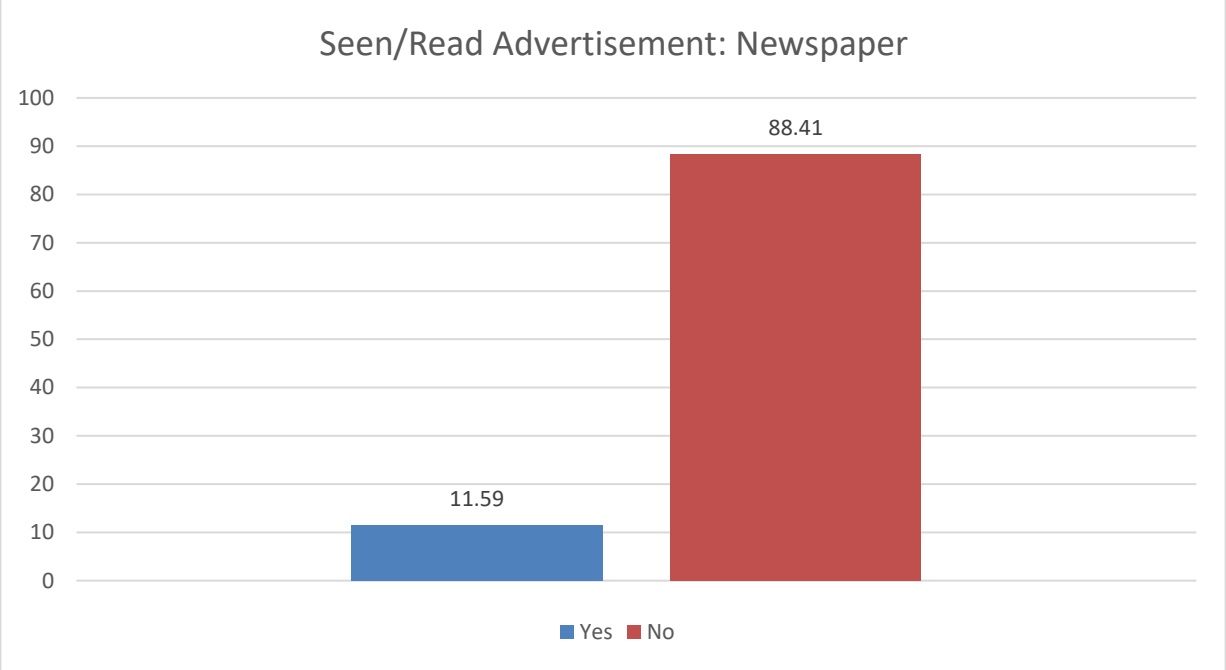


Figure 15: Percentage Distribution on DNREC Outreach Tools – Newspapers, Radio, and TV

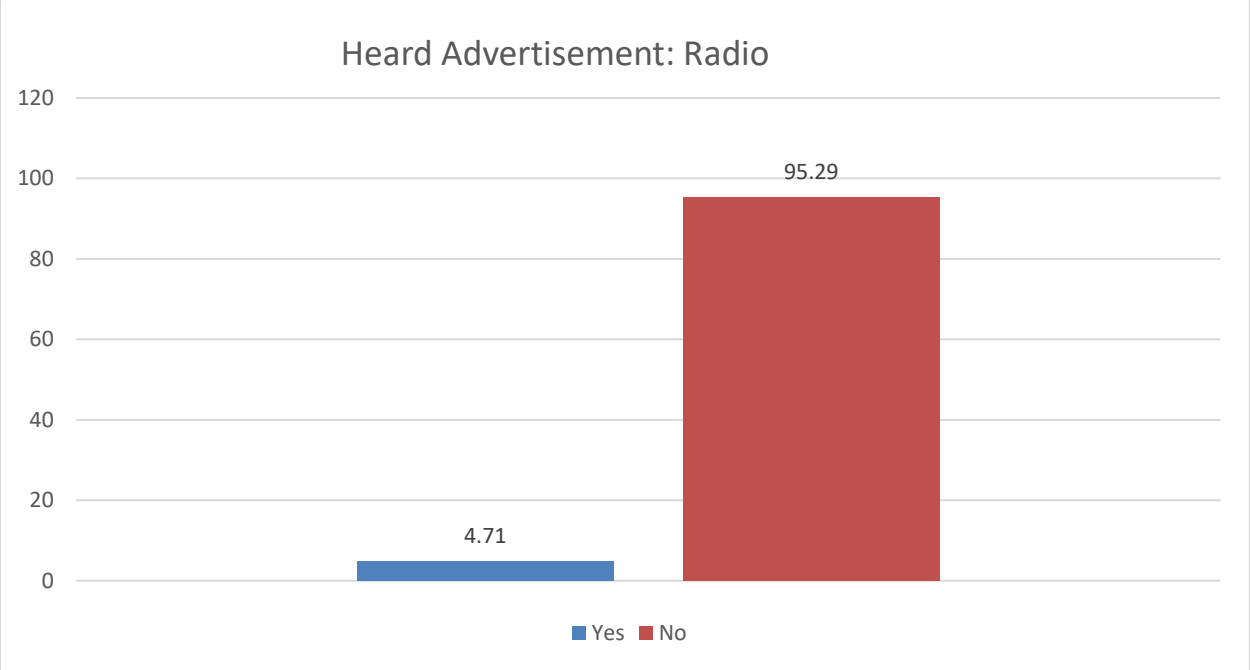


Figure 16: Percentage Distribution on DNREC Outreach Tools –Radio

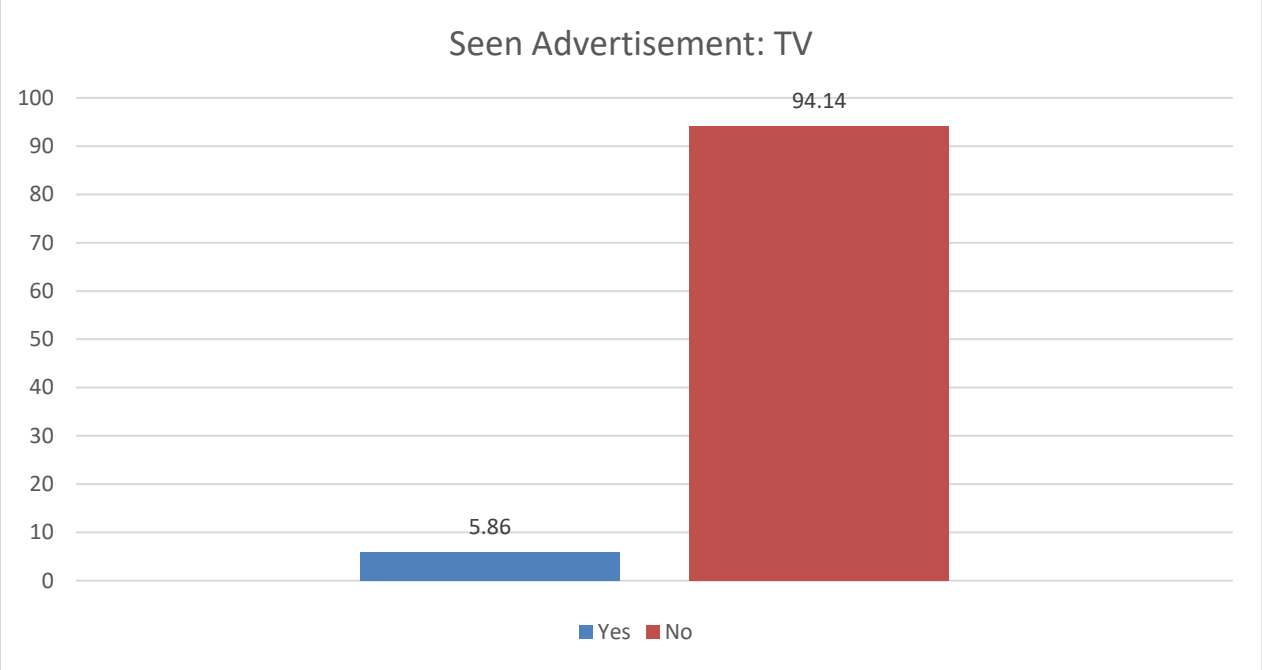


Figure 17: Percentage Distribution on DNREC Outreach Tools –TV

These findings suggest that the traditional forms of outreach, communication and engagement are not effective in for most groups and communities, especially those communities designated as environmental justice communities or traditionally underserved. To expand outreach, communication and engagement through alternative means to reach a greater number of communities, DNREC employs public advertisement through various social media platforms, public calendars and on their website. Despite this attempt to provide outreach to larger audiences, findings reveal that 86.75% (681) and over 90% of respondents have not seen/read any DNREC advertisement on any social media platform or public calendar respectively.

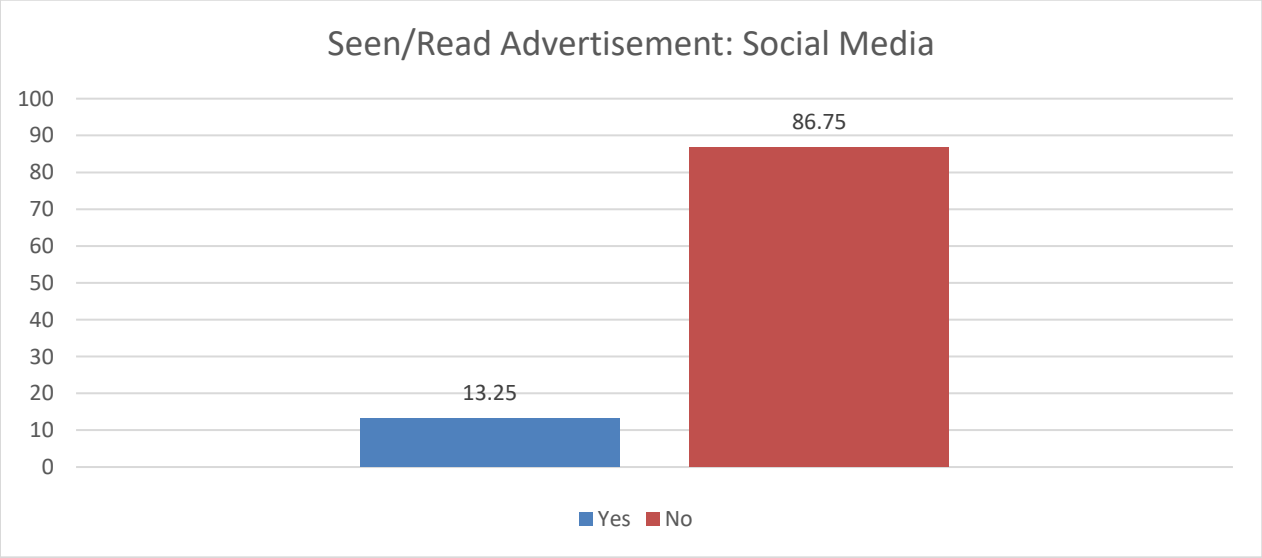


Figure 18: Percentage Distribution on DNREC Outreach Tools –Social Media

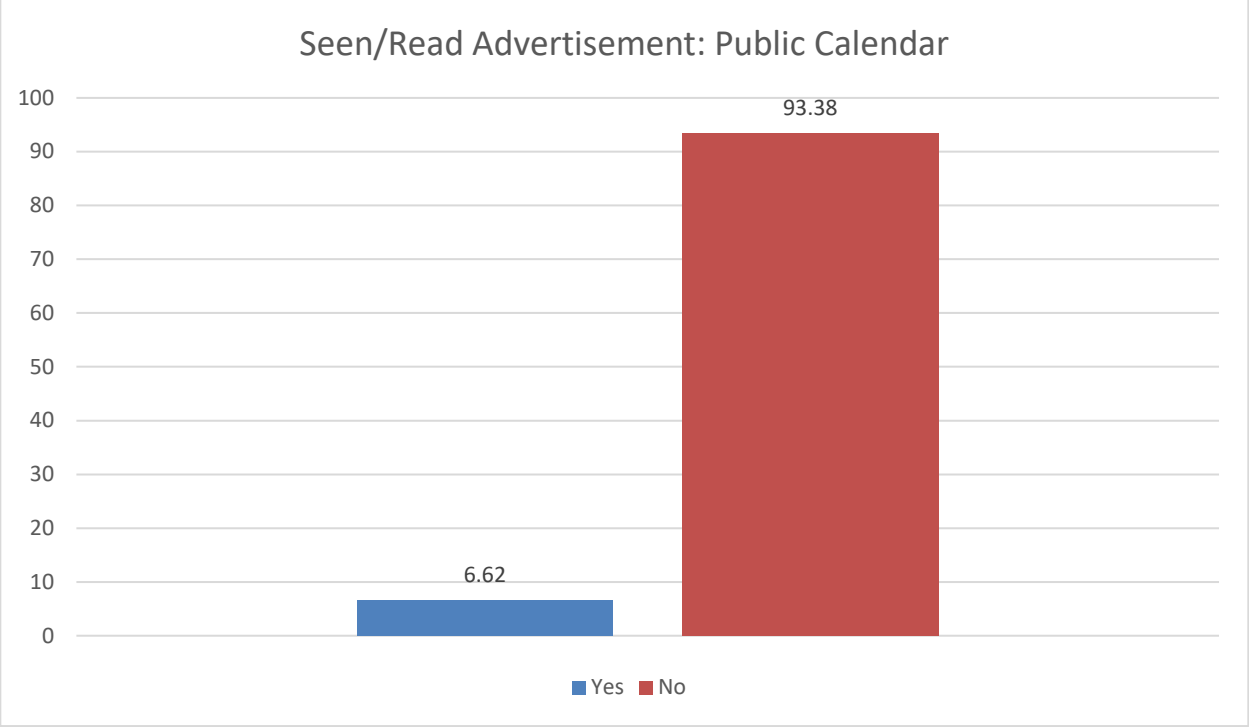


Figure 19: Percentage Distribution on DNREC Outreach Tools –Public Calendar

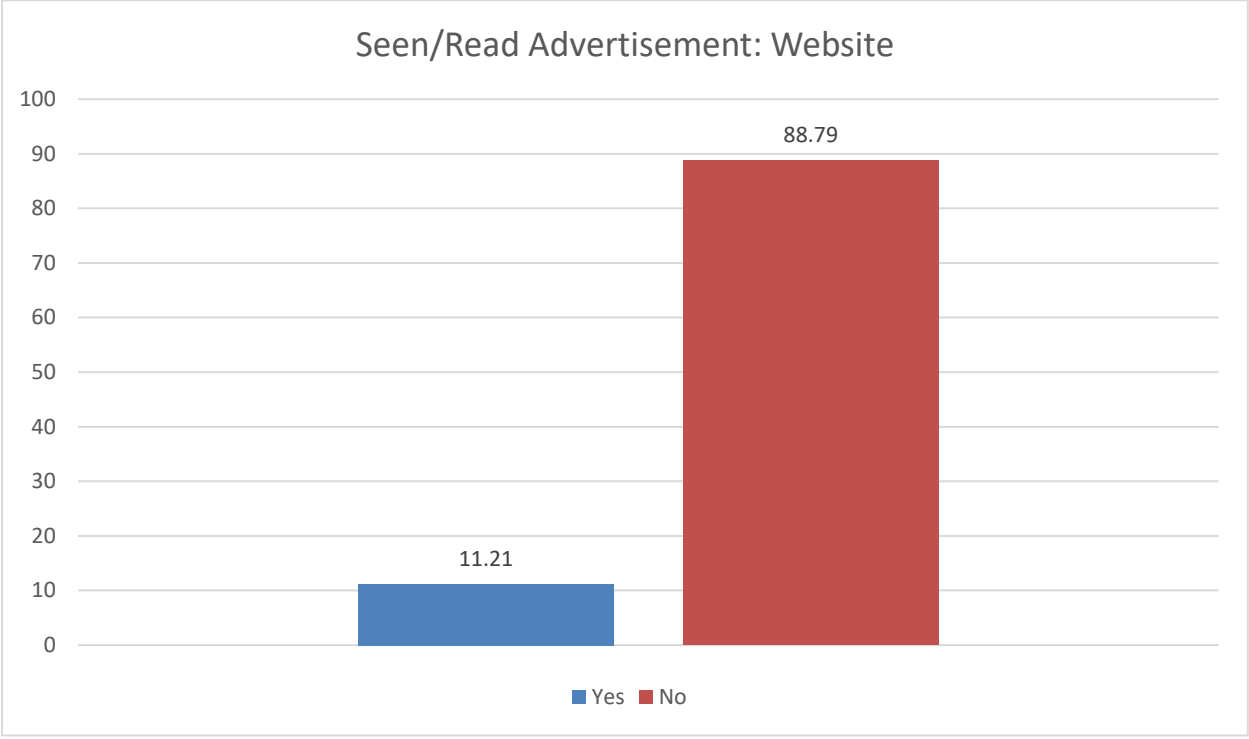


Figure 20: Percentage Distribution on DNREC Outreach Tools –Website

Although the research shows that social media platforms that involve two-way interactions is ideal for communities that seek assistance, an alternative approach for utilizing these public platforms is warranted to capture a greater number of underserved communities.

Lastly, additional methods of outreach yield similar results. For instance, 91.21% (716) of respondents have not seen/read any DNREC advertisement on any flier and less than 10% of respondents reported to have seen/read any DNREC advertisement through a receipt of email via their listserv or attended a conference or webinar organized by DNREC. Most importantly, however, only 6% of respondents reported to have had a DNREC representative visit or hold a virtual meeting in their respective communities. In-person communication is another approach that communities believe will bridge the divide between governmental agencies and the communities they serve. Consistent with the research, communities will like to have a strong, recognizable and consistent presence in their communities who are interested in addressing their environmental concerns.

Given these findings on DNREC's current tools of communication and public outreach, the survey prompted respondents to rank their preferred methods of communication and outreach regarding services and activities by DNREC. Participants had the opportunity to select their top three preferred communication method. The findings show that the most preferred method of contact with the highest response rate was social media (21.4%) followed by Television (16.1%), and direct mailing (10.5%) (Figure 6). Regarding respondents preferred methods of knowing about environmental issues in their respective neighborhoods, the most preferred method with the highest response rate was social media (21.7%), followed by Television (18.3%) and flier and/or direct mailing (13.5%)

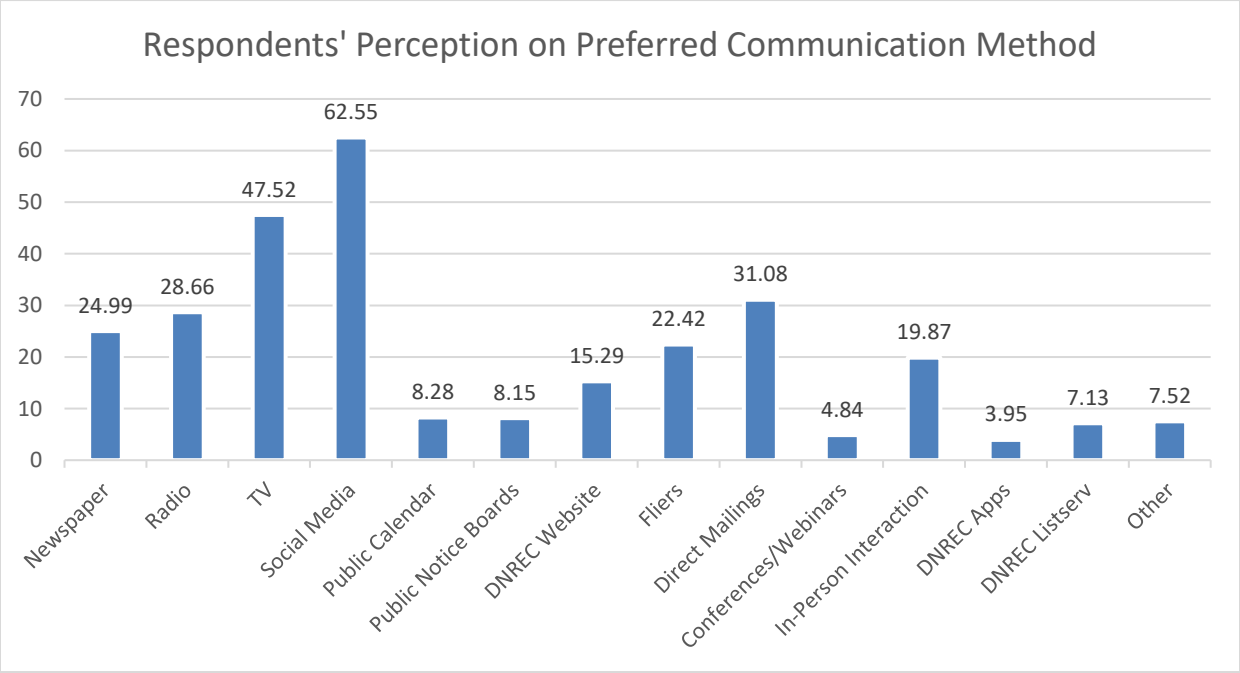


Figure 21: Respondents Perception on Preferred Communication Method

Respondents also report on the one communication tool they deemed most effective for their respective communities. Consistent with previous results, most respondents prefer social media. Findings show 31.85% (250) of respondents prefer social media, 19.36% (152) prefer TV and 10.06 % (79) prefer in-person interaction (Figure 7). Additionally, respondents were asked to rank the most effective communication media for DNREC information dissemination. Results show that the communication media deemed effective with the highest response rate was social media (23.1%) followed by Television (17.2%), and direct mailing (13.2%).

