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100 YEARS

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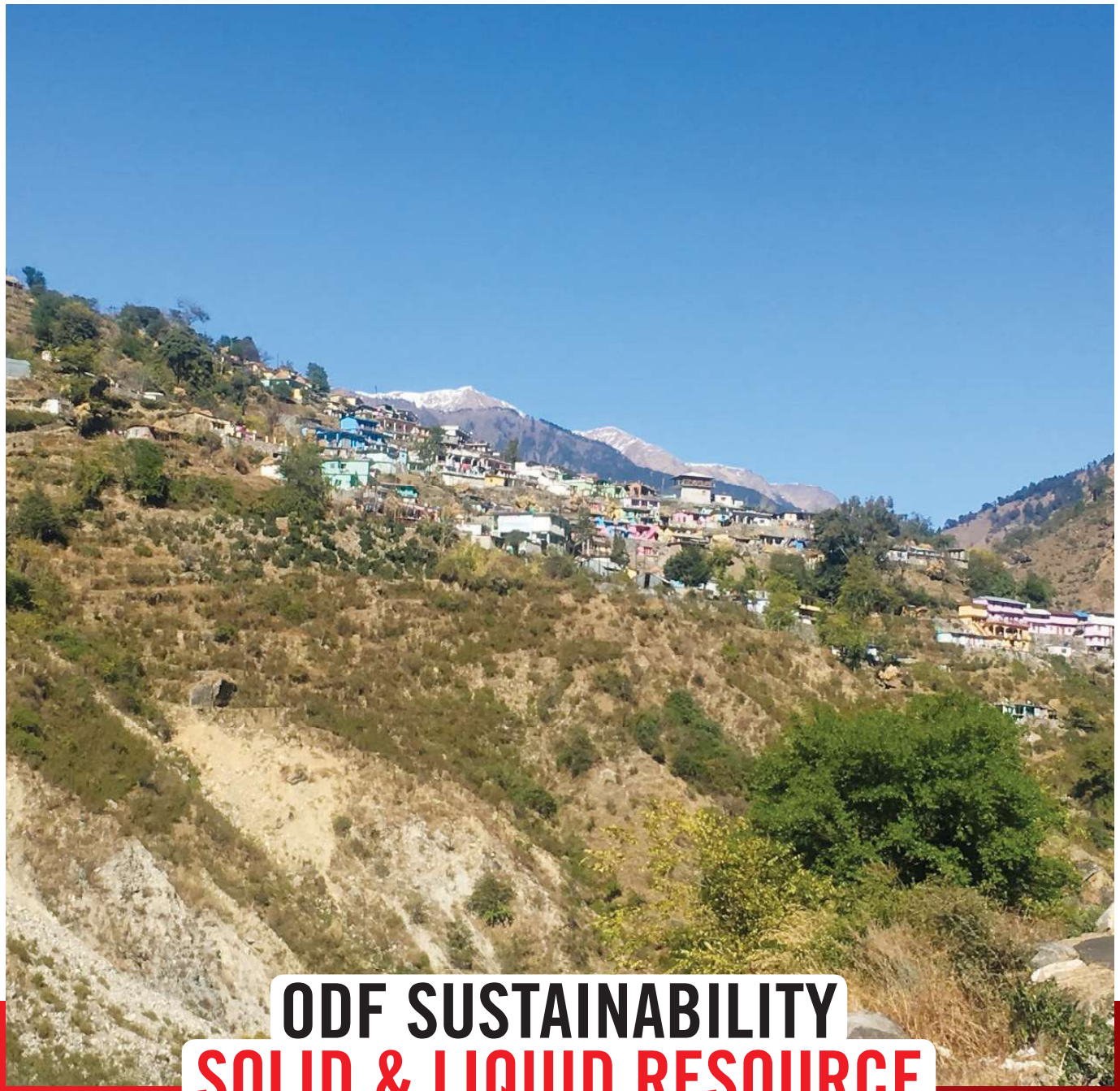
निर्मल उत्तराखण्ड
स्वच्छता की उड़ान

उत्तराखण्ड शासन



ODF SUSTAINABILITY
SOLID & LIQUID RESOURCE MANAGEMENT

Strategy and Operational Guidelines for Rural Uttarakhand
March, 2019

Department of Drinking Water & Sanitation, Govt. of Uttarakhand
Save the Children, India (Bal Raksha Bharat)

Cleanliness is next to godliness

— "Mahatma Gandhi"

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Credits

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Acronyms

ADB	Asian Development Bank
BCC	Behavioural Change Communication
CBOs	Community Based Organizations
DEWATS	Decentralized Waste Water Treatment System
DPR	Detailed Project Report
EA	Executing Agency
GP	Gram Panchayat
EPR	Extended Producers Responsibility
FGD	Focused Group Discussions
GSF	Global Sanitation Fund
GoI	Government of India
GIS	Geographical Information System
SBM-G	Swachh Bharat Mission- Gramin
HH	Households
H.P	Hand Pump
IEC	Information Education Communication
IT	Information Technology
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NRLM	National Rural Livelihood Mission
NRMC	Natural Resources Management Centre Pvt Ltd.
MDWS	Ministry of Drinking Water and Sanitation
NADEP	A composting Method Named After the Developer Narayan Deorao Pandharipande
NGP	Nirmal Gram Puraskar
NGOs	Non-Government organisations
O & M	Operation and Maintenance
ODF	Open Defecation Free
RDF	Refused Derived Fuel
SBCC	Social and Behaviour Change Communication
SHG	Self Help Groups
SLRM	Solid and Liquid Resource Management
SLRM	Solid and Liquid Waste Management
VWSC	Village Water and Sanitation Committee
UK	Uttarakhand
3R	Reduce, Recycle, Reuse
4R	Refuse, Reduce, Recycle, Reuse

Message

त्रिवेन्द्र सिंह रावत

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:: संदेश ::

सम्पूर्ण देश में खुले में शौच की प्रथा को समाप्त करने के प्रति लोगों में मानसिक बदलाव आया है,जिससे प्रदेशवासियों द्वारा समय से पूर्व शौचालय निर्माण कर उत्तराखण्ड राज्य को खुले में शौचमुक्त राज्यों में चौथा स्थान प्राप्त करने का गौरव हासिल हुआ है, इस हेतु मैं समस्त राज्यवासियों को बधाई देता हूँ। केवल शौचालय निर्माण करवाने से ही खुले में शौच की प्रथा पर पाबन्दी लगाया जाना असम्भव है, शौचालय आच्छादन के साथ–साथ शौचालय के नियमित प्रयोग एवं उसकी स्वच्छता हेतु समुदाय में व्यवहार परिवर्तन सर्वाधिक महत्वपूर्ण है। मेरा मानना है कि यदि स्वच्छता के प्रति समुदाय का व्यवहार परिवर्तन हो गया तो स्वतः ही स्वच्छता के क्षेत्र में अभूतपूर्व परिणाम सम्मुख आयेगें, इस हेतु स्वच्छ भारत मिशन द्वारा उक्त समस्त कार्यों को मूर्तरूप देने में महत्वपूर्ण भूमिका का निर्वहन किया गया है।

देश के ग्रामीण क्षेत्रों में स्वच्छ भारत मिशन(ग्रा0) के आरम्भ होने से पूर्व लगभग 39 प्रतिशत ही शौचालय आच्छादन था, जो कि स्वच्छ भारत मिशन (ग्रामीण) के सफल संचालन से बढकर आज 98 प्रतिशत तक पंहुच गया है। आज राज्य के ग्रामीण क्षेत्रों में समस्त परिवार के सदस्यों द्वारा शौच हेतु शौचालय का ही प्रयोग किया जा रहा है। राज्य के समस्त विद्यालयों/आंगनवाडियों तथा सामुदायिक शौचालयों के नियमित रखरखाव एवं स्वच्छता पर विशेष ध्यान दिया जा रहा है । स्वच्छ भारत मिशन (ग्रामीण) को सफल बनाने हेतु समस्त ग्राम पंचायतों द्वारा बढ–चढकर भागीदारी निभायी जा रही है, जो कि समस्त हितधारकों के अथक प्रयासों का ही परिणामस्वरूप है।

स्वच्छता एक ऐसी मुहिम है कि जिसमें हमें निरन्तर प्रयासरत रहना होगा एवं स्वच्छता के क्षेत्र में होने वाले अभिनव कार्य भी हमे निरन्तर करने होंगे। यद्यपि राज्य में स्वच्छता की स्थिति सराहनीय है किन्तु कतिपय अन्तरालों (गैप) की आशंका को मद्देनजर रखते हुये स्वच्छ भारत मिशन (ग्रामीण) के अन्तर्गत राज्य में और अधिक कार्य करने की आवश्यकता महसूस की जा रही है। राज्य सरकार द्वारा ऐसे आगामी अन्तरालों की पूर्ति किये जाने हेतु निरन्तर प्रयास किया जा रहा है। वर्तमान में खुले में शौच की प्रथा से मुक्त होने के स्तर को स्थायी रखने हेतु आवश्यक है कि हम निरन्तर व्यक्तिगत एवं संस्थागत शौचालयों के प्रयोग एवं उनकी स्वच्छता पर जन–जागरूकता के साथ–साथ ग्रामीण परिवेश को स्वच्छ बनाये रखने हेतु ओ0डी0एफ0 स्थायित्व तथा ठोस एवं तरल अपशिष्ट प्रबन्धन के कार्यों को सम्पादित किये जाने के लिये राज्य की ग्राम पंचायतों को आवश्यक राहयोग एवं मार्गदर्शन दिया जाये।

उत्तराखण्ड राज्य में खुले में शौच की प्रथा से मुक्ति (ओ0डी0एफ0) के स्थायित्व, ओ0डी0एफ प्लस तथा ठोस एवं तरल अपशिष्ट प्रबन्धन के कार्यों को प्रभावी रूप से पंचायत स्तर पर संचालित किये जाने हेतु पेयजल एवं स्वच्छता विभाग के अन्तर्गत स्वच्छ भारत मिशन(ग्रा0) की राज्य स्तरीय इकाई (स्वजल निदेशालय) द्वारा दिशा–निर्देशिका तैयार की गयी है।

उक्त दिशा–निर्देशिका निश्चित तौर पर राज्य में समुदाय आधारित स्वच्छता कार्यक्रम के सफल संचालन हेतु पथ–प्रदर्शन का कार्य करेगी।

हार्दिक शुभकामनायें।

(त्रिवेन्द्र सिंह रावत)

प्रकाश पन्त
मंत्री
विधायी, संसदीय कार्य, भाषा, वित्त,
आबकारी, पेयजल एवं स्वच्छता,
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:: संदेश ::

उत्तराखण्ड राज्य में स्वच्छ भारत मिशन (ग्रामीण) के सफल संचालन करते हुये राज्य सरकार, समुदाय, जनप्रतिनिधियों, सामाजिक संस्थाओ, विभिन्न ग्राम पंचायत स्तरीय संगठनों एवं विभागीय अधिकारियों/कार्मिकों के निरंतर प्रयासों के बाद राज्य द्वारा खुले में शौच मुक्त (ओ०डी०एफ०) स्तर को प्राप्त किया गया है। ओ०डी०एफ० स्तर प्राप्त करने के उपरान्त हमारा अगला महत्वपूर्ण कदम प्राप्त किये गये ओ०डी०एफ० स्तर की निरन्तरता को बरकरार रखना एवं ओ०डी०एफ प्लस गतिविधियों का संचालन करते हुये सदैव अपने परिवेश को स्वच्छ बनाना है। हम समस्त हित धारकों के कठिन प्रयासों से उत्तराखण्ड के गांवों को ओ०डी०एफ० बनाने में सफल रहे हैं, फिर भी स्वच्छता के स्थायित्व के लिये कुछ अंतरालों पर निरन्तर ध्यान दिया जाना आवश्यक है, जो कि लम्बे समय तक किये गये प्रयासों को सफल बनाये रखने में महत्वपूर्ण हो सकते हैं।

दूसरी ओर ओ०डी०एफ० प्लस गतिविधियों के अन्तर्गत खुले में शौचमुक्ति के अतिरिक्त स्थानीय स्तर पर ठोस एवं तरल अपशिष्ट का समुचित एवं वैज्ञानिक प्रबन्धन न होने की स्थिति में जहां एक ओर हमारे गांवों की स्वच्छता प्रभावित हो रही है वही दूसरी ओर सामुदायिक स्वास्थ्य के लिये भी गम्भीर खतरा दृष्टिगत हो रहा है। जैविक एवं अजैविक तथा तरल अपशिष्ट कम मात्रा में होने पर भी अनुचित निपटान की स्थिति में हम जल जनित रोगों यथा दस्त, हैजा, डेंगू, मलेरिया, टाइफाईड आदि जैसी गम्भीर बिमारियों को आमंत्रित करते हैं। प्लास्टिक/पॉलीथीन जैसे सूखे कचरे के आसानी से न सडने गलने अथवा जलाने से और अधिक खतरा है, क्योंकि इनसे जहरीले रसयानों का उत्सर्जन होता है। गोबर एवं कृषि अपशिष्टों का भी अप्रभावी उपयोग मीथेन एवं कार्बनडाईआक्साईड के उत्सर्जन में अग्रणीय रहता है। हमें प्रयास करने होंगे कि हम न तो कूडा जलायें और न ही नदी नालों में बहायें बल्कि कूडे का उचित निस्तारण करें।

उत्तराखण्ड के ग्रामीण क्षेत्रों में प्रभावी "ओ०डी०एफ० स्थायित्व" एवं ठोस एवं तरल संसाधन प्रबन्धन (एस.एल. आर.एम.) हेतु एक प्रभावी रणनीति एवं परिचालन दिशा-निर्देर्शिका की आवश्यकता काफी समय से महसूस की जा रही थी। दिशा-निर्देर्शिका में विभिन्न योजनाओं के प्रभावी नियोजन, क्रियान्वयन तथा संचालन एवं रखरखाव के लिये समुचित संस्थागत ढांचे के साथ-साथ रणनीतियां, दृष्टिकोण, हस्तक्षेप के तरीके, प्रौद्योगिकियों, वित्त पोषण इत्यादि पर मार्गदर्शन काफी मददगार साबित होगा।

मुझे आशा ही नहीं पूर्ण विश्वास है कि स्वच्छ भारत मिशन (ग्रामीण), पेयजल एवं स्वच्छता विभाग उत्तराखण्ड, के समन्वय एवं सेव द चिल्ड्रन के माध्यम से सैन्टर फॉर सस्टेनेबल एनवायरमैंट एण्ड डेवलपमैन्ट (सी०एस०ई०डी०आई०) नवी मुम्बई द्वारा उत्तराखण्ड राज्य के ग्रामीण क्षेत्रों एवं भौगोलिक परिस्थितियों को ध्यान में रखते हुये तैयार की गयी दिशा-निर्देशिका उत्तराखण्ड राज्य के समस्त हित धारको एवं उपयोगकर्ताओं हेतु मील का पत्थर साबित होगी।

दिशा-निर्देशिका के सफल प्रकाशन हेतु हार्दिक शुभकामनायें।

(प्रकाश पन्त)

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I.A.S.
सचिव

उत्तराखण्ड शासन

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सन्देश

स्वच्छ भारत मिशन (ग्रामीण) के अन्तर्गत राज्य को 'खुले में शौच की प्रथा' से मुक्त 22 मई, 2017 को किया गया था, उक्त ओ.डी.एफ. स्तर को प्राप्त करने हेतु राज्य के समस्त हितधारकों का विशेष योगदान रहा है। ओ.डी.एफ. घोषणा के उपरान्त समुचित गुणवत्ता एवं निरन्तरता बनाये रखने के साथ–साथ ओ.डी.एफ. स्थायित्व एवं ओ.डी.एफ. प्लस गतिविधियों का समुदाय आधारित क्रियान्वयन अत्यधिक महत्वपूर्ण है।

ओ.डी.एफ. स्थायित्व तथा ओ.डी.एफ. प्लस गतिविधियों के अन्तर्गत निर्मित शौचालयों का नियमित प्रयोग एवं स्वच्छता के साथ–साथ स्थानीय स्तर पर ठोस एवं तरल अपशिष्ट का समुचित एवं वैज्ञानिक प्रबन्धन से ग्रामीण क्षेत्रों में स्वच्छता के स्तर को और अधिक प्रभावी बनाया जा सकता है। जैविक एवं अजैविक अपशिष्ट तथा तरल अपशिष्ट प्रबन्धन हेतु विभिन्न तकनीकी विकल्पों के साथ–साथ प्रभावी नियोजन, क्रियान्वयन तथा संचालन एवं रख–रखाव हेतु एक उचित मार्गदर्शन प्राप्त होने से ही ग्रामीण परिवेश में स्वच्छ भारत मिशन (ग्रामीण) का सफल संचालन सम्भव है।

उक्त बिन्दुओं को मदेनजर रखते हुए पेयजल एवं स्वच्छता विभाग, उत्तराखण्ड शासन के तहत संचालित स्वच्छ भारत मिशन (ग्रामीण) के माध्यम से 'ओ.डी.एफ. स्थायित्व' एवं ठोस एवं तरल संसाधन प्रबन्धन (एस.एल.आर.एम.) के कार्यों को त्वरित गति से संचालित किये जाने हेतु प्रभावी नियोजन, क्रियान्वयन तथा संचालन एवं रख–रखाव हेतु एक रणनीति एवं परिचालन दिशा–निर्देशिका तैयार करने का निर्णय लिया गया है। दिशा–निर्देशिका में प्रभावी संस्थागत ढ़ांचे के साथ–साथ रणनीतियों, दृष्टिकोण, हस्तक्षेप के तरीके, प्रौद्योगिकी, वित्त पोषण इत्यादि को भी सम्मिलित करने हेतु एक प्रयास किया गया है।

मुझे पूर्ण विश्वास है कि स्वच्छ भारत मिशन (ग्रामीण) के साथ समन्वय करते हुए राज्य के ग्रामीण क्षेत्रों एवं भौगोलिक परिस्थितियों को ध्यान में रखते हुए Save the Children के विशेष सहयोग से स्वच्छ भारत मिशन (ग्रामीण) के सफल नियोजन, क्रियान्वयन तथा संचालन एवं रख–रखाव हेतु तैयार की गयी मार्गदर्शिका राज्य के समस्त हितधारकों एवं उपयोगकर्ताओं के लिये प्रभावी संदर्भ सामग्री का कार्य करेगी।

दिशा–निर्देशिका के सफल प्रकाशन हेतु हार्दिक शुभकामनाएं।

(अरविन्द सिंह ह्यॉकी)
सचिव, पेयजल एवं स्वच्छता विभाग।

उदय राज सिंह
मिशन निदेशक,स्वच्छ भारत मिशन(ग्रा0)
एवं निदेशक स्वजल उत्तराखण्ड

संदेश

विगत 22 मई 2017 को उत्तराखण्ड राज्य को आधारभूत सर्वेक्षण 2012 के लक्ष्यों के अनुरूप खुले में शौच की प्रथा से मुक्त किये जाने के लिये समस्त प्रदेशवासियों का विशेष योगदान रहा है। यद्यपि समस्त हित धारकों के कठिन प्रयास से उत्तराखण्ड के गांवों को ओ0डी0एफ0 बनाने में सफल रहे हैं, अपितु कतिपय अंतरालों पर निरन्तर ध्यान दिया जाना आवश्यक है ताकि किये गये महत्वपूर्ण प्रयासों का दीर्घकालिक परिणामों से हमें लाभ मिलता रहे।

