INTERACTIVE VOICE RESPONSE TECHNOLOGY AND MIGRANT FISHER WELL-BEING

A GUIDEBOOK

SATYA SAINATH
SREE HARSHA THANNEERU
AARTHI SRIDHAR

Photo credits: Ch. Pratima and Satya Sainath
Produced with the support from the Commonwealth Foundation
**TABLE OF CONTENTS**

1. Purpose of the manual 3
2. What is IVR? How it is used for social change? 5
3. How does IVR work? 8
4. How to set up an IVR system? 11
5. Documentation and registration procedures 12
6. Things to note while designing an IVR service 13
7. Challenges in IVR-based outreach with migrant fishers 14

**Abbreviations and terminology**

a. TRAI - Telecom Regulatory Authority of India  
   b. SMS - Short Message Service  
   c. Users - Anyone who is using the service/platform  
   d. Layers - branches in the menu  
   e. Campaign - It is a series of messages you send to a target audience with specific information. You can run a campaign with SMS and voice  
   f. DLT - Distributed Ledger Technologies means a set of technological solutions that enables a single, sequenced, standardized, and cryptographically-secured record of activities to be safely distributed to, and acted upon, by a network of varied participants and their databases.
1. PURPOSE OF THIS MANUAL

Several of India’s small-scale fishers migrate across the year, (both intra and inter-state) to work as fishing trawler crew, construction workers, factory workers, etc to supplement declining incomes from fishing and during the fishing ban period.

In the year 2021-2022, Dakshin Foundation worked in two sites to pilot specific interventions related to migration within small-scale fishing (SSF) communities. The sites we selected to work in were Nagapattinam district in Tamil Nadu and Ganjam district in Odisha. These two districts are known sites of large-scale migration among fishing communities due to a range of intersecting causes. Migrants from the two districts face myriad challenges during the process of migration such as access to economic entitlements, coverage by labour welfare schemes, and even their basic rights. Poor working conditions are compounded by the prevalence of low levels of awareness of schemes, laws and options for the redressal of grievances. A key challenge is the absence of an appropriate communication system that can enable migrant SSFs to access timely and relevant information that will go a step towards securing their safety and well-being. Our project aimed to identify relevant digital communication tools that could improve information flow between migrant fisher labour who are in distress, and civil society agents who could provide such timely information such as NGOs and voluntary social welfare groups.

This manual contains details about one option - the voice-based Interactive Voice Response (IVR) technology. It is written to help interested readers understand its potential, operational requirements and steps that will need to be taken before it can be considered a good tool for bridging information for SSF communities. We have collated this information keeping in mind the questions that might be posed by our intended audience-practitioner organisations, panchayat raj institution members, government officials, unions, and collectives.
PICTORIAL REPRESENTATION OF IVR FUNCTIONING
2. WHAT IS IVR? HOW IT IS USED FOR SOCIAL CHANGE?

Interactive Voice Response (IVR for short, as the name suggests, is meant to be a mode of communication that helps humans and computers communicate with each other through the mode of voice. Simply put, it is a technology that allows humans to obtain information from a computer, through the telephone (or mobile phone) and vice versa. It helps decrease the gap in access to information. Many times, really useful information is inaccessible to rural populations merely because most of it is available in a text-based form and often on the internet. However, by recording such information in an audio format, we could easily make it available to a wider rural population who might not have the requisite literacy or technological skill. Through IVR, they would only need to dial a few numbers to access pertinent information easily.

If you have dialled a call-centre or customer care number and been asked to dial 1, 2 or 3 etc to record your complaint or to obtain some information (e.g about your bank account balance, or to book a gas cylinder etc), then you have interacted with an IVR system. The IVR system mainly harnesses telecommunications technology combined with internet and digital communications, to provide services that can cover a large population while handling vast amounts of data at the back end. Services available in an IVR system include the following:

*Customisable menus:* One can customise a ‘call workflow’ with a menu categorised by several sub-menu options to help beneficiaries navigate their queries.

*Call recordings:* An IVR account will maintain call recordings of every call, in real-time, to listen to it later and maintain quality standards.

*Call monitoring and analytics:* Your IVR account can monitor all calls, to access the call performance, the nature of engagement with users/ beneficiaries. This helps in timely follow-up with the end users.