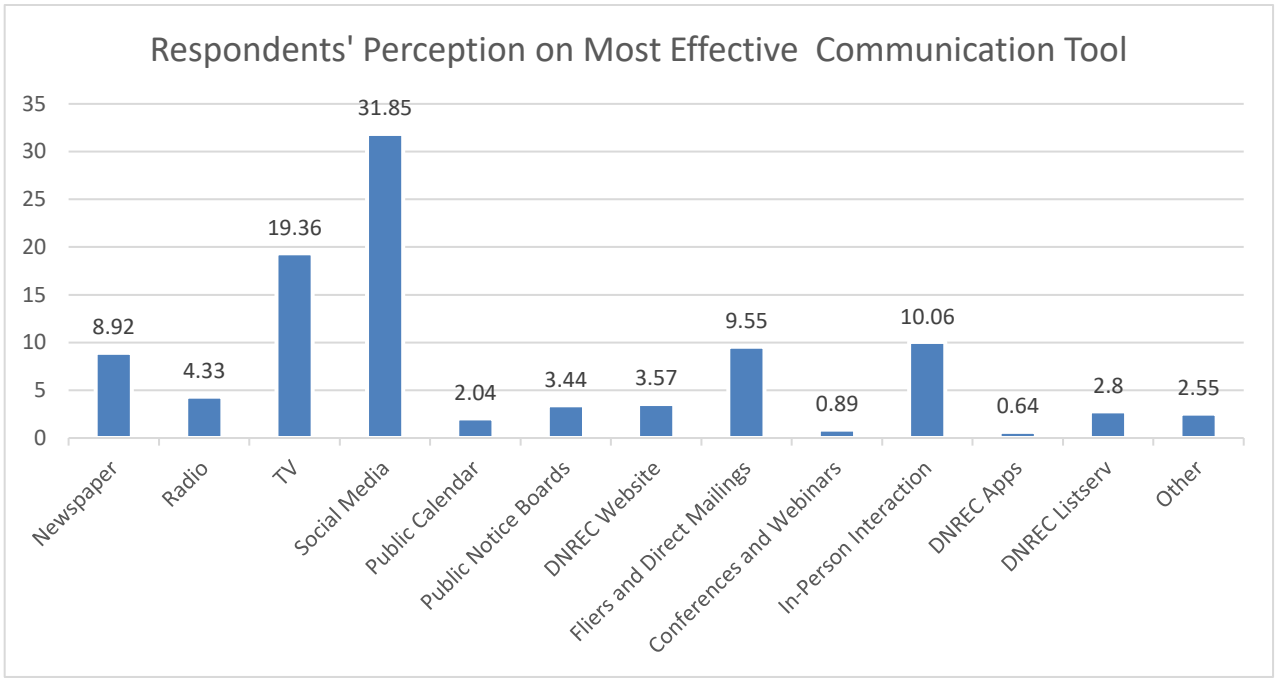


Figure 22: Respondent's Perception on Most Effective Communication Tool

Community Perception of DNREC and their Engagement Efforts

An overwhelming number of respondents mentioned that they were unfamiliar with DNREC, its divisions and its duties. However, stark differences emerge demographically with regard to race/ethnicity, age and geographic location across the state. White respondents composed the overwhelming majority (77.08%) of respondents who mentioned that they are familiar with DNREC compared to 38.36% of Black/African American and 9.94% of Hispanics. At the county level, Kent County respondents are most familiar with DNREC with 45.75% compared to 38.01% from New Castle County and 32.60% from Sussex County. Regarding age differences, 61.36% of the 55-64 age group is familiar with DNREC, followed by 58.75% of the 65+ age group, then the 45-54 age group (53.01%). Clearly, the older respondents are more familiar with DNREC compared younger respondents aged 40 years and below.

Communication Preferences and Place of Residence

Further analyses of these findings provide additional insight into the groups and locations that require enhanced outreach and engagement efforts from DNREC. Since this survey seeks to address the limitations in current DNREC outreach and engagement endeavors, it is important to understand the preferred mode of communication for each of Delaware's three counties. This will provide insight into how DNREC can restructure their approach and tools of outreach, communication and engagement to adapt to the needs of specific counties. In turn, familiarity with DNREC, its divisions and its duties and responsibilities can expand across the state. This analysis is not seeking to suggest a one size-fits-all communication strategy within counties, but to show variation across counties. We recognize intra-county difference.

Services and Activities

The survey questioned residents on their most preferred way that DNREC can contact them about the services and activities that they provide. Consistent with the literature, social media was the primary method of communication of respondents from all Delaware counties, suggesting that social media platforms seem to be the best way to reach most groups regardless of their geographic location in the state. Traditional forms of outreach, communication and engagement, which include TV, newspaper, radio and direct mailings were also preferred. Respondents from New Castle County indicated in order of importance their preferred method of communication regarding services and activities as social media, TV and newspaper (Table 1). For Kent County respondents, the scale of preference was social media (21.70%), TV (17.04%) and radio (9.81%). Sussex County respondents indicate social media (23.35%) direct mailings (16.01%) and TV (15.07%).

Table 4: Preferred Form of Contact for Services and Activities by Place of Residence

City or Town	New Castle (%)	Kent (%)	Sussex (%)
Newspaper	9.93	7.72	6.03
Radio	9.58	9.81	10.36
TV	16.43	17.04	15.07
Social Media	20.39	21.70	23.35
Public Calendar	2.99	4.34	0.75
Public Notice Boards	2.64	2.89	3.01
DNREC Website	7.56	3.70	2.07
Fliers	5.36	8.84	11.30
Direct Mailings	9.40	8.36	16.01
Conferences or Webinars	1.49	2.73	0.75
In-Person Interaction	7.03	7.23	5.84
DNREC Apps	1.49	1.45	0.94
DNREC Listserv	4.22	0.96	0.38
Other	1.49	3.22	4.14
Total	100.00	100.00	100.00

Environmental Issues

Respondents were also asked to rank the top forms of communication, outreach and engagement as it pertains to environmental issues in their neighborhoods. Social media, again, was the preferred mode of outreach. Findings show that respondents from New Castle County prefer to be contacted through social media (21.62%), TV (17.84%) and newspaper (11.42%). Kent County respondents rank social media (20.90%) as the most preferred followed by TV (18.97%), and fliers/direct mailings (14.31%). Sussex County respondents prefer social media (23.45%), fliers/direct mailings (19.51%) and TV (18.95%) in that order (Table 2). Although social media continues to rank as the most preferred method of communication for each of the three counties, the remaining tools of communication, were similar across geographic location. This suggests that these communication tools are considered effective and can be continued to be employed.

Table 5: Preferred Form of Contact for Environmental Issues by Place of Residence

City or Town	New Castle (%)	Kent (%)	Sussex (%)
Newspaper	11.42	8.20	6.19
Radio	10.02	10.45	9.57
TV	17.84	18.97	18.95
Social Media	21.62	20.90	23.45
Public Calendar	2.02	4.98	1.31
Public Notice Boards	2.72	3.70	4.69
DNREC Website	7.12	3.70	4.69
Fliers and/or Direct Mailings	10.37	14.31	19.51
Conferences or Webinars	2.20	3.05	1.50
In-Person Interaction	7.73	6.27	8.26
DNREC Apps	1.32	0.96	0.38
DNREC Listserv	3.87	0.48	0.38
Other	1.76	4.02	4.13
Total	100.00	100.00	100.00

Effective Communication Tools

As previously mentioned, depending on communities' locales, there are certain methods of communication that are deemed more effective compared to others. Respondents were asked to select one communication tool that they considered to be most effective for their respective community. Social media continued to be the most effective and primary mode of communication for each of the three (3) counties. Findings for the top three effective communication tools reveal that New Castle County respondents ranked social media (31.63%), TV (21.68%) and in-person interaction (11.99%) as most effective (Table 3). Quite interestingly, in-person interaction was one the primary modes of communication this county preferred. This is consistent with our findings in the key informant interviews and the town halls. On the other hand, Kent County respondents ranked social media (35.85%), TV (18.40%) and newspapers (11.79%) as most effective. Lastly, Sussex County respondents ranked social media (27.62%), fliers/direct mailings (21.55%) and TV (15.47%) as most effective.

Table 6: Perceived Effective Communication Tools by Place of Residence

City or Town	New Castle (%)	Kent (%)	Sussex (%)
Newspaper	7.14	11.79	9.39
Radio	3.06	7.08	3.87
TV	21.68	18.40	15.47
Social Media	31.63	35.85	27.62
Public Calendar	1.28	4.25	1.10
Public Notice Boards	2.30	4.72	4.42
DNREC Website	6.63	0.47	0.55
Fliers and/or Direct Mailings	4.85	8.02	21.55
Conferences or Webinars	1.28	0.94	0.00
In-Person Interaction	11.99	6.60	9.94
DNREC Apps	0.26	1.89	0.00
DNREC Listserv	5.61	0.00	0.00
Other	2.30	0.00	6.08
Total	100.00	100.00	100.00

Information Dissemination

Respondents indicated the preferred method of communication and engagement involving information dissemination. Unsurprisingly, social media was ranked highest for each county. New Castle County respondents ranked social media (23.46%), TV (16.75%) and newspaper (12.35%) as their preferred modes of information dissemination. Kent County residents rank social media (21.06%), TV (18.01%) and fliers/direct mailings (14.31%) in that order, and Sussex County residents ranked social media (25.38%), fliers/direct mailings (19.92%), and TV (17.67%) as preferred effective means information dissemination (Table 4).

Table 7: Preferred Information Dissemination Method by Place of Residence

City or Town	New Castle (%)	Kent (%)	Sussex (%)
Newspaper	12.35	7.40	5.83
Radio	9.17	10.13	9.02
TV	16.75	18.01	17.67
Social Media	23.46	21.06	25.38
Public Calendar	2.38	5.14	1.69
Public Notice Boards	2.12	3.38	2.26
DNREC Website	6.70	3.38	1.69
Fliers and/or Direct Mailings	9.44	14.31	19.92
Conferences or Webinars	2.29	3.22	2.26
In-Person Interaction	7.67	7.40	9.21
DNREC Apps	0.88	1.29	0.38
DNREC Listserv	4.85	0.48	0.38
Other	1.94	4.82	4.32
Total	100.00	100.00	100.00

Conclusion of Survey Findings

The survey sought to elicit respondents' knowledge of DNREC and its divisions, DNREC's forms of contact, and medium of outreach preferences. More than half of the research participants were unaware of DNREC and its services. Regarding the varying forms of contact used by DNREC for their activities such as public notices, volunteering, education, and regulations, most respondents indicate that they have not encountered, interacted, or received information about DNREC activities and services. Concerning mediums of outreach of DNREC's activities, less than 10% of respondents have heard or read any DNREC advertisement on radio or TV, or in newspapers. With respect to preference for outreach method, social media was chosen as the most preferred way of engagement. Other forms of preferred outreach methods include television, radio, direct mailing, and in-person interaction.

Focus Group Discussion

Introduction

Focus groups were conducted as a key component of Phase II of this study to fill and probe any gaps not addressed or captured in Phase I. In doing so, we recruited individual members of the community to participate in our focus groups to ensure that members' voices and invaluable insights filled any missing gaps in the data and were fully integrated into the Phase II strategy development and implementation timeline. For underserved communities, focus groups allow participants to openly discuss their perceptions, feelings, experiences, and overall opinions of the topic, facilitates social cohesiveness, and an overall willingness to share information (Vaughn, Schumm & Sinagub, 1996; Krueger & Casey, 2000). When selecting credible members, the research team relied on the team's community connections and networks, email outreach, and visitation of communities—incorporating these recruitment strategies provided us with four focus groups across all three Delaware counties (New Castle, Kent, and Sussex). This was to ensure the focus groups provided a balanced geographic representation of the diversity in Delaware and to integrate the voices of underserved communities who may not receive DNREC services.

The guide employed for the focus groups was carefully crafted to build on Phase I findings and to probe any areas that may have been unexplored in understanding the participant's insights into the familiarity of DNREC, DNREC's methods of outreach and tools of engagement, developing a collaborative relationship between DNREC and the communities they serve, and recommendations on improving current measures of outreach and community engagement. To ensure that the focus group questions suited the goals of the project prior to execution, the research team evaluated the effectiveness and underlying constructs of the focus group instrument including pretesting the instrument. Furthermore, after careful analysis and reading of the Phase I report outcomes, we were satisfied with the areas probed for greater insight and perspective. The focus groups were audio recorded, transcribed, and analyzed for recurring themes and categories using Atlas.ti. Three focus groups were conducted in-person and one in an online format (virtual), with an average of 6-10 participants and an average time between forty-five minutes to one hour.

Findings

The results of the focus group analysis confirmed the existing themes and findings established in the Phase I research. The five themes identified in the focus group analysis include *limited English proficiency; the need for trained staff to work with diverse communities; two-way Communications; effective outreach*; and b*uilding trust with the community through outreach and engagement.*

Limited English Proficiency

DNREC's limited capacity to communicate in languages other than English was a significant point of contention. The participants underlined that DNREC's minimal outreach to

communities whose first language is not English are often the same communities dealing with the most demanding environmental challenges.

"I live in a community that has a lot of immigrants, where language is almost the second language. And so, the information doesn't get out to them. Information about what's coming into the community, what's going out of the community? And you say, environment. So, water, for example …where I was living, there was a time for about two weeks, where the water was not drinkable. And the letters went out in English. And so, I was letting people donate or pay for water someplace contaminated."

"I would prefer to …send them a letter translating to their languages and let them know that this is what DNREC is and this is why we're sending this so that we go into contact with you and in case you want to contact me, I'll send you that so you can see me when they call or when I call you pick up the phone"

"Sometimes (DNREC)…. tend to use Google translation. Let's say if I'm going to say, go to have a nice shirt on Saturday, and then you put Google translation. And sometimes in our language, it's completely different than what you want it to say. So, if you have somebody that's speaking another language and be able to translate what you are saying. I think the message will be better than using…. the Google translation or any other app that they have because they felt like it's faster."

"DNREC, they have employees so they can make sure that they have a Spanish speaking employee, as well. Of course, English speaking or a Creole speaking somebody in you know, any, any department inside the division, they can have somebody that speaks a language, so I know if I need to have information out in Creole, I'll go to that to that person in that department. If I need to have it in Spanish. I'll go to that person in that department."

Need Trained Staff to Work with Diverse Communities

The participants discussed the importance of DNREC developing workforce diversity initiatives that hire local community members to work alongside DNREC officials to address ongoing challenges in EJ communities. The community members also noted the importance of training existing employees about the diversity in Delaware while also dedicating more employees to working with Delaware's overburdened and underserved communities.

"If DNREC wants to become more inclusive. I think it starts from the top down that the governor needs to say, you know what, a third of my staff needs to be African American, another 30 needs to be Caucasian. Another 30 needs to be Hispanic, you know, and make it more inclusive because when people are around each other, who look like each other, they tend to be more comfortable, that talk to you more than let them know what's going on."

"Number two, they you can't rely on advisory councils. They have a wide list of advisory councils. And I saw that one of the directors referred to them as an advisory council of locals. The people on this advisory council relevant to this controversy that we're involved in are not local. And the issue really is they'll never be able to get a representative composition of an advisory council. What they need to do is to have multiple sources and they must be legitimate

sources of input."

"As far as their organization, if you look at their organization, there's not a lot of people who look like me. In that organization, they don't feel like they must really address any our needs"

"It's still no guarantee for you to get a decent job and DNREC wants that kind of participation from the community, hire! Not just like, do focus groups, hire people directly from the community that represent the demographic that is in that community, and had them make it their job to go out and talk to people that look like them that live in their same zip code to say, this is what are the needs of this area?"

Two-Way Communication

The participants contended that establishing two-way communications between the community and DNREC is fundamental to effective communication. The participants addressed the importance of outreach communication that emphasizes collaborative engagement and feedback.

"two-way communication! because a lot of times information can flow down and flow out to the community, but how does information flow from the community back to DNREC again?"

"So, I think they must open those channels of communication where people can openly communicate with them about what the needs are in the community. And then, they must also be diligent about flowing the information out to the community as far as what services they provide, because you can talk DNREC, and you can say the word DNREC to people, and even explain the acronym and people still won't know what it is that they do"

"With the seminars and webinars and things like that, you give the community a chance to ask the questions, you give them a chance to, you know, hear a lot of things that others are asking, they may want to ask and didn't know how to verbalize that, you know what I'm saying. So, the community coming together, and you get to hear, you get to see the whole picture, instead of just trying to pretend or figure out or guess what's going on in the community, because you're not actively involved. You know, it's one thing to send down communication or send down directives, it's another thing to be a part of the community."

"If you're not able to attend the meeting, they provide a feedback link where you can go on and write your concerns or provide information. You can't get that information back. So now even the meeting from June and now this meeting that we have now, they turn things in over 216,000 impressions. So, they do analytics on the data that they get, but it's not available. It's one way communication. It's a big deal. Yeah, it's not correct."

"It's not unusual for public organizations to post the, the video or the recordings of their meetings. Right. So that's true of our county council, for example, it's true of the state board of education, for the state, so and then DNRECs not doing any of that!"

Effective Outreach

The participants emphasized the importance of conducting effective outreach. This prevailing theme underscored the perspective that DNREC's outreach activities and engagements are not accomplishing their objectives within EJ communities as the outreach needs to be culturally and regionally specific to the targeted community's needs.

"So doing television and radio commercials might not be as effective as it would be if you found a way to advertise on social media and get the word out that way. Let people know what services are available to them, how they can be helped by DNREC. And so social media is the biggest one as far as that different age demographic."

"For my age group, ……. Social media is not going to work for me, because we don't have the patience for social media. And a lot of us don't have the technology to operate and move around on social media to meet community advertisement or functions were likely to have seminars. And they were whether they put a door to door announced that they were coming together on this date for community, you know, somehow because most of your older people will respond to that door-to-door mailings."

"And, to me nothing like pressing the flesh, I want to see the person come to my community and tell me what they're going to do. To see if I get to see you, I get to look in your eyes and see if you really want to do what you say you want to do. And nothing like pressing the flesh seeing them right there. Looking at him, you know, hearing what they're saying, you know, just like when the campaign season now, everybody is promising, and kissing babies and all that stuff."

"As far as DNREC is concerned, they have listed the tools of engagement with the public. And one of them they have this direct mailings and webinars/conference, the webinars/conference would work. They could really eliminate the direct mailings, because when I get direct mailings from people that I don't know whether it's sales or circulars, whether it's your you want me to vote for you, anything like that, to me that is filed away is junk mail, and my filing cabinet for junk mail is my trash can. So, I wouldn't even read it."

"That they can hire coordinators, they can pay these coordinators $35,000, $32,000. Give them some health care and stuff. And their job is to coordinate initiatives of DNREC within the community, from health fairs, to focus groups, to groups where they complain, have a complaint, you know, just say how they feel session. The whole idea is DNREC must make a commitment to the community, not just to do this, because pressures on them or microscopes on them, or the governor's wants to do something before he leaves."

Building Trust with the community through outreach and engagement

Our participants believed they could address the trust gap between DNREC and the EJ communities by ensuring that the community participates in and has access to all DNREC's points of outreach and engagement. This active engagement will allow DNREC and the EJ communities to share their diverse perspectives to further the cause of inclusive excellence.

"I think DNREC has a big community trust gap. And one easy way I think, to help EJ communities is for DNREC to plant trees or gardens, or set up projects, or meet with these communities In other words, DNREC needs to affirmatively show these communities that it cares. And the best way to do it would be actions to fix those communities."

"I think focus groups can be a good idea, if they're going to do something that's going to impact a community a lot. You must go out ahead. You can't just tell them what you're going to do. Like, after you've already done it, or after you've already put everything in motion. You've lost everybody's trust at that point. You must be out in the community ahead of time and getting feedback and finding out what people are concerned about, what they care about."