खुले में शौचमुक्त के स्तर के स्थायित्व तथा ओ0डी0एफ0 प्लस गतिविधियों के अन्तर्गत नियमित व्यक्तिगत शौचालयों प्रयोग, सामुदायिक/स्कूल/आंगनवाडी शौचालयों का प्रयोग तथा रखरखाव तथा इनकी स्वच्छता के साथ–साथ ग्राम पंचायत स्तर पर प्रभावी ठोस एवं तरल अपशिष्ट प्रबन्धन से ग्रामीण क्षेत्रों में स्वच्छता के स्तर में निरन्तर बृद्धि की जा सकती है। अपशिष्ट प्रबन्धन हेतु उत्तराखण्ड की भौगोलिक परिस्थितियों को ध्यान में रखते हुये विभिन्न तकनीकी विकल्पों के सम्बन्ध में निरन्तर पंचायत प्रतिनिधियों तथा जनसमुदाय जानकारी प्रदान किया जाना नितान्त आवश्यक है। स्वच्छ भारत मिशन(ग्रा0) के अन्तर्गत समुदाय आधारित प्रभावी नियोजन,कियान्वयन जहां एक ओर कार्यक्रम को गति प्रदान करेगा वहीं दूसरी ओर समुदाय आधारित संचालन एवं रखरखाव भी कार्यक्रम की सफलता को तय करेगा।

स्वच्छ भारत मिशन(ग्रा0) के अन्तर्गत संचालित समस्त कार्यक्रमों को मद्देनजर रखते हुये ओ0डी0एफ0 स्थायित्व', ओ0डी0एफ0 प्लस तथा ठोस एवं तरल अपशिष्ट/संसाधन प्रबन्धन (एस.एल.डब्ल्यू.एम./एस.एल.आर.एम.) के प्रभावी संचालन हेतु राज्य स्तर पर समस्त हित धारकों के लिये एक प्रभावी दिशा–निर्देर्शिका राज्य की स्वच्छ भारत मिशन(ग्रा0) इकाई द्वारा (स्वजल निदेशालय) द्वारा सेव द चिल्ड्रन के सहयोग से सी.एस.आर. मद में तैयार करवायी गयी है।

स्वच्छ भारत मिशन–ग्रा0, के अन्तर्गत उत्तराखण्ड राज्य के ग्रामीण क्षेत्रों एवं भौगोलिक परिस्थितियों को ध्यान में रखते हुये तैयार की गयी मार्गदर्शिका राज्य के समस्त हितधारको एवं उपयोगकर्ताओं को संस्थागत ढांचा, रणनीतियां, दृष्टिकोण ,हस्तक्षेप के तरीके, प्रौद्योगिकियों, वित्त पोषण इत्यादि की समझ विकसित करने हेतु एक प्रभावी संदर्भ सामग्री का कार्य करेगी, ऐसा मेरा विश्वास है।

दिशा–निर्देर्शिका के सफल प्रकाशन के लिये मेरी हार्दिक शुभकानायें हैं।

उदय राज सिंह

हरिचन्द्र सेमवाल

अपर सचिव एवं निदेशक पंचायती राज,
उत्तराखण्ड शासन

उत्तराखण्ड शासन

उत्तराखण्ड राज्य को खुले में शौच की प्रथा से मुक्त किये जाने के लिये समस्त हितधारकों के साथ–साथ त्रिस्तरीय पंचायत प्रतिनिधियों का विशेष योगदान रहा है। उत्तराखण्ड की समस्त ग्राम पंचायतों में खुले में शौचमुक्त कराने में समस्त ग्राम पंचायतों के समुदाय का सराहनीय प्रयास रहा है, परिणाम स्वरूप हम अपने समस्त विकासखण्डों, समस्त जनपदों तथा राज्य को ओ0डी0एफ0 घोषित करवाने में सम्पूर्ण देश में चौथे स्थान पर रहे हैं।

उत्तराखण्ड के समस्त गांव यद्यपि सदैव स्वच्छ रहे हैं, किन्तु स्वच्छ भारत मिशन (ग्रा0) द्वारा उत्तराखण्ड के समस्त गांवों में स्वच्छता के स्तर को अपनाये जाने हेतु एक उत्प्रेरक का कार्य किया गया है। स्वच्छ भारत मिशन(ग्रा0) के अन्तर्गत व्यक्तिगत शौचालय आच्छादन, स्कूल/आंगनवाडी शौचालय आच्छादन के साथ–साथ सामुदायिक स्वच्छता काम्पलैक्सों के निर्माण एवं उनके संचालन एवं रखरखाव हेतु सराहनीय प्रयास किये गये हैं। राज्य की बिषम भौगोलिक परिस्थितियों के होते हुये भी उत्तराखण्ड राज्य द्वारा निरन्तर स्वच्छता के क्षेत्र में महत्वपूर्ण कार्य किये जा रहे हैं, राज्य को स्वच्छ बनाने में स्वच्छ भारत मिशन(ग्रा0) के साथ–साथ अन्य समस्त रेखीय विभागों यथा मनरेगा, पंचायती राज विभाग, शिक्षा विभाग, स्वास्थ्य विभाग आदि द्वारा महत्वपूर्ण भूमिका का निर्वहन किया गया है।

गांवों में ओ0डी0एफ0 के स्तर को निरन्तर बनाये रखने के लिये आवश्यक है कि कतिपय छूटे हुये परिवार भी शौचालय निर्माण कर उनका प्रयोग करना सुनिश्चित करें साथ ही ग्रामीण परिवेश को स्वच्छ बनाने हेतु स्थानीय स्तर पर ठोस एवं एवं तरल अपशिष्ट प्रबन्धन पर ध्यान दिया जाये। उत्त. राखण्ड राज्य में समस्त ग्रामीण क्षेत्रों में ठोस अपशिष्ट प्रबन्धन हेतु पंचायती राज विभाग द्वारा ''ग्राम पंचायतों हेतु ठोस अपशिष्ट प्रबन्धन नीति–2017'' जारी की गयी है। वर्तमान मे समस्त उत्तराखण्ड के ग्रामीण क्षेत्रों में उक्त नीति के अनुसार ही समस्त ठोस अपशिष्ट प्रबन्धन के कार्यों को प्रभावी ढंग से संचालित किया जा रहा है, साथ ही तरल अपशिष्ट प्रबन्धन के कार्यों हेतु भी तकनीकी विकल्प ग्राम पंचायतों का बताये जा रहे हैं।

यद्यपि राज्य में ओ0डी0एफ0 स्तर ससमय प्राप्त कर लिया गया है एवं ठोस अपशिष्ट प्रबन्धन हेतु पर्याप्त जन–जागरूकता है किन्तु इसके स्थायित्व को बरकरार रखने हेतु आवश्यक है कि सदैव हम स्वच्छता के क्षेत्र में अभिनव कार्य करते रहे, नई–नई तकनीकियों को अपने कार्यों में सम्मिलित करते रहे, प्रभावी नियोजन, क्रियान्वयन एवं संचालन तथा रखरखाव पर विशेष बल दें, ताकि उत्तराखण्ड राज्य स्वच्छता के क्षेत्र में सदैव अग्रणी रहे। उक्त बिन्दुओं को ध्यान में रखते हुये पेयजल एवं स्वच्छता विभाग के अन्तर्गत सी.एस.आर मद में सेव द चिल्ड्रन के सहयोग से एक दिशा–निर्देशिका ओ0डी0एफ0, ओ0डी.एफ0 प्लस एवं ठोस एवं तरल अपशिष्ट प्रबन्धन के सम्बन्ध में प्रकाशित की जा रही है। मुझे पूर्ण विश्वास है कि उक्त दिशा–निर्देशिका राज्य के ग्रामीण क्षेत्रों में स्वच्छता के क्षेत्र में उचित मार्गदर्शन करने में सहयोगी होगी।

मै पंचायती राज विभाग की ओर से दिशा–निर्देर्शिका के सफल प्रकाशन हेतु हार्दिक शुभकामनायें प्रेषित करता हूं

हरिचन्द्र सेमवाल

संदेश

डी.आर.जोशी
राज्य समन्वयक,
स्वच्छ भारत मिशन(ग्रा0),उत्तराखण्ड

स्वच्छ भारत मिशन(ग्रा0) उत्तराखण्ड द्वारा राज्य के समस्त ग्रामीण क्षेत्र को खुले में शौच की प्रथा से मुक्त (ओ0डी0एफ0) किये जाने हेतु समस्त उत्तराखण्ड राज्य के समस्त जन–समुदाय, पंचायत प्रतिनिधियों, जन–प्रतिनिधियों, रेखीय विभागों के अधिकारी/कार्मिकों का अभूतपूर्ण योगदान रहा है। यद्यपि राज्य की समस्त ग्राम पंचायतों द्वारा खुले में शौच की प्रथा पर रोक लगाते हुये स्वच्छता की अलख जगाने का कार्य किया गया है,किन्तु कतिपय अंतरालों की पूर्ति करने हेतु आवश्यक है कि हम ओ0डी0एफ0 के स्तर को निरन्तर बनाये रखें तथा ओ0डी0एफ0 प्लस के तहत स्वच्छता अभिवर्धन हेतु अभिनव कार्य करें। स्वच्छ भारत मिशन(ग्रा0) के अन्तर्गत कतिपय अंतरालों की क्षतिपूर्ति हेतु राज्य सरकार भी कटिबद्ध है। स्वच्छ भारत मिशन(ग्रा0) की राज्य स्तरीय तथा जनपद स्तरीय इकाईयों द्वारा ओ0डी0एफ0 स्थायित्व हेतु निरन्तर जन–जागरूकता तथा व्यवहार परिवर्तन गतिविधियों का संचालन किया जा रहा है, कतिपय बेसलाईन से छूटे हुये अथवा जनसंख्या बृद्धि के कारण बढे हुये शौचालय विहीन परिवारों का चिन्हीकरण कर उन्हे आच्छादित किये जाने का कार्य किया जा रहा है साथ ही क्षतिग्रस्त अथवा कतिपय तकनीकी खामियों वाले शौचालयों की मरम्मत (रैट्रोफिटिंग) के माध्यम से उपयोग अनुकूल बनाया जा रहा है।

ओ.डी..एफ.प्लस गतिविधियों के अन्तर्गत ग्राग पंचायतों में ठोस एवं तरल अपशिष्ट प्रबन्धन के कार्य संवालित किये जा रहे हैं, साथ ही पंचायत प्रतिनिधियों को ठोस एवं तरल अपशिष्ट प्रबन्धन विषयक जानकारी दिये जाने के उद्देश्य से तकनीकी प्रशिक्षण प्रदान किये जा रहे हैं। ग्राम पंचायतों में प्रभावी ठोस एवं तरल अपशिष्ट प्रबन्धन हेतु विभिन्न रेखीय विभागों के साथ अभिसरण किये जाने हेतु पहल राज्य स्तर पर की गयी है। पेयजल एवं स्वच्छता मंत्रालय भारत सरकार द्वारा नामित के0आर0सी0 के माध्यम से जन–समुदाय, पंचायत प्रतिनिधियों, आशा कार्यकत्रियों, आंगनवाडी कार्यकत्रियों, महिला मंगल दल सदस्यों को स्वच्छता अभिवर्धन एवं व्यवहार परिवर्तन सम्बन्धी प्रशिक्षणों के माध्यम स्वच्छता स्थायित्व पर जोर दिया जा रहा है।

स्वच्छता के क्षेत्र में ओ0डी0एफ0 प्लस के माध्यम से ओ0डी0एफ0 स्थायित्व की गतिविधियों को ग्राम पंचायत स्तर पर संचालित की जानी आवश्यक हैं कि, जिसमें समस्त कियान्वयन एजेन्सियां, कार्यदायी संस्थायें तथा समस्त रेखीय विभाग समन्वयात्मक नीति में कार्य करें। समन्वयात्मक नीति में कार्य किये जाने हेतु एक ऐसी संयुक्त दिशा–निर्देशिका की आवश्यकता महसूस की जा रही थी, जिसमें सम्भावित संस्थागत ढांचे की आवश्यकता,रणनीतियां,दृष्टिकोण के तरीके, प्रौद्योगिकियों तथा वित्त पोषण इत्यादि सम्मिलित किये जा सकें। उक्त बिन्दुओं को ध्यान में रखते हुये स्वच्छ भारत मिशन(ग्रा0) की राज्य इकाई (स्वजल निदेशालय) द्वारा सी.एस.आर. के अन्तर्गत सेव द चिल्ड्रन संस्था से समन्वय करने के उपरान्त एक दिशा'निर्देर्शिका तैयार किये जाने हेतु सहमति बनने पर उक्त दिशा–निर्देर्शिका को तैयार किया गया है।

मुझे पूर्ण विश्वास है कि उक्त दिशा–निर्देशिका राज्य में स्वच्छ भारत मिशन(ग्रा0) के अन्तर्गत पंचायत स्तर पर संचालित गतिविधियों के नियोजन, कियान्वयन तथा संचालन एवं रखरखाव हेतू उपयोगी सिद्ध होगी।

डी.आर.जोशी

बिदीशा पिल्लई
सी0ई0ओ0, सेव द चिल्ड्रन

स्वच्छ भारत मिशन(ग्रा0) के अन्तर्गत उत्तराखण्ड राज्य को खुले में शौच मुक्ति के क्षेत्र में सम्पूर्ण देश में चौथा राज्य होने का गौरव प्राप्त है, उक्त हेतु राज्य सरकार एवं उत्तराखण्ड शासन को सेव द चिल्ड्रन संस्था हार्दिक बधाई एवं धन्यवाद देना चाहती हैं। सेव द चिल्ड्रन संस्था सम्पूर्ण देश में बच्चों के उत्तम स्वास्थ्य हेतु निरन्तर कार्य कर कर रही, एवं उत्तम स्वास्थ्य हेतु स्वच्छता अनिवार्य है। हमारा मानना है कि बच्चे ही देश का भविष्य हैं, एवं बच्चे ही एक ऐसी कडी हैं जो कि त्वरित गति से किसी भी जानकारी को ग्रहण करते हैं एवं उसे अपने व्यवहार में लाते हैं।

हम जानते हैं कि डायरिया दुनिया में पांच वर्ष से कम उम्र के बच्चों की मृत्यु का प्रमुख कारण है, एवं प्रतिवर्ष 5 लाख बच्चों की मृत्यू हो जाती है, जिसमें से 1 लाख बच्चे केवल हमारे देश के होते हैं, जो कि बालमृत्युदर कर 9 प्रतिशत है। डायरिया को अभी भी हमारे देश में केवल साधारण बीमारी मानते हुये बार–बार दस्त के रूप में लेते हुये अधिक ध्यान नही दिया जाता है, सुरक्षित पेयजल एवं स्वच्छता प्रथाओं के अभाव में डायरिया एक खतरनाक बीमारी का रूप ले रही है। उक्त विन्दुओं को ध्यान में रखते हुये सेव द चिल्ड्रन द्वारा बच्चों को केन्द्र बिन्दु में रखते हुये पेयजल एवं स्वच्छता के क्षेत्र में निरन्तर विगत पांच वर्षों से कार्य किया जा रहा है।

उत्तराखण्ड राज्य द्वारा स्वच्छता के क्षेत्र में अभूतपूर्ण कार्य किया गया है, स्वच्छता के क्षेत्र में निरन्तर कार्य करने की भी आवश्यकता महसूस की जाती रही है क्योंकि यह एक सतत प्रकिया है। कतिपय अंतरालों निरन्तर पूर्ती करते रहना एवं स्वच्छता के क्षेत्र में नित नये आयामों को जोडना स्वच्छता स्थायित्य हेतु आवश्यक है। वर्तमान में ओ0डी0एफ0 स्थायित्व तथा ओ0डी0एफ0 प्लस गतिविधियों को और अधिक मजबूत किये जाने हेतु कतिपय अंतरालों को पूर्ण करने के साथ–साथ ठोस एवं तरल संसाधन प्रबन्धन को स्वच्छ भारत मिशन(ग्रा0) का मुख्य घटक बनाया गया है।

सेव द चिल्ड्रन द्वारा अपने कार्य क्षेत्र में कार्यों के दौरान महसूस किया गया कि स्वच्छता के समस्त घटकों का महत्व उनकी नियोजन, कियान्वयन तथा संचालन एवं रखरखाव प्रकिया को गुणवत्तापूर्वक एवं ससमय विभिन्न हित धारकों को उपलब्ध कराया जाता है तों निश्चित तौर पर संस्था की ओर से एक छोटा सा सार्थक प्रयास होगा। उक्त समस्त बिन्दुओं को ध्यान में रखते हुये उत्तराख्ण्ड राज्य के ग्रामीण परिवेश में स्वच्छता अभिवर्द्धन हेतु दिशा–निर्देशिका तैयार करने के सम्बन्ध में राज्य की स्वच्छ भारत मिशन(ग्रा0) इकाई से समन्वयन किया गया तथा राज्य स्तर से सहमति प्राप्त होने पर उक्त दिशा–निर्देशिका को तैयार करने का निर्णय लिया गया है उक्त हेतु सेव द चिल्ड्रन राज्य सरकार का आभारी है।

मुझे आशा है कि सेव द चिल्ड्रन एवं स्वच्छ भारत मिशन (ग्रा0) इकाई,उत्तराखण्ड द्वारा तैयार की गयी दिशा–निर्देशिका राज्य में स्वच्छ भारत मिशन(ग्रा0) की महत्वपूर्ण गतिविधियों के संचालन हेतु उपयोगी सिद्ध होगी।

बिदीशा पिल्लई

Strategy and Operational Guidelines for Rural Uttarakhand

[ODF-Sustainability, Solid and Liquid Resource Management]

"The State 'Strategy' and 'operational guidelines' for Rural Uttarakhand for "ODF-Sustainability" and "Solid and Liquid Resource Management" is developed to provide guidance on strategies, intervention methods, approaches, technologies, financing and institutional framework required for effective planning, implementation and operation & maintenance".

The term "SLWM" has evolved as "SLRM" signifying the efforts to make shift in the mindset and growing understanding about (R)esource value of (W)aste.

Background, Rationale, Impacts

After continued efforts and making significant progress on achieving open defecation free (ODF) status across Uttarakhand, the next logical step is to ensure that the ODF status is always maintained. Though hard efforts have gone into making the communities ODF, some gaps still remain unaddressed, that may be critical in sustaining the efforts in the longer term. Therefore, the need of strategizing ODF sustainability has emerged.

Waste (both solid and liquid) have emerged as a severe threat to public health. Despite the waste generated in rural areas being pre-dominantly organic, incorrect disposal can lead to serious problems including growth of the water borne diseases such as diarrhoea, malaria, cholera and typhoid. Mismanagement of solid and liquid waste, as depicted in the figure 1, can cause hazards for humans and animals, solid waste can stay in the environment for a very long period emitting harmful chemicals, emission of green gases, air pollution, soil and water pollution and chocking of drains provides breeding ground for vectors. Lethal constituents of solid waste coupled with liquid waste can influence and cause serious health impacts such as cancers, infertility and even heart attacks. It is estimated that 88% of the total disease burden is due to a lack of clean water, sanitation and improper solid waste management.

Based on the primary studies carried out, the current estimated quantities of solid waste generated in Uttarakhand is about 1515 tonnes per day; of which about 725 tonnes are contributed by rural areas and 790 tonnes by urban areas. Additionally, large quantities of agro waste and cattle waste (dung) is generated in rural areas. The liquid waste generated is about 80% of the total water used in the state. A large number of tourists also add up to the waste generated.

Though the traditional practices have been sustainable and in consonance with the nature;

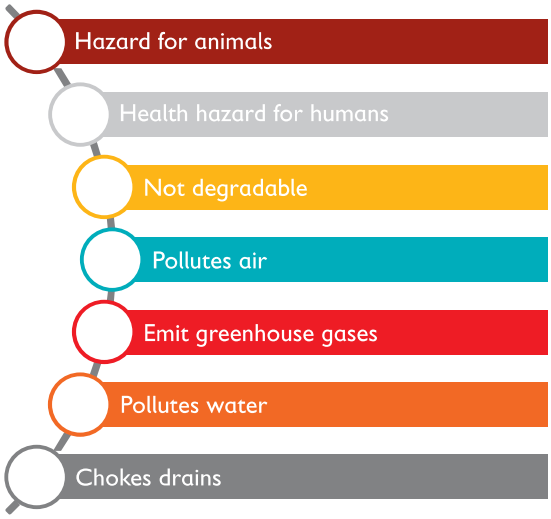


Figure 1: Impacts of solid and liquid waste mismanagement

due to growing influence of urban practices, tourists and migration of the rural population the usage and disposal of waste started influencing the rural environment. One critical practice that has grown over a period in rural areas is burning of dry waste, predominantly containing plastics, which can emit carcinogens. On the other hand, penetration of toilets deep in the rural areas and many with faulty designs may potentially create a problem of faecal sludge management over a long run. Liquid waste, on the other hand, with multiple dimensions and with increase in the quantities has started contributing to pollution of water resources including rivers and pollution of rural environment. Though various measures have been taken to ensure that these water sources are not contaminated, weak monitoring and ignorant practices especially by commercial establishments has a potential to degrade water quality of the water bodies. Though the visible water quality of majority of the water bodies looks satisfying still there seems to be a scope for improvement.