*Missed call alerts:* This feature helps to track missed calls from end users and get back to them immediately.

*Outgoing call campaigns:* This feature helps an organisation/client reach out to a group of callers with specific messages at scale.
IVR today has several applications in all kinds of fields that need an exchange of information. This includes commerce of course, but also health care delivery, conservation services (such as predator warnings and information on sightings of conflict animals like elephants in human-dominated landscapes). It has also been used to crowdsource data from large populations to monitor health practices, to enable people to make behavioural changes as well as for the purpose of entertainment.

IVR use in rural areas of India for social change is slowly picking up and it has been utilised to provide a range of applications such as generic helplines via an interactive mode with a call-back facility. However, its application for dissemination of certain kinds of information has not been widely trialled in coastal areas and with fishing communities, many of whom still fall within the negative end of the digital divide that marks India’s ICT coverage. IVR has been instrumental in reaching rural masses in innovative social impact initiatives by various civil society organisations across India. Some of the initiatives are described below:

Gram Vaani’s **Saajha Manch** uses voice-based IVR technology to build engagement of migrant workers in addressing issues like securing of rights, entitlements and support for grievance redressal. This IVR service focuses on workers in industrial areas of Delhi and the National Capital Region.

Visit their website to learn more [https://gramvaani.org/](https://gramvaani.org/)
Kisan Mitra was started as an initiative to prevent farmer suicides and listen to farmers in distress, counsel them, document their problems and based on specific issues, take up these concerns with relevant government department officials and help the farmer in following up on the issue until it is resolved. The Kisan Mitra team has a full-time central team and partners with field organisations across the states of Telangana and Andhra Pradesh to reach out to farmers, and implement a grievance mechanism. ‘Call campaigns’ are created when there is new information that can be shared with farmers. For e.g. to announce government willingness to procure crop produce like jowar/bengal gram/ paddy. A call campaign with the relevant information is sent via an audio message to farmers through an IVR service. Read the 5 year report of Kisanmitra.

COVID Helpline for migrant workers: A civil society initiative - COVID helpline drew on the outreach experiences of initiatives like the Kisan Mitra helpline for farmers, and provided a service that kicked in during lockdown to help stranded migrant workers. Through the IVR service, coordination of numerous requests was made possible to help systematically channel the provision of rations, shelter and arrangements for return travel of migrant workers to their home states. The helpline was able to connect COVID-affected patients with medical doctors who offered free service during the second wave of the pandemic in India. Read more here.
3. HOW DOES IVR WORK?

The two basic types of IVR services are inbound and outbound. Inbound IVR systems handle incoming calls, while outbound IVR systems make calls that involve either total or partial automated dialing. For example, in the inbound system, a migrant worker would themselves make a call to a number that would be prominently advertised or shared with migrant workers by either government departments or by their owners or other civil society groups running an IVR service.

In the outbound mode, there are two more sub-modes: the fully and partially automated system. In the fully automated system, where a database containing phone numbers of fish workers (migrant or resident) has been fed into a server, an IVR service would make automated calls to groups of fish workers and pass on audio messages to them according to the options they select. In the partially automated system, a migrant worker would receive a pre-recorded message and would be given options to listen to a few messages but also an option to route the call to a support person to directly speak with the worker.

Based on the need, one can customise the IVR process. Depending on the nature of self-help features, IVR comes in two forms depicted in the adjacent images:

1. Single-level IVR: It is the simplest form of IVR, as you can only add one layer of options in a menu to your call responses.

2. Multi-level IVR: - In this system, you can add multiple layers of options in a menu to your call responses and maintain the flow of interaction depending on the need.

For simple campaigns and promotional events, single-level IVR is used. In the above-mentioned examples, Gram Vaani and Kisan Mitra use multi-level IVR in their IVR models.
PICTORIAL REPRESENTATION OF SINGLE-LEVEL IVR

1. For information related to migration press 1
2. For information related to schemes and entitlements for fishers press 2
3. For information related to health press 3

PICTORIAL REPRESENTATION OF MULTI-LEVEL IVR

1. For information related to migration press 1
2. For information related to schemes and entitlements for fishers press 2
3. For information related to health press 3

For food and working conditions information press 1
For registration information press 2
For schemes provided by government press 1
For information on rights and entitlements press 2
For information on general health press 1
For information on insurances provided by government press 2
For more information press 3
**Call workflow in an IVR system:** Shown below is an example from the Exotel (an IVR service provider) dashboard, where users can build their own call workflows by a drag-and-drop interface. This allows us to customise and design the overall experience, from the initial welcome voice message up to redirecting the caller to the right audio message or available human agent.