"Trust, like any of us know, trust is built over time and experience. There's no instant gratification with trust. And it's very easy to lose trust, very quickly. Gaining trust takes a long time and that will require a diligent kind of determination."

These emerging themes from our analysis of the focus groups further bolstered the strategy development and implementation timeline.

Strategy Development

Strategy A: Conducting Effective Outreach

Goal #1: Canvassing Communities

Canvassing provides deeper insights into the needs of the EJ communities that DNREC serves. Utilizing social scientific methodologies to capture and integrate the community's perspectives allows DNREC to gauge the community as they are and beyond the limitations that may exist when depending only on established contacts for information or access.

Objectives for this goal include:

1.1. Develop, maintain, and update existing database information of underserved communities, organizations, leaders, and networks and make it accessible across DNREC divisions and to the public.
1.2. Actively participate and engage with Justice Forty as a vehicle to assist DNREC to connect to other state agencies and community-based organizations and members across the State of Delaware to facilitate the integration of social justice in DNREC policies.
1.3. Build capacity and provide training and support for DNREC teams to conduct annual internal equity assessments.
1.4. Create DNREC team to evaluate how underserved communities are assessed within programs/divisions and provide each division a recommendation of best practices on how to increase outreach and analysis of impacts based on the specific division work.
1.5. Develop and improve data collection methods to capture and integrate data from the underserved communities.
1.6. Ensure DNREC accountability by tracking participation of underserved communities in programs.
1.7. Integrate underserved communities and their leadership in DNREC committees and governing bodies to benefit from their specialized expertise that they have about their local communities, the environment, and social justice.

Goal #2: Two-w ay communication

Establishing two-way communications between the community and DNREC is fundamental to meaningful communication, collaborative engagement, and timely feedback.

Objectives for this goal include:

2.1. Seek active feedback in communications with the public through DNREC processes, marketing, and communications.
2.2. Ensure underserved communities are provided space to contribute at their discretion.
2.3. All DNREC measures are developed based upon a meaningful integration of input received from the underserved communities through various mechanisms, such as public meetings and comment periods.
2.4. DNREC should make all communications available through several communicative formats in a timely manner.

Goal #3: Targeted approaches that are culturally and regionally specific

DNREC needs to employ diverse and targeted mediated approaches that reflect the socio-cultural and historical contexts of the underserved communities. DNREC outreach tools and tactics must show a commitment to equity and diversity in the State of Delaware.

Objectives for this goal include:

3.1. Make underserved communities aware of the existence of DNREC programs and activities.
3.2. Make sure materials, publications, and technical information are available, easily understood, culturally appropriate, and engaging to underserved communities.
3.3. Eliminate barriers surrounding public engagement, including (limited English proficiency, time of day, and location/mobility, childcare, virtual options).
3.4. DNREC should contact the underserved communities through local communicative channels that are unique to the targeted community.
3.5. Use special invitations and/or grants to invite underserved community presenters and attendees to events.
3.6. DNREC should waive financial responsibility for underserved community engagement in all DNREC processes (including appeals, witnesses, professional experts).
3.7. DNREC should create a community-based committee made up of DNREC scientists and local experts to understand the local needs of the community.

Goal #4: Need local community point-persons

Community point-persons can fill the gap in the (mis)communications between DNREC and the EJ communities and act as an intermediary (employed or a partner) between the community and DNREC. This person or group of people are expected to be from the community and encourage community participation.

Objectives for this goal include:

4.1. Collaborate with underserved communities to develop career/leadership opportunities
4.2. Ensure the Community Involvement Advisory Council (CIAC) includes community supported EJ community representatives.
4.3. Legally and organizationally empower and position CIAC to have a direct influence over DNREC policy decisions.
4.4. Establish memoranda of understanding (MOU's) with all stakeholders to further environmental justice goals in underserved communities.

Strategy #B: Addressing the Overbearing Bureaucracy

Goal #1. Unclear Processes (Permitting/ Grants-Funding)

Unclear processes are linked to the lack of access to adequate information to aid in community participation in DNREC activities and processes. DNREC need to address the lack of understanding of the bureaucratic processes that defined when and how underserved communities engage DNREC's methods and activities.

Objectives for this goal include:

1.1. Fully integrate environmental justice into all program strategies and evaluations.
1.2. DNREC should develop and distribute a community guide that easily accessible to navigate DNREC processes.
1.3. DNREC should develop consistent messaging across all divisions to ensure information is reliable, understandable, and easily accessible.
1.4. Consistently provide communities with up-to-date information on technical assistance, grant opportunities, and resources.

Goal #2: No hierarchical responsibility

Need to support direct access to individuals within DNREC that have the power to address concerns and problems that have emerged in the community. The lack of accountability to the underserved communities' input has created a disconnect with the operations and activities conducted by DNREC.

Objectives for this goal include:

2.1. Improvements to internal and cross division communication and coordination specifically on issues effecting underserved Communities.
2.2. Train all division staff, advisory boards, governing bodies in fair and meaningful outreach.
2.3. Clearly present communication pathways for underserved community to communicate with appropriate officials with direct supervision /powers over.

Goal #3: Websites/technology overbearing

The EJ communities were often directed by DNREC officials to online resources, including DNREC's website, to find critical information. This online experience for the community was unclear and overbearing due to inefficient website design and accessibility.

Objectives for this goal include:

3.1 Consistently maintain and update the existing online website.
3.2 Update or redesign online outreach materials to reflect cultural, linguistic diversity of Delaware.
3.3 Develop, implement, and promote online communication and marketing strategies to disseminate accurate information about DNREC resources and policies.
3.4 Use appropriate technological tools to conduct outreach and share or exchange information with the public.

Strategy C: Regulatory/Technical Language

Goal #1: Messaging/outreach to the public not understood

For the underserved communities, understanding the meaning behind DNREC processes, methods, and activities will allow the public to engage, understand, and be directly involved in DNREC processes.

Objectives for this goal include:

1.1. Conduct annual assessment to measure and understand outreach effectiveness in every DNREC division.
1.2. Track number and results for efficacy of outreach programs and projects.
1.3. Track number and results of outreach programs and projects in marketing and communication.
1.4. Provide training for community leaders on accessing and using DNREC data / information resources.
1.5. Prioritize opportunities for the involvement of underserved communities early and throughout DNREC processes/ activities.

Goal #2: Need trained staff to work with diverse communities

Disconnect with the underserved communities reflects the lack of diversity present in DNREC's workforce and the relatively low number of DNREC employees dedicated and trained to work with underserved communities in Delaware.

Objectives for this goal include:

2.1 Identify agency programs that impact underserved communities to determine necessary training needs.
2.2 Provide workshops/training/information on plain writing, limited English proficiency.
2.3 Ensure that each division has an individual(s) designated as an EJ coordinator to underserved communities.
2.4 Integrate diversity efforts in DNREC efforts in hiring, recruitment, and training.
2.5 Ensure that DNREC's advisory boards and governing bodies include underserved community representatives.

Goal #3: Building rust with the community through outreach and engagement

There is a need to address the trust gap between DNREC and the underserved communities by ensuring that the community participates in and has access to all DNREC's points of outreach and engagement.

Objectives for this goal include:

3.1. Engage in place-based partnerships.
3.2. Ensure all communications comply with requirements for providing services and activities to persons with Limited English Proficiency (LEP).
3.3. Create and support experiential learning opportunities for underserved communities.
3.4. Holding/selecting events that are accessible to local communities.
3.5. DNREC should acknowledge and build relations with underserved communities who have experienced trauma due to their marginalization.
3.6. Use alternative dispute resolutions (collaborative approaches), to resolve disputes involving DNREC and underserved communities.
3.7. Conduct public meetings, listening sessions, trainings, and forums to inform, meaningfully engage, and involve underserved communities in agency decisions.

Implementation Timeline

The implementation timeline plays a crucial role in fostering a shared understanding of how to operationalize the strategy in the future. It provides the necessary flexibility to draft, plan, and adjust objectives, ensuring effective planning for DNREC as a regulatory and natural resources management agency. The timeline prioritizes each objective by assigning a corresponding timeframe, with increments of six months (0-6; 6-12; 12-18). The specific implementation timelines are dependent on DNREC's available staff capacity, funding, and training resources, taking into consideration the agency's role in natural resources management and enforcement activities.

Strategy A: Conducting Effective Outreach

Goal #1	Objectives	Timeline
Canvassing Communities	Develop, maintain, and update existing database information of underserved communities, organizations, leaders, and networks and make it accessible across DNREC divisions and to the public	0-6 Months
Canvassing Communities	Actively participate and engage with Justice Forty as a vehicle to assist DNREC to connect to other state agencies and community-based organizations and members across the State of Delaware to facilitate the integration of social justice in DNREC policies.	0-6 Months
Canvassing Communities	Integrate underserved communities and their leadership in DNREC committees and governing bodies to benefit from their specialized expertise that they have about their local communities, the environment, and social justice	6-12 Months
Canvassing Communities	Create DNREC team to evaluate how underserved communities are assessed within programs/divisions and provide each division a recommendation of best practices on how to increase outreach and analysis of impacts based on the specific division work	6-12 Months
Canvassing Communities	Develop and improve data collection methods to capture and integrate a data from the underserved communities	6-12 Months
Canvassing Communities	Ensure DNREC accountability by tracking participation of underserved communities in programs.	6-12 Months
Canvassing Communities	Build capacity and provide training and support for DNREC teams to conduct annual internal equity assessments.	12-18 Months

Strategy A: Conducting Effective Outreach

Goal #2	Objectives	Timeline
Two-way communication	Seek active feedback in communications with the public through DNREC processes, marketing, and communications	0-6 Months

Two-way communication	Ensure underserved communities are provided space to contribute at their discretion.	0-6 Months
Two-way communication	All DNREC measures are developed based upon a meaningful integration of input received from the underserved communities through various mechanisms, such as public meetings and comment periods	0-6 Months
Two-way communication	DNREC should make all communications available through several communicative formats in a timely manner.	0-6 Months

Strategy A: Conducting Effective Outreach

Goal #3	**Objectives**	**Timeline**
Targeted approaches that are culturally and regionally specific	Make underserved communities aware of the existence of DNREC programs and activities.	0-6 Months
Targeted approaches that are culturally and regionally specific	Eliminate barriers surrounding public engagement, including (limited English proficiency, time of day, and location/mobility, childcare, virtual options).	0-6 Months
Targeted approaches that are culturally and regionally specific	Make sure materials, publications, and technical information are available, easily understood, culturally appropriate, and engaging to underserved communities.	0-6 Months
Targeted approaches that are culturally and regionally specific	DNREC should contact the underserved communities through local communicative channels that are unique to the targeted community.	0-6 Months
Targeted approaches that are culturally and regionally specific	Use special invitations and/or grants to invite underserved community presenters and attendees to events	0-6 Months
Targeted approaches that are culturally and regionally specific	DNREC should waive financial responsibility for underserved community engagement in all DNREC processes (including appeals, witnesses, professional experts).	6-12 Months
Targeted approaches that are culturally and regionally specific	DNREC should create a community-based committee made up of DNREC scientists and local experts to understand the local needs of the community.	12-18 Months

Strategy A: Conducting Effective Outreach

Goal #4	Objectives	Timeline
Need local community point-persons	Collaborate with underserved communities to develop career/leadership opportunities	6-12 Months
Need local community point-persons	Ensure the Community Involvement Advisory Council (CIAC) includes community supported EJ community representatives.	6-12 Months
Need local community point-persons	Legally and organizationally empower and position CIAC to have a direct influence over DNREC policy decisions.	6-12 Months
Need local community point-persons	Establish memoranda of understanding (MOU's) with all stakeholders to further environmental justice goals in underserved communities.	6-12 Months

Strategy B: Addressing the Overbearing Bureaucracy

Goal #1	Objectives	Timeline
Unclear Processes (Permitting/ Grants-Funding)	DNREC should develop consistent messaging across all divisions to ensure information is reliable, understandable, and easily accessible.	0-6 Months
Unclear Processes (Permitting/ Grants-Funding)	Consistently provide communities with up-to-date information on technical assistance, grant opportunities, and resources	0-6 Months
Unclear Processes (Permitting/ Grants-Funding)	DNREC should develop and distribute a community guide that is easily accessible to navigate DNREC processes.	6-12 Months
Unclear Processes (Permitting/ Grants-Funding)	Fully integrate environmental justice into all program strategies and evaluations.	6-12 Months

Strategy B: Addressing the Overbearing Bureaucracy

Goal #2	Objectives	Timeline
No hierarchical responsibility	Improvements to internal and cross division communication and coordination specifically on issues effecting underserved Communities.	0-6 Months
No hierarchical responsibility	Clearly present communication pathways for underserved community to communicate with appropriate officials with direct supervision / powers over.	0-6 Months

No hierarchical responsibility	Train all division staff, advisory boards, governing bodies in fair and meaningful outreach.	12-18 Months

Strategy B: Addressing the Overbearing Bureaucracy

Goal #3	**Objectives**	**Timeline**
Websites/technology overbearing	Consistently maintain and update the existing online website.	0-6 Months
Websites/technology overbearing	Develop, implement, and promote online communication and marketing strategies to disseminate accurate information about DNREC resources and policies.	0-6 Months
Websites/technology overbearing	Use appropriate outreach tools to conduct outreach and share or exchange information with the public	6-12 Months
Websites/technology overbearing	Update or redesign online outreach materials to reflect cultural, linguistic diversity of Delaware.	6-12 Months

Strategy C: Regulatory and Technical Language

Goal #1	**Objectives**	**Timeline**
Messaging/outreach to the public not understood	Track number and results for efficacy of outreach programs and projects.	0-6 Months
Messaging/outreach to the public not understood	Track number and results of outreach programs and projects in marketing and communication.	0-6 Months
Messaging/outreach to the public not understood	Prioritize opportunities for the involvement of underserved communities early and throughout DNREC processes/ activities	6-12 Months
Messaging/outreach to the public not understood	Provide training for community leaders on accessing and using DNREC data/information resources	6-12 Months
Messaging/outreach to the public not understood	Conduct annual assessment to measure and understand outreach effectiveness in every DNREC division.	6-12 Months

Strategy C: Regulatory and Technical Language

Goal #2	**Objectives**	**Timeline**

Need trained staff to work with diverse communities	Identify agency programs that impact underserved communities in order to determine necessary training needs	0-6 Months
Need trained staff to work with diverse communities	Provide internal workshops/ training/ information on plain writing, Limited	0-6 Months
	English Proficiency (LEP)	
Need trained staff to work with diverse communities	Ensure that each division has an individual(s) designated as an EJ coordinator to underserved communities.	6-12 Months
Need trained staff to work with diverse communities	Integrate diversity efforts in DNREC efforts in hiring, recruitment, and training.	6-12 Months
Need trained staff to work with diverse communities	Ensure that DNREC's advisory boards and governing bodies include underserved community representatives.	12-18 Months

Strategy C: Regulatory and Technical Language

Goal #3	**Objectives**	**Timeline**
Building Trust with the community through outreach and engagement	Engage in place-based partnerships	0-6 Months
Building Trust with the community through outreach and engagement	Ensure all communications comply with requirements for providing services and activities to persons with Limited English Proficiency (LEP).	0-6 Months
Building Trust with the community through outreach and engagement	Holding/selecting events that are accessible to local communities.	0-6 Months
Building Trust with the community through outreach and engagement	Create and support experiential learning opportunities for underserved communities	6-12 Months
Building Trust with the community through outreach and engagement	DNREC should acknowledge and build relations with underserved communities who have experienced trauma due to their marginalization	6-12 Months
Building Trust with the community through outreach and engagement	Conduct public meetings, listening sessions, training, and forums to inform, meaningfully engage, and involve underserved communities in agency decisions	6-12 Months
Building Trust with the community through outreach and engagement	Use alternative dispute resolution (collaborative approaches), to resolve disputes involving DNREC and underserved communities.	6-12 Months

Structuring the Strategy Development

The structure of the strategy development builds off the content of several public participation models, including the 'Spectrum of Community Engagement to Ownership' (The Spectrum of Community Engagement to Ownership. n.d., 2-9). Public participation models have formulated ideal practices that support equitable outreach and engagement by emphasizing full participation by underserved communities in government and agency processes to advance community engagement. The document is composed of three major strategies, including Strategy A: conducting effective outreach, Strategy B: addressing overbearing bureaucracy, and Strategy C: regulatory/technical language. Each strategy has three to four goals, and each goal has a series of objectives. Each objective falls under the frameworks presented in the spectrum (The Spectrum of Community Engagement to Ownership. n.d., 2-9). The documents integrates some aspects of the model which are first steps in allowing DNREC to assess their level of engagement with the community in implementing the proposed strategy. The four categories adapted from the spectrum included the following:

Encompasses internal information preparation to better inform and serve community. One- Way Communication to ensure that the underserved community is aware of DNREC activities and processes. The information shared must be objective, transparent, accurate, and understood by the community receiving it (The Spectrum of Community Engagement to Ownership. n.d., 2-9).

Consultative engagement that facilitates community input into DNREC activities and processes that are established. The community's contributions are effectively shape DNREC decision-making processes. All feedback is engaged and considered when constructing and implementing policy (The Spectrum of Community Engagement to Ownership. n.d., 2-9).

DNREC-community-driven planning processes that emphasizes two-way communication and underserved community's voices that are integrated in the beginning of the planning process through taking on meaningful role (The Spectrum of Community Engagement to Ownership. n.d., 2-9).

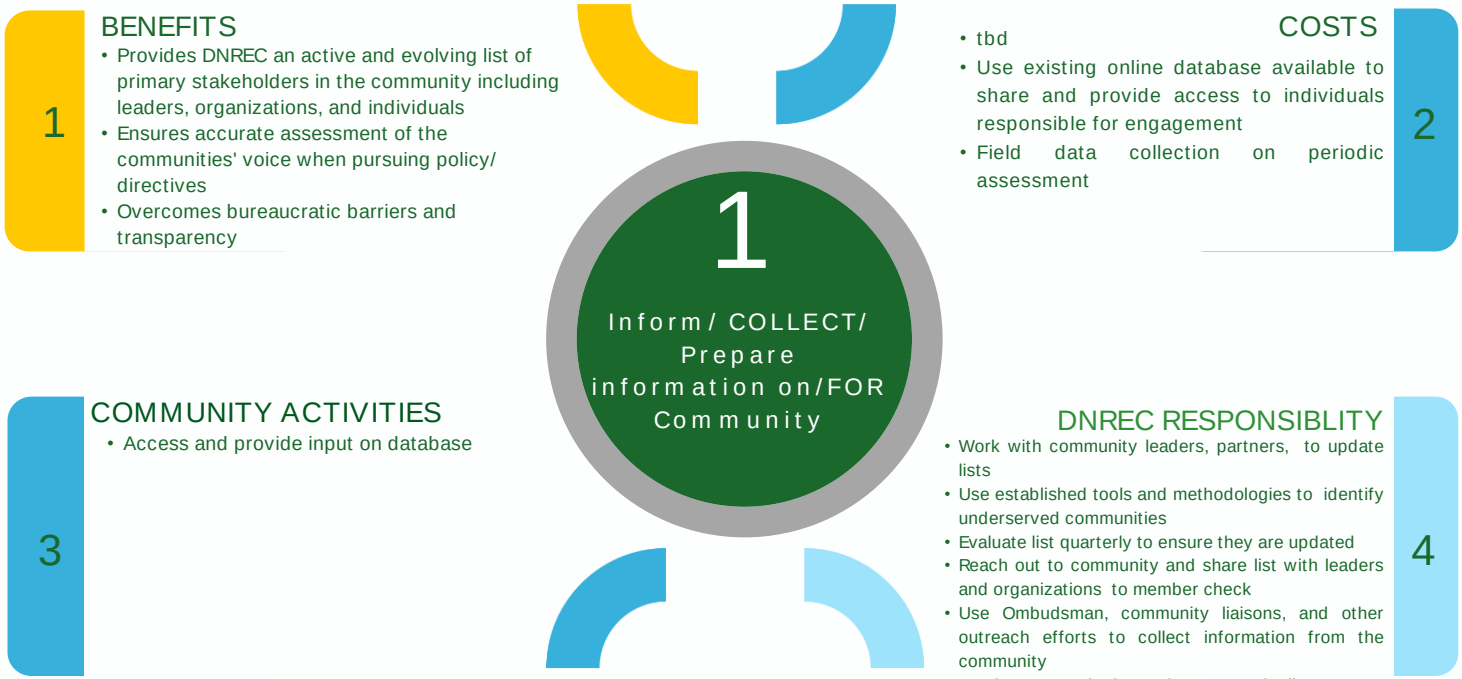
Collaboration provides an opportunity for the underserved community to become co- partners and decision-makers in DNREC processes and activities that have an impact on the community (The Spectrum of Community Engagement to Ownership. n.d., 2-9).