In the year 1999 the Government of India's Central Rural Sanitation Programme (CRSP, 1986) was expanded to cover all aspects of environmental sanitation and adopted a "demand driven" approach. It was then renamed as the Total Sanitation Campaign

(TSC). In the year 2003, the GoI adopted a reward scheme, Nirmal Gram Puraskar (NGP) for achieving total sanitation coverage in a Gram Panchayat. Based on the success of NGP, the TSC was renamed and restructured in the year 2012 as "Nirmal Bharat Abhiyan" (NBA). In the year 2014, the programme was renamed as 'Swachh Bharat Mission', with the objective to make the country ODF by the year 2019 and expand SLRM interventions across the rural areas by the year 2022.

Special provisions of solid and liquid waste management interventions were made for the first time in the year 2012 in the NBA, by allocating exclusive finances based on the number of households. But, two years of field experiences were not very encouraging and very little was achieved at field level. Meanwhile, the Ministry of Drinking Water Sanitation, developed a National guideline on Solid and Liquid resource management for rural areas, with the technical assistance from Asian Development Bank (ADB). The objective of these guidelines was to provide a policy framework and guidance to the State Governments in developing their

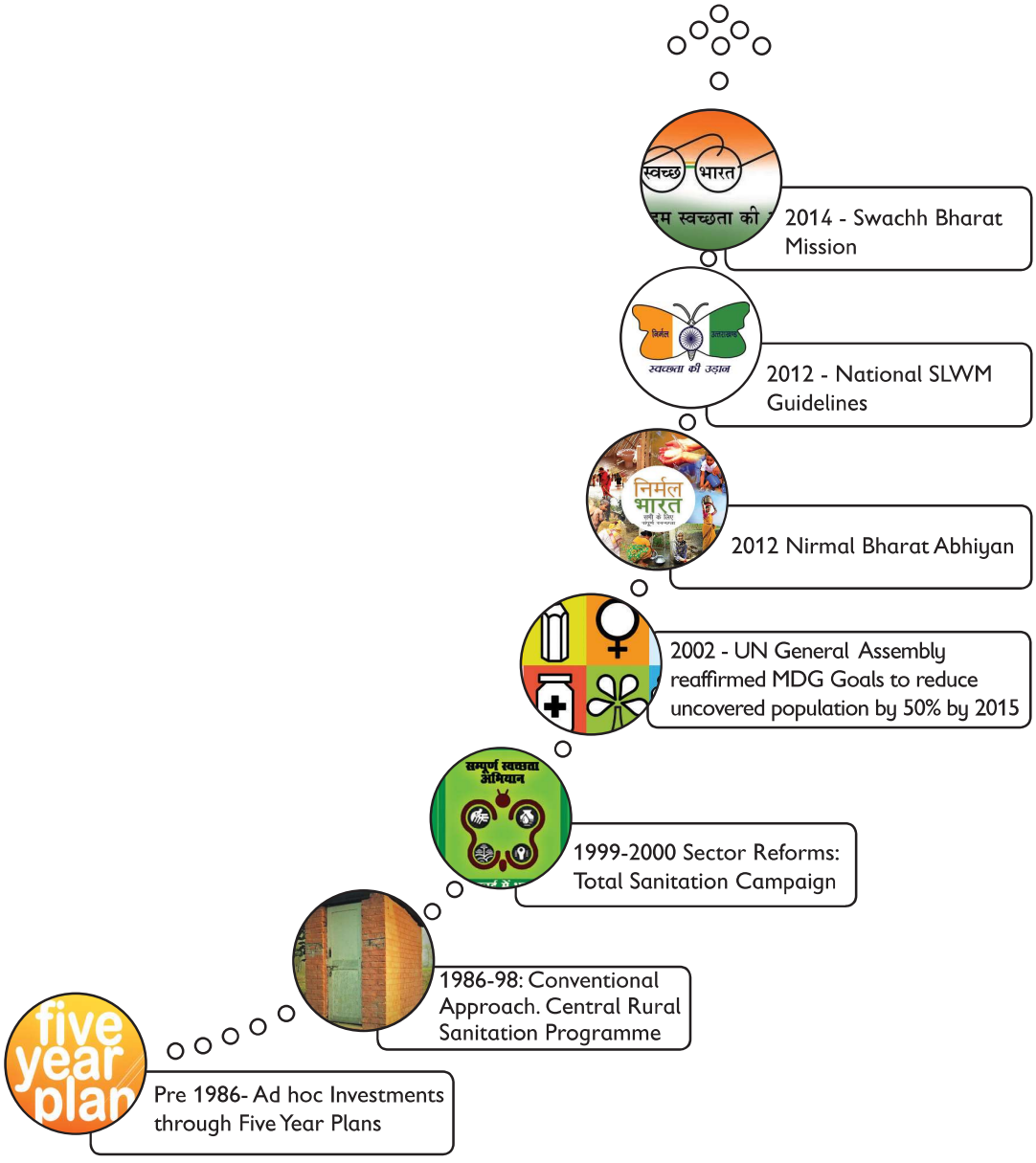


Figure 2: Evolution of Rural Sanitation Program in India

strategies to facilitate implementation of SLRM interventions. Since then the central ministry has issued a number of advisories in this regard. Now, with more GPs across the country becoming ODF, the focus has shifted towards ODF plus initiatives; which can include ODF sustainability and SLRM interventions. Pictorial representation of the Evolution of Rural Sanitation Program in India is given in Figure 2.

As a step towards consolidating these interventions, Government of Uttarakhand with technical assistance from Save the Children had organized an orientation workshop on solid and liquid waste management in April 2018 for officials from across the state. This workshop necessitated further assessment and guidance to the officials on SLRM, so that interventions could be better planned and implemented. On the other hand, with the State achieving ODF status, the need to sustain ODF status has become important and focus of concern. Following the guidance from the Ministry of Drinking Water and Sanitation, Government of India, a structured approach for ODF sustainability & SLRM is envisaged in the State of Uttarakhand.

With the objective to develop a State strategy on SLRM and ODF sustainability, Save the Children has been supporting the State Government to develop a structured framework, strategy and operational guidelines for SLRM and ODF Sustainability. National SLRM guidelines and other documents have been referred to ensure that the State strategy is in line with the National policies.

Purpose of the Document and Target Group

Main purpose of the document is to:

- Plan and strategize ODF Sustainability and SLRM Interventions across the State
- Provide step by step guidance to the districts and GPs to plan, implement, manage and monitor ODF Sustainability and SLRM Interventions

Target users of this document are Senior Administration, State Officers, Institutional heads, associated individuals, consultants at state, district, block, GP level, NGOs, Private sector, CSR groups, SHGs, CBOs etc.

About Uttarakhand

Uttarakhand was constituted as 27th state of the Republic of India on 9th November 2000. Uttarakhand has a natural and beautiful diversity of the region where mountains, green hills, fertile valleys, flowing rivers and thriving lakes adds charm to the land. Uttarakhand has a total area of 53,483 km^2, of which 86% is mountainous and 65% is covered by forest. Most of the northern part of the state is covered by high Himalayan peaks and glaciers.

Uttarakhand is known as the Abode of the gods and there are several pilgrimage places. The tourist destinations such as Kedarnath, Badrinath, Hemkund Sahib, Gangotri, Yamunotri, Jageshwar, Bageshwar, Rishikesh and Haridwar are visited by millions of devotees and tourists every year. There are a number of natural lakes making them centre of attraction and offer sporting events. The popular hill stations of the State are Almora, Bhimtal, Munsiyari, Mussorie, Nainital, Pithoragarh, Ranikhet, Chopta, Valley of Flowers, Joshimath and Lansdowne.

According to the 2011 Census of India, Uttarakhand has a population of 10,086,292 comprising 5,137,773 males and 4,948,519 females with 69.77% of the population living in rural areas. The state is the 20th most populous state of the country having 0.83% of the population on 1.63% of the land. The population density of the state is 189 people per square kilometer having a 2001–2011 decadal growth rate of 18.81%.

Approach and Methodology

The strategy development process adopted a consultative and inclusive approach so that the recommendations are based on field realties and are practical. The following approach and method were adopted:

- Analysis of the prevailing, relevant policies and guidelines at National and State level to make the strategy in line with the existing schemes and programmes
- Consultative and participatory where concerned stakeholders including community, state/ district/ block/ GP officials, elected representatives, development partners are consulted and their views and concerns are taken into account
- Rapid assessment of SLRM market, industries and enterprises at different governance levels to understand scope of recycling and product making
- Field visits to selected areas to understand current practices and to collect data and to understand real needs and expectations of the communities and others including formal and informal workers, civil society organizations etc. Accordingly, field visits as given in figure 3, were carried out to the six districts covering geographic areas of around 50%.
- Other possible sources and means of qualitative and quantitative data from primary and secondary sources including interviews of key informants, visual observations, transact walks, focused group discussions (FDG), etc to ensure that the strategy is well informed and robust
- Adequate consultations / workshops to seek opinion of the sector players, organizations, academic institutions, experts and practitioners to ensure that their ideas and concerns are taken on board.
- Data and information collected were analysed by using appropriate IT tools for reliable outputs.
- Consideration to all the factors as discussed above to draft a realistic and practical approach.
- Feedback from the concerned authorities and agencies to ensure that the strategy is well owned.
- The strategy making framework, as recommended by the Ministry of Drinking Water and Sanitation, has also been followed as applicable and necessary.

Field Visit – Assessment of Districts

- Hilly district/s
- Plain district/s
- District along the river/s

Accordingly the following selected:

- Deharadun
- Uttarkashi
- Rudraprayag
- Haridwar
- Udham Singh Nagar
- Nainital

Areas visits: 20 GP, 60+ villages, shops, markets, hotels, institutions

Visual observations: More than 50% of the geographical area covered during the visit

Figure 3: Location of districts

Hard to reach areas in the hilly states

ODF Sustainability Strategy

Definition

ODF sustainability can be defined as a mechanism of collective software and hardware interventions to ensure access, usage, provision of operation & maintenance, management and monitoring of sanitation facilities at all levels so that they can function for longer period and meet the intended purpose. This include 100% access to toilets, safe disposal of excreta, facilities to manage feacal sludge, availability of water to ensure usage, improved sanitation techniques and Good hygiene practices.

ODF
No visible faeces found in the environment/ village; every household uses safe technology options for the disposal of faeces.

ODF Sustainability
Safe disposal of human excreta is sustained post the attainment of ODF status.

ODF Sustainability - Strategy

After achieving the ODF status, the next big challenge is to maintain it over a longer period of time. The Central ministry has issued advisories and guidelines for verification of the ODF status. It is expected that the State Government carries out ODF verification as per the guidelines provided by MDWS.

Objectives

Objectives of the ODF Sustainability interventions as defined by MDWS include:

- Maintaining the ODF status of the villages, Gram Panchayats, Blocks and Districts over a continued period of time
- Continuous usage of toilet and practice of safe and hygienic behaviour
- Continued functionality of the assets created including decentralized operation and maintenance

Components of ODF Sustainability

The key components of ODF-S include:

- Toilet coverage – ODF status (Households and Institutions),
- Types of toilets
- Usage of toilets
- Issues related to functionality of toilets
- Status of community toilets and its O&M

- Sanitation needs during pilgrimage, events, rallies, melas etc
- Provision of Feacal Sludge management
- Retrofitting mechanism
- Provisions to meet future toilet needs
- Good Hygiene behaviour and practices
- Institutional support system
- Para-professionals, staff and their capacities
- Awareness and follow up with the users
- Financing of ODF sustainability interventions

Figure 4: Components of ODF Sustainability

Issues and Practices

Based on the field assessments carried out in the State, following are the main practices and issues that need consideration while planning and implementing ODF-S interventions.

- Demand for toilets still being raised across the State
- Cultural and religious factors still hinder toilet construction and its use

- Seasonal water supply shortage; particularly hinder hilly areas toilet usage
- Addition of new families/ households every year due to family division
- Inadequate sanitation facilities for tourists along the roads/tracks.
- Continued follow up with users required to ensure usage and sustainability
- Financing of additional (left out as per baseline) toilets and new toilets has to be addressed
- Additional financial allocation for hilly areas is required to ensure appropriate interventions considering inflated transportation cost of the construction material
- Need and relevance of Feacal Sludge Management (FSM) in hilly areas is still uncertain. Need in plain areas, however is evident and urgent; mainly due to faulty technical interventions

Sustainability Framework

ODF Sustainability framework indicates that to sustain the ODF status; the locality should meet the following conditions. Accordingly, an inclusive sustainability framework has been defined as described below:

- 100% Households, institutions, public places should have toilet facilities and ensuring its usage
- All toilets and sanitation facilities must be of 'improved' type
- All community members, schools, aanganwadis must adopt good hygiene practices including hand washing at critical times
- All age group members must use toilets in any given condition
- Water must be available to all toilet users at all time
- No toilets should pollute water resource and should maintain appropriate distance from the same
- Excreta must be disposed in safe manner – by way of twin leach pit or technically complete septic tank or any other improved disposal technology
- All toilets must follow the right design
- Retrofitting mechanism must be in place to ensure that repair of the old / faulty toilets is undertaken
- A system of Feacal Sludge management should be in place for scientific emptying, transportation, treatment and disposal of faecal sludge
- Monitoring mechanism must be in place to ensure inclusion of all aspects of sustainability and to take corrective measure to address the gaps
- A mechanism to regularly create awareness about the issues, challenges and follow up with users must be in place

Provisions to meet future toilets needs must be part of the programme to ensure all new households have access to safe sanitation.

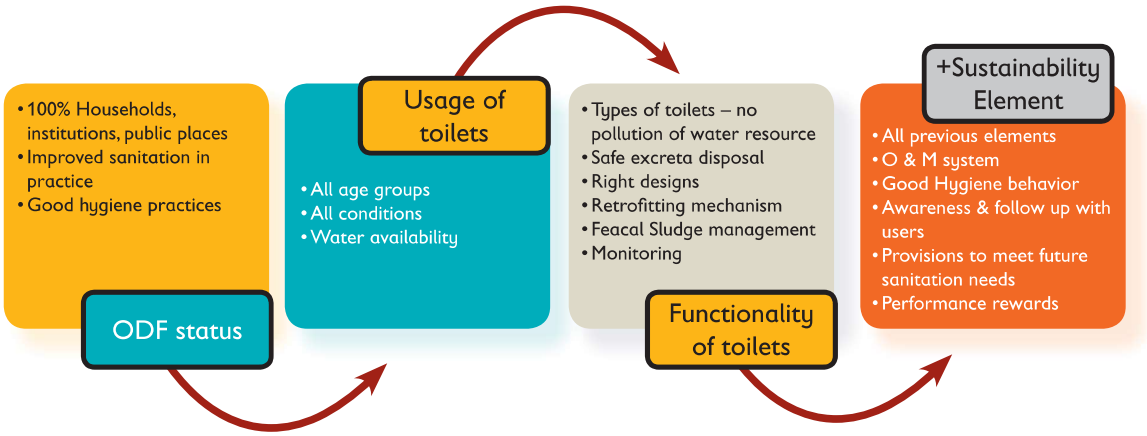


Figure 5: ODF Sustainability framework

It is important to have a basic minimum set of standards defined for sanitation facilities at all levels, accordingly the following non negotiable features

Non Negotiable Features of Individual Sanitation Facilities

- Safe disposal of excreta – including safe structures (that does not contaminate the environment)
- Availability of water for toilet usage
- Lighting and ventilation inside the toilet room
- Easy access even at night
- Proper door closure
- Convenient to all age groups
- Convenient for people with special needs, if applicable
- Cleanliness
- Provision for hand washing with soap

Non Negotiable Features of School Sanitation Facilities

- Separate facilities for boys and girls
- Toilet seat/s suitable for the age group
- Safe disposal of excreta – including safe structures (that does not contaminate the environment)
- Availability of water for toilet usage
- Lighting and ventilation inside the toilet room
- Easy access considering age of the kids
- Proper door closure
- Convenient for Students with special needs, if applicable
- Provision for maintenance and cleanliness
- Provision for hand washing with soap
- Provision for disposal of sanitary napkins in case of girl toilets

Key Strategies

Sustainability has been institutionalized in Mission's approach at National level, which recommends

- Households can choose the type of toilet they prefer and can invest more if they choose to

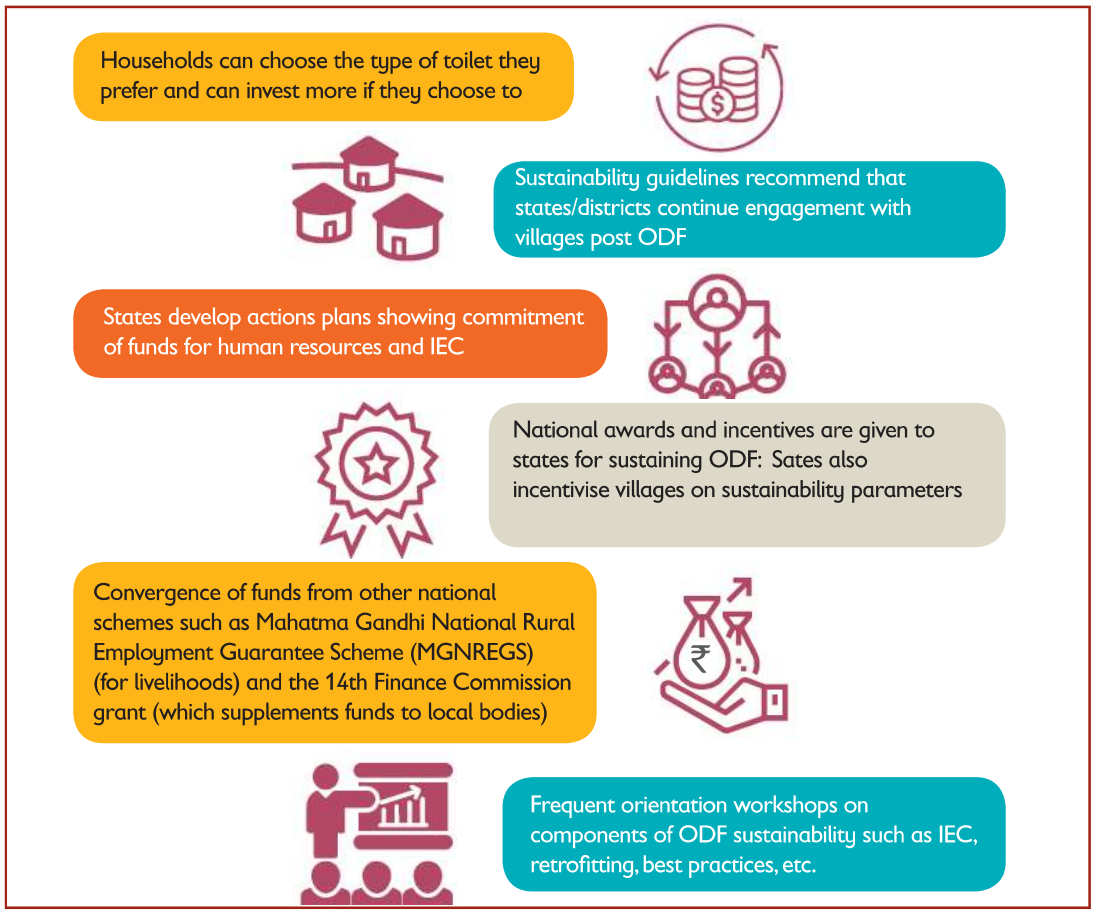


Figure 6: Sustainability is institutionalised in Mission's approach (Source: MDWS)

- States/districts continue engagement with villages post ODF
- States develop action plans showing commitment of funds for human resources and IEC
- National awards and incentives to States for sustaining ODF
- States to incentivize villages on sustainability parameters
- Convergence of funds from other national schemes such as MGNREGS and the 14th Finance Commission grant
- Frequent orientation workshops

The following key strategies have been recommended to ensure that objective of ODF interventions are taken to its conclusive end.