Below is a screenshot of a dashboard of a ‘call campaign’ by the Kisan Mitra team to communicate to farmers an announcement about the Government of Telangana’s decision on procurement at MSP of jowar, so that farmers can benefit from the support price.
4. HOW TO SET UP AN IVR SYSTEM?

Earlier, to set up an IVR system, one had to purchase licences, relevant software and complex hardware which altogether was a cumbersome process for any organisation working with limited resources. Now, IVR systems are easy to use and saves clients from worrying about hardware or software. IVR operating software is hosted on cloud services and can be launched within a short period with the support of an IVR service provider. The IVR logic, software and relevant hardware, including data centres are owned and managed by the service provider.

Based on the need, one can customise and design a particular call workflow. The call workflow refers to the series of actions and accompanying messages and next stages (or layers) of actions and messages. All these are located within the IVR account that one can purchase from an IVR service provider. Voice messages and menus of options can be customised. Calls can also be routed through the IVR service platform. The service provider takes care of any software updates and maintenance of the hardware which a user no longer needs to worry about. You would need to pay the service provider a recurring periodic fee for using the service.

Migrant fishers can be connected to the IVR system if they even make a missed call to a unique phone number (provided by the service provider). They will instantly receive a call-back. The migrant worker can then listen to a pre-recorded playlist of information which will be based on a customised call workflow that is suited to meet their needs. Going forward, an IVR platform can also solicit new information, complaints and take feedback from migrant fishers, thus providing them with vital information but also sourcing information that can better policy responses.

A wide range of IVR plans are available in the market. A super basic plan for a multi-level IVR will cost approximately INR 5000 for a half-year period. Adding one exophone connection (a virtual phone number that will make multiple calls) will bring these costs up to INR 10,000. Plans are available for various durations, where the costs reduce for longer durations. All plans and details are available on service provider websites and are easy to understand.
5. DOCUMENTATION AND REGISTRATION PROCEDURES

Earlier, there were few regulatory needs for setting up an IVR system. In recent years, an entity is required by the Telecom Regulatory Authority of India (TRAI) under Indian law to submit various KYC documents and to register with TRAI which will permit it to set up an IVR system. The registration is usually processed by the IVR service provider themselves.

For NGO, Trust & Societies:

<table>
<thead>
<tr>
<th>Acceptable documents</th>
<th>Formats for upload</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate of Incorporation</td>
<td></td>
</tr>
<tr>
<td>• Trust deed (In Charitable Trust at least two people are required, there is no limit of maximum members)</td>
<td></td>
</tr>
<tr>
<td>• Certificate of Registration Under Societies Registration Act (In society, a minimum of seven members are required to be the members)</td>
<td></td>
</tr>
<tr>
<td>• Section 8 license</td>
<td></td>
</tr>
<tr>
<td>• Trust deed under Registration Act, 1908</td>
<td></td>
</tr>
<tr>
<td>PAN Card</td>
<td></td>
</tr>
<tr>
<td>• NGO, Trust or Society’s PAN card</td>
<td></td>
</tr>
<tr>
<td>Address proof</td>
<td></td>
</tr>
<tr>
<td>• GST Registration certificate/MSME Registration certificate/Incorporation certificate</td>
<td></td>
</tr>
<tr>
<td>• Postpaid Fixed line/broadband Bill</td>
<td></td>
</tr>
<tr>
<td>• Electricity bill</td>
<td></td>
</tr>
<tr>
<td>• Rental Agreement</td>
<td></td>
</tr>
<tr>
<td>• Shared space contract</td>
<td></td>
</tr>
<tr>
<td>• Address declaration in Exotel’s format</td>
<td></td>
</tr>
<tr>
<td>Photo</td>
<td></td>
</tr>
<tr>
<td>• Passport size photograph of one of the members or authorized signatory.</td>
<td></td>
</tr>
</tbody>
</table>