These four frameworks reveal the level of engagement each strategic objective may fall under, with framework one, informing the community at the minimal level of engagement and framework four, collaboration, as the ideal level of engagement with the community. Acknowledging the level of engagement and seeking to actively evolve towards a higher spectrum to maximize community participation in strategy development and implementation is the method's goal, as the spectrum allows "us to recognize where we are at and set goals for where we can go together through conscious and collective practice, so key to transforming systems" (The Spectrum of Community Engagement to Ownership. n.d., 2-9).

Strategy A: Conducting Effective Outreach

Goal #1: Canvassing Communities

1.1. Develop, maintain, and update existing database information of underserved communities, organizations, leaders, and networks and make it accessible across DNREC divisions and to the public.



Strategy A: Conducting Effective Outreach

Goal #1: Canvassing Communities

1.2. Actively participate and engage with Justice Forty as a vehicle to assist DNREC to connect to other state agencies and community-based organizations and members across the State of Delaware to facilitate the integration of social justice in DNREC policies.

1

BENEFITS

- This engagement will produce new contacts with community organizations and state agencies
- Align state-wide social justice goals in DNREC policy
- Reinforces transparency across state institutions and communiity

2

COSTS

- Use available DNREC resources to conduct outreach and engagement to collect and share critical information

1

Inform/ COLLECT/ Prepare information on/FOR Community

3

COMMUNITY ACTIVITIES

- Participate in Justice 40 community activities whenever possible and available

4

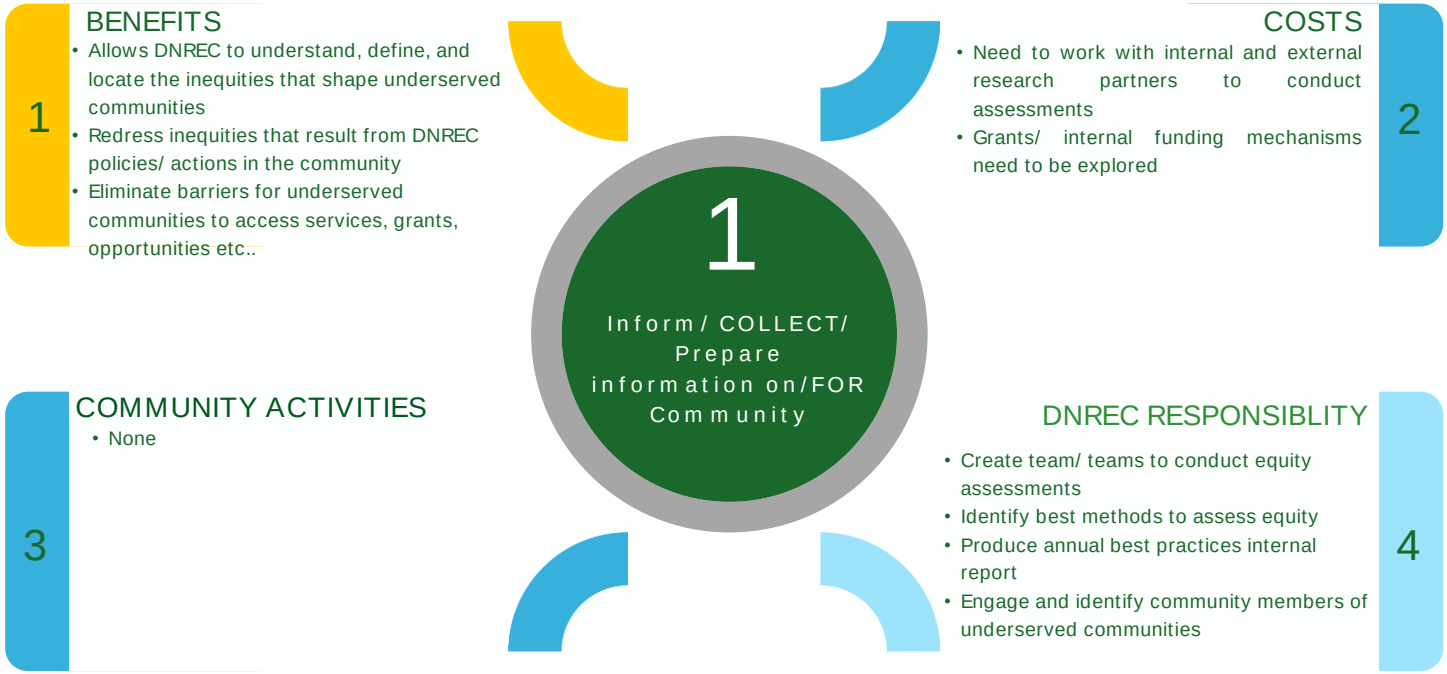
DNREC RESPONSIBLITY

- Attend all Justice Forty meetings
- Ensure DNREC representatives participating are organizational leaders/ decision makers
- Create committee to work on/ implement Justice Forty recommendations
- Actively participate and support Justice Forty activities, meetings, and policy recommendations

Strategy A: Conducting Effective Outreach

Goal #1: Canvassing Communities

1.3. Build capacity and provide training and support for DNREC teams to conduct annual internal equity assessments



Strategy A: Conducting Effective Outreach

Goal #1: Canvassing Communities

1.4. Create DNREC team to evaluate how environmental justice communities are assessed within programs/divisions and provide each division a recommendation of best practices on how to increase outreach and analysis of impacts based on the specific division work

Strategy A: Conducting Effective Outreach

Goal #1: Canvassing Communities

1.5. Develop and improve data collection methods to capture and integrate a comprehensive perspective from the underserved communities.

Strategy A: Conducting Effective Outreach

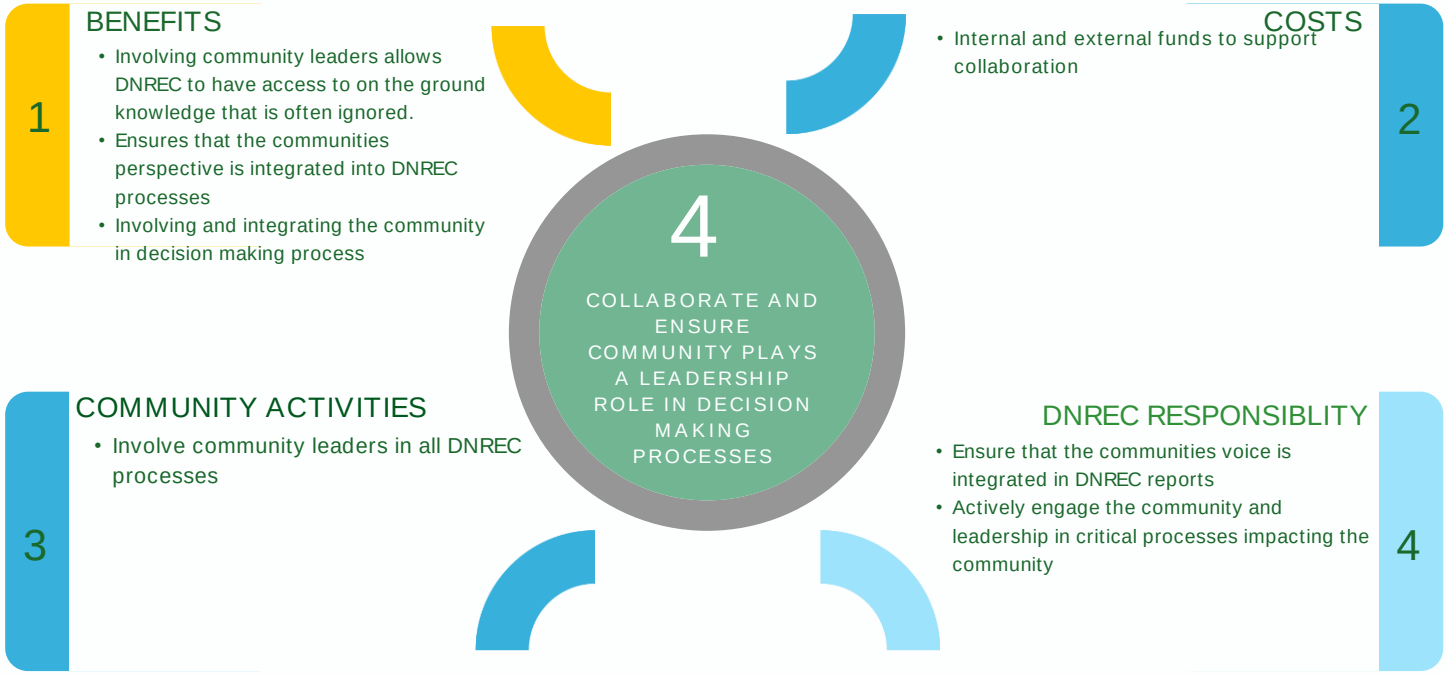
Goal #1: Canvassing Communities

1.6. Ensure DNREC accountability by tracking participation of environmental justice communities in agency programs.

Strategy A: Conducting Effective Outreach

Goal #1: Canvassing Communities

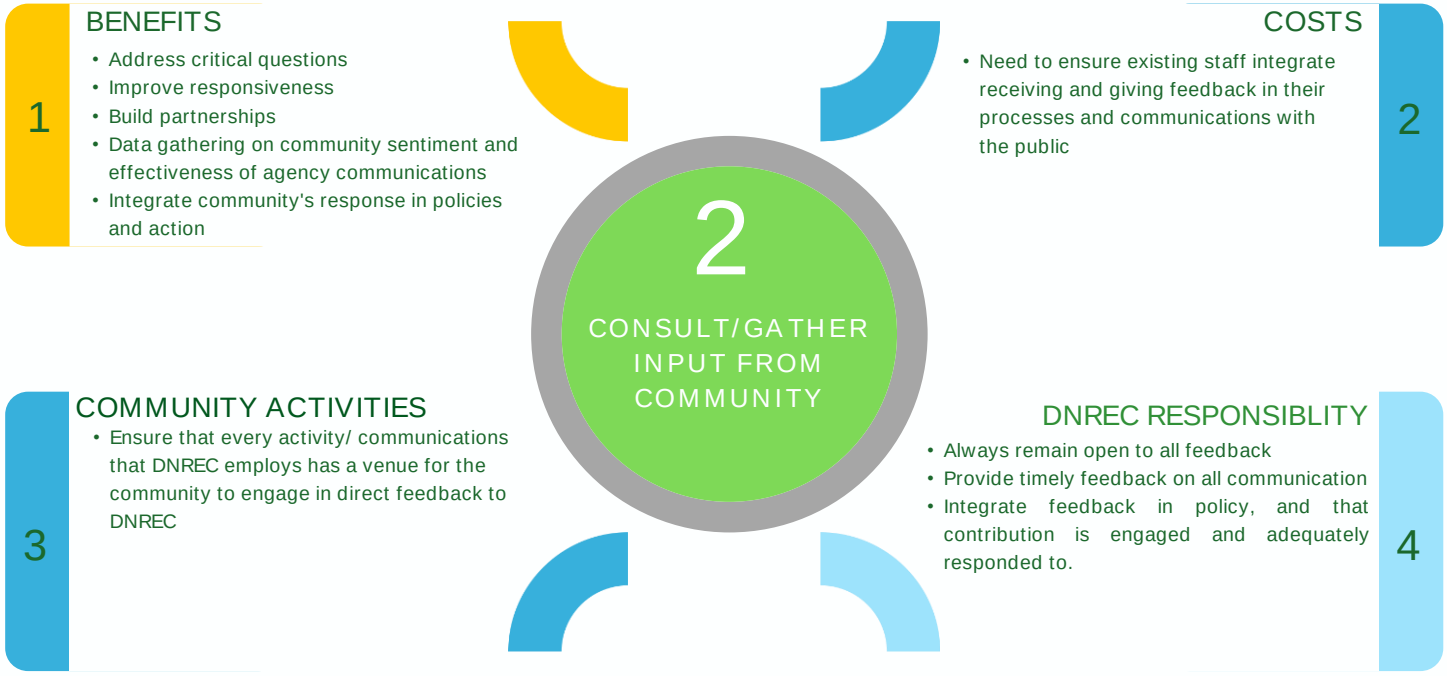
1.7. Integrate underserved communities and their leadership in DNREC committees and governing bodies to benefit from their specialized expertise that they have about their local communities, the environment, and social justice



Strategy A: Conducting Effective Outreach

Goal #2: Two-way Communication

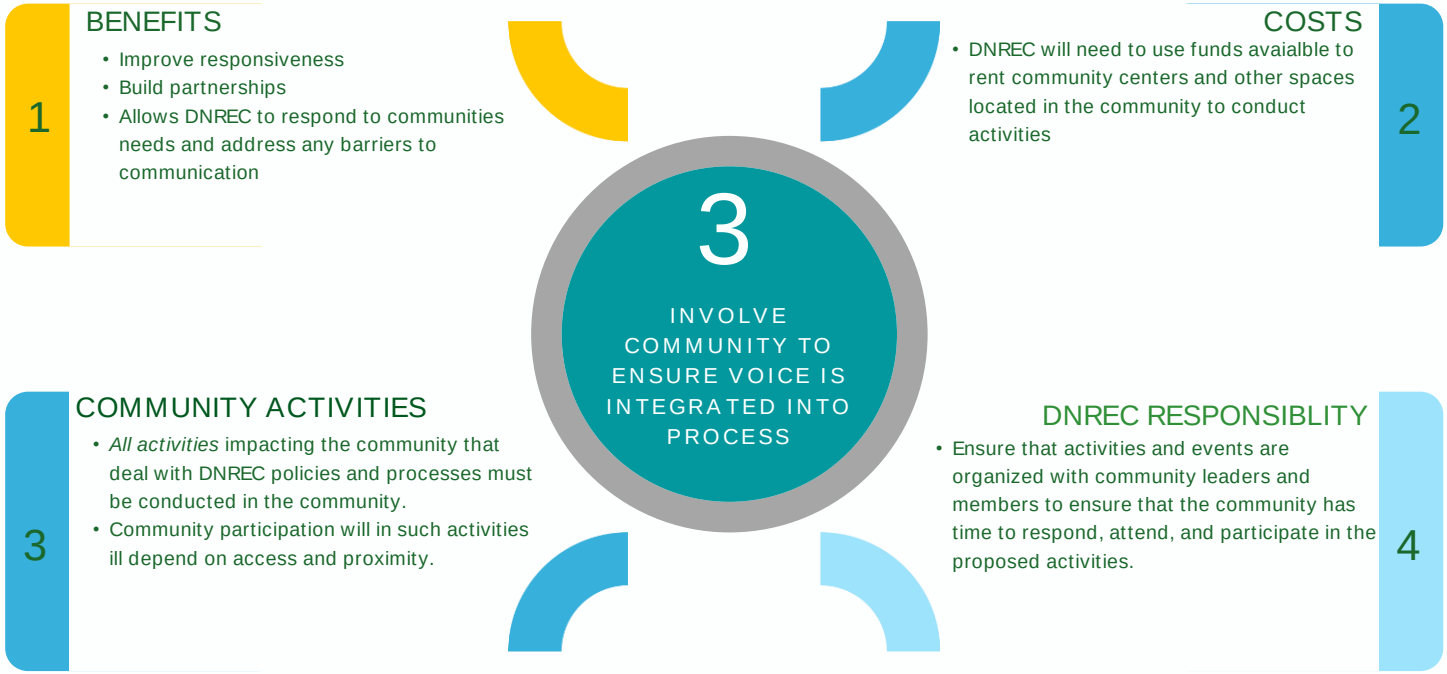
2.1. Seek active feedback in communications with the public through DNREC processes, marketing, and communications



Strategy A: Conducting Effective Outreach

Goal #2: Two-way Communication

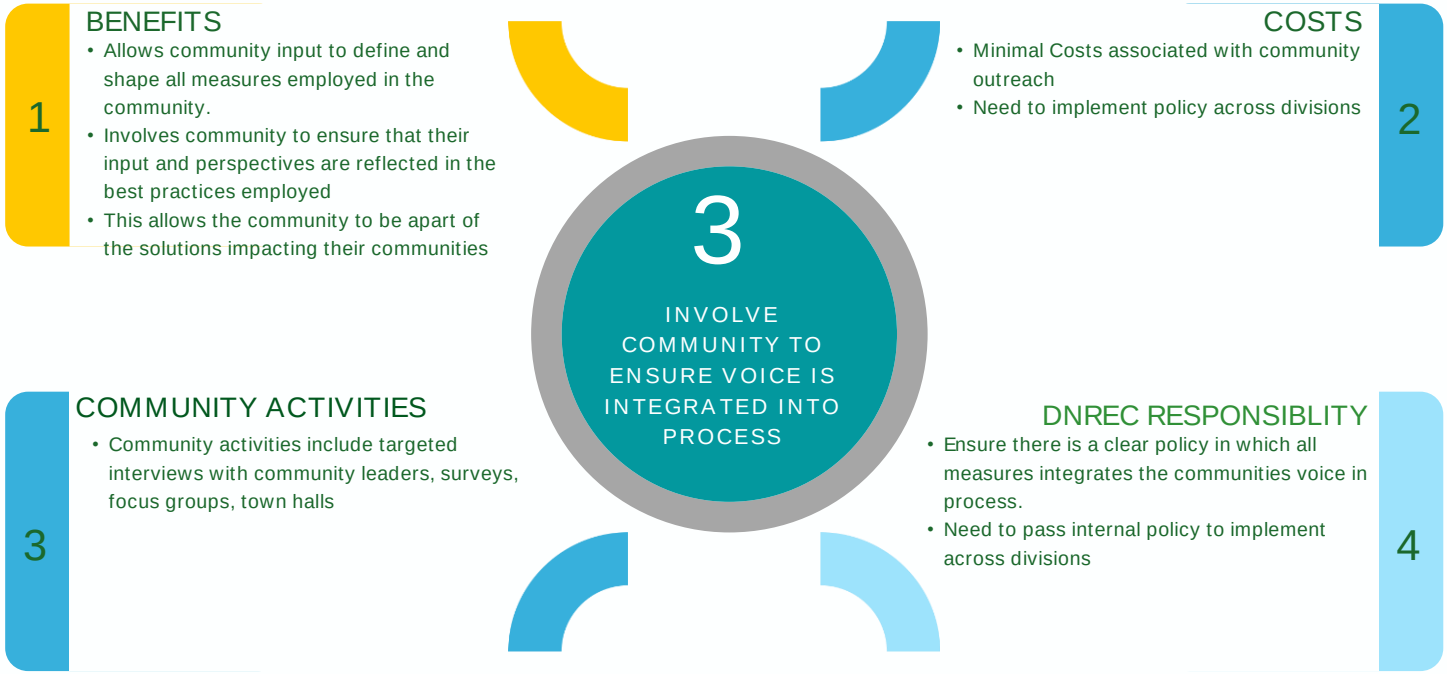
2.2. Ensure communities historically marginalized in the public outreach and engagement process are provided space to contribute at their discretion.