A. Inclusive and Participatory Planning

- Develop a participatory "Annual ODF Sustainability plan" for each GP and district
- Issue appropriate 'Government Orders' for effective and clear messaging of the decisions

B. Effective Communication and Awareness Generation

- Work closely with the households lacking toilet facilities for cultural, religious or financial reasons: Various IEC and communication tools may be used depending on need and suitability
- Educate communities on emptying of leach pits and appropriate usage of soil conditioner/ humus/ manure
- Encourage twin pit toilet and discourage septic tank type of toilets
- Awareness generation among communities (including self motivated) on various toilet technology options.

C. Technical Interventions

- Identify the 'left out families' to ensure safe sanitation facilities: Households and families which were left out during baseline survey of 2012, shall be consider for toilet provision
- Ensure all season reliable water supply even in the difficult to reach areas: Where non availability of water is the main reason for non usage
- Channelize effluent from septic tanks into soak pits, soakway channels/ trenches or other alternate options
- Make provision of 'self-contained mini sanitation complex' (separate units for male and female) for all market areas along the roads / highways
- Make additional provision of 'self-contained sanitation complexes' (need based) along all tourist routes preferably at convenient interval of about 5km
- Address special needs of very difficult to reach areas

Safe excreta management is the key issues that must be central to ODF sustainability. Accordingly, the following interventions must be adopted

A. Maintain safe Distance from water sources

- Horizontal distance between a toilet pit and groundwater source should be minimum 10 meter
- Incase groundwater source is less than 10 meter away, the inner side of the pit wall should be sealed
- Minimum vertical distance between bottom of the toilet pit and groundwater table should be minimum 1.5 meter (refer figure 7)

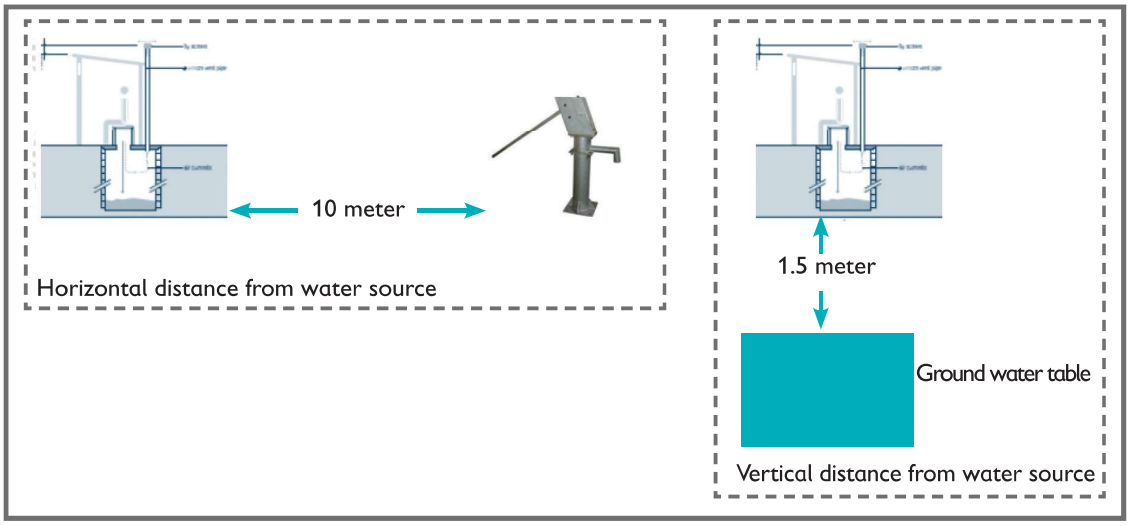


Figure 7: Safe distance from water sources

B. Interventions for Single Pit

- Ensure that effluent does not flow out of the pit and in case it does; it should go into soak pit
- Make a provision of second pit before the existing single pit is filled
- Empty the pit and safely dispose the feacal sludge. Different disposal method including provision of disposal trenches, toilet linked biogas, provision of feacal sludge treatment plants, etc
- Inspect and monitor regularly

C. Interventions for Twin Pit

Ensure that effluence does not flow out of the pit and incase it does; it goes into soak pit
Provision of emptying the first pit that is ready to be used as compost/ soil conditioner
Properly maintain the diversion pipes and chambers to divert the excreta to the appropriate pit
Inspect and monitor regularly

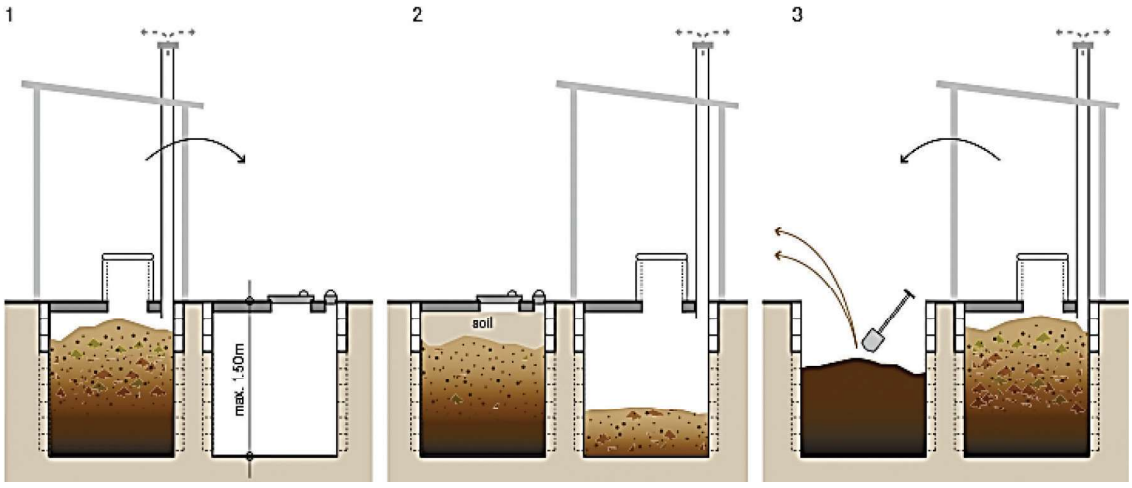


Figure 8: Twin pit filling and desludging operation

D. Interventions for Septic tank

- Septic tank is a complete treatment system if designed and constructed appropriately
- Retrofit the existing septic tank following technically correct design and construction
- Make a provision of soak pit or soak away trenches for disposal of effluents from the septic tank. In case of peri urban areas small bore sewer or solid free sewer system may be considered after feasibility. Refer Figure 9
- Make a provision for inspection and desludging of the septic tank periodically – once in 3 to 5 years
- Establish a system and procedures for desludging and transportation
- Establish a system for record keeping and reporting
- Establish facilities for treatment and reuse of feacal sludge

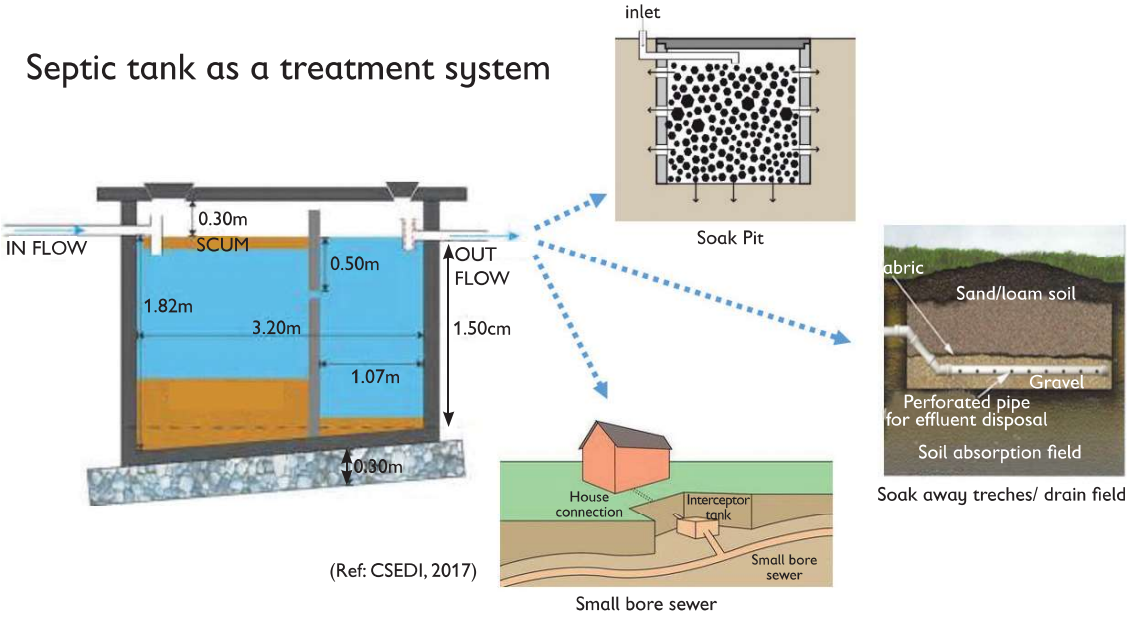


Figure 9: Options for safe disposal of effluent from septic tank

E. Institutional Strengthening

- Strengthen the existing SBM-G (SWAJAL) human resource at all levels
- Build capacities considering new programmatic needs
- Strengthen engagement and capacities of Swachhagrahis

F. Financing

- Make special financial provision for additional toilet needs
- Integrate new toilet needs in the annual plans and allocate funds
- Financial provision for retrofitting needs
- Additional financial allocation for hilly areas, especially for hardware interventions

G. Monitoring

- Periodic monitoring based on key verifiable indicators
- Community monitoring and peer pressure

H. Awards and Incentives Monitoring

- Awards and incentive to encourage effective participation and implementation
- In addition to State level awards and incentives, districts may undertake innovative ways and means to encourage and motivate the stakeholders

Institutions, Role and Responsibilities

Number of institutions including State nodal department, line departments, district, block,

GPs and various development partners, as given in the figure 10, have a unique and important role to play. These institution ensure strategizing, training and capacity building, planning, IEC and awareness, implementation, management and monitoring, rewarding the good work etc.

In order to strengthen these interventions, all these institutions must work together for better programmatic outcomes.

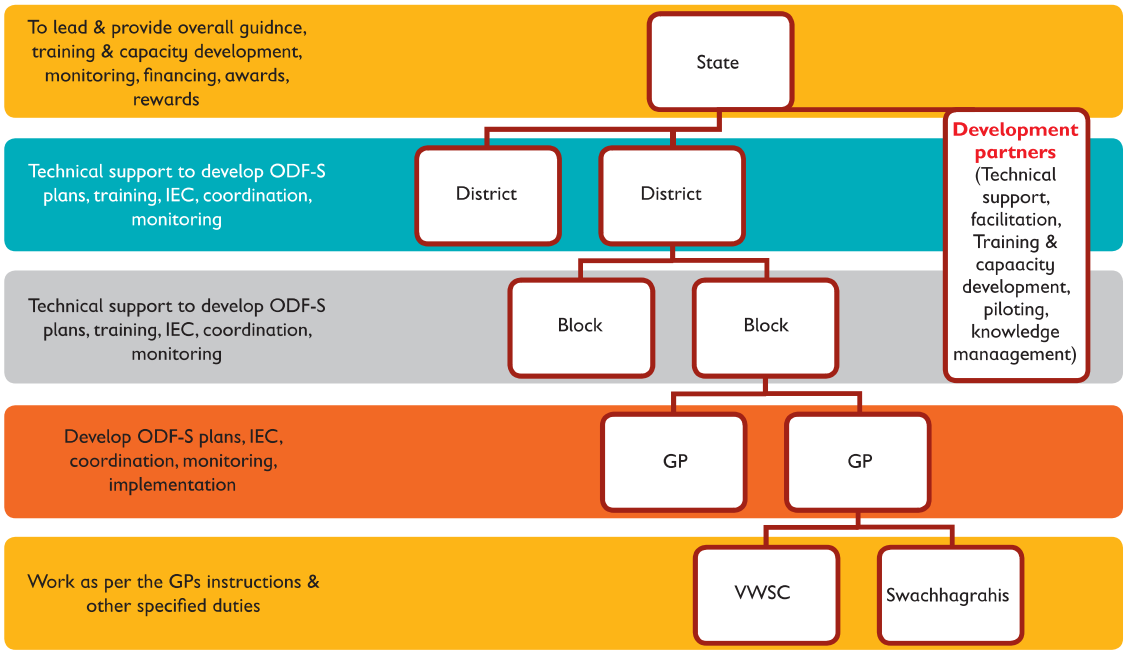


Figure 10: Institutional framework and role of key institutions

Special Role of Swachhagrahis

MDWS defines Swachhagrahis, or village level motivators, as ground level functionaries who work in each village to ensure that communities achieve ODF and that communities continue to remain ODF. Their role is :

- Reinforce improved behaviours through door-to-door communication
- Create awareness of operation and maintenance of toilets, menstrual hygiene management and handwashing with soap
- Support ODF verifications of their villages
- Facilitate toilet construction for newly formed households and for retrofitting existing toilets for better functionality

Special Role of Development Partners

Development partners can perform a very important role to support the interventions by providing technical support, facilitation and coordination support, Training & capacity development, piloting, knowledge management. Coordination and managing the support that can be mobilised from CSR and other financing and technical institutions can be effectively mobilised with the support from development partners.

Financing Sources for ODF-S Interventions

ODF interventions require large financial resources. Various possible innovative financing options need to be explored to meet the requirement. Possible source of finance can include the following

- Households invest their own funds to improve the facilities
- MGNREGA
- 14th Finance Commission funds
- SBM
- World Bank incentive grants
- Grants from Central Government including MDWS and other line departments

- Finance / Grants from State Government
- CSR
- Credit linkage with micro finance institutions, banks for possible support

These possible sources should be identified well in advance while developing the ODF-S plan at the State level.

Operationalising ODF Sustainability

Districts and GPs are the units of planning and implementing various interventions. Plan at each of these levels is required to ensure that the interventions are well thought, inclusive and participatory. Accordingly, ODF-S plans at district and GPs level is a must. Other support mechanisms to implement, build capacities, design and deliver IEC and communication and behaviour change interventions, monitoring and management must be in place to ensure effective implementation of ODF - S.

ODF Sustainability Action Plan

Action plan for each district and each GPs must be developed after adequate consultation and field visits. Considering the institutional roles, responsibilities, capacities, possibilities; a district level and GPs level action plan must be developed with clearly identifying interventions,

- ODF Sustainability Action Plan for each District
- ODF Sustainability Action plan for each GP

The ODF sustainability plan must be developed considering the following factors:

- Mandatory ODF verification: ODF verification must be done before developing the ODF-S plan so that the gaps are identified and ODF status is known
- First verification must be carried out within 3 months of a village declaring itself ODF
- Second verification must be carried out within 6 months of the first verification
- No. of new toilets required with name of the head of the household
- Household wise retrofitting needs
- Specific retrofitting needs for dysfunctional toilets and for toilet with faulty designs. This may include provision of additional leach pit, soak pit for septic tanks or any other smaller and larger interventions that potentially impact safe disposal of excreta
- Measures to improve water availability at household level
- Training and capacity building for the GP, block , districts and other stakeholders.
- IEC and awareness activities to be carried out
- Monitoring needs and key monitoring indicators at GP, Block and district level
- Fund requirements for each of the identified activities
- Sources of funds including convergence with other schemes and programmes, mobilising CSR

All the activities and interventions as given in the following Table 1, must be assessed and analysed and must form part of the District and GPs ODF - S plan.

Awards and Incentives	No	Finance	Source of Finance	Responsibiity
i. ODF - S Plan (District/GP) *				
ii. No of target GPs/ Households*				
iii. New toilets needs				
iv. Toilets that needs retrofitting (specify retrofitting needs)				
v. IEC and awareness activities				
vi. Training and capacity development activities				
vii. Monitoring provisions				
viii. Awards and incentives				

* select as appropriate

Time frame, Components of ODF - S Plan

One year time frame, as given in the following figure 11, should be fixed for the project completion (including pre planning, Planning, approval and implementation). However, management, monitoring are a life time processes.

One week	One month	6 - 8 months	Continuous	Continuous	Monthly, quarterly and annual
Pre-Planning	**Developing ODF - S Plan**	**Implemen-tation**	**Management**	**Monitoring, Learning**	**Awards and Incentive**
Preparatory activities including selection of GPs, constitution of teams and committees, training & capacity building, IEC and awareness	• District ODF - S • GP ODF - S	• New toilets • Retrofitting of existing toilets • IEC, Awareness, Training, capacity building	• Provison for operation and maintanance	• Monitoring system • Monitoring visits	• Criterions for awards & incentives • Best perfomation Districts, GPs, Officers, elected representatives, swachhgrahis, others

Figure 11: Time frame, components of ODF - S Interventions

Solid and Liquid Resource Management - Strategy

Solid and Liquid Resource Management interventions broadly include solid waste, liquid waste and feacal sludge management. There are other supporting elements/ components as given below, which form key to the successful planning and implementation of SLRM interventions

SLRM - Components

- Solid Waste Management
- Liquid Waste Management
- Feacal Sludge Management
- Health and Hygiene
- Technology
- Awareness (Need for communication strategy & tools)
- Capacities, Institutional issues, Financing (including CSR, Convergence of resources), Stakeholders
- Management & monitoring
- Awards, rewards and incentives

Current Practices

Assessment of the practices, issues and challenges related to solid and liquid waste management, indicates an interesting scenario in the state. Broad categories of waste, both solid and liquid, are depicted in the Figure 12. The practices, situation, issues, gaps and challenges of the waste types are described in the following section.

A typical farming household

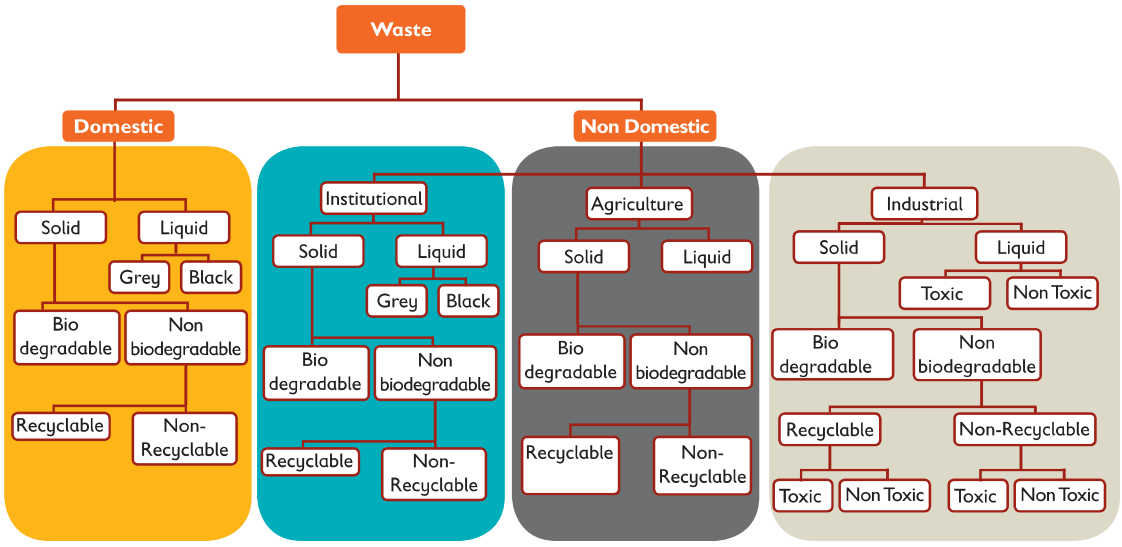
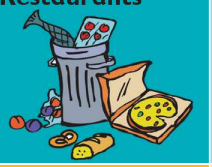


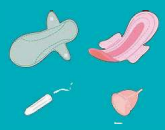
Figure 12: Waste categorization

Solid Waste

Solid waste can be broadly categorised as 'dry' and 'wet' based on their physical characteristics. However, categorisation based on its origin / or source of generation seem to be an appropriate way to manage it appropriately. Accordingly, it has been classified; and prevailing practices in Uttarakhand have been elaborated in the following table.