List of KYC documents to be submitted (Source: Exotel)

These days, most IVR systems offer a trial setup, allowing clients to set up a pilot system initially, by registering with an IVR service provider with just an e-mail ID, giving them access to basic features like making limited outgoing calls and creating workflows. Once familiar with the trial system and having tested it, one can go ahead and upload the KYC documents mentioned above and thereafter use the full features of the IVR. Registration for the inbound call facility takes a week, whereas registering for sending outbound messages require permission from the DLT and can take up to one month. It is mandatory to do DLT registration to send communication to beneficiaries intended through SMS or voice call through a registered telemarketer. Check TRAI TCCCPR 2018 guidelines.
6. THINGS TO NOTE WHILE DESIGNING AN IVR SERVICE

Most often organisations are keen to use IVR systems because of their tremendous reach. However, often, organisations struggle to design these systems and messages well. In many cases, users/clients fail to visualise their entire IVR system from the beneficiary's / caller’s perspective which leads to poor experience for users. This leads to poor usage and even failure of the service. We’ve listed a few points to consider when designing your IVR system to help reach end users effectively:

- Give limited options in the menu. Ideally, a caller must be given 3 to 4 options to choose from in the first instance.
- Give a clear and short introductory message before mentioning the menu options. This makes the IVR experience user-friendly.
- Match your language to your intended beneficiaries.
- Provide a message about each option before requiring the caller to take an action. For example, “For information on health, press 1” instead of saying “Press 1 for information on health”.
- Always give the caller/user an option to speak with a human agent directly. This option helps to address issues that are not mentioned in the IVR menu. For example, in case a migrant fisher was confused by the earlier messages in the options, or if they did not find the information they were looking for, the option of speaking to a helpline agent would serve to fulfil this need.
- It is helpful to have expert technical advice at various stages of running your IVR service.

In a conventional helpline, a single human agent can attend only to a single call at a time. However, an IVR system can cater to several beneficiaries simultaneously and can disseminate information to large populations, saving on precious human resources. Its bulk call handling capability helps a call centre maintain key call centre information like total calls received, average handling time, number of calls not received, etc. A human agent however is indispensable for attending more fully to migrant fishers and rural populations in India who are best served by human-to-human communication which allows for a rich two-way flow of information.
7. CHALLENGES IN IVR-BASED OUTREACH WITH MIGRANT FISHERS

While the IVR system appears promising, not unlike several ICT-based solutions for development, it is often rife with problems that can limit its utility. This is especially the case when the entity setting up an IVR service is attempting to cater to beneficiaries (such as migrant fishers) whose ICT skills, capabilities are varied and whose needs are complex. In India, migrant fishers are a complex category with both emergency and generic needs which needs to be first well understood.

Migrant fishers usually work in sites distant from their home states, where the language is different. For instance, fishers from the Ganjam district in Odisha, migrate to the west coast state of Gujarat to work in factories or on fishing vessels. If they were in distress and wished to access an IVR service in the host state they would likely face a serious language barrier.

Given the diversity of India’s marine fishing communities, a centralised automated messaging system will only be able to reach migrant fishers (beneficiaries) for very simple messaging. Over-simplified messages might not be useful in a complex emergency like a lockdown where people need to be connected with their families and relief agencies. In such instances only dedicated language-sensitive, human-mediated IVR services will help.

An outbound IVR service targeting migrant fishers needs a database of their phone numbers. However, due to poor maintenance of records of workers, there are virtually no databases of migrant fishers’ numbers. Further migrant workers tend to change phone numbers. Therefore, creating updatable migrant fisher databases is needed for an IVR service.

To increase last-mile delivery of social initiatives, one needs to design contextual and clear information for end-users. It includes the use of suitable vocabulary and dialect in one’s messages. Often enough attention is not paid to the sustainability of service. Several government and civil society agencies start IVR initiatives but either fail to advertise these adequately or fail to implement these well in a lasting manner. For migrant workers especially, who are constantly on the move, having access to a stable, reliable, and lasting service is vital. We hope you are inspired to try.