Strategy A: Conducting Effective Outreach

Goal #2: Two-way Communication

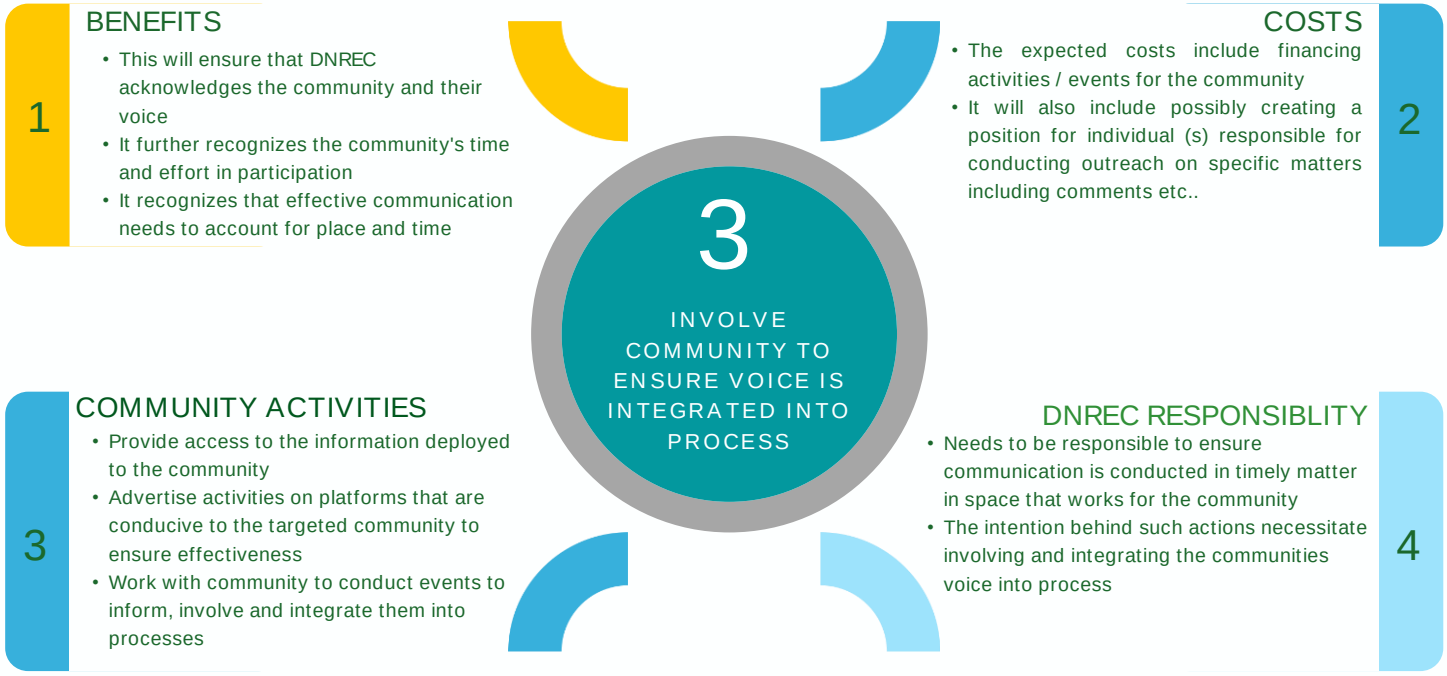
2.3. All DNREC measures are developed based upon a meaningful integration of input received from the underserved communities through various mechanisms, such as public meetings and comment periods



Strategy A: Conducting Effective Outreach

Goal #2: Two-way Communication

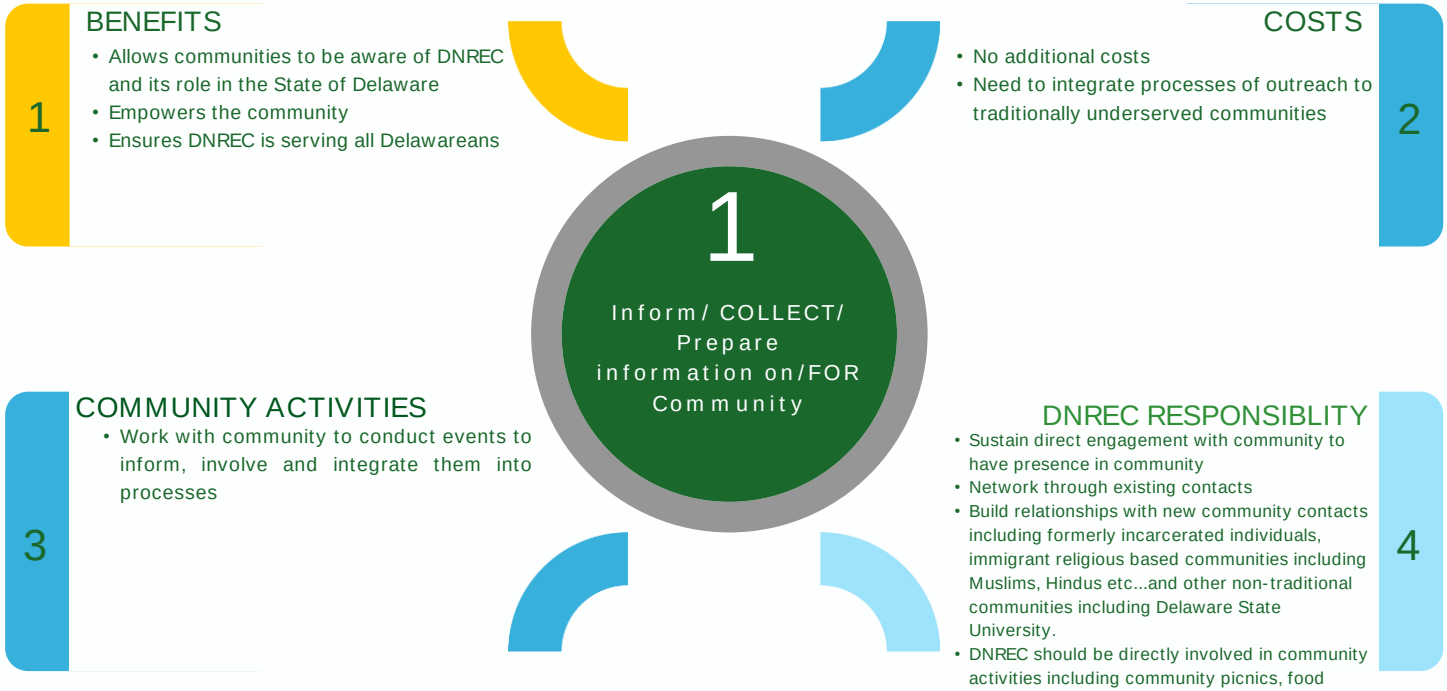
2.4. DNREC should make all communications available through several communicative formats in a timely manner.



Strategy A: Conducting Effective Outreach

Goal #3: Targeted approaches that are culturally and regionally specific

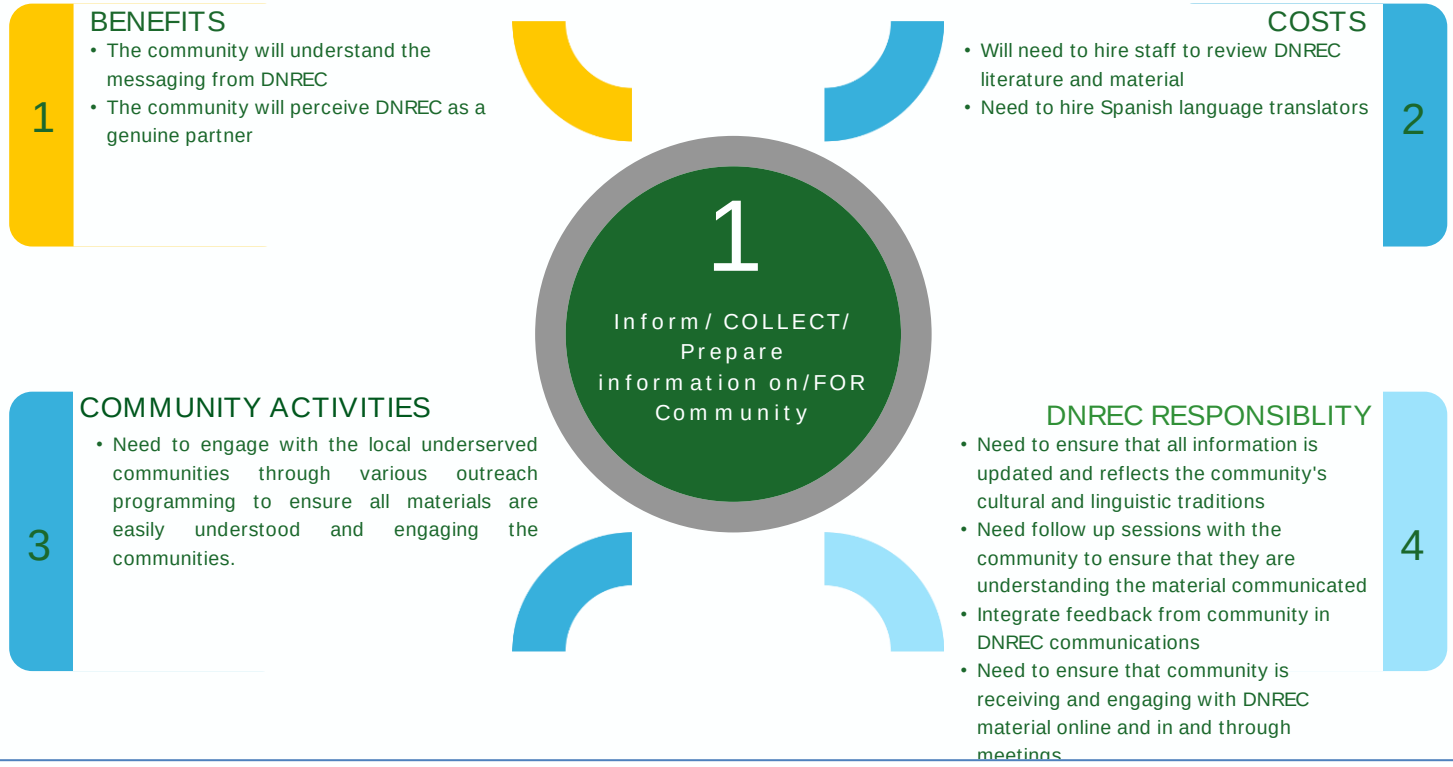
3.1. Make underserved communities aware of the existence of DNREC programs and activities



Strategy A: Conducting Effective Outreach

Goal #3: Targeted approaches that are culturally and regionally specific

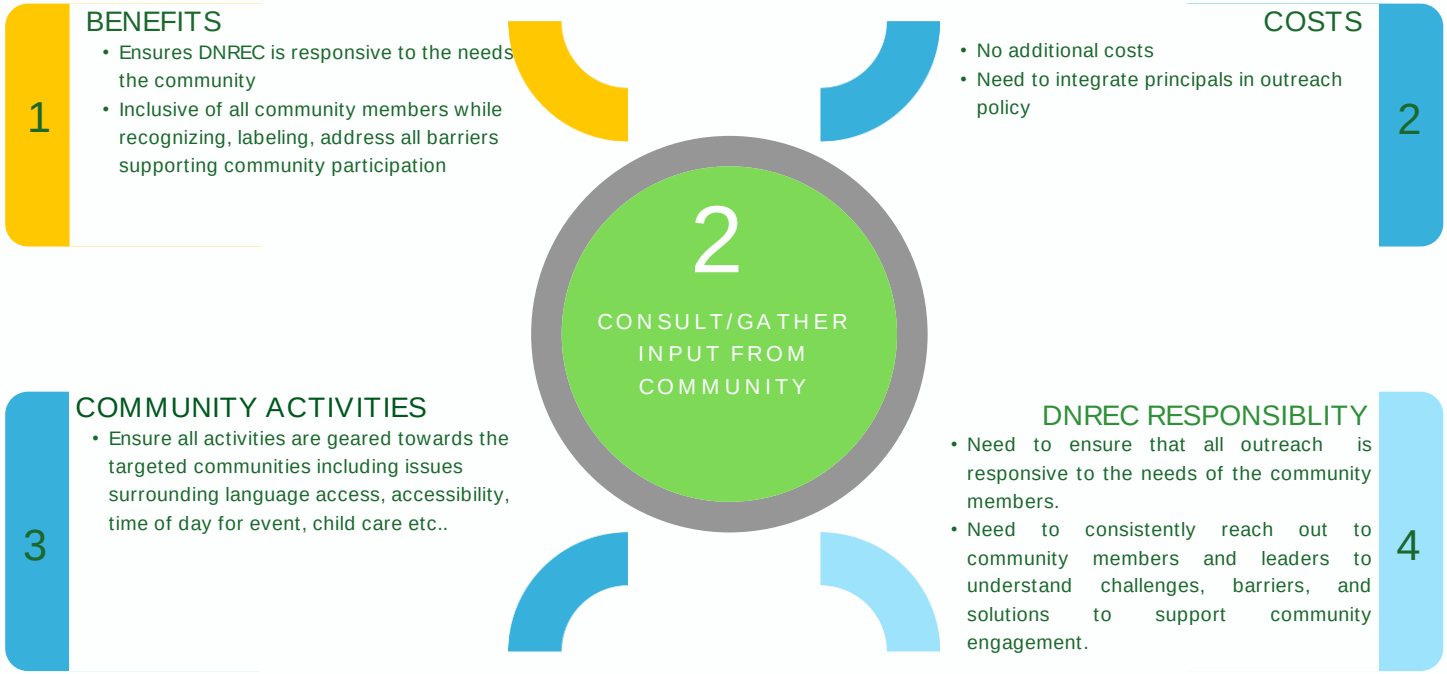
3.2. Make sure materials, publications, and technical information are available, easily understood, culturally appropriate, and engaging to underserved communities.



Strategy A: Conducting Effective Outreach

Goal #3: Targeted approaches that are culturally and regionally specific

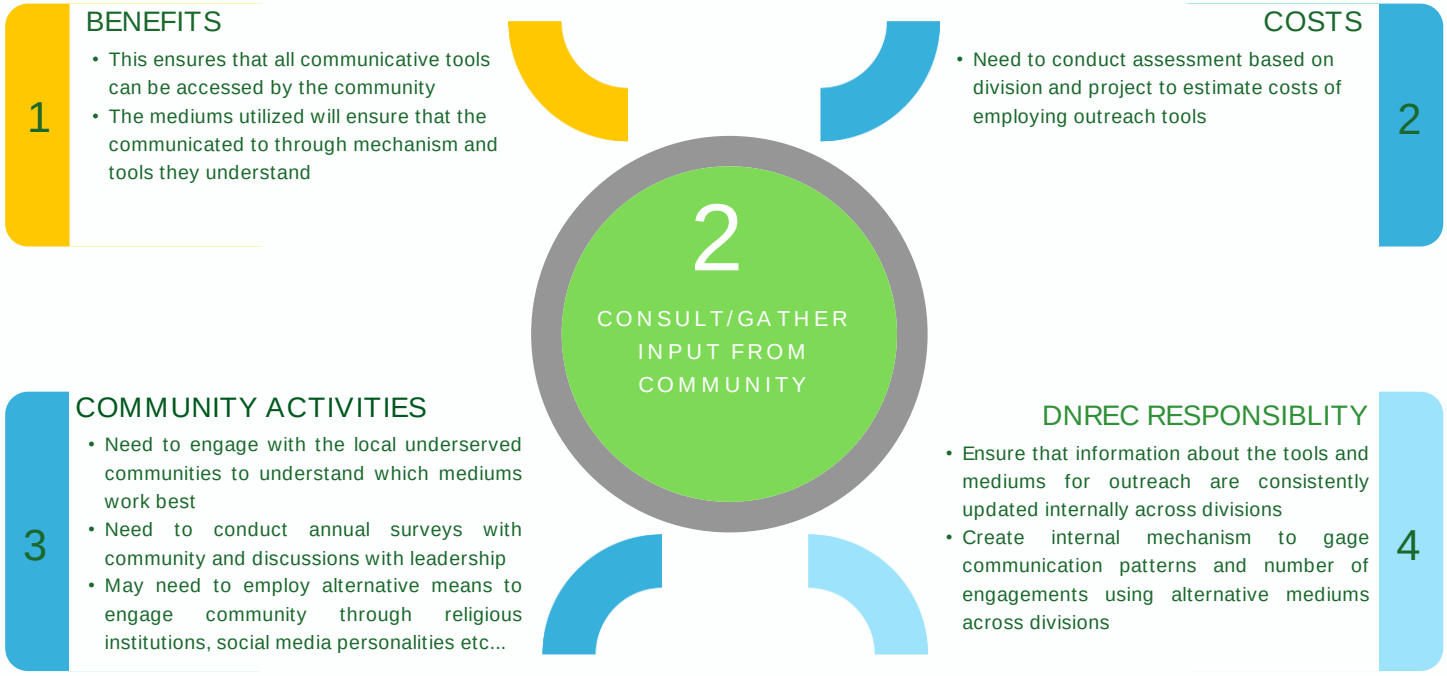
3.3. Eliminate barriers surrounding public engagement, including (language including limited english proficiency, time of day, and location/mobility, childcare, virtual options).



Strategy A: Conducting Effective Outreach

Goal #3: Targeted approaches that are culturally and regionally specific

3.4.DNREC should contact the underserved communities through local communicative channels that are unique to the targeted community.



Strategy A: Conducting Effective Outreach

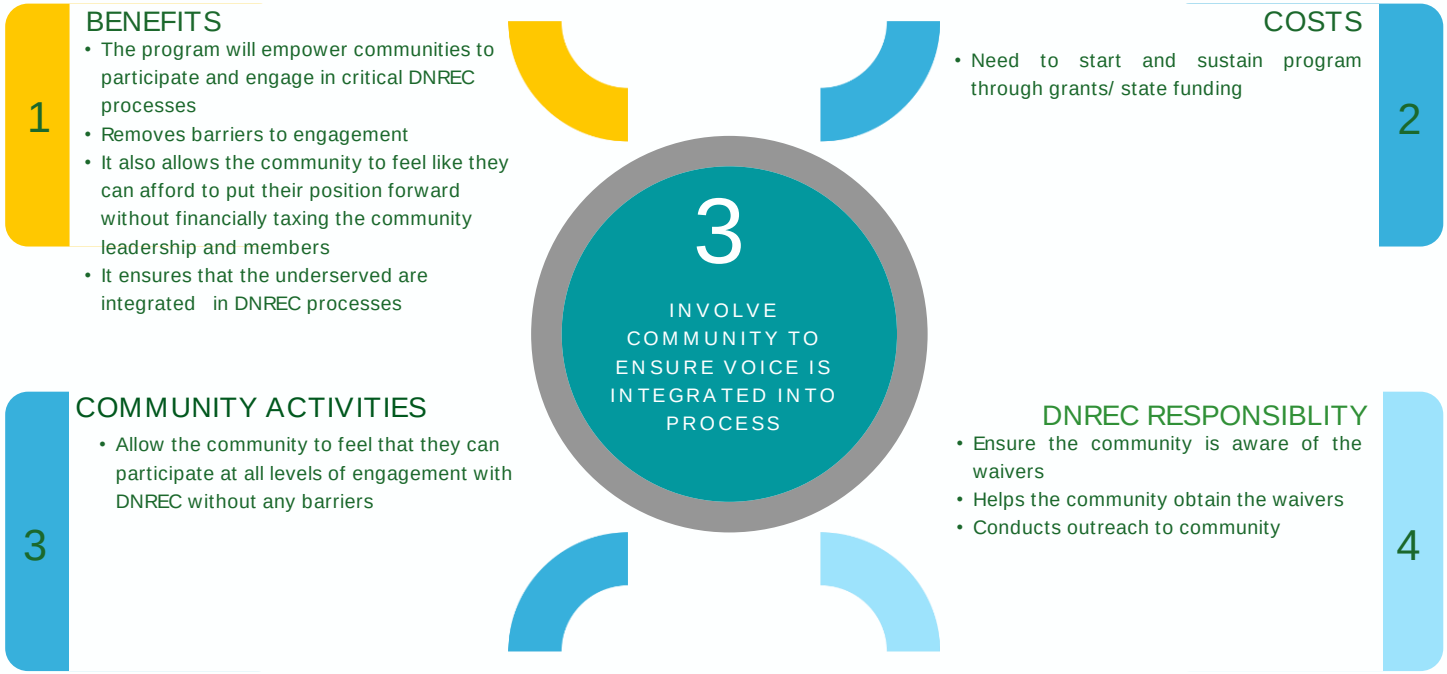
Goal #3: Targeted approaches that are culturally and regionally specific

3.5. Use special invitations and/or grants to invite underserved community presenters and attendees to events

Strategy A: Conducting Effective Outreach

Goal #3: Targeted approaches that are culturally and regionally specific

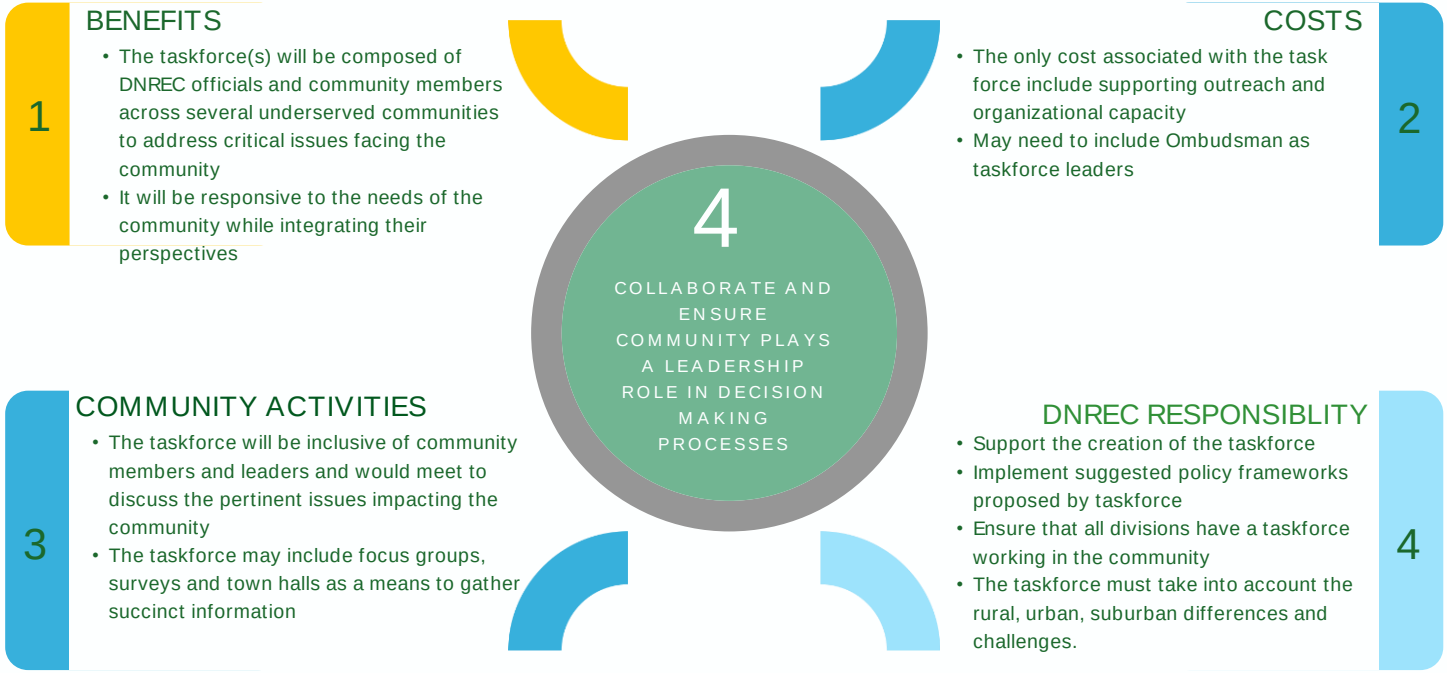
3.6.DNREC should waive financial responsibility for underserved community engagement in all DNREC processes (including appeals, witnesses, professional experts).