Table 2: Waste Types and Current Practices in the State

Waste Type	Key Features, Practices
Kitchen Waste	Mainly contains biodegradable waste such as vegetable and fruit waste, leftover food waste, paper, polythene, etc. In rural Uttarakhand, where cattle domestication is common in large proportion of households, most households feed kitchen waste directly to the cattles, minimizing large proportion of kitchen waste. However, small proportion of kitchen waste still finds its way into the open dumps around.
Road Sweeping Waste	Road sweeping is carried out mainly by the households themselves, at some occasions by the Gram Panchayat. It mainly contains soil and silt. This waste type finds its way to common open dumping points around.
Drain Cleaning	Drains, particularly, in plain areas are often filled with solid waste, silt and stones, when cleaned, normally are dumped into a common dumping areas around the villages.
Institutional Waste	This category of waste mainly contains dry waste such as paper, polythene, food waste, plastic waste, thermocol, etc. Resource value of some of the dry waste types has been recognised. However, a large quantities of non recyclable waste and smaller proportion of recyclable waste is either dumped along the hill slopes or burnt.
Waste from Markets, Shops, Hotels, and Restaurants 	Depending upon the type of markets, shops, size of hotels and restaurants, it largely constitutes food and vegetable waste, dry waste such as paper, polythene, plastic, e-waste, garden and horticulture waste. In case of vegetable markets large quantities of biodegradable waste is generated. Waste from markets and shops along the roads and highways is either dumped along the hill slopes or burnt in open. Storage of dry waste is carried out in most instances; but due to lack of collection system and market linkage, it is disposed unscientifically.
Construction and Demolition Waste	Construction or renovation also contributes to various wastes such as broken brick, stones, soil, sand, cement, wood, tiles, packaging material, etc. is generated in large quantities. It is often used by the households for secondary purposes such as filling low lying areas, etc
Agriculture Residue	Mainly organic crop remains. Variety and large quantity of agriculture residue is generated in every village due to engagement of large number of population in agriculture as profession and source of livelihood. Though, in practice, the residue generated after different processes are mostly used for different purposes including cattle feed, fuel, etc.

Waste Type	Key Features, Practices
Cattle Waste Including Dung	Cattle dung is traditionally valued much for its different applications such as use as manure in agriculture fields, as fuel after converting to cakes, for floor coating in the households, etc. Therefore, it is already considered and used as a resource; but there lies a problem in the way it is stored during most of the year before its usage, causing pollution of water and agriculture fields.
Garden and Horticulture Waste	Number of horticulture activities takes place across the rural areas and few gardens areas at households and institutional areas exist. Plant and tree waste is type of waste generated from these sources.
Temples	Flowers, paper, polythene, cloth, thread
Biomedical Waste(Health Centre and Households)	Hazardous body tissues, cotton, cloth, syringe, medicine, etc and non-hazardous waste such as food waste, paper, polythene. Such waste is generated at health centres and even household level. Though managing Bio medical waste is not the responsibility of the Gram Panchayat, but the respective health centre and the line department. But since the bio medical waste can also be generated within households in some cases, it important that if the institutions involved in bio medical waste management also gives considerations to developing a channel to collect such waste from all possible sources and also build capacities of the concerned Gram Panchayat to be able to differentiate between bio medical waste and other types of waste and channelize such waste appropriately.
Electronic Waste	All types of orphaned and unused electronic products. Though the quantity of electronic waste generated in the villages is not much now but with the growing penetration of electronic products into rural market, this category of waste is growing day by day. Therefore, it is appropriate to channelize this category of waste to the collection centres in cities and avoid its indiscriminate disposal.
Slaughter Waste	Waste from Chicken and mutton markets, which often finds its way into open dumps within villages creating nuisance
Sanitary Waste 	Sanitary napkins, diapers, condoms. During the menstrual period, majority of the women use cloth and some, especially the young girls use napkins available in the market. The used material often is burnt, finds its way into the drains thus disposing off it in the most unfair manner. Institutions such as schools have started using incinerator for disposing the used material, which also is not a sustainable practice due to design and technical constraints.
Battery Waste	There are smaller markets, garages within the rural set up that generate scrap batteries from vehicles and other power back up needs such as commercial and households lighting needs. These batteries often find buy back arrangement at retailer and dealer level. It should be mandated to channelize all such batteries and its peripherals to be collected at dismantling centres, which are normally located within cities and towns.
Industrial Waste	Often many villages have industrial areas adjoining them which may impact waste characters within the villages. Efforts should be made to ensure that no industrial waste is mixed in any event with the village waste. It is the responsibility of the Industries to manage such waste. Gram Panchayat can however monitor for compliance by industries.
The amount of solid waste generated from households per capita per day ranges approximately from 50 grams to 150 gram; with the average of 100 gram per capita per day . This excludes agriculture and cattle waste. Thus, the total quantity of solid waste generated in rural Uttarakhand is estimated around 725 tons per day; of which over 70% is biodegradable and less than 30 % includes dry waste.	

Key Issues and Challenges

- Major proportion of biodegradable kitchen waste fed to cattle
- Increasing dry waste generation all over the State
- Dry waste burning very common and rampant all over
- No collection system and market linkages of dry waste even for the new interventions
- Dry waste dumping all along the hills; near habitations, along shops, markers and hotels
- Weak source segregation
- Cattle waste storage is not hygienic
- Low capacities and weak staff support
- Low awareness levels
- New interventions do not address all the issues and problems faced
- Lack of technical knowledge and information on different aspects
- Indiscriminate dumping contributing a bit towards pollution of rivers
- NADEP and other composting methods being promoted at household level
- All cattle sheds outside the villages with proper facilities is the unique feature found in Ganeshpura village in Uttarkashi district
- Hazardous waste, electronic waste such glass pieces, discarded household appliances, metal waste, bottle lids, thermocol, electronic waste, broken toys, household bio medical waste, fertilizer and pesticide bottles, other chemicals such as pest control by products, etc have no system for collection, management and are disposed indiscriminately

Bins for wet waste where households have no cattle

Using bins for storage

Open dumping and burning of dry waste

Inappropriate use of technologies

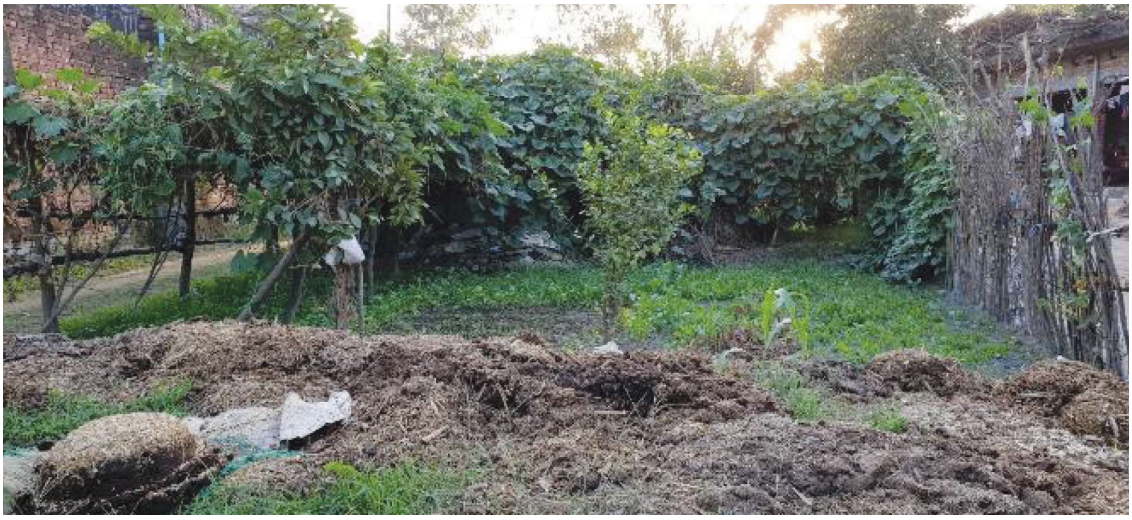
Technology interventions without forward linkages

Faulty designs

Liquid Waste

Liquid waste is broadly categorized as grey water and black water depending on source of its generation. Whatever is generated from bathroom, kitchen and cloth washing falls under the category of grey water and waste water which is generated from the toilets is categorized as Black water. Practices related to grey water disposal and management, suggests that:

- Inadequate infrastructure; particularly in plains, peri urban villages
- Waste water stagnation common in plains; leading to breeding ground for vectors
- Faecal contamination of grey water and even water sources
- Filthy and unhygienic drains
- No provision of O & M for the infrastructure created
- Kitchen garden one of the most popular grey water use and disposal options already being practiced particularly in hilly areas
- Villages along the rivers are cautious and aware about the river water contamination and taking initiates to arrest direct disposal into rivers
- Soak pits have been constructed under SBM as one of the most popular intervention
- Markets, shops and hotels dispose grey water in open – plains face water stagnation problem due to this practice; hilly areas however tend to easily run off grey water downhill
- Convergence with MGNEREGA practically possible



Kitchen garden as accepted and scalable good practice

Faecal Sludge Management

Large proportions of toilets have septic tanks as excreta disposal mechanism. In order to function to the best of its efficiency, septic tanks need to be of recommended standards and require emptying once in 3-4 years depending on usage and load. But any such system of emptying does not exist and people do not realise its need as the tank is never filled due to various reasons such as continuous outflow into drains. This is more relevant in plains. Faulty designs make the task even more difficult. Even in the event the tank is emptied with the help of emptier vehicle and in most of the cases the septage is disposed indiscriminately.

- Septic tank leakage is a common unattended problem in plains
- General lack of knowledge, information and awareness about need and importance of emptying the septic tanks
- Faulty designs with no facility of effluent treatment
- Septic tank emptier vehicles not available
- Contamination of open drains and water source is common

Other Key Challenges, Gaps

- Interdepartmental coordination is lacking; eg Panchayati Raj and Swajal and other department such as rural development, and agriculture
- Fragile institutions due to uncertainty about the Swajal contractual staff at State and district level
- No local level advance planning leading to delay in access to finance from other schemes (MGNEREG, Agriculture)
- Limited understanding about ODF Sustainability and SLRM
- Low awareness among community about seriousness of plastic burning and such other issues
- No uniformity in CSR engagements and interventions across the State and low confidence level among CSRs to invest and partner due to low technical capacities to bring and mobilise good projects
- Very difficult to reach areas and terrain making the task expensive and difficult due to inflation in transportation cost of construction material.
- Weakening, demoralized and inadequate staff, para-professionals across the State. No staff support at GP level to make such a large programme making it as one of the biggest programme void
- Weak institutional support system at State, district, block and even GP
- Lack of strong and reliable linkage with informal sector such as scrap dealers, scrap merchant, rag pickers and other waste collectors

- No clarity on market linkages and financial gains
- People in general lack information, awareness and knowledge about solid and liquid waste management and ODF sustainability
- Resource value of waste not clearly appreciated and understood by the communities though some type of "waste" such as cow dung is already considered and used a resource traditionally

Women SHGs- a strong and reliable force to institutionalise

Sustainability Framework - Solid Waste Management

Considering the experiences from the sanitation programme on sustainability it is imperative to include the following

- Sustainability of solid Waste management interventions shall depend on adopting the most basic practices and technologies that suit to the needs of the communities and follow traditional practices.
- In addition to considering practice of all possible options at generation level, then moving towards the next levels to extract maximum resource value from waste. Thus minimizing waste generation and avoiding the need for a landfill can lead to sustainable interventions.
- Other key factors including engagement of stakeholders such as Local bodies, NGO/ CBO, Private/ CSR, Informal sector, Donor and creation of enabling environment considering Technical, Socio cultural, Financial, Institutional, Environmental, Policy/ legal factor would ensure that Sustainability of the SWM interventions are maintained.

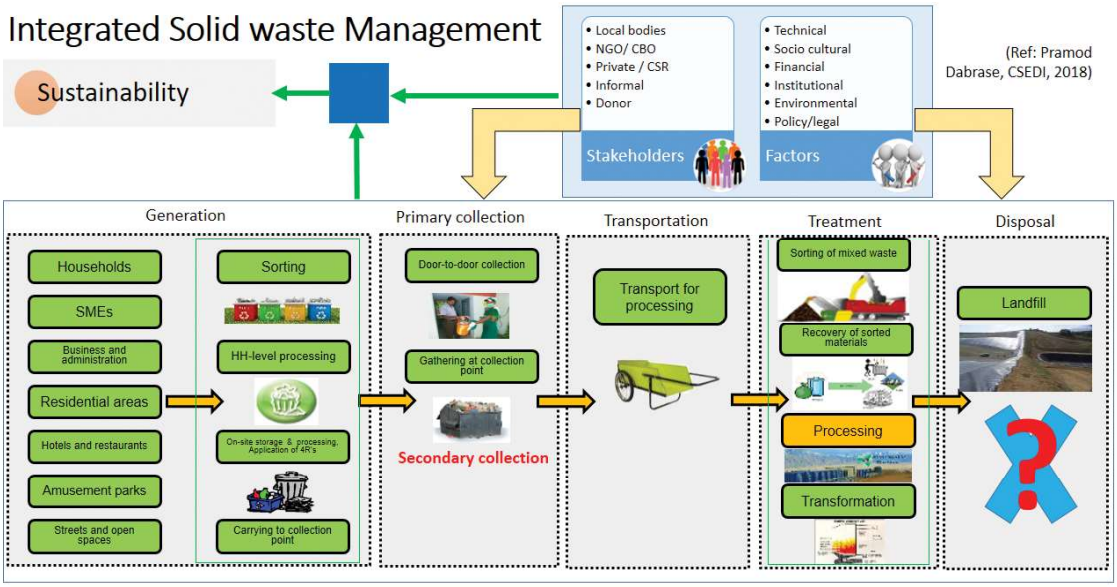


Figure 13: Framework for Sustainable SWM interventions

Sustainability Framework - Liquid Waste Management

- Sustainability of liquid waste interventions can be ensured if all potential factors that cause pollution of water sources are addressed appropriately.
- Effluent from the toilets have to be treated onsite or off site so that they don't mix with nearby drains
- Grey water from bathing, kitchen, cloth washing, etc can be tapped and treated locally and used for kitchen gardening or disposed into soak pits
- Black water from toilets should be managed in such a way that they don't mix with either grey water or other water sources
- Large quantities of storm water that is generated during rainy days should be made to flow in such a way that it does not mix with grey water or black water and thus avoiding its contamination. Storm water should also be protected from any kind of industrial pollution
- Framework for all sanitation interventions is given in figure 14, which also depicts sustainability framework for liquid waste management.

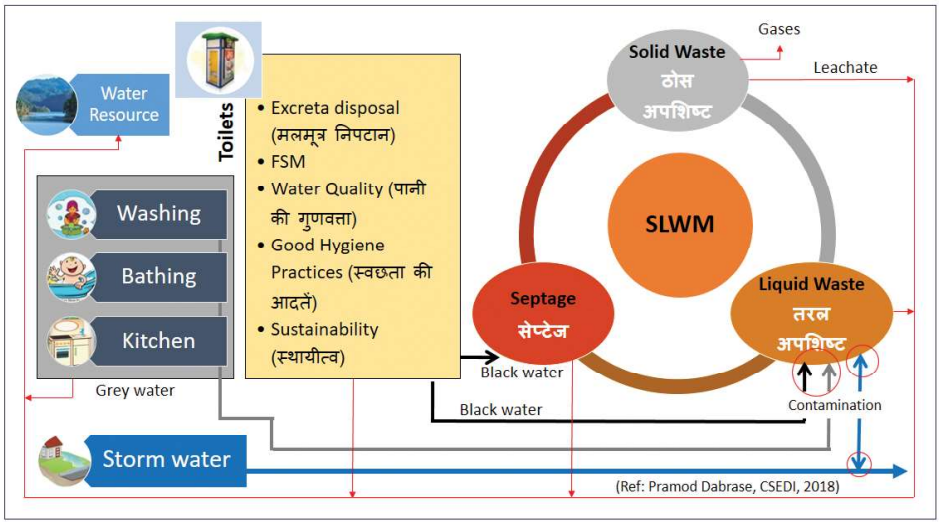


Figure 14: Sustainability framework for all sanitation interventions

Approaches And Principles

Some of the common principles and approaches remain common to all situations and scenarios irrespective of changing terrains/ conditions, waste quantities/ types, institutional set up, etc. These principles and approaches are expected to emulates the principles such as Demand generation, Awareness creation, Strengthening of Institutions, subsidiarity, economy of scale, and priority to health so that the best possible options considering the real community needs and requirements, best suited levels of interventions and the most economically viable options are considered for implementation.

Principle 1: Create Demand, Create Awareness & Strengthen Institutions

Demand is considered as a key to success of the interventions. Unless there is a real demand from the citizens, the interventions cannot be imposed upon them. And if imposed the results are expected to be dissatisfying. Therefore, before pushing the SLRM interventions, it is necessary that adequate care is taken to ensure that demand for SLRM exists. To ensure this a demand driven approach must be adopted. The selection of GPs should be accordingly prioritized.

Different Information, education and communication (IEC) tools, methods and practices should be used to sensitize and mobilize community, create awareness, impart knowledge, develop right attitude and impart skills that are required for success of all elements of a project such as planning, implementation, operation and maintenance, monitoring. IEC tools can create enabling environment necessary for success of the SLRM interventions and are required in different mix at different stages of the project cycle. Awareness creation forms basic elements of the IEC. An "aware" community can support the programme more proactively, but awareness creation itself is not sufficient to make them act, participate and support the interventions at expected level. Knowledge is another basic element of the IEC, which has to be imparted to the stakeholders/ citizens so that they understand more about the sanitation related challenges and develop positive attitude towards addressing the problem. The positive attitude makes the stakeholders/ citizens acquire skills that are essential to be part of the programme.

IEC of Swatchh Bharat Abhiyan in Uttarakhand

Principle 2: Subsidiarity

The Subsidiarity principle is the most effective way to adopt the most relevant and suitable solutions to the SLRM problems. The principle suggests that the solutions to SLRM should start at household level and then go upward to neighborhood, ward, village, GP and so on. This principle advocates for intervention level that are easy to manage, cost effective and simple.

- If this principle is adopted, community involvement and role at household level becomes the most important. For instance Household level segregation of paper, cardboard, metal, plastic, cloth, glass, etc.
- Community/ Village/ GP: Collection Centres, Processing Centre, Centralized Recycling unit, product making industry included.
- Similarly interventions such a soak pit, kitchen garden can be taken up at household level.

- If the principle is applied to the best of its abilities the cost of public services (capital expenditure as well as operational expenditure) can be reduced considerably.

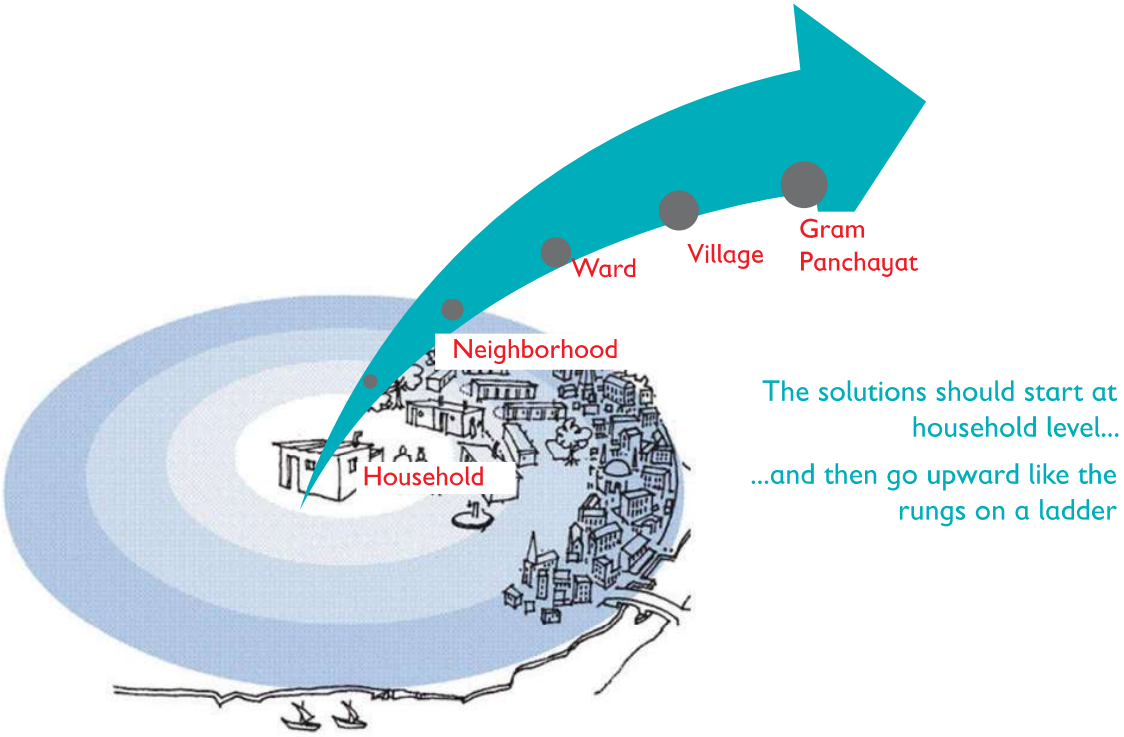


Figure 15: Principle of subsidiarity

Principle 3: Economy of Scale

This principle is based on the fact that scale of intervention can make lot of economic sense and accordingly, if the interventions are taken up jointly for more than one village or more than one GP then the per capita cost of intervention can be reduced substantially. To reach to the decision of the type of intervention however one has to do least cost analysis, consider all other possibility such as application of subsidiarity principle, etc. For example, if the household level interventions are not possible for processing of biodegradable waste by means of composting, it will make economic sense to take up a larger project either at Village level or GP level rather than mohalla or ward level. Both these principles (subsidiarity and economy of scale) go together very well, where few interventions are best suited at household level where as other are more suited at higher level. Segregation is carried out at household level, collection centres established at community / village / GP level and recycling units or product making industry is established at city level, can create the best model for dry waste management.

Solid Waste Management

Source segregation

- Source segregation must be mandatory for all generators of waste
- Source segregation of solid waste into four categories – wet (biodegrdable), dry (recyclable), domestic hazardous waste and sanitary waste - is the most important and critical need for easy and effective solid waste management. Refer figure 16
- Source segregation would enable household to easily compost biodegrdable fraction and sell dry fractions into the market or hand over to the local waste picker or storage for collection by some mechanism that may be established by the GP

– Basic
- Dry / non biodegradable / recyclable
- Wet / biodegradable / compostable

– Recommended
- Dry / non biodegradable / recyclable
- Wet / biodegradable / compostable
- Domestic hazardous waste
- Sanitary waste / diapers

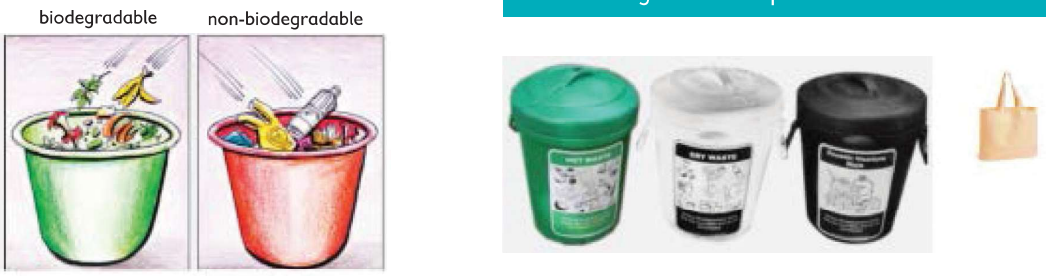


Figure 16: Options and categorisation for source segregation

Adopt 4R principels – Refuse, Reduce, Reuse and Recycle

The principles of Refuse, Reduce, Reuse, Recycle can be the most effective way to manage solid waste, as they help in reducing quantities of waste generated, reduce cost of handing the waste, minimise unnecessary burden on the environment and there lies an opportunity to use waste as a resource. Some of the quick possible option are given in the Figure 17. However, there are other locally suitable possibilities that must also be tried.

These Principles should from key to waste management and related provisions and enforcements must be made to make it happen.

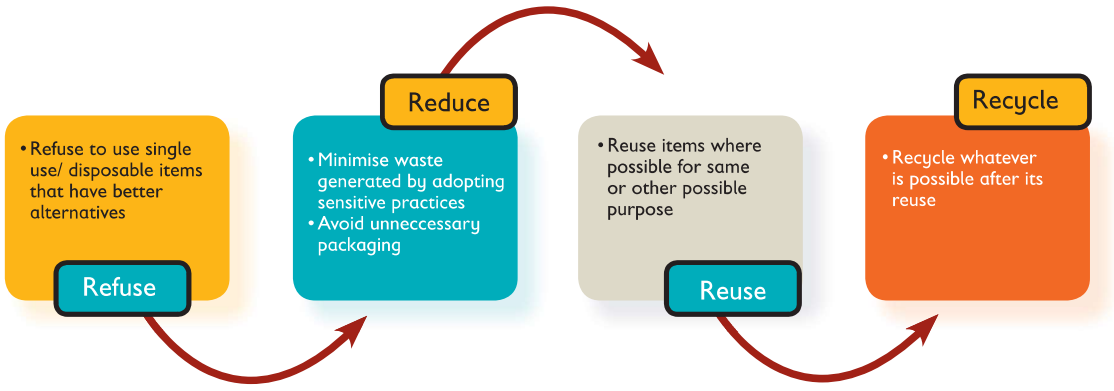


Figure 17: Application and possibility of 4R principles – Refuse, Reduce, reuse, recycle

Management of Dry Waste

- Promote "mini dry waste storage depots' for temporary storage of dry waste at village level with a mandatory provision of households depositing segregated dry waste. One depot per 150 households, with a provision of fortnight collection by waste pickers engaged/ identified specifically for this purpose.
- Resource recovery centres – only at large cluster level (group of about 10 GPs depending on feasibility) – with collection and processing upwards – engage waste collectors, scrap dealers
- Linkage with processing/ recycling facility or to the large scrap dealer for final sustainable use/ conversion, etc

Management of Dry Waste

- Completely ban open burning of dry waste/ plastics
- Penalty provision by GPs
- Periodic monitoring by inter GP teams
- Random check by block and district officials
- Special notifications to all shops/ hotels/ institutions/ markets to properly store dry waste and hand over to the waste pickers periodically (fortnightly)

Management of Biodegradable Waste

- Make generator of biodegradable waste responsible for its processing at generation level (eg. Households, hotels, etc) itself
- Most preferred – feed biodegradable kitchen waste to cattle.
- Deposit other biodegradable waste such as ash, etc in the facility created for dung processing and management or create a separate basic composting facility
- Incentivize generation level processing
- Use compost to promote organic farming
- Sale of additional compost to nearby farmers
- District to facilitate match making and finding market

Safe management of Cattle Dung

- Provision of "cattle sheds" outside the residential areas with a provision of storage and processing of dung left over agriculture residues – may be support under MGNEREGA, Agriculture department, GOBARDHAN and such other schemes
- Large scale promotion of NADEP for storage and processing of cattle dung & left over agriculture residues – support under agriculture department, MGNEREGA and other relevant programmes
- Basic protection walls using locally/easily available low cost material for storage of dung hygienically

Management of Plastic waste

- Communication campaign to educate citizens about important dimensions of plastic waste – focus of useful and damaging types of plastics, health impacts, alternate options
- Mandatory source segregation of plastic waste
- Discontinue usage of poly bags to deposit and dump kitchen waste
- Strictly ban any sort of open and unscientific burning of plastic waste
- Mobilize and build capacities of the rag pickers, waste collectors, retailers, vendors and all other stakeholders involved in solid waste management in and around villages and towns
- Encourage entrepreneurs/ SHGs to undertake collection and market linkage of the plastic waste to higher up deposition centres, recyclers
- Establish/ facilitate accessible, basic, low cost / no cost storage facilities to deposit plastic waste at village level
- Strongly discourage and penalize use of plastic cutlery, poly bags
- Mobilize, partner with the manufacturers, CSR groups to develop plastics waste management system
- Encourage use of alternate options wherever possible and make it integral part of plastic waste management programme
- Identify recyclers having valid registration, facilitate establishment of processing and manufacturing units at higher levels considering their economic and location feasibility

- Revise local bye laws to make appropriate provisions for effective implementation of plastic waste along with other waste
- Popularize Extended Producers Responsibility (EPR) model for effective implementation of the plastic waste management
- Monitor compliance of usage of polybags and other plastics

Management of Sanitary Waste

- Simple options such as soiling the materials may be effective in hilly areas. Precautions need to be taken to ensure that the soiled material does not come out before if can be disinfected and degraded.
- Considering sanitary waste as bio medical waste and clubbing it with the existing bio medical waste collection, transportation and treatment system. This can be the most effective way to deal with sanitary waste where bio medical waste management system is developed and accessible
- Facilities for storage, at household level, followed by collection and deposition at a common point so that the bio medical waste collection vehicle can take it, should be developed
- Coordination with health centres, services providers, contractual arrangements, provision of nominal fees for collection may be arranged by the GP with active support from district and State authorities

Biomedical Waste Management

- Though the biomedical waste management does not directly fall under the responsibility of GPs, it is advised to ensure that biomedical waste is managed properly by the all public health centres
- GPs should ensure that biomedical waste is not mixed with other waste types
- District and State should issue appropriate orders and instructions for effective management of biomedical waste as per the Biomedical Waste Management rule 2016

Plastics - Stakeholders and Responsibility

- Generator
  - Source segregate, Reduce waste generation/ avoid use
  - Pay users fee
- SHGs/ Entrepreneurs/ Rag pickers/ Waste collectors
  - Collection & transportation to storage & recycles or higher level as a local business opportunity
- Retailors/ vendors
  - Not sell / provide carry bags/ plastic sheet/ multilayered packaging,
- Producers, Importers & Brand Owners
  - Establish system for collection based on EPR through own distribution channel/ through GP
  - Collection of used multi-layered plastic sachet, pouches, packaging
- Manufacturers of compostable plastic
  - Ensure degree of disintegration of plastic material as per Indian Standards protocol
- Gram Panchayat
  - Set up, operationalize waste management, create awareness, ban open burning
  - Ensure segregation, collection, storage, transportation, channelization of recyclables waste to recyclers
- District authority
  - Liaison & technical support to GP from State & other agencies - Identify/ facilitate establishing collection / recycling at higher levels - Overall monitoring, supervision and ensure implementation
- State Pollution Control Board & Pollution Control Committee
  - Enforce provisions of rules

Enabling Policy Decisions - Green protocol

- Adopt the green protocol to eradicate unsustainable waste management practices all over the State
  - Discourage the 'disposable' culture
  - Promote use of sustainable alternate options

- All government promoted institutions, guest houses, hotels, schools, offices to stop using 'disposable' items during meetings, conferences, events
- Install water filter & storage machines in all offices
- Promote use of reusable bottle, glass, plates, etc
- In extreme cases, private events – make the organizer responsible for proper storage and hand over of such waste to the identified waste picker at cost

Enabling Policy decisions - effective use of EPR

- Make effective use of EPR
- Collaborate with the companies promoting / manufacturing products to develop GP waste management plan
- Collaborate with the companies in sustainable implementation of the waste management plan
- Make companies answerable in case of failure
- Penalty provision on companies in case of failure to meet the commitments

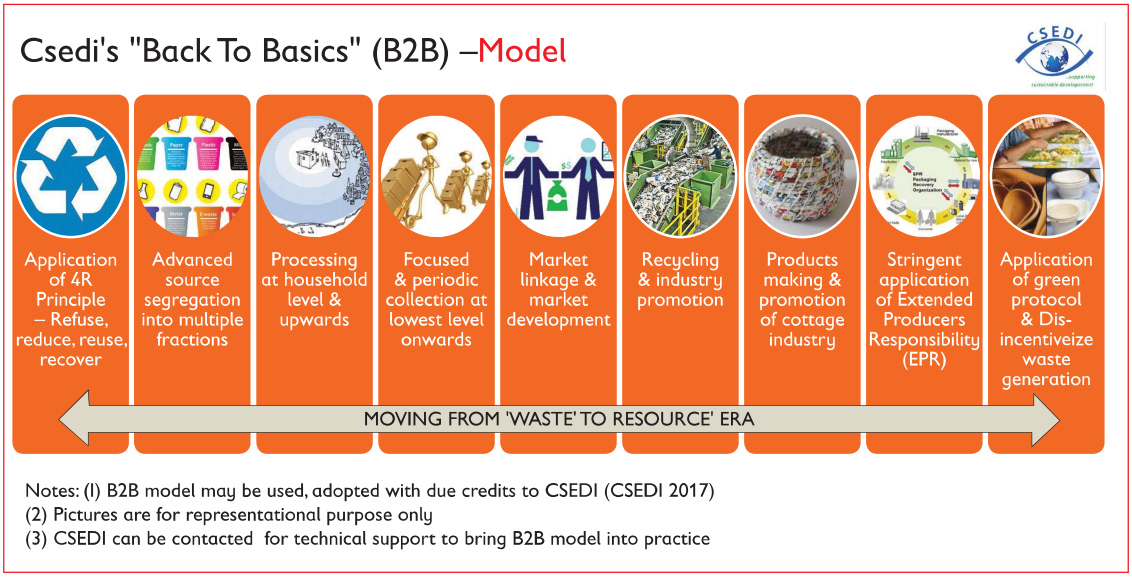
Enabling Policy decisions

- Adopt CSEDI's "Back to Basics" model for SWM

Mere technological interventions are not adequate to evolve sustainable solutions to the complex waste management problems that we face. Technology is just one of the elements of the complete waste management system in addition to other equally important elements. Real sustainable solutions to this complex and multi-dimensional problem often lies in the most basic actions and steps.

CSEDI's Back to Basics model brings all key elements of waste management together including application of key principles of refuse, reduce, reuse and recycling, need & importance of advanced levels of segregation at source, application of principles of subsidiarity for processing & collection, market linkages & market development, recycling & industry promotion, products making & promotion of cottage industry, stringent application of Extended Produces Responsibility (EPR) & Green protocol.

Application of CSEDI'S B2B MODEL in totality can take us from 'waste' to 'resource' era and thereby reaching to 'near zero waste scenario' and minimizing negative impacts of waste on health and environment and helping strengthening economy directly and indirectly. Various elements of the model are depicted in the following figure 18.



Notes: (I) B2B model may be used, adopted with due credits to CSEDI (CSEDI 2017)
(2) Pictures are for representational purpose only
(3) CSEDI can be contacted for technical support to bring B2B model into practice

Figure 18: CSEDI's Back to Basic Model

Liquid Waste Management

- Make household level / generation level treatment of liquid waste mandatory (kitchen garden, agriculture use, followed by soak pit most suitable)
- Incentivize (finance) generation level treatment
- Possibility of centralized treatment of grey water in plains

Retrofitting of Existing SLRM Interventions

- SLRM interventions which have already been taken up but are faulty or inadequate, may be considered for upgradation.
- This may include repair of drainage, soak pits, compost pits, segregation centre, treatment units etc
- A management plan may be developed to assess actual retrofitting needs

Governance

- Strengthen convergence between Panchayati Raj and Swajal – make single agency responsible
- Strengthen staff engagement at all levels
- Advance planning for next year in coordination with line department/s to ensure timely release of funds for pre identified interventions as envisaged in the DPR/ Action plans
- Training and capacity building of all key stakeholders including elected representatives
- Thematic campaigns and awareness raising
- Make CSR engagement more effective and useful:
  - Create or facilitate creation of a "State level CSR platform" for facilitating, technical support, proposal writing, match making, etc

Plain Versus Hilly – Features, Special Needs

- Increased cost of hardware interventions is one the most important factor for hilly areas against plains – financial allocation therefore has to be adequately allocated for hilly areas special needs
- Households level interventions must be given highest priority and may even be made mandatory for processing of biodegradable waste, source segregation, disposal of waste water.
- Collection of dry waste from the storage depos/ resource recovery centre may be on once a fortnight or once in a month basis to avoid additional cost of collections and transportation
- Need of FSM in hilly areas may be completely eliminated by encouraging leach pit type of toilets
- Villages along rivers
- Stringent monitoring mechanism must be established to avoid any solid or liquid waste disposal in rivers
- Interventions and investments must match to the needs and requirements – accordingly additional finances may be provided by the State Government
- All villages and other establishments along the rivers and streams must achieve zero waste discharge into these water bodies. Such a certification may be made mandatory for GPs for availing incentives and new programmes or this may be even linked with their next installments depending on the actual field scenario

Interdepartmental Coordination and Contribution

Steps and necessary condition for Interdepartmental Coordination and Contribution given in figure 7 is recommended.

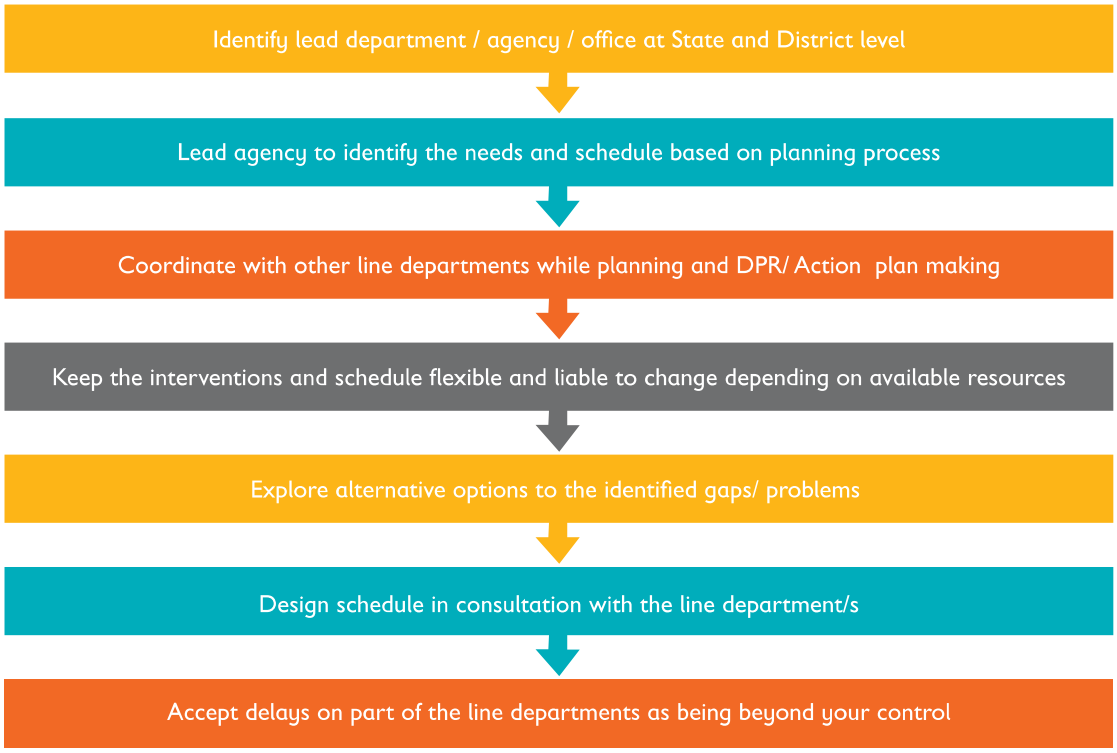


Figure 19: Steps and necessary condition for Interdepartmental Coordination and Contribution

Each of the following line department must be involved and their support must be mandated in the activities that are related ODF sustainability and SLRM interventions and fall under their scope that may, but not restricted to, include the following.