Strategy A: Conducting Effective Outreach

Goal #3: Targeted approaches that are culturally and regionally specific

3.7.DNREC should create a community-based committee made up of DNREC scientists and local experts to understand the local needs of the community.



Strategy A: Conducting Effective Outreach

Goal #4: Need local community point-persons

4.1. Collaborate with underserved communities to develop career/leadership opportunities

1

BENEFITS

- This will create career pathways for underserved community members to pursue careers pathways, engage, and volunteer with DNREC
- It will also support diversity within DNREC which will allow DNREC to produce policy that takes into account the community and its interests

2

COSTS

- Need new programming that may need funding
- Need to create new funded positions for community members/ leadership/ students

3

INVOLVE COMMUNITY TO ENSURE VOICE IS INTEGRATED INTO PROCESS

3

COMMUNITY ACTIVITIES

- Inform and integrate community in programming

4

DNREC RESPONSIBLITY

- Ensure the community knows of such opportunities for its members through online media campaigns, workshops, and events
- Will allow DNREC to connect and understand the communities they are working in.

Strategy A: Conducting Effective Outreach

Goal #4: Need local community point-persons

4.2. Ensure the Community Involvement Advisory Council (CIAC) includes community supported EJ community representatives.

Strategy A: Conducting Effective Outreach

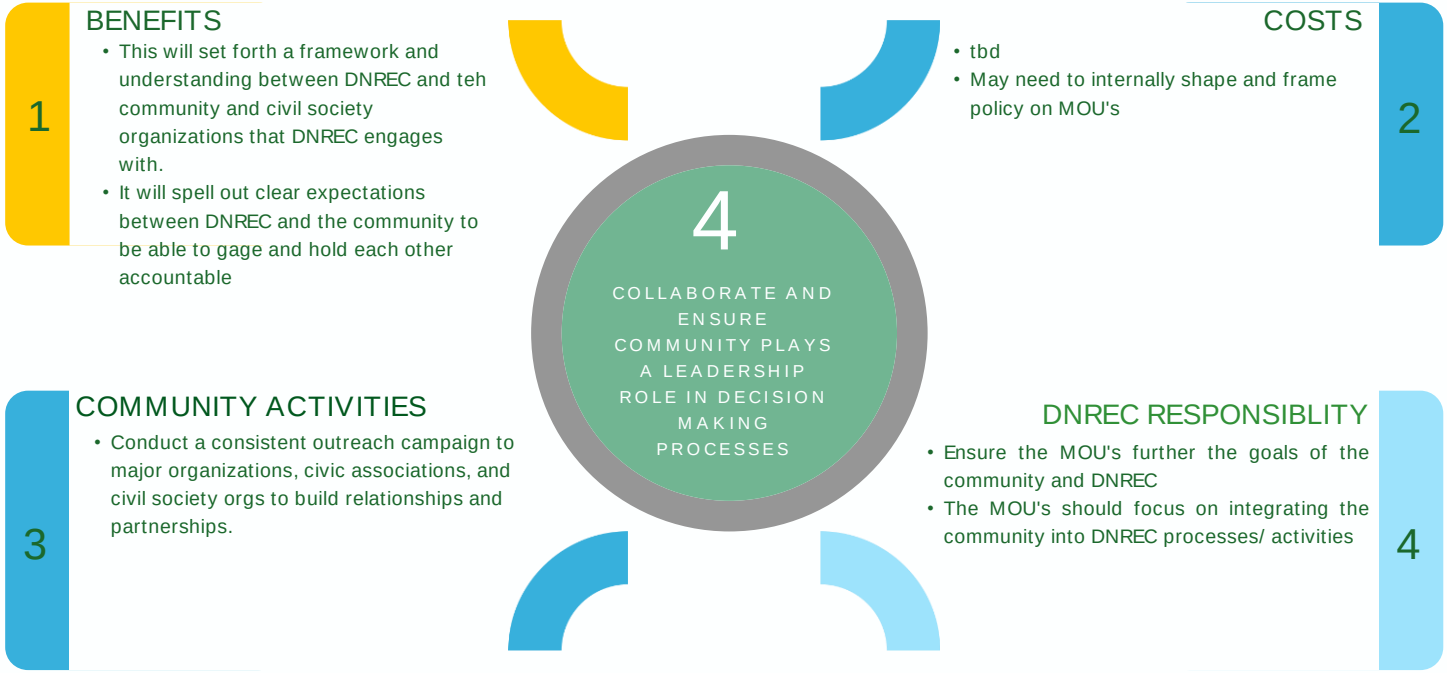
Goal #4: Need local community point-persons

4.3. Legally and organizationally empower and position CIAC to have a direct influence over DNREC policy decisions.

Strategy A: Conducting Effective Outreach

Goal #4: Need local community point-persons

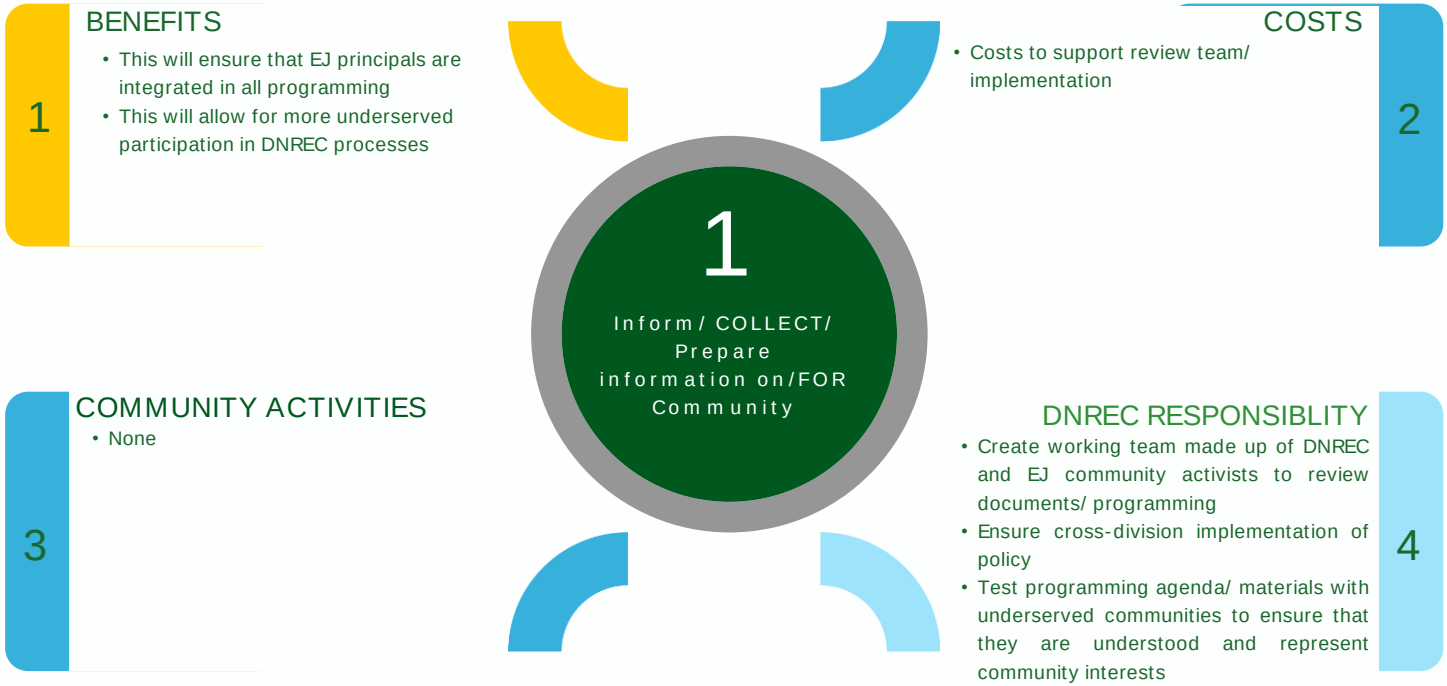
4.4. Establish memoranda of understanding (MOU's) with all stakeholders to further environmental justice goals in underserved communities.



Strategy B: Addressing Overbearing Bureaucracy

Goal #1: Unclear Processes (Permitting/ Grants-Funding)

1.1. Fully integrate environmental justice into all program strategies and evaluations.



Strategy B: Addressing Overbearing Bureaucracy

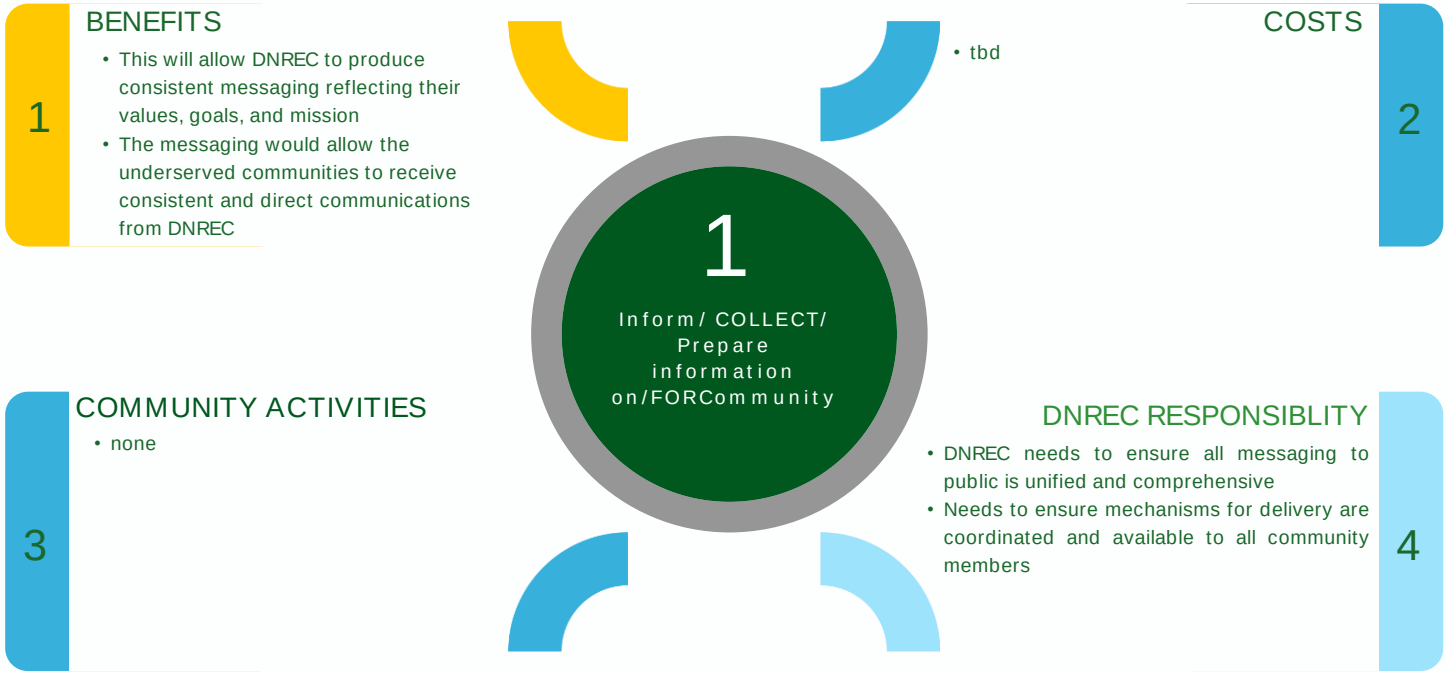
Goal #1: Unclear Processes (Permitting/ Grants-Funding)

1.2.DNREC should develop and distribute a community guide that is easily accessible to navigate DNREC processes.

Strategy B: Addressing Overbearing Bureaucracy

Goal #1: Unclear Processes (Permitting/ Grants-Funding)

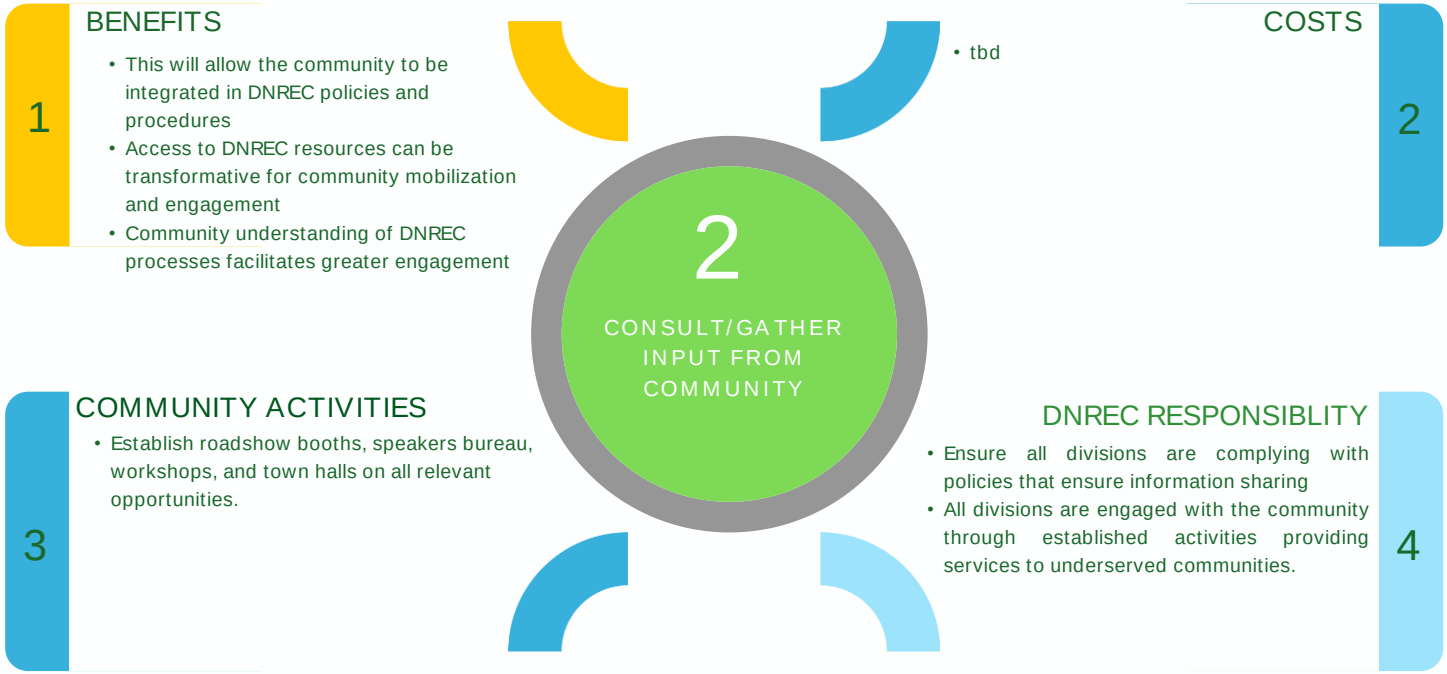
1.3. DNREC should develop consistent messaging across all divisions to ensure information is reliable, understandable, and easily accessible.



Strategy B: Addressing Overbearing Bureaucracy

Goal #1: Unclear Processes (Permitting/ Grants-Funding)

1.4. Consistently provide communities with up-to-date information on technical assistance, grant opportunities, and resources



Strategy B: Addressing Overbearing Bureaucracy

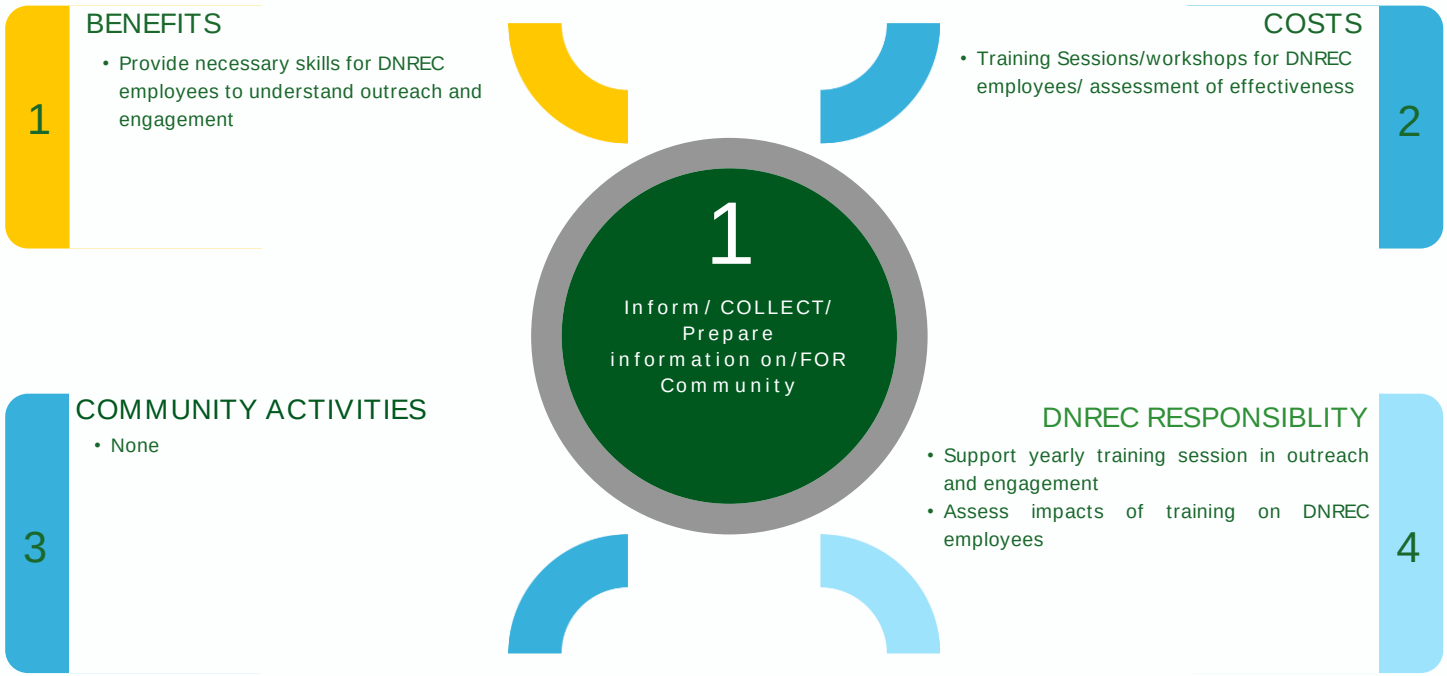
Goal #2: No Hierarchical Responsibility

2.1.Improvements to internal and cross division communication and coordination specifically on issues effecting underserved Communities.

Strategy B: Addressing Overbearing Bureaucracy

Goal #2: No Hierarchical Responsibility

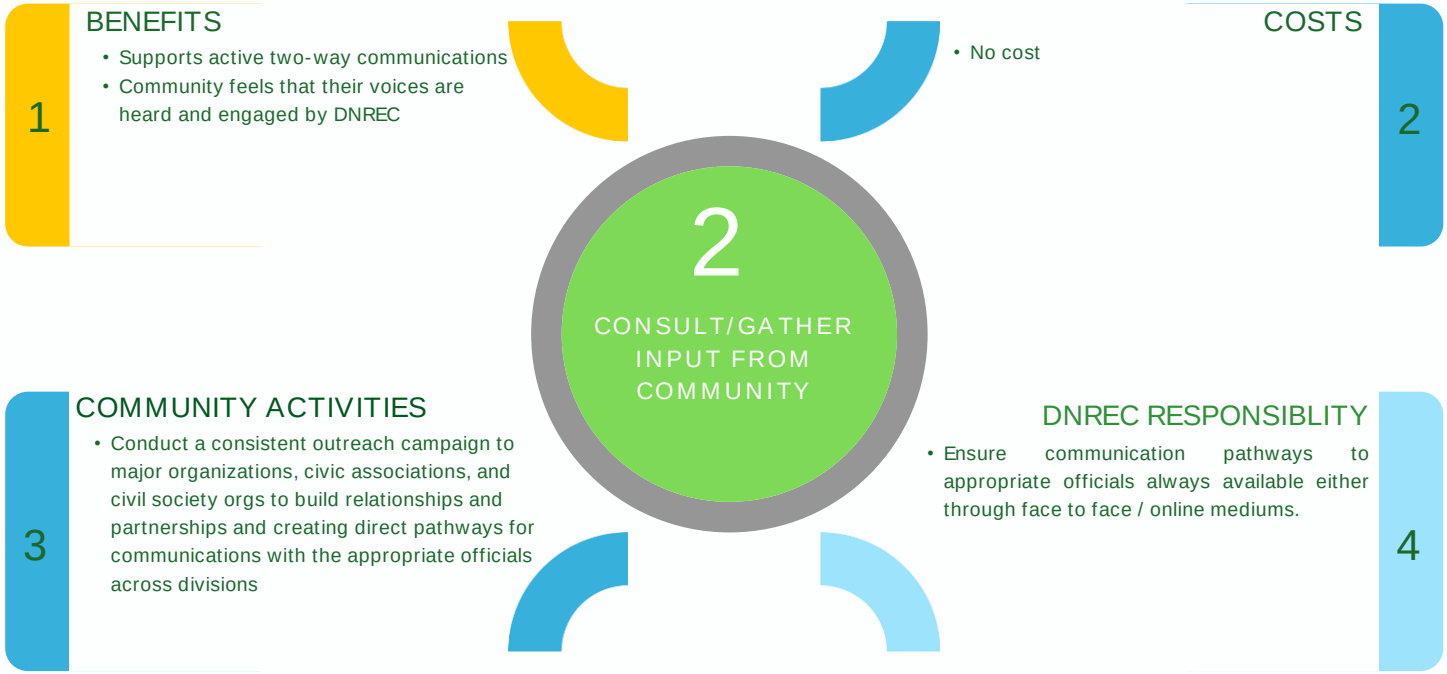
2.2. Train all division staff, advisory boards, governing bodies in fair and meaningful outreach.



Strategy B: Addressing Overbearing Bureaucracy

Goal #2: No Hierarchical Responsibility

2.3.Clearly present communication pathways for underserved community to communicate with appropriate officials with direct supervision /powers over.



Strategy B: Addressing Overbearing Bureaucracy

Goal #3: Websites/technology overbearing

3.1 Consistently maintain and update the existing online website

Strategy B: Addressing Overbearing Bureaucracy

Goal #3: Websites/technology overbearing

3.2. Update or redesign online outreach materials to reflect cultural, linguistic diversity of Delaware.

Strategy B: Addressing Overbearing Bureaucracy

Goal #3: Websites/technology overbearing

3.3. Develop, implement, and promote online communication and marketing strategies to disseminate accurate information about DNREC resources and policies.

Strategy B: Addressing Overbearing Bureaucracy

Goal #3: Websites/technology overbearing

3.4. Use appropriate technological tools to conduct outreach and share or exchange information with the public.

Strategy C: Regulatory/Technical Language

Goal #1: Messaging/outreach to the public not understood

1.1.Conduct annual assessment to measure and understand outreach effectiveness in every DNREC division

Strategy C: Regulatory/Technical Language

Goal #1: Messaging/outreach to the public not understood

1.2.Track number and results for efficacy of outreach programs and projects

Strategy C: Regulatory/Technical Language

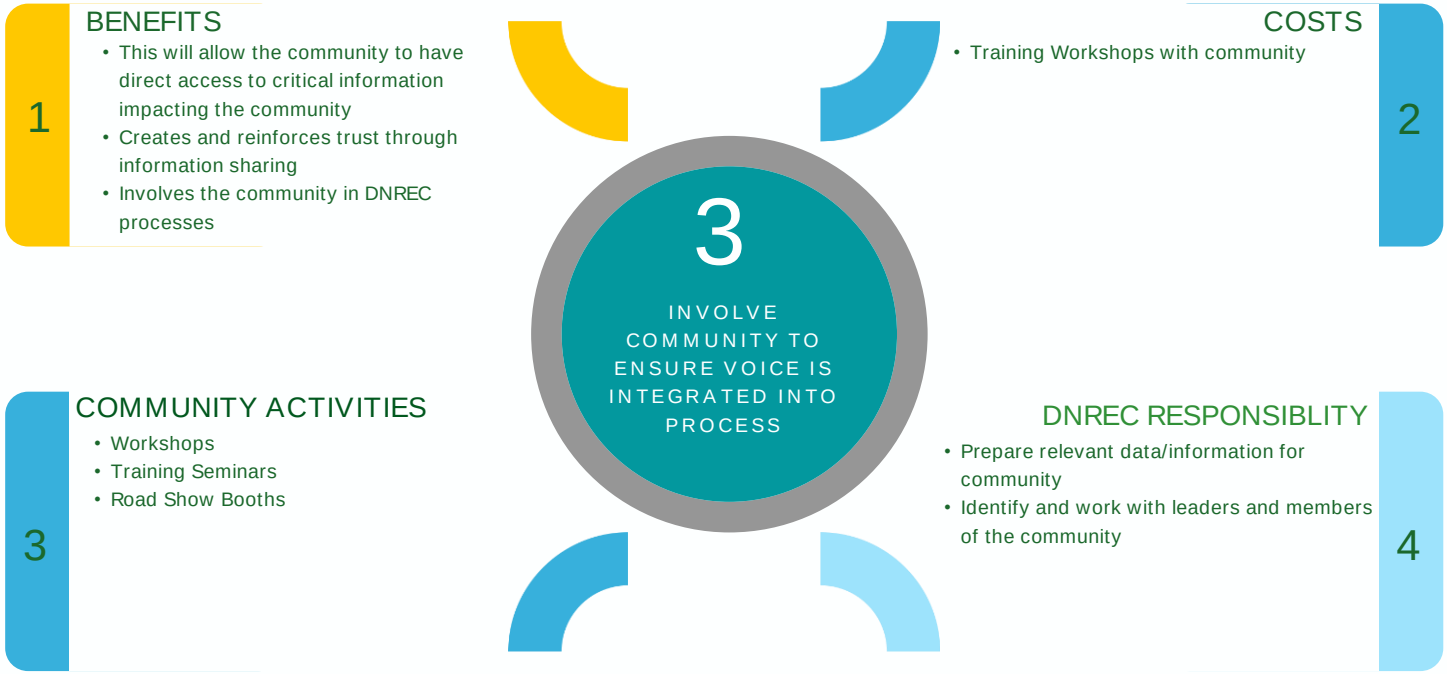
Goal #1: Messaging/outreach to the public not understood

1.3.Track number and results of outreach programs and projects in marketing and communication

Strategy C: Regulatory/Technical Language

Goal #1: Messaging/outreach to the public not understood

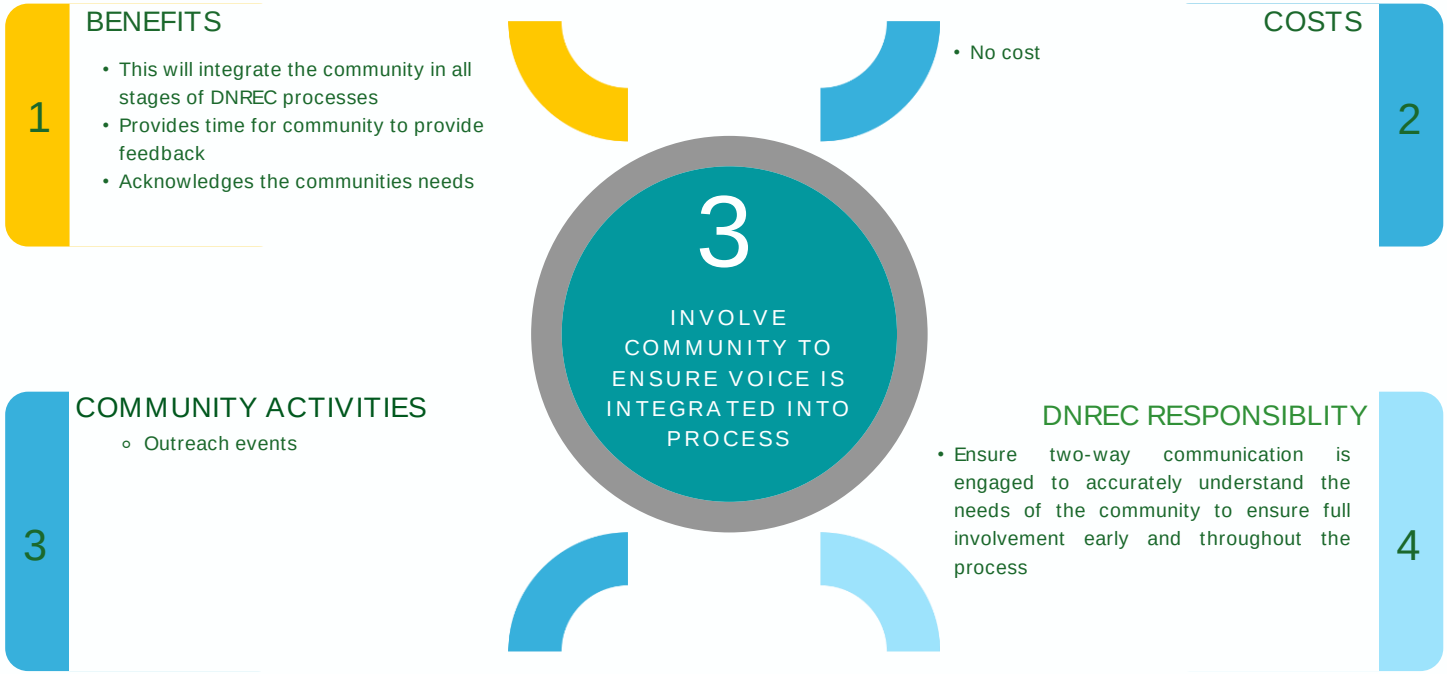
1.4. Provide training for community leaders on accessing and using DNREC data/ information resources.



Strategy C: Regulatory/Technical Language

Goal #1: Messaging/outreach to the public not understood

1.5. Prioritize opportunities for the involvement of underserved communities early and throughout DNREC processes/ activities.



Strategy C: Regulatory/Technical Language

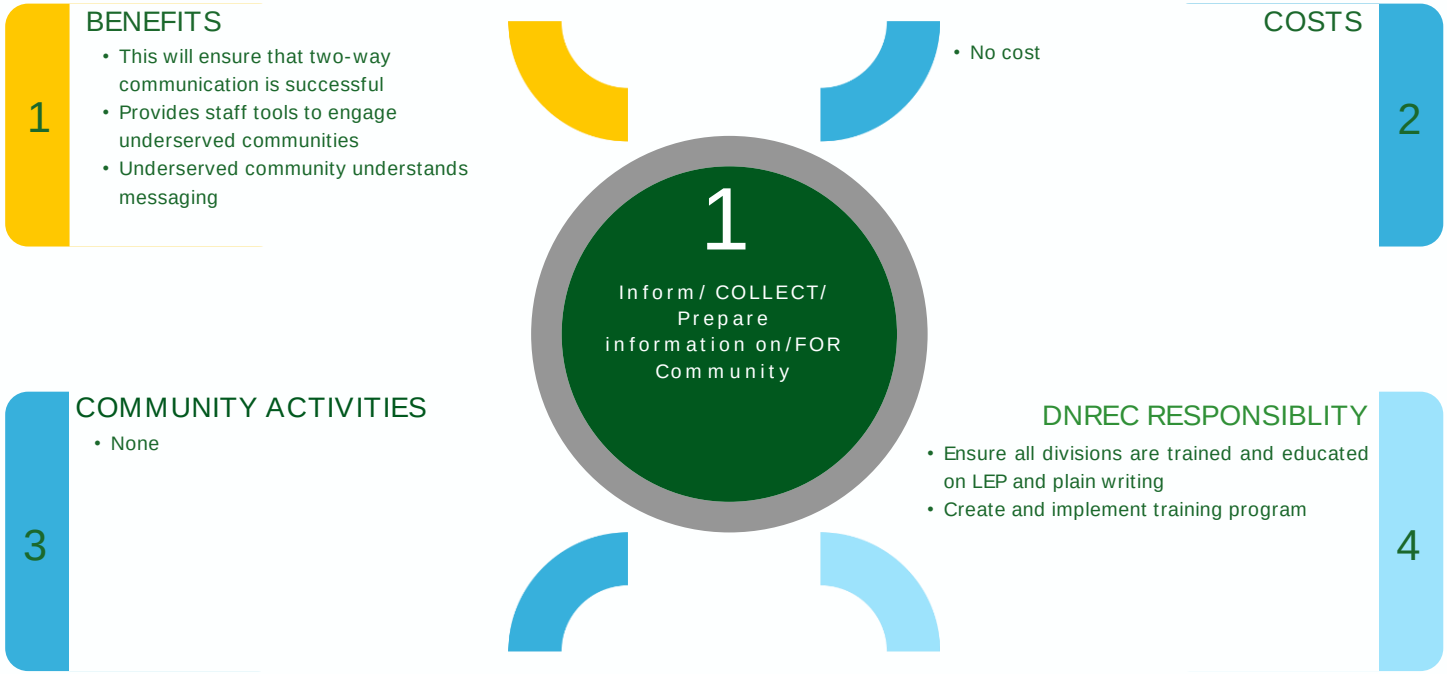
Goal #2: Need trained staff to work with diverse communities

2.1. Identify agency programs that impact underserved communities in order to determine necessary training needs.

Strategy C: Regulatory/Technical Language

Goal #2: Need trained staff to work with diverse communities

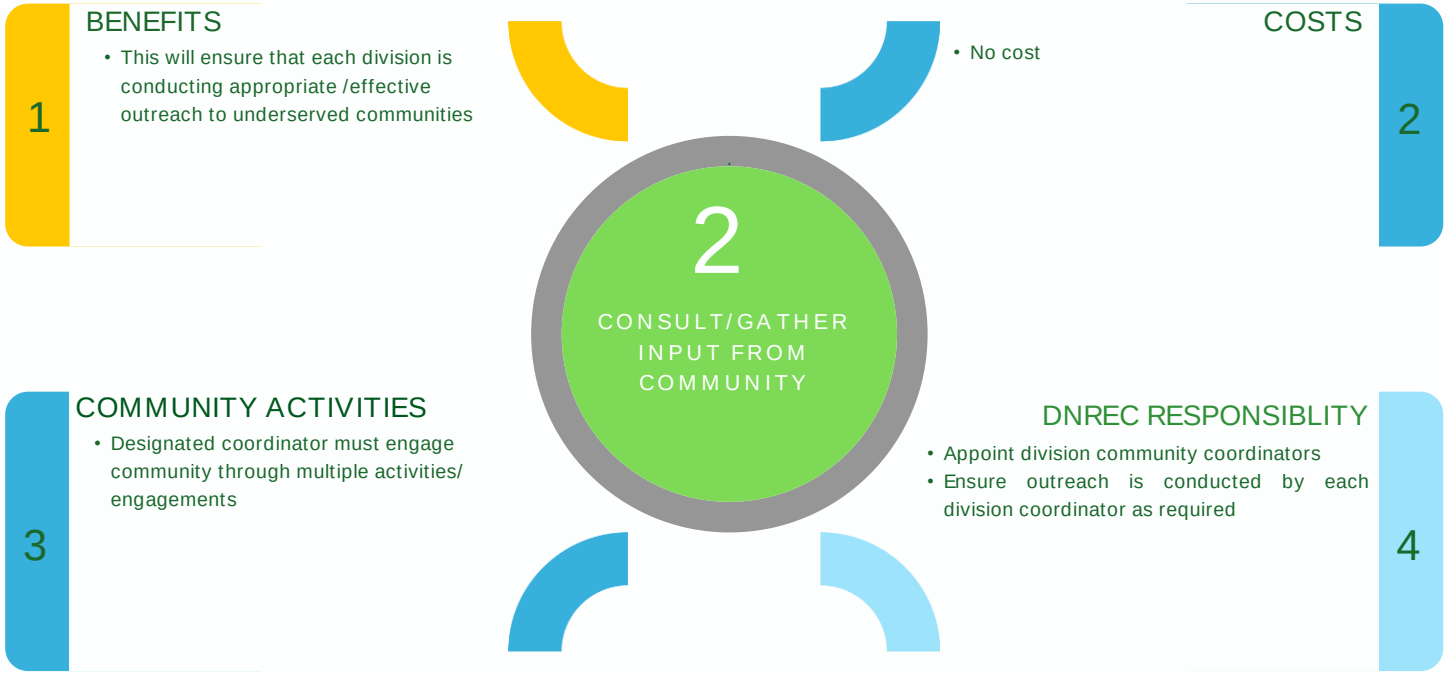
2.2. Provide internal workshops/training/information on plain writing, limited English proficiency



Strategy C: Regulatory/Technical Language

Goal #2: Need trained staff to work with diverse communities

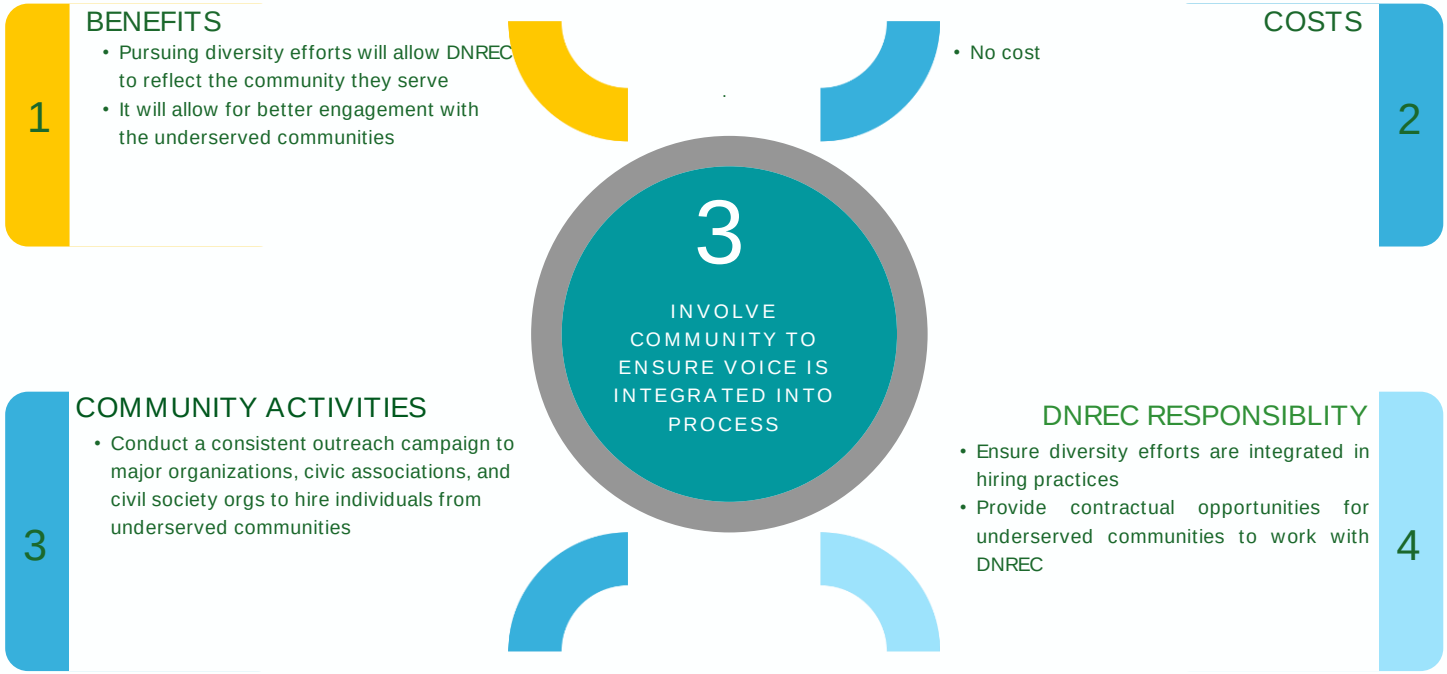
2.3. Ensure that each division has an individual(s) designated as an EJ coordinator to underserved communities.