Department of Drinking Water and Sanitation – SWAJAL

- Lead all the interventions related to ODF sustainability and SLRM including coordination with other line departments, CSRs, policy making, etc

Department of Panchayati Raj

- Support and collaborate with Swajal in every possible activities and interventions
- Channelize related programs and schemes at lower level jointly or in coordination with Swajal
- Support in advance planning at GPs level and accordingly make appropriate financial provision and availability in time
- Appoint one person per village for operation and maintenance of SLRM, ODF-S and water supply related support works on a long term basis

Dept. of Rural Development

- Support and collaborate with Swajal in every possible activities and interventions
- Channelize related programs and schemes at lower level jointly or in coordination with Swajal
- Support in advance planning at GPs level and accordingly make appropriate financial provision and availability in time
- Plan, implement, manage and monitor SLRM interventions in coordination with Swajal;
- Ensure timely release of funds under MGNEREGA
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions
- Implement green protocol in all institutions

Directorate of Health

- Establish and strengthen biomedical waste collection and transportation system across

the rural Uttarakhand. This may be carried out by the system existing in urban areas. Time schedule, route chart or such similar instructions may be given to the cluster of GP where, dry waste collection centres are located, so that domestic biomedical waste can be collected

- Ensure that the biomedical waste collected is processed and disposed in the most scientific manner
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all health centres and institutions
- Implement green protocol in all institutions

Department of Agriculture

- Coordinate, support and communicate with the Swajal on the possible list of SLRM interventions that may be supported in a given year
- Share in advance with Swajal or plan together the activities that support SLRM interventions
- Promote and support separate cattle sheds away from residential areas and allocate financial assistance as possible
- Make well informed decisions to the Swajal
- Encourage biogas linked toilets in plains and finance the same
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions
- Implement green protocol in all institutions

Tourism

- Make provision of ODF sustainability and SLRM interventions mandatory in all tourist destination including hotels, restaurants, resorts, offices and institution
- Financially support special interventions in hotels, restaurants, resorts, markets, offices and institution along the highways along tourist destinations
- Support in outreach of communication campaigns
- Implement green protocol in all institutions

Uttarakhand Renewable Energy Development Agency (UREDA)

- Coordinate with SWAJAL on possible waste to energy type of projects that can be taken up together and individually - Refused Derived Fuel (RDF) type of projects may be supported by UREDA
- Advance and informed planning in coordination with Swajal for better and effective resource allocation and utilization
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions
- Implement green protocol in all institutions

Department of Education

- Include elements of ODF Sustainability in the school curriculum
- Include elements of Solid and Liquid Waste Management in the school curriculum
- Ensure that the school curriculum has a practical demonstration and usage component well integrated, where children gets opportunity to use, operate and maintain the facilities
- Undertake training and capacity building programme for all teachers and staff across the state
- Make all schools and affiliated institutions complaint with elements of ODF-S and SLRM
- Establish mini collection centres in each school for dry waste collection - with compartments for non-recyclable plastics, polythene, paper, etc
- Ensure that each school and Aanganwadi has a provision for composting of Biodegradables within its premises
- Ensure that each school has proper hand washing stations with a provision of kitchen garden or soak pits as a grey water treatment mechanism
- Ensure that each school has a staff deputed especially for ODF-S, SLRM and Water related operational issues
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions
- Implement green protocol in all institutions

Department of Animal Husbandry

- Make manure/ compost making more effective and productive by ensuing its better storage, management
- Support in creating separate 'cattle shed' outside residential villages and thereby encourage collective cattle farming and related livelihood options
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions
- Implement green protocol in all institutions

Forest Department

- Encourage water to energy type of project such as RDF, Bio methanation, where possible to reduce consumption of trees
- Financial support villages falling under forest areas
- Provide appropriate permissions for undertaking ODF sustainability and SLRM interventions
- Delink provision of sanitation and SLRM with land tenure
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions
- Implement green protocol in all institutions

Rural Works Department

- Ensure that all construction work undertaken by the department has adequate provision of toilets, SLRM intervention
- Ensure that roads constructed under the department has proper provision of drains
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions
- Implement green protocol in all institutions

Jal Sansthan

- Ensure that all construction work undertaken by the department has adequate provision of toilets, SLRM intervention
- Promote messages to conserve water and use it judiciously
- Promote usage of grey water for kitchen gardening, soak pits for recharging
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all Public offices and institutions
- Implement green protocol in all institutions

Uttarakhand Rural Roads Development Agency (URRDA)

- Ensure that roads constructed under the department has proper provision of drains
- Ensure that ODF sustainability and SLRM interventions are effectively planned and implemented in all institutions

Implement green protocol in all institutions

Operationalizing Solid and Liquid Resource Management Interventions

Steps to Plan, Implement, Manage and Monitor

GP SLRM DPR/ Action Plan

Planning is the key requirements for DPR preparation and sustainable implementation. All required data, information for DPR making such as existing situation, practices, issues, challenges and possible solutions, etc. should be collected during the planning process.

Planning process should focus on collection information related to solid waste, liquid waste and septage. Additionally, information related governance aspects, institutional issues, stakeholders, financial issues; etc. should also be collected during planning. This would form backbone to DPR making, implementation as well as management of SLRM interventions at GP level.

Separate plan for each village should be prepared and consolidated at GP level as DPR. District should ensure support from all relevant institutions at Block, District, Division and State. Support from government, non-government organisations, private agencies and individuals also may be considered for preparing such plans.

A schematic representation depicting stages in planning and DPR making, implementation, management and monitoring is given in Figure 20. Detailed disruption about each of these steps is given in Annexure 1. DPR Format is given in Annexure 2.

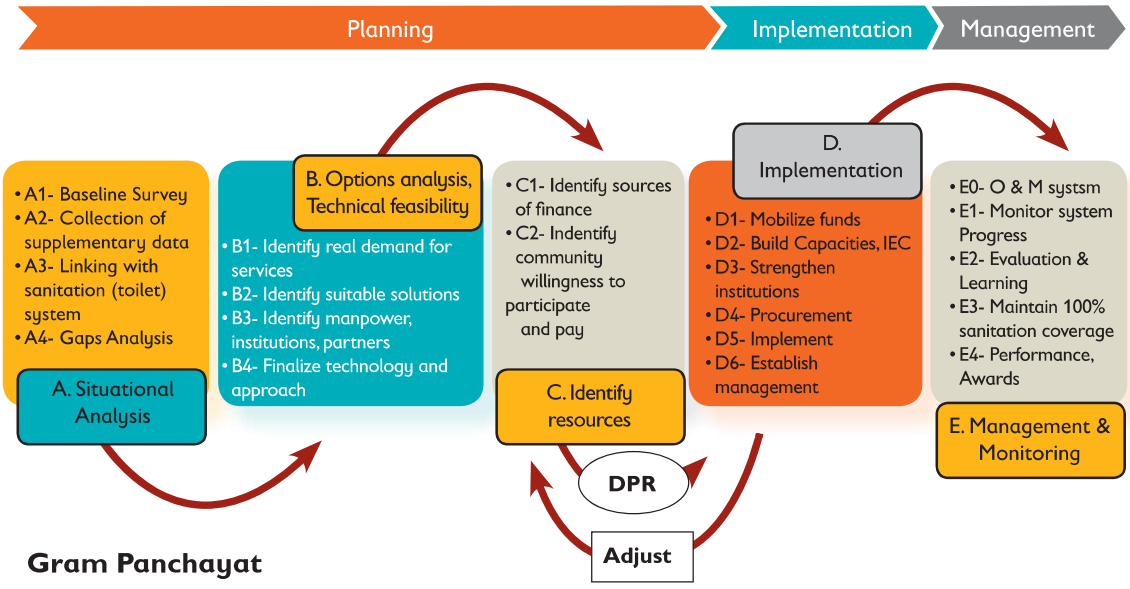


Figure 20: Schematic flow of processes for planning & DPR making at GP level

Before initiating planning, clarity on the following must be ensured:

- Decision on GP inclusion- reasons, willingness of the GP, prevailing demand, etc.
- Preparatory meeting with District/ block team, to ensure that appropriate support is extended
- Awareness among about SLRM so that communities extend support while planning and DPR making
- Informing / orientating GP population about the surveys

Technology Interventions

Technology interventions can only help if the planning and implementation approach is right and if most suitable and cost effective technology is selected after careful considerations. This section presents initial list of technologies suitable for rural areas of Uttarakhand. These technologies are described in the document 1) "Technical Options for Solid and Liquid Waste Management in Rural Areas" (MDWS, March 2013 and 2) A report on workshop on SLRM, New Delhi) in more detail.

Technologies – Solid Waste Management

Refuse-derived fuel

Refuse-derived fuel (RDF) or solid recovered fuel / specified recovered fuel (SRF) is a fuel produced by shredding and dehydrating solid waste with a Waste converter technology. RDF consists largely of combustible components of municipal waste such as plastics and biodegradable waste.

Composting

Composting is process to convert organic biodegradable waste into compost and it is one of the most common and easy options available. Some common technologies include:

- Earthen Pot
- Pile Composting
- Windrow Composting
- Rotary Drum Composting
- NADEP method
- Vermi-composting

NADEP a popular technology intervention across rural Uttarakhand

Biogas

Biogas is another very common and traditional practice to convert biodegradable waste into fuel. Variety of biogas models are available in the market. Other than the traditional models, three more models are suggested:

- ARTI Biogas
- Nisargruna Biogas
- Toilet Linked Biogas

Table 3: Technology Option and the Suitability

Technology	Typical waste feed	Scale / level	Geographies
Earthen Pot Composting	Kitchen waste & small quantity other biowaste	Micro scale, Individual Households	All
Pile Composting	Garden waste, crop residue, kitchen waste	Small to medium scale, households, community level, farm, temples, institutions	All
NADEP Method	Crop residue, kitchen waste, cattle waste	Small to medium scale, households, community level, farm, temples, market	All
Vermi-Composting	Kitchen waste, garden waste, crop residue	Small to medium scale, households, community level, farm, temples, market	All, except too low temperature areas
Windrow Composting	Crop residue, kitchen waste, cattle waste	Medium to large scale, community level, centralized	All, large GPs, centralized
Rotary Drum Composting	Kitchen waste, garden waste	Small scale, temples, hotels, markets	All areas
Modified Portable Composting	Crop residue, kitchen waste	Small to medium scale, Community level, farm, markets	All
Thermophilic Composting	Crop residue, kitchen waste	Small, medium to large scale, Centralized, Community level	Hilly and low temperature areas
ARTI Biogas	Kitchen waste	Micro scale, Household, community, institutions	All type, works best in sunny areas
Toilet Linked Biogas Plant	Cattle waste, human excreta	Small to medium scale, Household, community, institutions	All, more suitable in plains
Nisargruna Biogas	Kitchen waste, cattle waste, slaughterhouse waste	Small, medium to large, community, centralized	All, even hilly/ low temperature areas. Large GPs, centralized
Conventional Biogas	Cattle waste/ dung	Small, medium, household, Community, centralized (mainly cattle waste)	Plains

Technologies for Grey Water Management

Number of options including the most simple to bit complex, as given below; are available depending on need, suitability and availability of space and willingness:

- Soak pit
- Leach pit
- Kitchen garden
- Three tank filtration
- Open/surface grey water drainage
- Closed drains (small bore system)
- Simplified sewer

Technologies for Grey Water Management

Household level NADEP composting

Options for Decentralized Treatment of Wastewater

These options are more technical and relatively capital intensive. They are require waste water to be conveyed to a common point, thus inviting additional finances for conveyance system. Since most the recommended technologies (see below) are based on the natural principles, O & M cost of these options is relatively low.

- Sullage stabilisation pond
- Duckweed treatment in connection to aquaculture (fisheries)
- Root zone treatment system or Constructed wetland
- Aerobic treatment (decentralized – DEWATS)
- Anaerobic treatment (decentralized – DEWATS)
- Soil Biotechnology (SBT)

Options for Faecal Sludge Treatment

Septage management system in a capital intensive option and it requires emptier vehicle, pumping machineries and disposal facilities. Such options may therefore be planned in collaboration at higher level, say at block level or city level. Cities located around may already have some such mechanism in place. It is best suitable to use these services on call basis. Alternatively, cluster of GPs may come together to establish such a facility depending on number of septic tanks to be served. Septage management system mainly include a) collection and transportation and b) treatment facilities as given below.

Tabel: 4 Technologies for Faecal Sludge treatment

Technology	Details
Septage stabilization ponds	One /more series of different types of ponds. Usually first pond is anaerobic pond, second is facultative pond, followed by maturation ponds
Biogas reactors	Septage - great source of biogas, very high in organic matter releases methane upon anaerobic digestion
Composting	Stabilization of organic material through aerobic, thermophilic decomposition. Resulting humus-like material suitable as soil conditioner, source of nitrogen and phosphorus.
Lime stabilization	Hydrated lime (calcium hydroxide) is added to septage to form a product that can be disposed of on land for use as fertilizer
Drying beds	Planted or unplanted - sealed shallow ponds filled with several drainage layers- designed for separation of solid from liquid fraction.
Unplanted Drying Beds	Sludge dried naturally by combination of percolation & evaporation.

As per standards, every septic tank should be emptied after every three to five years period. Depending on number of septic tanks to be emptied every day / month, such system may be planned and established. Vacuum emptier vehicle can carry load from 2 to 5 septic tanks depending on size of the septic tanks and capacity of the emptier vehicle (which can range from 1500 to 10000 litre).

Tabel: 5 Options for Collection and Transportation

Collection and Transportation	Description
1. **Vacuum tankers/ truck**	• Motorised vehicle equipped with pump and storage tank. • Pump connected to hose • Emptied into constructed tank or pit.
2. **Small pumping units**	• Motorised or not- vehicle equipped with a pump and a storage tank. • Pump connected to hose • Emptied into constructed tank or pit.
3. **Manual**	• Some pits can be emptied manually, eg. Decomposed and dried twin pit system.

Time Frame and Implementation Plan

As discussed in the preceding sections and the corresponding Annexure, various activities are expected to be carried out to plan and implement ODF-S and SLRM interventions.

A time frame of one year, as given in the following Table, may be fixed for the project completion (including pre planning, Planning & DPR making, approval and implementation). However, management, monitoring are life time (of the intervention) activities.

One week	One month	6 - 8 months	Continuous	Continuous	Monthly, quarterly and annual
Pre-Planning	**Planning & DPR making**	**Implementation**	**Management**	**Monitoring, Learning**	**Awards and Incentive**
Preparatory activities including selection of GPs, constitution of teams and commitees, training & capacity building, IEC and awareness	• District SLRM consolidated plan • GP SLRM Action plan	• SLRM intervention as per the action plan	• Provision for operation, maintenance and management	• Monitoring system • Monitoring visits	• Criterions for awards & incentives • Best performation Districts, GPs, Officers, elected representatives, swachhgrahis, others

Figure 21: Timeframe for SLRM planning and implementation

Key Actions and Preparations

In order to adopt a planned approach, the State should ensure that the necessary sector strengthening is undertaken at all governance levels so that the enabling environment is created for effective interventions. Accordingly, the following preparatory actions are recommended:

Institutional Strengthening

a) Strengthening the State, district and block level teams by identifying individuals/ staff from among the existing members or by appointing new consultant/s.

b) At least one person at each level may be made available exclusively for ODF-S and SLRM in addition to other existing pool of resources and technical staff

c) Create "pool of resource persons" across the State by carefully identifying their training and capacity building skills from across the State – a small team at each districts may be made available to support provision of overall technical guidance to the district team

d) Potential agencies, NGOs, educational institutes may be mobilized/ identified / nurtured so that they can be helpful in providing technical assistance as required

e) Capacities of VWSC may be appropriately built and their role may be institutionalize for effective planning, implementation, management and monitoring of SLRM interventions

Training and Capacity Building

a) Conduct State level "training of trainers" for the resource persons from across all the districts to strengthen capacities of the stakeholders involved at different levels

b) Conduct district level trainings with the focus on GP level SLRM planning, DPR making and implementation

c) Organize exposure visits to good practices in different state across the country

d) Maintain pool of resource team at all the districts

e) Capacity building of Media

IEC Campaign and Community Mobilization

a) State-wide IEC campaign may be launched by undertaking activities to popularize needs, importance of ODF-S and SLRM and to draw their attention to the principles.

b) Bring paradigm change in mindset by considering "Waste management" as a "Resource Management" opportunity; for biodegradable and non-biodegradable waste types

c) Broader level involvement of key stakeholder such as small industries, schools, colleges, universities, entrepreneurs, kabadiwalas, rag pickers, youths, SHGs and other institutions

d) Media sensitization

Stakeholder Involvement & Community Engagements

a) All the concerned stakeholders such as CBOs, NGOs, small business organizations and entrepreneurs, scrap collectors and dealers, SHGs, youth groups, industries, CSR organizations, chamber of commerce and industries, private sector, educational institutions, etc should be involved depending on their role at appropriate stage of planning and implementation

b) Constructive engagement of development partners and like minded organizations

c) Community engagement at all levels of planning, implementation, management and monitoring is the key to success of the programme, therefore, they have to be integral part of the entire SLRM intervention.

d) All decision at different stages of planning, implementation, management and monitoring should be taken after adequately consulting the community members

e) IEC strategy should ensure that the community capacities and understanding about the need and importance of SLRM is adequately built so that they perform their role effectively and also proactively support in SLRM interventions

Market Linkages and Business Opportunities

a) Database of existing industries should be made available to all districts/GPs.

b) Mechanism should be established for market linkage and marketing waste products and by products.

c) Regular trade fair and facilitation meetings / workshops may be organized to enable networking among buyers and sellers

d) Recycling industries may be promoted through different innovative methods by encouraging youth enterprises, small industries

Integrate ODF-S and SLRM with Sanitation and CSR Initiatives

a) Integrate ODF-S and SLRM interventions with sanitation activities (eg septic tanks and liquid waste management, water quality issues)

b) Integrate SLRM interventions with CSR initiatives to mobilize financial and technical resources

c) Establish a State level CSR liasoning platform to facilitate, to provide technical guidance, proposal preparation, match making, funds management and any other guidance in this regard; so that CSR funds and effectively utilized

d) Issue specific guidelines to the district administration specifying possibilities of convergence of funds for capital and operational expenditure

e) Create a platform for CSR groups at State and district level to interact and contribute effectively

Need Based Convergence with Other Schemes/ Programmes and Departments

a) Instructions from the respective Ministry/ department may be issued as a strategy for convergence of financial resources

b) Interdepartmental coordination committee at State and district level to facilitate easy convergences and advance decision making

c) Mechanism to ensure timely fund flow

Undertake Pilot Projects

a) Initiate pilot projects in at least five GPs per district in different geographies & topographic areas so that each district has good experiences to learn from within the district /State

b) Adopt and nurture some of the potential pilot projects as learning labs

Financial Provision for O&M

a) Clear instructions may be issued to the GPs to make provision of O & M funds through user fee as a key source of finance. The same may be included in the GP bye laws

b) Other sources of funds, finance commission fund, etc may be appropriately used and instructions should be issued to the GPs/ districts

c) State may also consider supporting the GPs with partial financial support for first three years of the project

d) Possibility of penalty provision, in case of noncompliance may be suggested to the GPs and such directives should be issued by the State Government

Financial Provision for Preparing DPRs

a) Appropriate financial provision to meet cost of planning and DPR making may be made at GP / district level by the State Government

b) Upto 6% of the total project cost may be reserved for planning, DPR making,

supervison, quality control and contingency. Provision of the same shall be included in the DPR

Provision for Research and Development

a) Identify and strengthen a State level centre for R & D on SLRM and as a knowledge repository for all technological and O & M options

b) Better performing GPs may be used Labs as R&D centres

c) Someone from the existing team members at State and district levels may be made in-charge of all such innovative approaches and efforts

Addressing Issues Related to Land Requirement

a) Land needs may be legalize through acts/ bye laws

b) Land tenure may also be delinked from the service provision so that in spite of the land ownerships concerns the projects may be undertaken

Implementing agency, Mechanism

a) GP shall be considered as unit of planning and implementation.

b) A cluster approach may be adopted (where more than one GPs can come together) for planning and implementation, as per needs and requirements. A cluster level joint committee may be constituted for better coordination

c) VWSC/ UWSSC may be the leading institution for planning, implementation, management and monitoring

d) DWSC / DWSM shall be the final approving authority

e) A pool of technical agencies including experts and consultants, technical universities, consulting firms, NGOs with sector expertise, should be empanelled and the list of such agencies may be made available to different districts.

f) Being a new subject area and limitation to find many such expert agencies, efforts may be made to jointly plan and implement the programme with mix of such agencies and individual experts.

g) For the sake of convenient planning, implementation and management an open and flexible approach may be adopted so that more agencies and individuals come forward to support the intervention.

h) External agencies may be taken on board for planning, DPR making, facilitation, awareness, technical support, monitoring and supervisor.

Self sustaining household in hilly areas

Recommended Reading

a) Guidelines on ODF sustainability, MDWS, 2018

b) Guidelines for Swachh Bharat Mission (Gramin) (English) (07/01/2015)

c) Solid Waste Management Rules 2016

d) Plastic Waste Management Rules 2016

e) Guidelines for Solid Waste Management for Uttarakhand 2018

f) Guidelines on solid and liquid waste management (SLRM), MDWS, GOI, 2014

g) Handbook: Scaling up Solid and Liquid Waste Management in Rural Areas, GOI-WSP, 2012

h) Technical Note on Solid and Liquid Waste Management in Rural Areas, DDWS-GOI-UNICEF, 2008.

i) Primers on Solid and Liquid Waste Management in Rural Areas by MDWS, GOI

j) Technological Options for Solid and Liquid Waste Management in Rural Areas, Ministry of Drinking Water and Sanitation Swachh Bharat Mission (Gramin) Government of India, April 2015

Process for Planning, Surveys, DPR Making (SLRM)

Situational Analysis

A situational analysis to understand the existing situation, not just in relation to SLRM, but also covering wider aspects of toilet coverage and the situation of SLRM and sanitation in institutional and public settings. Understand water supply scenarios for effective planning for waste water is also necessary. Since most GPs already have data related to toilet coverage, type of toilets in use, disposal mechanisms, etc; this data should be considered while planning for liquid waste and septage management. The situational analysis can include the following;

A1- Baseline Survey

A baseline survey to assess the existing solid and liquid waste situation in the GP is to be conducted by collecting the necessary information from all secondary sources and primary sources as may be required for all aspects related to solid waste, liquid waste, septage in all properties including households, schools, Aanganwadi, Panchayat office and any other institutions such as temples, marriage hall, etc. This should broadly include-

- Demographic details
- Socio, cultural and gender aspects,
- Availability and access to physical infrastructure
- Condition and adequacy of the infrastructure
- Retrofitting needs for the existing SLRM intervention
- Existing service levels, approaches and methods
- Financial conditions – including sources, availability, aspects related to user fee collection, taxes., etc
- Existing O&M system including community practices
- Geography and geological features
- Role and responsibilities of different stakeholders
- Awareness levels, etc.
- Willingness to pay and participate

Since SBM is being already implemented, it is expected that most of the socio economic and toilet related information is available in the GPs.

A2- Collection of supplementary data

Once a baseline survey is completed, additional supplementary data as given below shall be collected

- Data related to toilet coverage, disposal type with focus of number of households with septic tanks and their effluent disposal
- Availability of landfill site nearby
- Information related to rag pickers and kabadiwala including their visit frequency, material they collect, rates offered for different items
- Market linkage possibility including road connectivity, nearby towns, cities, entrepreneurs and business potential, etc
- Existing market linkages for solid waste
- Possibilities for recycling, processing of solid waste
- Possibility of usage of treated waste water, etc.
- Existing treatment facilities nearby which could be accessed
- Role of Private player in the sector, if any

A3- Establish links with the existing sanitation system

Exiting sanitation systems such as excreta treatment practices, possible contamination due to faulty designs and disposal of effluents from toilets into drains and water sources, etc need to be assessed and linked with the SLRM so that a comprehensive and complete sanitation

system can be planned. Toilet systems has a direct links with liquid waste management and septage management, a clear understanding of the existing scenario would make the planning process more effective.

Mapping tools (manual or IT based such as GIS based maps) where possible may be used for better planning and implementation.

A4- Gaps Analysis (Expert team at block level/ district level/ external agency to support)-

Once a baseline survey is completed and additional data is collected and appropriate links with all aspects of sanitation are made a gap analysis exercise should be conducted to understand gaps in the existing SLRM system specifically and the sanitation system more generally. Community consultations at all appropriate stages are mandatory for understanding real gaps.

Options analysis, Technical feasibility (Expert team at block level/ district level/ external agency to support);

B1- Identify real demand for services-

community consultation may be carried out to understand the real demand for facilities and services so that interventions can be framed accordingly. Once a situational analysis is completed a series of consultations with different stakeholders may be planned to work out different options for managing SLRM effectively. Options analysis should be broad based and should look for options related to

- Governance
- Options for methods, approaches and service provision
- Technology options
- Options for meeting financial requirements
- Options for recovery of O & M expenses
- Options for monitoring
- Options for achieving sustainability

The best suitable and preferred option may be assessed for technical feasibility and then may be adopted.

B2- Identify suitable solutions

technology, approaches, methods, management models, preferences, etc. should be selected based on local needs, conditions. Suitability and acceptance. Best suited solution may be suggested.

B3- Identify manpower, institutions, and partners

in order to plan and implement SLRM interventions appropriate skilled manpower, institutions and partners along with specific and clear roles they are expected to play has to be identified. If there is a lack of capacity at any level, suitable measures to bridge the capacity gap must also be specified. Since many interventions require not just local solutions but also external support and links, technology etc. appropriate partner/s and institutions have to be identified for possible collaboration and linkages. State, Division and District should support GPs in identifying such institutions and partners and GPs may take a final decision that suits their needs.

B4- Finalize technology and approach

based on the outcomes of the situational analysis and technology and options analysis, appropriate technologies, methods and approaches should be finalized in consultation with all key stakeholders. Communities shall be well aware of the final plan and its components and the role they are expected to play including user fees and other contributions and the type of facilities and services they are expected to get.

Identify resources (Expert team at block level/ district level/ external agency to support);

C1- Identify sources of finance–

all possible sources of finance including Government grants, GPs own funds, user charges, possible contributions by private parties (if any), funds that may be mobilized from different schemes and programmes such as MGNREGA, NRLM, etc, income from possible business opportunities, possibility of

employment generation potential, etc have to be clearly specified. Brief analysis of income versus expenditure may be carried out to ensure that the system suggested is affordable and sustainable.

C2- Identify community willingness to participate and pay for services– it is important to understand how the community responds to proposed interventions and plans. Therefore, their willingness to participate and pay for services should be assessed in order to choose appropriate options, design user fee structures and to adjust finances accordingly. It will be more appropriate to engage the community at the beginning of the planning phase and make the plan more community centred so that they take ownership of and participate in the programme as though it is their own programme. At the same time, the interest of other stakeholders such as local youth groups who may be engaged in providing certain services, private operators etc. must also be identified and encouraged to participate.

DPR for GP SLRM– DPR should be prepared by following all the steps described in the above section, covering all aspects of sanitation including toilets at all levels (households, institutions, and community and public places) liquid waste, septage, hygiene and solid waste management. Each of the elements has to be appropriately covered. Other aspects such as institutional aspects, technology choice, capacity, IEC, governance, management, etc. should also be appropriately covered. The template given in Annexure 3, should be used for DPR making.

Once the DPR is prepared, it has to be submitted for technical and administrative approvals as per the prevailing rules. Once the DPR is approved implementation as discussed in the following section may be initiated.

Implementation

D1- Mobilize funds – finances have to be arranged well in advance at the time of implementation. A realistic financial plan with income and expenditure statements should be prepared. In case of user fees, a collection system should be established to ensure timely and effective collection. A special provision must be made for operation and maintenance of the facilities and for appropriate service provision. Finance Commission grant, user fee, special allocations by State or National Government may also be considered. But whatever the source of funds, they must be assured and reliable.

D2- Procurement– all identified goods and services have to be procured appropriately. Depending on the financial limit of a GP, appropriate levels of interventions/ approvals must be sought. As far as possible locally available technologies and materials should be preferred.

D3- Strengthen Institutions – institutional capacities in terms of appropriate and adequate manpower, their skills, infrastructure available, etc. have to be strengthened for effective implementation. It is possible that strengths of other schemes and programmes are mobilized to strengthen the institutional capacities. Programmes such as NRLM and MGNREGA may be effectively converged for this purpose.

D4- Build Capacities, IEC– staff capacity at all levels must be built for effective programme implementation. At the same time different IEC tools must be used to generate awareness amongst all stakeholders.

D5- Implement – once all essential parameters are in place, implementation may be initiated as per the action plan. Various activities may be implemented by identifying different technical implementers and service providers by following the norms and rules already laid out.

Management & Monitoring

E1- Monitoring the system Progress – for effective programme implementation and service delivery, regular monitoring mechanisms must be in place. Community monitoring mechanisms may also be explored. Tools such as a customer's complaints and a complaint redressal system may also be established as

required. Some minimum expected service levels may be defined in order to measure the levels of services received against the expected service levels and standards.

E2- Evaluation & Learning – periodic evaluation is necessary to ensure that the programme is meeting expected objectives. Based on the Learning from periodic monitoring and evaluations, adjustments may be made to the plan as required. Such adjustments have to be undertaken after the necessary approval, consultations and feasibility have been established. It is expected that any such adjustment is updated in the original SLRM plan. Therefore, the SLRM plan may be a dynamic document which can be revised as and when required and can be updated from time to time.

E3- Maintain 100% sanitation and SLRM coverage – it is important to achieve 100% sanitation and SLRM coverage to achieve health, economic and environmental benefits and to ensure sustainability of the system.. Appropriate provisions must be made to expand levels of services in future to ensure that population growth and village expansion and similar factors are taken into consideration.

E4- Performance, Awards – Achievements and performance may be compared with other better performing GPs which keeps the competition going and provides an impetus to improve performance. GPs should always aim to win State and National level awards to keep themselves updated and perform better. However, winning awards need not be the top objective; service provision to all citizens has to be the top priority.

State and District authorities may provide technical support and guidance while planning and preparing the DPR, in implementing and in managing the interventions. Similarly, stringent monitoring mechanisms may be practiced at Block, District and State level for ensuring sustainable outcomes.

Annexures

SLRM DPR (Action Plan) Format

ठोस एवं तरल अपशिष्ट प्रबन्धन
ग्राम पंचायत हेतु विस्तृत परियोजना विवरण
डी.पी.आर. प्रारूप

ग्राम पंचायत का नाम	:
विकासखण्ड का नाम	:
जनपद	:
कुल परियोजना लागत	:
नाम, पता सम्पर्क अधिकारी	:

ग्राम पंचायत हेतु ठोस एवं तरल अपशिष्ट प्रबन्धन विस्तृत परियोजना

अ. परियोजना का सार

सम्पूर्ण परियोजना का सार संक्षिप्त (दो या तीन पेज से अधिक न हो) में लिखें, जिसमे सम्पूर्ण परियोजना क्या है, चयनित ग्राम पंचायत की जानकारी, ठोस एवं तरल अपशिष्ट मौजूदा स्थिति व प्रस्तावित कार्य,प्रचार–प्रसार, प्रशिक्षण,संस्था सक्षमीकरण व्यवस्था, संचालन और प्रबन्धन व्यवस्था,निगरानी एवं मूल्यांकन व्यवस्था ,प्रोत्साहन/पुरस्कार व्यवस्था, परियोजना का वित्तीय विवरण, वित्त के स्रोत आदि का संक्षिप्त विवरण हो।

आ. योजना का परिचय

परियोजना का परिचय संक्षिप्त एक से दो पेज में लिखें।

इ. योजना का लक्ष्य

परियोजना का लक्ष्य (एक से कम पेज) में लिखें

ई. ग्राम पंचायत के चुनने का कारण

ग्राम पंचायत को ठोस एवं तरल अपशिष्ट प्रबन्धन हेतु चुनने का कारण लिखें

उ. ग्राम पंचायत की सामान्य जानकारी

ग्राम पंचायत की सामान्य जानकारी प्रपत्र–1 के अनुसार लिखे (जानकारी प्रपत्र–1 में दिये गये विन्दुओं से अधिक भी लिखी जा सकती है।

ऊ. परियोजना का तकनीकी विवरण–वर्तमान/मौजूदा स्थिति–

ग्राम पंचायत में ठोस एवं तरल अपशिष्ट की वर्तमान/मौजूदा स्थिति का आंकलन संलग्नक–1 के अनुसार करना है। ग्राम पंचायत के सभी घरों, मौहल्लों एवं ग्रामों की स्थिति की पहचान करना अपेक्षित है।

समस्त प्रपत्रों का विश्लेषण कर इस भाग में समेकित विवरण लिखना अपेक्षित है।

- जहां तक हो सके वहां के परिदृष्य को सामुदायिक मानचित्र में भी वर्णित किया जायें एवं मानचित्र डी.पी.आर. के साथ संलग्न किया जाये।
- समस्त मुद्दों से जुडी जानकारी/आंकडे सभी घरों, गांव–गलियों, वार्ड–मौहल्ले,बाजार,दुकानों के लिये अनुबन्ध के रूप में संलग्न किया जानास अनिवार्य है।
- ठोस एवं तरल अपशिष्ट एवं सैप्टेज के सम्बन्ध में ग्राम पंचायत में होने वाले अच्छे तथा खराब कार्यों का उल्लेख करें।

- ग्राम पंचायत के अन्दर वर्तमान में ठोस एवं तरल अपशिष्ट की स्थिति के कतिपय फोटोग्राफ (पूर्व की स्थिति के रूप में) संलग्न किये जाने चाहिये।

(क) वर्तमान/मौजूदा परिदृष्यः ठोस अपशिष्ट

1 (घरों में, गांव में, बाजार/दुकानो में संस्थानों आदि में)

2. सडने वाला/गीला कूड़ा

3. न सडने वाला/सूख कूड़ा

(ख) वर्तमान/मौजूदा परिदृष्यः तरल अपशिष्ट

1 (घरों में, गांव में, बाजार/दुकानो में संस्थानों आदि में)

2. भूरा पानी(ग्रे वाटर)– किचन, बाथरूम, कपडे धोने आदि से से निकलने वाला पानी

3. काला पानी (ब्लेक वाटर) – शौचालय से निकलने वाला पानी/मल जल

(ग) वर्तमान/मौजूदा परिदृष्यः सैप्टेज

1. (घरों में,, बाजार/दुकानो में संस्थानों आदि में)

2. सैप्टेज(जिन घरों में सेप्टिक टैंक हैं, ऐसे घरों में इन्हे खली करने तथा रखरखाव की व्यवस्था)

(घ) वर्तमान/मौजूदा परिदृष्यः अन्य मुद्दे

1. प्रशासनिक व्यवस्था एवं कार्यक्षमता।

2. स्टाफ/कर्मचारियों, अन्य सहयोगी संस्थाओं की उपलब्धता।

3. कर वसूली– सभी

4. पेयजल एवं स्वच्छता उप समिति (यू.डब्ल्यू.एस.एस.सी.)/ग्राम पेयजल एवं स्वच्छता समिति(वी.डब्ल्यू.एस.सी.) की भूमिका एवं स्थिति

5. जन–जागरूकता का स्तर

6. समूदाय की भुगतान इच्छा

7. समुदाय स्तर पर निगरानी तंत्र

8. संचालन एवं रख–रखाव हेतु पंसदीदा प्रभावी तंत्र, यजल एवं स्वच्छता उप समिति (यू.डब्ल्यू.एस.एस.सी.)/ग्राम पेयजल एवं स्वच्छता समिति(वी.डब्ल्यू.एस.सी.),स्वयं सहायता समूह, ठकेदार इत्यापदं

9. प्रभावी संचालन एवं रखरखाव हेतु वित्त के समीावित स्रोतः स्वच्छता कर, मासिक शुल्क, पंचायत निधि, सी.एस.आर. इत्यादि

ए. परियोजना का तकनीकी विवरण –प्रस्तावित प्राविधान/गतिविधियां

मार्गदर्शन टिप्पणी

- सभी प्रसतावित प्राविधान/गतिविधियां संभवतः **"घर का कचरा घर में और घर का पानी घर में"** तत्थ्य पर आधारित हों, जिसमे यह प्राविधान/गतिविधियां जितनी अधिक से अधिक हो सकें, घर स्तर पर ही लागू की जायें। किसी कारण वश यदि ऐसा सम्भव ना हो तो केवल उन परिस्थितयों में(स्पष्ट करें) में मौहल्ला,गांव,ग्राम पंचायत स्तर पर लागू की जा सकेंगी, सूखे कचरे हेतु बाजार को कैसे जोडा जाना प्रस्तावित है, इसकी जानकारी प्रदान की जानी चाहिये।
- सभी प्रस्तावित प्राविधान/गतिविधियां/इकाइयों की प्रस्तावित डिजायन,लागत का अनुमान (निर्धारित मानदण्डों के अनुसार) किया जाना चाहिये।
- सभी प्रस्तावित प्राविधान/गतिविधियां/इकाइयों का स्थान, घरों, गांव–गलियों, वार्ड–मोहल्लों, बाजार, दुकानों की सूची संलग्न करनी चाहिये।
- सभी प्रस्तावित प्राविधान/गतिविधियां/इकाइयों (इस योजना के तहत सहयोग पाने वाले सहयोग ना पाने वाले(जो स्वयं ऐसे प्राविधान/गतिविधियों को करने में सक्षम हैं) की सूची संलग्न करनी चाहिये।
- जहां सम्भव हो वहां प्राविधान/गतिविधियां/इकाइयों का स्थाना सामुदायिक मानचित्र अथवा तकनीकी मानचित्र में भी वर्णित किया जाये।
- इस भाग में घरों,गांव–गलियों,वार्ड–मौहल्ले, बाजार, दुकानों के लिये सभी प्राविधान/गतिविधियों/इकाइयों का समेकित विवरण अपेक्षित है।
- घरों,गांव–गलियों,वार्ड–मौहल्ले, बाजार, दुकानों के लिये किये गये प्राविधान/गतिविधियां/इकाइयों की सूची संलग्न किया जाना अनिवार्य है।

(अ) ठोस अपशिष्ट

- (घरों में, गांव में, बाजार/दुकानो में संस्थानों आदि में)
- सडने वाला/गीला कूड़ा
- न सडने वाला/सूख कूड़ा

(ब) तरल अपशिष्ट

- (घरों में, गांव में, बाजार/दुकानो में संस्थानों आदि में)
- भूरा पानी(ग्रे वाटर)– किचन, बाथरूम, कपडे धोने आदि से से निकलने वाला पानी
- काला पानी (ब्लेक वाटर) – शौचालय से निकलने वाला पानी/मल जल

(स) सैप्टेज

- (घरों में,, बाजार/दुकानो में संस्थानों आदि में)
- सैप्टेज(जिन घरों में सेप्टिक टैंक हैं, ऐसे घरों में इन्हे खली करने तथा रखरखाव की व्यवस्था)

(स) अन्य

- प्रचार–प्रसार, प्रशिक्षण, संस्था सक्षमीकरण व्यवस्था
- प्रस्तावित संचालन एवं रखरखाव व्यवस्था
- प्रस्तावित निगरानी एवं अनुश्रवण–मूल्यांकन व्यवस्था
- प्रस्तावित प्रोत्साहन/पुरस्कार व्यवस्था (अच्छा प्रदर्शन करने वाले घर–परिवार, मौहल्ला,वार्ड आदि के लिये)

ऐ. परियोजना का वित्तीय विवरण

(अ) कुल परियोजना लागत

- इकाईयों की संख्या, प्रति इकाई लागत
- प्रचार–प्रसार
- संचालन और प्रबन्धन
- निगरानी एवं मूल्यांकन

(ब) वित्त के स्रोत

(स) कुल वित्त की स्थिति(आय–व्यय) का विवरण

(द) संलग्न दस्तावेजों की सूची

(य) अनुबन्ध

(र) अन्य

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