Strategy C: Regulatory/Technical Language

Goal #2: Need trained staff to work with diverse communities

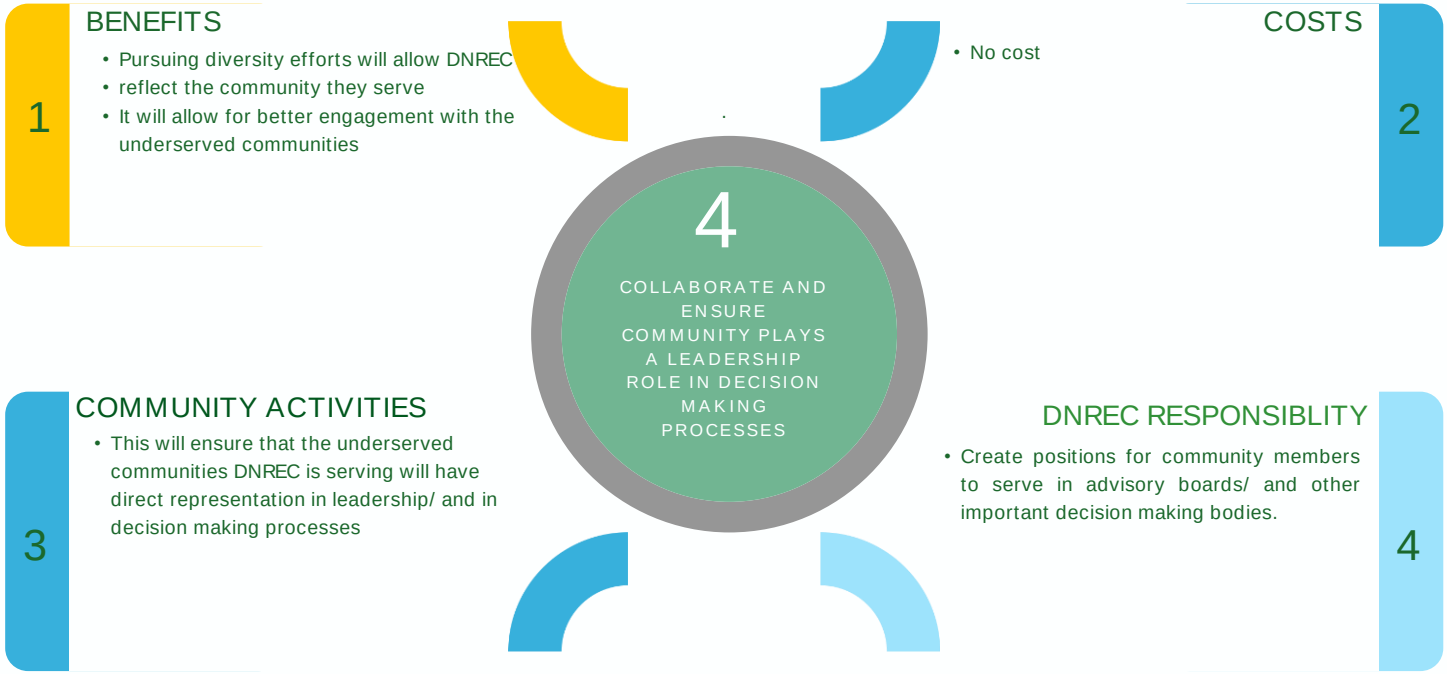
2.4. Integrate diversity efforts in DNREC efforts in hiring, recruitment, and training.



Strategy C: Regulatory/Technical Language

Goal #2: Need trained staff to work with diverse communities

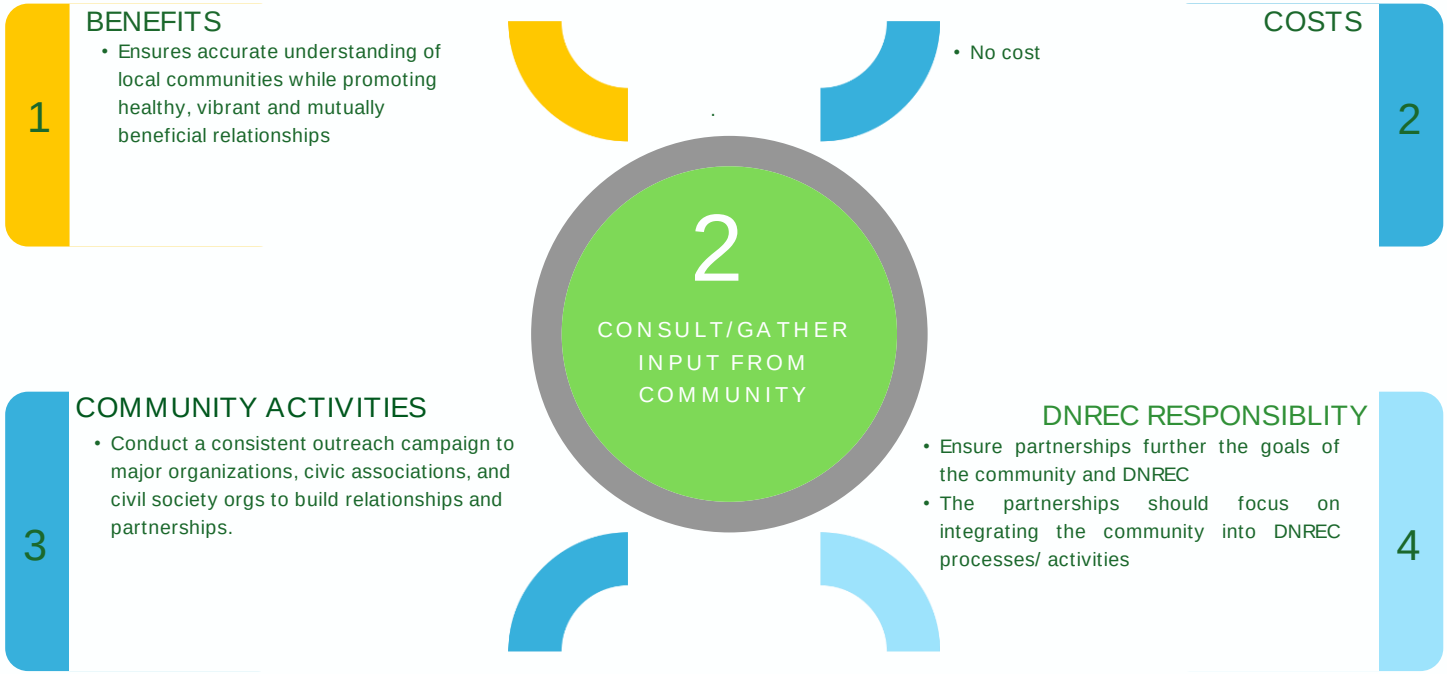
2.5. Ensure that DNREC's advisory boards and governing bodies include underserved community representatives.



Strategy C: Regulatory/Technical Language

Goal #3: Building Trust with the community through outreach and engagement

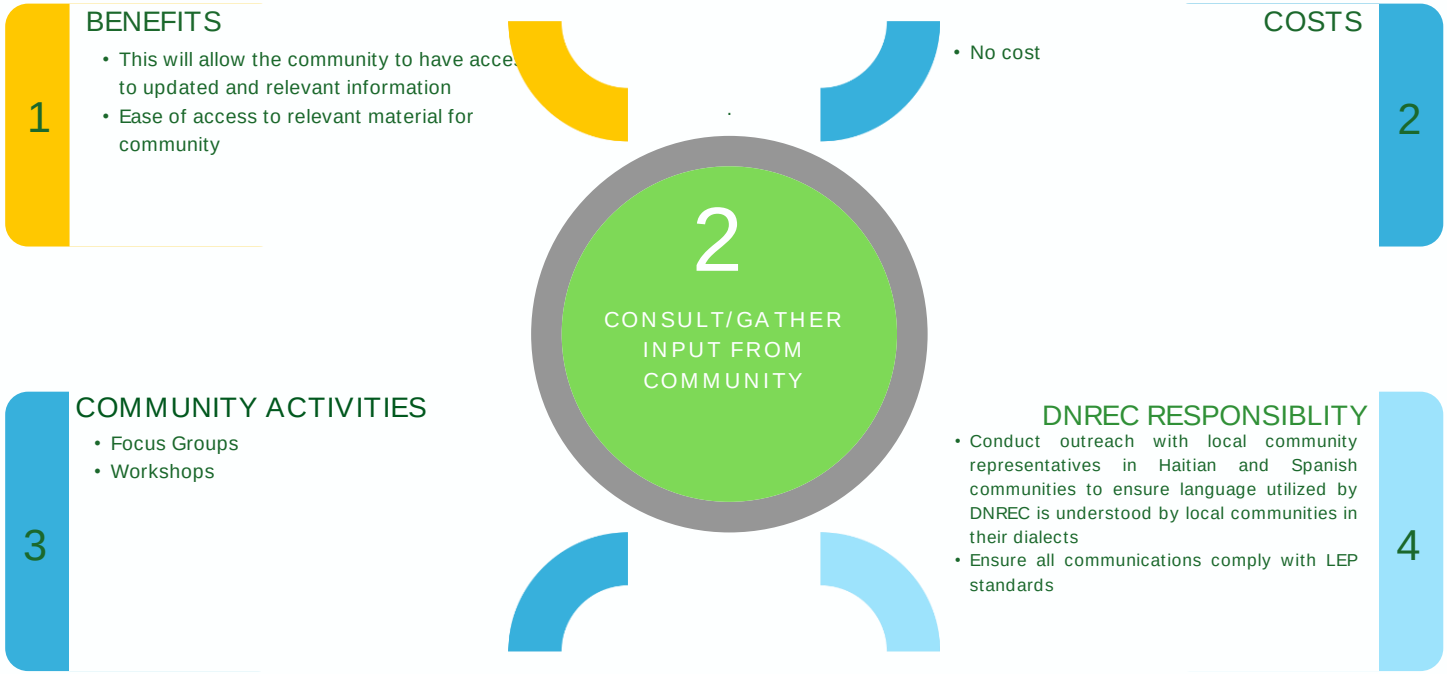
3.1. Engage in place-based partnerships



Strategy C: Regulatory/Technical Language

Goal #3: Building Trust with the community through outreach and engagement

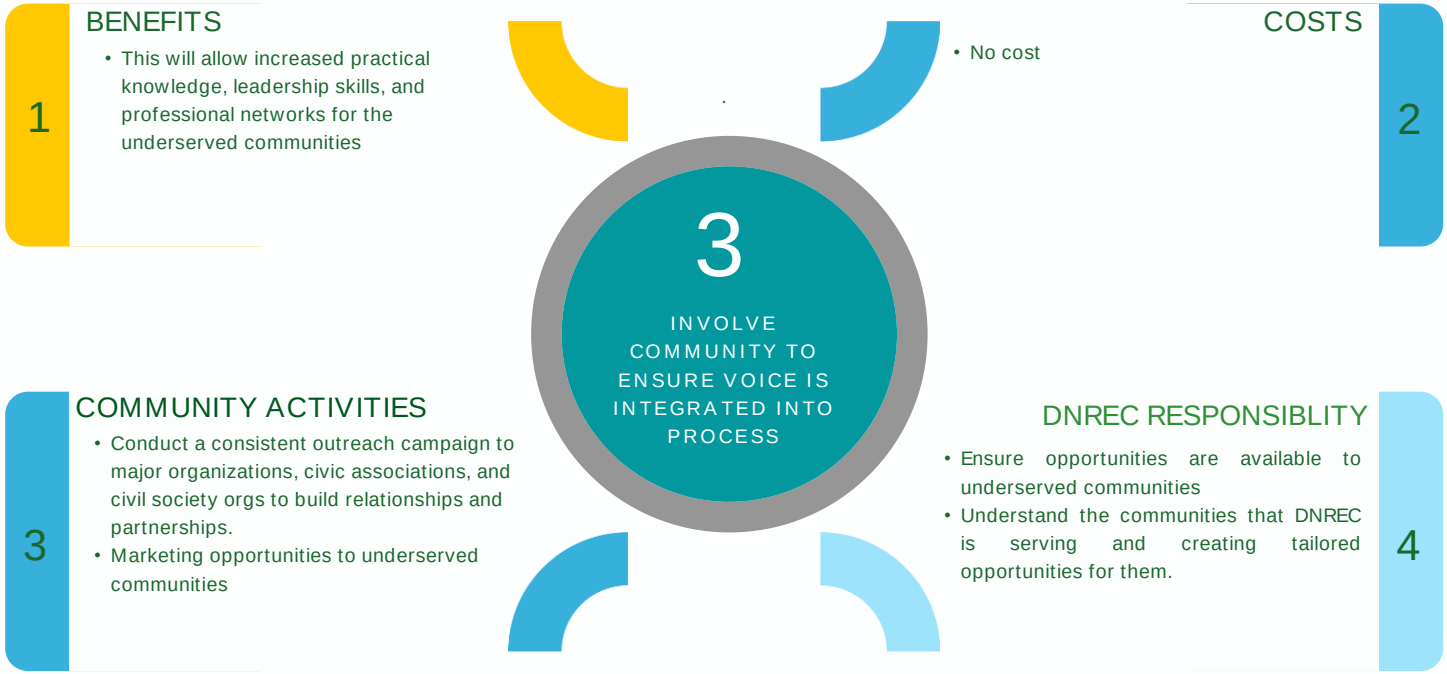
3.2. Ensure all communications comply with requirements for providing services and activities to persons with Limited English Proficiency (LEP)



Strategy C: Regulatory/Technical Language

Goal #3: Building Trust with the community through outreach and engagement

3.3. Create and support experiential learning opportunities for underserved communities



Strategy C: Regulatory/Technical Language

Goal #3: Building Trust with the community through outreach and engagement

3.4. Holding/selecting events that are accessible to local communities

Strategy C: Regulatory/Technical Language

Goal #3: Building Trust with the community through outreach and engagement

3.5. DNREC should acknowledge and build relations with underserved communities who have experienced trauma due to their marginalization

Strategy C: Regulatory/Technical Language

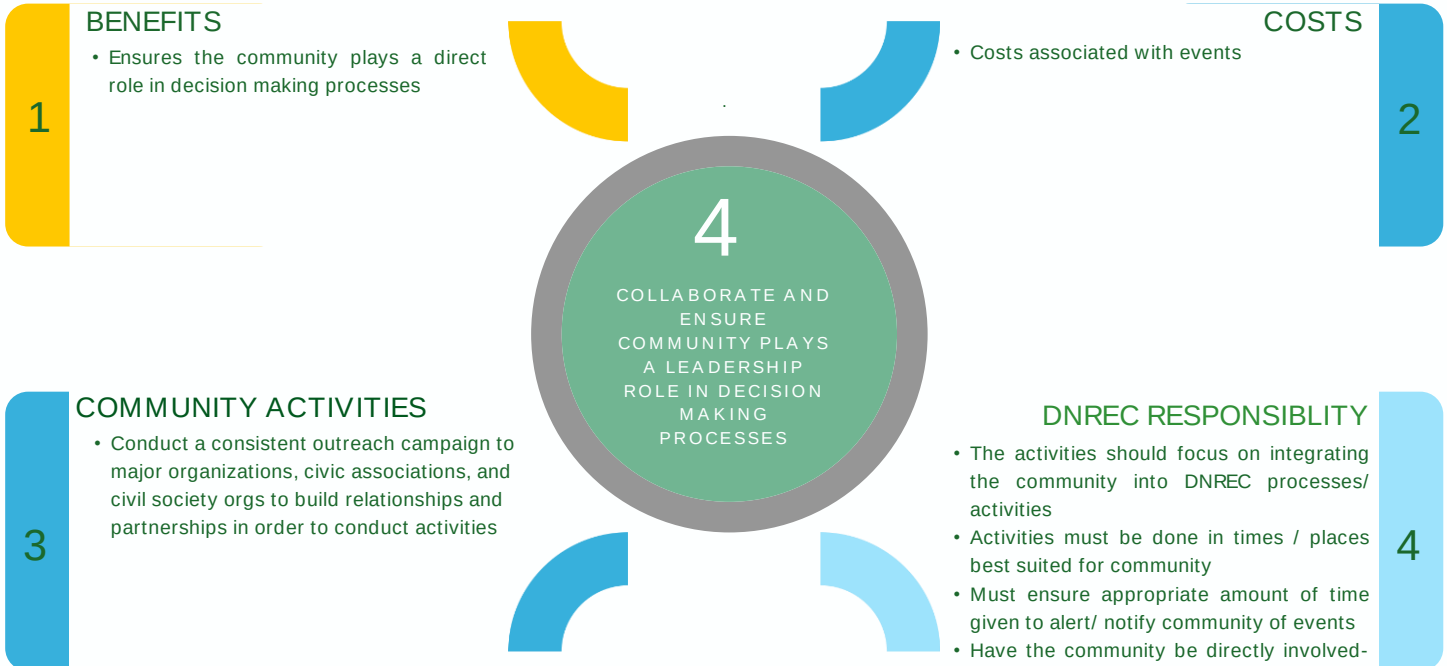
Goal #3: Building Trust with the community through outreach and engagement

3.6. Use Alternative dispute resolutions (collaborative approaches) to resolve disputes involving DNREC and underserved communities.

Strategy C: Regulatory/Technical Language

Goal #3: Building Trust with the community through outreach and engagement

3.7.Conduct public meetings, listening sessions, trainings, and forums to inform, meaningfully engage, and involve underserved communities in agency decisions.



Conclusion

The impetus behind this study is to evaluate the effectiveness of DNREC's current methods of communication, engagement and outreach to overburdened or underserved Delaware communities. To achieve this goal, an exploratory sequential mixed method research design was employed that captured the voices and perspectives of Delaware communities. This research design incorporated a variety of methodological approaches that include social media analyses, town halls, key-informant interviews, focus group discussions, and individual level survey.

Results from the social media analyses show that DNREC's engagement with Delawareans through social media is typologically "one-way" and "two-way." "One-way" engagement is characterized by the dissemination of factual information without communicative engagement and the use of visual or picturesque representation for emotions elicitation. Topic modeling using LDC techniques revealed that, apart from DNREC ensuring that their goals and mission are exemplified in their messaging and communication to the public, DNREC's use of social media is progressively becoming more engaging within the State of Delaware.

The town hall findings confirm the social media results on one-way communication along with other emerging themes such as DNREC's unclear regulatory process, alleged inadequate trained staff, and lack of community point persons. The seemingly ambiguous regulatory process was deemed to be a major reason for limiting community input and engagement with DNREC. Insufficient trained staff with cultural competence to work with diverse community in the state was identified as a major barrier to DNREC's outreach efforts. Further hindering DNREC's engagement attempts is lack of "community point persons" – people from the community with abreast knowledge on the community's environmental issues – to liaise with DNREC. While these themes are similar to what are revealed through the key-informant interviews, some of the exclusive findings from the key-informant interviews are the need for transparency in DNREC's operations including the need to optimally balance the interest of business and community during decision-making, involving community in decision-making, and being cognizant of community's previous traumatic experiences due to environmental problems. Effective outreach emerged as a major theme and that constituted employment of media strategies that are culturally relevant, contemporary canvassing techniques, as well as ills of one-way communication that stifles effective engagement.

The survey results highlight community perspectives on how DNREC can improve their current outreach strategies and engagement efforts to best address their environmental concerns and alleviate their immediate needs. Respondents revealed their preferences on the methods and tools of engagement they believed would be most effective in their communities. Research participants indicated social media as the most preferred method of interaction and communication from DNREC, followed by traditional forms of communication, including television, radio, direct mailings, and flier distribution. Moreover, in-person interaction and direct community engagement with DNREC to overburdened communities is also preferred. These findings were also consistent across all Delaware counties.

Focus group discussions enabled the exploration of themes and questions emanating from the other qualitative research activities and surveys to inform the engagement strategy development and implementation. The emergent themes that informed the strategy development included: the need

to develop workforce diversity initiatives that employ local community members to work alongside DNREC officials to address ongoing challenges in EJ communities, the idea that DNREC's minimal outreach to communities whose first language is not English are often the same communities dealing with the most demanding environmental challenges, the need to establish two-way communications between the community and DNREC as critical to effective communication and outreach, and bridging trust gap between DNREC and the EJ communities by ensuring that the community participates in and has access to all DNREC's points of outreach and engagement. It is, therefore, proposed that an outreach and engagement strategy development should be predicated on three main goals: conducting effective outreach, addressing overbearing bureaucracy, and addressing regulatory concerns and technical language.

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